RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Is There an Addiction Gene?

A gene for a neurotransmitter receptor has shown up at a high frequency in a group of cocaine addicts—and it's the same gene fingered in an earlier study of alcoholics. To the researchers, psychiatrist Kenneth Blum at the University of Texas Health Science Center and Ernest Noble of the University of California, Los Angeles, Neuropsychiatric Institute, this is powerful new evidence that they have spotted a gene underlying severe addictive disorders. But other scientists are still skeptical.

Almost 3 years ago, the team made a highly publicized announcement that they had found a gene associated with severe alcoholism—an allele of a receptor gene for dopamine, the main neurotransmitter in the brain's "pleasure center," part of the limbic system. Now they have a similar finding from a group of 53 Caucasian male cocaine addicts. The results, published in the December 1993 issue of *Drug and Alcohol Dependence*, show that 50.9% of the group had the gene in question, the A1 allele of the D2 dopamine receptor. Only 16% of a group of nonsubstance-abusing controls had the gene, as did 30.9% of a general population sample. Blum and Noble also found that addicts with the allele were more likely than those without it to have been very heavy users, to have an alcoholic parent, and to have engaged in "deviant behaviors" in childhood. Noble says the A1 allele is beginning to look very much like a marker for many addictive disorders, since he claims also to have uncovered a high prevalence of the gene in nicotine addicts and overeaters.

Most researchers appear to be wary still of Blum and Noble's claims, in large part because it's hard to ascertain the prevalence of the allele in the general population (it varies greatly among ethnic groups). Furthermore, several studies on alcoholics have failed to replicate the finding. Psychiatrist Henri Begleiter of the State University of New York Health Science Center in Brooklyn, who is running a big multi-site study searching for alcoholism genes, says he's sure that "either it's an artifact or a minuscule effect."

There are, however, some influential believers, at least in terms of the drug-abuse connection. Neurologist George Uhl, chief of molecular neurology at the National Institute on Drug Abuse, says this study is actually the fourth to show a positive association between drug abuse and the suspect allele. And although most studies with alcoholics have come up empty-handed, "there's no negative data" with respect to drug abusers, he says.

Chilean Telescope Expansion Delayed

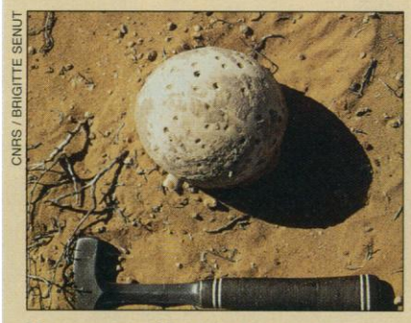
Amid concerns about rising costs, the governing council of the European Southern Observatory (ESO) in Chile decided, at its annual meeting last month in Germany, to postpone plans to add an interferometer to its Very Large Telescope (VLT) now under construction. Interferometers, which greatly enhance image resolution, are common on radio telescopes but are much harder to implement in optical instruments.

When complete, the VLT will be the largest optical telescope ever built. It will actually be a combination of four telescopes, each with an 8.2-meter mirror, for a total of 200 square meters. An interferometer was not originally in the scheme, but since work began in 1987, technology has been developed to make it possible to bring the beams from separate telescopes together in an interference pattern. With the help of adaptive optics and computer processing, this is transformed into an image with a resolution much higher than is possible with a single instrument.

But the interferometer will require the construction of tunnels under the telescopes, as well as sophisticated equipment and extra lab space. According to Peter Creola of the Swiss foreign ministry, who is this year's ESO council president, the cost of the beefed-up version of the telescope, plus some other increased costs, forced ESO to go back to its eight member states and ask for more money. The response has been a modest increase in the VLT's $280 million budget to keep the array on track—the first scope will see "first light" in early 1997—as well as to build the tunnels and lab space for the interferometer. Its optics and electronics, however, will have to be put on hold until extra money is found. Creola says that it is hoped that the French and German governments, which are particularly keen on the interferometer project, will come up with the extra cash.

