

Ettinger Journals

A Brief History of Mankind's Chaotic Past

Post-Paleolithic Times (20,000
Years Ago) to the Present

Nemesis's Influence and Prophecy by Douglas B. Ettinger

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III. Introduction of the Sun and its Perilous Sister Star

The Sun has a sister, dim, brown dwarf star that orbits the Sun about every 3600 years which is not well known or believed to exist. This periodicity may differ as much as several hundred years and is not perfect due to perturbations between it and close encounters with the Sun's planets. The orbit is highly elongated and passes very quickly through the inner solar system creating havoc with the Sun's and its own planets. Its suspected path comes from the southern hemisphere and is slightly inclined to the ecliptic plane of the Sun's planets. This dark brown dwarf can only be seen by special infrared telescopes and astronomers have not known where to look in the sky until very recently. Of course, the star's planets cannot be visually seen until close approach because they are not illuminated by either its own dim star or the Sun. The dwarf star and its planets are most of the time beyond the Kuiper Belt where sunlight is miniscule. The star normally passes through the region between Mars and Jupiter and creates debris mainly by electrical arcing and sputtering of its strong electromagnetic discharges between itself and other nearby planets and satellites.

IV. Popular Ideas about a Nemesis Star

This plausible star has been named Nemesis by the scientific community; the popular hypothesis is that Nemesis has an elongated elliptical orbit completely exterior to the Sun's planets and the Oort cloud which periodically comes close enough to disturb comets or minor planets either in the Oort cloud or possibly the Keiper Belt. Nemesis is either a red or brown dwarf star gravitationally connected to our Sun and its distance from the solar system center is in terms of light years.¹ The hypothesis was developed to explain a statistically determined cyclic period for 12 mass extinction events over the last 250 million years.² The Infrared Astronomical Satellite (IRAS) failed to detect Nemesis in the 1980s. The 2MASS astronomical survey failed to detect any nearby dim star in the 1990s. A more powerful infrared technology, the Wide-field Infrared Survey Explorer (WISE), is able to detect the more difficult brown dwarfs as cool as 150K out to a distance of 10 light years and released its final data in 2012.³ No Nemesis was detected and presently NASA doubts that it exists. A final 2014 analysis of the WISE data has negated any Neptune sized object existing less than 700 AU away, and any Saturn sized object existing between the Oort cloud and out to ten thousand AU, and any Jupiter size object out to 1 light year or 63,000 AU assuming their surface temperature is above the detectable limit of about 150K. Admittedly, NASA was unable to detect any Kuiper belt objects with WISE since they fall below this temperature threshold.⁴

NASA officially stated that "recent scientific analysis no longer supports the idea that extinctions on Earth happen at regular, repeating intervals, and thus, the Nemesis hypothesis is no longer needed."³ This statement only refers to claimed periodicities of 25 million or more years based on mass extinctions. Much smaller periods such as 3600 years are not even studied or even contemplated by NASA. This smaller period is claimed to exist by this paper and should be properly identified as the "Sitchin Hypothesis" naming the idea after its originator.

V. NASA Sky Survey Issues

There are numerous issues with these NASA sky surveys in regard to looking for brown dwarfs that may be within much closer and unexpected orbital radius of 90 to 200 AU. The NASA mission is typically looking in terms of light years away for the Nemesis star and AU units within the solar system for asteroids. Recently discovered asteroids or comets could be easily confused with brown dwarfs. The lower part of the range of surface temperature between a typical asteroid like Vesta at 213K to 403K⁵ is not much different from a cooled brown dwarf that can range from 2200K to 750K.⁶ One ultra-cool brown dwarf, WISEPC J045853.90+643451.9 is reported⁷; how cool is it? Presumably, this dwarf is near the lowest temperature detectable of 150K. Also, interstellar extinction which is surrounding dust can reduce the stellar temperature and confuse its total luminosity. Some other reports in 2010 from WISE discussed two unambiguous brown dwarfs being detected as well as “candidates” that have unknown distances. Yes, distances are very difficult if not impossible to determine without available normal techniques. The normal techniques are parallax and astrometry which require sufficient light or heat emission combined with enough proper motion. Nemesis may provide neither enough heat especially if shrouded in dust or enough proper motion due to its highly-elongated orbit around the Sun. Another technique that cannot be applied is comparing the known luminosity or brightness to its observed brightness and computing the distance by the inverse square law. A good calibration of the known brightness for brown dwarfs does not exist. If the infrared surveys can actually track a suspected brown dwarf for a period of time and radar rebounding signals estimate its distance then orbital characteristics can be determined as is done for near-Earth asteroids. No such method of discovery has been reported for any brown dwarfs.

To locate good suspects a computerized program may select candidates from a list of objects with unusually higher proper motion (evidence of a star changing location over a short period of time) which can be precisely the wrong property for Nemesis. One NASA discussion states that fewer brown dwarfs are found in the cosmic neighborhood than previously thought; there exist as many as six luminous stars for every brown dwarf.¹ This claim is very suspicious being based strictly on the limit of detection. If nature’s method of producing stars of all sizes including the smaller non-luminous ones and planets included, then the power law dictates that the majority of bodies produced must be the smallest ones and the largest bodies will be the rarest. Having an unknown albedo from the Sun’s rays similar to an asteroid’s reflected light any approaching dim dwarf star may be almost impossible to see in the normal visual range of telescopes. Indeed, brown dwarfs are as difficult as planets to discover in interstellar space unless somehow, they are observed to affect a nearby luminous object that can be readily observed.

This paper proposes that Nemesis passes much more closely and is more likely a very dim brown dwarf. Infrequently, but nevertheless present during the life of the solar system on many of Nemesis’s passing orbits or crossings, it has more than likely lost one or more of its own planets and/or their satellites to the stronger gravity of the Sun’s planetary system. Of course, direct collisions or near misses of each star’s planets is also part of the storyline going backward in time hundreds, thousands, and millions of

years. Collisions cause debris which can become sizable, threatening short and long period asteroids and comets that, in turn, increase the prospect of future lethal collisions with the inner planets.

VI. A Sanity Check Using Kepler's Law

Let's check with Kepler briefly and use his Third Law to make some simple calculations. Is an orbit of 3600 years around our Sun of its brown dwarf companion a reasonable assumption? The masses of brown dwarfs recently discovered as companions in other star systems, such as Teide 1 and Gliese 229B, are determined to have less than 0.052 solar masses (M_{\odot}) and equal to or less than 0.076 M_{\odot} (80 M_J) respectively.^{8,9} An approximate orbital radius for these samples can be determined by Kepler's Third Law if it is assumed that the body orbits the Sun. The equation is:

$$G \times m \times t^2 = 4 \pi^2 \times r^3$$

The lowest mass for a typical brown dwarf star orbiting the Sun was selected as 0.025 solar masses or 26 Jupiter masses. A comparative analysis reveals that:

$$r = 68.7 \text{ AU for } M_{\odot} = 0.025 \text{ (typical small brown dwarf)}$$

$$r = 87.7 \text{ AU for } M_{\odot} = 0.052 \text{ (Teide 1)}$$

$$r = 99.5 \text{ AU for } M_{\odot} = 0.076 \text{ (Gliese 229B)}$$

If the simpler Third Law of $P_1^2 / P_2^2 = R_1^3 / R_2^3$ is applied for a period of 3600 years an almost rounded orbital radius, R , equals 234 AU. Due to Nemesis's extreme eccentricity and an appreciable degree of inclination to the ecliptic its orbital radius very likely falls somewhere between these maximum and minimum values of 234 AU and 68.7 AU. This expected orbital radius range falls well outside the Kuiper Belt. Any celestial body in this region or well outside it is extremely difficult to observe; only recently have Kuiper Belt Objects (KBOs) been discovered close to Pluto's orbital region. Discoveries in this extreme outer part of the solar system are expected to have a certain proper motion, certain luminosity, and certain close inclination to the ecliptic which Nemesis does not have.

The recent discovery of two very unusual KBOs or dwarf planets does lend more credibility to this paper's Nemesis Hypothesis. These minor planets are also termed Trans-Neptunian Objects (TNOs) since their orbits are a greater average distance than Neptune's orbit. In fact, their orbits are significantly larger and more eccentric. Their data is taken from Wikipedia and tabulated below.

TNO Designation	Discovery Date	Orbital Period in Years	Aphelion in AU	Perihelion in AU	Inclination
90377 Sedna	Nov, 2003	11,400	937	76	11.9°
2012 VP113	Mar, 2014	4452	461	80	24.0°

Their orbital characteristics are reminiscent of Nemesis' predicted features. Much speculation is occurring about why these TNOs have such orbits. Sedna is not near Neptune's orbit and could not be

possibly perturbed by this planet. Academics are making some concession that it was captured from another star system when the Sun was still inside an open star cluster. The capture of free exo-solar planets after an open star cluster disperses is currently not an option by academics and their celestial mechanics. Speculation for 2012 VP is similar except a regular TNO planet of several Earth masses is also suspected. A possibility not known to be considered by NASA is that a Nemesis-like star can also perturb 2012 VP into this orbit as well with other scattered disk objects (SDOs) over immense periods of time with small cycles.

A curious reporting by NASA via Wikipedia is that all major bodies with a semi-major axis of over 150 AU and perihelia greater than Neptune's have arguments of perihelion clustered near 340 degrees which begs for a similar formation mechanism. Could this mechanism be the perturbations or close encounters of Nemesis' planetary system with their crossing of one outer planetary system orbit or of several inner planetary orbits or the Main Belt of asteroids or the KBO belt of the solar system? More gravitational modeling is needed keeping in mind a Nemesis dwarf star that crosses periodically through the Sun's planetary system. Better answers for the scattered disk objects (SDOs) may be available.

A larger cyclic period of about 26 to 27 million years has been calculated for large mass extinctions occurring over the last 500 million years.² Nemesis's worse affects could possibly occur randomly over this larger range of time. Perhaps analysts tried to fit the incomplete fossil record incorrectly into some assumed periodicity. This extinction evidence statistically may be good news for humanity since the last recorded mass extinction occurred only 11,500 years ago.

VII. Effect of Nemesis's Electromagnetic Properties

Increasing knowledge of electromagnetic phenomena and studies of interplanetary plasma are recently leading researchers to suspect that our Nemesis visitor is creating more kinds of havoc than originally thought. The effect of this brown dwarf's highly magnetic and electrical properties is now considered very prominent in affecting the inner solar system and possibly some of the outer planets as well.

Electrical arcing due to this magnetically and electrically charged star is produced and may be enhanced during any close passing or conjunction of one or more of the planets of either star. Planets shorten the electrical path length or plasma column and aid in increasing the flow due to their own electrical and magnetic fields. As the dwarf star makes its closest approach to the Sun both stars become electrically excited and exchange solar winds and plasma through streams of charged particles. If one or more planets are orbiting between these two bodies during the closest approach, an electric discharge of this plasma could very likely occur on the surface of an intervening planet causing great damage to its surface. Or, streamers of charged particles from the affected planet could trail the planet's orbit like a comet's tail. The geological effects of high energy discharge arcing are unlike any other such as crustal cracking or volcanism. Much electrical discharge sputtering of surface material is released into the atmosphere and then returns to the surface. Larger chunks of materials can gain enough energy to escape the gravity field of the planet and be carried along either in the orbit of the planet or with the conduit of plasma that is completing its quest for the next charged body of opposing electrical charge.

Another serious affect postulated by this article is the electromagnetic effect of Nemesis's strong magnetic field coupling with Earth's magnetic field which was possibly stronger than today. This coupling applies a torque to the Earth's already electrified crust and mantle which in turn increases the effect of plasma discharges arriving from Nemesis. The torque is transmitted to the mantle which creates an impact that breaks loose the magnetic connection between the Earth's lower mantle and the outer liquid core near the poles. The impact causes a brief shearing that rotates the mantle with respect to the much denser iron core. The process is labeled "pole shift" by current theorists. A partial pole shift occurred as is revealed by the difference between the current pole and magnetic axes (not currently popular) and by the dramatic changes in the northern and southern polar ice caps.

Any debris created by this brown dwarf passing between Mars and Jupiter is kept in disarray thus creating a permanent Main Belt of asteroids that can never be removed over millions of years due to gravity perturbations and solar winds as happens in other parts of the solar system. The supply of asteroids is continually disturbed and perhaps replenished every 3600 years not allowing the millions of years of time to clear and heal the planetary system of debris. In turn, this debris is then scattered into other parts of the solar system to create more havoc over longer periods of times long after the brown dwarf star has left the scene. This debris is either in the form of long period comets or asteroids in inclined and highly elliptical orbits. The question of where both short and long period comets come from is probably answered without the need for an unproven Oort cloud at 1½ to 2 light years away.

VIII. The Star System's Barycenter

Another effect is the addition of Nemesis's gravitational field which changes the overall barycenter of the two-star system as the smaller star approaches its perihelion. The barycenter is the combined, changing center of gravity of all the bodies in the system that becomes the center of rotation for all the bodies. The Sun's increased wobble may induce abnormal tides and different heat output on Earth. In fact, the affect may over a short period of time while Nemesis is moving through its perihelion produce both unusually low and high tides and both unusually low and high temperature output of the Sun. These kind of short period changes are reminiscent of the recorded plagues that devastated Egypt during ancient times.

Let's briefly explore the possible changing barycenter of the Sun-Nemesis system. For a simple two-body problem the barycenter distance from the center of the most massive star, the Sun is "r". Then:

$$r = a \times [m_2 / (m_1 + m_2)]$$

where m_1 = the mass of the most massive body, the Sun; m_2 = the mass of the other orbiting body; and a = the distance between the centers of the two bodies. Assuming that from a previous calculation $Nemesis \approx 0.052 \times m_1$ then the distance, $a_a \approx 90$ AU at its aphelion and $a_{p1} \approx 40$ at its possibly farthest perihelion and $a_{p2} \approx 2.7$ AU at its closest perihelion. Then $r = 4.6$ AU, 2.0 AU, and 0.14 AU respectively by letting $m_2 / (m_1 + m_2)$ approximate m_2 / m_1 since m_1 is much more massive. In comparison to Jupiter which produces an $r = 742,000$ km which is only 1.07 times the Sun's overall diameter¹⁰, these

postulated barycenter determinations are significantly larger. Due to Nemesis's mass and depending on the elliptical alignment of its orbit to the Sun's overall proper motion, these barycenter values reveal that the Sun weaves or wobbles dramatically especially as Nemesis gets closer to its perihelion. Due to feedback delay of the Sun's dense core motion and the Earth's orbit, making adjustments to compensate for the system barycenter being far outside the Sun's limb, solar radiation output and input to Earth can very possibly change abnormally. Hence, if no close encounters, collisions or electrical arcing occur in a 3600-year cycle of Nemesis' crossing, severe tidal acceleration forces can create minor crustal disturbances and ocean flooding; and, temperature fluctuations can cause climatic changes that can make regions either colder or warmer.

IX. The New Nemesis Hypothesis Summarized

Before delving into more details, the hypothesis of this paper will be briefly summarized. There exists a brown dwarf star orbiting our Sun whose orbit is extremely elliptical and travels most of its life outside the orbits of the Sun's planetary system. Periodically, or during each orbit, this star called Nemesis enters the Sun's planetary system and causes devastation of various degrees. Among the more important effects to Earth are changes in solar output from the Sun due to barycenter disturbances; increased tidal accelerations affecting earthquakes and volcanism; increased production of near-Earth asteroids of which some collide causing global atmospheric dust and climatic changes; increased incoming plasma and magnetic field changes causing partial pole shift and attending geodesic adjustments with attending global flooding. The possible approximate orbital period is every 3600 years with the best-defined Nemesis visit and upheaval occurring 11,500 years ago. The effects of other recent visits are discussed later.

This sister star, or Nemesis as it is labeled by the scientific community, is due to come through the inner solar within the near future and is touted as being observed currently by telescopes in the southern hemisphere. This information supplied by some "insiders in the astrophysics arena" is supposedly being suppressed by NASA and the government to avoid a global panic. But let's assume the data is correct and our Nemesis was already discovered and its orbit is plotted to confirm a gravitationally connection to our Sun. It is predicted by numerous archaeologists that this star or planet sometimes referred also as Nibiru or Marduk in ancient texts returns every 3600 Earth-orbits or years. In fact, one claim is that some of mankind's mathematics is based on this number of orbits. That is why the ancient mathematicians measured time (the hour) and the circle by dividing them into 360 parts, multiples of the 3600-year orbit and the almost 360-day year. Let's go back in man's recorded history and global biological/geological records to verify anomalies or chaos that may have occurred at each 3600-year transition utilizing the best-defined boundary at 11,500 BP or 9500 BC as the starting point.

X. Studying Earth's History at the Boundary of Each Interval of Every 3600 Years

Going forwards and backwards from this marker or boundary of 9500 BC (11,500 BP) every 3600 years produces the following postulated boundaries of 4900 AD, 1300 AD, 2300 BC, 5900 BC, **9500 BC**, 13,100 BC, 16,700 BC, and 20,300 BC when the hypothesized Nemesis star passed through the solar system during its perihelion. Using the Jupiter period of 12 years as a basis the passing could take possibly from 6 to 30 years, but its effects could last for hundreds of years. The next future passing is predicted as **4900 AD**, which is comfortably far in the future. Nemesis has traveled in its orbit from its last perihelion for $(2014 - 1300) = 714$ years which means any emitted radiation is decreasing as it still recedes. At 3100 AD Nemesis will have reached its predicted aphelion and will once again start to approach the Sun's planetary system.

A. The Little Ice Age of 1300 AD

The next interval going backward in time is **1300 AD**. The significant event of that time was the Little Ice Age that occurred from about 1350 to 1850.¹¹ Nemesis's passing during this time had no relatively large effect on Earth's climate or geological condition as occurred 11,500 years BP. Probably Nemesis either caused a wobble of the Sun reducing its heat output and/or several asteroids were disturbed and sent inward having some strike Earth. Other official attributed causes besides an unexplained cyclic low in solar radiation are increased volcanic activity, changes in ocean circulation, and decreases in human population. This loss of heat output from the Sun is represented by the Maunder Minimum (1600 to 1750 AD) or lowest sunspot activity since modern times. Solar activity as measured by carbon14 dating indicated minimums during the 1300's (Wolf Minimum) and three other subsequent minimums.¹² The beginning of the Little Ice Age was marked by the growing Atlantic pack ice, killing of plants due to glaciation, stoppage of dependable summers in Northern Europe, the Great Famine of 1315 to 1317.¹³ The famine possibly weaken the health of the populations throughout Europe and Asia causing the Black Death or Plague of 1346 to 1353. Any possible asteroid strikes were not lethal or recorded, but could have produced dust in the atmosphere along with numerous known huge volcanic eruptions to reduce solar radiation and cause a brief cyclic climatic cooling during this 500-year interval.

Surprisingly, no record is documented of observing Nemesis's passing. Of course, the telescope was not invented and used until the early 1600s. And, very cloudy conditions existed in the higher latitudes at that time. Regardless, this passing star should have made some visual impact. Perhaps some prior perturbation caused the perihelion to increase beyond the Jupiter and Saturn orbits making it difficult to be observed. This possible outcome bodes well for the future of the inner planets including Earth and its inhabitants. Nemesis at that time showed no serious direct effects on Earth; only indirectly did Nemesis possibly stir up some asteroids and cause the Sun to wobble from its normal barycenter.

B. Increased Interest in Astronomy Occurs at 2300 BC

Going backward in time again another 3600 years we arrive at **2300 BC**. During this period, an increased interest in astronomy was recorded in Babylon and Egypt. A religion based on observations of stars reaches its zenith in Egypt's Third Dynasty and was later replaced with Sun worship. From Chinese sources come the first recorded observations of a comet in 2296 BC.¹⁴ This astronomical interest could have been stirred up by the arrival of new wanderers in the sky, namely Nemesis and one or more of its planets. Significant events did occur during 1600 to 1700 BC which could have been caused by Nemesis's previous visit of 600 years ago. Once again asteroids and planetary satellites could have been disturbed and were sent inward toward Earth and other inner planets randomly causing impacts. Comet or asteroid strikes could have caused the following recorded changes in climate and resulting upheavals in man's civilizations. The Indus Valley Civilization ended in 1600 BC; the Shang Dynasty started in China about the same time; the last species of the mammoth became extinct in 1650 BC; in 1627 BC the cooling of world climate lasted several years as is recorded in tree-rings all over the world; major eruptions of the Minoan volcano, Thera, and Mount Vesuvius occurred during these same times. Egypt was conquered by Asian tribes; the Unetice culture located in the Czech Republic ended. The oldest astronomical documents were created by the early Babylonians during these times; a 21-year record of the so-called strange appearances of Venus was found in a Babylonian library that supposedly occurred close to 1600 BC.¹⁵ Obviously, some outside factors were disturbing Earth's sky, climates, and its volcanoes. And, the stability of man's earliest civilizations was weakened. Man's interests in astronomical events came very much into focus probably due to the large, unexpected changes that occurred in an earlier remembered sky and by current terrifying comets streaking across the sky.

C. Major Flooding and Confirmation of Saros Cycle in 5900 BC

Subtracting another 3600 years from 2300 BC produces the year of **5900 BC**. Archaeologists in Scotland discovered evidence of a massive tidal wave that swept across the North Sea causing widespread destruction on the northern coasts of Europe citing 5800 BC as the date.¹⁶ This dating is similar to the break-through of the Bosphorus Strait that caused major flooding of the Black Sea coastal areas. A massive volcanic landslide from Mt. Etna in Sicily caused a widespread tsunami on the coastline of Europe, Asia and Africa. The disappearance of Equids (species of horses) from the Americas occurred close to the same time. Occurring in 5677 BC a cataclysmic volcanic eruption of Mount Mazama created Oregon's Crater Lake.¹⁷

Besides 5900 BC indicating major geological events, flooding, and extinction events, man was beginning to record history in which this millennium was identified as one Saros or "Nibiru orbital" cycle after the Great Deluge or the Noah Flood. Nibiru is a Sumerian "prophet-planet" that returns on a 3600-year cycle with the next cycle being 5900 BC.¹⁶ The Sumerian/Babylonian word "sar" was one of the ancient units of measurement with a value of 3600.¹⁸ The new Babylonian empire called Sumerian's Nibiru as "Adad" that was described in the Gilgamesh Epic as assaulting the Earth during the Flood. Some Jewish Old Testament experts also identify this time with the destruction of the Tower of Babel and the flight from the city Ur of the Chaldees and Abraham's family.¹⁶ Apparently, the memory and history of the Great

Flood was passed down 3600 hundred years and was attributed to a God or star that the ancients called Nibiru/Adad. Of course, this paper now refers to these ancient names as Nemesis.

The story of the 5900 BC period is continued for several hundred years with the idea that Nemesis's visit invariably causes an aftermath of changes created by its tidal accelerations on Earth's crust and/or by its disturbance of some asteroids that strike Earth. Around 5600 the beginning of the desertification of North Africa caused migrations toward the Nile River valley starting the basis for the Egyptian civilization. Irrigation and the beginning of the Sumerian culture started in earnest about 5400 BC.¹⁷ Other major world-wide Neolithic cultures developed in less than two centuries.

After certain climatic disturbances began to lessen and cataclysmic geological events ended, mankind was then ready to leap forward to create major cultures world-wide near the end of the Neolithic Period and during the Chalcolithic Period ranging from 4000 to 3000 BC. It should be noted that around 3200 BC various indicators revealed global changes in climate supposedly caused by a drop in solar energy output. Some of these indicators were a quick shift in the formation of ice caps in the Peruvian Andes; tree rings in the British Isles showing its driest period; unusual changes in plant pollen uncovered from lakebed cores; lowest levels of methane retrieved from ice cores in both Greenland and Antarctica.¹⁹ This paper is not attributing this global climatic change to any Nemesis visit directly. Perhaps some random immense volcanic activity and/or asteroid impacts caused long term atmospheric dust to cool Earth in certain regions.

D. The Great Flood Event of 9500 BC

Continuing in the same manner by going backward another 3600 years or one orbital period of Nemesis or one Mesopotamian "sar" from 5900 BC produces the infamous age of **9500 BC** when a certain cosmic catastrophe and the "Great Flood" occurred. This period also is the ending of a significant geological and climatic period called the Younger Dryas. If indeed man had developed advanced civilizations prior to this time such as is proposed by Plato's Atlantis and the land of Mu then it was thoroughly destroyed with only memories left to be verbalized.

Directly following this time starts the Mesolithic Period lasting about 1000 years. Actually, the Mesolithic Period is dated by the type of hunter-gatherer tools used and varies throughout parts of Eurasia.²⁰ The last Stone Age stage is the pre-pottery/pottery Neolithic Periods that saw small farming communities beginning to form with a slow progression of domesticated crops and animals. The rise of this Neolithic era is seen in Southeast Asia, the Fertile Crescent, Europe, China, and Korea²¹— all in the middle northern latitudes where most of the megalithic structures are located. Were there developed civilizations with megalith structures before the Flood? If yes, then the survivors had to rebuild infrastructure and reconstruct reasons for the megaliths with much of their knowledge lost?

