ARTICLES

Plasma Mythology – A Research Programme

(a talk given on the 9th August 2009 in London)

by Marinus Anthony van der Sluijs

Introduction

Myths and other traditions can be mined for information about the past, but this will only work successfully with a clear theory of myth and a refined understanding of its socio-political and historical contexts. One caveat is the reductionist trap, a psychological tendency to try and explain too much with a single paradigm. When we postulate that a large segment of mythology was informed by contact with plasma phenomena, are we saying that all myths relate to cosmic plasmas, or only some? Do the latter represent a distinct class of myths? Where does 'plasma mythology' stand as a theory of myth in the history of the subject? Beginning with the Renaissance, the study of myth has seen a rough succession of fashions.

The place of plasma mythology in history

- 16th to 18th centuries allegorical schools and occasional catastrophists
- 19th and early 20th centuries nature schools (Max Müller, James Frazer, Robert Briffault)
- 20th century psycho-sociological schools (Sigmund Freud, Carl Jung, Émile Durkheim, Claude Lévi-Strauss)
- 21st century revived nature schools: plasma mythology and others

In the early days, it was common to explain the classical myths as allegories for virtues and vices. An exception was the story of the flood, which was often explained with a comet, as William Whiston did [1]. In the late 19th century, it became fashionable to reduce all mythology to nature metaphors. Some looked to the Sun, others to the Moon, the stars or plant life as explanations. These nature schools were all uniformitarian, without exception. During the 20th century, scholars tired of that and looked to the inner structure of the human mind or the structure of human society. Plasma mythology is effectively a revival of the nature school, assuming that many human traditions were based on natural events. The crucial difference is that plasma mythology does not impose absolute gradualism and predictability on the natural environment.

In its tolerance of catastrophism, plasma mythology is not alone, but participates in a genuine paradigm shift. In 1966, the American geologist, Dorothy Vitaliano (1916-2008), coined the term **geomythology** for the study of geological phenomena in human traditions. Vitaliano was convinced that only exceptional events will trigger sacred stories:

> 'For unless human nature has changed considerably through the ages, what is considered news, and therefore what may be remembered when the normal events of daily life are long forgotten, is the unusual, particularly the violently unusual. And what is more violently unusual than a natural catastrophe?' [2]

Vitaliano's work has snowballed and geomythology currently enjoys much interest. Nevertheless, this revival of catastrophism suffers from considerable confusion about terminology. In 2007, a group of scholars published a series of essays entitled *Myth and Geology* [3]. Some material discussed in this study, such as observations of comets, had little to do with geology and everything with astronomy. To rectify this, I proposed that 'geomythology' should be balanced with a field one might call **cosmomythology**, which deals with notions about the sky in human traditions [4], but how does such a field relate to 'plasma mythology'? It goes without saying that countless geological, atmospheric and celestial phenomena – such as rainbows, meteorite falls, or floods – do not, or not necessarily, involve plasmas. To best characterise the 'new mythology' that succeeds the old nature schools, a discipline is needed that studies **any transient natural phenomena in human traditions**. Not all these phenomena involve plasma, not all are celestial or cosmic, and not all are catastrophic. Likewise, not all relevant traditions are mythical, as folklore, superstition, early science, ritual, dance, traditional artefacts and so on are equally relevant. As it proves difficult to produce a suitable term to cover precisely this domain, I will continue to use the term 'plasma mythology' on the ground that the majority of known transient phenomena in nature do bear a relationship of some sort with electromagnetic forces.

In studying the typology of global traditions about transient events, the principal distinction I should like to propose is that between traditions about recurrent phenomena and one-off or extremely rare phenomena. There is good reason to believe that numerous details of creation or 'Doomsday' mythology can be explained on the theory of a different sky in the past, but not all mythology is creation mythology or eschatology. A large group of beliefs concern phenomena that **continue** to take place every now and then. Such, often local, phenomena include meteorite falls, auroral storms, alleged observations of the 'thunderbird' or meetings with 'fairies'. Myths in this category usually present less of a narrative than creation stories, but are mythical – or 'folklore' – ideas nonetheless. While recurrent phenomena are often local and quite harmless, the virtually unique events will be continent-wide or global and catastrophic.

