

Earth's Primeval Polar Heat

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The derivation of terrestrial life is said to have required a much greater amount of ultraviolet radiation than the Sun presently supplies. And yet the Sun is claimed to have been much dimmer at the very time life rose on Earth. The emergence of life is also said to have required vast electrical discharges, but the electric energy that Earth can produce through atmospheric lightning lacks the required potency to accomplish what is needed. The manner in which miles-deep glaciers accumulated during Earth's past ice ages has never been resolved. What is even worse is that lands within the Arctic circle had actually basked in warmth during these ice ages, as they continued to do in between these ages down into geologically recent times. Judging by what has been discovered in these northern latitudes, this warmth managed to sustain sub-tropical species of flora as well as fauna, species which are not presently able to thrive in those same regions. And as if that is not enough, newer discoveries continue to strengthen an older assumption that this sub-tropical life had appeared much earlier in Arctic regions than it did farther south. This is a situation that continued to maintain itself long after the continental plates are believed to have settled in their present configurations. As far-fetched as it might seem to most, this conundrum has led some paleontologists to a conclusion that flies in the face of what we know, or think we know, concerning the history of the Solar System.

1. Introduction

Odd scientific discoveries are reported every year. One recurring problem with most of them is that they are seldom correlated to one another. While there does not seem to be any lack of communication between whoever is responsible for them, there certainly seems to be a lack of integrating these discoveries with one another. Theories that have been derived from some of these discoveries have thus been offered in isolation. And the reason for this is the lack of a unifying hypothesis that could tie any of them in a comprehensive manner.

It has long, for instance, been surmised that the infant Sun during Earth's primordial epochs was only about 75% as bright, and therefore 75% as hot, as it is at present [1]. This lesser illumination accounts for the spindly nature and sparse foliage of Earth's first land-based plants, which give the impression that they had to struggle for whatever available dim light there was to nourish them [2]. It was not until the age of mammals, especially at the inception of the Paleocene period, that Earth's land areas engulfed themselves in a verdant profusion of subtropical plants.

The problem with this is that the inception of life on Earth is considered to have been reliant on high levels of ultraviolet radiation [3]. But how could Earth have basked in higher levels of ultraviolet radiation than at present when the ultraviolet radiating source, that is the Sun, is claimed to have been much dimmer than at present?

2. Primordial Sun

What I, with others, have been proposing is that Earth's primordial source of heat was not the present Sun. What sustained Earth was a much less massive dimmer brown dwarf star to which Earth had been bound as one of its satellites while traveling alone through space outside the demarcation of the Solar System. Yes, I agree, it is a theory that inspires nothing beyond disbelief. On the other hand, there have been too many discove-

ries in various disciplines which have baffled their discoverers, but which have fallen neatly into our bizarre theory.

As a satellite of a brown dwarf star, Earth's dim source of heat and light during its primordial age is automatically accounted for. At the same time, the high levels of ultraviolet radiation that was needed for the inception of life is amply met since it is known that brown dwarf stars emit highly in the ultraviolet spectrum [4].

What is bound to inspire even greater disbelief is the supposition that Earth was not in an equatorial orbit around its primordial sun. It was, instead, situated directly underneath its south pole, at the appropriate distance, but sharing the same axis of rotation. As seen from Earth, its primordial sun would never have been seen to rise or set. On the contrary, it would have been permanently stationed in Earth's north celestial pole. Had this really been so, Earth's primordial sun would have left many a tell-tale sign of its former north polar proximity. Do we find such signs and are they easily recognized?

