

## Ethnobiological Analysis From Myth to Science: II. *Samudra Manthana*, A Symbolic Chronological Process for Re-establishment of the Human Ecology

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### INTRODUCTION

The science of Ethnobiology has a multi-dimensional approach to understand the human relationship directly with the biological world, interacting through multidisciplinary subjects like Anthropology, History, Sociology, Economics, Commerce, Medicines, Pharmacology, Animal husbandry, Archaeology, Religion, Social customs and culture, Defence and survival, Food and Nutrition, Art and literature, Mythology, Forestry and Agriculture etc (Manilal, 1989). In this context, study of ancient literature is considered as a new dimension in ethnobiological research techniques and a rich source of informations pertaining to Indian heritage (Padhy, 1999). Moreover, the analysis of various mythological facts and religious arts requires serious research (Bhasam, 1977) to discover the scientific theories resting upon them in hidden symbolic forms. Recently we have analysed the mythological picture of *Panchamukhee Hanumaan*, as an empirical representation of ancient animal classification (Padhy et al., 1999). In the present communication an endeavour is made to discover the scientific thoughts concealed within the mythological process of *Samudra Manthana* (Churning of Cosmic Ocean) which is depicted in *Kurma Puraana*. This myth is considered to be of vedic or pre-vedic period, which has occurred when *Bhagawaan Vishnu* took the *Avataar* (incarnation) of a *Kurma* - the Gigantic tortoise (Vitasaxis, 1977).

### THE MYTH AND SCIENCE OF *SAMUDRA MANTHANA*

The ocean is recognised as the residence of Lord *Vishnu* in Hindu mythology. Out of one thousand names of the Lord, *Naaraayana* is one which means 'one, who abodes in water' (*Naaraah* = water + *Aayana* = Residence)

(Padhy et al., 1996). The ocean is otherwise named *Ratnaakara* (source of wealth); its Lord *Varuna* is the father of Goddess *Lakshmi*, the authority of wealth.

As per the myth, *Samudra Manthana*, in order to retrieve certain divine treasures lost during dissolution, was proposed by Lord *Vishnu* to churn the cosmic ocean. The Gods on one side and the Demons on the other, wound the snake *Ananta* as the rope around the mountain *Mandana* as the stick to churn the cosmic ocean (Fig. 1). The process yielded twelve precious objects along with a huge quantity of poison (*Visha*), which would have destroyed the then biota; but rescued by Lord *Ssiva* by consuming that:

The precious objects enlisted alphabetically were as follows:

1. *Airavata* (Seven tusked flying elephant),
2. *Chandra* (Moon),
3. *Dhanus* (Bow),
4. *Dhanvantari* with *Amrit* (The Lord physician of Gods with elixir of immortality),
5. *Koustuva* (Priceless gem),
6. *Paarijaata* (Wish fulfilling tree),
7. *Rambhaa* (Heavenly nymph),
8. *Surabhi* (Mother Cow),
9. *Suraa* (The wine),
10. *Shree* (Goddess of health and beauty),
11. *Ssankha* (The white conch shell) and
12. *Uchchaisrabaa* (White stallion with seven heads).

The occurrence of *Pralaya* (dissolution- ecologically denudation) is a usual phenomenon as stated in Hindu scriptures, that during the transition of one *Yuga* to another, great flood occurs that totally devastates the ecology. Similarly at the end of one *Mahaayuga* (i.e. sum of four *yugas*: *Kretaa* (1728,000 earthly years) + *Tretaa* (1296,000) + *Dwaapara* (864,000) + *Kali* (432,000) = 4320,000 earthly years) cataclysm takes place and at the end of one *Kalpa* (i.e. 4320,000,000 earthly years equivalent to twelve



Fig. 1. *Samudra Manthana* - Emergence of precious objects (1-12, refer text) and *Visha* (13)

hours of *Brahmaa* - the creation power), the creation is squeezed up. In this regard the most authoritative scripture, *Manusmruti* (the first ethical law book for human beings, formulated more

than 2000 BC (?) says:

*Manuantaraanya sankhyaani sargah  
samhaara aeba cha,  
Kreedannibaitat kurute parameshthee punah*

*punah*. (*Manusmriti*, I/80).

Meaning: The *Manvantaras*\*, the creations and destructions (of the world, are) numberless; sporting, as it were *Brahman* (the creator) repeats this again and again (Buhler, 1886).

