

A Clock for All Time

SAN RAFAEL, CALIF.—A NASA Web site boasts that an atomic chronometer it has commissioned for the space station “will be the most accurate clock ever built, keeping time to within one second in 300 million years.” Atomic horologists often speak as if their timepieces could run continuously for thousands of centuries. Balderdash—a typical cesium clock lasts no more than 20 years. A decent wristwatch runs longer.

But in a small machine shop here, just north of San Francisco, a small group of futurists and engineers is refining the design of a mechanical clock meant to tick through 1,000 decades. The Clock of the Long Now, as its chief designer, Danny Hillis, calls it, is as much a sociological experiment as a functional chronometer.

“A clock is a symbol of continuity; one that lasts a really long time might give people a sense of perspective, help them think about the year 3000 as more than just an abstraction,” Hillis says. “Our record of civilization extends back roughly 10,000 years, so that struck me as a good interval to look forward.”

Hillis may seem like an unlikely leader of a movement to reverse society’s preoccupation with the fast and soon. In the 1980s he designed supercomputers; in the 1990s, theme park rides. Today he can spare an hour for an interview only if half of it is done on the trip to Silicon Valley for his next meeting.

Nevertheless, Hillis, with help from writer Stewart Brand, musician Brian Eno and others, is trying to craft an artifact that will not just endure but will also inspire. The clock will have to be wound once a year. “And when you first come up to it, it will only display what time it was when the last person was there,” Hillis explains. “It will track the current time, but you will have to wind it—put some energy into it—to get it to advance to show what time it is now.”

Brand and Hillis co-chair a foundation (longnow.org) that recently purchased a Nevada mountain peak, inside which they hope the final, monument-size clock will sit. Through a slit in the cavern ceiling, rays of the noon sun will focus onto a bimetallic strip, triggering a weight to resynchronize the clock in case its time has drifted.

Although this all may sound quite spiritual, “we don’t want to create a religion,” Brand avers as he stands next to a mock-up of the second prototype. This version is twice the size of the first, on exhibit in the Science Museum in London. In place of a circular dial, however, the clock is now crowned with a large orrery indicating planetary positions.

Below the “face” sits a stack of seven metal rings, each 30 inches in diameter and fringed with levers. Vertical pins stuck into the rings engage the levers as the rings rotate, working as a mechanical binary computer to count the hours and compute the date. Because the clockwork is strictly mechanical and is open to inspection, “you can figure out how to restart it if it hasn’t been on in 100-odd years,” Hillis says. But whether his idea gathers enough currency to get a 10,000-year clock started in the first place, only time will tell.

—W.W.G.



10,000-YEAR CLOCK under development by the Long Now Foundation will be strictly mechanical. Like the first prototype of the clock (top), the final, monument-size version will probably use a torsional pendulum to count minutes but will display only the current year, century and millennium (bottom).