

# → TEST OF TIME

Two gongs sounded as the date indicator on the untested prototype of the Clock of the Long Now turned from 01999 to 02000 on New Year's Eve. "It was a moment of relief," says the clock's creator, Danny Hillis, who five years ago set his project in motion ([www.longnow.org](http://www.longnow.org)). This first working prototype (one in a series) stands 8 feet tall, weighs about 1,000 pounds, and is constructed primarily of monel, a naturally occurring alloy of nickel and copper. The finished version, designed to last 10,000 years, will reside adjacent to Nevada's Great Basin National Park on a limestone-crested mountain populated with 5,000-year-old pine trees. "The trees give perspective," says Hillis. "Ten thousand years really isn't that long."

— Jennifer Hillner

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PHOTOGRAPH: MORTEN KETTEL

**1** On the clock's face, a rotating black sphere charts the paths of stars — one of the oldest forms of telling time. The positions of Earth's horizon line, the sun, and the moon — which, taken together, indicate season and time of day — are represented by symbols on the inner rings. Though the clock tells the exact time, it's really designed for long-term ticking: Two numbered outer rings inch forward — one by the year, the other by the century.

**2** The timepiece is controlled by a torsional pendulum consisting of three 22-pound tungsten balls that, every minute, rotate 180 degrees clockwise, then counterclockwise. With each tick, two thin metal cords suspending the pendulum wind and unwind, activating the clock's guts (a binary mechanical computer with 27 bits, 5 registers, and 133 levers). Sixty ticks of the pendulum send this central mechanism through a one-hour cycle, which causes the clock to recalculate the positions of its dials and sound an hourly chime.

**3** A 100-pound brass weight in each of two tubes, one on either side of the clock, falls slowly over the course of a month, generating the power that moves the pendulum. While this prototype must be "wound" monthly by

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