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IN SEARCH OF THE TREE SPIRIT:
EVOLUTION OF THE SACRED TREE (FICUS RELIGIOSA)

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BY

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A C K N O W L E D G E M E N T S

In presenting this thesis, I am paying homage to several traditions of knowledge and those teachers and individuals who have contributed to my understanding of this knowledge. In turn, I hope this work will help to further these traditions and honor my predecessors; may any merit from this action be dedicated to all beings. In the discipline of Geography, I am indebted to Professor John Street for "grounding" me in the man-land tradition, and to Professor Brian Murton for getting my interest in cultural landscapes "off the ground." To Professor Leslie Sponsel (Anthropology) I owe thanks for his rigorous but "humane" insights into human ecology. My deep gratitude and respect is extended to the Venerable Tenga Rimpoche of the Kagyu lineage of Tibetan Buddhism and Dr. Mana Bajracharya, Chairman of the Nepal Ayurveda Association, for their benevolent guidance and teachings in Sanskrit-Buddhist theology, ritual, art and herbal medicine. Also, many thanks are due to those kindred spirits, Glenn Hufner and Roger Cripps, for sharing their inspiring vision and appreciation of the natural world. My unbounded gratitude goes to Laura for her constant support, wisdom and devotion. The writing of this thesis was made possible by a grant from the Environment and Policy Institute of the East-West Center, Honolulu.

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I. I N T R O D U C T I O N

This thesis investigation, as suggested by its title, is a search for Something presumed to be missing, lost, forgotten or perhaps concealed. Catalyzed mainly by an urgency to seek a solution to the present universal problem of increasing deforestation, or "desacralization" of the environment, this investigation is a search for explanation and integration, dedicated to recovering that ideal or rationale which led to a successful form of tree protection known as the sacred tree.

On the study of the sacred tree, James Fergusson (1868:vii) remarks:

"My conviction, too, is that the subject will well repay any trouble that may be bestowed upon it, for if I mistake not it is the oldest--it was at one time the most prevalent, and it is now the most curious of all those forms of worship through which man ever attempted to approach or propitiate the Divinity."

Sacred trees are universally occurring religious phenomena: they have been attested in virtually all Old and New World cultural landscapes (Frazer 1940; Hughes 1983; Philpot 1877; Russell 1979). Invariably, they owe their spiritual potency to the once widely held belief that the tree is the home, haunt or embodiment of a spiritual essence. In all the world's early mythologies and classical

literatures there are references to the spirits who inhabited the vegetative world. Knowledge of the proper code of conduct for relations between man and these spirits was seen as necessary to ensure proper functioning of the world. The belief in a spirit-inhabited tree has left persistent, innumerable traces in ancient art and literature, and survives in present times mainly through traditional belief systems as a form of popular religious practice.

An essential characteristic of the sacred tree is its religious symbolism, which allows it to be perceived in terms of both human existence and cosmology. As a religious symbol, the sacred tree has existential value, for it is a manifestation of life that unveils a structure of reality; at the same time its cosmological value gives meaning to human existence on the level of ultimate reality. An investigation of the sacred tree, then, implies that one might be able to decipher its message by examining the continuity between the structures of human existence and cosmic structures. Germane to this investigation, the sacred tree also represents the incorporation of these structures in a tradition of knowledge that directly concerns the relationship between man and his environment.

An examination of the evolution of the sacred tree necessarily involves a morphological as well as an historical investigation of its inherent structural symbolism in order to elucidate the existential situation which has made

its formation possible. According to Eliade (1959), all expressions or conceptual formulations of religious experience are embedded in historical context, and consequently they may be regarded as "historical documents" comparable to all other forms of cultural data. Therefore, an analysis of the existential situation of the religious symbolism embodied by the sacred tree would include a consideration of several heterogeneous, but structurally and historically interlocking aspects. The search, then, for symbolic structures is not based on a method of reduction, but rather one of integration.