Transient events with reflexes in human traditions, whether frequent or rare, can conveniently be grouped into 5 categories:

- geological
- orbital-dynamical
- atmospheric
- atmospheric-optical
- celestial

Geological Transient Events

Geological transient events include the following categories:

- tribo-electricity, pyro-electricity and piezo-electricity
- tsunamis and other floods
- methane burps
- earthquakes
- volcanic eruptions
- tornadoes and hurricanes
- cometary impacts
- landslides
- falls and finds of 'thunderstones' (meteorites, tektites, fulgurites, fossils and prehistoric implements)

Highlighting only a few of these categories, the first entry concerns the only type of electricity the ancients could produce themselves. Piezo-electricity is the ability of some materials to generate an electric potential in response to mechanical stress. It has been argued that the Hebrew 'ark of the covenant' was an electrical capacitor charged in this way [5] Casting no judgment on this, I should just like to remind readers that the ark is not a myth, but a local, arguably historical, tradition.

'Methane burps' have been proposed as a cause of extinction and disaster, possibly within human times. Their relevance for the interpretation of human traditions still needs to be assessed.

The number of comet impacts known to have occurred within the past 12,000 years keeps growing. The American environmental archaeologist, Bruce Masse, recently compiled the following list [6]:

• Mahuika crater, near New Zealand	±1,450 CE
• Haviland, United States of America	before 1,000 CE
• Sobolev, Russia	before 1,000 CE
• Tabban and Kanmare craters, Gulf, of Carpentaria Australia	6th century CE
• Kaalijärv, Estonia	800-400 BC?
• Campo del Cielo, Argentina	700-200 BC
• Henbury, Australia before	700 BC
• Chiemgau, southern Germany	1st millennium BC
• Burckle Crater, southern Indic Ocean	±2,800 BC
• Macha, Russia	before 5,000 BC
• Ilumetsa, Estonia	5,700-5,400 BC
• Laurentide ice sheet, North America (Younger Dryas event)	±10,900 BC

For some of these cases, scholars have proposed local myths that could have commemorated the events. While this is valuable work, it is of crucial importance to define methodological criteria that help distinguish between global and local events and their concomitant myths.

So-called 'thunderstones' form a very prominent chapter in folklore worldwide. On every inhabited continent, people used to collect these, attaching a considerable body of folklore to the objects, including the link with thunder and lightning. In the real world, the objects so described are usually fossils and prehistoric man-made axes, but also tektites, fulgurites and meteorites. For a long time, scholars did not take the connection with thunder seriously, but the inclusion of fulgurites shows that this is mistaken -

Arrow-head 'thunderstones' (Italy). Courtesy of Pitt Rivers Museum, Oxford.

'cloud arrow-points', said to fall where lightning strikes. (Tewa people, Arizona). Courtesy of Pitt Rivers Museum, Oxford

at least some of the objects did form in association with lightning. Meteors were long regarded as akin to lightning, a connection that is not risible insofar as fireballs are concerned. Finally, the fact that some prehistoric axes were made of meteoric iron again suggests a link with magnetism and the luminosity of fireballs that would make sense of the 'thunderstone' label. Thunderstones are an excellent example of 'recurrent' events as opposed to more drastic ones, which have attracted mythical and superstitious [7] notions that do not necessarily belong to the mythology of creation or the end of former and future worlds.

Orbital-dynamical Transient Events

Orbital-dynamical transient events relate to the Earth's orbital revolution around the Sun:

contentious:

- shifting of the rotational pole
- toppling of the Earth

- changes in the Earth's volume
- changes in the Earth's distance from the Sun
- changes in the speed of the Earth's axial rotation

Nutation and precession of the equinoxes aside, scientists generally do not consider that changes affecting the Earth's orbital dynamics have occurred in historical times – or, indeed, ever. In theory, however, it is possible to conceive of physical causes that may have elicited any of the above occurrences in the past. And regardless whether such changes did transpire, human traditions concerning each abound and are deserving of scholarly examination, one way or another.