The beginnings of a developed culture matching the later Neolithic stage in the eastern Mediterranean (Levant region) around Jericho and Palestine are dated closely to 8800 BC.²¹ This time is unusually early compared to other Neolithic cultures. Perhaps destruction in the Levant region was mild and the already developing Neolithic culture was saved. For this reason, the "Cradle of Civilization" soon arose giving us

the written word about the Flood. People of the Americas and Pacific regions mostly retained the Neolithic level of tool technology until the time of European contact. Climatic changes of the previous Younger Dryas Period are thought to have forced people to develop farming.²² Or, was farming already developed prior to the Flood? Perhaps the farming and urban culture with polished stone and metal tooling already existed in certain areas of the world and was driven backward toward Mesolithic adaptations.

E. The Oldest Dryas Period Marking the Next Two Saros Cycles

Going back farther in time leads us into the colder parts of our current Ice Age. These parts are the stadial periods of lower temperatures during interglacial warm periods that separated the glacial periods of the various ice ages. The immediate three colder stadial periods are named the Oldest Dryas, the Older Dryas, and Younger Dryas Periods. The approximate endings of two of these periods agree with the two orbital periods of passing Nemesis: **9500 BC** at the end of the Younger Dryas Period; and 9500 BC minus 3600 years = **13,100 years BC (15,100 BP)** at the end of the Oldest Dryas/Older Dryas Period. The last Nemesis visit to contemplate is 13,100 BC minus 3600 years = **16,700 years BC (18,700 BP)** which is the beginning of the Oldest Dryas.

These Dryas periods are named after an indicator genus, an arctic and alpine flowering plant *Dryas*. Their fossils are found in higher concentrations in geological deposits between these colder stadial periods. The Oldest Dryas Period began between 19,000 and 18,000 years BP and ends with a fairly high resolution at 14,600 BP.²³ The beginning and end of the Oldest Dryas Period are well identified by post-glacial sea level rise. The meltwater pulse marking the end of the Older Dryas lasted about 1000 years with sea level rising over 20 meters.²⁴ The middle or Older Dryas Period is difficult to predict with a good resolution of its beginning time which is probably due to the Earth still recovering from the previous Oldest Dryas stadial period. The various dating methods for the Older Dryas period provide a range lasting only 100 to 150 years and centered near 14,100 BP.²⁵ Two smaller well defined interstadial periods or oscillations occurred one before and one after the Older Dryas Period. These are called the Bolling and Allerod oscillations respectively. The Older Dryas and the two oscillations span 13,000 to 11,000 BC.^{26 27}

A discussion of general astronomical cycles that occur on Earth is appropriate at this juncture in this paper. Cycles of a year or less including the 11-year sunspot cycle are not considered. For the most part all these larger cycles have much longer time intervals than the 3600-year cycle that is being postulated for Nemesis. This comparatively short cycle matches the outer planets and Kuiper Belt objects orbiting the Sun such as Pluto with an orbital period of 249 years and Sedna with an estimated period of 11,400 years. All other known and studied cycles are much larger such as the Earth's precession at 26,000 years; the obliquity or change of Earth's tilt every 41,000 years; the eccentricity of the Earth's orbit every 100,000 years. These Milankovitch cycles help to determine the long periods of glaciation on Earth.^{28 29}
^{30 31} And, then there are the extremely long periods of 26-million-year mass extinctions. Obviously, these cycles cannot be correlated with Nemesis. However, one recently series of short cycles was discovered by analyzing the ice cores of Greenland. Rapid shifts of about every 3600 years from peak to peak in isotopic composition occurred from a span of 10,000 to 100,000 year ago. This isotopic study called the

Dansgaard-Oeschger Events measured the frequency of stadials and interstadials which are relatively cold and warm periods, respectively, occurring between much colder and longer glacial periods. This Dansgaard study did not attribute the cause, but this paper suspects Nemesis's influence.³²

It must clearly be understood that some events caused by the passing of Nemesis may lag by several hundred years due to new asteroids being created and/or disturbed from stable orbits that eventually strike Earth as large bolides. If the bolides are large enough, resulting global dust placed into the atmosphere can cause unusual cooling for decades to come. Also, tidal surges of Earth's crust due to a close passing of Nemesis and/or its conjunction or opposition with the Sun may create cavities for lava flow within the lithosphere resulting in a delayed volcanic activity and increased movements of plate tectonics.

Table 1: The Postulated Cycles for Nemesis

AD or BC (years)	BP (years)	Boundary of Cycle or Return of Nemesis (every 3600-year interval)
4900 AD	≈ 1300 years into the future	Nemesis's next predicted return is several centuries in the future. Currently, Nemesis is receding from the Sun.
1300 AD	700	Nemesis's last return triggered the Little Ice Age and possibly increased volcanic activity reducing solar heating.
2300 BC	4300	Interest in astronomy increased and climate changes were triggered 700 years later about 1600 BC.
5900 BC	7900	Massive flooding and extinction events marked this boundary; the Sumerians marked this boundary as the next Saros cycle from the Great Flood event.
9500 BC	11,500	During this time, the Great Flood and other catastrophes including mass extinctions occurred; this boundary is also the beginning of receding glaciation and the end of the Younger Dryas geological period. A sea level rise started that attained present sea level about 5000 BC.
13,100 BC	15,100	This boundary marks the end of the Oldest and Older Dryas stadial periods with two interstadial periods occurring close together. A meltwater sea level pulse started and lasted about 1000 years.
16,700 BC	18,700	This boundary marks the beginning of the Oldest Dryas period when the Earth was departing from its last glacial maximum.

XI. Aftermath of the Younger Dryas Period

The Younger Dryas Period occurring between 12,800 and 11,500 BP³³ is the best documented and most important stadia period for consideration by this paper. The 3600-year marker for one of Nemesis's visits is supported best by scientific data. The period is well defined and has very synchronous dating worldwide. A rapid return of glacial conditions in the higher latitudes of the North American Hemisphere occurred and is believed to have been created in a very short period of 10 to 20 years. Data from oxygen isotopes, dust concentration, and snow accumulation of ice cores indicate warming of 7 degrees Centigrade in just a few years with total warming of Greenland being about 10 °C.³⁴ A sea level rise

began to pulse during this time that led to 60 more meters of height before attaining present levels about 7500 years ago.²⁴ Measurements of oxygen isotopes from the Greenland ice core indicate the ending the Younger Dryas took place over just 40 to 50 years. Other data such as dust concentrations and snow accumulation suggest an even more rapid transition requiring about 7 degrees Centigrade warming in just a few years. The end of this period is determined with very high resolution of numerous sources from various disciplines to be 11,500 years BP.³⁴

A currently, partially, accepted scientific explanation is the failure of the North Atlantic Ocean's thermohaline circulation due to sudden influx of fresh water from rapid glacial melting in North America. Other hypotheses are an impact event hidden because the impact location was on the ice cap, and unusually large global volcanic activity.³⁵ However, no one from the respected academic community has ventured to propose disturbances created by visiting celestial bodies on a grand scale such as the near passing of the Nemesis star. Numerous worldwide myths do account for celestial events during this time. More than likely, as this paper is proposing, the close approach of Nemesis with Earth brought red dust, comets, asteroids, and a combination of perturbing gravitational and electromagnetic forces. These forces possibly shifted and twisted the Earth's mantle and crust about its liquid core. This rotation of even 10 to 20 degrees would cause great distress on the Earth's crust because the oblateness of 6.5 miles on radius of the Earth's surface about the equator due to centripetal force would need to adjust its geoid globally across the globe. This re-adjusting of the Earth's crustal altitude would create some wobbling or shifting of the spin axis, reversal of the magnetic poles, horrendous storms, the deep freeze of flora and fauna that was suddenly moved into the new polar region, volcanism, earthquakes, the movement of partial or entire ice caps that can slide into the ocean, dramatic rise of sea level, and the complete drainage and/or re-location of inland lakes and parts of some seas.

These sweeping and superfast changes of Earth's surface would cause utter destruction of any of mankind's existing civilizations, especially of the concentrations of humanity at seaports and along rivers, and drive many fauna genus into extinction. However, there were enough survivors for life to go on, especially for man. Legends of this great destruction and flooding caused by celestial visitors were handed down from generation to generation. Many worldwide documented records (long thought to be legends with no technical basis) were eventually created such as the account of the Noah flood. The post Younger Dryas times are believed by archaeologists to cause drought in the Levant region or Middle East motivating that surviving culture to develop agriculture.³⁶ This hypothesis seems correct since that part of the world would have moved from less tropical latitude to drier northern latitude and avoided severe ocean coastal flooding by remaining on the Earth's more elevated, oblate crust. The prediction of this paper is that the Earth's crust rotated about 20° latitude moving Siberia and Eurasia that much closer to the North Pole. Canada and northern United States moved an equivalent amount away from the North Pole. Hence, a thick permafrost would build up in Siberia and the existing ice cap began to melt in northern United States.³⁷ This combined crustal movement would not exclude the continent of Antarctica moving directly over the South Pole. More "food for thought" is the conjecture, with

absolutely no evidence, that the land of Mu was on the western part of this continent and is now buried under an ice cap.

Other evidence that supports this dramatic change of the Earth's surface toward the end of the Younger Dryas period is indisputably listed: ³⁴

- Replacement of forest in Scandinavia with glacial tundra
- Piles of mammoth bones and other indigenous animals found on islands in northern Siberia
- Extinct animals found freeze-dried (only caused by a very sudden lowering of temperature and continuing freezing temperatures) and even used as food by gold prospectors in Alaska and the Yukon
- Both prey and predator of extinct animals found in caves together seeking shelter from something more feared than being eaten
- Young woolly mammoth calf found freeze-dried with daisies in its mouth now exhibited in a natural history museum in St. Petersburg, Russia
- Woolly mammoth and sabre tooth tigers' bones found in fishing nets that dragged the sea bottom 200 feet below sea level on the North Atlantic continental shelf
- Glaciation due to increased snow in mountain ranges around the world
- More dust in the atmosphere coming from deserts in Asia where rapid deforestation and high winds occurred
- The Huelmo/Mascardi Cold Reversal in the Southern Hemisphere ending at the same time; any possible pole shift should have caused symmetrical climatic changes about the equator.
- The American ice sheet of the last ice age was centered on southern Canada below the Hudson Bay while the current polar region of those times was free of ice suggesting the Earth's lithosphere had shifted 20 to 30 degrees in latitude which may explain the difference between the Earth's spin axis and its moving magnetic pole axis. Currently, the northern magnetic pole is slowly moving toward the spin axis pole; perhaps the residual magnetism within the Earth's crust and mantle from the previous pole location is making adjustments to seek the new true magnetic north over the spin axis
- Decline of the Clovis Culture and extinction of animal species in North America. One ridiculous conjecture is that the Clovis people over-hunted the woolly mammoth with their primitive Neolithic weapons with no explanation as to why smaller animals also went extinct.

Clear explanations for all these events happening very close together is lacking unless there was a slight but dramatic pole shift caused by Nemesis.

XII. The Uneasy Marriage of Myth and Science

Was the Great Deluge or Flood a myth created by almost all surviving cultures around the world whose peoples supposedly had little or no contact with each other? Scientific and technical reasons are slowly coming to the forefront to support the myths. And the Sun's sister star, Nemesis, gives us another reason. Only until recent times have the discovery of such bodies as brown dwarfs and binary star systems with planets become known to astronomers. Is it truly possible that our very own Sun is part of a binary system? Did our star system in its early formation inside a star-burst cluster capture another star system that continues to orbit the more massive Sun in an elongated orbit and disturb the tranquility of the Sun's supposedly pristine planetary system? More news arrives daily from space probes and space telescopes that indicate the solar system is not so tranquil and constant.

Scientists must ever be vigilant to keep open minds and explore ideas that are outside the accepted norm. The previous discussions do certainly suggest more specific research such as:

1. Continuing the search for a nearby brown dwarf in the infrared spectrum if not already found.
2. Observing the Sun along with background stars looking for unusual wobble or weaving not attributed to its own known planets.
3. Performing more experiments with plasma to assure how various discharges should appear in space.
4. Postulating and modeling the magnetic field strengths of brown and red dwarf stars and how they may generate plasma discharges.
5. Demonstrate in the lab by scaling how plasma discharges of what power can cause the surface anomalies discovered on Mars.

It is time to gather other very interesting and unique viewpoints that corroborate the proposals of this paper. These views and predictions are mostly written by authors considered to be catastrophists who have ignored or defied uniformitarianism and the other assumed laws of nature and physics. The laws of nature are simply those ideas that are currently fashionable; new discoveries and ground-breaking ideas have continually destroyed the contention that any of man's laws of nature are immutable. The predictions of this paper are based on reasonable scientific data that can lead to troublesome times. Governments, religious bodies, and universities want to completely dismiss catastrophism with no or little fair review. These ideas cannot simply be dismissed as the products of doomsayers and crack-pot scientists. These kinds of predictions actually have guided curious and serious researchers into areas of climatic studies via ice and seabed coring, more focus on modeling the Earth's mantle and lithosphere, more studies of correlating rock dating on Moon and Mars, increased observations and tracking of near-Earth asteroids, exo-solar planetary searches, etc. Major contributors to this paper's hypothesis are listed and cited in the following table. Their predictions and ideas have significantly led to the conclusion that Nemesis exists and possibly threatens our spaceship, Earth. Although many of these authors' theories are controversial and/or completely dismissed by the scientific community and also by this paper, many other of their excellent ideas simply cannot be ignored and must be given our careful attention.

Table 2: Major Contributors to the Evolution of the Ideas for the New Nemesis

This table by no means infers that the listed authors completely accept each other or this paper's hypothesis		
Author	Approximate Publish Date	Book(s) or Journal Published and Discussed
Immanuel Velikovsky	1950	<i>Worlds in Collision</i>
Charles Hapgood	1958 / 1968	<i>Earth's Shifting Crust / The Path of the Pole</i>
W.P. Farrand	1961	"Frozen Mammoth and Modern Geology" by <i>Science Journal</i>
Eric von Daniken	1968	<i>Chariots of the Gods</i>
Zecharia Sitchin	1976	<i>The Twelfth Planet</i>
John White	1980	<i>Pole Shift</i>
David Talbott	1980	<i>The Saturn Myth</i>
D.S.Allan and J.B.Delair	1997	<i>Cataclysm! Compelling Evidence of a Cosmic Catastrophe in 9500 BC</i>
David Talbott and Wallace Thornhill	2005 / 2007	<u>Thunderbolt of the Gods</u> / <u>The Electric Universe</u>
David Talbott and Wallace Thornhill	2011	"Symbols of an Alien Sky"; "Episode 2: The Lightning Scarred Planet Mars"; "Episode 3: The Electric Comet" produced by DVD and YouTube movies and video streaming
David Talbott and Wallace Thornhill	2011	Thunderbolt Project: a series of video streaming documentaries.

XIII. The Story of a Cosmic Catastrophe 11,500 Years Ago

The first book of extreme interest for this paper is *Cataclysm! Compelling Evidence of a Cosmic Catastrophe in 9500 B.C.* by D. S. Allan and J. B. Delair.³⁸ The authors are a Cambridge M.A. science historian specializing in paleogeography and a B.Sc. Oxford-based geologist and anthropologist who is museum curator of geology at the University of Southampton, England. This multi-disciplinary study examines the great global catastrophe that occurred 11,500 years ago. The book models a cosmic intruder, the resulting displaced spin axis, geological consequences; the resulting extinctions of flora and fauna; and the worldwide legends and traditions that portray this terrifying event.

These authors dubbed the celestial body that brought hell on Earth as "Phaeton" the French form of "Phaethon" which is the Latin form given by the Roman poet, Ovid. As the myth states: Phaeton, who is the son of a solar deity, the Sun, gained permission to ride the Sun's chariot. Phaeton was unable to control the chariot almost destroying Earth; Zeus (of Greek origin) or Jupiter (the Roman version of Zeus) killed him with a thunderbolt to save Earth or Gaia from total destruction. This documented myth was passed from culture to culture via re-interpretations of different ancient languages throughout the millennia of mankind's known existence: to the Romans who called this deity Phaeton from the Greeks (whose name for Phaeton is Typhon) that was found in Homer's writing and Hesiod's *Theogony and Works and Days*;³⁹ to the Greeks from the Assyrians (whose name for Typhon is Ashur, depicted as a god

within a winged disc) that was taken from the tablets of their creation epic found in Nineveh;⁴⁰ to the Assyrians from the Babylonians (whose name for Ashur is Marduk) taken from the writing of Enuma Elish, meaning “when in the heights”;⁴¹ to the Assyrians from the Akkadians (whose name for Marduk is Erra), taken from their text of Genesis written in Old Babylonian dialect;⁴² to the Akkadians from the Sumerians (whose name for Erra is Nibiru or Elohim, the spirit) found in their Epic Tale of Creation found on seven clay cuneiform tablets, with six dealing with the creation process. The symbolic depiction for Nibiru is the winged disc.⁴³ The people of Sumer claim their epic tale was handed down from previous millennia.

Table 3: Lineage of Nemesis's Name

Evolution of Nemesis's Name	Cultural Origin	Literary or Written Source or Idea Attributed to the Nemesis Name
Nibiru or Elohim	Sumerian	Epic Tale of Creation created on clay cuneiform tablets.
Erra	Akkadians	Text of Genesis written in Old Babylonian dialect.
Marduk (possibly means the planet of Nemesis)	Babylonians	Writings of Enuma Elish, meaning “when in the heights”.
Ashur	Assyrians	Tablets of their creation epic found in the city of Nineveh.
Typhon	Greeks	Homer's and Hesiod's writings in the <i>Theogony</i> and <i>Works and Days</i> .
Phaeton or Phaethon	Roman	Writings of a Roman poet, Ovid
Planet “X”	Modern times	A search beginning in the 20 th century for unknown planet(s) was initiated to explain orbital perturbations of the outer planets.
Nemesis of Myth	Ancient Roman and Greek times	In Greek mythology, she is the inescapable goddess of revenge and in Roman, the avenger of crime.
Nemesis of Mass Extinctions	Very recent times	A hypothetical red dwarf or brown dwarf star was postulated in 1984 to be orbiting the Sun at a distance of about 95,000 AU, somewhat beyond the Oort cloud, to explain a perceived cycle of mass extinctions in the geological record.
Nemesis of the Saros cycle returning approximately every 3600 years	Currently proposed by this paper and partially by author, Zecharia Sitchin, in 1976	This hypothetical orbiting red or brown dwarf star is responsible for a shorter cycle of catastrophic events some of which are recorded by man.

The Middle Eastern religions basically shared the same pantheon and belief system. For the earliest of cultures these so-called myths were the merger of their religion and science. These myths were eventually passed to the Hebrews who combined all of Sumer's Anunnaki deities in their Old Testament

into one deity who lived in the heavens, on Earth, and in spirit; but the Hebrews still retained the original Genesis story in a very condensed version. This idea was then passed to Christian and Muslim religions that retained most of the Hebrew's Old Testament. The authors of the *Cataclysm!* are suggesting that the Phaeton myth is actually symbolic of a real earthly event that occurred and was handed down through the ages from culture to culture.

They backup their belief by citing and cataloging over 100 traditions or myths or legends from ancient indigenous peoples from every continent (except Antarctica) that specify very similar catastrophic effects. The common themes of these effects are conflagration prior to flooding, global non-riverine flooding, disorder of objects in the sky, terrestrial chaos from volcanoes and earthquakes, prolonged darkness, falls of hail, dust and fiery objects, and subsequent colder climates. I state verbatim the conclusion of these authors which any present scholar or scientist can hardly deny, "These same memories, when assessed collectively, consistently appear to describe a most amazing episode of Earth history upon which orthodoxy, represented by astronomy, geology, and archeology, has so far remained largely silent. It is, in fact, this internal consistency of these memories which – irrespective of the original geographical or cultural source of the material – is so impressive. they constitute an eloquent testimony to a truly momentous chapter of events."³⁸

Their conclusion is extremely forceful when added to their compilations of enormous topographical changes and terrible biological extinctions and decimations that are largely dated around 11,500 years ago. How can such a book be largely overlooked by the scientific community and the current media? Velilovsky, who was both a psychoanalyst and historian, predicted that such a horrible disaster can be blotted from human memory by continual collective amnesia similar to individuals that submerge painful experiences from normal recall.

XIV. Criticism and Questions for Authors Allan and Delair

Their book challenges scientific dogma and receives mostly silence and sequestration from the combined academic, political, and religious communities. The book can be definitely criticized on scientific grounds by its huge difference between the accepted postulations and these authors' ideas about the Ice Age theory prior to the Younger Dryas Period and the reasons for the receding of the northern ice cap. Many of their ideas come from a quickly shifting of Earth's poles which to date is totally rejected by modern science. A full discussion of shifting poles will soon follow in this paper. The book is foggy on whether total pole shift or some crustal shift occurred and what mechanism triggered such an event. However, a compelling argument for reversed polarity of the poles occurring during this event is given; strong electromagnetic forces caused by Phaeton's close encounter with Earth are given as the trigger for this occurrence. I can definitely agree with this part of their hypothesis; again, this idea still is considered highly variant from normal dogma.

And, *Cataclysm!* does not model very well the celestial disturbances that triggered revelation on Earth. There is no mention of a visiting Nemesis star which is the chief cause for Earth's calamitous history per this paper; Allan and Delair placed all the blame on the mythical planet, Phaeton, whose path is

diagramed inside their book. Phaeton is postulated to perhaps have come from the Vela supernova dated about the same time as a highly electromagnetic formed body. The diagram reveals that Phaeton takes one path through the solar system causing Neptune to lose Pluto and derange its other moons; causing equatorial misalignment of Uranus; displacing Saturn's moon, Chiron; breaking up the planet Tiamat and detaching its moon, Kingu becoming Earth's Moon; disturbing the surface of Mars and changing its orbit; having a close encounter with Earth; changing the spin of Venus, and then finally crashing into the Sun.⁴⁴ This actually comical path of Phaeton is complete nonsense and is laughable in the astrophysics and planetary science disciplines. Also, astrophysicists definitely dispute that fast moving celestial bodies exterior to the fast-moving solar system can actually be captured due to the laws of physics and calculus. The authors are attempting to make sense of combining the literature and traditions of the Hellenic authors, ancient religious sources, Egyptian and Persian depictions and epics, and the cuneiforms tablets of the Akkadians and Sumerians. This blending is ludicrous since so much of the historical data that is used becomes distorted in re-interpretations down through the ages. Perhaps some or all these events might have occurred with Nemesis but certainly not with only one pass of Phaeton through the solar system; recurring passes of Phaeton are required to make any of these events plausible. The ancient literature will certainly reveal trends but will utterly fail to correctly detail any changes in orbital paths or close encounters of the planets by solar system intruders. The timeline for all these celestial events is truly only guesswork, although a listing of actual events occurring on Earth via myths and geological/biological data can be roughly constructed.

I have definite criticisms for Allan and Delair, but this does not disqualify the majority of their very detailed and well organized presentation. Unfortunately, one or more glaring mistakes are cause for many academicians to completely dismiss the book. Most scholars prefer to devote their entire career on small pieces of knowledge moving understanding ahead in smaller, carefully researched steps. Scholars and the scientific method scowl at people who take such large, sometimes reckless steps forward such as Allan and Delair. However, the information and ideas presented in their book are indispensable to understanding the complete history of mankind coming forward from 20,000 thousand years ago.

XV. Shifting of Earth's Crust and/or Spin Axis

Another book for our review that was published in 1980 is *Pole Shift* by John White.⁴⁵ There are numerous publications that have placed predictions of past and future pole shifts, but White's book definitely placed this idea on the public radar.

Ideas that preceded White are from *Earth's Shifting Crust* and *The Path of the Pole* by Charles H. Hapgood published in 1958 and 1968 respectively.⁴⁶ The main driver of these books is an article published in *Science* journal in 1961 by W.P. Farrand called "Frozen Mammoth and Modern Geology".⁴⁷ This article carefully described that woolly mammoth bones were piled into small mountains on islands north of Siberia and in certain places in Alaska. Many carcasses were preserved by quickly being frozen; one young calf had daisies in its mouth. Allan and Delair chronicled piles of bones of both predator and prey found deep in caves that came from the same period. The data that was collected from these

extinct species certainly shows something very dramatic on Earth's surface occurred. Such explanations of a comet strike or a rapid change in the North Atlantic currents does not explain such a dramatic change in climate or weather that would almost rapidly freeze-dry large pasturing animals or drive both prey and predators into caves for shelter.

Hapgood, referenced by White, suggested the Earth's surface crust or lithosphere shifted slowly over years instead of hours as White proposes. Neither author dismisses continental drift and sea floor spreading (plate tectonics) as existing conditions, but they are considered secondary to more treacherous global crustal shift. Hapgood originally postulated the ice caps dramatically slipped causing crustal shift, and then modified his trigger to be a "wave guide layer" or gravitationally unstable liquid layer in the asthenosphere about 100 miles below the surface. The forces required to move a sizable unified portion of a 100-mile-thick crust with respect to the mantle assuming higher viscosity than liquids for the top of the mantle simply cannot be explained by classical physics. Hapgood did extract some important evidence that prior to the last glaciation in North America the pole stood in Hudson Bay and shifted to its present site in a gradual motion that began 18,000 to 17,000 thousand years ago and was completed by about 12,000 years ago. The pole at Hudson Bay arrived from the Greenland Sea about 50,000 years ago. Hapgood came amazingly close to what possibly occurred near the end of the Younger Dryas Period but was reluctant to disagree with the present fashion of uniformitarianism and suggest a more rapid shift. Hapgood lacked a scientifically acceptable cause or trigger for shifting the crust.