These mythological predictions of *Pralaya* were not figments of imagination, rather supported by geological evidences. The geologists have identified great ice ages when very thick sheets of ice covered the earth almost to its full extent, led to dissolution. The first of such was expected in the Pre-Cambrian period of Azoic era, 700 million years back; the second one was in late Palaeozoic times i.e. nearly 250 million years back and the latest one occurred in Pliocene period more than half a million years back. An American scientist, Walter Alwares, has proposed that after every twenty six million years, a great cataclysm takes place on the earth, completely eradicating some animal and plant species (Mohan, 1996). Moreover, the recent attempt to explore the submerged *Dwaarikaa Nagari*, the kingdom of *Bhagwaan Sri Krishna* and to discover the Noah's Ark, used during dissolution as described in Bible (Marr, 1998) is a positive attempt to realise the truth behind the myth of *Pralaya*. But, an attempt to churn the cosmic ocean after dissolution, to search the divine treasures which were lost (means they were pre-existing), seems to be symbolic representation of the natural occurrence (mythologically presented as divine endeavour) to recover the ecological objects and factors which were destroyed. The whole process can be summarised as per following steps:

**Step – I. Science:** Dissolution has occurred, as a natural phenomenon, which involved destruction of ecology and created imbalance in nature (environment); **Myth:** Divine treasure (i.e. creation of *Brahmaa*) was lost in *Pralaya* – immersed in (cosmic) ocean- (as it is impossible to churn the physical ocean), the prefix cosmic is added to explain the whole system as more meaningful and scientific (Vitasaxis, 1977).

**Step – II. Science:** The recovery of the ecology has occurred in course of time; **Myth:** The

snake *Ananta* (*Na* = No + *Anta* = end i.e. endless) which was used as churning rope, represents the universal time factor. No one knows when the time has started as is the abstract principle of the universe and when it will end too. The other way of co-ordination is that the snake moves fast as that of the time.

**Step – III. Science:** The progress of the recovery was slow and systematic. **Myth:** The mountain *Mandana* (*Manda* = slow and steady) which was used as the churning stick, represents the natural, slow and systematic evolution of ecological process, as the movement of churning stick never very slow nor fast.

**Step – IV. Science:** The nature got re-established subsequently. **Myth:** The fact is represented by the release of precious objects, which on deep analysis corroborates with various ecological factors discussed later.

**Step – V. Science:** The bio-diversity alongwith the basic factors and the principles of the environment spread up all throughout. **Myth:** As the process was initiated and mediated by Lord *Vishnu* (means *Sarvavyaapi* or *Visswa-vyaapi* i.e. spread all through) who carried the churning system on his back as gigantic tortoise and acted as supporting substratum. Lord *Vishnu* is characterised as the power of maintenance (*Sthiti*) contemporary to Lord *Brahmaa* (Power of creation i.e. *Srushti*) and Lord *Siva* (Power of destruction i.e. *Pralaya*) and these three combinely represent the three ecological principles – creation, maintenance and destruction.

**Step – VI. Science:** The developing trend was a resultant of interacting progressive and retrogressive forces of the nature. **Myth:** *Suras* (Gods-positive powers) and *Asuras* (Demons – negative powers), carried out the churning.

Conversely the entire mythic events can be scientifically summed up as:

*"Dissolution has occurred as a natural phenomenon followed by loss of ecology and imbalance (in nature) which in course of time slowly and systematically got re-established all throughout as a resultant of interacting progressive and retrogressive forces of nature."*

## THE PRECIOUS OBJECTS

The twelve precious objects described above,

\**Manvantara* is the word derived from *Manu*, a time period of  $80672 \times 10^4$  years, the ruling period of one *Manu*. In this context, *Manu* is not reflected as a person rather a geological time period.

which emerged out of the cosmic ocean after churning, were of diversified origin and their existence of integrity seems to be ambiguous. But an introspective analysis of their meaning; their categorisation into different groups indicate that these are the various objects and factors of ecology; represented in symbolic forms, keeping pace with the mythological event of *Samudra Manthana*. Ecologically, there are three prime functional components: (i) Inorganic constituents as air, water and mineral salts termed as abiotic factors, (ii) Organisms such as plants, animals and microbes – the biotic factors and (iii) the energy inputs which enters from the outside (i.e. the sun). The flow of energy in the ecosystem and circulation of the mineral salts in the bio-geo-chemical cycles tagged with the hydrological cycle keeps the ecosystem functional. Keeping the facts in view, the precious objects so emerged during the event of churning can be interpreted as follows:

**A. The Biological Wealth:** It is the assimilation of plant and animal world that represents the biotic factor of the environment, as:

- i) *Paarijaata*: The tree that fulfils every desire (which God *Indra* subsequently planted in his garden), signifies the plant world which fulfills all the basic needs of mankind such as food, clothing, shelter, medicines etc.
- ii) *Surabhi*: The cow of plenty i.e. the mother cow of all cows represents the animal world (Chordates). The animal world is worshiped through the cow in the Indian scenario.
- iii) *Ssankha*: The white conch shell (presented to Lord *Vishnu* blown to herald his victory over demons)- signifies the non-chordate animal groups in which evolution is culminated with molluscs.