Perhaps an impacting comet or the gravitational influence of a passing massive comet may have triggered temporary or permanent changes in the obliquity of the Earth's rotational axis, with accompanying pole shifts. Classical philosophers hypothesised a past alteration of the tilt to account for the observed inclination of the axis and traditions about a former 'golden age' that knew no seasons [8]. Similar traditions have been reported from Yucatan and China.

Mythical traditions concerning an inversion of sky and Earth, of north and south, or of west and east in relation to the movement of the Sun are widespread. Plato's efforts to make sense of such traditions in terms of regular cosmic cycles of destruction and renewal [9] form an intellectual precursor to Peter Warlow's tippe-top model of Earth inversions [10].

Individual thinkers have recently speculated that, in response to an unidentified force, the Earth may have been shrinking or expanding in volume over time, arguably accompanied by changes in gravity. While this, if true, may itself have been a gradual and uniformitarian process, contraction or expansion could have provoked rather violent scenes, such as the forceful separation of land masses or tectonic plates, eruptions of magma, or short-lived episodes of orogenesis. Even if none of this transpired during the age of man, or ever happened at all, the theme of Earth expansion still resonates with creation myths concerning the radial expansion of an originally minuscule earth. As Vitaliano indicated in her book, mythical traditions about the formation of the Earth may contain historical truths or untruths, but merit discussion at any rate.

Future exploration of the role of electricity in space will likely find that electrical discharges between the earth and external agents, such as the solar wind or comets, could have resulted in subtle adjustments to the Earth's rotational spin velocity, its orbital distance from the Sun, or even the Earth's gravity [11]. From an Earth-bound perspective, changes of this kind would effect alterations in the duration of respectively a day and a year, such as are commonly recorded in ancient traditions.

Although I do not vouch for the historical correctness or reality of any of these dynamical changes, it is incumbent to strip the subject of its taboo element and to face human traditions and astronomical possibilities with an equally open-minded attitude. Meanwhile, I have excluded nutation and precession of the equinoxes from the list, as these are the diametrical opposite of a transient event and I emphatically oppose the idea that knowledge of the precession formed the original inspiration for any myths or rituals [12].

Atmospheric Transient Events

Atmospheric transient events include the following types:

- St. Elmo's fire
- lightning
- bolides (fireballs), meteors, meteor showers
- aurorae
- [upper-atmospheric lightning or mega-lightning (sprites, elves)]
- [ion plumes]
- [flux transfer events (FTEs)]

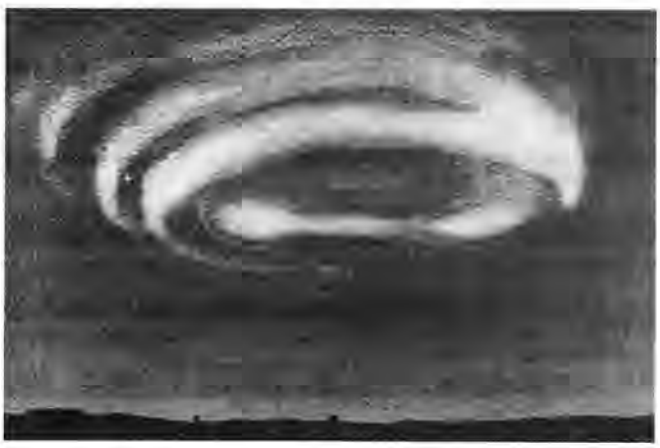
more contentious:

- ball lightning
- volcanic lightning
- rapid shifting of the magnetic poles
- earthquake lights
- many Unidentified Flying Objects (UFOs) or Unidentified Atmospheric Phenomena (UAPs)

Each of these entries has sparked a rich body of folklore. Numerous mythical motifs can be linked to lightning, meteors and polar lights, including much material that has never been explained in this context before. An example is the following passage in the work of Theodoretus of Cyrrhus (±440 CE), a Syrian bishop who recorded the following vision of a circular snake in the sky:

> 'As soon as the singing of the psalms began, I saw over where those villages stand a serpent of fire gliding through the air from West to East. After praying three times, I saw it once again, coiled in a circle, so that its head was joined to its tail. I recited more prayers and saw that it had divided into two parts and dissolved into smoke.' [13]

