



THE GREEK MYTH OF PLEIADES IN THE ARCHAEOLOGY OF NATURAL DISASTERS. DECODING, DATING AND ENVIRONMENTAL INTERPRETATION

Amanda Laouli

Centre for the Assessment of Natural Hazards and Proactive Planning - NTUA
 9 Heron Polytechniou Str., 15780,
 Athens, Greece

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e-mail: alaoupi@otenet.gr

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ABSTRACT

The strong multi-symbolic archetype of the Pleiades functions as a worldwide astromythological system going back to Upper Palaeolithic Era. The Greek version of the myth seems to embody a wide range of environmental symbolism, as it incorporates various information and very archaic elements about: a) the periodicity of the solstices and the equinoxes, b) the fluctuations on the biochemical structure of Earth's atmosphere related to the global hydro-climatic phenomenon of ENSO, c) probable past observations of brightening of a star (nova) in the cluster of Pleiades, d) the primordial elements of the mythological nucleus of Atlantis' legend and e) the remnants of Palaeolithic 'proto-European' moon culture.

KEYWORDS: Pleiades, El Nio, Archaeomythology, Astromythology, Archaeo-astronomy, Ethnoastronomy

INTRODUCTION

The Archaeology of Natural Disasters (Blaikie *et al.* 1994; Byrne 1997; Torrence and Grattan 2002; World 2002): a) defines the identity, the impact and the dynamics of natural hazards into the evolution of human

civilization (biological, ecological, environmental, socio-economic, political, technological, geographical and cultural results), b) tries to find and analyze the kinds, frequency and magnitude of natural hazards that are hidden in the

"archaeological landscapes", c) searches for the adaptation process in past human societies and the "unfamiliar landscapes" formed after natural disasters.

On the other hand, the major task in studying the ancient myths is to realize the realms of various human mental areas and distinguish between allegory/metaphor and imagination, analogy and reason, folklore tale and legend, fiction/fantasy and fallacy/lie, dream scientific hypothesis and the truth. In ancient myths, there is an incredible storehouse of wisdom about human nature collected over centuries of observation. The myths are stories in which the surface structure is false, because things did not happen exactly that way, but the deep structure is true.

In fact, one of the most powerful symbols of all ancient mythologies, marker of the events recorded by the different cultures of the world with almost uncanny accuracy, the Pleiades, comprise one of the oldest known time capsule cryptogram. Furthermore, the Greek literature suggests strong associations with other ancient sources from all over the world. Pleiades are characterized as one of the most sacred astral systems. Let us begin this fascinating trip. Cave paintings, History, Poetry, Mythology, Astronomy, all Literature contains recurrent allusions to them (Jobes and Jobes 1964).

ANALYSIS OF THE ENVIRONMENTAL NUCLEUS IN PLEIADES MYTH

A. Cycles, Periodicity and Calendars

Because of their beauty and astrological significance, Pleiades were celebrated in the writings of many ancient cultures. According to some scholars (Allen 1899/1963), one of the earliest mentions of the Pleiades is found in Chinese annals

referring to an observation made in 2357 BC. However, the earliest known safe reference of this cluster and their connection with the agricultural seasons, is a mention by Hesiod (e.g. Works and Days: 384, 616).

In the Odyssey of Homer (v, 272), when Odysseus wanted to reach Phaeacia, had been told to look at the night sky the setting Boötes, Orion and the Ursa Majoris, and to have on the left side of its ship the asterism of Pleiades. Homer mentions them, when he makes description of the buckler of Achilles, also (Iliad XVIII, 486-488).

In fact, Pleiades is one of the many names of this star cluster. The word is supposed to be derived from Greek "pleio", meaning "to sail". The rising of the Pleiades was the sign of the opening of the Mediterranean Sea to sailors. Their "navigation" on the night sky of Temperate Zone opened and closed the seasons of good and bad weather (Theophrastos On Signs, 6-7). During the 5th c. B.C., in the geographical coordinates of Athens, the heliacal rising (vMR) of Pleiades was taking place between the 7th and 19th of May and their cosmical setting (vMS) c. on the 6th of November.

Moreover, according to reknown scholars, early Greek farmers used to place little or no reliance on zodiacal constellations, depending highly on the much brighter stars of the Pleiades, the Hyades, Orion, Sirius and Arcturus (Reiche 1989). The movement of the Pleiades was symmetrically opposite to that of the sun. Consequently, time-keeping has always been associated with this cluster. In the ancient world, there are many calendar systems, both agricultural and sacred, that utilize the positions of the Pleiades. The sacred geometry of megalithic monuments and ancient places deserves special mention for their correlation to them (Blomberg *et al.* 2003).