**B. The Geological Wealth:** It constitutes the edaphic abiotic factors, represented by the *Koustuva*: the priceless stone or gem (*Mani*) ornamented to Lord *Vishnu* (*Sarvavyaapee*= spread all over) symbolically represents the geological resources either in micro or in macro form spread all over, as the hidden treasure of the earth.

**C. The Flow of Cosmic Energy:** (As per the principle of thermodynamics, energy is the capacity to do work, flows continuously and unidirectional in an ecosystem). It symbolises

*Uchchaisrabaa*: the white stallion with its seven heads (as existence of a horse with seven heads is mythical) scientifically represents the integrated seven colours of the cosmic energy (white light). In Hindu mythology, the chariot of the Sun God (*Soorya*) is pulled by seven horses, which are often attributed to seven colours of light. Biologically the horse never sleeps on the ground and ever ready to run, symbolises the continuous (spontaneous) generation of the solar radiation. Moreover energy is measured in terms of horsepower (HP). All these indicate that grievousness of dissolution, such as continuous heavy rain and flood disappeared and the solar radiation reappeared on the earth as the source of energy for the ecosystem for its revival.

**D. The Hydrological Cycle:** (Flow of solar energy triggered the normal hydrological cycle, which drives the other bio-geochemical cycles) depicts:

*Airaavata*: The winged elephant with seven tusks, whom the God *Indra* used as his mount. *Indra*, in Hindu mythology is known as the king of Gods, who controls the rain, i.e. the Hydrological cycle. The winged elephant (which can fly, never like an earthly one) comparable with the black cloud, which carries the rain and move in all eight directions such as 1. *Poorba* (East), 2. *Dakshina* (South), 3. *Passchima* (West), 4. *Uttara* (North), and their respective corners like 5. *Aissaanya* (North-East), 6. *Agni* (East-South), 7. *Nairuta* (South-West) and 8. *Vaayavya* (West-North) in the sky.

But as the lore (fact personally collected from gray hairs through interrogations) if clouds arise from the southwest i.e. *Nairuta* corner it seldom rains and a prospective agriculture is not expected. In this context, the seven directions of the clouds other than *Nairuta* can be compared with seven tusks of the elephant *Airaavata*. Moreover none other than the elephant has a tusk that can suck huge amount of water and sprinkle it like rain. Scientifically the solar energy makes the water evaporated and/or transpired from the earth's surface and precipitates rain there by re-establishing the Hydrological cycle in the environment.

**E. The Growth of Nature and Biodiversity:** Shree: - She is known as *Lakshmi*, the Goddess of beauty, pleasure and wealth, whom Lord

*Vishnu* married. *Lakshmi* is often attributed to the mother earth bloomed with natural beauty, flora and fauna. The marriage of mother *Lakshmi* with Lord *Vishnu* (*Sarvavyaapee* = spread all over) symbolises the fact that nature spread all over after recovery of biodiversity and hydrological cycle, along with flow of energy in ecosystem.

#### F. The Other Human Ecological and Psychological Needs:

i) Self Protection: *Dhanus* (The most powerful bow, which was with the Gods and given to the *Avataara* (incarnation) *Sri Ram* (of Lord *Vishnu*) to fight against *Raavana* (the demon king in *Tretaa Yuga*). The bow represents the self-protection character of biological system, even though it is only used by human beings. As identified by Hindu sages all the living beings have four essential characters, namely 1. *Aahaara* (to take food), 2. *Nidraa* (to sleep), 3. *Bhaya* (fear psychosis out of which one tries to self protect either by avoiding the reason of fear or by fighting and conquering over it) and 4. *Maithuna* (sex, for enjoyment and reproduction). Out of the above four-foods, sleep and sex are biological and fear is a psychological character. Unless one overcomes the fear psychosis as a means of self-protection, life may be impossible for him.

ii) The Power of Perception: *Chandra* (the moon as a unit of coolness was placed on the head of Lord *Siva* after He consumed the huge quantity of poison, released during the *Manthana process*). The moon is known as the God of mind (*Mana*). Moon also controls the artistic character, affinity for music, art, beauty, marriage, love aspects and mental ability of a person as per Astrological Science (Mahapatra, 1968). A person with an unstable mind is known as lunatic and the disease aggravates during the full moon period. As the growth and development of plant world is controlled by solar radiation, the medicinal property in them gets developed by the rays of moon (Tripathy, 1953). Most of the medicines as per *Ayurveda* are collected on a full moon day (*Poornamee*) or *Pushyaa Nakshatra* (Dash, 1991), the scientific basis of this time co-ordination is under investigation by the authors. Moreover sleeping under direct moonlight is prohibited in *Ayurveda* as it deteriorates the

mental capability.

