



Cultural Ecology
Prehistory and Ethno-Archaeological
Context of Indian Rock Art





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Cultural Ecology Prehistory and Ethno-Archaeological Context of Indian Rock Art

With Emphasis on North-Eastern States

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Interface of Ecology and Culture: Indigenous Perceptions of Environment

Bansi Lal Malla

Indian philosophy, irrespective of ethnic considerations, view man and nature in a holistic perspective. With the intellectual development of the human race, man essayed to control nature to his wishes by chanting prayers, after evolving a mental image of some divine person or deity. Manifestation of nature has been interpreted either through symbolic or anthropomorphic or theomorphic forms, or sometimes using metaphors, myths, etc. to define it. The indigenous people of the North-East have wide knowledge of the ecosystem they live in and ways to ensure that natural resources are used sustainably. It is embedded in their wisdom tradition. The construction of sacred ritual practices and participation in secular celebrations are means to mirror a larger cosmic order, as conceived by the indigenous people of North-East India. Many ethno-religious attitudes are associated with the flora and fauna of the area. The inhabitants of this region reflect high accomplishments in the fields of art and culture; art and human life are inseparable for them. A close study of their arts and crafts reveals to us the multifaceted aspects of the people's intimacy with nature.





The Semitic religions and European sciences have developed a world based on anthropic principles. The book of Genesis (Old Testament) states that “God created man in His own form and breathed in him the breath of life and man became a living soul”. Whether God really created man “in His form” or not is still a mystery. One thing is sure that man creates God in his own form and has been doing so from time immemorial. With the intellectual development of the human race, man essayed to control nature to his wishes by chanting prayers, after evolving a mental image of some divine person or deity. This process was named by philosophers as ‘Natural Religion’. At present, anthropology has distanced itself from the sacred science of a man, the natural philosophy. While the anthropocentric or technocentric understanding of the cosmos is limited, the cosmic understanding of culture is boundless. If both the cosmic and anthropic are taken together, one may discern a crucial dimension of the human self-organising system. The traditional vision leaps into the anthropic principle to appreciate the dimensions of the universe. Besides, the quantum theory has taken physics far beyond Newton. Heisenberg’s ‘uncertainty principle’ puts an end to the clear separation between the observer and observed. The paradigms of physics, cosmology and biology are becoming close companions of ancient philosophy and religion. The Indian philosophy, irrespective of ethnic considerations, views man and nature in a holistic perspective. The experience of culture is codified, among others, in its thought-currents, astrology, and *ayurvedic* system of medicine. The same is also embedded in the wisdom tradition of the different indigenous/tribal communities of North-East India. For instance, like many other tribes of India, the different Naga tribes have a rich oral tradition. Starting with the legends of their origin, several folktales of the Ao, Chakhesang, Zeliang and other communities discover the cosmological and mythological bases of their community. Their folksongs and folktales also give accounts of their origin and migration, agriculture, headhunting and lovemaking. The Pochury tribes believe that there is some kind of continuity between man, nature and non-human forces.

COSMIC HARMONY AND HUMAN ORDER

Both, the Indian classical and vernacular traditions are deeply rooted in the theory and concept of *rtam* as the framework in which the process of creation, sustenance and dissolution operates. Its most important meanings include Cosmic Order, Truth, Nature (*Dharma*), Beauty and Continuous Flow. It regulates the cosmos into a systematic whole. Furthermore, this all-inclusive principle of cosmic harmony and human order pervades all the aspects of life—the natural world, the human world, the social world of every day



community life, the moral world, as also, the realms of arts, creativity and architecture. In Indian culture, the manifestation of nature has been interpreted either through symbolic or anthropomorphic or theomorphic forms, or sometimes using metaphors, myths, etc. to define it. The part played by the different primary elements, planets, etc. of nature in the world order and the necessity to keep this order in total harmony with nature has been a key concern of all the indigenous communities, ancient sages and philosophers. They tried to identify the utility of different elements of the universe and tried to preserve them for humanity. An attempt was made either to divinify or explain the scientific import of such elements.