Temples in Greece and Ancient Egypt had been built in alignment with the Pleiades. Parthenon and the Great Pyramid at Giza are some famous examples (Penrose 1892 and 1893; Lockyer 1893 and 1894). The Greek calendar system was regulated by the position of them during May and November and reflected to the cross-quarter holidays, each half-way between an equinox and a solstice.

The Pleiades are already present in the powerful symbology of the Upper Palaeolithic. In Upper Palaeolithic cosmographic depictions (e.g. the "Hall of Bulls" mural at Lascaux Cave, France, dated c. 15.000 B.C., during summer solstice?), the paint dots may be analogous to later numerical representations of the seven stars of the Pleiades (Baudouin 1916; Gingerich 1984; Congregado 1991; Edge 1995; Rappenglueck 1999a, b and 1997; Blomberg *et al.* 2003).

A new picture of Palaeolithic events has been emerged in the analyses of scientists who try to reveal the secrets of Archaeomythology. For instance, Stan Gooch diagnosed the archaic signs of the struggle between the Old Moon and the New Sun religions in Pleiades symbology. In other words, Neanderthal religion based on Moon Goddess, was replaced by the solar "masculine" deity of Cro-Magnon population. This motif travelled as psychic "kit" with Cro-Magnon, all the way into the heart of the Neolithic, and beyond (Gooch 1995). An interesting and promising approach.

The bull as the moon is part of a cluster of images (crescents, horns, snake coils, concentric circles, U-signs, bucrania, etc.) that surround the goddess of the Neolithic Era and abstractly symbolize life, death and regeneration, thus the creative and fecund powers of nature. Therefore, the bull's representations in sets of four are lunar notations indicating the waxing moon, the full moon, the waning moon and the new

moon in its four stages, respectively. In terms of symbolic language, the "epiphany of the Goddess" would be equivalent to the resurrection and rebirth of the soul of the individual after death. The horns of the bull, later known from the famous Minoan horns of consecration, are found on or inside many of the megalithic monuments of the Neolithic Era in Western Europe. The similarity of female reproductive organs with the bull's head is striking (Cameron 1981; Gimbutas 1982, 1989 and 1999; Mellaart 1989)! In the Orphic Hymns (IX, 2), evident is the connection of Selene with the womb, sexuality and fertility, being characterized as taurus- horned waxing or waning moon (taurokeros mene).

Moreover, the ancient greek story of Pleiades astromorphosis relates this cluster to the great hunter Orion, son of Poseidon, and the goddess Artemis. Artemis represents the Moon, travels the zodiac and comes close to him but can never touch him, although from time to time she covers up the Pleiades.

The Pleiadian cycle also involves the planet Venus. The Pleiades is in many languages are associated with bird-names. Some scholars take the bird on the bull's back in ancient coins of Eretria, Dicaea, and Thurii for the associated constellation of the Pleiades (Stechert in Allen 1899). In ancient Greek mythology, Aphrodite was the daughter of Zeus and the woodland goddess Dione. Dione was associated with the ancient oracular cult at Dodona, presided over by seven high priestesses or peleiadai, meaning "pigeons" or "doves" (e.g. Herodotus, II.55-57; Sophocles Trachiniai, 171 and 472; Pausanias, X.12.10). In the Homeric Hymns to Selene (XXXII, 1) the goddess of Moon is characterized as long-winged (tanysipteros), indicating her passage, like a bird, through the sky (Hesiod, Works and Days, 210).



The Greek Sisters

<http://www.aao.gov.au/images/captions/uks018.html> (e-permission). Anglo-Australian Observatory (AAO). UK Schmidt telescope. Photographer David Malin. Top left is NE. Image width about 100 arc min

B. Primordial element: Water

In the Andean regions, rainfall is seasonal and usually starts in October, but every few years the onset of the rains is delayed by up to several weeks. For hundreds of years, the farmers have observed the Pleiades, which become visible in the southern hemisphere skies in June. If the Pleiades shine brightly in June, they can start planting their potatoes in October, as there will be adequate rainfall during the critical months of December through February. However, if the Pleiades look dim, planting is delayed until November. Every two to seven years along comes the hydro-climatic phenomenon known as El Nio, during which thin cirrus clouds appear very high in the skies over the Andes in June (Hurrell 1995; Svensmark and Früs-Christensen 1997; Fagan 2000; Koutavas *et al.* 2002; Roig *et al.* 2001; Scott *et al.* 2002)! These cirrus clouds cause the Pleiades to appear dim to the naked eye (Orlove *et al.* 2000).