To begin with, such a permanent linear alignment was bound to have raised tides exceeding those at present, the strongest of which should have accumulated in Earth's north polar region. The tidal force emanating from the north celestial pole would have affected both Earth's atmosphere and hydrosphere. But even Earth's crust should have been raised above its present circumferential average. Earth's atmosphere and hydrosphere would have easily rebounded to settle in a more uniform shell around the world once the linear link with the north polar sun was broken. Not so with the crust, which would have taken a much longer period to readjust to Earth's new situation. As it turns out, a remnant of this lithospheric bulge remains up to the present. While it had been earlier believed that Earth is an imperfect sphere which is slightly flattened at the poles and distended at the equator, the orbits of the first artificial satellites surprised everyone by showing that this was not Earth's correct shape. To begin with, Earth's polar flattening was discovered to

be much less than had been previously surmised [5]. Later discoveries, however, went much farther since aberrations in artificial satellite orbits eventually disclosed that Earth is actually pear-shaped, with its bulge located at the North Pole [6]. This bulge is presently measured at a mere 10 meters (33 feet) [7]. This might not be considered much, but as a residue of a former greater uplift of land, even meters are of significance.

3. Polar Jet

Brown dwarf stars are now known to exhibit what have been misnamed as astral jets [8]. In an electric universe, these translate as sustained Birkeland currents emanating from both poles of cosmic bodies. Such jets have been found emanating from the center of stars and even galaxies [9], and while these are of colossal magnitude, the ones from brown dwarfs are naturally less considerable in extent and energy. Birkeland currents are notorious for their helical structures [10], which characteristic, among other things, is here implied to connote rotation. In Earth's case, the brown dwarf's linear jet would have physically touched down at the North Pole. Its rotation would have raised a great portion of Earth's atmosphere with which it would have become entangled. It would in fact have acted as a planetary-sized tornado which would have churned over the same polar regions for untold ages. It should therefore have scoured the area, lifted and presumable re-deposited its detrital burden, while leaving an indelible scar to mark the spot—as, indeed, it has.

Small as it is when compared to the Pacific and Atlantic, the Arctic Ocean contains a series of depressions which hold more sediment per square meter than the above mentioned seas [11]. This bespeaks a different method from the other oceans by which these sediments were collected. In the scheme that is here being discussed, this sediment would have been created *in situ* by the constant scouring of the cyclonic Birkeland current. Other than that, its occurrence, to say nothing of the multiple depressions in which it is found, remains an unsolved mystery.

In case anyone is wondering, the depressions in question do not contradict Earth's north polar lithic bulge since depressions are met on top of heights in various dimensions and localities throughout the world.

Earth's interior magma should also have responded to Earth's north celestial tidal force. Not only did this transpire, the magma actually broke through the surface in the Eurasian Basin of the Arctic Ocean, an area which has been described as "a regional collapse of the Earth's surface due to material being removed from the lower mantle." [12] In addition to that, a swirling vortex of molten rock has also come to light 3,000 kilometers beneath the North Pole [13]. As it was stated by one of the discoverers, the flow "has the structure of a gigantic hurricane." [14]

Encircling the Arctic Ocean is also a blanket of detritus known as muck. This area is so vast it actually covers one seventh of Earth's land surface [15]. This muck is composed of deep-frozen "goo with silt, sand, pebbles, and boulders, often with masses of preserved, semi-decayed, or fully decayed vegetable and animal matter." [16] This frozen mess lies on low level plains. As an anonymous writer in *Pursuit* noted, "Unless it was caused by some cosmic forces we have not yet detected, it would appear to be a sub-aerial deposit derived from massive erosion of

higher ground and with steeper slopes." [17] Its depth, over enormous areas, in some places "has always caused even the most open-minded geologist to boggle." [18] In some areas, the Russians have drilled down to 4,000 feet without reaching solid rock [19]. It has therefore been surmised that the lands that are now blanketed with this material had to have once been much higher above sea level. There is, however, no evidence that could indicate this to have been the case [20]. The anonymous writer in *Pursuit* was right on track when he or she suspected a cosmic cause. As far as we are concerned, the muck had actually been scoured out of the very region in which it was eventually re-deposited by the cyclonic Birkeland current joining Earth linearly to its primordial sun. Needless to say, this muck had not been frozen when it was sucked up. It obviously froze much later.

One additional factor to consider is that no such muck, frozen or otherwise, is known to exist at Earth's south polar region.