There are many different ways of looking at environments and the interrelationships between humans and their social and biophysical surroundings. The indigenous people of the North-East have a wide knowledge of the ecosystem they live in and ways to ensure that natural resources are used sustainably. Therefore, the indigenous knowledge which has been accumulated over centuries has potential value for sustainable development. They have maintained a close living relationship to the land, there exists a cooperative attitude of give and take, a respect for the Earth and the life it supports, and a perception that humanity is but one of many species. The knowledge about the environment had been central to human survival throughout history. Survival was virtually impossible in hunting and gathering societies without good knowledge of forest and wildlife – plant and animal species, their growth environments and habitats, growth cycles, behaviour of animals in relation to their environment, specific characteristics of plant and animal species and their uses. In the same way, farming societies depended upon a keen understanding of the local natural environment and ecological processes leading to the regeneration of environmental resources, e.g. soil fertility and water. By interacting with their immediate environment over centuries, local people have gained an enormous volume of knowledge about their environment. Their knowledge involves not only the environmental resources available within the locality but also how to manage these resources sustainably.

In the traditional ecocentric societies, the seed, soil, crops and seasons give order and structure to the yearly rhythm of human life. The calendar that gives temporal structure to community life is most often based on the cycle of seasons, caused by the earth's revolution around the sun. In different cultures the New Year's Day marks the intrinsic link with the annual rhythm of the solar cycle. There are rituals to celebrate each event of the agricultural cycle, which set the farmers to find harmony with the fields and seasons. In the human life-cycle from birth to death, each phase is sanctified in the embrace of nature's flow. While biological rhythms mark phases of life, the rituals that accompany them bring about a symbolic transformation of the individual. *Rta* is embodied in the ecological principle of inter-dependence, balance and interrelationships of all life. While *rta* denotes order and its opposite manifestation *anrta* is disorder, both mutually dependent principles form two sides of a single cosmic process. The seasonal cycles (*Ritu Chakra*), through spring-time and harvest, are grounded in the principle of harmony and world order. *Rta* sustains the eco-balance of nature. Humans do not stand apart from nature but are a part of the larger cosmic flow. This integral bond between humans and nature



became a basis for the seasonal celebrations, stimulated with prayers, incantations and sacred performances. The construction of sacred ritual practices and participation in secular celebrations are means to mirror a larger cosmic order as conceived by the indigenous people of the North-East India also.

TOPOGRAPHY AND SETTLEMENT PATTERNS

The geographical features of all the eight North-Eastern states of India account for the striking similarities in the *modus operandi* of natural resources use for productive purposes. About 70 per cent of the total area of the region is hilly and nearly 50 per cent is under forests endowed with rich biodiversity. About 200 tribal communities live in these hilly areas. In Arunachal Pradesh, the entire inhabitation of the Hill Miris is covered with dense forests and criss-crossed with high hills, steep gorges and several rivers. The Apatanis, being inhabitants of the fertile plateau, have made best use of the land for terraced cultivation. The Khowa communities are found on the mountainside on both sides of the Rupa river. Pine trees beautifully line the Khowa habitat and lofty mountains surround the area. Oak forests line the upper reaches of their land. The Wancho community occupies the western part beyond the Tisa river, which is mountainous and covered with dense forests. The name of the Dimasa community originates from the three words 'Di' (water) and 'Ma' (big) and 'Sa' (son), literary meaning the son of a big river. The layout of a Dimasa village is called *Nablai*, which means a cluster of houses. Their houses are artistically built in two rows facing each other and leaving sufficient space in between. In Manipur, the Aimol houses are constructed a little above the ground on piles and are generally located on the ridges of hills. The settlement pattern in Meghalaya is based on the geographical and weather conditions prevailing in this eco-zone. Their villages are settled on the slopes of hills and hillocks. The Raltes are the hill people inhabiting three districts of Mizoram (also living in Manipur and Burma). The Riangs have their settlements in the valleys along the rivers Lengai and Teirei in Aizawl district and the Karnafuli flowing in the western part of Lunglei and Chhimituipui districts. Their houses are arranged in linear rows on both sides of narrow village paths. In Ao settlements of Nagaland, the houses are constructed along the mountain ridge or on platforms above the ground and arranged in a congested manner near their streets. Tripura, topographically, comprises hill slopes, lungas, flat lands, rivers and lands. The tribal settlements are distributed on hill slopes or hillocks, and are often surrounded by trees or forests.

