Skeptic Gets Her Just Desserts

Would you call the cops if Ed McMahon rolled up to your door in his prize truck? What about if the MacArthur Foundation called you a genius? When a publicist from the foundation telephoned

Banfield

Jillian Banfield on 17 June to tell her she'd been selected as a MacArthur fellow—and would be getting $290,000—the 39-year-old mineralogist at the University of Wisconsin, Madison, thought it was a hoax. Then he asked for her Social Security number and told her not to tell anyone the news. "I thought this has got to be a scam," says Australia-born Banfield, who explores soil weathering and how microbes alter rock chemistry.

She looked at the MacArthur Web site, but the names of this year's genius crop hadn't been posted yet. Then she called AT&T to try to track the publicist's number. The phone company urged her to cancel her credit cards and call the police, warning that someone with her Social Security number could easily raid her bank account. Before taking those drastic steps, however, Banfield was able at last to reach the publicist, who directed her to a secret Web site listing the winners. Banfield became a believer—but still says her award "doesn't make any sense."

Lightning actually struck twice in Madison this year. Also receiving one of the 5-year, no-strings-attached awards is a colleague and friend of Banfield's, chemist Laura Kiessling, 38.

Of 32 fellows announced on 23 June for awards ranging from $200,000 to $375,000, 12 are scientists. They include chemist Carolyn R. Bertozzi, 32, of the University of California, Berkeley; physicist Shawn Carlson, 39, of the Society for Amateur Scientists in San Diego; molecular biologist David Hillis, 40, of the University of Texas, Austin; Harvard theoretical physicist Juan Maldacena, 30; anthropologist Dennis Albert Moore, 54, of the Museu Paraense Emílio Goeldi, Bélem-Para, Brazil; AT&T computer scientist Peter Shor, 39; theoretical physicist Eva Silverstein, 28, of Stanford Linear Accelerator Center; chemist and environmentalist Wilma Subra, 55, of New Iberia, Louisiana; mathematician and software developer Jeffrey R. Weeks, 42, of Canton, New York; and linguistics professor Ofelia Zepeda, 45, of the University of Arizona, Tucson. Don't believe us? Check out www.macfdn.org.

The Dark Side of Gravity

Is gravity on Earth affected by a solar eclipse? Old observations of strange behavior from a Foucault pendulum have persuaded NASA scientists to test the notion during the total solar eclipse that will happen on 11 August.

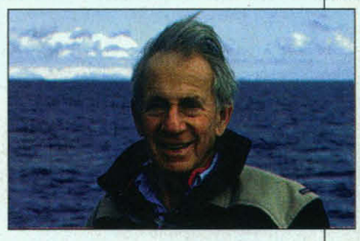
The Foucault pendulum, invented in 1851 by French astronomer Jean Bernard Leon Foucault, was the first instrument that could demonstrate Earth's rotation without reference to the stars. The swing direction of the long pendulum remains constant as Earth rotates underneath it, which means its path appears to move, traveling a full circle every 24 hours at the poles and taking longer closer to the equator (32 hours in Paris, for example).

Time exposure of Foucault pendulum.

Maurice Allais, an amateur astronomer and 1988 economics Nobelist, claimed to find what he called "remarkable anomalies" in a Foucault pendulum's swing at his Paris laboratory during the total solar eclipses of 1954 and 1959. During one eclipse, he measured a slight deviation—an extra 0.15 degree—in movement of the plane under the pendulum's swing, indicating the pendulum was speeding up slightly. This implied a tiny (3 millionths of 1*g*) increase in Earth's gravity field. His published report, "Should the Laws of Gravitation Be Reconsidered?" lay in obscurity until recently, when David Noever of NASA's Marshall Space Flight Center in Huntsville, Alabama, was rummaging through the Web for information relating to his work on gravity.

Now Noever and colleague Ron Koczor plan to use a state-of-the-art gravity sensor to test Allais's observation during the upcoming eclipse. The NASA team will compare their results with a similar test by Edcon Inc., a gravitometer manufacturer in Denver, as well as observations at Foucault pendulums in Europe that lie in the path of the eclipse.

The duo doubts they will find the eclipse anomaly. Still, says Noever, "Allais could have stumbled onto something important." Possible explanations are highly speculative, ranging from quantum fluctuations in the vacuum of space to radiation pressure changes from the blockage of sunlight.



Munk

Grand Old Man Of the Sea

From forecasting the waves pounding the beach at Normandy before the Allied invasion in 1944 to using sound waves to gauge water temperatures in the Pacific Basin today, oceanographer Walter Munk, 81, has racked up some impressive feats in a 60-year career. Honoring that record, Japan's Inamori Foundation announced last month that Munk will receive the 1999 Kyoto Prize in Basic Sciences, designed to supplement the Nobels. He "has enormously influenced and promoted the development of earth science—especially oceanography," say prize officials.

Munk, a faculty member at Scripps Institution of Oceanography in La Jolla, California, has probed the physics of the oceans from every angle. In 1957 he proposed Project Mohole—a bold plan to drill right through the ocean crust to the mantle. Mohole flopped, but it led to 3 decades of highly productive deep-sea drilling. "I've always become fascinated with simple problems that haven't been fashionable," says Munk. "You might call it a contrarian principle."

A principle, in this instance, with a big payoff—he'll get $419,000 at a ceremony in Kyoto in November. Also honored, for advanced technology, is materials scientist David W. Kingery of the University of Arizona, Tucson.

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