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A new strategy of more extensive excavations at Çatalhöyük, the huge 9000-year-old farming village in Turkey, is already yielding fresh treasures—as evidenced by this “Mother Goddess”-style figurine found last month. The stone carving, about 9 centimeters long, is the first such statuette to be found in 40 years. Excavations in the 1960s revealed a wealth of Mother Goddess-type sculptures, most of them in clay, which made the site a mecca for the Mother Goddess women’s spirituality movement. But dig leader Ian Hodder of Stanford University is skeptical that the figurines represent actual deities.

Twenty-three centuries ago, Archimedes laid the foundations for modern shipbuilding with his treatise On Floating Bodies. Among other things, he proved that a buoy shaped like a spherical bowl can float stably in only two positions: right-side up or upside down. A bullet-shaped buoy with a parabolic bottom and a flat top, however, can float stably in a tipped position.

But Archimedes, having neither calculus nor computers, wasn’t able to answer the next question: Can a parabolic buoy float with such an extreme tilt that its top is partially submerged? Now, Chris Rorres, a retired math professor at Drexel University, has written what might be called the last chapter of Archimedes’ book.

In this summer’s issue of Mathematical Intelligencer, he shows that a paraboloid with a partly submerged top can be stable in as many as three positions—if the object can’t decide whether to behave like a wide bowl or a narrow rod. Using a 35-year-old branch of mathematics called catastrophe theory, Rorres pinned down exactly where this identity crisis begins: For a buoy with a density of 0.5, for example, it’s when the height reaches $\sqrt[3]{35/48}$, or about 0.85 times the width. Above this magic number, if the density or shape vary a little, the paraboloid can suddenly—or “catastrophically”—tumble over.

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A team of British scientists has become the first in Europe to be licensed to clone human embryos for research. The Human Fertilisation and Embryology Authority last week granted scientists at the University of Newcastle permission to attempt the creation of embryos through somatic cell nuclear transfer: inserting the nucleus of a mature cell into an unfertilized egg.

Miodrag Stojkovic, a Newcastle embryologist, says the team will start out using nuclei from healthy donors to create new embryonic stem cell lines. The team then wants to create lines using nuclei from people with diseases such as diabetes so they can study these diseases and the development of affected tissues in vitro. Scientists also hope someday to grow genetically matched stem cells that can be used to treat patients with such disorders.

So far, only one group of scientists—in South Korea—has claimed to have created a stem cell line from a cloned human embryo. The procedure is expressly allowed in two other countries, Singapore and the Netherlands.

They say you’re as young as you feel; now a study of twins suggests it may also be true that looking younger than your age bespeaks longevity.

Researchers using the Danish Twin Registry photographed both members of 387 same-sex pairs of over-70 twins, both identical and fraternal, all of them cognitively intact. They then asked 20 nurses to say how old each twin looked in the photo.

Two years later, one twin in each of 49 pairs had died. The scientists, led by epidemiologist Kaare Christensen of the University of Southern Denmark, found that in the 26 pairs in which average-age estimates differed by more than 2 years, the older-looking twin was more likely to die first. This was particularly true for the fraternal-twin pairs, who share only half their genes. “This pattern suggests that there are common genetic factors influencing both perceived age and survival,” says Christensen, who reported on the study last month at the International Congress on Twin Studies in Odense, Denmark.

Interestingly, Christensen says that at advanced ages, predictors such as high cholesterol, being overweight, smoking, and drinking are no longer linked to higher mortality, because these risk factors have already weeded out the vulnerable.
Price of history. Middle Eastern scholar, U.S. government consultant, and television commentator Joseph Braude of Providence, Rhode Island, brought home a little of Old Iraq last year after doing research for his book The New Iraq. Now he faces up to 5 years in prison and up to $250,000 in fines for smuggling three cylinder seals into the United States and then lying to customs officials.

The 4000-year-old seals are the property of the Iraq Museum, which was looted following the fall of Baghdad to U.S. forces in April 2003. Braude, 29, was found with them when he landed at New York’s John F. Kennedy airport last summer after visiting Baghdad.

At first denying that the artifacts were valuable, Braude later said he intended to have them appraised and turned over to the authorities. On 4 August, 2 days into his trial, Braude pleaded guilty to charges of smuggling and making false statements. He is free on $100,000 bond pending sentencing by Federal District Court in Brooklyn, New York.

MONEY MATTERS

German offer. Germany’s Helmholtz Association of National Research Centers is offering young scientists a chance to head independent research groups and earn tenure.

Building on a pilot program involving 20 young investigators, Helmholtz plans to recruit 20 German and non-German scientists under age 36 every year for the next 5 years for its 15 centers. Successful researchers will get permanent positions after 5 years.

“We are not expecting too many applications from non-Germans in the first round,” says Helmholtz’s Bärbel Köster. “But eventually we hope to have an international applicant pool.”

They Said It

“Some people say Domenici is a sucker for big science. And they may be right.”

—Senator Pete Domenici (R–NM), when asked at a press conference last week if his vigorous support for his state’s Los Alamos National Laboratory had helped create a culture of complacency that contributed to last month’s security and safety lapses.

DEATHS

Spirit of enterprise. Chen Chunxian, a plasma physicist who helped create China’s Silicon Valley, died on 9 August. He was 70.

His first company, Beijing Plasma Advanced Technology Development Service, was set up in 1980 in a shabby bungalow of the Chinese Academy of Sciences’ Institute of Physics and closed down 2 years later after authorities feared that its scientists would be corrupted by their $1-a-month extra income. But the government soon relented, and the company’s location in Zhongguancun in north Beijing eventually attracted many other high-tech companies, including Chinese giants such as Legend and Founder.

Chen did not become wealthy as a result of founding the country’s first non-state-run technology company, but Ji Shiyong, director of the Beijing Non-Governmental Entrepreneurs Association, says he deserves to be called “the pioneer of Zhongguancun.”

EXPLORERS

Reliving the past. Four Massachusetts Institute of Technology undergraduates and their archaeology professor Dorothy Hosler built this replica of an ancient Ecuadorian sailing vessel—but with plywood and Styrofoam instead of authentic balsa wood—and sailed up the Charles River earlier this month. Archaeological evidence suggests that Ecuadorian sailors brought metalworking to western Mexico over a millennium ago, but scientists don’t know how they navigated the 4800-km journey. To find out, the students plan to retrace the voyage next summer in a larger replica.