Then White stepped into the fray to suggest a more dramatic shift where the entire Earth mass is shifted on its spin axis within days or hours. More data collected about the mass extinctions occurring after the Younger Dryas Period convinced him that catastrophism is closer to the truth. White needed a plausible cause and suggested a cosmic disturbance taken from some of Velikovsky's ideas. White came up against classical physics in trying to explain how the tremendous spinning mass of the Earth can change its immense angular and kinetic momentum. One proposal is that the entire mass of the Earth flipped 180°. No amount of gravitational force from the close encounter of a celestial body can possibly transfer that required energy without heating the Earth to red hot temperatures. White's possible confusion came from trying to explain geomagnetic reversals which were recently discovered during his time. Helimagnetic reversals occur every 11 years on the Sun, but the Sun does not flip. Planetary scientists still consider celestial body magnetic reversals as a mystery, but certainly do not attribute them to the entire planet flipping on its axis.

An epilogue topic (pp. 395 to 399) of *Pole Shift* focuses on an interesting debate about frozen mammoths. Two scholarly correspondents of John White, William White (an opponent of flash-freeze school of thinking) and Dwardu Cardona, argue about how these animals died - whether by asphyxia before freezing or by freezing. Then comparisons of the preserved frozen bodies verses putrefaction were presented. Cardona discusses a certain Berezovka mammoth that was found, "The position in which this beast was found clearly indicates that it could neither have been drowned nor crushed beneath a slide. Its stance suggests that it was felled on its haunches, that it attempted to regain its feet, that it was then somehow asphyxiated, and that it froze in this animated position. It did not even keel

over.” This detailed description perfectly captures the picture for catastrophism and begs to have these kinds of recorded events resolved.

White brings to the forefront that Earth’s geological and biological record in the recent past of 20,000 years demands careful scrutiny and some type of deductive reasoning for its modeling. White brings forward the Edgar Cayce, Nostradamus, Biblical, and other prophecies in this book and immediately alienates the scientific community. But his question and attempted answer rings out loud and clear – what happened 11,500 years ago?

XVI. Velikovsky Tries to Explain Myths in Technical Terms

The next book for review outraged the scientific community when it was published in 1950 by MacMillan. Immanuel Velikovsky’s *Worlds in Collision* seriously challenged scientific dogma.⁴⁸ MacMillan was forced to cancel publication because it produced textbooks for universities that immediately pressured the publisher. Velikovsky was the victim of intellectual arrogance, fragile assumptions, and cliquish associations. He reconstructed history from long ignored data found in myths and ancient literature that he corroborated with the physical, biological and social sciences.

Velikovsky, by getting some ideas from the interpretation of ancient texts including the Jewish Old Testament, proposed that Jupiter underwent a shattering convulsion that produced the planet, Venus, which in turn menaced Earth and Mars. The storyline is faintly familiar with Allan and Delair’s attempt to interpret ancient text, but Jupiter is used this time instead of Phaeton as the culprit. As mentioned previously, interpreting ancient texts can lead to similar lines of thought but the interpretations can quickly diverge and become meaningless when being explained by scientific methods in classical physics. The interpretations are intriguing but are sometimes just fanciful guesswork and have no underpinning of celestial mechanics.

Another theory of Velikovsky’s was that the Earth turned part-way over on its axis, as supposedly was written in Persian and Chinese ancient texts, and introduced the idea of electromagnetic forces or charges occurring between Venus, Mars, and Earth with their close encounters or with other celestial bodies. Again, Newtonian physics could not support this belief, although the author had connected the idea of planetary magnetic reversals with some of these myths. The cause of magnetic reversals is not known, but certainly do not represent the flipping of Earth on its axis. Velikovsky wandered too far from scientific understanding of his day, but did rejuvenate the modern thought process for the re-marriage of myth and science.

XVII. The Connection between Myths and Unknown Planets by Sitchin

Another book that continued this marriage was the *Twelfth Planet* by Zecharia Sitchin first published in 1976.⁴⁹ Sitchin's unusual ideas are based on supposedly accurate interpretations of ancient texts of the Babylonians, Akkadians, and Sumerians. He amazingly addressed postulations and reasons for the Great Deluge, the Earth-Moon system, the asteroid belt, the observed and recorded twelve wanderers of the sky that included Nemesis, ancient mathematics and the genetic creation of mankind in the image of ancient astronauts. All this knowledge came from texts describing very intelligent beings that landed on Earth about 250,000 years ago from a planet that passes through our part of the solar system every 3600 years. The planet is supposedly part of the Nemesis star system. His ideas were too bizarre and all his books were condemned to the occult section of libraries. Surprisingly, only until very recently are his interpretations of ancient texts debunked by experts in the field of cuneiform, hieroglyphics, and other ancient languages. What took so long? Simple denial of ancient man's myths having any scientific connection remains steadfast. His ideas do lend support to why and how ancient monoliths such as the Giza's Great Pyramids or monolith structures of the Sacred Valley in Peru could have been built with unknown, superior technology by these more highly evolved visitors from another celestial body.

Of course, his strange model of the past is totally rejected for numerous reasons; some of the more important rejections are listed along with some plausibility for this ancient astronaut model.

1. There is no evidence of tools or materials of a past superior technology, except possibly for the unexplained and amazing, consistent monolith structures that are globally found around the planet.
2. If these celestial visitors were superior, why did they disappear? Perhaps the event of the Great Deluge destroyed them as well as most of mankind. A small vestige of aliens or alien-made humans survived long enough to pass on the stories told in ancient texts.
3. There are no astronomical observations of any nearby star or planets orbiting the Sun. Of course, if Nemesis is a dark brown dwarf star that is way beyond Pluto for most of its orbit, then its sighting even with modern telescopes would be difficult.
4. No living beings similar to man can survive on a cold planet orbiting a brown dwarf and not receiving sufficient radiant energy from the Sun or another body for most of its orbit. Possibly, the planet's internal heat and infrared heat from the brown dwarf provide the necessary radiation, and light comes from broad bands of atmospheric auroras similar to what is observed on some the Sun's planets but is more dramatic and radiant. Recently postulated by a group of independent scientists, called the "Electric Universe" group, is the idea that a plasma sheath normally surrounds a brown or red dwarf star. This protected dim plasma glow sheath, which is considered a bloated corona of the star, engulfs its orbiting planets. The planets, which receive the star's radiant energy, light and also water, can supposedly support life as we know it, using a similar light spectrum and temperature range as exists on Earth.
5. The repeated chaos caused by the intersection of two planetary systems every 3600 years leads to question how an intelligent, civilized set of beings could have had enough uninterrupted time to evolve on a planet orbiting Nemesis. For me, this is actually the predominant reason for

Sitchin's model being questionable and not occurring. Of course, the modeling of this type of system via modern celestial mechanics along with probability and statistics could prove me wrong. Various dinosaur species survived indisputably for millions of years without interruption. One may want to wander more to the "wild side" and venture a guess that the aliens had enough uninterrupted time to evolve enough to understand and utilize space travel between planets. These aliens could predict which planet of which star system would be more endangered and travel to another planet for maximum safety. This type of planned inter-planetary transfer might have then occurred for thousands and thousands of years. Another reasonable version is that humanity progressed one or more times to great technical feats without the intervention of extraterrestrials, and then was repeatedly destroyed through catastrophic events

6. Until recently, since the discovery of exo-solar planets, the scientific dogma rejected any conjecture that planets can normally exist around red or brown dwarf stars due to the nebular hypothesis' tenants. So, the model that Sitchin predicts about a planetary system being captured and orbiting the Sun is quite possible and is now acceptable in scientific terms.
7. Increasing knowledge of genetics and the missing link for mankind's evolution does not make man's birth from alien astronauts' laboratories so fanciful. Also, another species of humanoid with elongated skulls discovered worldwide could be likely evidence of an alien species or an earlier species produced by the aliens.
8. What is amazing is why Sitchin was not attacked until very recently on the grounds of the study of archeology and the study of ancient languages. Apparently, Sitchin's more important translations and interpretations are considered to be largely in error and have been debunked – perhaps by some jealous or well-paid charlatan. There only exist a few hundred specialists worldwide in the field of ancient languages that really have an opportunity to speak-out against or for Sitchin. Meanwhile, how and why the worldwide pyramids and other monolith structures requiring unknown technology were built remains very much a mystery.

XVIII.Sitchin Partially Redeemed by the Corroboration of NASA data

One of Sitchin's interpretations discussing the reasons for Tiamat, the watery planet; the "hammered bracelet" or asteroid belt; and the Earth-Moon system are partially applied to one of the hypotheses presented in www.ettingerjournals.com. The journal called the "Earth's Metamorphosis Hypothesis" explains with classical physics and calculations the genesis of the Earth-Moon system.⁵⁰ This new genesis story disagrees with NASA's currently accepted model, but incredibly aligns itself with the dating of Earth and Moon rocks and with a description of the Genesis of the Jewish Old Testament as interpreted by the Gideon Holy Bible. The ideas of this Earth-metamorphosis model align with much of the celestial events described in the *Twelfth Planet*. The re-marriage of myth and science continues. Can the scientific community afford to keep totally rejecting consistent worldwide myths as possible evidence of past, true events?

The Gideon Holy Bible uses more modern language taken from the St. James version of the Christian bible. One word in the Genesis story, “firmament”⁵¹ is largely misunderstood by both Sitchin and Velikovsky. Both authors believe the “firmament” exists in the celestial sky and in the outer solar system due to its connection with “heaven”. This word is also discussed in the legends about the goddess or planet called ‘Tiamat’ where the waters are divided by the “firmament”. This paper has another hypothesis for the “firmament”. The division of certain types of waters is discussed in the previously referenced “Earth’s Metamorphosis Hypothesis”. A rogue icy planet strikes and penetrates the watery surface of an already differentiated planet called ‘Tiamat’ (what becomes Earth); a tremendous outflowing of the Earth’s mantle from the impact crater flows over the surface to create the “firmament” that is called heaven and separates the waters; these waters are the water that originally covered ‘Tiamat’ or Earth and the melted waters and other volatiles of the rogue planet that are trapped inside Earth’s mantle under the newly raised dry lands and original oceanic crust. In other words, some of Sitchin’s model has supposedly been corrected and redeemed not only to account for a better translation of the ancient texts, but also to account for recently gathered geological evidence from both the Moon and Earth.

XIX. The Connection of Ancient Rock Art and the Expeditions to Mars

This paper now discusses another amazing and important juncture in the re-marriage of science and myth. David N. Talbott co-authored two books with Wallace Thornhill, *Thunderbolts of the Gods* in 2005 and *The Electric Universe* in 2007, which are interpretations of rock art found worldwide that merges with the newest findings from space probes to Mars.⁵² Talbott also maintains an active website called www.thunderbolts.info that offers an excellent display of ancient artifacts and knowledge of myths. His convincing oratorical skills are very enjoyable and have obviously blended his comparative mythology with Wallace Thornhill’s knowledge of the science of plasma and recent probe missions to Mars and to comets.

David Talbott originally promoted neo-Velikovskian concepts and wrote a book in 1980, *The Saturn Myth*.⁵³ He made the same mistake as Velikovsky in trying to interpret too much from human memory and ancient artifacts. He attempted to describe an earlier solar system which is in flagrant disagreement with celestial mechanics and has no possible chance for explaining the evolution of flora and fauna on Earth. He proposed a “Polar Configuration” involving four planets, Saturn, Venus, Mars, and Earth in that order which formerly orbited the Sun as a linear assembly while it rotated about its barycenter and influenced human mythology. A convincing quote from Talbott regarding myths and ancient traditions is, “How did human consciousness, emerging from the womb of nature, converge on the same improbable ideas by ‘contradicting nature’”? Obviously, Talbott also wished to contradict nature, too, with his “Polar Configuration” which supposedly portrayed the true meaning of his study of worldwide myths. His first marriage with science dimly failed but his persuasive comparative mythologies would not die.

Talbott years later merged some of his ideas with physicists Wallace Thornhill and Anthony Peratt, to explain a natural phenomenon of plasma displays in the ancient celestial sky depicted by both ancient

rock art and their similarities with laboratory experiments of plasma discharges. Talbott is now having a more successful second marriage with science with his latest books and recent website. Viewing his website actually inspired this paper. These intriguing ideas still lack a model that can make sense in the field of celestial mechanics and the geological and archaeological history of Earth. This paper will attempt to derive a reasonable model with certain limitations that can be accepted by mythologists, archeologists, astrophysicists and planetary scientists.

In his website article "Symbols of an Alien Sky" Talbott describes the different rock art depictions and how they are very consistent worldwide. He claims that ancient peoples were drawing mostly about events that they saw in the sky.⁵⁴ Their art was a carnival of ghostly creatures with absurd patterns. Some of the most common archetypes were stick men with different heads and stick men with twin dots on either side (found both in Egypt and Arizona). Thornhill and Peratt recognized many of these forms from experiments performed in plasma labs, especially the toroidal synchrotron radiation represented by the two dots or circles on each side of the stick man. The upraised multi-arms and spread legs of the stick men represent squashed bells of sheet radiation caused by diocotron instability. The vertical line or body of the stick men is the conduit of charge called Birkeland currents traveling between two opposite magnetic poles. The head of the stick men, which is shown in many shapes and motifs (most common were birdlike and toroidal with two eyes), is supposedly the source of the radiation discharge such as could come from a magnetic planet or star.

Another archetype is the cosmic wheel or wheel throne whose inspiration and explanation per Talbott did not come from the Sun. The spokes can be of many varieties but are considered to have no function for supporting the rim of an actual wheel. The wheel is many times connected to other lesser wheels and is sometimes shown with a crescent at different positions. The wheels are believed to represent alien celestial bodies with plasma discharge arcing or streamers reaching outward being either straight or wavelike. The crescents sometimes shown in different positions about the cosmic wheel possibly reveal phases of light cast on the surface of some strange large celestial body by the Sun. The most prominent and largest cosmic wheel is thought to be the planet Saturn per Talbott's interpretation, and probably appeared to ancient people as being the largest - larger than perhaps the angular diameter of the Moon in the sky. Celestial mechanics tells any astronomer that this is not possible; planets simply cannot rearrange themselves from orbiting Saturn to orbiting the Sun. This paper is not disputing that this archetype did appear in the sky, but is proposing the very likely probability that this cosmic wheel archetype represents one of the visitations of the Sun's sister star, Nemesis.

Let's compute a very possible angular diameter for Nemesis, as it appeared in the sky to our ancestors. A recently discovered brown dwarf, Teide 1, is estimated to be $1/10^{\text{th}}$ of the Sun's radius.⁸ The Sun is on average 1 AU from Earth whereas Nemesis which passes through the Main Belt of asteroids is 2.5 AU from the Sun and about $(2.5 - 1.0) = 1.5$ AU from the Earth. The Sun's angular size is on average 32.0 arc minutes. Then Nemesis's angular diameter is $32/10/1.5 = 2.13$ arc minutes which is $(2.13 \times 60 \text{ arc seconds}) / (\text{Jupiter's } 40 \text{ arc seconds})^{55} = 3.2$ times the size of Jupiter. Nemesis's apparent size in the sky is significant; along with its radial discharge of columns of Birkeland currents and a possibly larger corona it could easily look like a cosmic wheel in the sky. If either Mars or Jupiter were in their shortest

separation and alignment with Nemesis, then from the Earth this cosmic wheel will appear quite peculiar and spectacular to observers. As the alignments decreased and separation distance increased, the discharges could presumably become unstable and wavy as is also described by the ancients.

Another important and very common archetype is the cosmic thunderbolt believed to be major columns of Birkeland currents or plasma discharges between celestial bodies – just as occurs today between the Sun and its planets with a corona ejection but only with a tiny fraction of the induced electrical current. The thunderbolt is also represented as a twisted filament which happens in the laboratory when the plasma arc becomes weak and starts to breakup. The thunderbolt was more likely a discharge column of plasma or bright Birkeland currents between two celestial bodies as they came within close conjunction with each other, and this could be seen by men on Earth. Of course, this paper is introducing Nemesis as one of the new actors in this storyline. It is conjectured that possibly Nemesis, a very magnetic brown dwarf, passed between Mars and Jupiter and released a thunderbolt(s) toward these planets – possibly even as far as Saturn. It possibly appeared to the ancient sky gazers that their known planets were fighting with an intruder using a sword, trident, or thunderbolt. Talbott hypothesizes that the Gods of Mars, Jupiter, Saturn and Neptune are depicted as carrying thunderbolts or other weapons for this reason. These thunderbolts or electrical discharges may explain the interaction with the Nemesis star as seen on Earth at roughly 90 degrees from the path of columns of Birkeland currents.

Another part of this conjecture is that the Sun released more electrified solar wind and corona ejections due to the close encounter of the electrical and gravitational fields of Nemesis; this in turn, electrified the interplanetary medium within the inner solar system thereby enhancing Birkeland currents between planets and Nemesis especially when in close alignment and/or opposition. This is why primitive pictographs worldwide display these plasma forms of columns, a torus with eyes, a terminus (Z-pinch points) and diocotron instability sheets or arms held upright. Rock art simply represents what the artist actually saw in the night sky.

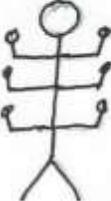
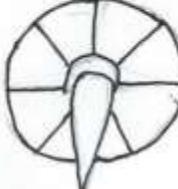
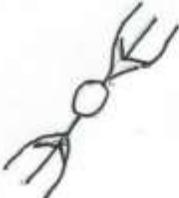
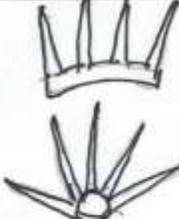
Other archetypes found in ancient stone reliefs and tablets of ancient cultures are the radiant crown or magic helmet, the Pillar of Heaven, the cosmic wheel with a tongue, the side lock of the warrior king (the weakening of Birkeland currents due to the displacement of the source charge), the fiery serpent or dragon with streaming feathers (disturbed asteroids traveling through intense solar winds), the enclosed or spiraling serpent of creation and the Celtic cross. All these ancient archetypes can be represented by plasma technology in the laboratory. Hence, these archetypes are believed to have been observed in the sky as varying plasma displays between and around very electrical and magnetic ancient celestial bodies that have long disappeared. These bodies or planets were given names and believed to be gods that were revered and feared for they could and did bring chaos to Earth's inhabitants.

The comparative mythology of Talbott becomes scientific when simple inductive reasoning is applied. Why are these archetypes represented by Mesolithic rock art and stone friezes and clay tablet reliefs of ancient worldwide civilizations of the Neolithic era so consistent? Obviously, people globally from over 250 different indigenous tribes and civilizations saw the same events which can only be seen conclusively from the sky. These archetypes can only represent celestial events that were eventually

given the names of gods and goddesses by the peoples of the earliest recorded civilizations which were passed on to subsequent cultures such as the Egyptians, Greeks, Hebrews, and Romans. Most of these gods and goddesses were the embodiment of planets or other celestial bodies existing in that one great common cinema in the sky.

Table 4: Archetypes of Rock Art and Ancient Wall Reliefs or Friezes

(Reproduced and partially tabulated from the “Thunderbolt Project” by David Talbott and Wallace Thornhill)⁵⁶

Typical Archetypes:		Typical Archetypes:	
Squatter Man		Cosmic Wheel with Wavy Spokes	
Stick Man with Raised Arms		Cosmic Wheel with Tongue	
Thunderbolt		Winged Disk	
Trident		Radiant Crowns	
Spiral Serpent		Hand of God with Eye	

These diagrams and interpretations of archetypes are taken from Thunderbolt.info by David Talbott.

Wallace Thornhill eventually suggested teaming with Talbott when he recognized his plasma displays in the laboratory resembled very closely Talbott's compilation of pictographs collected throughout the world. Neither author has suggested yet that a brown dwarf star might be involved. However, Thornhill was involved and studied the compiled data from the space probes sent to comets and to Mars. Their deductions from the data led to even more amazing corroboration of possible major electromagnetic interactions between celestial bodies. Astrophysicists and planetary scientists even today have a difficult time accepting that electromagnetic phenomena play any major role in affecting the planets' positions or surfaces. Astrophysicists are "stuck" on gravity, accretion, and impacts as being the major actors in the evolution of the solar system; and planetary scientists are "stuck" on normal erosion processes, the wasting of land masses, volcanism, and plate tectonics as being the major actors in the evolution of planetary surfaces. Talbott's and Thornhill's *The Electric Universe* explains the evidence of massive electric discharges affecting the materials and surfaces now seen and witnessed on comets and on Mars. Why are scientists after more than 10 years of analysis of the data still in clear denial that electrical and magnetic phenomena are clearly big actors in affecting celestial mechanics and the evolution of planetary surfaces? This paper postulates that the scientific community does not want to make any definitive statements to the public because they lack a major perpetrator for these large electrical discharges crossing interplanetary space. Current accepted scientific thought stubbornly refuses to accept "charge separation" occurring in the vacuum of space which planetary arcing requires. Now let's discuss what was recently discovered and analyzed about comets and Mars as highlighted by Thornhill in his documentary, "The Electric Comet" which is now part of The Thunderbolt Project.

XX. Will the Real Comet Stand Up?

One of the first hypotheses accepted for comets was the "dirty snowball" model developed by Fred Whipple. The comet was mainly composed of frozen ices including water and primordial cosmic dust from the proto-star disk. These volatile materials would boil off creating comas and tails as they approached the warming Sun. Of course, these comets would soon disintegrate in less than a few million years thereby eliminating their presence. Jan Oort then proposed a cloud of comets surrounding the solar system way beyond the farthest planet that could be disturbed by a close passing star. These disturbances over the entire age of the solar system would create long period comets. Shorter period comets were still a mystery until the recently discovered Kuiper Belt of frozen bodies was thought to be their source.

However, these origins for comets became increasingly uncertain as spectroscopic analysis of Comet Halley and Hale-Bopp indicated crystalline silicate structures. The Star Dust Mission of February 1999 to Comet Wild 2 returned some of its materials to Earth which surprised scientists and revealed a possible electrified environment for comets to explain the materials that were found. One rationalization, yet unproven, was that comet material was somehow transported from the inner regions of a hot forming proto-star to the outer regions of the planetary system.⁵⁷

Some of more important data from the Star Dust Mission that intercepted two passing comets and returned to Earth are listed:^{58 59}

1. Water ice was not a major constituent of the comet.
2. Sulfide compounds were found which cannot form below 50 °C to 200 °C; these are temperatures much higher than what exists in the outer solar system.
3. Olivine, a product of volcanism, was found in the comet's dust, which is also known to be formed by lightning strikes on Earth. Obviously, if volcanism was involved then the comet is debris from an impact of an inner planet.
4. Cubinite was found which is only formed in liquid water which cannot exist on a small body in the vacuum of space.
5. Pyrrhorite/Sphalerite minerals were found that require extremely high temperatures for their formation which is a dichotomy for comets forming in the frigid cold outer solar system.
6. Dust grains were large and crystalline in nature with only trivial amounts of the suspected cosmic dust corroborating that a rocky planetary surface is involved.

The conclusions from this data are completely mystifying to NASA since they failed the test of various popular theories. There is the complete absence of liquid water despite minerals that require its presence. Liquid water requires atmospheric or other pressure and cannot exist in the vacuum of space. Olivine could not have formed or even survived in the presence of liquid water. Olivine's composition needs extreme selective heating that is only possible on planets in the habitable zone of a fully developed Sun. Dusts with crystalline structure cannot be formed in the frigid vacuum of space. The concept of compositional zoning within the proto-star disk fails the test by this data. The theories of the "dirty snowball" and the Oort cloud are practically eliminated. Another theory of comets and asteroids being the primary source of water and other light volatiles for Earth also needs critical re-consideration.

This conundrum of a comet's composition can only lead to an almost certain concept that comets and possibly most asteroids are the residue of both planetary impacts and other phenomena that is proposed by Thornhill – that of electrical arcing, sputtering, and ejection of huge chunks of surface materials between two highly magnetic and electrified celestial bodies in a close encounter. Thornhill states very emphatically that comets are created by high energy electrical arcing events that blast materials from planetary surfaces. He proposes that possibly Phobos, one of Mars' moons with similar Martian composition, was blasted away from the planet's surface during one of these arcing events. The startling realization is that something else (not the infrequent disturbance of the Oort cloud) is creating comets of both long and short periods in recent astronomical times (within thousands or less than a million years) which is comparably very short for the overall age of the solar system. Could this something be an unknown orbiting rogue planet or a highly electrically charged Nemesis star that arrives periodically into the Sun's inner solar system to sometimes trigger planetary catastrophes?

The long ignored electrical effects of the Sun's charged particles released in the solar winds are now believed to exchange charges on an approaching comet to create its coma and tails. The close-up videos of comet surfaces reveal similarities with surfaces created in industry by electrical arcing and sputtering.

The ejections of dust leaving at supersonic speed from the comets nucleus wander on the nucleus's surface and are intermittent just like electrical arcs created here on Earth. The vacuum of space along with the Sun's radiant heat cannot create from a comet's now known composition what is observed. The videos depicting various comets with their erosion features and varying jets are testament to the comet's electrified environment especially as it nears the Sun and its stronger solar winds of plasma.