This paper argues that the archaeometeorological observations made

by the Andean farmers several centuries ago, had been also made by peoples of the Mediterranean region, at least two millennia B.C. The relation among the clearness of the atmosphere and the amount of clouds, the intensity of seasonal climatic phenomena and the visibility of Pleiades is recorded in the text of Theophrastos (On Signs: 29 and 43) dated on 4th c. B.C.

But, there is another striking evidence. Especially ancient Greek mythology, except for the already above-mentioned arguments of Levels A and B and the following data of other Levels, offers significant clues about the implication of the water element in the Pleiades nucleus. This water element reflects various information about: a) the fluctuations on the biochemical structure of Earth's atmosphere related to the global hydro-climatic phenomenon of ENSO, b) some extra events of deluge related to the Pleiades (either as source of the event, or as an astronomical correlation) that gave them a chthonian and malignant character and c) the periodicity of the hydro-climatic phenomena (e.g. ENSO and NAO) with their peaks and falls in their dual cycles (Pleiades, Hyades and Poseidon = mild and wet/Sirius, Orion = hot and dry). Furthermore, floods and earthquakes (with Poseidon, their representing god) are the earthen witnesses of destructive sky events.

In the tablets of Linear B' scripture from Pylos, Peleia is also referred (PY tn 316) among other deities. Peleia is related to Poseidon, protector god of Pylos, and the sacred trinity of the female goddesses: Minoan/Mycenaean deity of Doves (pe-re*82), Iphimedeia (i-pe-me-de-ja) and DiFia (di-u-ja, di-wi-ja). The ceremonies of sanctification were held in their altars (e.g. pe-re *82-jo = altar of Peleia). For Peleia, the offerings included a golden cup and a woman.

The deity pe-re*82 has been correlated with Phersephassa (* Persa), namely Persephone in Mycenaean Greek, but this view is not widely accepted (Palmer 1963, 20 / 27/ 103 & 263; Chadwick 1987). Iphimedeia was a princess of Thessalian origin, one of the love mates of Poseidon and mother of the giants Otos and Ephialtes (Odyssey, XI 305. Apollodorus The Library, 1.53. Hyginus Fabulae, 28. Ovidius Metamorphoses, 6.117). In fact, she was also a chthonian deity who was celebrated in boeotian Anthedona, Naxos and Karia, probable area of origin. Finally, DiFia was a deity of Pamphylia or the female alternative of Zeus, later known as Dione (see sacred peleiai of Dodona). Finally, since the Homeric epos, the "Pelagian" god Poseidon was related to the planet Saturn (Wood 1991).

According to the ancient Greek mythology, Pleiades were the seven daughters of the Titan Atlas and Pleione-an Oceanid nymph, half-sisters of the Hyades and, perhaps, half-sisters of the Hesperides. The Pleiadian and Atlantean mating was also mentioned by Greek historian Diodorus (III.60. 1-5) who claimed that Celaino and Alcyone, two of the seven Pleiadian sisters, had mated with Poseidon, King of Atlantis and their offspring populated Atlantis. Aeschylus (fr. 172 [312]), the Greek writer, attributes their transformation to stars ("phantoms of the night") as an escape from grief at their father's burden of carrying the world on his head and his hands.

C. Danger and Disaster

Ancient myths, legends and prophecies from around the world tell frightening tales of how humanity has suffered through destructions by fire and flood (La Violette 1997). These stories of catastrophe are so extreme and pervasive, that till recently we

tended to discount them as imaginative exaggerations. There are, indeed, too many traditions connecting the Pleiades, with some kind of catastrophe to be overlooked. When people talk about seasonality and Pleiades, they often refer to food, hunger and destruction also.

In fact, there is the Osiris-Saturn legend in Egypt. The great and beloved god Osiris is drowned by the devil god, Seth, who then cuts his body to pieces and scatters its fragments. These fragments were the Pleiades worshipped on the day of Saturn's death (de Grazia 1981).

