RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Another Human Ancestor Steps Out

Tim White wanted a good look at the legs of the oldest known human ancestor, and now it seems that he's going to get his wish. Last fall, after reporting the remarkable discovery of *Australopithecus ramidus*, a 4.4-million-year-old hominid found in Ethiopia, White, a paleontologist at the University of California, Berkeley, and his colleagues Gen Suwa and Berhane Asfaw were faced with a lot of questions. Among the most pressing: Did this creature walk upright on the ground or move around, apelike, on all four limbs? With little but teeth and skull bones to go on, it was hard to say.

Now White and his colleagues may have found clues that could lead to an answer. On 13 January in Ethiopia, they announced that grad student Yohannes Haile Selassie had found a cache of *A. ramidus* bones—including fingers and toes—embedded in rock not far from the site of the first discovery. "Skull, vertebrae, ribs, pelvis, arm, wrist, hand, leg, ankle, foot—all are represented," White says.

"If he's got the phalanges [digits] of hands and feet, he ought to be able to diagnose whether the animal was in a tree or on the ground," says Randy Sussman, an anatomist at the State University of New York, Stony Brook. "The curvature can tell us how powerful or hooklike the grasp was." Curved toes, suited for tree living, might indicate that the creature was not bipedal.

But the toes won't indicate anything right away. Contrary to newspaper reports alleging that the skeleton was nearly complete, the find really consists of 90-odd fragments. "These bones are very fragile, crushed, and still encased in rock matrix and [protected by] plaster jackets," White says. It's going to take months for him and his colleagues to pick them out for study. Only then will scientists be able to discern the shape of a foot—and debate whether that shape is more human or apelike.

NASA

Making eyes in the sky. Spacehab reeling over Baja California.

Heavenly Eyewear?

Dozens of companies have conducted research in space aboard the U.S. space shuttle. But to date, no one has actually manufactured a commercial product there. Now an Arizona company is considering making an advanced new contact lens in the shuttle's microgravity.

Paragon Vision Sciences Corp. of Mesa has asked astronauts aboard the space shuttle Discovery, scheduled for launch on 2 February, to test a new material that is more gas-permeable than the ones used in today's soft contact lenses and therefore less likely to irritate the eyes.

The astronauts will mix together a family of plastics called fluorosilicone acrylites. Meanwhile, an identical set will be mixed together on Earth. The results from both will be compared later back at Paragon's laboratory. Researchers think that the space-based mix will not settle as much as the one made on Earth, thanks to microgravity. That means the lenses would be more stable.

There is still more testing to be done—the February experiment is the second one by Paragon—to determine the extent to which microgravity affects the material. Then the big question will be whether the benefits of space manufacture justify this costly route. Manufacture likely would involve renting lab space aboard Spacehab, which is owned by a private consortium and which courts industrial customers to supplement its use by the National Aeronautics and Space Administration. It costs a customer $1.25 million per flight to book a 2.2-cubic-foot locker.

Paragon officials say that whether the lenses are made in space or on Earth, they hope to be able to introduce the new product by 1998.

Singing the Biotech Blues

Wall Street's love affair with biotechnology has cooled dramatically, chilled by unsuccessful drug trials and the threat of health care reform, according to an investment banker who addressed the 2nd International Conference on Human Gene Therapy held in Washington last month.

Dwindling investment in the once bullish biotech industry will trigger "a wave of bankruptcies and consolidations in the next 18 months to 2 years," said Jeff R. Swarz, a biotech analyst and vice president of the New York bank CS First Boston. He predicted that bankruptcies and mergers will whittle the number of biotech companies in the United States from 265 in 1994 to less than half that number by the end of 1997.

A major factor behind behind Wall Street's disenchantment has been a series of high-profile failures of biotech drugs in clinical trials, said Swarz. For example, Regeneron's CNTF, a drug to treat Lou Gehrig's disease, and Biogen's Hirulog, for blood clots following angioplasty, both bombed in 1994 clinical trials.

The loss of confidence hits the undercapitalized industry where it hurts. According to a 1994 report from the accounting firm Ernst & Young LLP of Palo Alto, California, one half of all biotech companies have less than 2 years' funding in their coffers—far below the 5 to 12 years that's needed to get a drug to the market.

But the picture is not all grim, says Carl Feldbaum, president of the Biotechnology Industry Organization. Biotech companies "are highly innovative not only in their science, but also in their finance strategies," he says, and are now seeking other sources of money—such as foreign investors.

Perils of Freezing Embryos

A study by French researchers of mice raised from frozen embryos suggests that freezing may affect certain aspects of development—and thus raises new questions about possible risks to human babies conceived with artificial reproduction technologies.

The research, conducted at the University of Paris' Bicêtre Hospital and the Centre National de la Recherche Scientifique and published last month in the *Proceedings of the National Academy of Sciences*, indicates that adult mice born from cryopreserved embryos differ significantly from those born from nonfrozen control embryos in several aspects of behavior and morphology.

The most widespread apparent effect is on the shape of the lower jaw, which is controlled by

over 100 genes. These changes did not involve major abnormalities. More problematic were effects that appeared to be linked to sex and genetic makeup. For example, cryopreserved female mice of a particular genotype performed markedly less efficiently on a learning test—the ability to find food that has been presented and then removed from the animal's visual field—compared to nonfrozen controls.