Man is considered as the supreme creation due to presence of a mental abstract factor '*Mana*' in him, which is not available with any other animal. The feeling of love and compassion expressed by animals, is a behavioral character due to central nervous system and brain; but not *Mana*.

There are also astrophysical evidences that moon is created from earth, but it might have occurred many million years before any life appeared on earth. From mythological point of view, moon is known as the common maternal uncle (*Chaandaamaamaa*) in Indian scenario as brother of mother *Lakshmi* (earth). As a coincidence, both Moon God and Goddess *Lakshmi* are worshiped by Hindus on the full moon day of Aasswina month (Kumaar Poornimaa) as their birthday. In the present analysis Moon symbolises the mind (*mana*) of man essential to make the life full-fledged.

iii) The Objects of Enjoyment (Wine and woman are the top ranking worldly Enjoyment, which induce cravenness in human beings):

- a. *Suraa*: The wine, which is often considered as an object of enjoyment. If some one gets immersed in enjoyment of any sort, he is identified as *Madamatta* (lubidinous, lustful). Wine is a symbol of worldly enjoyment from vedic period till date (Dash & Padhy, 1998).
- b. *Rambhaa*: The heavenly nymph, who became the ancestors of all the celestial dancers (*Apsaraas*). She is a symbol of creative art, music and dance, represent sex for enjoyment.

iv) Good Health and Dream of Immortality: *Dhanwantari*: The Lord Physician of Gods with his container of medicines along with *Amrita* (*a* + *mrita*, *a* is the negative aspect used as prefix before *mrita* means dead, so *amrita* is the elixir of immortality) emerged out of the cosmic ocean. It is the wish of every human to live healthy with a psychological urge of immortality. In this context, an event of *Mahaabhaarata* depicting the question and answer between *Yudhishthira* and *Yaksha* may be referred, which states:

- Q. (*Yaksha*) *Kim Aasscharyam* ? (What is the wonder ?)
- A. (*Yudhishthira*) Day and night men witness the death of living creatures; yet he survives