Saturn (Khima) is connected with the Pleiades. For one thing their names are often confused, as in the King James and other versions of the Bible where Khima is translated as "Pleiades" instead of as "Saturn" (Cardona 1978). In the ancient world, the Pleiades are connected with the Flood of Noah (de Grazia 1983). According to Jewish folktale, the third Deluge happened when the male waters from the sky met the female waters which issued forth from the ground (Frazer 1918, I, 143-4). The holes in the sky by which the upper waters escaped were made by God when he removed stars out of the constellation of the Pleiades (Ginzberg 1909, I, 162). Some scholars, calculating back from Biblical references, hypothesize that the Universal Deluge of Noah was caused by a near passing astral body at 2800 B.C. (Patten 1966; Patten *et al.* 1973).

Sanskrit literature of ancient and medieval India is rich in information about environmental sciences. (Iyengar 2004). In several texts a natural event is mentioned, referring to a nova or brightening of a star in the cluster of Pleiades (Eggeling 1963; Velankar 1963; Griffith internet edition. Mahabharata internet edition). There is also a story about a strange fire associated with this cluster. For example, there are several different versions of the same celestial event

in Mahabharata, describing the inversion of dual phenomena (the summer became winter and winter became summer) as a war broken between gods and demons. Fiery celestial body fallen on Earth, earthquakes, rise of sea-level, draught of rivers, lakes and wells, destruction from heaven, severe famine are some of the implications related to the Pleiades (a demon has born in the Pleiades). These disasters should have taken place in the north-western part of India (23.5° N, 71.5° E), where river Sarasvati joined the sea (Law 1982; Mc Crindle 2000; Valdiya 2002; Schoff internet edition). The whole plain, now an arid area known as the Thar Desert, was once a very fertile plain traversed by this great river. In those days of Mohenjo-Daro and Harappa, the area was one of the richest places in the world.

A first statement on the dating for these celestial phenomena would declare the attempt impossible. Nevertheless, some details of the texts have provided the modern scientists with methodological tools. Renowned scholars, planetarium softwares and astronomical calculations date the observation of nova to c. 2500 - 3000 BC or even earlier. During that time in the geographical coordinates of India, Pleiades were exactly at the vernal equinoctial point on their heliacal rising. The impact crater and the falling meteors could have occurred in 1800 - 2200 B.C. (Dikshit 1969; Narahari Achar 2000; Iyengar 2004). Thus, archaeological investigations in the above-mentioned areas would provide new information on this interesting scientific issue.

Very far away, the Aztecs of Mexico believed that these stars could prevent the demons of darkness from descending to Earth and devouring men. For this reason, they offered their deities human sacrifices (Aveni 1980).

The final word of admiration is reserved for a Mesoamerican legend. This vision of doom is the matrix of the Aztec legend of the Five Suns. The universe was not permanent or everlasting, but coming to an end, like all living things. They pictured time as a cycle of births, destruction and rebirths. According to the Aztecs mythology and ritual, this cycle couldn't continue for ever; there would only be five ages or "Suns" each of them having its own name, sign and ruling divinity.

The Aztec Legend of the Five Suns has survived in pictographs painted or carved on stone, in texts of ancient Mexico and scattered oral traditions kept by the distant descendants of the Aztecs. The primary source for Aztec mythology is the Codex Chimalpopoca. The first sun is known as Four Water, the second as Four Jaguar, the third as Four Rain, the fourth as Four Wind and the final fifth as four Movement. This world, our world, will be destroyed by earthquakes. Five was for the Aztecs a sacred number, based on the five directions. These directions were the four cardinal points plus the centre. The centre was understood to be the star cluster of the Pleiades.

CONCLUSIONS

Ancient disasters under ancient skies. An appealing challenge for any scientist.

Environmental changes involve a complex interplay of physical, chemical and biological processes of the Earth. A multi-disciplinary approach is necessary for studying past disasters, because humanities and social sciences have a very important role to play. Therefore, archaeologically discovered traces that indicate past disasters, contribute to a broader understanding of such phenomena.

On the other hand, Astromythology as science of the past finds a very strong and

tempting field of research in the cluster of Pleiades. This is a case of transporting memory through superpositioned layers that contain sets of facts, elements, symbols, sectors and matrices travelled all over the world. As earlier mentioned, we met the thought-provoking ancient myth of Pleiades in light of various scientific and theoretical perspectives, paying tribute to the enduring legacy of ancient Greece. We also tried to identify the key attributes of natural disasters and social resilience, imprinted on

the mythology of circum-Mediterranean areas. The cross-cultural study of cosmic cataclysmic cycles along with memorial significance of the pleiadean rites provided both a deeper analysis and more dynamic visual presentation. The discovery of numerous ways of interpretation related to ancient periodicities and catastrophes opens a new doorway to the understanding of the collective cultural memory of humanity.