This is a clear description of the ourobóros or 'tail-biting dragon', a familiar emblem in alchemy and ancient Egyptian art. As a mythical creature, the ourobóros usually belongs in the context of creation mythology [14], yet the present case concerns a contemporary report, not so much a myth as an observation. It is an example of a recurrent transient event. That the reference was to an auroral curl emerges from a



A homogenous double band aurora, observed in Churchill, Manitoba, Canada (before 1963). Source: W. Petrie, *Keoeeit; The Story of the Aurora Borealis* (Pergamon Press, Oxford, 1963), Plate XXVII, apparently based on a photograph of the Defence Research Board, Canada.

comparison with the following description of an aurora seen on Thursday, 18th October 1894 by the Norwegian Arctic explorer and scientist, Fridtjof Nansen (1861-1930):

> 'There was a lovely aurora borealis at 8 o'clock this evening. It wound itself like a fiery serpent in a double coil across the sky. ... it turned off with many windings in an easterly direction, then round again, and westwards in the form of an arch ... When the upper wave reached the zenith, the phenomenon lost something of its brilliancy, dispersing little by little, leaving merely a faint indication of an aurora ...' [15]

Auroral ring seen over Toemmeraas, Norway (6th October 2002 at 22:50). © Trygve Lindersen.

Returning to the list, mega-lightning, ion plumes and flux transfer events have only been discovered in recent years. If it turns out that these events can never be seen by naked-eye observers, under any circumstances, they will need to be removed from this list. Ball lightning may not be successfully explained, but it is certainly real. It probably accounts for many reports of ghosts and UFOs can often be explained as diffuse auroral patches, in daytime or night-time [16], likewise verging on contemporary mythology.

Atmospheric-Optical Transient Events

At least 6 types of atmospheric transient events are caused by refraction of sunlight:

- zodiacal light and *Gegenschein*
- crepuscular rays
- parhelia and paraselenae ('dogs' or 'mock suns and moons')
- solar and lunar haloes
- sun pillars
- rainbows

Human traditions have much to say about these, though, again, many mythical descriptions have rarely been recognised as such by specialists. With my colleague, the English ancient historian, Peter James, I am preparing a list of mythical expressions of the zodiacal light. Some of those traditions overlap with the mythology of the *axis mundi*, as, for example, the zodiacal light is easily recognised as a 'stairway to heaven', 'a sun ladder' and a 'mountain' connecting the dark underworld with the bright sky [17].

Crepuscular rays. Source: Wikimedia Commons

The crepuscular rays are rays of sunlight that appear to radiate from a single point in the sky, occurring most often at the twilight. In folklore, they are often seen as pathways for the souls going to paradise. The Māori, of New Zealand, call them *te taura a Maui* or 'the ropes of Maui', believing that the rays are the severed ropes with which the mythical hero once noosed the Sun:

> 'Maui then noosed the sun-god, Ra, and after receiving his promise to go slowly, allowed the luminary to go on, leaving the ropes hanging. The rays ... are called by the islanders *te taura a Maui* ('the ropes of Maui').' [18]

Although the myth of the snaring of the Sun is hardly explained with this, it is worth observing that the Māori saw a remnant or a 'proof" of the myth in the crepuscular rays. The mythology of natural events is not restricted to origins to the exclusion of subsequent associations, but aims to reconstruct the entire historical development of ideas concerning a specific natural theme.

Celestial Transient Events

The fifth category, that of celestial transient events, could include the following types:

- transient lunar events
- impacts on the Moon and on planets
- planetary conjunctions and eclipses
- cometary passages
- coronal changes, sunspots, solar flares, coronal mass ejections (CMEs)
- novae and supernovae

more contentious:

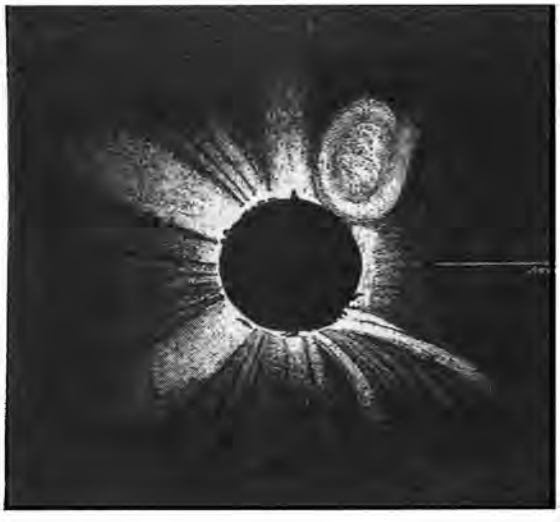
- fluctuations in the zodiacal light
- visibility of planetary magnetospheres
- shifts in colour and brightness of stars and planets

A lunar impact remains the most likely explanation for a remarkable distortion of the Moon observed in June 1178 by five English monks [19]. Eclipses have widely been interpreted in terms of dragons and other monsters 'devouring' the Sun or the Moon.

Linear conjunction of the five naked-eye planets, seen on 28th April 2002 at 2:17 in Great Britain © David Smith

The subject of planetary conjunctions connects with the ancient theory of the 'Great Year', which was once common from Rome to China. According to this, the cosmos is destroyed and forms anew when all seven planets line up in a string. Scholars have always regarded this as a fantasy, but it may contain elements of truth from an electric perspective on the workings of the solar system. All planets are affected electrically by the solar wind. When planets line up, their magnetospheres align, too, behaving like windsocks in the solar wind. In theory, it is possible that a cumulative discharge effect occurred in the past, if the differential between the planets was much larger than it is today [20].

As for coronal mass ejections, the earliest two on record are the white-light event seen by Sir Richard Carrington on the 1st. September 1859 [21] and the one observed by Ernst Wilhelm Tempel during a solar eclipse on the 18th. July 1860 from Torreblanca, Spain [22]. I propose that the third oldest one is an anonymous observation from Fort Scott, Kansas, made on the 26th June 1873:



Drawing of a solar eclipse observed by Ernst Wilhelm Tempel on the 18th July 1860 from Torreblanca, Spain, showing a possible coronal mass ejection. © G. Tempel. Source: C. A. Young, *The Sun*. D. Appleton and Company, 1896, 242, fig. 82.

> 'The sky was clear and the sun rose entirely, unobscured. When the disk of the sun was about half way above the horizon the form of a huge serpent, apparently perfect in form, was plainly seen encircling it, and was visible for some moments.' [23]

Despite the testimony of 'two reliable witnesses, who are willing to make affidavit to the above', the editor of the *New York Times* felt no compunction to heap ridicule on the report, dourly asserting that 'It will soon be time for a national prohibitory liquor law, if this sort of thing is to continue.' [24] From a modern point of view, however, the editor's words are sillier than the report itself. In terms of mythology, this is another appearance of the ourobóros. In terms of physics, the citizens of Fort Scott could have seen a coronal mass ejection that occurred almost exactly a solar cycle after the previous two observations.

Concerning the zodiacal light, the standard theory expects it to be static and passive, as it is merely composed of sunlight scattered off dust particles in the ecliptic plane. This dust is of cometary origin and as it disappears over time, unless replenished by comets, the zodiacal light weakens. This theory notwithstanding, a surprising number of people have observed distinct fluctuations and pulsations in the zodiacal light, starting with Giovanni Cassini (1625-1712),

Giovanni Cassini (1625-1712) Source: Wikimedia Commons

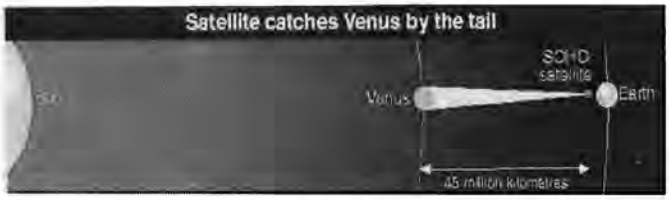
who discovered the light in 1683. The Norwegian pioneer of auroral research, Kristian Birkeland (1867-1917), likewise had a keen interest in the subject, suspecting that:

> '... a small but significant constituent of the Zodiacal Light was not caused by light bouncing off dust, but by light being deflected by electrons emitted from the sun's surface – the same electrons that caused the Northern Lights.' [25]

In other words, Birkeland believed that the zodiacal light is partly a glowing plasma. Sadly, Birkeland's research in Sudan to study the zodiacal light never led to a published report and ended in a tragedy. No one seems to have followed up the idea of fluctuations in the zodiacal light in modern times.