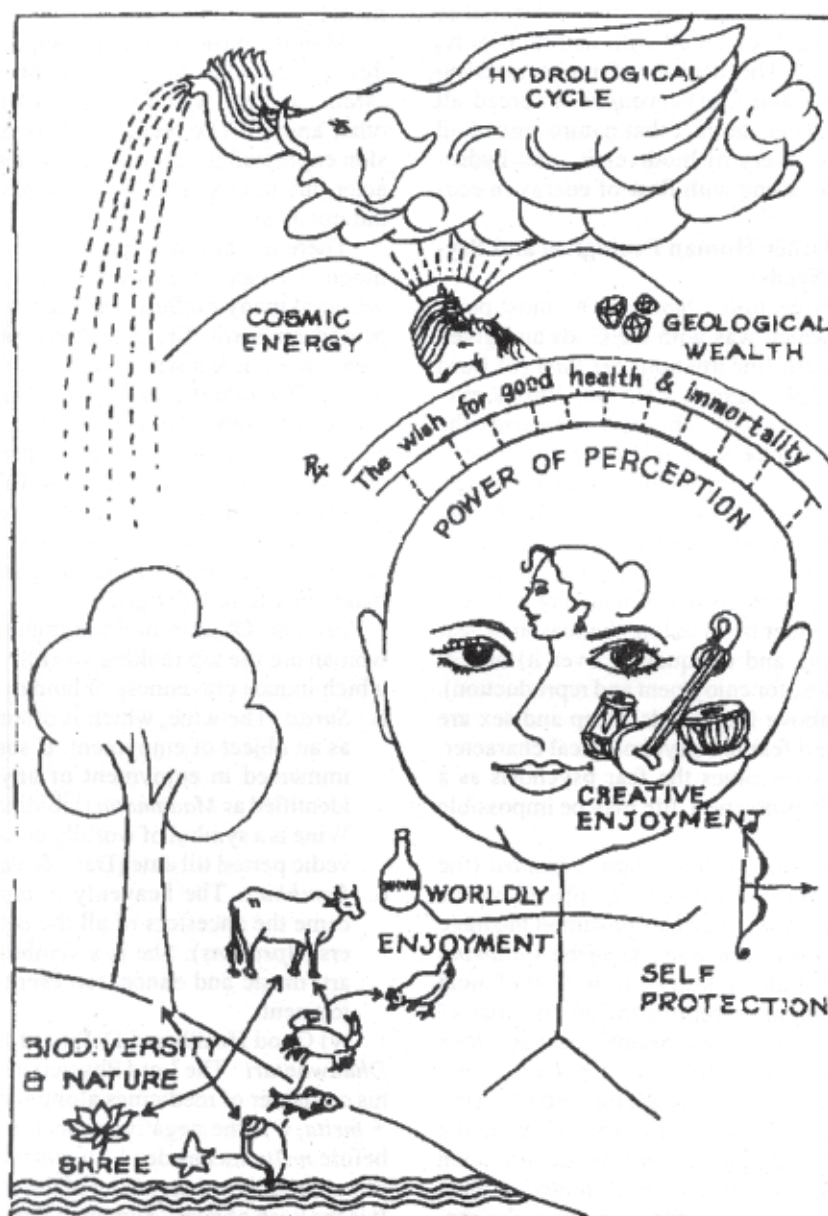


Fig. 2. A hypothetical picture showing the re-establishment of the human ecology after dissolution

with the psychological basis (hope) that he will not die, this is the wonder.

As Lord *Dhanvantari* is the authority of *Ayurveda*, the search for medicaments for good health and longevity is as old as that of vedic age.

## CONCLUSION

The mythological event of *Samudra Manthana* conveys the message that cataclysm takes place periodically (mythologically and

geographically) as a universal phenomenon, which is followed by slow and steady recovery of the nature. A hypothetical picture showing the scientific introspection of the event is depicted in figure 2. It is beyond the imagination as, how the ancient great saints of India, could establish the facts in symbolic forms (Icons) through mythology. The basis of their such comprehension and the scientific ethics behind such, are yet to be explored. In this context, instead of undermining or under-valuing on the basis of considering the ancient science as myth, it should be studied with its scientific perspective, revealing the truth in them and establishing facts coupling with modern thoughts and scientific evaluations. Metaphysically the churning process as jointly performed by Gods (positive forces) and demons (negative forces), to regain the coveted nectar, is a process of their endless struggle that is fundamental principle of the universal equilibrium.

It is beyond doubt that the ocean is a huge storehouse (paradise) of wealth, covers 70 percent of earth's surface, enriched with unique biodiversity. In other words the release of fiery poison during the churning of the ocean, spreads the message that any violent or untoward action (churning being meant as exploitation) against the nature may bring some immediate benefits (as emergence of precious objects); but may lead to serious consequences (like emergence of poison) that questions on the state of ecological homeostasis. The exploration of the nature is essential but not its exploitation as the modern science has already been taken a trend. The emergence of poison is certainly a mythological caution against the non-sustainable use of nature, to whom it may concern- God, Demon or Human.

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**KEY WORDS** *Samudra Manthana*. Retrieve of Divine Treasures. Re-establishment of Human Ecology.

**ABSTRACT** The mythic event of *Samudra Manthana*, which is depicted in *Kurma Puraana*, was a process of churning of cosmic ocean in order to retrieve certain divine treasures lost during *Pralaya* (dissolution). The myth says, the Gods on one side and the demons on the other, wound the snake *Ananta* as rope around the mountain *Mandana* as the churning stick to carry out the process, which did Lord *Vishnu* in His *Kurma Avataara* (Gigantic tortoise) support. There was emergence of twelve precious objects (such as: 1. *Airavata*- the winged elephant with seven tusks; 2. *Chandra*- the Moon; 3. *Dhanus*- the bow; 4. *Dhanvantari* with *Amrit*- the physician Gods with elixir of immortality; 5. *Koustuva*- the priceless gem; 6. *Paarijata*- the wish fulfilling tree; 7. *Rambhaa*- the heavenly nymph; 8. *Surabhi*- the mother cow; 9. *Suraa*- the wine; 10. *Shree*- the Goddess of wealth and beauty; 11. *Sankha*- the white conch shell and 12. *Uchhaishrabha*- the white stallion with seven heads) with huge amount of *Visha*- the fiery poison. The scientific introspection of the myth reveals that the whole process and the precious objects emerged out of it, are symbolic representation to explain the whole event such that: "Dissolution has occurred as a natural phenomenon followed by loss of ecological homeostasis; in course of time slowly and systematically (due to interaction of progressive and retrogressive forces) the nature got re-established; the release of poison is attributed as a caution not to opt any violent or untoward action against nature and for non-sustainable use of it."

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