

Science and Pseudoscience Behind the 2012 Doomsday Prophecy

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Introduction

Following the increasing number of natural disasters, acute consequences of global warming, worldwide economic downturn and the unceasing outbreak of new epidemics, a new wave of doomsday talk prevails. The History Channel documentary *2012: End of Days*¹ gives a hand on the popularity of the claim. Online forums and communities² boom (currently mainly in the US and Europe) and they attempt to look for means of survival. How does the 2012 doomsday prophecy differ from fabricated doomsday prophecies of the past to arouse such public concern? This owes largely to the proposed scientific bases, accompanied by an abundance of claims from occult literature.

Beginning of the Controversy

The ancient Mayan calendar is known to be unbelievably accurate. The Mayans' astonishing mathematics was able to predict solar cycles, dates of lunar or solar eclipses long before these astronomical phenomena occurred. Yet the literary record of the Mayan calendar ends on 21st December 2012. This initiated the doomsday talk. The Mayan prediction of the end day is claimed to be in line with various ancient legends, scriptures and prophecies including predictions of the galactic alignment of the Earth, the Sun and the Galaxy centre, crashing of Planet X (also known as Nibiru) onto the Earth, revelations from the Bible, prophecies from the ancient Greek priest of Delphi and Mother Shipton, even the pattern shown in the Chinese *I Ching* (《易經》). In this essay, I will put aside these speculations and deciphering, and focus only on discussing the scientific claims.

Scientific Arguments in the 2012 doomsday proposition

The definition of science continues to be debated. Is the Chinese *I Ching* a kind of scientific work? In the broadest sense, science refers to any systematic knowledge or regularity drawn, which results in a highly repeatable or relatively reliable prediction. In this sense, ancient Chinese technology (applied science) might well be counted as science. Yet, this definition was modified later on, in which systematic scientific method is required in acquiring the result, i.e. experimental science.³ The scientific method includes observation of natural phenomena, making hypotheses, recording measurable data (conducting experiments), analyzing the data and constructing theoretical explanation. Hence, a scientific theory is also defined by its capability of being refuted or overthrown by scientific method. For instance, evolution is seen as a scientific theory whereas 'intelligent design' is broadly rejected as scientific. Indeed, science is classified into different categories, and here, my focus is on natural science (which studies natural phenomena) in the narrower sense, i.e. with proper scientific method.

The Mayan calendar is known as the Mesoamerican Long Count Calendar which was constructed of several cycles. 21st December 2012 is analyzed to be the end of the 5th cycle of the Calendar.⁴ The date coincides with the winter solstice, which further corresponds with a propagandized 'galactic alignment' of the Earth, the Sun and the centre of our Milky Way Galaxy. In our Solar System, universal gravitation causes the Sun and planets to share the same plane of orbit. (Universal gravitation holds them on the plane, but it is generally believed that the planar shape

was caused by the centrifugal force due to rotation during the formation phase of the Solar System as suggested by the Solar Nebular Theory) The projection of the earth's orbit forms the ecliptic (i.e. the apparent track of the sun across the sky). The twelve Zodiac constellations 'move' along the ecliptic as we see from our perspective on the Earth. Yet due to a slight wobble of the Earth's spinning axis, the constellations appear to recede by one degree every 72 years and this leads to precession of the equinoxes. Equinox is a date when the axis of the earth is perpendicular to an imagined line joining the earth and the sun, i.e. the sun being vertically above a point on the Equator. Winter solstice is a date when the earth's axis tilts farthest away from the sun. One precession period is about 2160 years. This also represents one astronomical age and we are currently at the Age of Pisces (Pisces is the constellation of Equinox, where the ecliptic crosses the celestial equator at Pisces).⁵ The winter solstice is currently in Sagittarius (the sun is at Sagittarius on winter solstice), which happens to be the constellation intersected by the equator of the Milky Way band. Every year on the winter solstice, the Earth, Sun and the galactic equator come into alignment and precession pushes the Sun a bit further through the Milky Way's band. The Mayans probably anticipated this and saw it as a remarkable transition time of mankind. In the 2012 winter solstice, the Sun will precisely align with the intersection of the ecliptic and the dark rift of the Milky Way (a series of overlapping non-luminous molecular dust clouds located between the solar system and the Sagittarius Arm of the Milky Way Galaxy).⁶ Proponents believe that this will result in catastrophes like drastic polar shift, i.e. the Earth's poles shift, and then its crust and ocean.