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REFERENCES

- Allen, R. H. (1899/1963) *Star-Names and Their Meaning*, G.E. Stechert Publications. *Star Names: Their Lore and Meaning*, New York.
- Aveni, A.F. (1980) *Skywatchers of Ancient Mexico*, Austin, Texas.
- Baudouin, M. (1916) La Préhistoire des Étoiles au Paléolithique. Les Pleiades à l'Époque Aurignacienne et le Culte Stello-Solaire Typique au Solutrien. In: *Serie VI, Bulletin et Mémoires de la Société d'Anthropologie de Paris*, Tome VII, 25-103 and 274-317.
- Blaikie, P., Cannon, T., Davies, I. and Wisner, B. (1994) *At Risk: Natural Hazards, People's Vulnerability and Disasters*, London.
- Blomberg, M., Blomberg, P. and Henriksson, G. (eds.) (2003) *Calendars, Symbols, and Orientations. Legacies of Astronomy in Culture. Proceedings of the 9th annual meeting of the European Society for Astronomy in Culture (SEAC), Stockholm, 27-30 August 2001*, Uppsala.
- Byrne, D. (1997) The archaeology of disasters. In: *Public History Review*, vol. 6, 17-29.
- Cameron, D. O. (1981) *Symbols of Birth and Death in the Neolithic Era*, London.

- Cardona, Dw. (1978) The Mystery of the Pleiades. In: *Kronos*, vol. III, no. 4 (Summer), 24-44.
- Chadwick, J. (1987) *Linear B and Related Scripts*, Berkeley and Los Angeles.
- Congregado, L.A. (1991) *Arte y Astronomía: evolución de los dibujos de las constelaciones*. Tesis Doctoral presentada en la Facultad de Bellas Artes de la Universidad Complutense de Madrid.
- de Grazia, Al. (1981) *Chaos and Creation*, Princeton, London and Bombay.
- de Grazia, Al. (1984) *The Burning of Troy*, New Jersey.
- de Grazia, Al. (1983) *The Lately Tortured Earth*, New Jersey.
- Dikshit, S.B. (1969) *Barhatiya Jyotisa Sastra*, Calcutta.
- Edge, Fr. (1995) *Aurochs in the Sky: Dancing with the Summer Moon*, USA.
- Eggeling, T. (1963) *The Satapatha Brahmana*, Delhi.
- Fagan, Br. (2000) *Floods, Famine and Emperors: El Nio and the Fate of Civilization*, New York.
- Frazer, J.G. (1918) *Folklore in the Old Testament*, London.
- Gimbutas, M. (1982) *The Goddesses and Gods of Old Europe: Myths and Cult Images*, Berkeley.
- Gimbutas, M. (1989) *The Language of the Goddess: Unearthing the Hidden Symbols of Western Civilization*, New York.
- Gimbutas, M. (1999) *The Living Goddesses*, Berkeley.
- Gingerich, O. (1984) The origin of the Zodiac. In: *Sky and Telescope*, vol. 67, 218-220.
- Gooch, St. (1995) *Cities of Dreams. When Women ruled the Earth*, Aulis Publishers, USA.
- Griffith, R.T. *The Rigveda English Translation*. Available at website <http://www.sacred-texts.com/hin/rigveda/>
- Hurrell, J. W. (1995) Decadal trends in the North Atlantic Oscillation: regional temperatures and precipitation. In: *Science*, vol. 269, 676-679.
- Iyengar, R.N. (2004) Profile of a natural disaster in ancient Sanskrit literature. In: *Indian Journal of History of Science*, INSA, vol. 39, no. 1, 11-49.
- Jobes, G. and J. (1964) *Outer Space. Myths, Names, Meanings, Calendars*, New York and London.
- Koutavas, A., Lynch-Stieglitz, J., Marchitto, T. M. Jr and Sachs, J. P. (2002) El Nio-like pattern in ice age tropical Pacific sea surface temperature. In: *Science*, vol. 297, 226-230.
- LaViolette, P. A. (1997) *Earth Under Fire. Humanity's Survival of the Apocalypse*, Alexandria, VA / Niskayuna, New York.
- Law, B.C. (1982) *Historical Geography of Ancient India*. Oriental Reprint, Indian edition.
- Lockyer, J. (1983) The influence of Egypt upon temple-orientation in Greece. In: *Nature*, vol. 48 (1244, August 31), 417-419.
- Lockyer, J.N. (1984) *A Study of the Temple-Worship and Mythology of the Ancient Egyptians*, New York and London.
- Mc Crindle, J.W. (2000) *Ancient India as Described by Ptolemy*, N. Delhi.
- Mahabharata*. Available at website <http://home.dongguk.edu/user/india/text/e-mbh.html>