Earth's magnetosphere today (artist's impression). http://sec.gfsc.nasa.gov/popscise.jpg. Courtesy: NASA

The existence of planetary magnetospheres has only been known since the 1950s or so; the term itself was invented by Thomas Gold in 1959 [26]. The magnetospheres are invisible to us, as they are plasmas in dark mode. But has this always been the case? If the solar wind increased dramatically, nourished by strong electric currents, it is conceivable that planetary magnetospheres lit up. For the Earth, that would have meant impressive and sustained aurorae, and of the planets, Venus would appear as a morning and evening star with a long glowing tail [27]. It is tempting to explain in this



Jeff Hecht, 'Planet's Tail of the Unexpected'. *New Scientist*, 31st May 1997.

way traditions that portray Venus as a dragon or a comet. Certainly, the Akkadian princess and high priestess, Enheduanna (23rd century BC), invoked the goddess Inanna not only as Venus in orbit as a morning or evening star, but also as a venomous *ušumgal* or "dragon":

> 'Like a dragon you have deposited venom on the land
> When you roar at the earth like Thunder, no vegetation can stand up to you.
> A flood descending from its mountain,
> Oh foremost one, you are the Inanna of heaven and earth!
> Raining the fanned fire
> down upon the nation ...' [28]

The final entry concerns observed shifts in the appearances of stars and planets. Needless to say, astronomers are generally loathe to admit that stars could have shown any visible changes in ancient times, except if they were novae or supernovae. Defying cherished beliefs, however, it is well known that the star Sirius was widely described as red in many different cultures. It is white today. The conundrum has generated much debate [29], but when all is said and done the most straightforward solution is that Sirius has been prone to colour changes in historic times. The physics of rapid changes in stellar coloration are much more simple and elegant on an electric model of stars than in standard theory [30].

Historical changes in the appearance of planets, though just as unwelcome among contemporary astronomers, are on record, too - and quite a few of them. An unambiguous and oft-cited example is the following passage from the Roman scholar, Marcus Terentius Varro (116 BC - 27 BC), relying on earlier sources:

> 'In the sky ... appeared a marvellous portent. For in the splendid star Venus, which Plautus calls 'Vesperugo', and Homer 'Hesperos' with the epithet 'most beautiful', Castor writes that a portent occurred when the star changed its colour, size, shape and course, a thing which has never happened before or since. The well-known astronomers Adrastus of Cyzicus and Dion of Naples said that this happened in the reign of Ogygus.' [31]

Again, shifts in Venus' orbit or appearance, whether temporary or permanent, are susceptible to a plausible and relatively straightforward explanation if the role of electricity is taken on board in the orbital dynamics of planets [32].

Creation Mythology

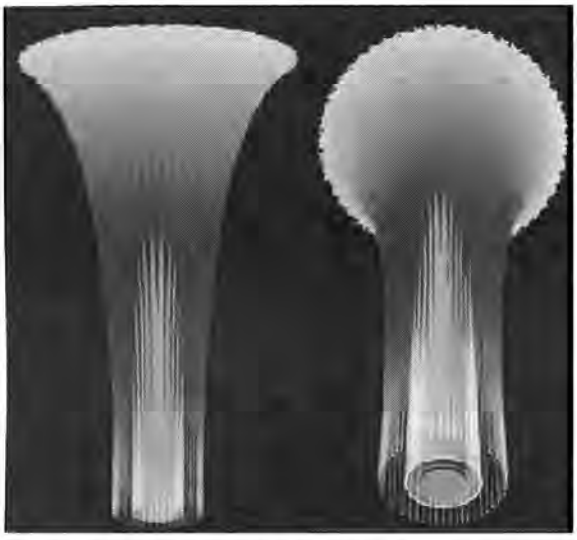
Most of the transient phenomena discussed so far come under the umbrella of the 'plasma mythology of recurrent events'. What about the more dramatic, global themes of creation mythology? Some two dozen overarching motifs can be identified in the creation cycle, with hundreds of subtypes. For example:

- original darkness and water
- sky was close to Earth
- immobile Sun
- 'root particle' of creation
- cosmic egg
- separation of sky and Earth
- formation of the *axis mundi*
- a primeval race of mythical 'ancestors'
- a solid sky, with a central hole
- 4 or 8 sky pillars with guardians
- layered heavens and hells
- catastrophic disruption of the *axis mundi*
- inversion of sky and Earth
- retreat of deities or 'ancestors' into the sky

These motifs are tightly interlinked with each other and tell a single, multi-faceted story. Traditional cosmologies or ideas about the world – for example that the sky is made of rock or metal, that a turtle supports the Earth, or that a circular ocean flows around the Earth – often trace to remembered aspects of this creation narrative. These archetypal themes need to be explained as a whole. It will take considerable time to analyse the mythical record and produce a satisfactory reconstruction of the original template. To do so is a task in which I continue to invest a lot of effort.

The scientific explanation for the episode in prehistory during which these unprecedented 'transient events' supposedly occurred will likely be a combination of categories discussed earlier, on a magnified scale. A promising model is Anthony Peratt's scenario of a high-energy-density aurora, based on an analysis of millions of petroglyphs, laboratory simulations of Birkeland currents, and observations of space plasma, which is still unfolding [33].

Experimental reconstruction of the intense auroral plasma column as determined from field-of-view directivity, viewing angle of inclination and Global Positioning System surveys of worldwide petroglyph 'pixels'. Not to scale. © A. L. Peratt.



Experimental reconstruction of a plasma sheath formed of 56 filaments. © A. L. Peratt.

According to Peratt's model, the solar wind was once enriched with a massive inflow of plasma that, in conventional terms, derived either from a massive solar flare or from a giant dusting comet intruding in the solar system. This then caused highly increased activity in planetary magnetospheres. Each planetary atmosphere would have seen very intense aurorae, of a sustained, semi-permanent nature.

The magnetosphere of the earth would have been extended and pinched as a whole. The magnetosphere is currently estimated to meet the solar wind at about 70,000 kilometres above the Earth. On Peratt's model, the sky column reached some 700,000 kilometres upward at the time of this aurora – a tenfold increase in dimensions. If correct, the solar system must have presented quite a different aspect at that time.

This outline serves as an early attempt to list mythical traditions pertaining to transient natural events, whether they are recurrent or exceptional. It is suggested that the listing can be used as a research programme for the burgeoning study of human traditions reflecting unusual events, notably of an electromagnetic nature.

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7. E.g., ' ... the people of Ambon say that these phenomena [thunder and lightning; MAS] are caused by *Upo Lanito*, the sky-lord, waging war against the evil spirits, 'thunder teeth' being scattered about during the fighting." W. J. Perry, *The Megalithic Culture of Indonesia.*(Publications of the University of Manchester, 'Ethnological Series', 3 (Longmans, Green & Co., London, 1918, p. 129.

8. For example, Anaxagoras of Clazomenae, in Diogenes Laertius, *Life of Anaxagoras*, 2. 9; Diogenes of Appollonia, in Aetius, *Placita Philosophorum*, 2. 8. 1; Empedocles of Acragas, in Aetius, *Placita Philosophorum*, 2. 8. 2; compare 3. 12; Ovid, *Metamorphoses*, 1, lines 113-120.

9. Plato, *Politicus*, 269C-273A; M. A. van der Sluijs, 'Phaeton and the Great Year'. *Apeiron; A Journal for Ancient Philosphy and Science* 2006, 39. 1, pp. 64-69.

10. P. Warlow, *The Reversing Earth.* J. M. Dent & Sons, London 1982.

11. W. Thornhill, 'Newton's Electric Clockwork Solar System'. http://www.holoscience.com/news.php?article=q1q6sz2s, 21st April 2009.