The tribes of the North-East have passed through different stages of economic structures. Most of them practiced shifting cultivation in order to produce their food crops, besides vegetables, oil seeds (mainly sesame), some tuber crops and their main fibre crop, cotton. An important occupation was the collection of forest products like timber, bamboo, thatch for building houses, medicinal plants, lac, wax, ivory and some other minor forest products. Apart from agriculture, horticulture, animal husbandry, simple manufacturing activities at the household level also formed the base of the tribal economy. They have been practicing cultivation from time immemorial. They practice three types



of cultivation depending upon the type of cultivable land, topographical condition etc. In all the States of North-East India, the people cultivate rice as their staple food. The ecology of their rice fields in the region is quite diverse, but can be divided primarily into upland, lowland and deepwater ecosystems. On the basis of water resources, there are two types of fields, viz. irrigated and rainfed rice fields. In the plain areas like Assam, plough cultivation or settled cultivation is practised. Terraced cultivation is mostly found in Nagaland, especially among the Angami Nagas. Shifting cultivation is practised predominantly in the rest of the hilly parts of North-East India. Among the Nishis, wild meat occupies an important place in the village economy. A large portion of their rural income is derived from forestry. Among Mizos, the bulk of their income is derived from other employment opportunities (self and government) and the agriculture sector, followed by forestry. The rural economy of Angamis seems to conform to the general economy and employment of rural India, which is largely agriculture based. The rural economy of the Apatanis shows equal dependence on agriculture and forestry sectors. The economic life of the Halams in Tripura centres on the hills and forests, which are abundant in natural resources. The traditional occupation of the Murasing community is shifting cultivation on the hill slopes. Bamboo plays a very important role in the life of different communities of the North-East, particularly for providing materials for various basic needs, as well as for paper-pulp industries.

Fish has been traditionally harvested in the North-East region of India. A fish crop is traditionally raised from the paddy fields of rainfed lowlands (both shallow and deepwater). In many areas, irrigation-fed rice fields have also been adapted locally by the farmers to include fish farming. The traditional rice-fish production system plays an important part in the socio-economic condition of the people of the area. The Apatanis have developed a unique system of fish farming in their wet-rice croplands. They use available natural resources such as bamboo, cane, pine, *Phragmites* sp. and *Castanopsis* sp. in order to check soil erosion, to conserve soil fertility, to cultivate varieties of rice landraces, and to practice pisciculture in an integrated manner.

INDIGENOUS BELIEF SYSTEMS

The different tribal communities of the North-East profess different beliefs and have their own festivals, mainly connected with the seasonal cycle. Animal sacrifices are invariably associated with the most of the festivals. Feasts, songs and dances in traditional costumes form a major part of these festivals. A community can be easily identified with their dresses and ornaments. The festivals associated with agricultural activities in Arunachal Pradesh are *Losar*, *Langben*, *Myokun*, *Gumkum Gumpka*, etc. The *Sabo* festival is observed by the Khowa community to increase the fertility of their land and for the betterment of the community as a whole. A spring dance festival *Nora-chinga Bibu* is one of the most important festivals of the Mishing community. The different tribes of the State worship *Donyi-polo* (The Sun and Moon god), and also propitiate different spirits, who are considered responsible for the different phases of life, ranging from birth to death. The adoration of natural forces like the earth, moon, sky, sun, water