Man has only learned recently the effect of the Sun's solar wind and electrical storms in interplanetary space; the Sun's own helio-magnetosphere discovered by one of the Pioneer missions;⁶⁰ the Earth's magnetosphere analyzed by artificial satellites; the connection of auroras with sunspots and solar storms; the harmful effects of solar storms on satellite and space station systems; and the comparative sunspot activity with Earth's climate/weather. Perhaps there is cause to fear much more dramatic electrical events with direct arcing between celestial bodies. If the comets are not proof enough, now the previously referenced Thunderbolt Project by Talbott and Thornhill highlights more startling news about findings from space probe missions to Mars. This brilliant analysis of Martian features further establishes the catastrophic electrical and magnetic effects between celestial bodies.

XXI. Revision of Martian History Due to High Energy Electrical Events

My first personal analysis of the topography and elevation maps released by NASA for the entire Martian surface⁶¹ was the idea of a dominate impact of a very large icy asteroid. This impact created the Hellas crater surrounded by the Tharsis bulge or uplands which was created by a huge outpouring of liquefied mantle and impactor materials from the crater. This event created the dichotomy of the higher volcanic plateau and lower smooth Borealis basin of the northern hemisphere. This smooth basin is thought by NASA to be due to another gigantic impact that created a smooth lava flow similar to the mares found on the Moon. The hypothesis of this paper theorizes that this surface is the original or oldest surface prior to the more familiar type of impact that created the Hellas crater. The volatile materials of the impactor then slowly migrated inside the Martian mantle and around the small core to differentiate and resurface on the opposite hemisphere creating very large volcanoes such as Olympus Mons. Of course, the raised surface received not much later in time the asteroid strikes of the Late Heavy Bombardment (LHB) period. Perhaps the large impact on Mars was just part of the early part of the LHB. This paper also postulated that the asteroid-looking moons of Mars are two of the larger chunks created by the impact that never reached escape velocity and began orbiting the planet.

The Martian surface remained mostly unchanged since Mars lacks tectonic plates, sufficient internal heat, and the influence of tidal acceleration forces that the Earth receives from a closer Sun and a nearby massive Moon. Geological features appear to indicate erosion by water flow and are currently the basis of NASA's currently accepted idea. However, it is questionable that liquid water ever existed on Mars. Its atmosphere never had a chance to develop due to its freezing temperatures, small mass, and lack of a significant magnetic field that cannot protect the solar wind from stripping atoms away from its ionosphere. NASA's Mars Global Surveyor has detected ionized particles trailing into space behind Mars corroborating this atmospheric loss even presently.^{62 63} The atmospheric pressure is and has been too low in the past since its last major impact event. For liquid water to form in large amounts

before dissipating as vapor makes it impossible for any significant surface erosion by liquid water and mountain wasting to occur. The only real evidence of surface erosion besides the wind, lava flows and landslides is the seasonal melting of the ice caps of mostly carbon dioxide which do not extend too far from their wintertime perimeters. A very basic conundrum arises since no major amounts of liquid water ever existed on the Martian surface. How do the Martian surface features appear to be caused by water erosion? NASA has been working on this mystery for the last 10 years.

This is where Thornhill and Talbott enter the picture and present a resolution which is global electrical discharge events. Their story and reasons based on analogous laboratory experiments and the observations of lightening, comet tails, and auroras is extremely convincing. The authors fill in an amazing missing part of Martian history after the Late Heavy Bombardment period that can include the previously predicted history of a major impact by an icy Pluto-size asteroid. NASA scientists fear to embrace any of their ideas for the creation of Mar's bizarre surface features. The NASA scientists cannot comprehend a source for these massive electrical discharges. The current safe mode is to stick with what is known about water erosion and feverishly search for this missing water that may be sequestered and frozen underground and/or hidden in subterranean cavities. Or possibly any water produced and brought to the surface quickly performed its deeds of erosion and was quickly dispersed into interplanetary space. An amazingly huge amount of water for a considerable length of time is needed to produce the largest canyon in the solar system, Valles Marineris that stretches in a straight line across 1/5 of the planet's circumference. Mysteriously, no riverine delta is revealed at the end of this valley. NASA attempts to help their theory by introducing a huge fault-line hypothesis when plate tectonics is practically non-existent on Mars.

David Talbott along with Wallace Thornhill introduces their hypothesis about an electrified Mars in their book, *Symbols of an Alien Sky – "Episode 2, The Lightning-Scarred Planet Mars"*.⁶⁴ The basic argument is based around massive global electric discharge, much like lightening on a much larger scale, creating the smaller consistent surface features of Mars. Their proposal includes the creation of Valles Marineris and the highest mountains. This paper still holds to the idea that these mountains are principally created by volcanism and then modified by electrical discharges proposed by Episode 2. The Thunderbolt Project authors emphasize that NASA has made no mention of their ideas, but their illustrated laboratory experiments certainly support their claims.

Here on Earth dendritic or treelike patterns are easily observed for lightning in the sky. Lightning strikes also leave evidence of dendritic patterns on rocks and even human bodies. These forms are the electrical breakdown of channels of current into fractals. George Christoff Lichtenberg first demonstrated the differences of these figures on positive and negative charged surfaces now called Lichtenberg figures. A sputtering high energy electrical arc discharge will create scalloped walls and ridges including chains of varying craters on metallic surfaces. The materials on the surface of Mars were also simulated in the lab and produced these same patterns.⁶⁴

The dendritic patterns fanning outward from the main canyon walls of Valles Marineris are very similar to what is observed in the laboratory. These channels do not appear to have analogous water erosion

patterns found on Earth. The claim is that a very large concentrated electrical discharge created the entire almost linear canyon running latitudinally close to its equator. The scalloped ridge walls found on Mars for parts of Valles Marineris, the Victoria impact crater, the calderas of volcanoes and the mountain perimeters of these same volcanoes are claimed to be caused by pinched cylindrical currents just as occurs in the laboratory for electrical plasma machining. Standard geography found on Earth does not conform to these persistent and consistent carved forms on the Martian surface.⁶⁴

Hair-like filaments photographed by the Surveyor probe orbiting Mars are found on the branches of numerous dendritic forms in raised relief above flat surfaces that stretch for hundreds of miles on some Martian plains. These forms can be reproduced in the laboratory with electrical discharges on surfaces that have dust which confirms a spreading of sheet-current on top of some Martian plains. No type of erosion or crystalline chemical process can explain these bizarre forms.⁶⁴

The topography map of Mars shows a raised cratered upland in the southern hemisphere and a very flat and smooth surface like a mare surface on the Moon in the northern hemisphere. Talbott points out that high energy discharge more than likely first struck the higher elevations and then flowed as current toward the lower elevations. The electrical current broke down along the edges into fractals to produce typical geometries that can be produced in the laboratory. These geometries have a general trend or predictable phases that occur in a certain direction going toward the lower elevations which occur in the following order:

1. a network of channels
2. large blocks
3. separate angular islands
4. various pyramidal shapes and sharp edges
5. isolated blocks and mounds
6. flat depressions occurring at previously eroded high points.

These geometries are also observed with no surprise^{64 65} on the perimeters of the Martian uplands. The proof of global electrical discharge on Mars keeps mounting.

The Rover Opportunity discovered trillions of objects labeled as blueberries which are bee size spheroids. These little beads are claimed by NASA to be hematite concretion that supposedly can only be produced in the presence of water that is still missing.⁶⁶ However, these same spheroidal shapes can be reproduced in the lab by blasting hematite-type soil with an electric arc. Other much larger rounded shapes or domes inside similar sized craters range in size from 100 meters to one mile in diameter. The lab can also produce these shapes, but of course, in a much smaller, scalable size. Dome craters many miles wide are found near the poles on Mars. Only the presence of immense, high energy, columnar-type electrical discharge can cause these features on Mars. Some close encounter of a celestial body with this type of energy has to be the source. And, it is perfectly reasonable to suggest the crossing of a brown dwarf star through the inner solar system. Mars which can sometimes be at the conjunction between the Sun and this passing brown dwarf can easily become the victim of a connecting circuit of

solar winds and huge Birkeland-type column(s) of electrical discharge between the two stars. Mars was in the fateful path of lightning bolts being exchanged between these two stars. The other inner planets had periodically similar fates. Earth's encounters with this exchange of thunderbolts received catastrophic effects but definitely not as severe as with Mars due to its farther separation from the Nemesis star.

Talbott and Thornhill also discuss the effects of other major electrical discharge events on other planets and satellites of the solar system, but never really address any possible serious effects on Earth caused by celestial events that were observed and recorded and compiled in their documentaries, *Symbols in an Alien Sky*. However, this paper does accuse the Nemesis star for catastrophic events occurring periodically here on Earth. The most serious of known recent events occurred during the end of the Younger Dryas Period around 11,500 years ago marking the extinction of numerous fauna and the melting of the North American Ice Cap. When Earth is caught in the conjunction between the Sun and Nemesis, both increased electrical and tidal acceleration events can occur. The side effects are increased volcanism, earthquakes, tsunamis, severe weather, dramatic climatic changes, magnetic reversals, and a possible temporary wobble of the Earth and/or shifting of the crust and mantle on the core bringing adjustments to the overall geoid which caused global flooding. Asteroid or comet strikes are other possible culprits. The thought does certainly occur that mankind had previous civilizations that were wiped out in a global fashion one or more times. Then, mankind driven into Stone Age conditions slowly resurrected his developed cultures each time.

XXII. Does Humanity Really Have Lost Civilizations and Ancient Astronauts?

One more author will be referenced before summarizing all the facts and ideas presented. This author is Erich von Daniken who wrote the infamous and best-selling *Chariots of the Gods* first published in 1968.⁶⁷ Von Daniken was chiefly responsible for popularizing the ancient astronaut hypothesis that was rejected categorically by scientists and academics as pseudo history and pseudo archaeology. He was accused of many factual and logical errors throughout all his books. Nevertheless, he popularized in public thought the mysteries of why ancient megaliths and pyramid-type structures were built. And, also importantly, he asks the question of how were these structures built? The public became more aware and questioned the Egyptian pyramids, Stonehenge, the Moai statues of Easter Island, the Nazca lines of Peru, the appearance of machined stonework in Bolivia and close fitting stones of Inca walls.

Von Daniken made claims that human beings of ancient times did not have the infrastructure, tools, and knowledge to build such structures. These structures were made either wholly or by guidance from the superior knowledge of aliens of other worlds. An interesting attack was made by John Flenley and Paul Bahn who suggested that Von Daniken's interpretation of the Easter Island statues "ignores the real achievements of our ancestors and constitutes the ultimate in racism: (he) belittles the abilities and ingenuity of the human species as a whole."⁶⁸ There existed a very strong prejudice against alien astronauts especially coming from religious elements. This deep-seated prejudice has been greatly

reduced since those times due to mankind's own recent interplanetary space travel. This emotional criticism still does not account for all these amazing stone monuments found worldwide that are supposedly three to four thousand years old and perhaps much older.

One very plausible idea that Von Daniken fails to suggest is probably because it is less dramatic in his eyes and will not sell books as well. Perhaps there were no ancient astronauts, but mankind's own advanced civilization(s) that were destroyed due to catastrophic events that only left the most durable texts and largest structures or monoliths behind. Scientists today understand very well that asteroid strikes on Earth can trigger flooding, volcanism, earthquakes, severe climatic changes and electrical storms that can wipe out man's present civilization. There is good reason to think that global catastrophe happened one or more times in the past to reduce mankind's achievements to a few monoliths and destroy his collective knowledge with only memories preserved mostly by verbalization now identified as myths. Then the survivors had to re-emerge and evolve their knowledge once again while trying to formulate reasons for ancient texts and structures that are found on every continent. We may be the latest human survivors believing that our myths are just constructions of the imagination, similar to our current religions, and not real events.

Many of Von Daniken's claims of ancient artifacts are very believable, and respectable academics and scientists have been researching at a very animated pitch to debunk his claims. Some of this so-called successful debunking has only occurred in the past 10 years with the best designers, structural engineers, and computerized CAD/CAM systems. What took so long? The task was extremely difficult and many of the proposed tools and methodology have not been tried completely in the field or laboratory. Numerous proposals have already themselves been debunked. Why should the ancients with their limited technology and infrastructure even chose to quarry, cut, transport, and lift into place such huge stones some being as heavy as 60 to 100 tons? Modern day construction including that of the Romans chose more reasonable sizes and weights for their largest pieces of structures (excepting the Baalbek structures where certain mid-size monoliths were moved in a limited fashion by Roman cranes).⁶⁹ Choosing such megalithic stones would be considered rather stupid today unless perhaps there is a greater reason than mere function. Maybe the builders had in mind the maximum durability and lifetime of hundreds of generations considering that Earth's surface has a cyclic hostile environment. Maybe structures such as the pyramids served as some unknown type of machine. Let's review in some detail some of the best-known claims by Von Daniken.

XXIII. The Possibility of Ancient Flying Machines

One claim is that in ancient times a knowledge of making and using flying machines was prevalent and then lost. Ancient texts refer numerous times to machines arriving from skyward. One particular reference is the Vimana or flying palaces mentioned in Hindu mythology. This self-moving aerial car or throne moved occupants through the air and was originally made by Vishwakarma for Brahma, the Hindu god of creation. These vehicles were distinct from predecessors of flying horse-drawn chariots mentioned in the older Sanskrit epics.⁷⁰ Numerous stone friezes and temple shapes depict these flying machines. The Sanskrit translations are quite literal in describing devices carrying occupants across the

sky. Can this consistent line of thought really be attributed to the imagination or are these Vimanas embellishments of long lost existing flying machines?

The Nazca Lines, a series of ancient geoglyphs, located in a high, arid plateau of Peru, are considered to require ancient aerial feats in order to be produced and observed. The lines are shallow and made in the ground by scraping red pebbles away to expose white limestone that eventually hardens and accents the designs for aerial views due to their size of 400 to 600 feet in width. The designs depict more than seventy animals such as birds, fish, lizards, monkeys, and human figures.⁷¹ Von Daniken's claim is that only aerial devices could aid in their making and their viewing. Some debunking proved that these geometric and artistic designs could easily be planned and made on the ground without aerial aids although someone has conjectured the use of balloon flight. Also, some but not all the designs can be viewed from nearby hillsides. The best viewing is definitely from an airplane. Archaeologists believe that the Nazca culture created these lines between 400 and 650 AD based on the carbon dating of the age of some sticks left mounted at the ends of some the lines.⁷¹ This age is only a guess and perhaps should be based more on an much older time when climatic conditions turned this plateau into a very dry desert.

This paper will simply hypothesize a very plausible storyline for these Nazca Lines. Quickly changing climatic conditions due to one of Nemesis's crossings caused severe drought and harshened conditions for survival for the existing culture. These people obviously knew of many animals in their region that perished or were forced to migrate and no longer exist at this location. This ancient culture had stories handed down from verbalization that their Gods or nurturers from past times would return from the sky to aid them in these beleaguered times. Their idea was to communicate to the Gods or travelers in the sky and plea for their help. This culture knew of orcas and fish in the nearby ocean, flying birds, animals of the various terrains, small creatures such as lizards and spiders, but were engrossed by some myth or story that led them to worship special beings coming from skyward. The suspicion that flying machines was engrained in the minds of the Nazca culture of whatever age is difficult to dispel even for the debunkers of the Von Daniken claim.

XXIV. Who were the Builders of the Pyramids and the World's Other Megaliths?

One of Von Daniken's heralded claims is that the Egyptian pyramids were impossible to build with the known tools and knowledge of the existing ancient culture unless there was intervention by some peoples with advanced technology such as ancient astronauts. An advanced technology possibly not even known today was required to design, plan, cut, transport, lift, and assemble with precise overall dimensions and alignments in a specific range of time of 20 years. Man's present construction equipment and methods would be severely tested if presented with the task of building just the Great Pyramid of Giza also known as the Pyramid of Cheops or Khufu. This fantastic structure was supposed to be built as a tomb for the Egyptian ruler, Khufu, within less than 20 years during his reign which does not include other projects of major structures such as two mortuary temples, a raised cause way connecting the temples, mastabas or tombs for nobles, large boat pits presumably that held boats, and three

smaller pyramidal tombs for Khufu's wives.⁷² The ancient Greek historian, Herodotus, writes that just the Khufu pyramid required 10 years of planning and 20 years of building. As an historian, Herodotus was sarcastically referred to as "the father of lies". His reliability of Egyptian history is criticized due to inadequate sources.⁷³ Initial studies revealed that the number of slaves required was 20,000 to 25,000. Later research now suggests that only a mere 6700 highly skilled artisans were required to complete the project.⁷⁴

The entire focus of intense planning and laborious industry for this civilization with most of its populace was to build tombs for the nobility for their questionable after-lives. And, please hurry before they die. It sounds like science fiction from modern day writers. It all sounds like the present-day hadron collider project costing billions of dollars to find the illusive Higgs boson particle. So, when one discovers the Higgs boson, then what? When Khufu and his wives reach the after-life, then what? How will all the other mortal minions of the fourth Egyptian dynasty benefit? Either an amazing marketing campaign occurred perhaps based on the populace having jobs that assured their survival in this world or some over-riding fear drove these Egyptians. The fear was perhaps that the Pharaoh or these Gods on Earth had to be saved and preserved to protect the good life here on Earth. If that storyline can be sold, the elite certainly do benefit; they receive all the perks and riches while keeping their keepers fully occupied and away from political upheaval.

However, another line of thought comes forward. What if a well-advanced technological society had these pyramids and other monolithic structures built to serve as some kind of machine such as harnessing energy or as beacons for space travel? Then on one of Nemesis's visits this global society was destroyed leaving behind only their monolithic structures, some surviving ancient stone reliefs and texts and meager knowledge reduced to mostly verbalization which became our beloved myths. Then the likes of Pharaoh Khufu, his forefathers and other peoples around the world seized and re-used these monuments. During their exploitation, important archaeological evidence was falsified or destroyed or used to enhance the new pseudo rulers' control. After some musing and "food for thought" discussion let's proceed to examine some of the facts.

Let's review in detail the unbelievable accomplishments of the Egyptians in planning and building the Khufu or Cheops Pyramid, the highest structure in the world for 3800 years and still the most massive, having a volume of rock of 2,500,000 cubic meters. The pyramid is estimated to have 2.3 million blocks with an average opening in the joints of only 0.5 millimeters or 1/50th of an inch wide. As quoted from Wikipedia's, the Great Pyramid of Giza,⁷² given the incredible accuracies and alignments for this structure, "... the four sides of the base have an average error of only 58 millimeters in length. The base is horizontal and flat to within ± 15 mm (0.6 in). The sides of the square base are closely aligned to the four cardinal compass points (within four minutes of arc) based on true north, not magnetic north, and the finished base was squared to a mean corner error of only 12 seconds of arc. ... the ratio of the perimeter to the height of 1760/280 cubits equates to 2π to an accuracy of better than 0.05 % (corresponding to the well-known approximation of π as 22/7."⁷² [Egyptologist Sir Flinders]" Petrie related the precision of the casing stones as to being "equal to opticians" work of the present day, but

on a scale of acres.”⁷² How are all these technological and mathematical feats possible in 2560 BC when being so close to man’s rise from the various Stone Ages ending about 3000 BC?

According to the written records, the 4th dynasty lasted from 2650 to 2480 BC when the better-quality pyramids of Giza were built. The pyramids were built during the reign of six pharaohs of the 4th dynasty: Huni (predecessor of Sneferi in the 3rd dynasty), Sneferi, Khufu, Djedefre, Khafre, Menkaure and the sixth and last, Shepseskaf.⁷⁵ All other pyramids of the Nile Valley that preceded or followed this era were of poor quality, mostly in collapsed ruins, lessor flank inclines, and made from much smaller stones. Did the previous rulers and rulers that followed this 4th dynasty lose the art of pyramid building or never really possess this technology and tried to duplicate what they saw on the Giza plateau? Did the rulers of the 4th dynasty really evolve this technology in the span of about 170 years between its six known rulers or was there some divine intervention? Perhaps these Pyramids of Giza are much, much older going back beyond the time of the recorded Great Deluge of 11,500 years ago and claims of their origins are merely the seizure of these monuments that were then adorned with hieroglyphic reliefs and smaller temples and mastabas which gave the current dating developed by archeologists. Of course, this is speculation by this paper to try to explain and understand the following even more unbelievable construction data for the Khufu Pyramid.

Herodotus and Diodorus, two ancient Greek writers, interpreted and translated the stories of these reigning Egyptians 2000 years later as best they could by providing their spin to excite the readers of their times. Remembering the huge building projects of the 18th dynasty Pharaoh Akhenaten who reigned from 1351 to 1334 BC, these writers evaluated him along with Pharaohs of the famous 4th dynasty as being megalomaniacs. These rulers ruthlessly exercised their delusional fantasies of power and omnipotence over the entire populace. This type of dictatorial rule went against the contemporary philosophy of the ancient Greeks of that time. Herodotus particularly wrote about information he received about the building of the Great Pyramids of Giza; of course, this information could have been greatly distorted and may have been given for a much lesser pyramid that was actually attempted from the start. Herodotus quotes the Khufu Pyramid as taking 20 years; this time span is generally used by modern engineers and archaeologists for basing possible construction methods. Perhaps Herodotus did some napkin calculations to decide these rulers were absolutely obsessed and crazy.

Nevertheless, a time span was specified as were the knowledge, tools, and materials of that ancient period. The tools were crude surveying implements, hemp rope, and copper for bearing sleeves and saws, and boats, rails, rollers, sleds and levers made of imported woods from Lebanon. Bronze was not yet invented. Iron tools were supposed to be imported from the Hittites for working with the harder granites. The various stone products were quarried at numerous sites along the Nile River corridor as far as Aswan 500 miles away, the origin for the granite monoliths of the King’s tomb. Of course, there were 20,000 to 30,000 slaves to perform the labor. A recent Egyptologist, Franz Lohner, devised a methodology using *rope rolls*, wooden brackets supporting wooden pins mounted in copper sleeves, to build this structure with an estimated more reasonable amount of 6700 skilled workers and artisans, not slaves.⁷⁴ His methodology eliminates the need for any type of ramps which were disputed as being impossibilities. Some ramps required as much stone material as the pyramid itself. Lohner claims to

have tried his technique with equivalently heavy stones, about two to six tons being removed and dragged up an almost equivalent ramp of 40 degrees (less than the 52-degree incline of the pyramid flank) from an actual quarry using the aid of modern construction equipment; the required manpower was not available for his test. He never experimented with the 60 ton monoliths used for the King's tomb which could have been lifted on a lesser incline of the Grand Staircase. To date, his method is thought to be the most plausible; part of a rope roller tool and sleds were discovered and are displayed in museums.⁷⁴

Franz Lohner and his associates are to be lauded for achieving the partial quest of solving the long-standing mystery of the construction of Khufu's Pyramid. A CAD/CAM video was created to show most of the details for quarrying, shipping by boat, transporting over land, finishing dimensions in the building yard, hoisting on the pyramidal flanks, positioning the blocks on the pyramid plateau, and the very special attention required by the harder granite 60 ton monoliths of the King's tomb. These special stones had to support the weight of rock of the remaining top third of the structure; this civil engineering design feat is totally remarkable and unbelievable. This paper does question rope rolls and hemp rope dragging 2 ½ ton stones up a 52-degree ramp as is proposed by Lohner. Hemp and sisal ropes even made in more modern times were excellent tools for sailing, tents, and canopies, but not for handling large loads. Ropes of this material continually pulling large loads over rope roll pins estimated to be 14 mm in diameter would quickly strain the rope causing frequent breakage. Industrial loads for lifting and controlling on inclines were kept small in the 1800th century due to rope failures until the invention of steel cables. More research is still required.

Let's now continue with Lohner's calculations to achieve the construction in less than 20 years. These figures are staggering and even more unbelievable for any modern construction firm to achieve. To dedicate this many people to a single project for twenty or more years with no tangible benefits being accrued for the general populace is not even possible with modern governments and infrastructures. The pyramid is estimated to have 2.3 million blocks each weighing 2.6 to 2.9 tons on average. Blocks on the lower tiers are 6.5 to 10 tons each. If 500 stones were laid per day for 290 days per year for 20 years that total would equal 2,900,000 stones. Based on a 10-hour day, the rate of delivery is about one stone for every minute.⁷³ ⁷⁴ This rate of flow of blocks needs to continue from cutting and removing the blocks from various quarries, transporting to the barges, loading on the barges, sailing to the Giza site, unloading from the barges, transporting to the site, finishing the stones, etc. These estimates do not include the granite workers and movers, the design and placement of ventilation shafts, tombs, grand staircase, underground chamber and entrance shafts. It seems that the ancient Egyptians, given their implements and materials of their day, were more advanced in the institutions of governing large populations and administering prodigious long-term projects than modern man is today.

XXV. Accounting for Possible Versions of Man's History

Von Daniken's claim of ancient astronauts or an advanced, destroyed civilization cannot be necessarily ruled out. Various versions of man's history can be listed without embarrassment as being speculation based on some plausible inductive reasoning; no version can be fully proven. But, by simply listing these versions some sense of man's past can be assembled. Please use an open mind that is controlled by all the ideas and facts previously presented.