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The Literary Velikovsky: Mythistory and *The Cradle of Saturn*

by Paul Sukys

In a book entitled *Historia and Narrative Theory*, Peter Burke, a retired Fellow of Emmanuel College, University of Cambridge, attempts to answer what he refers to as two deceptively simple questions: [1]. Those questions, according to Burke, are 'What is the use of social theory to historians, and what is the use of history to social theorists?' [2]. This article attempts to address a similar question: 'What is the use of literature and history to scientists and the scientific community?' To answer this question we must first look at the function of literature; second, relate that function to the function of history and, finally, apply that relationship to science, the scientific community and popular culture. Since such an undertaking is best accomplished using a concrete example, we will focus on James P. Hogan and his novel, *The Cradle of Saturn* [3]. That novel and its sequel, *The Anguished Dawn*, [4] are of interest here because both novels feature the theories of Immanuel Velikovsky as their subject.

Introduction: Literature, History and Mythistory

At the risk of oversimplifying a complex subject, I would like to suggest that literature can be defined as a composition fashioned by a writer using verbal configurations designed to communicate the reality of the human condition in such a way so as to reach the reader not just intellectually, but also emotionally [5]. Despite this definition, the purpose of literature remains elusive. Is literature for entertainment, instruction, moral edification, or all three? There is, of course, no simple answer to this question, only nuances that suggest that literature is somehow something that combines all three in a way that is difficult to explain. It may, in fact, be that a general definition of literature is forever beyond our grasp. There may only be ways to look at specific works of literature in order to determine their worth or, perhaps, the lack thereof.

Nevertheless, all literary works hold certain characteristics in common. They are constructed of words that hold the correct denotation and the desired connotation. They involve people in conflict with one another or with some outside force. They are (or should be) enjoyable to read and they are created out of the mind of a writer, which is just another way of saying they are myths. Yet, they are not mythological. By this I mean that they tell the truth in settings that, while not true in and of themselves, are nevertheless true in the larger sense of being culturally and universally significant. In other words, literary works tell us about ourselves and about the cultural setting in which we live.

History does this too, but in a different way. Again, it will be best to start with a definition. However, in this case we

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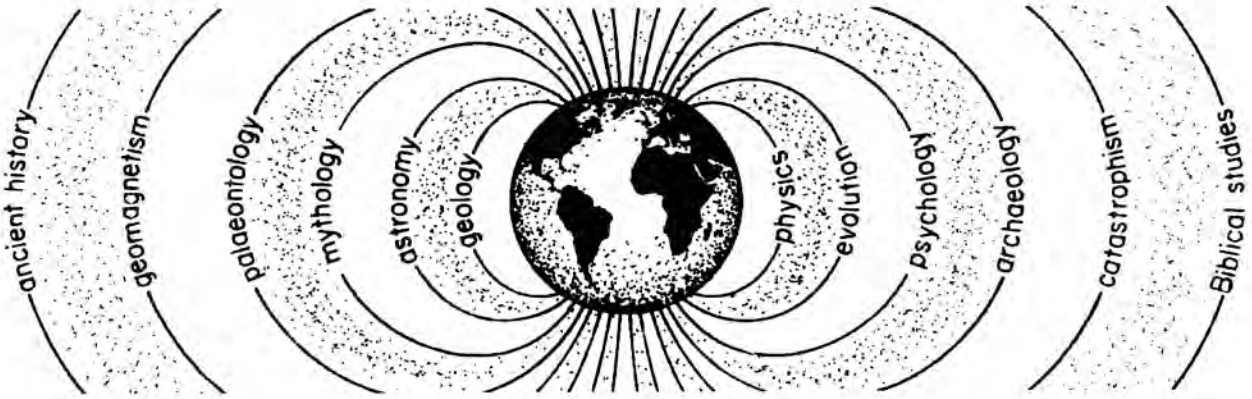

MEMBERSHIP & ENQUIRIES
10 Witley Green, Darley Heights, Stopsley, Beds. LU2 8TR, UK.
(memb-gen@sis-group.org.uk)

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Contents