- Mellaart, J. (1989) *Chatal Hüyük and Anatolian Kilims. The Goddess of Anatolia*, vol. II. Germany.
- Narahari Achar, B.N. (2000) On the astronomical basis of the date of Satapatha Brahmana. In: *Indian Journal of History of Science*, vol. 35, no. 1, 1-19.
- Orlove, B. S., Chiang, J. C. H. and Cane, M. A. (2000) Forecasting Andean rainfall and crop yield from the influence of El Nio on Pleiades visibility. In: *Nature*, vol. 403, 68.
- Palmer, L.R. (1963) *Mycenaean Greek Texts*, Oxford.
- Patten, D. W. (1966) *The Biblical Flood And the Ice Epoch: A Study in Scientific History*, Seattle.
- Patten, D. W., Hatch, R.R. and Steinhauer, Loren C. (1973) *The Long Day of Joshua and Six Other Catastrophes*, Seattle.
- Penrose, Fr. (1892) A preliminary statement of an investigation of the dates of some of the Greek temples as derived from their orientation. *Nature*, vol. 45 (1165, February 25), 395-397.
- Penrose, Fr. (1893) *The orientation of Greek temples*, *Nature*, vol. 48 (1228, May 11), 42-43.
- Rappenglück, M.A. (1999) *Eine Himmelskarte aus der Eiszeit? Ein Beitrag zur Urgeschichte der Himmelskunde und zur paläoastronomischen Methodik, aufgezeigt am Beispiel der Szene in Le Puits, Grotte de Lascaux (Com. Montignac, Dép. Dordogne, Rég. Aquitaine, France)*, Frankfurt.
- Rappenglück, M. (1999) Palaeolithic Timekeepers. Looking at the Golden Gate of the Ecliptic; the Lunar Cycles and the Pleiades in the Cave of La-TETe-Du-Lion (Ardèche, France) - 21,000 BP. In: *Earth, Moon, and Planets*, vol. 85-86, 391-404.
- Rappenglück, M. (1997) The Pleiades in the "Salle des Tareaux", Grotte de Lascaux". In: C. Jaschek and F. Barandela (eds), *Actas del IV Congreso de la SEAC "Astronomía en la Cultura" / Proceedings of the IVth SEAC Meeting "Astronomy and Culture"*, 217-225.
- Reiche, H. A. T. (1989) Fail-Safe Stellar Dating: Forgotten Phases. In: *Transactions of the American Philological Association*, vol. 119, 37-53.
- Roig, F. A. et al. (2001) Climate variability 50,000 years ago in mid-latitude Chile as reconstructed from tree rings. In: *Nature*, vol. 410, 567-570 .
- Schoff, W.H., *The Periplus of the Erythraean Sea: Travel and Trade in the Indian Ocean by a Merchant of the First Century*. Available at website <http://www.und.ac.za/und/classics/india/periplus.htm>
- Stott, L., Poulsen, C., Lund, S. and Thunell, R. (2002) Super ENSO and global climate oscillations at millennial time scales. In: *Science*, vol. 297, 222-226.
- Svensmark, H. and Früs-Christensen, E. (1997) Variation of cosmic ray flux and global cloud coverage. A missing link in solar climate relationships. In: *Journal of Atmospheric and Solar-Terrestrial Physics*, vol. 59, 1225-1232 .
- Torrence, R. and Grattan, J. (eds) (2002) *Natural Disasters and Cultural Change*, London and New York.
- Valdiya, K.S. (2002) *Saraswati, the River that Disappeared*, Hyderabad.
- Velankar, H.D. (1963) *Rgveda Mandala VII. Text, translation and notes*, Bombay.
- World, Arch (2002) *Archaeology of Natural Disasters*, London and New York.
- Wood, Florence and K. (1991) *Homer's Secret Iliad*, USA.