The sacred tree, in terms of its protected status as a biological entity, is a manifestation of a socially exercised restraint on the utilization of a particular natural resource. In order to understand the conditions and circumstances under which human society evolved this method of resource utilization, it would seem necessary to trace this development in terms of cultural evolution. The assumption here is that a rationale might be found for the cultural evolution of tree protection by tracing the development of symbolic language and the cultural transmission of knowledge. Because the process essentially involves a boundary decision about a commonly held resource, it is necessary to determine the attitudes and values which led to this differentiation. At the same time, because the sacred tree is part of a terrestrial environment, it would seem necessary

to examine the changes in this environment through time and their possible influence on the decision-making process.

To approach the study of the sacred tree in its totality, then, presupposes the study of man and his situation in the world, not only in an historical context, but also within an environmental context, for at the root of this particular phenomenon lies the experience of sacred "space." Variants of sacred tree symbolism have mostly been examined and explained because of the different religio-historical circumstances in which they occur. However, because the sacred tree symbolically reveals itself as a "cipher" of the world grasped as a living reality, or the "spiritual as lived," it is reasonable to hypothesize that its specific meaning also derives from the particular historico-ecological circumstances in which it arose.

Geography, which has as one of its particular concerns the interaction between humans (as bearers of culture) and their environment, offers several important methodological approaches which might be of relevance in aiding the understanding of the evolution of the sacred tree. It is one scientific discipline that has recognized the validity and efficacy of research oriented toward an understanding of traditional belief systems as embodiments of environmental knowledge (Murton 1982). Brookfield (1964) has suggested that geographers could only uncover processes if they analyzed values, beliefs and social organizations. Several

cultural-historical geographers, for example, have focused their studies upon particular landscape phenomena and compared the evolution of attitudes toward these features through the literature, art, folklore and behavior of various cultures (e.g. English 1968; Glacken 1967; Jackson 1983; Karan and Mather 1976; Loderick 1982; Tuan 1967, 1968, 1970).

Writing in the context of cultural geography, Sopher (1967) proposed that geographers could study religious systems to determine to what extent they or their component elements are an expression of ecological circumstances. The concept of geopiety, espoused by Wright (1966), has been a core concept in all ancient civilizations, and their cultural histories often bespeak religio-ecological principles which are relevant to modern studies in ecology and conservation. Remnants of these geopious sentiments still exist today within the traditional belief systems of various cultures--only the genii have to be restored--however, only a few scientists have tried to understand the unique environmental perspective they hold (e.g. Bilsky 1980; Fickeler 1962; Firey 1945; Graber 1976; Hughes 1975, 1981, 1984; Issac 1961, 1965; Spring and Spring 1974; Wood 1985).

The sacred tree has been studied by historians of religion (Hastings 1925; Eliade 1952; 1957, 1959), archeologists (Fergusson 1868), art historians (Coomaraswamy 1971; Sinha 1979), folklorists (Crooke 1896; Gupta 1971);

Sengupta 1980), anthropologists (Frazer 1926, 1940; Russell 1979; Tylor 1958), psychologists (Huxley 1974; Jung 1964), philosophers (James 1966; Philpot 1897), botanists (Condit 1947; Gadgil 1983, 1985; Galil 1984; Pei 1985; Randhawa 1964, 1976), foresters (Collis 1954; Rathakette et al. 1985; Westhoff 1983), environmental historians (Hughes 1975, 1981, 1984; Taylor 1979) and geographers (Issac 1965; Stilgoe 1982; Tuan 1974). While these scholars present a comprehensive perspective of this particular form of religious symbolism, based on their respective source materials within the limits of a particular discipline and its methodology, they often fail to incorporate this information into larger theoretical models.

In this study of the evolution of the sacred tree, an integrated approach will be attempted based on the findings of researchers from several disciplines, with the goal of obtaining a more composite explanation of this particular phenomenon. One particular species (Ficus religiosa) of the sacred tree was specifically selected for illustration because it allows a narrow focus but at the same time is universally representative. Its evolution, as a biological entity, landscape phenomenon and religious symbol, will be traced within the contexts of human evolution and the evolution of landscape in the geographical boundaries of North India. Ancient art, religious texts and paleoecological, paleobotanical and paleoclimatic evidence will be considered

in the framework of a combined historico-cultural and historico-ecological analysis. In addition, the reader should be reminded that throughout this literary excursion, the main object of this search is to recover the Tree Spirit.