and the mountains is a common practice of most of the communities of the North-East. In the Tagin community, folk songs on the origin of the earth and water have survived orally. The Wancho community worships natural forces. They celebrate the *Oriya* festival for good health and a good harvest for everyone. One of the main festivals of the Zakhrings is *Sungkbnu* and is associated with harvesting of the new food grains. *Bibu* is the chief colourful festival in Assam. In the *Kati-Bibu* autumn festival, the farmer plants a small bamboo in the field and lights an earthen lamp at its foot for the protection of his crop. He may also whirl a piece of bamboo and chant certain *mantras* to protect the maturing paddy from pests. Some persons light the *akash bauti* or the sky-lamp hanging from a tall bamboo. The Kacharis put lamps at the foot of the *siju cactus*, symbol of their chief god *Bathou*, in the garden, the granary and in the field. The supreme deity of the Bodo-kacharis is *Bathou*. Every household is seen planting a *siju* tree along with a sapling of *jatras* and a *tulsi* in the northern corner of their courtyards and adorning it. They worship both the benevolent and malevolent deities like *Mainao* (goddess of wealth), *Madai*, etc. The Karbis observe festivals like the *Rangker*, which is socio-religious in nature, and *Hacha*, which is social and celebrated after the harvest. The Rabha community celebrates the harvesting festivals like *Rangali Bibu* and *Bhogali Bibu*. Their *Maraipuja* is a community festival for seeking blessings against all fatal diseases, natural calamities, and also to allay fears from serpents during the year ahead. The traditional belief system of the Anals (Pakan) is centred round the belief in a supreme being referred to as *Asa Pawan*, the creator of the universe. They perform the *Kandom* dance during the *Akam* festival as a mark of victory after a successful hunt. The Koms traditionally believe in *Pathen*, the supreme god and another god named *Lengjai*. The Lyngam community adorns and offers sacrifices to the forest god, god of illness, god of cultivation, etc. Some of these communities were animistic in their religious belief, practices and norms of worship, especially ancestral worship. The Garos celebrate *Wangala*, their most important festival to appropriate *Misi sajong*, the God of agriculture. The Hualngo people have three main festivals (*kut*). The *Chapchar kut* is associated with the acquisition of *jhum* land, the *Pawl kut* is celebrated after harvesting, and the *Fanger kut* is dedicated to the memory of departed souls. The Sangtam tribe of Nagaland believes that there are several categories of supernatural beings such as the creator of the earth, and a large number of benevolent spirits. They also believe in the concept of the soul. The Oraon community believes in nature worship. Their major festivals are *Sarbul*, *Sohari*, *Karma* and *Jitia*.

Many ethno-religious attitudes are associated with the flora and fauna of the area. Bamboos are integral to the culture of whole North-East region. The ‘sacred groves’ extensively maintained by traditional societies demonstrate spiritual values attached to biodiversity. The concept of sacredness of plants reflects the unity of life in nature, and in the sense of communication and fellowship with the divine as the centre and source of life. The high diversity and complexity in the structure of home gardens in the Barak Valley of Assam fulfil a range of social, economic and ecological functions. The technique of management and high diversity of home gardens reflect the wisdom of traditional culture and ecological knowledge that have evolved over the years. The “conservation

through use” approach in home gardens is an element of complementary conservation strategy. The indigenous knowledge of nature has ensured the survival of many people in fragile habitats. But it is a knowledge centred not on exploitation but on the harmony of the natural world. In North-East India, shifting cultivation is a sustainable economic system that need not necessarily harm the environment. They use their intimate knowledge of plants, soils, animals, climate, and seasons, not to exploit nature but to co-exist alongside it. The success in hunting, fishing, trapping, and gathering plants for food and medicinal use requires acute observation, accumulated knowledge, and understanding of the natural environment, its processes and indicators.