1. The Egyptian leadership and that of other ancient cultures was very enlightened and could achieve great engineering feats with the given resources. This leadership either came from an improved gene pool of earlier evolved Homo sapiens that were mostly destroyed by global cataclysmic events. The majority of surviving hominids either lost many of their special genetic traits or started over again with more primitive brains. The leadership was severely challenged by dealing with a less educated people and slowly perished due to inbreeding conflicts with a larger, more unruly population.
2. The ancient rulers were either a residual population of aliens from extraterrestrial sources or a more talented group of offspring produced by the merger of Earth's hominids. They may have had knowledge of anti-gravity technology that could move large objects. These rulers or mixed breed did not mix well with the original hominids and clashed with each other soon becoming extinct. The original aliens returned to their home planet orbiting Nemesis or fought each other and perished or tried to escape another catastrophe due to their visiting Nemesis star and failed.
3. The ancient rulers really did evolve from normal Homo sapiens and developed an unbelievable amount of technology and infrastructure in a short period of time. The rulers' megalomaniac characters created great engineering feats with the tools, materials, and climatic conditions at hand. Characteristically, as with all of mankind's civilizations the Egyptian dynasties finally decayed and withered away. Perhaps their particular demise was due to plagues, drought, volcanic dust, floods, etc., brought by the last visit of Nemesis around 2300 BC. It was during these times that plagues, drought and famine assaulted Egypt.
4. The preferred version of this paper comes from ideas found and translated in the "Epic Tale of Creation" by the Sumerians and the Noah flood epic. The Sumerian epics of 6000 BC origins taught stories of creation handed-down by much earlier peoples several thousand years ago. The flood epic taught that much fauna and mankind's civilizations were destroyed by one the worst cataclysmic events on one of Nemesis's visits 11,500 years ago. Mankind had developed a highly advance civilization globally that produced most of the monoliths and pyramidal structures prior to that time. These structures were machines with some unknown technical application. Surviving peoples after this global destruction lost most of their knowledge except for those memories passed on by verbalization and by the more rugged monuments and text that remained intact. The human survivors latched onto these monuments developing settlements next to them hoping to learn how to use these abandoned structures again. Many of the written language versions of history were embellished since any connection to true science was lost. This version does not require the arrival of any extraterrestrial beings.

5. Another version comes from translations and interpretations by Zecharia Sitchin of several ancient Middle Eastern languages. Sitchin determined that aliens from a planet that comes through the inner solar system every 3600 years settled on Earth with a greater evolved knowledge and made a cross-breed, the modern Homo sapiens, from the existing hominids into their image to help with their labors on this planet. These aliens built most of the monoliths and pyramids for various technological reasons and had the means to transport themselves through the air. Sitchin does not make it clear what happens to the pure-bred aliens; one can assume that replacements stopped coming, and they eventually died or went home (do not rule out teleporting) leaving behind their cross-breeds to manage affairs after the cataclysmic destruction of Earth's surface by Nemesis's visit 11,500 years ago.

- X. This last version, labeled X, buzzes on the internet, movies and TV: the aliens are still with us. They appear as any other normal person and are discrete about their actions; or, they are hidden in subterranean bunkers and move above the surface discreetly in UFOs. The *men in black* try to confuse or silence normal people who discover their presence or observe their UFOs. The men in black are given higher authority than any existing governmental official and act in the alien's behalf. These men in black may also be liaisons between the aliens and the highest governmental and military leaders. These aliens or their representatives, "The Greys", are certainly prepared for another visit by the Nemesis Destroyer by living in deep, secretive, and sheltered subterranean caves.

XXVI. The Conclusions, or Simple Truth, of the Past 20,000 Years

Each version has great potential as a science fiction story or movie. However, what is learned is that no version can actually be proven – even version #3, now accepted by scientists and archaeologists, is not truly proven. What version is true or officially accepted by academics and governments makes little difference. What version you personally believe makes little difference. **What is paramount are two ideas taken from the following:**

1. from the studies of past geological and biological data
2. from cyclic data of climates and man's wavering and failing civilizations
3. from the worldwide, consistent storyline of myths
4. from the Earth's magnetic field changes and/or possible partial pole shift that can explain dramatic extinction events
5. from interpretations and translations of ancient texts and epics
6. from the primitive rock art depicting high energy plasma discharges between unknown celestial visitors seen in the ancient skies
7. from massive electrical arcing and sputtering as witnessed by space probes on Mars' surface and other orbiting bodies in the solar system
8. from the most reasonable source for asteroids and comets being the residual debris of electrical arcing of rocky surfaces and of collisions of asteroids

9. from the electrified environments that cause comet's tails, the helio-magnetosphere and the planetary magnetospheres that deflect the electrified solar winds
10. from the incredible, almost unbelievable and very questionable projects of monolithic structures created by ancient civilizations possessing only limited resources, tools, and knowledge.

These two ideas are indisputably presented:

Idea 1: ***A very technologically advanced globally-connected society existed to create the consistent monolithic structures that exist on every continent. Their technology has been lost or long forgotten for unknown reasons.*** The age of these structures is mostly given as the dating of skeletons and artifacts of organic nature or the dating of melted metals used as tools of a certain period. These dating methods cannot conclusively date the construction period of the monoliths since these archeological sites could have more than likely been contaminated by later ancient peoples who seized them for their own purposes, but had no responsibility for creating the original megaliths. ***The monolithic rocks themselves cannot be dated. If these worldwide societies of builders actually produced entire megalithic pyramidal structures from scratch, then why did all these societies disappear leaving very little or no trace to how their monuments were built?*** Modern day scientists and engineers are still puzzled about how and why they were designed and erected. The dating of these structures with their 60 to greater than 1000-ton megaliths (some are granite requiring iron tools) could easily be either what is now proposed or of a much later period prior to the proposed cataclysm and Deluge of 11,500 years ago. Archaeologists today place all their bets and written theses on the currently accepted dating of events which includes the building of the complete structure during some ruler's reign. The dating is not necessarily certain and could go back several more thousands of years for these structures. The minds of scientists and historians must stay open-ended as are the dating methods.

Idea 2: From the previously listed evidence it is also apparent that ***global cataclysmic events occurred to seriously affect mankind's evolution of his knowledge and his civilizations. Evidence shows that there was cyclic global destruction of varying degrees through the millennia going back 20,000 years and more.*** Erosion, land wasting, earthquakes, dust falling from the atmosphere by volcanism and the rotting of organic materials erased the most reliable records of Earth's surface and climatic history beyond the Neolithic Period. Any of man's existing civilization of prior times was completely erased except for the most rugged artifacts which are believed to be the existing monoliths. The better resolution of boundaries of unusual climatic, geological, archaeological eras stopped after the Mesolithic Period (8500 BC) of the Holocene Epoch. Some very good resolution into the Pleistocene Epoch led to identifying the boundaries of the last three stadial periods of glaciation taking recorded climatic changes back 20,000 years. The very well-defined boundary at the end of Pleistocene Epoch is the Younger Dryas Period which provides the best marker for the one of cyclic changes caused by Nemesis. The identified cyclic changes occur about every 3600 years as is suggested by Zecharia Sitchin and this paper. ***Whatever is the exact cyclic period is not too important. What is important is that there is a highly probable cyclic period which can only be caused in classical physics by an orbiting Nemesis planet or star.*** And, since electric arcing and sputtering is witnessed on the inner solar system bodies, these

events strongly suggests the passing body is a star with strong magnetic and electrical properties and not a planet. Original planets or captured planets may still orbit this Nemesis star.

XXVII. Preparations for the Next Coming of this Destroyer God, or Nemesis

Should man prepare for the next coming of Nemesis? Ancient peoples of both developed civilizations and primitive societies thought that Nemesis, a strange vision in the sky, was either a competing God to our Sun or Moon or was an evil Devil or Dragon. Could some urbanized groups of ancient astronauts or an advanced society of Homo sapiens possibly have known of their uncertain fate or revelation? This random fate depends on what happens each time as Nemesis passes through the inner solar system aligning itself in different ways with the other celestial bodies of both stars. If any previous advanced civilization was not prepared, then mankind's accumulated knowledge and infrastructure would be practically, totally destroyed. Then all the survivors would be reduced to the archaeological conditions of the early Neolithic or Mesolithic Ages. The survivors would have to surmount the ladder of knowledge once again and plod through the Bronze and Iron Ages trying to make sense of the standing megaliths and pyramids. Their memories through verbalization were passed to each succeeding generation with a consistent storyline of a horrible catastrophe. These storylines are the worldwide myths that modern man has determined to have no technical basis.

If man learns about the knowledge of Nemesis and is convinced of another pending cycle then the answer is an unequivocal yes. Society should start as soon as possible to prepare and avoid another backward slip into the Stone Age or total extinction. But science or a convincing prophet has to come forward to warn about this revelation that Nemesis will bring. Teaching compassion and love for each other will also be required before it is shown how society can take such cooperative measures. And, what are these measures?

The very first appreciation is that the majority of Earth's population will likely perish either through direct annihilation or from the lack of sustenance once provided by the destroyed infrastructure. If the alignments are favorable and any collisions are minimized then Earth may survive Nemesis's next coming with little affect. More than likely, one's fate will depend on the properties of one's location, such as the hemisphere or continental location; the proximity of oceans and large lakes; elevation above sea level; the closeness to volcanoes and fault lines, the path of monster storms and dust clouds, the survival of infrastructure in the region, etc. The anger of Nemesis is completely random and favors no particular human group or living species. Two major paths of preparation require consideration and hopefully both are eventually pursued. Perhaps the first path is already being pursued secretly.

XXVIII. Preservation of Knowledge Base and Current Technical Advancements

The first type of preparation is to preserve our knowledge base and save certain groups of people represented by the complete diversity of the Homo sapiens gene pool or races who are very educated, compatible, healthy and youthful. These groups would be sheltered inside subterranean caves having the necessary self-supporting modern infrastructure. These underground cities located on each continent would have all the necessary elements for survival for perhaps five or more years. All the domesticated plants and animals would be housed in these caves, not too unlike the Noah epic. When the Earth recovers partially these preserved peoples of all races can re-emerge on the surface to start over again but with all modern knowledge and compassion for each other intact. There would be no misunderstanding of man's genesis story; and surviving peoples will know the value of cooperation and harmony. The true devil or evil would be known as the brown dwarf star, Nemesis, and not any evil residing within us or not the existence of an overbearing, punishing, fictitious god or gods. The evolution of life and man's knowledge would continue uninterrupted. The selection process for manning these subterranean cities would be similar to selecting leaders and crews for large aircraft carriers or nuclear submarines of today. Of course, there would be a periodic rotation of assignments to these mega-bunkers. The basic difference would be that every attempt will be made to mix the races within each city to prevent any further race and ethnic prejudice. The mixture of races also allows for less inbreeding, if part of each race is kept pure over time.

XXIX. Assuring the Best Chance of Survival for the Maximum Number of People

The second type of preparation is to assure as much as possible that the maximum amount of surface infrastructure survives to service survivors on the Earth's surface after any major assault by Nemesis. Politically and economically this is the most difficult shift in man's thinking that should be made. Perhaps earlier advanced societies knew the issues that certain infrastructure would create with each visit of Nemesis and completely avoided them. A listing is now composed for changing, reducing, or even eliminating the following "soft infrastructures". The order of presentation does not necessarily represent their degree of importance.

1. Some of the more important magnetic media needs replacing with *hardened* documents such as inscribed stone or at least high quality, long-life paper. Otherwise, electromagnetic storms will destroy all our digitized documents that exhibit our videos, pictures, music, financial records, and all other written materials.
2. Current forms of communication such as computers, the internet, phones and satellites will be useless. More hardened forms of communication will have to be resurrected and/or retained. These types of communication are normal mail systems, telegraph and shielded radio systems that can still partially operate during any intermittent but severe electromagnetic storms.
3. Some proportion of all commercial transportation systems will require backup hardened control systems that do not rely on computerization. These backup systems are especially true for rail

systems and ocean transportation. A destroyed highway system and fuel distribution system will require the use of bicycles and horses and high-quality shoe ware.

4. Hardened power grids and pipe lines are required. The standard power distribution system with transformers will be systematically destroyed. Power should be supplied by much smaller grid systems with lower voltages supplied by the source generators. More and more communities and individuals should install or have available their own generators that can be run with local natural gas or other readily available fuel. Major pipelines will require more automatic, passive shut-down systems due to random upheavals of the Earth's crust.
5. All major construction of infrastructure along shorelines and high-rise buildings should be reduced or stopped. Construction funding should be re-allocated toward in-situ underground, self-sustaining cities.
6. All construction of dams should cease and present dams should be drained and abandoned, especially the larger ones whose failure would wipe out in its path of destruction some of the largest cities on the planet.
7. All construction of nuclear power plants and nuclear materials processing plants should cease. All remaining plants should be decommissioned and their spent fuels stored until their half-lives become reasonable to inter them into the most rugged and reliable concrete casts. All present nuclear power plants have no passive design; they all require being connected to the power grid when shut-down. Without power, the spent fuel or any loaded reactor will go critical and release deadly radioactive materials into the atmosphere and water table for centuries. This verdict was established with the recent Japanese Fukushima disaster. The military-industrial complex still feels the need for nuclear arms as an equalizer similar to the six-shooter of the American Wild West. The six-shooter infrequently killed some innocent bystanders. But, this nuclear equalizer can kill the entire human race. The evolution of Earth's protective atmosphere and rocky crust have protected life against harmful radiation lurking both in space and the Earth's interior. Man should trust such matters to billions of years of evolution. Let's begin to sequester nuclear materials now and save Earth's fauna and flora, including ourselves.
8. The electromagnetic field energies created by the Earth's being between the alignment of both the Sun and Nemesis is totally unknown. Perhaps some more knowledge about observed brown dwarfs and laboratory experiments may lead to a good estimation of what the highest field values will be. If the values are very high and are not deflected by the Earth's weakened magnetic field, then this radiation can be detrimental to the working of the human brain. To mitigate this issue of our brains being fried, the government could provide specially designed radiation-shielding helmets for each person on the surface. This proposal sounds a little crazy, but not quite as crazy as the development of civil defense shelters during the Cold War with its accompanying nonsensical increase in production of nuclear tipped missiles having a human kill ratio of many more times the affected populations. The difference of this new proposal is that man is dealing with self-preservation and not self-destruction.

This mini-handbook for human survival also serves to protect us from other calamities predicted by modern astrophysics and planetary science. Some predicted plausible calamities from the field of

astrophysics are: a sudden slight fluctuating expansion of the Sun's diameter producing momentarily higher electromagnetic radiation; a large Near-Earth-Object (NEO), comet or asteroid colliding with Earth; other comets or asteroids being perturbed by the gravitational attraction of nearby planets into changing orbits that make them NEOs; nearby gamma ray bursts (origins are still debated); and nearby supernovae that emit dangerous gamma ray radiation. Predicted calamities from the field of planetary sciences are: the loss of Earth's magnetic field and/or the ozone layer that protects us from ultraviolet and other dangerous radiation from the Sun; large continental earthquakes and movement of fault lines creating dam ruptures and total disruption of urban infrastructures; large underwater earthquakes or landslides causing tsunamis; mega-volcanoes causing huge dust clouds that blanket large areas or place climate-changing aerosols into the atmosphere; oscillating oceanic thermoclines that can cause dramatic climate change; and ice cap meltwater that raises sea level. Can one ever be safe from any of these calamities? Never. But, man can prepare now for some optimal survival modes in the hope of continuing his longevity along with some of his certain favored or domesticated flora and fauna. Also, man's overall planning of future infrastructures should perhaps start accounting for these calamities along with any coming of Nemesis.

XXX. Hope, Faith, and Prayers Will Persist

The purpose of this paper is to perfect the best marriage between myth and science. Predicting encounters with the Sun's sister star, Nemesis, does create this marriage, but at a cost. This prediction does, after all, require more evidence which, if proven, eventually may find its way into mainstream knowledge. The cost of this proving and admitting this prediction is the projection of a future of worldwide doom and resulting feelings of depression. But man is known to overcome all types of oppression and depression. The proposed preparations are probably politically impossible but still plausible. If worldwide governments do admit to the coming of Nemesis and decide to begin preparation and cooperate in the very near future of the next hundred years, there probably is enough time. Man's governments and other institutions could utterly fail at preparations if people become convinced of a pending doom and are not willing to sacrifice for the greater good of the species' survival. We all can hope and pray for one of the possible good outcomes: either good preparation or no danger happening from Nemesis's next coming or any other major calamity. Eternal hope is the test of everyone's faith and everyone's individual responsibility. Maybe the construction of the pyramids was a testament to man's faith and hope in past times. Here are some future hopes:

- This paper is only another fable or some science derived from bad assumptions that have some redeeming entertainment value and/or interesting ideas.
- Nemesis has been perturbed into a hyperbolic orbit never to return.
- Nemesis has been perturbed into a higher inclined orbit that has little chance of creating more disturbances of the planets or the Main Belt of asteroids.
- Nemesis, along with other celestial bodies, has greatly reduced its past stronger magnetic field thereby causing less damaging interactions.

- Nemesis has been perturbed into a changed aphelion that safely crosses between the outer planets' orbits with little effect on the inner solar system.
- The presence of Nemesis in our star system, for a various combination of reasons, presents no danger to Earth and its inhabitants for the next several million years. If certain sets of species of dinosaurs lasted for millions of years between mass extinctions per the fossil record, then why not man?
- Man does realize his history involves Nemesis and will prepare for its next coming. Man will continue his longevity and keep expanding his knowledge and wonder of the universe.
- The aliens that created Homo sapiens, if that is the case, will teleport all of us to a safe haven; or our souls are teleported automatically to another time and place to start over again if one's soul wishes. This mode of survival would really be a testament to trust and faith.

As you can readily sense, there is plenty of hope. So, keep the faith and continue to strive and learn. Our senses need both yin and yang for us to survive and this is good. All is good.

XXXI. Addendum 1: Detailed Explanations Supporting the Proposal for a Slippage or Displacement of the Earth's Mantle

The author of this paper previously presented calculations in another paper to show how a large Martian-size body impacted the Earth causing its 23° axial tilt of its spin axis to the ecliptic plane. These non-computerized calculations used numerous assumptions and classical physics. This time, a new set of calculations will be presented later in similar manner to show how both mechanics and electromagnetic forces partially rotated the Earth's mantle during an entirely different and much more recent event. The Earth's spin axis, less some temporary small wobble, and its orbital trajectory were unaffected. The proposal claims that the mantle was displaced latitudinally by about 15° to 20° with respect to the very dense, gyroscopic-like, inner core, which preserves the spin axis and interior magnetic field direction. Currently, the magnetic pole at 14° from the spin axis represents the residual magnetism in the mantle and lithosphere prior to the mantle shift 11,500 years ago. Both measured magnetic poles are slowly drifting rather randomly toward the spin axis poles, as would be expected. The residual magnetic field lines are slowly aligning with the active magnetic field lines that are parallel to the core's spin axis. The Earth's core spins faster than the mantle and acts like a dynamo, producing an electric field and a resulting dipole magnetic field. The Earth's dynamos are composed of an inner core magnet and an outer mantle magnet that continually receive additional charged particles from the Sun's solar winds.

This displacement of the Earth's mantle was responsible for ending the geological period called the Younger Dryas, for the Great Flood myth or real event known worldwide by many different cultural groups, for the mass extinction of numerous fauna and flora, supposedly, for the destruction of mankind's already well-developed civilizations. Many other types of geological and biological data marked this well-defined catastrophic event. Different causes have been theorized, such as quickly changing ocean currents, asteroid impact on the ice cap and eruptions of mega-volcanoes, but none provide either a reason for the quick deaths of so many fauna in the northern latitudes and for global

flooding. No real trigger or direct cause has ever been identified and or popularized. The flood myths via man's verbalizations and records of some of the epics from the first languages of ancient cultures reveal celestial events as the precursor or real cause.

The proposal of this paper continues in stating that a close encounter of some celestial body caused this mantle displacement both by tidal accelerations and electromagnetic forces. This concept answers the important questions as to what might have triggered such a total global event 11, 500 years ago to occur so quickly; what could have caused comets and other debris falling from the sky; what caused the earthquakes, volcanism, and severe weather, so severe as to cause the rapid freezing of large fauna; and what electromagnetic process caused the reversal, or changing location, of the magnetic poles. All these calamities occurred at the same time along with global flooding because the mantle and crust were displaced, moving Siberia farther north and North America farther south. The geoid of Earth's crust had to adjust to new altitude changes thus causing the run-off of water from vast inland seas and lakes and the opening of crustal fissures, causing unprecedented volcanism.

The proposed celestial intruder is one of the planets orbiting the Nemesis star that returns every "Sar" cycle, or every 3600 years. Since Nemesis is on an inclined orbit to the ecliptic plane, any of its orbiting planets could have occasionally passed closely over Earth's northern pole during the period of about 12 months while Nemesis passes through the Sun's inner planetary system. Nemesis is believed to be a highly magnetic and highly charged brown dwarf star. Its corona or anode glow is very extensive and envelops its orbiting planetary system thereby transferring electrical charge and magnetism. These planets continue to store this increasing charge almost like one half of a capacitor waiting to discharge to the opposite plate or another close body with opposite charge. This paper's proposal states that one of Nemesis' anodic- or cathodic-charged planets discharged highly energetic plasma and current directly to Earth's closest surface, the northern polar region, in the form of Birkeland current columns. The touch-down of discharge is very likely at the polar region because it has the strongest magnetic field comparable to a bar magnet. This process is much like the Earth receiving charged particles from the Sun's solar wind thus creating auroras, except the incoming current is more than a factor of ten to a hundred to a thousand of what is received from huge solar flares pointed directly toward Earth.

The Birkeland currents intercept the Earth's atmosphere, oceans and lithosphere and increase current line strength on the outside of the mantle as the increased current flow travels to the equator and possibly the opposite pole. The salty sea water makes an excellent conductor of current. These stronger currents, in turn, increase the magnetism of the overall mantle. Hence, an increased interaction of magnetic forces is created between the passing magnetic Nemesis-planet and the Earth's magnetized mantle.

The incoming Birkeland currents also pass through the Earth's mantle parallel to outgoing current from the Earth's dynamo at the core. This increased current flow in turn increases the magnetic field strength of the mantle interior at the Polar Regions. Thus, the magnetic fields of both the passing planet and the Earth's mantle become interlocked. As the Nemesis-planet moves farther away its larger magnetic field strength pulls at the Earth's magnetic mantle trying to rotate it about the core.

The interface surfaces between the outer liquid core and the bottom of the mantle can move with respect to each other if the mantle receives enough force to increase or change its motion. The interface between the liquid core and the solid core has motion differential that provides heat energy and the Earth's dynamo properties for creating its own magnetic field. The very dense and heavy solid inner core along with the outer liquid core gives the planet gyroscopic stability even though it has freedom in all three directions. This core is like a gyroscopic rotor that maintains its spin axis direction regardless of the orientation of the outer frame or the Earth's mantle.

But, the liquid core can act like a fluid coupling that uses spheroidal motion instead of toroidal motion as occurs in an automobile drive transmission. If the mantle is acted on by some external force, especially near the surface, the resultant torque can move the mantle latitudinally. The motion is stopped when the mantle's inputted angular velocity cross-section begins to match the upper liquid core's angular velocity cross-section. Normally, the stability of alignment between the outer liquid core and the mantle is maintained by both the conservation of angular momentum and the magnetic attraction of the underside of the mantle to the liquid core.

If the magnetic field lines of force are suddenly broken at the mantle-core interface at the same time torque is applied to the mantle, then motion between this interface can occur causing the mantle to rotate with respect to the spinning core's axis. This is the process or mechanism that is proposed to cause a brief but catastrophic mantle displacement. Some extra tidal acceleration occurs between the two planets to add to the pull between planets but is insignificant in causing this slippage of the Earth's mantle. This particular celestial event is especially dominated by electromagnetic instead of gravitational forces.

As the passing Nemesis-planet moves onward farther from the Earth's North Pole, the Birkeland column currents become distorted and pull on the mantle and then finally disconnect violently via plasma z-pinches. The mantle springs back, causing an impulse-type torque within the magnetic circuit. The disconnection of the Birkeland currents stops the magnetic field lines of force from holding and aligning the mantle to the outer liquid core. Hence, violent movement of the Earth's mantle occurs possibly over a short period of 6 hours for about 20° of mantle movement with respect to the spin axis. The weaker magnetic circuit of the Earth's dynamo is then re-established and fluid braking occurs after the rebound torque stops. The motion of the mantle with respect to the core then slowly stops.

The Earth's lithosphere now must make the necessary adjustments in re-locating the colder polar temperatures and ice caps, in rapidly changing climates and ocean currents at lower latitudes and in changing the geoid or oblateness of the Earth's crust that causes global flooding, earthquakes and volcanism. After the violent sea and lake run-offs stabilize, the ice caps that moved to lower latitudes begin to melt, thereby pulsing and increasing the ever-rising sea level of that glacial interstadial period.

This brief storyline gives us more assumptions to utilize in developing eventual calculations to support this viewpoint. Some of these assumptions may have to be modified in order to achieve the best result or connection between what actually occurred. The desired simple result is stated, "The Earth's mantle

is displaced about 20° of Earth's latitude from the existing North Pole very suddenly leaving the spin axis unchanged."

XXXII. Addendum 2: A More Realistic Interpretation of the Cataloged Archetypes or Symbols in the Sky, as Described by David Talbott

David N. Talbott, in his article "Symbols of an Alien Sky", provides a very convincing argument that ancient rock art or petroglyphs drawn globally represent what Stone Age man saw in the skies of his time. These symbols are also represented by the reliefs or friezes displayed on the rock walls of temples and other structures built by ancient worldwide civilizations. Many of the ornaments, staffs and garments of the ancient political and religious rulers replicate these same symbols. Talbott continues to catalogue these symbols into archetypes that have similarities between and among most of the worldwide primitive rock art and ancient civilizations over a time period that covers most of the Mesolithic, Neolithic, Chalcolithic and Bronze Age eras.