If the truth must be known, it will have to be admitted that the most mysterious geological region on Earth is the Arctic Circle. Entirely covered by ice all year round, one would expect the region to have been even more ice-bound during past ice ages. Geological evidence, however, indicates that, during all of Earth's past glaciations, the Arctic Circle was entirely free of ice. This is a situation that has been known and commented upon by various authorities since the nineteenth century [21]. Not only were these regions free of ice, they actually basked in a subtropical climate, something that even Charles Lyell, the very originator of uniformitarianism, was compelled to acknowledge [22]. With miles-deep ice in more southern latitudes, the only way the Arctic Circle could have remained free of ice was if there really had been a source of heat stationed right above. This is additionally intimated by evidence which indicates that Arctic regions were not only warm during past geological ages, they were warmer than at present and even warmer than more southerly regions, in fact warmer than anywhere else on Earth [23].

It might, of course, be pointed out that there is ample evidence that Antarctica, too, had thrived in unglaciated warmth [24] but this transpired during those long balmy periods between ice ages. No part of that continent was ever free of ice during periods of glaciation. There was, needless to say, no south celestial polar sun shining on Antarctica.

4. Tropical Arctic

Earth's Arctic regions were originally covered with luxuriant forests, the remains of which continue to baffle paleontologists. In some cases the remains of more than twenty separate forest layers have been discovered stacked on top of each other [25]. Trees that once grew there have been described as being akin to those growing in the present cypress swamps of Florida [26]. The large size of some of the leaves discovered in this region led Leo Hickey to a conclusion that he himself believed to be impossible—that the plants in question had to have grown under constant lighting conditions—that these forests "grew under conditions of continuous light." [27]

The Arctic region should therefore have teemed with life. Not only did that transpire, certain species of flora and fauna have actually appeared earlier in Arctic regions than they did in more southerly latitudes [28]. In 1996, Mark Harrison announced

to the world that the earliest signs of life that had so far been detected came from within the Arctic Circle [29]. This announcement was so radical that it immediately came under severe attack, although Harrison has done an excellent job in rebutting the criticisms raised against the hypothesis [30]. Some floral species definitely appeared first at higher latitudes during the Cretaceous, leading to various theories that were then parroted in various publications [31]. Not a single theory ever proved satisfactory.

Dinosaurs have now become quite popular. They thrived for millions of years, but few know that they thrived mainly in the Arctic. Their remains have been found in Alaska's North Slope within the Arctic Circle [32], and even deeper within the Circle on Bylot Island, off the north coast of Baffin Island [33]. Polar dinosaurs were eventually discovered at 15 different sites [34]. As usual, all kinds of theories have been proposed to account for the manner in which these beasts could have thrived within the confines of such a cold regime with more than half the year immersed in perpetual darkness [35]. No viable evidence could however be mustered for any of these suggestions. By the turn of the century, what was considered as possibly the densest concentration of dinosaur fossils in the entire world came to light within the same Arctic Circle [36]. What this means is that dinosaurs thrived best within Earth's Arctic regions and this, again, calls for an entirely different directional source of heat.

The condition of these Arctic dinosaur remains indicate that they came to a catastrophic end. Some of them seem to have drowned, which led to theories involving rampant floods [37]. But if these Arctic hecatombs are the most extensive in the world, it would also call for a more extreme dinosaur extinction in these very Arctic regions. This would also follow since, in the scenario we are here propounding, past transformations in our world's cosmic environment would have been mainly caused by dire changes involving Earth's primordial sun [38]. Extinctions should therefore have been lesser in more southerly regions. And that is exactly what is found. Plant species in Alaska, Northern Canada, and Siberia suffered heavy losses, while those in the tropics were scarcely affected by the Cretaceous extinction [39]. It was not, however, just the plants. The most southerly regions on Earth are Australia and Antarctica, both of which were also inhabited by dinosaurs [40]. What is noteworthy is the scarcity of corresponding extinction layers in either of these localities [41]. As Bill Bryson noted, "Extinctions seem to have been far less severe in the southern hemisphere than in the northern." [42]

The sub-tropical nature of the Arctic's past climate is also evidenced by the remains of reptiles and mammals that followed the demise of the dinosaurs. Among the remains of other animals we come across those of crocodiles and alligators, a class of reptiles that have been constant throughout their entire evolutionary history in their limited tolerance to cold [43]. There have also been found fossils of the ancestors of the horse and rhinoceros, giant lizards, land tortoises, salamanders, snakes, even flying lemurs and tapirs [44]—the descendants of which now live in equatorial forests—all of which testify to the warmth of the climate during the Eocene epoch. So, also, do the remains of palm trees and huge exotic ferns [45].