In North-East India, hunting has a religious and cultural significance. For example, the religious ritual of the Apatani community includes generous offerings of the smoked Indian palm squirrel (*Funambulus palmarus*), northern palm squirrel (*F. pennant*), flying squirrel (*Hylopetes alboniger*) and Himalayan squirrel (*Dremomys lokriab*). The Apatani community also sacrifices the Assam macaque (*Macaca assamensis*) to propitiate their deity during their annual spring festival, “*Morum*”. The festival’s feasting includes a generous amount of Indian muntjac (*Muntiacus muntjak*) and wild boar (*Sus scrofa*) meat. The great barbet (*Megaliama virens*) is especially served to entertain the special guests. The Nishi priests decorate their headgear with Asian black bear (*Selenarctos thibetanus*) skins and a pair of hornbill tail feathers. Other community members adorn their caps with hornbill beaks, specifically *Aceros nipalensis*, and the tail feathers of a pair of greater racket-tailed drongos (*Dicrurus paradiseus*) and/or lesser racket-tailed drongos (*D. remifer*). In Arunachal Pradesh, the Mithun (*Bos frontalis*), a semi-domesticated animal, plays an important role in the socio-cultural life of the people.

NATURE’S PHARMACY

The land is the source of life – a gift from the creator that nourishes, supports and teaches. The indigenous people do not consider their land as merely an economic resource. Their ancestral lands are literally the source of life, and their distinct ways of life are developed and defined in relationship to the environment around them. They know the extent of their lands, and they know how the land, water, and other resources need to be shared. They fully understand that to harm the land is to destroy themselves, since they are part of the same organism. Like many other traditional societies of the world, the people of North-East India also classify soils, climate, plant and animal species and recognise their special characteristics. For them, the trees are a form of nature that represent life and the sacred continuity of the spiritual, cosmic and physical worlds. The physical properties are combined with supernatural or sacred ideas, the beliefs that surround a tree’s connection with what constitutes religion in different cultures. The different communities of North-East India use plant drugs to cure fevers, bronchitis, blood and skin diseases, eye infections, diabetes, high blood pressure, etc. The Kameng and Lohit people in Arunachal Pradesh crush a bulb of the yellow Himalayan fritillary (*Fritillaria cirrhosa*) into a paste to relieve muscle pains. It has now been confirmed that the presence of a chemical similar to cocaine in a related *Fritillaria* plant brings relief



from muscular pain. Growing evidence of plant-based contraception is available among many tribal peoples. Arunachal Pradesh also produces an important medicinal plant called *Mishmi teeta* (Copin teeta). For centuries, the Apatanis had kept alive a self-managed system of traditional medicine that was mainly based on herbal remedies. The use of above ground plant parts was higher (80%) than below ground plant parts for curing ailments. Of the above ground plant parts, leaves were used in a majority of the cases, followed by fruits. They used the different below ground plant forms such as roots, tubers, rhizomes, bulbs and pseudo-bulbs for curing ailments. The Garos, in general, make use of indigenous herbal medicines, known as Achik sam. There are a few Garo medicine men (*ojba*), who are experts in healing fractured bones. The Rabhas of Goalpara district in the south-west of Assam put certain leaves in the cattle shed as a preventive for cattle disease. They also squirt water sanctified with *tulsi* leaves on the cattle sheds. Men take bitter food cooked with dried fish as a precaution against diseases. The Rabhas of Dudhnai prepare a food known as *pithali-sak*, a combination of strong-smelling medicinal plant, broken rice and *khar* or *alkali* prepared from banana trees. They put a little of it at the door of their cattle-sheds. Among the gods and goddesses worshipped by Rabhas, the forest goddess Kansa is also included. Trees offer protection from both physical and spiritual illnesses through their association with the divine. Certain tribes in India believe that nothing is more effective as protection against evil and spiritual problems than carved wood offerings.

Even several animal species are popular among the local communities for their role in traditional medicines. Among the Mizos, the flesh of the Assam macaque (*Macaca assamensis*) is associated with relieving delivery pains and is also believed to aid the development of the infant while inside the mother's womb; bats are supposed to cure asthma; the gall bladder of the Assam black bear (*Selenarctos thibetanus*) heals jaundice; and the liver of the hoolock gibbon (*Hylobates hoolock*) kills malaria parasites. Angamis consume the hoopoe bird (*Upapa epopos*) to alleviate male impotency.