These recorded symbols were recognized by Wallace Thornhill and Anthony Peratt, electrical engineers, as familiar displays created by plasma technology. The connection was made that these archetypes in the ancient skies are typical of such plasma configurations seen in the laboratory such as Birkeland currents, z-pinchs, diocotron instability, plasma sheets, double layers of charge, etc. The next deduction was that this plasma phenomenon was created by celestial bodies in our solar system that are no longer in the same locations or have disappeared for various reasons. And, of course, these bodies were highly magnetic and electrically-charged in order to emit or receive highly energetic plasma or Birkeland currents between each other over vast distances of interplanetary space, and definitely in the case of close encounters.

Being familiar with Velikovsky and his postulated quickly-changing orbital arrangements involving Jupiter, Talbott and Thornhill devised a similar scheme that involved the transformation of a family of Saturn's so-called planets that quickly arranged themselves as some of the inner planets of the solar system. Their concept also includes mankind on Earth recording some of these celestial events. In this concept, Earth was originally a planet of Saturn, then Saturn was captured by the Sun and transformed from a brown dwarf star to a proto-planet of the Sun. This paper regards this event as virtually impossible on the basis of classical physics; also, any living forms on Earth could hardly survive such upheaval. But, Talbott and Thornhill sternly believe that mankind did survive such catastrophic events, as is recorded in several ancient epics. This paper supports catastrophic events occurring to mankind but certainly not in this manner. Talbott and Thornhill have undisputedly provided a tremendous understanding to connecting myth and science and the history of mankind. Their contribution has certainly corroborated this paper's hypothesis. However, even the best of us, including Einstein and yours truly, can go down the wrong rabbit hole. Rapidly changing orbital characteristics is not the correct rabbit hole.

This paper chooses a celestial configuration that can be accepted by classical physics. The varied possible arrangements of this configuration can explain the archetypes so eloquently described and catalogued by D. Talbott. The Sun has an orbiting brown or red dwarf sister star with a period of one “Sar” cycle or 3600 years. The orbit is very elongated and inclined to the average orbital plane of the Sun’s planets. This dwarf star is highly magnetic with an anode corona that encompasses two or more planets. Its perihelion is about 2.7 AU from the Sun passing through the Main Belt of asteroids. This star’s orbital path must intersect the Sun’s heliosphere two times and closely cross near the orbital paths of the outer planets. Its trajectory at the perihelion naturally disturbs the asteroids of the Main Belt each time that Nemesis intersects this region. The star remains within the orbits of the Sun’s planets for an estimated twelve years while its own planets continue to orbit between ½ to 1½ AU from its parent having their own ecliptic plane.

This model has features that can address all the observations and interpretations listed in man’s recorded history, including rock art, deduced from the archeological, biological and geological records and portrayed by plasma discharges of cosmic bodies in the sky. These features are:

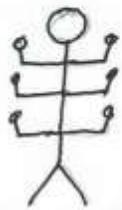
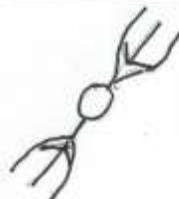
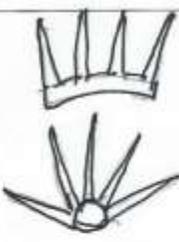
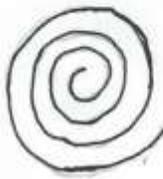
1. The brown dwarf star’s orbit provides the short cyclic period that can explain the various periods of recorded calamity in man’s history. That span of time studied is the past 20,000 years.
2. Strong magnetic and electrical effects of brown and red dwarf stars can produce both low energy plasma streams and highly energetic plasma leading to arc strikes. Both the dwarf brown star and its planets, via an anode corona, can emit and receive Birkeland currents or plasma columns needed to explain certain phenomena of observed surfaces of planets and satellites in the solar system.
3. The model provides numerous variables that can explain the differences in what happens each time the dwarf brown star returns to the inner solar system. Some of these variables are:
 - a. a changing elliptical orbit for the dwarf star
 - b. precessing orbits for the dwarf star’s planets
 - c. an occasionally perturbed orbit for the dwarf star by close encounters with the Sun’s outer planets
 - d. a changing magnetic field strength and amount of electrical charge of the dwarf star since it loses or gains plasma to or from the Sun’s planetary system each orbital period
 - e. a changing solar wind strength from the Sun depending on its sunspot cycle
 - f. a changing charge of the anodic corona for the dwarf star depending on its magnetic cycle
 - g. major plasma discharges including arcing between close encounters of the Sun’s planets and the dwarf star’s planets.

For sure, other variables are present that cannot even be imagined.

4. The model with all the possible interactions between the dwarf star, its planets, the Sun, its solar planets and asteroids can create the various symbols of an alien sky portrayed by David Talbott. These celestial interactions and their related archetypes now follow.

David Talbott and Wallace Thornhill are certainly welcome to explain these interactions themselves and may certainly improve these explanations due to their depth of experience. However, they currently do not accept this model of celestial configuration. To understand these archetypes from the viewpoint of Talbott and Thornhill please review their books, *Symbols of an Alien Sky* and *The Electric Universe*, or their video streaming via the www.thunderbolt.info. Their presentations are superb, but misdirected regarding the 'Saturn myth' and its polar configuration.

Some of the major archetypes discussed by Talbott and Thornhill are shown in the following table. The author of this paper then attempts to interpret the meaning of each archetype (their names are italicized) based on the return of the Nemesis brown dwarf star into the inner solar system every Sar cycle of about 3600 Earth years. Humans on Earth then have a reasonable opportunity to witness the passing of entirely new wanderers across the sky and see/record their symbols or archetypes. These archetypes are the interactions of various plasma formations between the celestial bodies as seen in Earth's ancient skies.

Typical Archetypes:		Typical Archetypes:	
Squatter Man		Cosmic Wheel with Wavy Spokes	
Stick Man with Raised Arms		Cosmic Wheel with Tongue	
Thunderbolt		Winged Disk	
Trident		Radiant Crowns	
Spiral Serpent		Hand of God with Eye	

These diagrams and interpretations of archetypes are taken from Thunderbolt.info by David Talbott.

Cosmic Wheel as the Brown Dwarf Star, called Nemesis

The Cosmic Wheel has numerous versions but is mostly related to the brown or red dwarf star seen overhead during its crossing. When shown with the dark eye in the center, either Mars or one of its planets is eclipsing the Nemesis star from Earth's viewpoint. When the Cosmic Wheel has straight stable spokes, its anodic corona is interacting with some close encounter with another celestial body or the dwarf star is energized by highly-activated solar flares and winds. Strongly emitted plasma from Nemesis is depicted by straight spokes without a wheel rim. Strongly-received plasma from the Sun is depicted by spokes with a wheel rim and crescents on the corona surface. The crescents vary in position due to the position of the Nemesis star with respect to Earth's position with the Sun. These more illuminated crescents are either the Sun's light reflecting off the corona's envelope or the incoming solar wind current energizing the corona's surface. As the spokes of the Cosmic Wheel become wavy and break-up, the transmitted Birkeland currents are lessening due to increasing distances between the interacting bodies.

Cosmic Wheel as the Dark Planet Passes Close to Earth:

This paper postulates that one of Nemesis's largest planets, call it the Dark Planet, had a close encounter with the Earth's northern hemisphere in its normal, elliptical, orbital trajectory around Nemesis. This Dark Planet was either a highly-charged anode or cathode with its own strong magnetic field. Nemesis's planets share these characteristics by receiving and storing charge from the brown dwarf's anodic corona via interactions with the star's strong magnetic field. The close encounter with Earth created an illuminated, highly-charged Birkeland current column that completed an electrical circuit between the planets. The appearance of this highly-energized Dark Planet appeared as a *Cosmic Wheel with a Tongue* when columns of Birkeland current were initiated and struck Earth.

Evolution of Energetic Birkeland Currents Reaching Earth

As the Birkeland currents increased their current flow and number of columns, the Cosmic Wheel appearance changed to a *High, Steep Mountain Having Various Radiant Crowns*. As the Dark Planet moved past Earth, the connecting Birkeland currents changed appearance to a *Curved Side Lock*. As the Dark Planet moved farther away from Earth, the Birkeland currents appeared as *Half of a Radiant Star*. And finally, as the separation distance kept increasing, the Birkeland currents were stretched enough to produce z-pinches. When the z-pinches occurred, the currents were still energetic enough to produce illuminations that looked like the *Fiery Serpent/Dragon with Long Scales or Feathers* by viewers from Earth.

Winged Disk

The *Winged Disk*, as depicted by the Sumerians and other succeeding civilizations, has to represent a highly-activated Nemesis star passing through the Main Belt of asteroids at its perihelion with the Sun. The star electrifies the asteroids and other dust that illuminates their surfaces including the fine dust that sputters off their surfaces. From Earth this illumination of charged materials looks like wings

emanating from the Nemesis disk or corona envelope. The disk should appear to Earthlings as several times larger than Jupiter at this distance.

It is possible that the largest planet orbiting Nemesis could also appear as a *Winged Disk* orbiting through Nemesis's corona when it is in close alignment with Earth. Another possibility is that Nemesis grows these wings as it crosses the helio-magnetosphere, thereby interacting with its double layer of current and the solar winds within the Sun's heliosphere.

Hand of God with Eye

I foretell two possible versions with the second one being the most likely for the Hand-of-God archetype. The first version is Mars being in line of sight between Earth and Nemesis. Nemesis is transferring highly-energetic illuminated plasma to Mars with a corona created around Mars as being the palm of the hand. The dark eye is Mars. The fingers are Birkeland column currents coming from Nemesis, which is being eclipsed.

In the second version Nemesis is transferring illuminated plasma to either Jupiter or Saturn, which is being eclipsed by Nemesis as viewed from Earth. These possibilities occur four times for each crossing because Nemesis crosses each of their orbital paths two times. The palm of the hand is the enlarged, activated and highly-illuminated corona around the star, with the star being the eye. The fingers of the hand are Birkeland column currents reaching outward toward the hidden Jupiter or Saturn.

Thunderbolt and Trident

These plasma displays are highly luminous and energetic. They are plasma discharges of different intensities that occur directly between celestial bodies in space. The *Trident* is arcing probably between a highly-charged and a weakly-charged body. The *Thunderbolt* is arcing sometimes with visibly twisted filaments between two bodies in a close encounter, one of which definitely occurred between Mars and Nemesis. Naturally, as observed from Earth, these events are seen as a profile or side view.

Squatter Man

These very typical and numerous depictions are found in petroglyphs and look like a squatting stick man with upraised arms, with or without two donut-like rings on each side of the man's body. The dating of petroglyphs is difficult and their origins may come from Nemesis crossings prior to, as well as after, the Great Flood event of 11,500 years ago. The head of the man is the source of plasma transfer, which is either Nemesis or one of its largest planets. The main body stem is the column of Birkeland currents that splits to form a "Y" or the squatter's legs when it comes near a cathode-like solar system planet. The raised arms are unstable sheets of plasma and the two donuts on either side of the body represent a diocotron-type instability. This diocotron configuration is typically seen in laboratories when high energy plasma is emitted between a cathode and anode inside a vacuum tube under certain conditions. Apparently, a plasma discharge from Nemesis, or one of its planets, is strong enough to illuminate interplanetary space as it comes close to a cathode-like charged planet within the solar system. Earthlings are witnessing these events seen in profile, obviously at a safe distance.

Stick Man with Raised Arms

This *Stick Man* is similar to the *Squatter Man* but it lacks the normal donut-like diocotron-type instability configuration. This *Stick Man* has one or multiple raised arms with hands. The small circular hands on the ends of each set of arms are a smaller version of donut-like diocotron-type instability that terminates at the end of sheets of plasma represented by the arms. These plasma displays are likely less energetic than the *Squatter Man* and may have occurred between the Sun and the planets Mercury and Venus. These displays could easily be seen by ancient peoples in the light of early dawn or twilight. The Sun would be at these times in its very active sunspot cycle producing much stronger flares due to Nemesis's magnetic field influence. Possibly, Nemesis was in close alignment with the Sun and these inner planets for these events to occur.

Planet Venus Appearing as a Comet

Now it is time to discuss the very mysterious event of planet Venus becoming a comet. Apparently, interpretations of some ancient texts reveal this episode. Venus, an easily observed wanderer of the ancient skies by the naked eye, appeared without warning as a comet with its typical coma and tail(s). What very possibly occurred is that Nemesis was in the neighborhood and caused an already active Sun to eject an enormous solar flare(s). The plasma was being attracted toward Nemesis when the unfortunate planet of Venus intercepted this high-energy, concentrated plasma, possibly even saving Earth from the same fate. The plasma created a coma or highly energized electrical field around Venus that then struck the Venusian surface with wicked lightning, causing the sputtering and ejection of surface materials. This ejected, dusty material had enough energy to escape Venus's gravity field and appear as a tail of a comet as these materials trailed off into space behind the planet's trajectory.

Also, Venus could have produced several tails of ejected materials or received violent arc strikes from an overly active Sun. This vision in the sky could have created the archetype the *Radiant Crown*.

Celtic Cross and Other Crosses

The *Celtic Cross* is especially the best cross for revealing the Nemesis star. It shows a representation of the *Cosmic Wheel* that is known now to be the feared and revered star, with its spokes and rim. As in all other crosses, the shorter member represents the trajectory of the Nemesis star. The longer member of the cross represents the line of sight from Earth at ninety degrees to Nemesis's crossing through the solar system. This idea really originated with Zecharia Sitchin, author of *The Twelfth Planet*. Apparently, this concept was twisted and re-used by the Christian religion from previous "pagan" beliefs to become the cross of Jesus Christ. This religion, as well as others, distorted, at numerous times, the meaning of ancient man's ideas of other important astronomical events such as the spring and winter solstices. These solstices for Christians became Easter (the arisen Christ) and Christmas (the birth of Christ), respectively. Important events in the so-called mythical world are rearranged, renamed, sanitized and utilized to meet the means and ends of the newest culture in power. One must always be careful not to literally interpret ancient epics and cultural paradigms. Man's records of his history have too many times

become unrecognizable regurgitations. The original sentiments become very mysterious and mythical. Any possible scientific explanation is made very difficult.

Fiery Serpent/Dragon with Long Scales or Feathers

This archetype is typically destructive and feared. The dragon's feathers are dendritic in appearance, which reminds plasma scientists of its electrical nature. And, like a serpent, this archetype is dynamically curving. The curving body is caused by an unstable Birkeland current, trailing a highly-electrified comet or asteroid that is rapidly moving through the Earth's atmosphere. This archetype is also represented by multiple dragons or a many-headed dragon traveling through the atmosphere. This visualization is simply the break-up of one larger meteor. These near-Earth asteroids were possibly created by Nemesis and its planets crashing through the Main Belt of asteroids. And, possibly the Dark Planet that had a close encounter with Earth was accompanied by asteroid-like satellites that were stripped off and plummeted to Earth. These falling, burning asteroids with red, dusty trails could have been the fiery dragons.

Spiral Serpent

The author is lacking any good reason for this archetype. Perhaps the ancient Chinese created spirals in the sky with their fireworks. Perhaps David Talbott and Wallace Thornhill can come to the rescue. Any reader is welcome to devise a mechanism to this celestial display. These previous models of possible celestial plasma fireworks certainly stimulate a myriad of possibilities. One's imagination for creating reasons for these plasma displays in interplanetary space and in the local vicinity of Earth with the help of Talbott's and Thornhill's archetypes should now be fully activated.

Issues with the Sun Having a Binary Partner

This dynamical celestial model using a brown dwarf orbiting around the Sun does have some issues. If this comparatively rapid cycling Nemesis star does frequently create calamity with the Sun's inner planets including Earth, how then did different sets of dinosaur species survive for millions of years without interruption, as the fossil record reveals? This question is answered in one of two ways.

The first way is to claim that Nemesis did cause havoc that is not always recorded until major effects show up in random and infrequent mass extinction events or in Ice Age starts and ends. Life is reputed to get started about 3.8 billion years ago even without a protecting atmosphere. Earth's life forms are hardy enough to regain a foothold and keep evolving each time after a major catastrophe occurs because the planet presumably remained in the required habitable zone around the Sun and retained its water and atmosphere.

The second way is to claim that the Nemesis system was recently captured within the last few hundred thousand years. Academics have problems with this claim because supposedly any capture mode occurring millions of years after the solar system birth is virtually impossible. Other stars created close to the Sun's birth location in a star burst event are moving apart too fast to ever become gravitationally connected unless it occurs extremely early, such as the first 100,000 years or less. This paper's counter-

claim is that due to the power law, the smallest stars, such as brown dwarfs, are the most numerous and yet mostly unseen. Interstellar space has so many brown dwarfs that larger star systems will have no difficulty capturing one.

Of course, the main issue is in finding this orbiting, brown dwarf star and/or other closer, independent brown dwarfs. NASA has performed extensive searches and sky surveys and claims the star does not exist. Their efforts were mostly concentrated on searching more than one or two light years away. NASA is dealing with a paradigm that some Nemesis-type star orbits outside the Oort cloud which is another paradigm. This paper has listed numerous issues with NASA's research about looking for these ubiquitous stars. Dim brown dwarf stars with little proper motion so close to the Sun and located well outside the Kuiper Belt are very difficult to see in any type of electromagnetic spectrum or tracked by computerization. NASA should keep looking. The seen and recorded alien celestial bodies of the ancient skies speak for themselves.

XXXIII. Addendum 3: Modeling and Diagraming Planet Earth as a Complicated Machine and an Electrical Component

The included diagrams may aid in visualizing how planet Earth was affected by the colossal events that occurred about 11,500 years ago. The Earth resembles a gigantic, but delicate, combination of machinery and electrical components that man has already devised on very small scales. The Earth's following characteristics reveal these types of devices:

1. The Earth is an oblate spinning orb that resembles a **gyroscope**. The tilt and stability of this gyroscope is preserved by force fields provided by its parent star and especially its large Moon. Its angular momentum remains constant unless some unusual large force or celestial body enters the system. The initial motion for this gyroscopic device was provided by the kinetic energy of its original formation, which does decay very slowly over time. This time decay is hardly noticeable in man's time on Earth.
2. According to modern seismology, the Earth's outer core is liquid and has an inner spinning core of solid iron. A differential velocity gradient exists between the solid and liquid core which is later diagrammed. Due to hydrodynamic friction and magnetic coupling forces, the core's kinetic energy is connected to the inner diameter of Earth's molten, but partially solidified rocky mantle. This interface acts like a large **spherical fluid clutch** that directly transfers kinetic energy to the mantle. The Earth's spin velocity from the solid core surface to the inside diameter of the mantle is non-linear through the liquid iron and then becomes more linear since the rocky materials of the mantle are cooler and more solid. The mantle's equatorial surface velocity eventually reaches 1674.4 km/hr, which provides the time of Earth's day. If extreme tidal forces act on the mantle over the Earth's polar region together with a decoupling of the magnetic forces caused by some significant external electrical and magnetic forces, then it is possible for this clutch or fluid coupling to slip. But, only some external torque applied to the outer mantle can actually cause real motion between the mantle and core. This slippage will, of course, cause a misalignment between them thereby

changing the geoid or oblateness of the Earth's surface. The gyroscopic positioning of the entire planet will remain the same due to the very massive spinning liquid and solid iron core. Hopefully, such external disruptions rarely, if ever, occur. The postulation for this paper is that a 15° to 20° displacement of the mantle with respect to the core did occur about 11,500 years ago.

3. The solid iron core spins relatively faster than the varying hydrodynamic velocities of the liquid iron plasma surrounding it. Essentially, a differential current flow encircles the solid iron core and acts like an **energized solenoid coil with an iron core**. The slightly energized rotating mantle also helps to energize and magnetize the inner and outer core.
4. The Earth's core as a system acts also like a **hydromagnetic dynamo** that generates a magnetic field. A dynamo theory has been devised to describe the process through which a rotating and electrically conducting fluid can maintain a magnetic field over astronomical time scales. Convection currents of plasma in the Earth's outer core are organized into rolls, called Taylor columns, by the rotating Earth's Coriolis forces to create circulating electrical currents, which in turn generate a magnetic field that aligns itself with the core's spin axis.
5. The combination of the solenoid coil and the hydromagnetic dynamo effects create the **magnetic dipole** of planet Earth. This dipole magnet:
 - a. causes solidifying rocks on the in the Earth's lithosphere to record the current dipole vector direction
 - b. provides a magnetic field sufficient to aid migratory animals and point compasses
 - c. guides and captures the charged particles of the solar winds at the polar regions causing auroras
 - d. creates the protecting magnetosphere to aid in shielding most of the Earth's outer atmosphere and surface from extremely high energy radiation.
6. The mantle and core act together to become a **giant capacitor**. A capacitor stores energy electrostatically in an electric field between conducting plates with a dielectric material between them. In the case of Earth, the one conducting plate is represented by the conducting surfaces covered by water, especially the salty oceans. The collected charge is especially concentrated at the polar and high latitude regions. The dielectric is the Earth's solid lithosphere and mantle. The other conducting plate is represented by the liquid and solid iron core and possibly electrified magna within the lower mantle. Negative charges are predominantly collected over one pole either internally from the Earth's magnetic dynamo or externally from the solar winds. The negative charges follow the magnetic field direction toward one pole while the positive charges follow the magnetic field toward the opposite pole. The present arrangement of negative and positive charges at the poles appropriately aligns compass needles and other magnetic field strength measuring devices. The charged atoms, charged molecules, free ions and free electrons follow magnetic field lines both in the ionosphere, on the lithosphere surface and in the liquid oceans.

The dielectric of the mantle always passes a small amount of leakage current and has an electric field strength limit, known as the breakdown voltage. If the charges are to build up massively at one or both poles, a sudden breakdown can occur that reverses the current flow and the dipole direction. This breakdown can either occur slowly over time as charges buildup linearly or very dramatically as is

postulated during the Younger Dryas Period 11,500 years ago. This geomagnetic reversal as it is called has occurred numerous times, but not with any regularity. When a worldwide current reversal occurs, the resulting voltage reversal changes the polarity of the circuit, which in the case of Earth is detected by the reversal of the dipole magnetic vector. Any such rapid breakdown voltage between the charged materials on the lithosphere surface and surrounding atmosphere and the Earth's inner core would definitely cause excessive heat and surge melting of any existing polar ice cap.

This geomagnetic reversal or excursion of Earth is certainly not the result of the spin axis poles making an 180° flip flop. This thought is total nonsense. Likewise, the inner core spin poles do not rotate 180° either. Only the magnetic dipole does a flip by exchanging the North Pole and South Pole electric fields. The difference between a reversal and an excursion is that the excursion lasts briefly, perhaps 200 to 500 years, and may not be detectable since molten rock on the surface was not plentiful enough to adequately record the event. The excursion then slowly returns to its original dipole direction, or chron as it is labeled by geologists. This magnetic field reversal or excursion has a similar analog to a capacitor having a breakdown voltage. The processes that cause the Sun's magnetic polarity reversal are similar but resonate over regular cycles due to a more homogeneous cross-section. Not only do celestial bodies have gravity fields due to their mass (large concentration of particles), but they have magnetic and electrical properties that affect their magnetospheres and their relationships to other neighboring celestial bodies, especially those that have close encounters such as happened 11,500 years ago between Earth and another highly magnetic body.

The first **Diagram A** shows a cross-section of Earth, roughly to scale. To fully appreciate this picture, a comparison of the radii, densities, masses and percentage of total mass is listed. The next **Diagram B** shows the velocity profile of the Earth's cross-section depicting how the inner solid core rotates faster than the liquid outer core and transmits its motion to the inner diameter of the mantle.