What is even more telling is Oswald Heer's study of fossil Arctic flora which led to the postulate that the Arctic had served

as the center of new generations of plants which then radiated to more southerly latitudes [46]. And although that study was conducted in the nineteenth century, later investigations in the late 1900s only served to uphold it. Mary Dawson and Leo Hickey have uncovered reliable evidence that many of these warmth-loving creatures, to say nothing of the trees and vegetation they fed on, had appeared in Arctic regions millions of years before their kind appeared further south [47].

5. Early Life

It did not stop there. Further evidence of early life in Earth's north polar regions continues to be unearthed until the present. Microscopic fossils at Mount Slipper, north of Dawson City, close to the Yukon-Alaska border contain what has been claimed to be "the earliest traces of animal life." [48] This places the area at "a crucial time" in Earth's history, when primitive, unicellular forms of life began to evolve into more complex structures [49].

A team of British and Canadian paleontologists have also reported the discovery of "the oldest evidence of animal locomotion" in a fossilized track of an unidentified marine creature. This also came from one of Earth's northern extremities in Newfoundland [50].

Additional reports from a team of scientists from the United States and Canada tell of chemical traces which point to the one-time existence of a "sponge-like organism—possibly the oldest evidence of an animal ancestor ever found on earth." And this, too, comes from Earth's north polar regions in the Mackenzie Mountains close to the border between Yukon and the Northwest Territories [51].

There will be those who may claim that, due to continental drift, what is now Earth's Arctic region had earlier been located farther south, which would account for the warmth-loving species now discovered way up north. But that is really a misconception. Geological fieldwork has confirmed that the *present* northern lands of the globe "have been located in polar latitudes for at least the last 100 million years, despite ongoing continental drift." [52] More than that, these polar latitudes seem to always have been much warmer than they are at present. Even at the dawn of the Mesozoic era, which has been dated to 250 million years ago, Earth's poles were free of ice [53], as they also were earlier still during the Devonian period, dated close to 400 million years ago [54]. During that time, the Arctic regions were not all that much different than at present. In fact, give or take a little, the lands surrounding what is now the Arctic Circle have moved but little since about 200 million years ago [55]. And if one wishes to split hairs, I can do just as well by pointing out that, even around the above mentioned 400 million years, the same area was still located in Earth's north polar region [56]. In fact, let's face it—as it has been noted by most glaciologists, the north polar regions, together with the rest of our world, have "enjoyed uniformly warm, equable climate" for most of Earth's history [57]. It is not that continents have not shifted, but as far as the north polar regions are concerned, the lands around what is now the Arctic mainly moved through a relative slight rotation about a fulcrum that was centered close to what are now the New Siberian Islands [58].

In order to explain the existence of warm-loving animals in Arctic regions, even Charles Lyell was driven to suggest a previous time "in which the temperatures of winter and summer were nearly equalized." [59]

With a different, although dimmer, sun suspended permanently, and much closer, in Earth's north celestial pole, the Arctic regions would have received perpetual light and heat with no intervening months of cold and darkness. Not only dinosaurs, but all creatures that had preceded and followed them on the evolutionary stage would have proliferated without the need to hibernate or migrate to other regions since there would have been no onset of cold weather.

6. Conclusion

It does not end. Discoveries keep coming in even as we continue to reconstruct Earth's cosmic past, including its geological history, the evolution and extinction of its past forms of life, and, needless to say, our own place in all of it. What we thought we knew even a few decades ago is hardly the same as what we think we now know. It is not simply that what we now know is more refined. What it has come to is that, in some cases, it is entirely different, and sometimes contrary, to what we had been sure we knew.