INDIGENOUS KNOWLEDGE AND SCIENCE

The ecological issues in sustainable development are tied up with social, economic, anthropological and cultural dimensions. The environment lost its priority in education when traditional informal education was replaced by modern formal education during the colonial period. The people in subsistence economies produce to meet their family needs without attempting to dominate nature or exploit it excessively. They developed technologies which act in harmony with nature. The scientists explore nature and societies in order to identify laws which describe relationships between various phenomena and seek explanations for the identified relationships. Subsequently, they build theories which are then used for making predictions and designing technologies – the practical applications of knowledge. The local people too, similar to scientists, explore nature and societies within the geographical boundaries of their communities but, unlike scientists, they do not search for detailed explanations. Therefore, the identified relationships mostly remain as beliefs. As long as the beliefs perform to the level of their expectations, it is



not necessary for them to seek rational explanations. Hence, unlike science, indigenous knowledge is full of beliefs which have not always been necessarily explained in rational terms. The indigenous knowledge has value and validity. It provided the basis for much of modern medicine; centuries of knowledge of the herbal list accumulated in the early writings of travellers, clerics, and natural historians. There are even some elderly people in different communities of the North-East who can forecast weather precisely and correctly. The occurrence of floods, even its magnitude and duration, are predicted by natural signs (eco-indicators) such as the movement of ants, the appearance of certain species of plants, flowers, the behaviour of an insect and the actions of birds and animals. The indigenous people have deep knowledge about the utility and importance of the local flora and fauna in their day to day life. They have clear cut perceptions about their environment and the features associated with it. The local villagers maintain the community forests better than done by the governmental agencies. In Arunachal Pradesh, about 70% of the state forests are being maintained by the local population. The only hope for a healthy response to worldwide pollution, deforestation, and dehumanisation lies solely in the wisdom tradition.

The basic tenet that science recognises is that so far no known scientific theory or law constitutes the absolute truth and thereby no such law can be considered as closed to questioning. During the course of the evolution of science, it was classified into different divisions like Physical, Chemical, Biological and Mathematical sciences, which were further divided into several branches. As knowledge expanded, all the branches overlapped one another and thereby there were no boundaries. A holistic view of science is gradually emerging where one branch impinges on the other. It has given birth to new interrelated and interdependent categories like Environmental, Space and Cosmological sciences, which encompass practically all other branches. The immediate need is to build bridges between science, technology and spirituality for sustainable development and devise ways to live in harmony with nature. All this would require balancing the pace of social and biological evolutions in humans; otherwise we would merely be machines of bones and flesh, divorced from the rich heritage of the past.

TRADITIONAL ARTS AND CRAFTS

Art and human life are inseparable. The indigenous people of North-East India reflect high accomplishment in the fields of arts and culture. Not only anthropologists and art historians, but enlightened common people too have been greatly impressed by the rich heritage of traditional technologies and art forms. The Nishi community used to extract yarn from a local plant known as *teno*, and used the indigenous loom known as *agichomden* for weaving. The Sulung girls weave clothes on the *mpai* (loom) with threads obtained from an indigenous shrub known as *hkbek*. The indigenous devices of the Bodo Kacharis for preserving seeds and digging dongs are widely acclaimed. In North-East India, the artistic designs on colourful dresses, excellent wood carvings, the varied types of products made of cane or bamboo such as winnowing fans, bamboo mugs, bows and arrows, the unique cane bridges on turbulent rivers, the handmade and



beautifully painted potteries, varied types of agricultural implements, especially the one used for shifting cultivation, and wooden and bamboo huts further prove the people's high sense of art and aesthetics. The traditional technologies can be classified from more than one perspective, such as the raw material used: wood, cane, bamboo, cotton, metal, stone, etc; or the function they have: hunting, agriculture, household use, etc. Basketry is an ancient craft, associated with human culture from the hunting and food gathering stages. The Karbis have various traditional skills in preparing medicinal plants, hunting, construction of houses and making of musical instruments. The people of the North-East are great lovers of music. The musical talent of the people can be seen in their ingenuity in making unique and original musical instruments such as drums, tablas, flutes, mouth organs, clarinets, harmoniums, guitars, trumpets, fiddles, leaf instruments, etc. A close study of these instruments reveals to us yet another aspect of the people's intimacy with nature.

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