

# RANDOM SAMPLES

edited by CONSTANCE HOLDEN

## Ebola: Ancient History of "New" Disease?

Could one of civilization's newest plagues also be one of its oldest? Three scientists and a classicist have recently proposed that the horrendous plague at Athens (c. 430–425 B.C.), an event that has puzzled scholars for centuries, might have been caused by that currently "emerging" disease, the deadly Ebola virus.

According to estimates based on the writings of historian-general Thucydides, up to 300,000 Athenians—one in every three—were felled during a Spartan siege by a mystery disease whose symptoms included high fevers, blistered skin, bilious vomiting, intestinal ulcerations, and diarrhea. Most victims died about a week after onset. Over the years, people have postulated causes ranging from bubonic plague to measles to a combination of in-

fluenza and staphylococci—but none seemed to fit.

But in a letter in the April-June journal *Emerging Infectious Diseases*, Patrick E. Olson, an epidemiologist at the Naval Medical Center in San Diego, and his colleagues propose that Ebola virus may be the culprit. Olson, who has been fascinated with the Athens plague ever since he read about it as a child in *Life* magazine, says "something clicked" as he was reading about the 1995 Ebola outbreak in Kikwit, Zaire. He noted that in both the ancient and modern cases, victims died quickly, and both diseases appeared and vanished suddenly. In Athens there were widespread deaths among caregivers, but few among the attacking Spartans. This pattern suggested that the disease, like most strains of Ebola,

was spread by personal contact and not by airborne pathogens. But what really got Olson's pulse racing were the reports of "hiccupping" among 15% percent of the Zaire Ebola patients—an unusual symptom also noted by Thucydides, himself a plague survivor.

There are some other tantalizing hints: Santorini Island near Athens is the site of a Minoan fresco featuring green monkeys, a species known to harbor Ebola. And because Athens was a major port, the virus could easily have been spread by sailors from ships that traded with Africa.

Epidemiologist Karl M. Johnson, former chief of the Special Pathogens Branch of the Centers for Disease Control and Pre-



**Ebola victims?** The Plague of Athens as rendered by a member of the Poussain school.

vention, who was present at the Zaire outbreak, says that the interpretation proposed by Olson is definitely "suggestive. ... You'd have to say it's at least as likely as any of the other ones proposed." Proving it is going to be difficult, however. The Greeks cremated their dead, along with any genetic evidence from the Ebola virus.

## Happiness and DNA

It's a truism that "happiness comes from within." But within the genes? Yes, the genes are primarily what determine an individual's "baseline" level of happiness, according to researchers at the University of Minnesota.

Psychologists David Lykken and Auke Tellegen, reporting in the May issue of *Psychological Science*, say that while a person's subjective sense of "well-being"

changes in response to life's events, these are short-term fluctuations. In the long run, say the authors, people tend to return to a "set point," a level of well-being that varies from person to person and is largely genetically determined.

The researchers started with the results of a questionnaire measuring happiness or well-being that was given to some 1500 pairs of adult twins. Com-

parisons of correlations between identical and fraternal pairs indicated that about 50% of the total variation in happiness has a genetic basis. Says Lykken: "The other 50% leaves room for big surges or depletion of happiness, but you adapt quickly, so they don't affect the set point."

The authors then zeroed in on the set point by taking data from a smaller group of twins who had taken the happiness

test at age 20 and again at 30. They did a "cross-twin, cross-time" analysis comparing the score of one twin at 20 with his or her co-twin at 30. They found that identical twins' scores correlated with their co-twin's scores 10 years later about 80% as strongly as with their own scores after this interval. From this the researchers concluded that the "stable" component of well-being has a heritability of about 80%.

The research dovetails with other findings—for example, self-ratings of "contentment" show that when people are grouped by income, marital status, or education, groups differ little from each other, which suggests that external circumstances exert only fleeting effects on a person's level of well-being.

"The current wave of 'happiness' research," says behavioral geneticist Greg Carey of the University of Colorado, "has challenged many cherished beliefs about the if-only-I-would-win-the-lottery syndrome. ... The

## Cool Astronomy

Sprouting from the dry foothills of northern California like a patch of giant steel toadstools, the nine radio telescopes belonging to the Berkeley-Illinois-Maryland Association (BIMA) were officially dedicated last week. The \$15 million array (see photo), built over 8 years by a three-university consortium, is expected to reach its goal of 10 6-meter dishes by fall.

The BIMA array is especially sensitive to very short radio wavelengths—1 to 3 millimeters—which makes it one of the best radiotelescopes in the world for finely detailed studies of emissions from rela-



tively cool objects such as protoplanetary disks around nearby young stars, and dust and gas in distant galaxies. Astronomers have already been using parts of the array. BIMA director William Welch and collaborators, for example, have mapped radio emissions from the disk around the nearby low-mass star HL Tauri. "Until now there has been a lot of circumstantial evidence for protoplanetary disks, but they are too small to resolve in visible light," says Welch. "Now we've made the first measurement of a disk."

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'slings and arrows of outrageous fortune' clearly influence mood, but long-term equilibration to life's ups and downs is partly a function of the slings and arrows of genetic fortune."

### Defining Productivity

Are British researchers the most productive in the world? And Japanese the least? An international comparison of researcher productivity contained in Japan's 1996 White Paper on Science and Technology would seem to indicate as much.