The solar flares are claimed to be at highest activity at that time too. As already known, when a lightning strikes a magnet, the magnetic poles sometimes reverse. The Earth in this case acts as a huge magnet, an enormous outburst of sun flares may cause polar shift and reverse the spinning of the Earth. When the solar particles reach the Earth, they will move in a spiral along the magnetic lines: from the magnetic north pole to the magnetic south pole and back. While passing this north-south axis, they will move into the direction of the equator. When they arrive there, they will join into a super powerful 'ring current'. This 'ring current' generates an intense magnetic field that is opposite to the Earth's magnetic field. As in simple electromagnetic principle, if one changes the poles, the motion of the object will turn the other way in the case of a motor, thus as deduced, the spinning direction of the Earth reverses too.⁷

Another widely circulating theory is, a planetary object named Planet X, claimed to be twenty times the size of Jupiter, is currently en route to pass by Earth. The galactic alignment, height of solar flare and the Planet X passage are claimed to create a polar shift of Earth which will lead to great devastation. Many believers of Planet X hold that NASA is covering up evidence of the approach of Planet X. Proponents of 2012 doomsday has related the approaching Planet X proposition with the doomsday.

Pseudoscience of the Proposition

Pseudoscience is any knowledge which pretends to be science or oversimplifies the theory in an attempt to claim credit. The defects may be the lack of the carefully controlled experiments and data evidence.

The galactic alignment of the dark rift and the ecliptic at winter solstice actually takes place

every thirty-six years, with the most precise convergence having already occurred in 1998.⁵ Proponents of the doomsday exploited and oversimplified the theory of polar shift. Actually polar shift is a rather natural phenomenon and is caused by different factors. Albert Einstein consented to Hapgood's theory of polar shift, which states that the poles would eventually slide over the lava ocean until centrifugal force of the spinning Earth brought the ice caps to the equator. The Earth's crust floats on a turbulent molten lava ocean. The Earth's core is spinning faster than the Earth crust, with a slight 'wobble' of the axis. As the crust holds only an electromagnetic charge created by the differential effect of the center, this is an equilibrium that can be relatively easily overcome by other influences, such as solar flares. This is why the magnetic poles seem to 'wander' somewhat as the electromagnetic charge of the crust varies due to cosmic or solar electromagnetic conditions.⁸ The cycle of solar flare is around eleven years. Indeed, in order to overpower the earth's magnetic field you need a solar flame a hundred times more forceful than the biggest one we have ever seen. Scientific evidence suggests that the size of polar shift in that past is about one degree per million years.

Astronomers also point out that if there's really existence of Planet X and if, according to the claim, it is so close to Earth, it would be easy to observe in the sky with the naked eye. And as it is twenty times the size of Jupiter, it should have noticeable effects in the orbits of other planets.⁹ Indeed, the initial proponent of the Planet X theory, Sitchin, has criticized the association of Planet X and the doomsday scenario and he actually proposed the collision should have been in 2010.

Yes, the 2012 doomsday prophecy was well initiated by astronomical observation and it made prediction according to substantial scientific theory, but the application of scientific theories is not justified and evidence is lacking regarding their predictive power.

Nevertheless, Karl Popper once denied the existence of evidence and scientific method. Popper holds that there is only one universal method: the negative method of trial and error. That is, scientific theories can be tested only indirectly and by reference to their implications. One can only falsify a theory but not verify it. A theory could be counted as scientific if and only if it is falsifiable.¹⁰ In this sense, the doomsday theory can be regarded as partially scientific as the proposed reversal of the Earth's spinning is falsifiable.

