RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Researcher Donates Patent Rights to WHO

Manuel Patarroyo, the Colombian immunologist who claims to have produced a malaria vaccine, is a man of his word. More than 3 years ago—as skeptical researchers attacked the methodology and ethics of his field trials—Patarroyo pledged that if the vaccine proved effective, he'd donate his patent rights to the United Nations.

Patarroyo began winning over his critics earlier this year with a paper he published in the *Lancet* describing positive results from a new Colombian clinical trial (*Science*, 19 March, p. 1689). Now he's making good on his pledge. Earlier this month in Geneva, he signed over the rights of what could be a pharmaceutical cash cow to the World Health Organization's Tropical Diseases Research (TDR) program. "I guess you could say he's a rather altruistic person," says Howard Engers, who heads TDR's malaria immunology program.

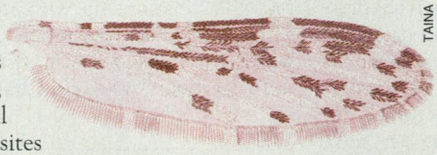
"My psychology, like my science, is very simple," explains Patarroyo, who describes his gesture as "a gift to mankind from the Colombian people." If the vaccine's promise is confirmed, he wants it made widely available as quickly as possible, and not tied up in lengthy discussions about royalty payments. Furthermore, he says, he wouldn't feel comfortable making money from the vaccine for himself or for his Institute of Immunology at the National University of Colombia in Bogota, since his work relied on some 31,000 Colombians who took part in clinical trials.

Of course, Patarroyo could have passed the rights over to his government, but Colombian president Cesar Gaviria seems to be plenty happy with the good publicity: Last week, he awarded Patarroyo the Boyaca Cross, Colombia's highest civilian honor.

Budget May Sting Insect Unit

Those who have been lamenting the decline of systematics in biology may have further cause to weep: The Army's Walter Reed Biosystematics Unit, which identifies disease-carrying insects that afflict soldiers in the field, could go extinct at the end of this fiscal year. Set up as the Army Mosquito Unit in 1964 to identify the mosquitoes of Southeast Asia, the unit, now staffed by four entomologists, is in danger of losing its funding (amounting to 17% of the Army's $2 million entomological research budget) because of budget cuts in the Medical Research and Development Command.

Phillip G. Lawyer, chief of the Department of Entomology at the Walter Reed Army Institute of Research, has been campaigning to save the unit, which he believes is the only military unit of its kind in the world. Arthropods can make a big dent in fighting capacity—since World War II, about 50% of nonbattle-related casualties have been from arthropod-borne diseases, particularly malaria, says Lawyer. In drier climes such as the Middle East, sand flies pose an additional threat as they carry parasites for diseases such as leishmaniasis and sand fly fever.



TAINA LITWAK

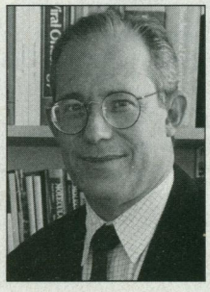
Wing codes. There are an estimated 3200 species of mosquito, 50 of which transmit malaria; others spread viral-borne diseases. Identification of biting females relies heavily on the spots on their wings. Different patterns of wing spots can be seen on the neotropical *Anopheles* sub-genera *Kerteszia (top)* and *Nyssorhynchus*.

Army officials say the biosystematics effort does not play "an extremely significant role" in its overall insect-control efforts, which include ongoing research on vaccines, new drugs, and insect repellents. Lawyer contends, however, that there is "a great lack of modern biosystematics information for most vectors in all areas of the world," and without detailed studies of different species, as well as reliable means of recognizing them, it's going to be more difficult to control the diseases they spread.

Haseltine Moves to Biotech Firm

The biotech industry is hardly noted for job security these days, but for one scientific star, it's more attractive right now than academia. William Haseltine, one of the nation's leading AIDS researchers, is taking a 2-year leave of absence from Boston's Dana-Farber Cancer Institute and Harvard University to head up a Maryland-based firm called Human Genome Science Inc.

Haseltine gets to be CEO and chairman of the board of the 1-year-old company, but he's not making the move for a fancy title, he says. What draws him is the company's focus on gene discovery and the study of the genome. "It's the most exciting science that can be done at present. Our job is to find full-length genes and their functions," he says. A great aid in Haseltine's endeavor will be his company's $70 million, 10-year agreement to commercialize the discoveries of former NIH researcher Craig Venter's nonprofit Institute for Genomic Research, which boasts proprietary techniques for gene spotting.



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Haseltine

Haseltine hopes his company will tackle a range of diseases from cancer to AIDS. Haseltine notes that his decision to leave Boston stems in part from a growing frustration about the prospects of beating HIV. "The immediate future of AIDS research is one based more on hope than knowledge," he says.

The Hazards of Estrogens

Anxiety levels of males throughout the industrialized world surged last year when a team of Danish researchers related, in a review published in the *British Medical Journal*, that, on average, men in Western countries appear to have sperm counts less than half as high as their grandfathers had at the same age. What's more, the researchers noted that the incidence of testicular cancer and congenital abnormalities of the reproductive tract has more than doubled over the past 50 years.

Reproductive biologists have been at a loss to explain these trends, but Copenhagen University pediatrician Niels Skakkebaek, one of the authors of the original paper, and physiologist Richard Sharpe of the U.K. Medical Research Council's Reproductive Biology Unit in Edinburgh, have an explanation that fits all the evidence: increased exposure to estrogens during fetal development.

