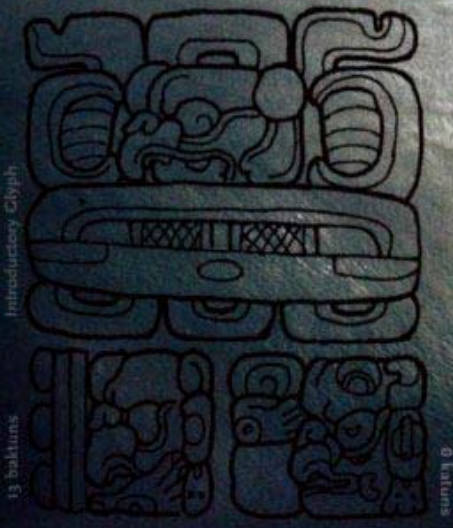
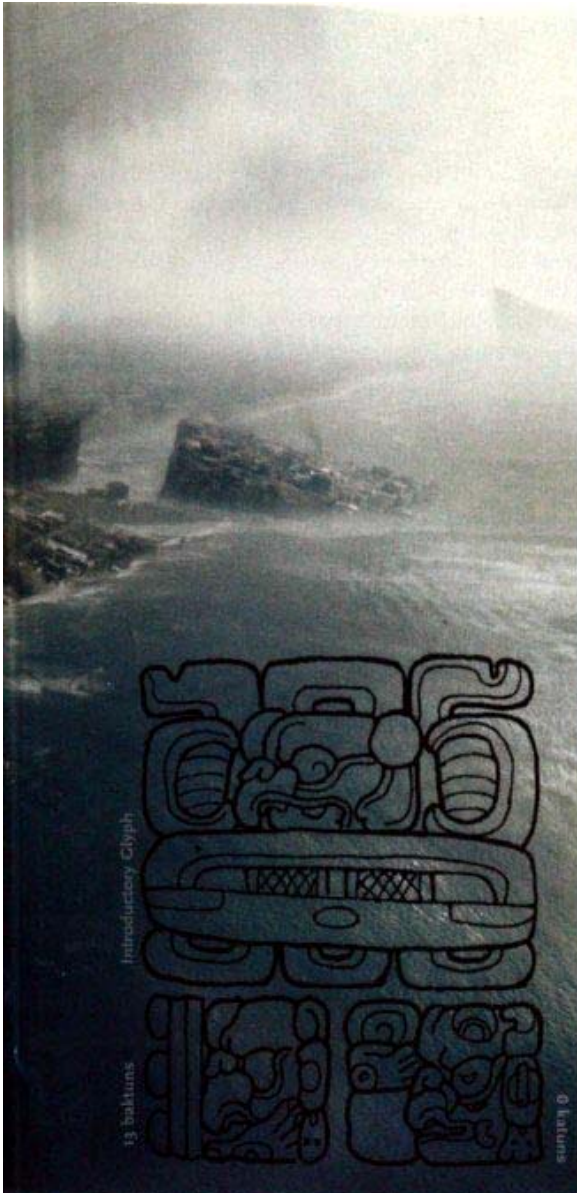


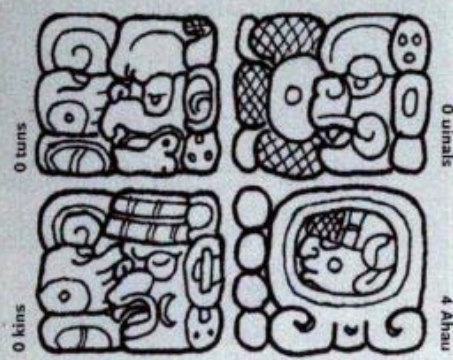
The Great 2012 Scare



Introductory Glyph

13 baktuns

0 katuns

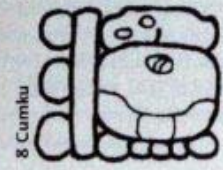


0 tuns

0 uinals

0 kins

4 Ahau



8 Cumku

START THE CLOCK A Maya Long Count inscription carved on a stone stela at Quirigua in Guatemala, erected in the 8th century A.D., commemorates the start of the Baktun 13 era, whose end we are now supposed to fear. In the upper left small glyph, which marks the *baktun* place in the date, the three dots and two vertical bars are Maya script for the number 13. The rest of the intervals in this date are all zero, so Maya scholars specify the date as 13.0.0.0.0. (The name of the day in the parallel 260-day ritual count is 4 Ahau, and in the parallel 365-day count it's 8 Cumku.)