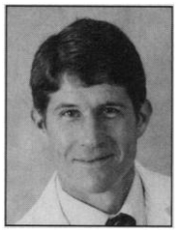
The use of frozen human embryos has become increasingly common in human reproduction clinics, despite reservations by some critics who think the procedure has not been sufficiently tested. Most human studies carried out so far involve short-term effects of embryo freezing, such as pregnancy and miscarriage rates, and these have yielded inconsistent results. And long-term studies are nonexistent—most babies born from frozen embryos are not yet 8 years old. "We are in a human experiment," says Maurice Auroux, chief of biology and reproduction at Bicêtre Hospital and a lead author on the *PNAS* paper. And if humans are anything like mice, the authors write, freezing techniques may not be "absolutely free of long-term effects."

The authors refrain from hypothesizing about mechanisms for these effects, but Auroux says one speculation is that free radicals created by the thawing process could lead to modification of DNA. Robert Winston, director of reproductive medicine at Hammersmith Hospital in London, adds that "the kinds of salts used in freezing [embryos] could have mutational effects." Winston thinks children born from frozen embryos should be examined on an annual basis. But not all clinicians see cause for alarm. "This is an important set of observations," says Gary Hodgen, president of the Jones Institute for Reproductive Medicine at East Virginia Medical School. "But there are no apparent consequences [of freezing] that I am concerned or suspicious about."

Alternative Office Gets Permanent Head

Advocates of unconventional medicine have established more than a temporary beachhead at the National Institutes of Health (NIH); now they've got a commander.

Last week, Lt. Col. Wayne Jonas, an Army physician-researcher schooled in an array of alternative therapies, was chosen by NIH chief Harold Varmus to be the new head of the Office of Alternative Medicine (OAM). Jonas, who heads a fellowship program at the Walter Reed Army Institute of Research in Washington, D.C., will take charge in July, replacing acting Director Alan Trachtenberg.



Jonas

Congress created the office in 1992 to encourage studies of unorthodox medical ideas, but it has had no permanent chief since last September, when the first director, physician Joseph Jacobs, resigned in a storm of controversy (*Science*, 30 September, p. 2000). Jacobs said his plans for scientific studies were undermined by pleas for uncritical data collection from advocates of alternative medicine and their champion in Congress, Senator Tom Harkin (D–IA). According to NIH staffers, Harkin, who had criticized Jacobs for having a lax management style, had been lobbying behind the scenes to pick Jacobs' successor. In November, however, Harkin lost the chairmanship of the Senate subcommittee that approves the NIH budget and thus a certain amount of influence. In the end, NIH decided to go its own way, choosing Jonas in what one independent adviser to OAM calls a "gutsy" move.

Jonas was unavailable for comment. But NIH notes that he led health promotion projects when he was a clinic director in Germany and has been a consultant on several major OAM projects. He received his M.D. from the Bowman Gray School of Medicine in Winston-Salem, N.C., and has studied homeopathy, electroacupuncture diagnosis, nutrition, megavitamin therapy for arthritis, pharmacology of high dilutions, NMR spectroscopy, Quigong, and radionics.

RED-HOT RESEARCH PAPERS OF 1994

Title	# of Citations
1. A. Kamb *et al.*, "A cell cycle regulator potentially involved in genesis of many tumor types," *Science*, 15 April 1994.	71
2. N. Stahl *et al.*, "Association and activation of Jak-Tyk kinases by CNTF-LIF-OSM–IL-6 β receptor components," *Science*, 7 January 1994.	64
3. C. Lütticken *et al.*, "Association of transcription factor APRF and protein kinase Jak1 with the interleukin-6 signal transducer gp130," *Science*, 7 January 1994.	52
4. N. Papadopoulos *et al.*, "Mutation of a *mutL* homolog in hereditary colon cancer," *Science*, 18 March 1994.	46

SOURCE: ISI

The most cited paper of 1994 was the paper that reported the identification of the *p16* tumor suppressor gene, according to the Institute for Scientific Information (ISI). And ISI's list of "the world's hottest scientists" was, for the second year in a row, topped by Bert Vogelstein of Johns Hopkins University, an author on nine papers including #4 above. ISI's tally shows that *Nature* published 10 of the 29 most highly cited papers; *Science* published eight, including the top four, and *Cell* published five. The rankings are published in the February issue of *ScienceWatch*.

Salk Gets Crick Permanently ... Sort Of

Has the Salk Institute for Biological Studies elevated Francis Crick from interim president to president, as the *San Diego Union-Tribune* reported on 14 January, or has Crick actually been a full-fledged president since stepping into the top job last fall? The answer: Yes. Confused? So are people at the Salk, the institute in La Jolla, California, where Crick has worked for the past 18 years.

In October, Salk President and CEO Brian Henderson suddenly resigned after only a 20-month run. The institute announced that Nobel laureate Crick had agreed to serve as "interim president," while trustee Charles Massey had been tapped to wear the CEO hat, "also on an interim basis." A search committee was set up, and everyone hoped that history wouldn't repeat itself: Finding Henderson was a tortuous, 4-year process.

The next month, the Salk board elected the Crick-Massey team to officially run the show, but the shift in status went unnoticed until the *Tribune* story. Curiously, Salk officials then insisted that the appointments never were temporary; a spokesperson explained to *Science* that the original press release did not capitalize the "i" in "interim."

After entertaining questions about the meaning of time itself—everything, after all, is interim in one sense—Crick acknowledged that a search committee is still hunting for a new leader (or leaders), but he says that doesn't mean that he is interim. "Interim would mean they would be rushing like mad," explains Crick. "Now they don't have to rush." How long does he plan to stay in the job? "The straight answer is nobody knows," says Crick.