	Mantle and lithosphere	Outer liquid iron core	Inner solid iron core
Mean radii (km)	6378	3488	1278
Average density (g/cm ³)	4.5	11.1	13.0
Volume (km ³)	9.086×10^{11}	1.674×10^{11}	0.084×10^{11}
Mass (grams)	4.09×10^{27}	1.86×10^{27}	0.11×10^{27}
% Total Mass	67.0	31.2	1.8
Total volume of Earth = 1.083×10^{12} km ³			
Total mass of Earth = 5.97×10^{27} g = 5.97×10^{24} kg			

As is revealed, the gyroscopic motion and angular momentum of planet Earth are split between about 67% for the mantle and 33% for the liquid and solid core. Any torque required to rotate the mantle about the fluid inner core only needs to affect the moment of inertia of the mantle. And, the required force is lessened if directed at 90° from its angular velocity direction latitudinally and close to the surface or outside diameter. The process is similar to pushing a spinning gyroscope slightly sideways at

the top to cause a wobble. Of course, the viscous mantle must transmit this force throughout its volume and, hence, creates horizontal stresses on the Earth's crust. (corrected 12/16/2016)

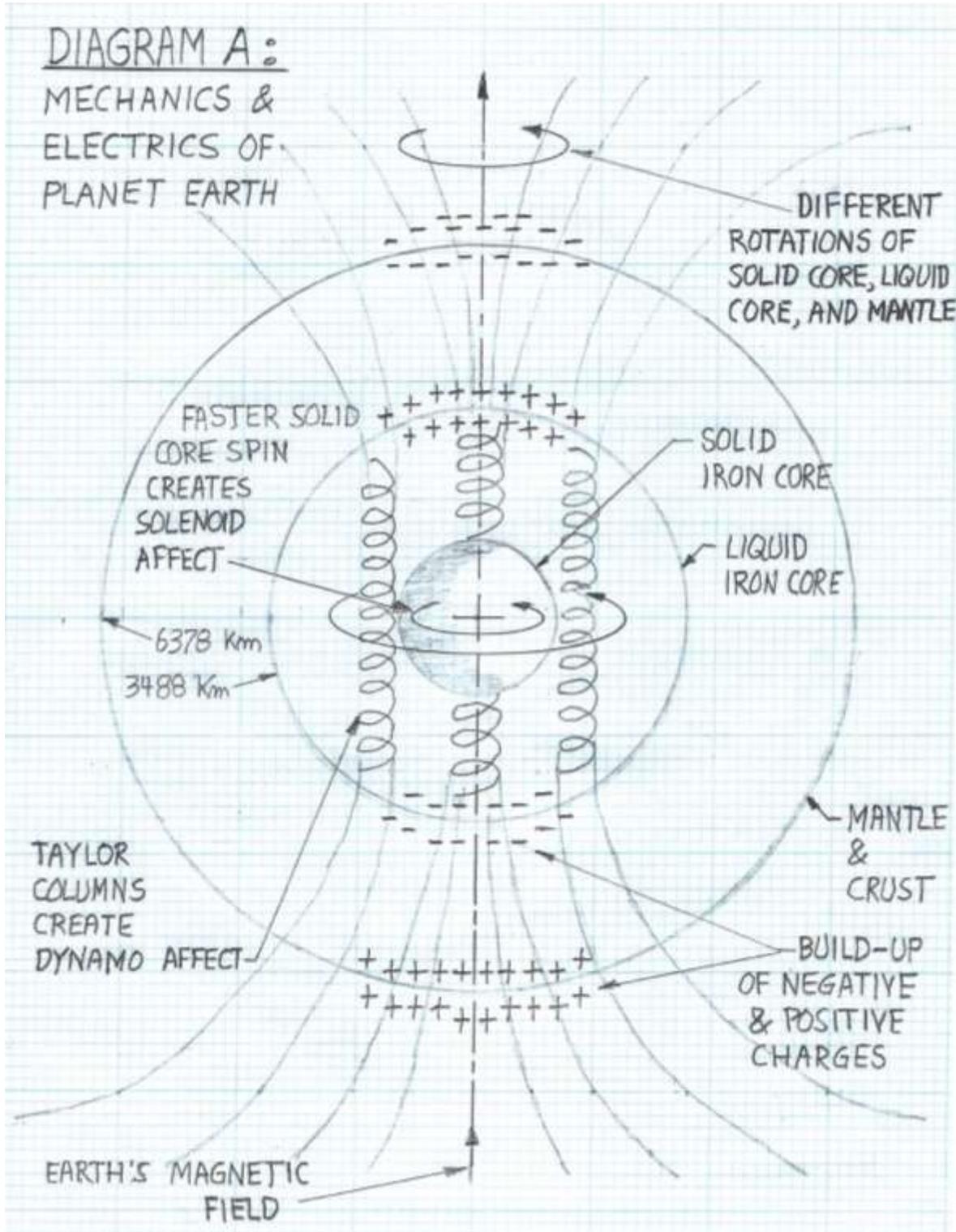
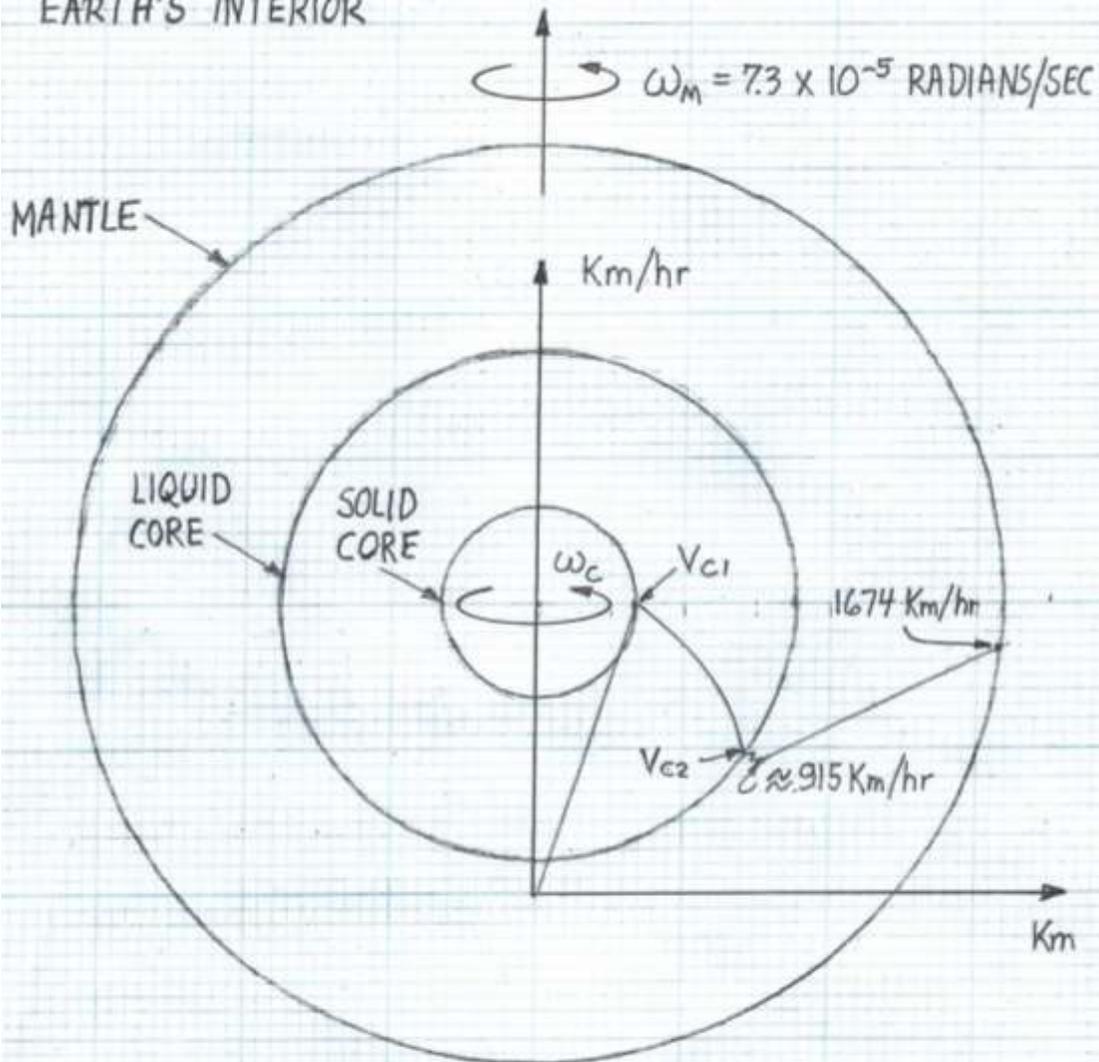


DIAGRAM B:
VELOCITY PROFILE OF
EARTH'S INTERIOR



V_{c1} = VELOCITY AT SOLID CORE SURFACE
 V_{c2} = VELOCITY AT OUTER EDGE OF LIQUID CORE
 ω_c = ANGULAR VELOCITY OF SOLID CORE
 ω_m = ANGULAR VELOCITY OF SOLID MANTLE
 $\therefore V_{c1} > V_{c2}$; $\omega_c \neq \omega_m$ AND MORE LIKELY
 $\omega_c > \omega_m$

The following **Diagram C** shows schematically the close passing of a highly-electrified and highly-magnetic celestial body with Earth. The post-encounter schematic indicates what occurs to Earth after this intruding celestial body moves well away on its trajectory through the solar system.

The intruder is represented by a dipole bar magnet with its accompanying magnetosphere. The same representation is given Earth except that two dipole bar magnets are indicated: one represents the Earth's core and one represents the larger but weaker mantle. These schematics are certainly not to scale, but the Earth's magnetosphere is still represented. In current times, that sphere is about 10 times the diameter of Earth. As the intruder passes over the north polar region of Earth, the two magnetic fields attract and couple to each other. The close encounter of the intruder, if it is a planet, is estimated to be one half the distance between the Earth and Moon. The highly electrically-charged corona of the intruder releases high-energy plasma arcing to Earth via Birkeland column currents. The Earth's polar region receives these strong electrical currents and rapidly dissipates them into rivers of current flow around the surface of the lithosphere toward the equator and possibly the opposite pole. This current flow passes through the Earth's atmosphere, but especially favors the pathways of conducting rivers, seas and oceans.

This sudden current flow on the surface of the mantle vastly increases its magnetic field strength, due to the Earth's spin, which remains mostly separate from the magnetic field strength emanating from the Earth's core. As the intruder body moves away, the Birkeland currents break up, producing their own magnetic fields at their terminations. The combination of the resulting magnetic field at the end of the Birkeland current columns and the intruder's magnetic field couple and pull on the increased strength of the magnetic field of the mantle, creating torque on the mantle for a short period of time. This event causes a turning moment of the mantle with respect to the liquid iron core. The torque is terminated as the intruder moves farther away and the mantle ceases to slip; however, the mantle and core dipoles remain misaligned. The overall spin axis of the Earth is hardly affected, due to a large portion of the total moment of inertia being provided by the Earth's massive liquid and solid iron core.

The rivers of immense current flow, set-up by the Birkeland current arcing toward Earth, disturbs the natural capacitance of stored charge at the poles, thus creating a breakdown voltage through the mantle that in turn produces a rapid magnetic field reversal or excursion for both the core and the mantle.

Diagram D schematically demonstrates the global effects on Earth due to its close encounter with another celestial body occurring about 11,500 years ago. The first schematic depicts what is occurring during the close encounter and the second schematic shows the aftermath.

During this catastrophic event, the magnetic fields of both the celestial intruder and Earth become coupled. Massive electrical currents are released from the intruder's corona via Birkeland current-columns and are discharged onto the northern latitudes of Earth. These plasma discharges create rivers of current across the lithosphere traveling toward the equator and opposite pole. The results of this dramatic event are listed:

1. The mantle slips about 15 to 20 degrees in latitude about the spin axis poles or about the inner core at the mantle-liquid iron interface. The apparent evidence is the present difference in the magnetic and spin axis poles. The magnetic pole axis is currently seeking to align itself with the spin axis while the previous residual magnetic effects on the mantle's surface are fading or disappearing.
2. The mantle's magnetic field travels with this displacement while the magnetic field of the core remains the same, aligned with the spin axis of the core. The spin axis is essentially unchanged.
3. The massive plasma discharge at the North Pole and its displacement along the surface of the lithosphere toward the South Pole disturbs the natural capacitance of charges gathered over each pole. These gathered charges over long periods of times act like a capacitor with the dielectric being the mantle at the polar regions and the electrical plates being the electrical charges collected at each polar region on the surface of the mantle and at the polar regions of the rotating liquid iron core. The Birkeland current columns from the intruder cause a large surge of current at both poles almost simultaneously, causing a breakdown voltage that pushes current across the mantle's dielectric materials, thereby causing a complete magnetic field reversal. A short magnetic field reversal was detected during a certain time spanning the Younger Dryas Period of about 11,500 years ago. This reversal lasted only a short period and is known as a geomagnetic excursion.
4. By far the worst effect is the resulting change of the Earth's geoid on the mantle. The planet is oblate due to centrifugal forces by about 6.5 miles on radius. The re-adjusting of the planet's crust causes great stresses that result in huge crustal ripples, earthquakes, increased volcanism and the run-off of lakes and seas causing global flooding.
5. Other attendant effects are the relocation of the polar ice caps, melting of the period's glaciation and re-freezing in the newly shifted Polar regions, the surging variance of sea level, dramatic climatic changes, greater darkness due to a dusty atmosphere and the extinction of flora and fauna, primarily in the northern latitudes.

The explanation of the symbols for **Diagram D** is given below.

V = scalar velocity of rotation

$\rightarrow V$ = vectorial velocity of rotation

$\rightarrow B$ = vectorial magnetic field strength

V_{c1} = Earth's core velocity prior to catastrophic event

V_{c2} = Earth's core velocity after the event

V_{m1} = Earth's mantle velocity prior to event

V_{m2} = Earth's mantle velocity after the event

$\rightarrow B_{c1}$ = Core's magnetic field prior to event

$\rightarrow B_{c2}$ = Core's magnetic field after the event

$\rightarrow B_{m1}$ = Mantle's magnetic field prior to event

$\rightarrow B_{m2}$ = Mantle's magnetic field after the event

Briefly representing these values mathematically:

$V_{c1} \neq V_{m1}$; $V_{c2} \neq V_{m2}$; $V_{c1} \approx V_{c2}$; $\rightarrow V_{m1} \neq \rightarrow V_{m2}$, and

$\rightarrow B_{c1} \approx \rightarrow (-B_{c2})$; $\rightarrow B_{m1} \neq \rightarrow (-B_{m2})$

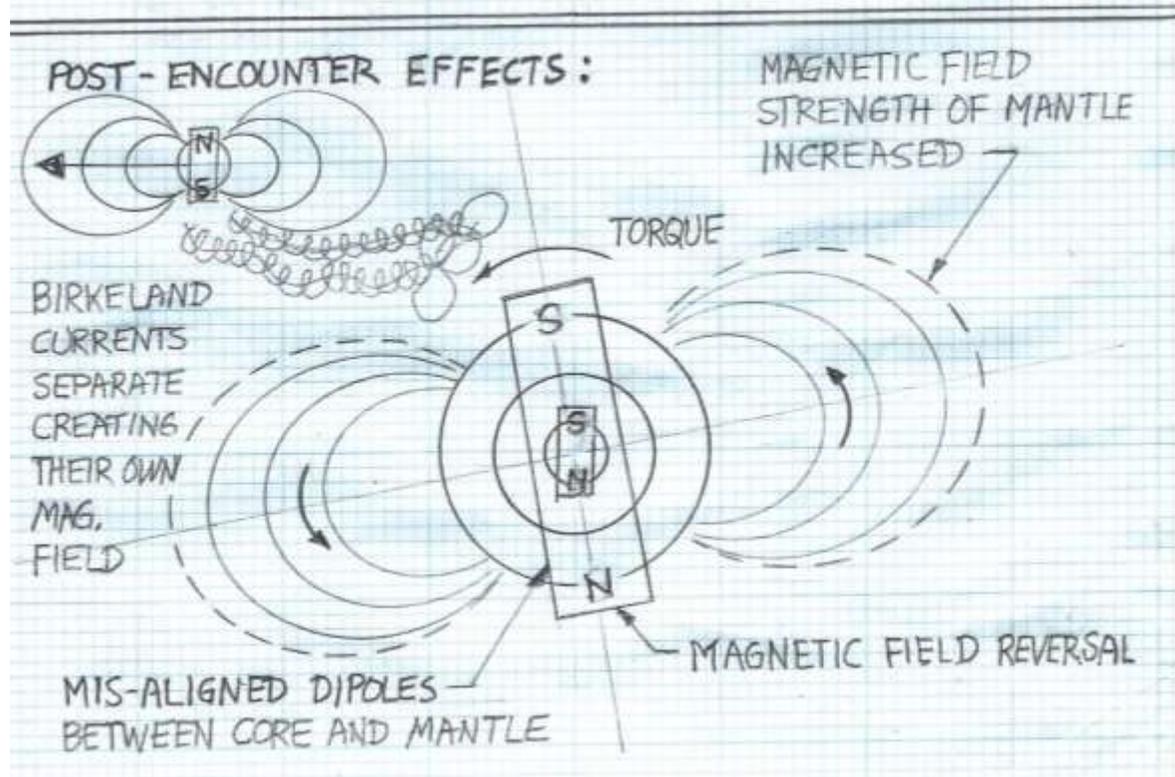
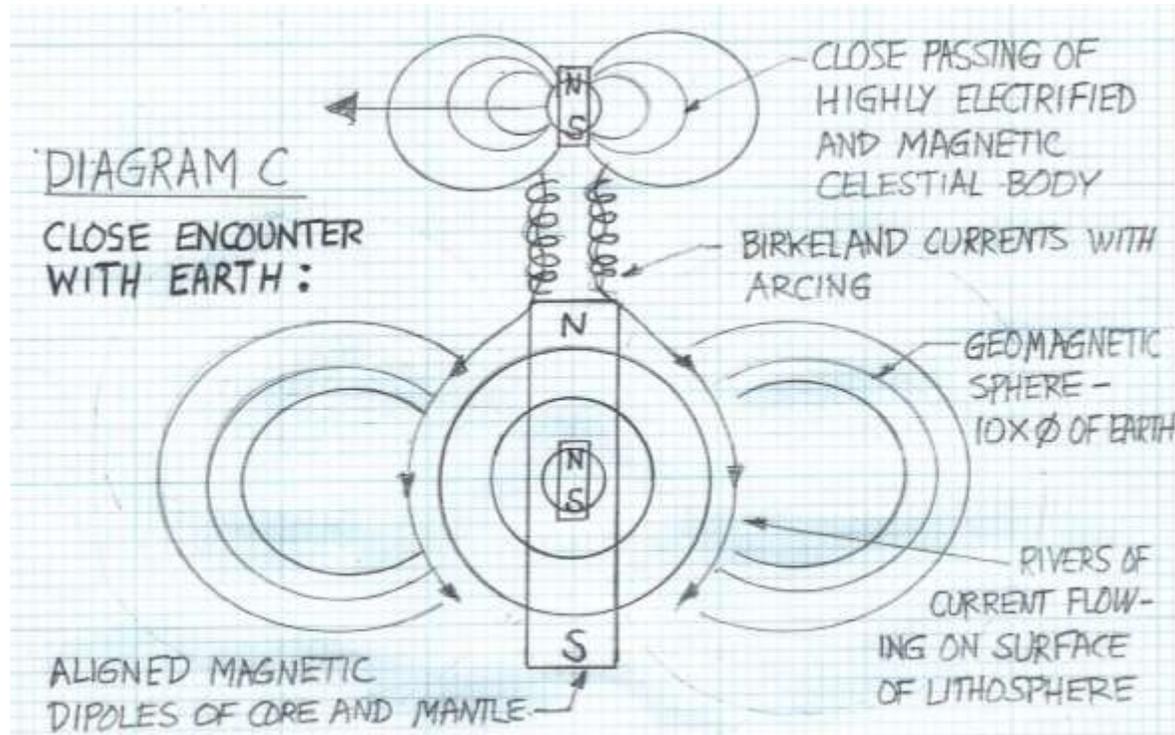
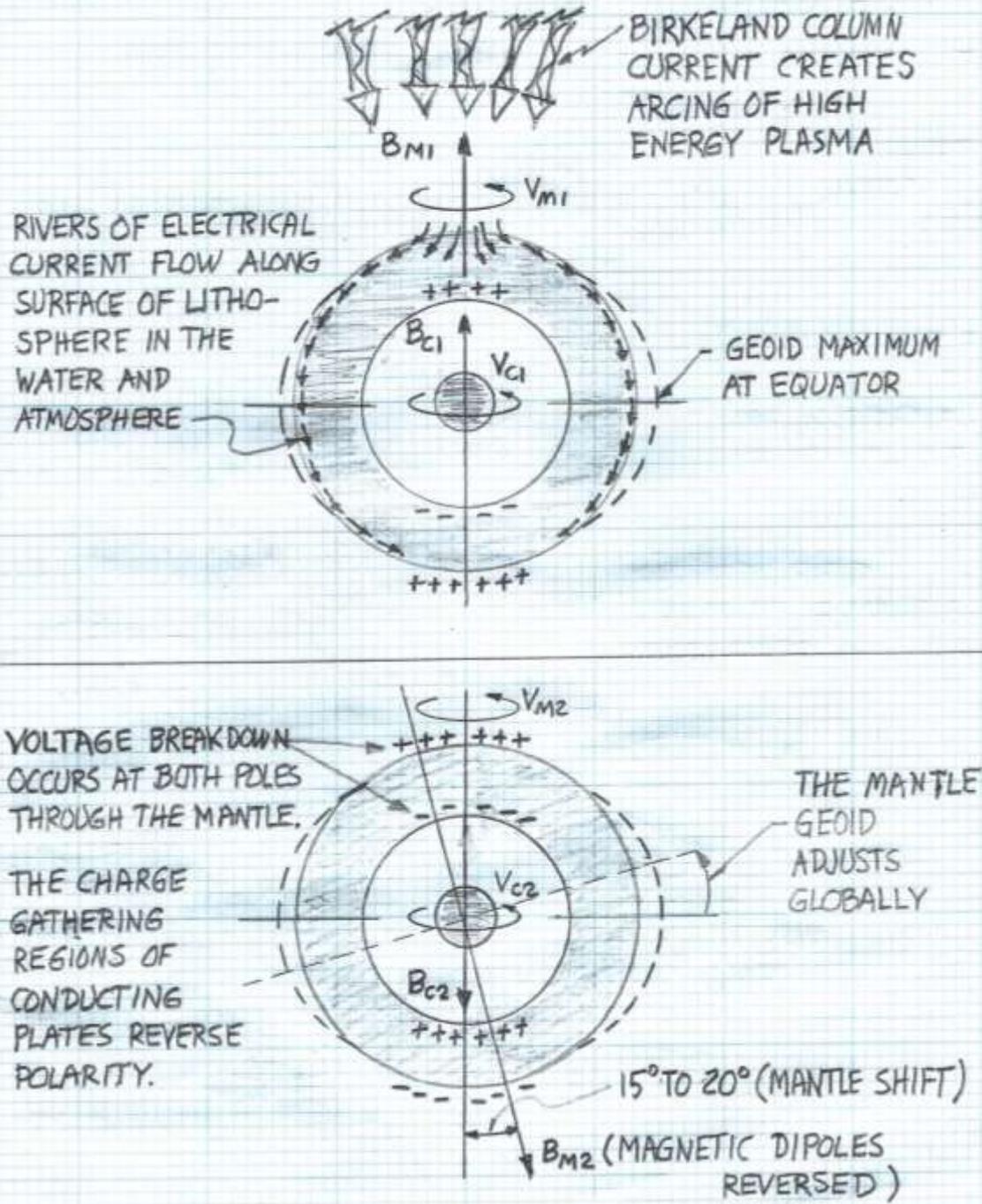


DIAGRAM D: ELECTRICAL, MAGNETIC, AND GEOLOGICAL EFFECTS OF EARTH DUE TO CLOSE ENCOUNTER



These previous models and schematics are very simplified, but provide an excellent starting point for supporting catastrophism and the “Electric Universe’s” role in this event. Better computerized models, more mathematical treatment and possibly even some laboratory experiments can help corroborate these ideas for catastrophes occurring on Earth. Specifically, the events that occurred spanning the Younger Dryas geological period are addressed in the ideas just presented.

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XXXIV. Addendum 4: Postulated Orbital Paths of Nemesis' Brown Dwarf Star and the Sun's Planets

Refer to Diagrams A and B for plan and side views of the orbital paths of both the Nemesis brown dwarf star's and the Sun's planets. The crossing orbital paths are postulated when Nemesis is at its perihelion or closest approach to the Sun. The diagrams are drawn roughly to scale using the unit of AU, if it is assumed that the expected orbits for Nemesis' planetary system do not exceed about 1 AU. In that case, no close intersection or crossing of orbits with the Sun's inner planets should occur. However, if the postulated *Dark Planet* or Nemesis's largest and most outer planet becomes perturbed, its new orbit may become elongated enough to cross Mars's orbit and come very close to Earth's orbit. Naturally, for that rare close encounter to occur, Mars or Earth would have to be fairly close to the Dark Planet's crossing. That coincidental meeting is highly improbable but is possible over thousands of orbital crossings.