PHOTO: © 2009 COLUMBIA TRISTAR MARKETING GROUP, INC. ALL RIGHTS RESERVED. MARK INSCRIPTION: UNKINISCHILE / FOUNDATION FOR ADVANCEMENT OF MesoAMERICAN STUDIES.

The world won't end on December 21, 2012, but already your friends and relatives are probably wondering if it might.

Here's what to tell them.



By E. C. KRUPP

The year 2012 is acting like a badly behaved celebrity. Frightful rumors and gossip are spreading. Already more than a half dozen books are marketing, to eager fans, astronomical fears about 2012 End Times. Opening in theaters on Friday, November 13th, will be *2012*, a \$200-million disaster movie that seems designed to break all records for disaster spectacles — with cracking continents, plunging asteroids, burning cities, and a tsunami throwing an aircraft carrier through the White House. The movie's ominous slogan: "Find out the truth." Two other major movies about the 2012 doomsday are also reported to be in the works.

Anyone who cruises the internet or all-night talk radio knows why. The ancient Maya of Mexico and Guatemala kept a calendar that is about to roll up the red carpet of time, swing the solar system into transcendental alignment with the heart of the Milky Way, and turn Earth into a bowling pin for a rogue planet heading down our alley for a strike.

None of it is true. People you know, however, are likely becoming a bit afraid that modern astronomy and Maya secrets are indeed conspiring to bring our doom. If people know you're an astronomer, they will soon be asking you all about it.

Here is what you need to know.

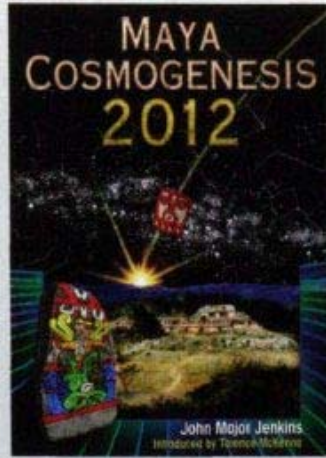
Birth of a Notion

We've had similar scares in the recent past, but none quite like this. The last time the world got all worked up over the mystical turning of a calendar was the false Millennium of January 1, 2000. Never mind the actual Y2K computer-date bug. True-believer authors (and their imitators) published scary and/or hopeful books about the moment's prophetic potential to catch an immense cosmic wave and change everything for either good or ill. Borrowing a forecast from Nostradamus, the 16th-century French riddler, author Charles Berlitz predicted catastrophe in his 1981 book *Doomsday 1999*. Berlitz (fresh off books on Atlantis and the Bermuda Triangle), warned that 1999 could inflict flood, famine, pollution, and a shift of Earth's magnetic poles. He also spotlighted the planetary alignment of May 5, 2000, and warned

2012

CROSSING THE LINE

The ecliptic (the curved line from top right) crosses the Milky Way in Sagittarius on the cover of the chief book behind the 2012 mania. Its back cover claims that author John Major Jenkins "decoded the Maya's galactic cosmology."



that it could bring solar flares, severe earthquakes, "land changes," and "seismic explosions."

In the 1990s an entire "Earth Changes" movement swelled into being as the end of the century neared, with all sorts of Millennial expectations — earthquakes, plagues, polar axis shifts, continents sliding into the sea, Atlantis rising, and more. In England, the *Sun* tabloid predicted a "marvelous millennium of joy, peace, prosperity."

When January 1, 2000, came and went with nothing worse than ski-lift passes printing the date as 1900, the focus shifted to "5/5/2000" several months later. Most believers in the power of planetary alignments forgot the failure of earlier lineups to induce disaster. The "Jupiter Effect" cataclysm predicted for March 10, 1982 (named for the 1974 book about it by John Gribbin and Stephen Plagemann) commanded headlines but never materialized.

Throughout history, end-of-the-world movements missing their mark number in the "hundreds of thousands at the very least," says Richard Landes, historian at Boston University and director of its Center for Millennial Studies. But people eager for the world to end are not to be denied, and this time, of course, all will be different.