The Solar System in which we all live has been supplying astrophysicists with so many conundrums that it is leaving this particular branch of science in a morass of clashing theories. Just as an example, meteoritic analysis has led some astronomers to propose that our System "may have been formed very quickly from the ashes of other stars." [60] To others, however, the Solar System "may have been born inside the remains of a single star that ran away from its family, rather than from a tight-knit clan of stars." [61]

It is not that I personally accept either of the above two propositions, but, even so, runaway stars, like the one theorized above, have actually been detected [62]. Stars, however, are not the only vagrants traveling alone through space. It has now become quite obvious that an "untold numbers of worlds" have turned into free floaters that wander alone through eternal darkness [63]. Some of these worlds are members of dwarf star systems, more than one of which has now been discovered. Among the multiple exo-planets in the entourage of these dwarf systems, some have been found to be of a rocky composition very much like our own Earth [64].

There is therefore nothing strange in the theoretical construct outlined above that calls for a nascent Earth traveling through space outside the realm of our present Sun. In fact, the chaotic order that presently exists within the Kuiper belt has been blamed on the errant passage of an interloper by more than one proponent [65]. And this, too, is in keeping with Earth's posited primordial sun which would also have had to plow through the belt for it to drop our puny world into its present inner orbit.

An Earth suspended directly beneath such a sun, with both sharing the same axis of rotation, might be seen by some as the most thorny aspect of the proposed model. Much vaster linear systems known as Herbig-Haro objects are, however, quite plentiful in our galaxy. As Anthony Peratt, one of the foremost proponents of plasma cosmology, had reason to state, the jet-like columns associated with these objects are the very configurations "out of which planets form." [66] These evolve out of a series of plasmoids contained within the confines of these misnamed jets. This had earlier been proposed by the Nobel laureate Hans

Alfvén who was of the belief that plasma cosmology "provides the physics for the evolution of the plasmoids into planetesimals and eventually planets" which form along the jet "like beads on a string." [67]

It might then be pointed out that such linearly aligned worlds have yet to be discovered among the exo-planets that have recently been making scientific headlines. This, however, is due to the fact that such configurations do not involve the main effects through which equatorially orbiting planets are usually detected. Without such planets transiting across the face of their host stars, no Doppler effects, or stellar wobbles, can take place. Neither will such planets cause the temporary, even if slight, dimming of their host' radiating light. Other than that, such planets would be too small to be visibly resolved. There is little doubt, however, that the future will provide other means by which such discoveries will be able to be made.