Namibia's Ancient Big Bird

The birds wandering around the Namib Desert of southwest Africa 17 million years ago were immense creatures, judging by the size of a giant egg discovered by a joint French-Namibian expedition recently and reported in the December issue of *La Recherche*. Bigger than an ostrich egg and with a shell twice as thick, the thing was nearly intact—"one of the miracles of fossilization," says Brigitte Senut of the National Museum of Natural History in Paris, who found the egg partly embedded in sandstone.



CNRS / BRIGITTE SENUT

Mystery egg. Namibian find has huge pores, possibly enlarged through erosion.

At a volume of 1.7 liters, the egg overshadows the 1.2-liter volume of the average ostrich egg. Senut considered the possibility that it was a giant turtle egg, but the calcite composition of the shell is closer to that of bird eggs.

Senut and Yannicke Dauphin of the Paleontology Laboratory of the University of Paris and Martin Pickford of the Collège de France, along with Namibian colleagues, discovered the huge specimen—along with fragments from similar eggs—in an area called the Sperrgebiet, or "forbidden zone," which until now has been the sole preserve of diamond miners. Nearby bones of primitive rodents, antelope, and the elephant-like proboscidian date the find to the early Miocene—16.5 million to 17 million years ago.

Not a single bird bone has been found, however, so the researchers have no idea what the giant egg-layer looked like. Nonetheless, the species now has a name: *Diamantornis wardi*, after South African geologist John Ward, who studied the fossil dunes and other geological formations of the area.

Bringing More Reality To Fiction

British scientists, armed with nothing more than a £750 ($1,100) grant from Her Majesty's Government, will go forth this year to do battle with myth-makers who generate popular misconceptions about science, such as the existence of "a part of our galaxy where they have a different periodic table." That gem appeared in L. Ron Hubbard's novel *Battlefield Earth*, and the grant from Britain's Office of Science and Technology is intended to help those reluctant bedfellows—scientists and science fiction writers—get better

acquainted and avoid that kind of howler.

Oxford University astrophysicist David Clements, who originated the plan, is a science fiction fan who for years has arranged for real scientists to give talks at science fiction conventions. "But you get the same hard core of people coming round and round again," he says, and they all tend to be space scientists and astronomers.

When William Waldegrave, Britain's science minister, last July announced grants for projects in the public understanding of science, Clements applied for some expense money to induce more scientists, especially from chemistry and biology, to share their knowledge with the sci-fi buffs.

Clements got the smallest grant when the awards were announced last week, but he says the $1,100 "will go quite a long way." He is already plotting to bring some scientists to the U.K. National Science Fiction Convention in Liverpool at Easter.

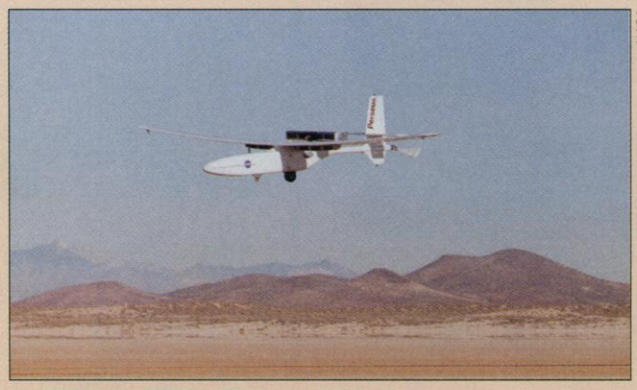
Alaskan Illnesses Remain a Mystery

Complying with environmental regulations can be a real headache, but compliance doesn't appear actually to cause them, according to the U.S. Environmental Protection Agency (EPA). A number of Alaskans, trying to obey the Clean Air Act, had thought otherwise.