The Rollover

What exactly is the Maya calendar about to do? On December 21, 2012, it will display the equivalent of a string of zeros, like the odometer turning over on your car, with the close of something like a millennium. In Maya calendrics, however, it's not the end of a thousand years. It's the end of Baktun 13. The Maya calendar was based on multiple cycles of time, and the *baktun* was one of them. A *baktun* is 144,000 days: a little more than 394 years.

Scholars have deciphered how the Maya calendar worked from historical texts and ancient inscriptions, and they have accurately correlated so-called Maya Long Count dates with the equivalent dates in our calendar. Just as we number our years counting from a historically and culturally significant event (the presumed birth

year of Christ), Maya times were numbered from a date endowed with religious and cosmic significance: the creation date of the present world order. A Long Count date is the tally of days from that mythic startup. Most experts think the start point corresponds to August 11, 3114 B.C.

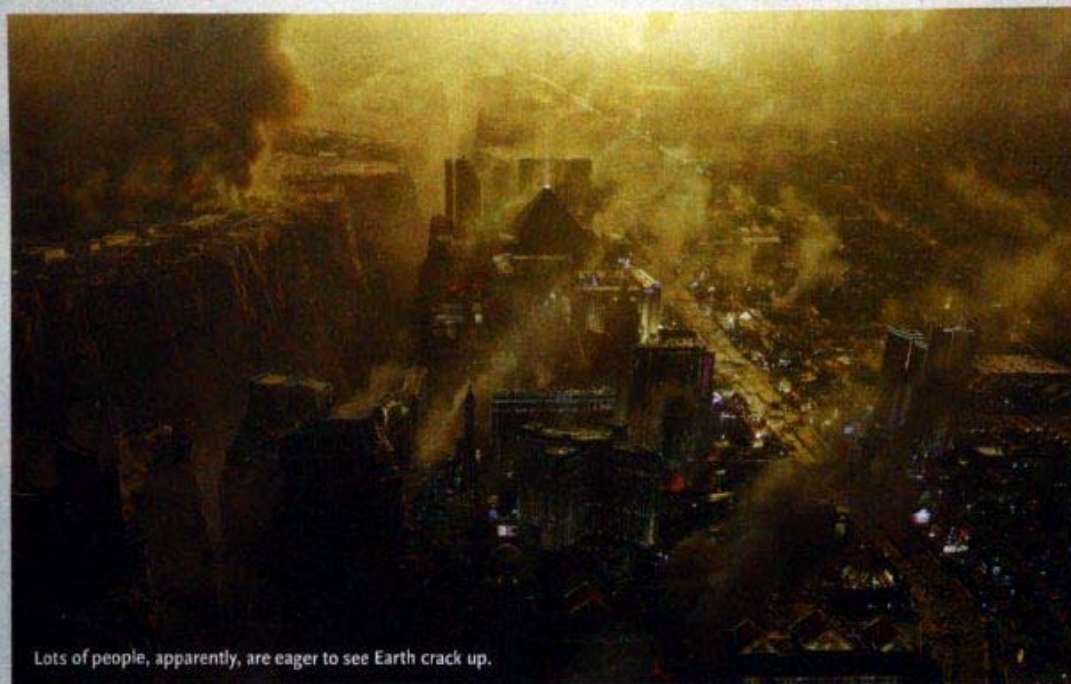
Most of the Maya calendar intervals accumulate as multiples of 20. An interval of 7,200 days (360×20) was known as a *katun*. It takes 20 *katuns* to complete a *baktun* ($20 \times 7,200 = 144,000$ days). Although some ancient inscriptions turn 13 *baktuns* into an important reset milestone, others imply that the calendar simply keeps running. For instance, it takes 20 *baktuns* to make a *pictun*.

No one paid much attention to the end of Baktun 13 until fairly recently. In 1975 Frank Waters, a romantic and speculative author, devoted a brief section to the subject in his book *Mexico Mystique*. He identified the 13-*baktun* interval as a "Mayan Great Cycle," overestimated its duration as 5,200 years, and equated five such cycles with five legendary eras, each of which ends in the world's destruction and rebirth. There is no genuine Maya tradition behind any of this.