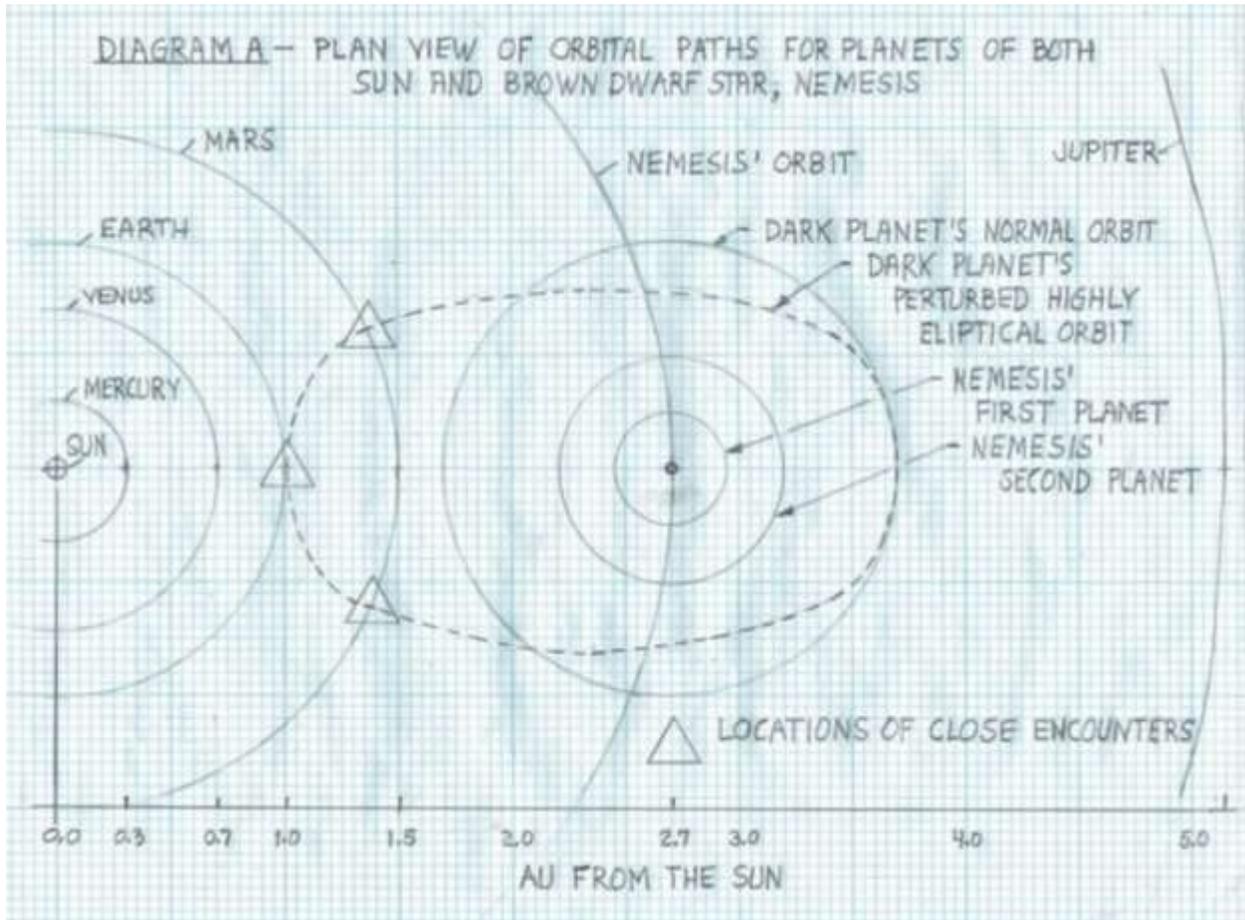
The diagrams do not show the possible close encounters that could occur with the Nemesis-star system as it crosses the orbital paths of the outer planets: Jupiter, Saturn, Uranus, Neptune and their satellites. The large red spot on Jupiter, the ring systems around most to the outer planets, the inclined spin axes, captured satellites in various inclined and irregular elliptical orbits and the appearance of planetary and satellite surfaces being affected by high-energy electric arcing all indicate the possible effects of some close encounter with the electrified and highly magnetic Nemesis system that repeatedly returns to the Sun's inner planetary system during its perihelion.

Very close but rare encounters between the solar outer planets and the outer Dark Planet of Nemesis could easily perturb that planet's orbit into a more elongated elliptical and more inclined orbit. As

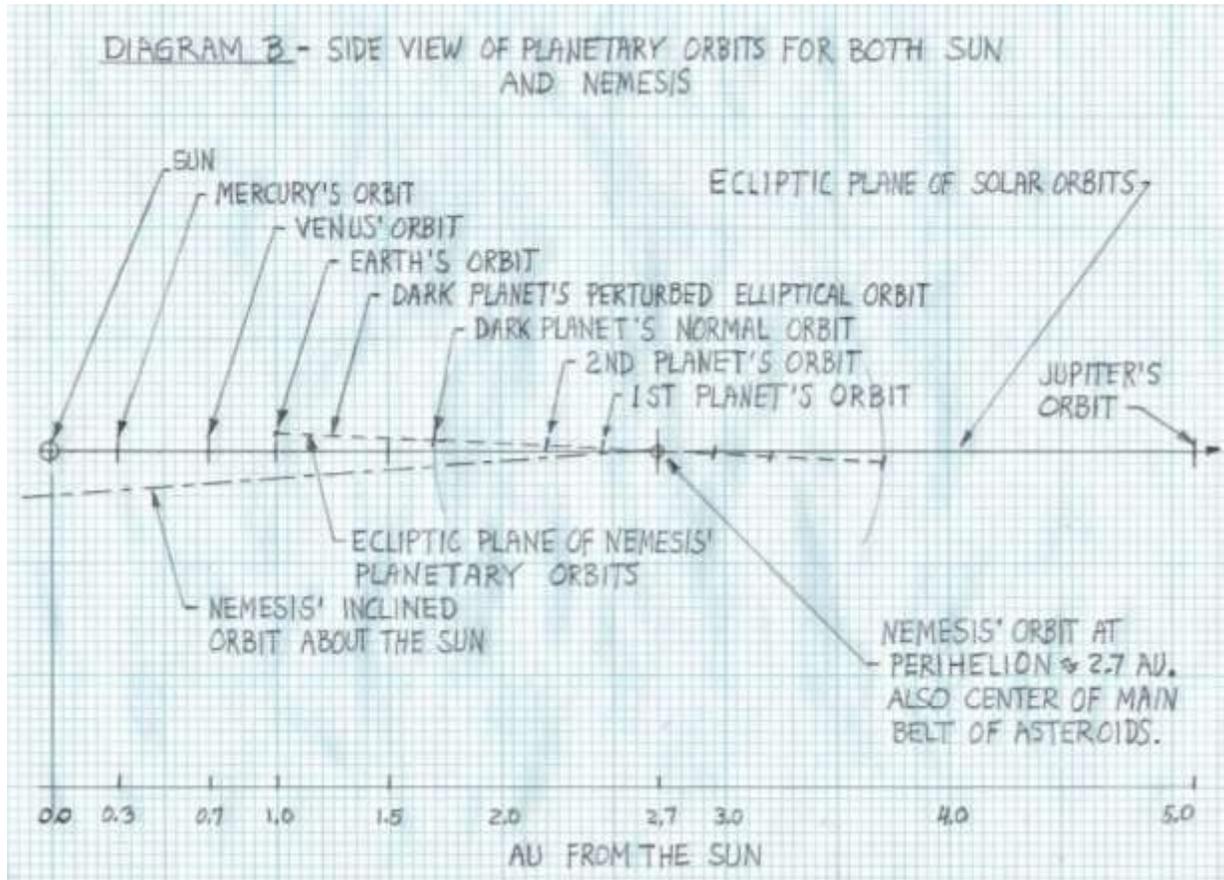
shown in the diagrams, this postulated perturbed orbit could then cross some of the inner-planet orbits. One or more close encounters are required with an outer planet for orbital perturbation. Then, a following close encounter is required at the crossing of orbits within the inner solar system. These events are highly improbable, but possible, if one accounts for the statistical nature of how many events are involved. An orbital period of 3600 years for Nemesis divided into the age of the solar system of 4.5 billion years is 1¼ million events. Other factors are also involved that can initiate the occurrence of close encounters, such as the incalculable interaction of numerous gravity and intense electromagnetic fields.

Different versions of cyclic cosmic catastrophes labeled I, II and III are proposed in three of the following diagrams. The favored version for the author of this paper is Catastrophe III which provides a small enough cyclic period and ample opportunity to cause the numerous scarring of most of the terrestrial planets, many explored asteroids, the Earth's Moon and many of the outer planets' satellites. There is no question that science must eventually provide a hypothesis for why high energy electrical discharges have occurred so many times and in so many locations in the solar system.

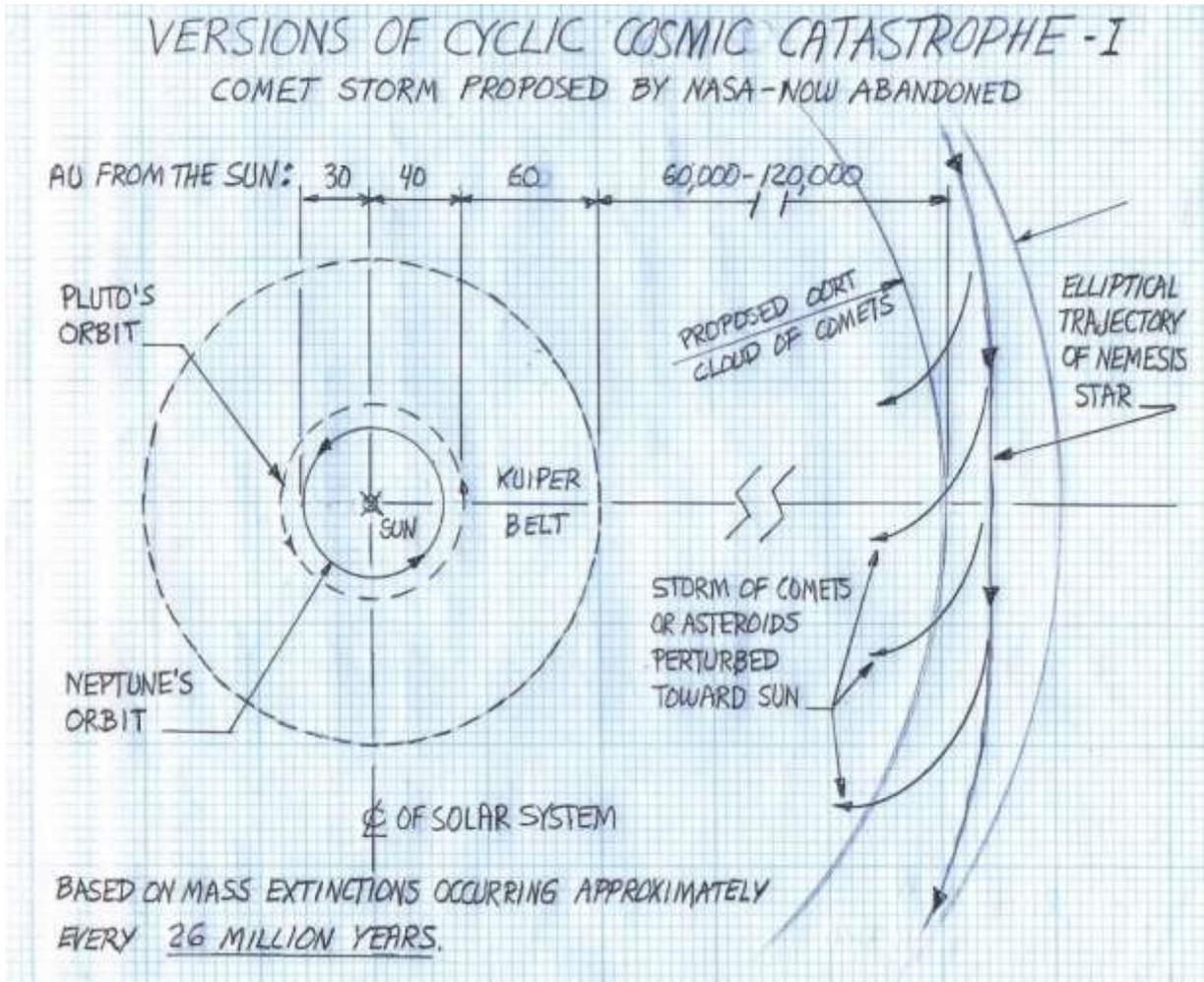
A. Diagram A - Plan View of Orbital Paths



B. Diagram B - Side View of Planetary Orbits

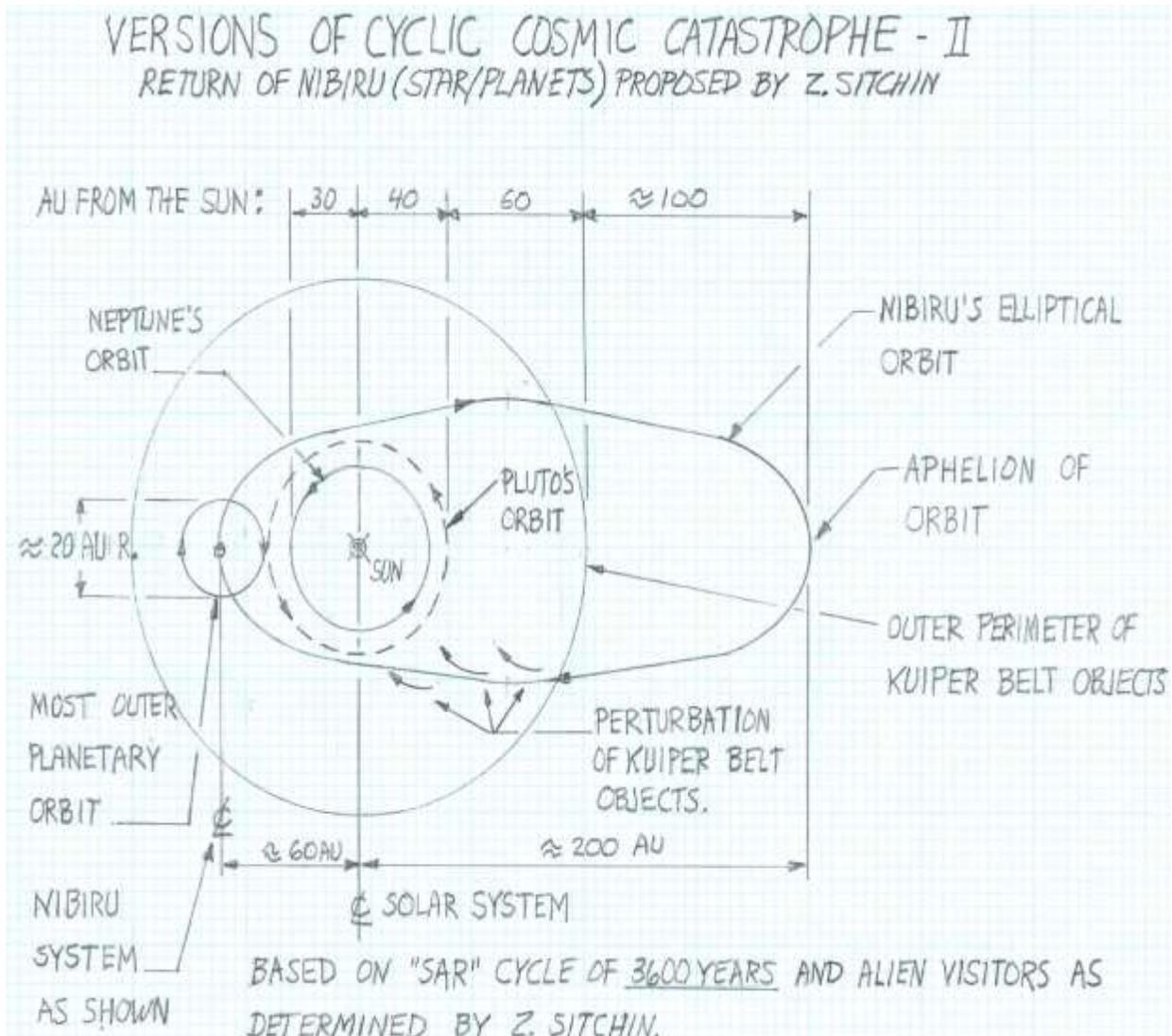


C. Catastrophe I – Comet Storm Proposed by NASA



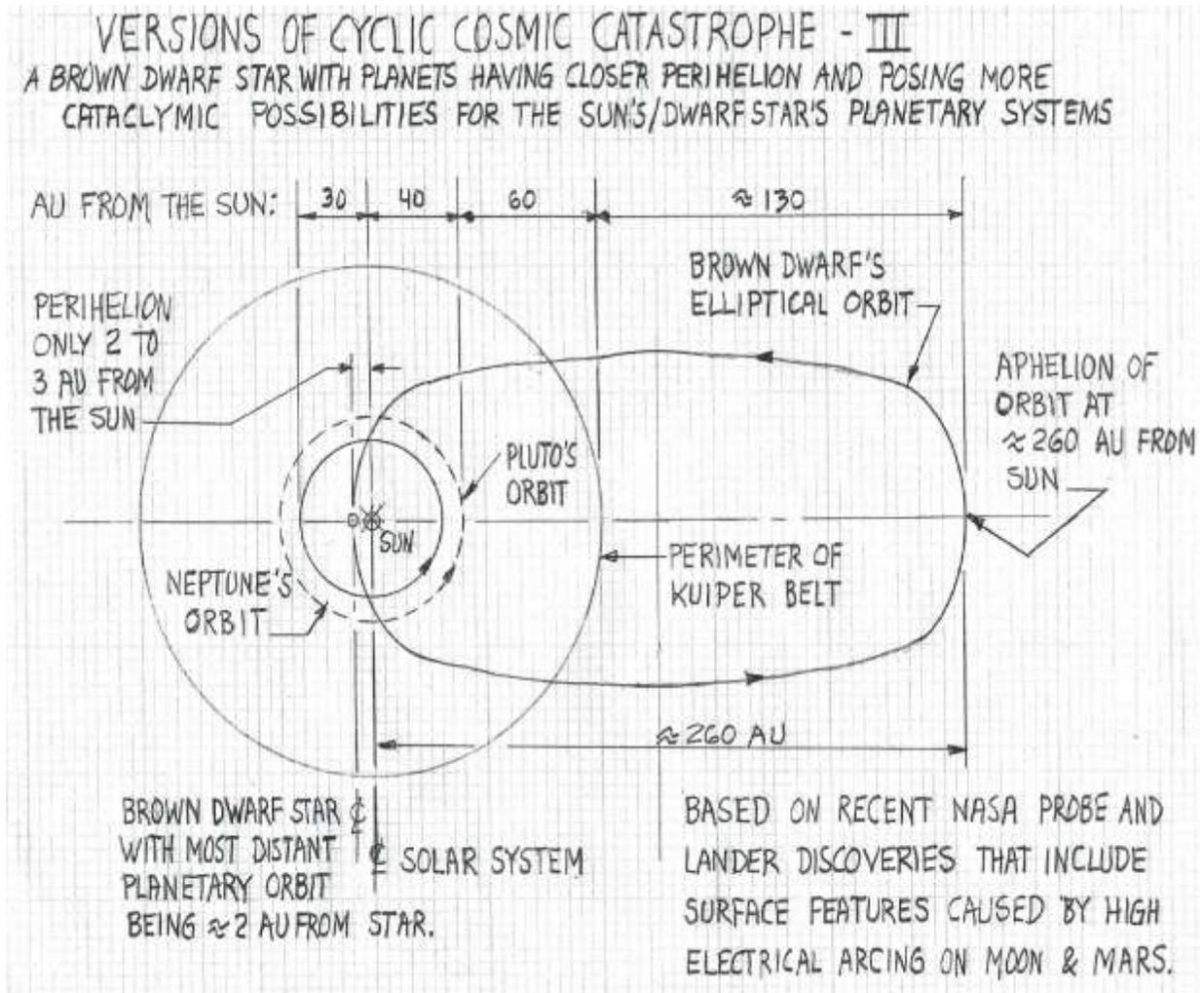
NASA had originally proposed periodic comet storms caused by an orbiting brown dwarf star's disturbing a cloud of comets orbiting the Sun at about 2 light years' distance. Unable to find a brown or red dwarf star at that proposed distance, and due to the times of mass extinctions in the fossil record not exactly fitting any possible orbital period of a Nemesis star, this hypothesis was officially abandoned.

D. Catastrophe II - Return of Nibiru (Nemesis) Passing Through Outer Solar System Proposed by Sitchin



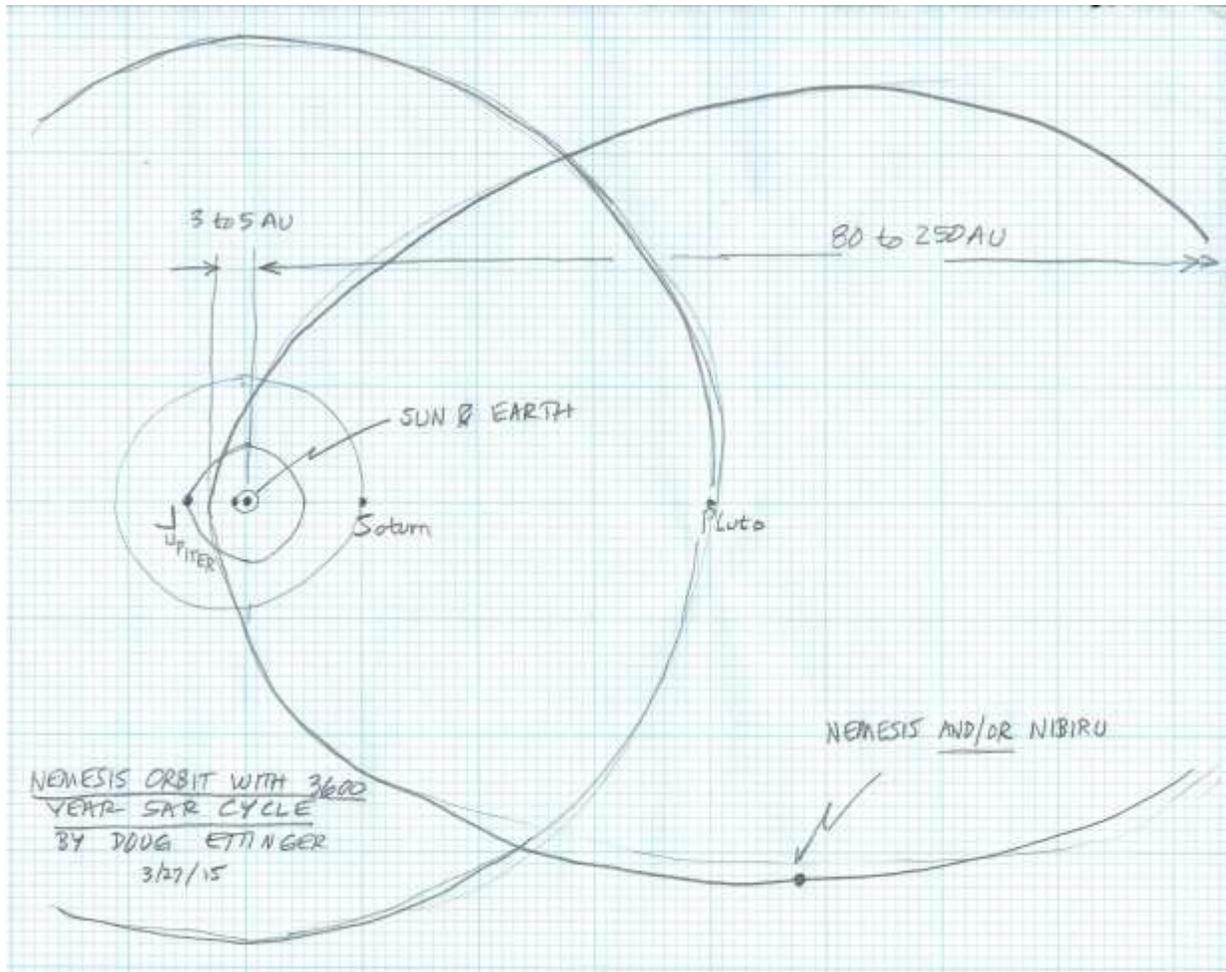
Another possible cyclic cosmic catastrophe-type scenario is the one proposed by Zecharia Sitchin in *Twelfth Planet*. A large planet orbits the Sun every 3600 years, possibly passing through the Sun's planetary system in the outskirts beyond Neptune. The planet may disturb asteroids in the Kuiper Belt that bring havoc to the other planets periodically. Another version of the Sitchin scenario is that this planet, called Nibiru by the ancients, passes through the inner solar system between Mars and Jupiter, thus creating and maintaining a Main Belt of asteroids.

E. Catastrophe III – Return of Nibiru (Nemesis) Passing Through Inner Solar System Proposed by Sitchin



The favored version for cyclic cosmic catastrophe is that a brown dwarf star, as yet undetected, with its own planetary system, passes through the inner solar system every 3600 years (the same orbital period as proposed by Sitchin) and creates havoc with the Sun's planets and their satellites. The farthest distance at its aphelion is about 260 AUs and its closest distance at its perihelion is somewhere between Mars and Jupiter. This version also provides possibilities for a home for some ancient aliens; these ancient astronauts could have come from a planet orbiting the brown dwarf that was protected by a warm plasma sheath surrounding the planet's orbit. The idea for ancient astronauts settling on Earth is not too far-fetched due to the closeness of their star which travels with the Sun through the galaxy.

F. Diagram (to scale) Showing Complete Nemesis and Planetary Orbits



This final diagram depicts the approximate scale and shape of the proposed Nemesis (brown dwarf) star with respect to the orbits of Earth, Jupiter and Saturn, utilizing a 3600-year Sar cycle.

XXXV. Endnotes

Notes:

1. All Wikipedia references are dated as of 3/14/2014 unless otherwise stated. These references act as an old-fashioned encyclopedia when there is a strong need for obtaining data easily and quickly. Wikipedia does supply better cited works for those who require it.
2. Do not assume that any surviving authors referenced herein endorse each other or any of the new material presented in this paper.

¹ Wikipedia; Nemesis (hypothetical star)

² Wikipedia; Nemesis (hypothetical star); claimed periodicity of mass extinctions

³ Wikipedia; Nemesis (hypothetical star); past, current, and pending searches for Nemesis

⁴ Wikipedia; Wide-field Infrared Survey Explorer (WISE); targets for the solar system

⁵ Wikipedia; Vesta asteroid

⁶ Wikipedia; Brown dwarf star

⁷ Wikipedia; Wide-field Infrared Survey Explorer (WISE); Results

⁸ Wikipedia; Teide 1 (brown dwarf)

⁹ Wikipedia; Gliese 229B (brown dwarf)

¹⁰ Wikipedia; Barycenter

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¹³ Wikipedia; Little Ice Age; dating

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