In a paper in this week's *Lancet*, the authors argue that the mystery may lie with the millions of pregnant U.S. women who were treated with diethylstilbestrol or DES—a synthetic estrogen—to prevent miscarriages from 1945 to 1971. It's been known for years that daughters of these women are unusually prone to vaginal cancer, and while relatively few males have been studied, it appears sons of DES-treated women were affected as well. Data show they have low sperm counts, and a higher than normal incidence of malformations of the reproductive tract. Carefully controlled animal studies have yielded similar results, Sharpe notes.

That still doesn't explain why other, non-DES exposed fetuses have developed similar problems. But the authors say diet could also increase fetal estrogen levels. In Western countries, less fiber is consumed than was the case earlier this century. Because estrogens excreted in the bile are more readily reabsorbed if the lower gut contains little dietary fiber, fetuses' exposure to their mothers' own estrogens may increase accordingly. Furthermore, estrogen levels could have been increased by the kind of synthetic estrogens used from the 1950s to the 1970s to increase meat yields from livestock. Finally, suggest Sharpe and Skakkebaek, certain synthetic chemicals, such as dioxins, may have weak estrogenic effects.

Scarecrows Go High Tech

Poisoning birds in industrial ponds is the kind of thing most companies try to avoid, since—although violations are not zealously tracked—federal law allows for fines of up to $10,000 per dead bird.

Now researchers at Knight Piesold and Co., an environmental engineering firm in Denver, have come up with what might be called an avian SDI—a radar-activated contraption designed to shoo birds away from toxic ponds. The researchers, Richard A. Weber and Barbara A. Filas, have developed a system that is basically a souped-up version of a popular bird-repelling method: making a racket. But that only works until birds figure out it's not a danger signal. So Weber and Filas created a system that blasts a variety of noises in random and unpredictable ways. When its radar detects incoming flying objects of the avian variety, the system triggers a whole audio arsenal: fire alarms, a stereo amplifier that blasts frightening music, propane cannons, and something called a "screamer launcher." The last, Weber's creation, launches firework-like cartridges that make high-pitched noises.

Does it work? In a test at a toxic pond near a gold-mining facility, the Knight Piesold researchers reported this month at a meeting of the Acoustical Society of America in Ottawa that "an overwhelming majority of the birds" in the vicinity opted for a nearby freshwater reservoir. Of those that checked out the pond, most didn't stay long. But Weber concedes that improvements may be needed before industry starts beating a path to his door—15% of the birds "showed no reaction to the system," he says.

Elderly Twin Registry in the Works

Twin studies have long played a major role in attempts to untangle the genetic and environmental factors at work in aging and in late-onset diseases. The problem has been that most of those twins have been young. Now researchers in Illinois hope within the next couple of years to rectify this long-standing problem by unveiling the world's largest registry of aging twins—and the first to include both women and minorities.

After 2 years of sifting through birth dates and Medicare records from across the country, researchers at the University of Illinois at Chicago (UIC) have identified 200,000 pairs of siblings aged 65 or older who may be twins. Depending on the response rate to a mass mailing begun in March, the Chicago team hopes to uncover somewhere between 30,000 and 50,000 pairs, about half of them identical twins, as well as a few thousand people whose co-twins have died.

All this work is designed, among other things, to supply the basis for the Black Elderly Twin Study (BETS), a $1.5 million investigation supported by the National Institute on Aging, whose purpose is to look at genetic and environmental influences on health and physical functioning in a geographically, socioeconomically, and ethnically diverse sample of old people (researchers hope to add Latinos and Asian Americans to the study later). Eventually, the researchers intend to preserve twins' DNA samples to "immortalize" the database, which will be available to researchers around the world.

The new registry will close a significant gap: the large Scandinavian twin registries that have provided data for past research contain mostly young white people, and large U.S. military registries of twins contain no women and are not representative of the general population (*Science*, 26 March, p. 1826).

Lead BETS investigator Toni Miles, a UIC epidemiologist, predicts that the registry will help clinicians better assess the risk to individual patients of late-onset conditions such as heart disease, Alzheimer's, breast cancer, and osteoporosis—taking into account not only family history but ethnicity and social and geographical environment. "Genetic traits are as fluid as the environment," says Miles, noting that both aging and circumstances have a big role in triggering gene expression. So, "it's time to put the two together and take medicine to the next stage."

JAMES COLLINS

Golden-age twins. They share similar eyeglass prescriptions, but do they share the same risks for diseases of aging?

New Look at Drinking And the Heart

Last year, French researchers won publicity for one of their country's premier products when they reported in the *Lancet* that red wine drinkers seem to have less coronary heart disease than nondrinkers. Later, a group at Kaiser Permanente Medical Center in Oakland, California, claimed the same for white wines. But the research left a key question unanswered—is it the alcohol, some other compound, or a combination of these that exerts the protective effect? The French speculated it was the alcohol. But a team of nutritional biochemists at the University of California (UC), Davis, and the Volcani Research Center in Bet Dagan, Israel, think they've found another answer.

In a paper in the April issue of *Food Technology* they suggest that wine's therapeutic benefits are due to the phenolic compounds in it. In test-tube studies, the researchers have shown these anti-oxidants may act as cardiac guardians in two ways—by slowing down plaque formation from low-density lipoproteins, the "bad" cholesterol, and by performing an aspirin-like function: inhibiting the formation of blood clots that could lead to heart attacks or stroke. They are now beginning the next step—using hamsters, to see whether those fed nonalcoholic wines are better off than those fed a diet free of phenols. "It takes hamsters about 10 months to develop heart disease," says UC Davis' Bruce German, so preliminary data are expected around the end of the year.

If the theory pans out, it suggests that people can fight heart disease not only by reducing fat intake but by eating highly pigmented fruits, such as apples, plums, and grapes, and vegetables, most of which are high in phenolics. A bit of wine may help as well, says German, since "the process of fermentation may enhance the concentration of phenolics normally found in grapes." On a sad note, senior investigator John Kinsella died on 2 May.