Experts caution that the statistics, compiled by Japan's Science and Technology Agency (STA), shouldn't be taken entirely at face value. British consultant Roger Quince says British researchers have been churning out papers especially since the late 1980s, when changes in funding mechanisms placed additional emphasis on productivity. But, he says, "people writing more articles out of a given piece of research than is the case elsewhere ... it's not that we're doing more research."

As for Japan's low showing, Jean Johnson, a U.S. National Science Foundation analyst currently at Japan's National Institute for Science and Technology Policy, notes that Japan counts all university faculty as full-time researchers, rather than calculating full-time equivalents as

other countries do. Too, the database did not include Japanese-language journals.

STA's research director, Shin Aoyama, says the figures do, however, reflect something real. Japanese researchers have heavy administrative burdens that limit research time, and they suffer from a chronic dearth of lab assistants, he says. What's more, there tends to be a stronger emphasis on applied fields where publishing is less common. Physicist Isao Tanihata of the Institute of Physical and Chemical Research adds that paper productivity has little effect on career advancement, so the Japanese have not refined the art of the "least publishable unit."

### ATP Rides Again

A last-minute congressional reprieve has allowed the U.S. Advanced Technology Program (ATP), which the Republicans have been trying to kill, to launch a new competition for companies interested in doing high-risk, high-payoff research. The Clinton Administration strongly supports the program which opponents label corporate welfare.

The Commerce Department decided to hold the competition, for up to \$25 million, after Congress this spring removed language that barred any new awards as part of a 1996 spending bill that cut the program's budget nearly in half, to \$221 million. ATP officials are banking on a 1997 budget that's large enough to support continued funding of these new projects as well as an existing portfolio, hoping that last year's attack was a high-water mark in Republican efforts to kill the program. "This is a real in-your-face response to Congress," says Bill Morin of Wayne Sayer and Associates, which represents several high-tech trade associations. "And given the Administration's continued strong support for ATP, its prospects certainly look better than last year."

Program officials have sched-

### University Review Leaves Iconoclast Intact

The University of Edinburgh, after a month-long enquiry into the teaching practices of controversial psychologist Christopher Brand, has recommended some changes in Brand's teaching but has otherwise come out on the side of academic freedom.

Brand has received a good deal of media attention since mid-April, when his publisher withdrew Brand's book on intelligence research, *The G Factor*, on the eve of its publication date after the author made public comments to the effect that the IQ difference between blacks and whites is in large part genetic (*Science*, 3 May, p. 644).

Calls for Brand's ouster led the university to establish an enquiry on "the nature of ... Brand's teaching relationship with his students." After extensive interviews with staff and students, the university has issued a statement saying that Brand "will be expected to modify his style of teaching" to reflect "a greater diversity of styles and approaches in relation particularly to controversial topics ... such as intelligence. ..." He will be offered "appropriate support" to secure this diversity. The statement adds, however, that Brand's right to free enquiry and expression of opinion "is firmly reasserted."

Brand has ridiculed the enquiry, which he calls "an exercise in finger-wagging which will bring solace to a craven firm of publishers and placate the Stalinists and feminists in the Student Representative Council."

The rambunctious professor meanwhile is still at loggerheads with the "craven firm"—publisher John Wiley & Sons—with both parties claiming that the other has refused to respond to proposals for resolving the situation and disposing of the existing copies of *The G Factor*.

uled meetings next month in six cities around the country to answer questions and remind industry that ATP is still alive. The deadline for proposals is 18 September. For more information, call 1-800-ATP-FUND or [atp@nist.gov](mailto:atp@nist.gov).

### Dust to Stardust

Timothy Leary, a leader in the exploration of inner space, will be pioneering a postmortem exploration of the outer limits. Leary, who died on 31 May, will have his ashes launched into space this fall, along with the remains of other late notables, for a "celestial memorial service."

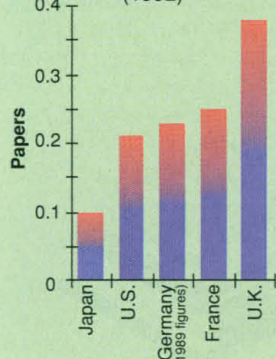
The Houston-based Celestis Inc. is preparing to launch a spacecraft that will orbit Earth carrying human ashes in lipstick-sized containers for up to 10 years before it re-enters the atmosphere and vaporizes. Accompanying Leary will be Princeton space physicist Gerard O'Neill, who died in 1992, and *Star Trek* creator Gene Roddenberry, who died in 1991, according to company spokesperson Charles Chaffer. (Roddenberry's ashes are already well-traveled, having gone

up in the space shuttle in 1992.) The long, strange trip is not a cheap one, but at \$4800 a person, the price is comparable with that for a standard funeral service.

A less expensive route to the cosmos is being offered by a New York-based company called Forever Bound Inc. On 1 January 2001, it's planning to launch more than a million samples of human biological material beyond the outer reaches of the solar system. The samples—the type has not yet been specified—might be retrieved by an advanced civilization 10,000 years from now that would know how to reproduce humans from the material, explains company spokesperson Bill Boland. At only \$45 a pop, customers are already clamoring to sign up, he says.

Commercial space ventures to date "are not unequivocally promising," says John Logsdon, director of George Washington University's Space Policy Institute, pointing out that it costs \$10,000 per pound to launch the shuttle. But the new companies are betting that a lot of people will be interested in the brand of immortality they are offering.

Number of academic papers per full-time researcher (1992)



SOURCE: STA