Waters also miscalculated the date when the calendar



MARK THE DATE Fortunately for scholars, early Meso-Americans left numerous inscriptions and commemorations that have survived the centuries. Here, a complete Long Count date is recorded on Stela 3 at Tikal, a major Maya ceremonial center in lowland Guatemala. The day marked here is 9.2.13.0.0. 4 Ahau 13 Kayab, which occurred in 488 A.D.



Lots of people, apparently, are eager to see Earth crack up.

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would supposedly pull down the shades. "The end of the Great Cycle . . . will occur December 24, 2011 A.D.," he announced, when the world "will be destroyed by catastrophic earthquakes." Exact date aside, the doomsday ball was now rolling.

Another book in 1975 also spotlighted the Maya calendric roundup. Dennis and Terence McKenna discussed it in *The Invisible Landscape: Mind, Hallucinogens, and the I Ching*. That book at least got the Baktun-13 end date right: December 21, 2012. It also noted that the date is the winter solstice, when the Sun will be "in the constellation Sagittarius, only about 3 degrees from the Galactic Center, which, also coincidentally, is within 2 degrees of the ecliptic." The McKennas continued, "Because the winter solstice node is precessing, it is moving closer and closer to the point on the ecliptic where it will eclipse the galactic center." In reality this event will never happen, but it hardly matters. The McKennas linked the whole arrangement with the concept of renewal and called 2012 a moment of "potential transformative opportunity."

Broader interest in 2012 caught on beginning in 1987. In *The Mayan Factor: Path Beyond Technology*, José Argüelles (an "artist, poet, and visionary historian" according to the dust jacket) linked the 13-*baktun* period with an impalpable "beam" from the center of the Milky Way Galaxy. According to Argüelles, the Maya knew when we entered this beam and when we would leave it, and set their 13-*baktun* cycle to mark our passage through it accordingly. The beam, he asserted, operates as "invisible galactic life threads" that link people, the planet, the Sun, and the center of the Galaxy. Neither Maya tradition nor modern astronomy supports a belief in any such beam. It

stemmed instead from Argüelles's personal philosophy, which emphasizes "the principle of harmonic resonance." Argüelles also concluded that the planets are "orbiting harmonic gyroscopes" that "play a role in the coordination of the beam," which advances the development of anything with DNA. The year 2012, therefore, will bring a rosy version of the apocalypse.

If this sounds a bit familiar, you're right. In 1987 Argüelles and his followers predicted, with worldwide fanfare, that August 16–17 of that year would bring a Maya-Galactic "Harmonic Convergence." That event turned into a global phenomenon, with thousands gathering at Earth's "acupuncture points" to create a "synchronized and unified bio-electromagnetic collective battery." Unfortunately, the date passed with nothing more than colorful newspaper stories and a *Dooniesbury* satire. (A character explains earnestly that the alignment could bring either "mass unification of divine and earth-plane selves," or perhaps nuclear annihilation. "Either way there will probably be a crafts fair.")

Galactic Guessing Games

Fast-forward to 1995. That year John Major Jenkins packaged several of these themes into *Maya Cosmogenesis 2012*. According to Jenkins, the winter-solstice point and the centerline of the Galaxy will line up exactly on December 21st. Arguing that this motivated the Maya to contrive the calendar to end on that date, Jenkins concludes that it will be "a tremendous transformation and opportunity for spiritual growth, a transition from one world age to another."

In fact, astronomy cannot pinpoint such a "galactic

2012

alignment* to within a year, much less a day. The alignment depends on the rather arbitrary modern definition of the galactic equator, and/or the visual appearance of the Milky Way. There is no precise definition of the Milky Way's edges — they are very vague and depend on the clarity of your view. (Jenkins says that he personally established the Milky Way's edges by viewing it from 11,000 feet, far above anywhere the Maya lived.) So to give a precise visual position for its centerline is not meaningful.

Jenkins did acknowledge that the winter-solstice Sun actually crosses the center of the Milky Way anytime between 1980 and 2016. Elsewhere he expands this approach zone to a 900-year period, and settles for an imprecise alignment to which December 21, 2012, is arbitrarily and circularly assigned. Real astronomy does not support any match between the Baktun-13 end date and a galactic alignment. The advocates both admit and ignore this discrepancy.