References

- [1] O. Morton, "Is the Earth Alive?" *Discover*, p. 98 (Oct 1999); S. M. Clifford, "The Iceball Next Door", *Sky & Telescope*, p. 33 (Aug 2003); R. Boling, "The Faint Young Sun," *Earth*, p. 11 (June 1996).
- [2] Z. V. Ípinar, **Life Before Man** (London, 1972), p. 54, 63-65, 70-74, 76-77, 80-81; University of Illinois, "Primeval Swamps," *Science Digest*, p. 45 (Jan 1990); and see the relevant pictorial reconstructions by Z. Burian in J. Augusta, **Prehistoric Animals** (London: Artia, 1967), plates 5,6, 7, 9.
- [3] V. A. Firsoff, **Life, Mind and Galaxies**, p. 64 (London: Oliver and Boyd, 1967); T. Palmer, in reviewing C. E. Fulsome's **The Origin of Life**, in *S.I.S. Review* 2: 61 (1980/81).
- [4] W. Thornhill, "Stars in an Electric Universe," *AEON* 5: 48 (Jan 2000)
- [5] D. King-Hele, "The Shape of the Earth," *Scientific American* 217 (4): 67-76 (Oct 1967).
- [6] *Ibid.*, p. 74.
- [7] *Ibid.*, p. 78.
- [8] R. Naeye, "'Free-Floating Planet' Claims Bolstered," *Sky & Telescope*, p. 20 (Oct 2004); M. McKee, "Violent Jet Detected Spewing from Brown Dwarf," *NewScientist.com* (June 14, 2005).
- [9] D. E. Scott, **The Electric Sky** (Mikamar Publishing 2006), pp. 179, 184, 188-190; W. Thornhill & D. Talbott, **The Electric Universe**, pp. 17, 24-28 and throughout (Mikamar Publishing, 2007).
- [10] *Ibid.*, p. 35 and elsewhere in same work.
- [11] "The Four Oceans at the Top of the World," *New Scientist* 21: 7 (1964).
- [12] Y. Herman (Ed.), *Marine Geology and Oceanography of the Arctic Sea* (N. Y., 1974), p. 100.
- [13] "Hurricane of Rock," *New Scientist* 2212: 27 (13 Nov 1999).
- [14] Peter Olson & Jonathan Aurnou, "A Polar Vortex in the Earth's Core", *Nature* 402: 170 (Nov 1999).
- [15] Anonymous, "Much About Muck," *Pursuit* 2: 68 (Oct 1969).
- [16] *Ibid.*
- [17] *Ibid.*
- [18] *Ibid.*
- [19] *Ibid.*
- [20] *Ibid.*
- [21] D. Cardona, **Flare Star**, pp. 80-88 (Trafford Publishing, 2007), numerous sources cited.
- [22] C. Lyell, **Principles of Geology**, Vol. I, p. 231. (1830/1876, 11th Ed).