The act mandates use of pollution-reducing oxygenated fuels—essentially, diluted gasoline—in 39 regions, including Anchorage and Fairbanks, Alaska, where smog is a big problem. In November 1992, some 150 Alaskans complained about headaches, dizziness, and nausea after inhaling fumes from gasoline mixed with one such additive, methyl tertiary butyl ether (MTBE). MTBE fuels were removed from Alaskan pumps a year ago and the symptoms disappeared.

But MTBE—which cuts carbon monoxide emissions—apparently was not the culprit, according to an EPA report* released last month. The agency cites clinical, epidemiologic, and animal studies conducted in the past year that failed to show harmful effects. And it notes that when MTBE was removed from Alaskan gasoline, two other factors dissipated as well. One was a 14 cent-per-gallon price increase to cover addition of MTBE to gas. The second, according to EPA toxicologist Eric Clegg, one of the report's authors, was "the extremely high public concern about [its] potential health effects." The report acknowledges that some people may be particularly susceptible to MTBE but says, "They have not been identified." Nevertheless, EPA is considering further studies on MTBE and similar additives, including the effects of long-term exposure experienced by taxi drivers and gas station attendants.

*"Assessment of Potential Health Risks of Gasoline Oxygenated With Methyl Tertiary Butyl Ether."



NASA

Drone alone. Perseus, the first of what the National Aeronautics and Space Administration hopes will be a fleet of unmanned aircraft to study the atmosphere, is shown here during its first take-off, which occurred last month at NASA's Ames-Dryden Flight Research Facility in Edwards, California. After being towed aloft, the craft, which has a 60-foot wingspan and is guided by on-board computers and ground-based controllers, started its propeller and spent nearly an hour airborne while engineers tested its functions. Known as Perseus A, the drone can fly as high as 90,000 feet for an hour or two and will be used for high-altitude studies such as ozone monitoring. Eventually, NASA hopes to add a second type of Perseus drone with a ceiling of 65,000 feet and the ability to stay aloft for 2 to 3 days. That drone class, known as Perseus B, is designed for studying climate change (*Science*, 16 April 1993, p. 286); the first one is scheduled to take its maiden flight in late March.

Japan Worries About Youth and Science

The country that gave the world Nintendo is now worrying that the current generation of gamesters has no interest in the technology behind its toys. Japan is the latest industrialized nation to join the growing chorus of lamentations over the younger generation's presumed loss of interest in science.

In its annual white paper, Japan's Science and Technology Agency says that budding citizens are less interested in science news than their elders and, as a result, less interested in science-related careers. The paper blames what it dubs the "black box phenomenon," meaning that high-tech products have become so common and easy to use that the technological prowess behind them is invisible and unappreciated. Forty years ago, kids built their own radios; today it's much cheaper to buy one.

This is a provocative thesis, but the agency's own numbers don't seem to bear it out. The report claims that the percentage of university applicants intending to major in engineering has been declining since 1988 and that science and engineering graduates are switching in droves to higher-paying fields like finance. But statistics show that while the proportion of undergraduates majoring in engineering is below the 1986 peak of 17%, the 1992 rate of 13.5% is still higher than at any time before 1984. And the percentage of applicants heading into science departments has not changed at all, hovering around 2% to 3% for nearly 20 years.

In the marketplace, the proportion of science and engineering graduates who enter the manufacturing sector has actually been going up after a dip in the late 1980s. Furthermore, calls by *Science* to several manufacturing firms found that none is experiencing or anticipating problems attracting qualified technical personnel.

Nevertheless, commentators and editorialists are sounding very much like they've been sounding in the United States for almost a decade. "We must do something to make science more popular," intoned Hiroshi Kashiwagi, director-general of the Ministry of International Trade and Industry's Agency of Industrial Science and Technology. "Turn satiated students back to solving scientific secrets," screamed an editorial in *Asahi Shimbun*. Solving the secrets of the 14th level of a fantasy/adventure game, apparently, just will no longer do.

JAY FREIS/THE IMAGE BANK

Nintendo generation. Not interested in what's inside the box?