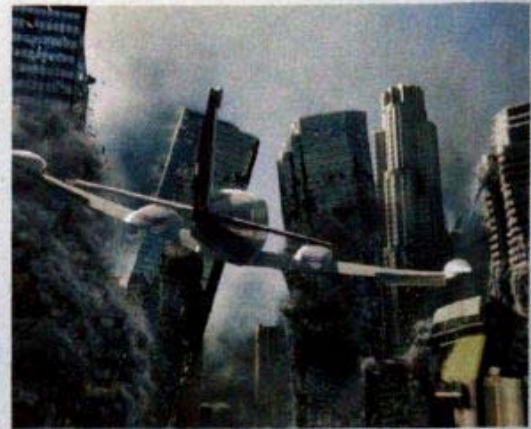
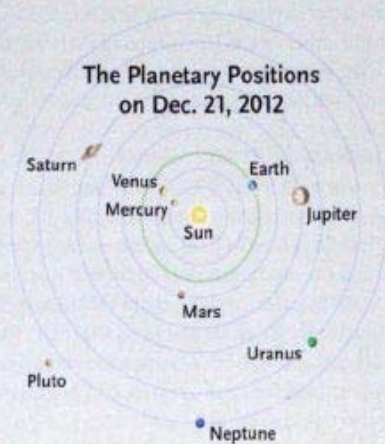
It's almost a sidelight that the winter-solstice Sun will never actually "eclipse" the galaxy's true center, the point-like radio source marking the Milky Way's central black hole. Moreover, the winter-solstice Sun won't even pass closest to it on the sky for another 200 years.

What did the Maya themselves think about End Times? There is no evidence that they saw the calendar and a world age ending in either transcendence or catastrophe on December 21, 2012. Some Maya Long Count texts refer to dates many *baktuns* past 13 and even into the next *pictun* and beyond. For instance, an inscription commissioned in the 7th century A.D. by King Pacal of Palenque predicts that an anniversary of his accession would be commemorated on October 15, 4772.

In all of the Long Count texts discovered, transcribed, and translated, only one mentions the key date in 2012: Monument 6 at Tortuguero, a Maya site in the Mexican state of Tabasco. The text is damaged, but what remains does not imply the end of time.

NON-ALIGNMENT

Contrary to some claims, the planets (and Pluto) will not line up on the supposed doomsday date. Not that it would matter; planetary alignments have no effect on Earth, despite loud claims otherwise. (Not to scale. The orbits of the outer bodies are compressed inward for clarity.)



If the calendar and the Milky Way are going to make skyscrapers tip and fall together, the 2012 heros naturally have to fly between them.

The Secret NASA Conspiracy

Some advocates for the 2012 catastrophe say that what will actually cause the devastation is an alignment of planets. There is no planet alignment on the winter solstice in 2012 (see the planet diagram for that date below). Nonetheless, advocates of doom connect the fictional alignment to astrological predictions or groundless claims about a reversal of Earth's magnetic field and unprecedented solar storms. Many internet postings and guests on all-night apocalyptic radio have elaborated on these themes.

In particular, several threads of irrational thought have created an internet phantom, the secret planet Nibiru. It's the bowling ball, and Earth is the pin. There is no such planet, though it is often equated with Eris, a plutoid orbiting safely and permanently beyond Pluto. Some insist, however, that a NASA conspiracy is in play and that Nibiru, looming in on the approach, can already be seen in broad daylight from the Southern Hemisphere. It was supposed to become visible from the Northern Hemisphere, too, by last May, but like a fickle blind date, it stood up those awaiting it.

Others on the Web, confused about the supposed alignment of the winter-solstice Sun with the Milky Way's center, have declared that the Sun is now plummeting to the Milky Way's center and dragging Earth with it. The predicted result? Earth's polar axis will shift.

Most of what's claimed for 2012 relies on wishful thinking, wild pseudoscientific folly, ignorance of astronomy, and a level of paranoia worthy of *Night of the Living Dead*.

So maybe the Maya were on to us after all. The clock is ticking. And it's the end of the world as we know it. ♦

E.C. Krupp, a Sky & Telescope contributing editor, works overtime at Griffith Observatory in Los Angeles.