- [23] R. A. Kerr, "How to Make a Warm Cretaceous Climate," *Science* **223** (4637): 677-678 (17 Feb 1984).
- [24] B. Bryson, **A Short History of Nearly Everything**, p. 432 (Doubleday, 2003); also D. Cardona, **God Star**, pp. 361 ff. (Trafford Publishing, 2006), various sources cited.
- [25] J. George, "The Forest of the Past," *Maclean's*, pp. 16-17 (6 Sep 1999).
- [26] I. C. Johnson, "Basinger's Lecture on the Eocene Forests of the Canadian High Arctic", *Chronology & Catastrophism Workshop 2*: 17 (1989).
- [27] "The Eocene Climate Puzzle", *Chronology & Catastrophism Workshop 1*: 28 (1989).
- [28] H. Thurston, "Icebound Eden", *Equinox* **3**: 80 (May-Jun 1986); I. C. Johnson, "Anomalous Occurrence of Crocodilia in Eocene Polar Forests", *Chronology & Catastrophism Review* **14**: 8, 11 (1992).
- [29] M. Harrison, "In Search of Akilia's Heel: The Controversy Over the Earliest Evidence for Life on Earth," paper given at the seminar sponsored by the School of Earth Sciences at the Australian National University (25 Sep 2003).
- [30] Ibid.
- [31] J. D. Archibald, **Dinosaur Extinction and the End of an Era**, p. 197 (Columbia University Press, 1996).
- [32] B. Rensberger, "A Fiery Extinction," *Science Digest*, p. 22 (Jan 1986).
- [33] I. C. Johnson, "Antarctic Anomalies," *AEON* **2** (1): 127 (Jun 1989).
- [34] R. Gore, "Dinosaurs," *National Geographic*, p. 38 (Jan 1993).
- [35] Ibid., pp. 36, 38.
- [36] S. Senkowsky, "Cretaceous Park", *Scientific American* **287** (6): 26-27 (Dec 2002).
- [37] A. R. Fiorillo, "The Dinosaurs of Arctic Alaska," *Scientific American* **291** (6): 84-91 (Dec 2004).
- [38] D. Cardona, **Primordial Star** (Trafford Publishing, 2009).
- [39] S. J. Gould, "Of Dinosaurs and Asteroids", in **1982 Yearbook of Science and the Future**, p. 132 (Chicago: Hammond, 1981).
- [40] R. Gore, loc. cit.; Kim Hill's Programme, Radio New Zealand (July 1999), in *Chronology & Catastrophism Review* **2**: 39 (1992).
- [41] T. Van Flandern, "The Exploded Planet Hypothesis—2000," in E. Spedicato & A. Notarpietro, Eds., **New Scenarios on the Evolution of the Solar System and Consequences on History of Earth and Man**, p. 50 (Bergamo, 2002).
- [42] B. Bryson, op. cit., p. 346.
- [43] I. C. Johnson, "Anomalous Occurrence of Crocodilia in Eocene Polar Forests," *Chronology & Catastrophism Review* **14**: 7 (1992).
- [44] Ibid.; "The Eocene Climate Puzzle," *Chronology & Catastrophism Workshop 1*: 27 (1989).
- [45] "Fossils Date the Tilt of Earth's Axis," *Globe & Mail* (8 Jun 1984).
- [46] I. C. Johnson, op. cit., p. 8.
- [47] Ibid., p. 11; H. Thurston, op. cit., pp. 74, 80, 81.
- [48] R. Boswell, "Mount Slipper Fossils Among Earliest Animals," Canwest News service in *The Vancouver Sun*, p. B2 (10 Feb 2010).
- [49] Ibid.
- [50] Ibid.
- [51] Ibid.
- [52] I. C. Johnson, loc. cit. (emphasis added).
- [53] J. J. Flynn & A. R. Wyss, "Madagascar's Mesozoic Secrets," *Scientific American* **286**: 56, 57 (Feb 2002).
- [54] E. S. Barghoorn, "Evidence of Climate Change in the Geologic Record of Plant Life," in P. Cloud, Ed., **Adventures in Earth History**, p. 737 (W. H. Freeman, 1971).
- [55] R. S. Dietz & J. C. Holden, "The Breakup of Pangaea," in J. T. Wilson, Ed., **Continents Adrift**, p. 106 (W. H. Freeman, 1972).
- [56] P. M. Hurley, "The Confirmation of Continental Drift," in *ibid.*, p. 65; see also F. H. Knowlton, "Relations of Paleobotany to Geology," **Smithsonian Institute Annual Report** (1912), as quoted in D. E. Hooker, **Those Astounding Ice Ages**, p. 43 (Exposition Press, 1958).
- [57] E. H. Colbert, "The Record of Climate Changes as Revealed by Vertebrate Paleontology," in H. Shapley, **Climate Change**, p. 269 (Cambridge, 1953).
- [58] J. T. Wilson, "Continental Drift," in **Continents Adrift**, p. 51 (W. H. Freeman, 1972).
- [59] C. Lyell, op. cit., (Chicago 1970 reprint), p. 97.
- [60] R. Courtland, "Runaway Star May Have Spawned the Solar System," www.newscientist.com (31 Mar 2010).
- [61] Ibid.
- [62] "Runaway Star Flees Birthplace at Breakneck Speed," (11 May 2010) www.space.com
- [63] T. Ferris, "Worlds Apart: Seeking New Earths," *National Geographic*, p. 91 (Dec 2009)
- [64] E. Baldwin, "Two Steps Closer to Finding Earth's Twin," *Astronomy Now*, p. 66 (June 2009); "Waterworld Discovered Transiting Nearby Star," *National Science Foundation* (Press Release 09-241); V. Damgov, "Some Reflections on the Notion of Quantavolution," in I. Tresmen, Ed., **Quantavolution: Challenges to Conventional Science**, pp. 454-455 (Knowledge Computing, 2010).
- [65] S. A. Stern, "Secrets of the Kuiper Belt," *Astronomy*, pp. 32-33 (April 2010); R. Cowen, "Astronomers Look to the Kuiper Belt for Clues to the Solar System's History," www.sciencenews.org, p. 3 (16 Jan 2010).
- [66] A. L. Peratt, Intersect discussion forum (20 Nov 2001).
- [67] Idem, on *ibid.*, (15 Nov 2001; 7 Jan 2002 & 9 Jan 2002); E. J. Lerner, "The Big Bang Never Happened," *Discover*, p. 74 (June 1988).