Commercialization of the Doomsday Prophecy

This subsection probes into the interesting interaction of two kinds of scientific categories: natural science and social science (which studies human behaviour and society). The wide and rapid dissemination of the doomsday scenario hugely owes to the advanced communication technology. The History Channel is accused of playing a major role in propagating ideas of the doomsday in recent years. Dozens of books and journals published made commercial gains of the doomsday controversy. Two movies, one screened in 2008 and another in the coming end of 2009, popularized the idea. The upcoming blockbuster is simply named *2012*, directed by Roland Emmerich, the director of *The Day After Tomorrow*, a prophecy film maestro. In the film trailer¹¹, it features the flushing down of melted icy Himalayas. In the subtitle, it reads, 'how would the governments of our planet prepare six billion people for the end of the world?', 'they wouldn't', '2012, find out the truth, Google search: 2012'. Not only does Hollywood exploit the

'prophecy', frauds don't miss the chance. Paganism is growing, with the most known one 'Scientology' (Tom Cruise is a follower!) in the US. They usually claim that a doomsday is near and the only way to survive is to devote, monetarily and physically, to the 'religion'. Individuals post threads on online forums to hold gatherings in different places, mainly to discuss survival means. The coming one seems to be held in Colorado, USA in August 2009.¹² Threads like 'Submarine Survival, who wants in?' or 'How to build a bunker?' flood the internet. The submarine convener estimates that the entry fee for submarine is US\$11,000 per person. It's rather ironic that, over thousands of years of civilization, human beings' survival preference still echoes with Noah's.

A more positive interpretation from the New Age theory supporters posits that this critical date might not be a total termination of human and human civilization but rather a positive physical or spiritual transformation, i.e. a global consciousness shift. Increasing concern about doomsday might initiate brainstorming about changing the current chaotic world to 'save' the Earth. But disappointingly, what one can see in most on online forums are not topics like 'how to change the present state' but '2012 survival guide'. The doomsday believers are convinced that the doomsday is unavoidable.

Then it comes to a metaphysical question. Even if they survive, decades of years later, they would still inevitably follow the path of the departed victims. It's a matter of time only. One may retort that, seeking survival is a human instinct. Human just think of surviving themselves but leaving out the preservation of our civilization. Oscar Wilde once said, 'We are all in the gutter, but some of us are looking at the stars'. There's a glint of light. Norway is building the 'doomsday seed vault' in the North Pole to preserve species samples.¹³ The question posted by the blockbuster 2012 has to be asked over and over: how would the governments of our planet prepare six billion people for the end of the world?

¹ The program on YouTube: <http://www.youtube.com/watch?v=4Y4EiFeTQ3s> (accessed May 1, 2009)

² Online forum: <http://2012forum.com/forum/index.php?sid=6f2550a6f091dcede06c42a8ebd80b0b> (accessed May 1, 2009)

³ Karl Popper, *The Logic of Scientific Discovery* (New York: Routledge Classics, 1959)

⁴ Benjamin Anastas, "The Final Days," *New York Times Magazine*, January 7, 2007.

⁵ An interesting point to note is that the bestseller movie 'The Da Vinci Code' claimed that after year 2000 human beings are shifting from the Age of Pisces to the Age of Aquarius. This is definitely fictional as precession of equinox won't happen in a year's time.

⁶ John Major Jenkins, *Galactic Alignment: The Transformation of Consciousness According to Mayan, Egyptian, and Vedic Traditions* (Inner Traditions International, 2002)

⁷ Patrick Geryl & Gino Ratinckx, *The Orion Prophecy: Will the World Be Destroyed in 2012* (Adventures Unlimited Press, 2002)

⁸ <http://www.truthaboutax.com/site/1515517/page/740676> (accessed May 1, 2009)

⁹ Phil Plait, *The Planet X Saga: Science*, badastronomy.com, 2003

<http://www.badastronomy.com/bad/misc/planetx/science.html#orbits>. (accessed May 1, 2009)

¹⁰ Karl Popper, "Preface: On the non-existence of scientific method," in *Realism and the Aim of Science* (Totowa, New Jersey: Rowman and Littlefield, 1983).

¹¹ Trailer on YouTube: <http://www.youtube.com/watch?v=q7GmGsoSS-g> (accessed May 1, 2009)

¹² <http://2012forum.com/forum/viewforum.php?f=11&sid=17b077ae57d1976df4b1955260cd7fee> (accessed May 1, 2009)

¹³ <http://news.nationalgeographic.com/news/2007/12/photogalleries/seedbank-pictures/index.html> (accessed May 1, 2009)

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