I I. R O O T S

The relationship between man and the sacred fig tree is the story of perhaps the oldest and most intimate union between the human species and any other form of life. From its roots deep in the shadowy dawn of human existence and thought, it has evolved as a central and firmly established feature of man's physical and conceptual universe. We shall explore the conjecture that the phenomenon of the sacred fig tree is but a natural development conditioned by the very soil from which it has arisen, as well as by elemental conceptions of the creative life-renewing forces acting at the center of the cosmos.

Our story begins several million years ago in the primeval forests of the sub-Himalayan region of what is now Northwest India. This place in time serves as the starting point for a discussion of the historico-geographical evolution of the sacred fig tree, for it is here that we might find the common origin of both the man and the tree connected by this unique institution. Although it is difficult to definitely establish the foundation of this early man-nature association, based, as it is, only on evolutionary theories and scattered fragments of paleontological evidence, a certain co-evolutionary picture emerges.

Current tectonic theory about the geological history of North India suggests that the great arc of the Himalayan

ranges stretches over the fracture zone between the crustal plates of the peninsular Subcontinent (the Indian plate) and the Tibetan plate (Cool 1981:21-22, Kalapesi 1980:11). These plates were once separated by a great Mesozoic middle sea, the Tethys, through which the warm currents of the Indian Ocean flowed to Western Europe and along whose shores once grew the Nipa palm (Ammal 1956:324-325).

It was the thrust of the Indian plate northward toward the Tibetan plate, possibly following the break-up of the great southern continent of Gondwana, which gradually narrowed the distance separating them and displaced the sea. Eventually, when these plates clashed during the Eocene, some 60 million years ago, their coastal edges became interlocked and the folding of the Himalalyan ranges began. As a result of the Himalayan thrust, a trough 15,000 ft. deep was formed, in which the alluvium of the great rivers accumulated in time to form the fertile Indo-Gangetic Plain.

Little is known about the original flora, but quite probably it grew from swamp or marsh-like conditions (l.c.). Corner (1964:151) imagines that such vegetation may have developed as a dwarf forest of rosette trees in the open where new soil was forming by river banks or on landslips:

"These original rosette trees were either shade-growths, as some are now, or sun-growths in the open where most of such forms may still be found in various improvement, as the common large-leaved saplings and moderate-sized trees of such as Cecropia, Ficus, Macaranga, or Hibiscus."

The most important group of fossil tree species found are those characteristic of a wetter tropical climate (Meher-Homji 1977:115). Fossil leaves identified as belonging to the species Ficus religiosa have been discovered in Tertiary rocks of the Kasauli range in the Western Himalaya (Mohan 1933 in Puri, et al. 1983:235).

By the time the Himalaya had attained a height of several thousand meters, the climates of the world were changed by this barrier. Paleoeecological and paleogeographical evidence suggests that southwest of the Himalaya a dessication occurred by which the dense rain forests were replaced by dry deciduous woodlands, brush forests or savanna (Kennedy 1980:393). Coincident with this change was the adaptive radiation of higher primates into marginal forest and parkland habitats. It was also at this time, at the end of the Tertiary Period, that the apes which lived in the more open forest began to come to the ground to move from tree to tree grasping their branches, and gradually started to walk on two legs. Judging from the large number of fossils found in the Siwaliks, Northwest India was a great breeding ground of anthropoid primates during this period (Ammal 1956:325).

Present among this group of apes was Ramapithecus punjabicus, Gigantopithecus bilaspurensis and Sivapithecus indicus (Lukacs 1984:3-10). Sivapithecus, from whose dental morphology an eclectic frugivorous and gramnivorous diet is

inferred, may have been opportunistic in its habitat utilization of a broken forest/savanna ecotone. On the other hand, the functional dental morphology of Ramapithecus and Gigantipithecus suggests a less eclectic, predominantly gramnivorous diet, so that these species had a less flexible pattern of habitat utilization and probably foraged mostly in the open woodland or savanna. This fossil evidence tends to support the theory of the importance of dietary patterns in molding anatomical structures and influencing terrestrial adaptation.

Milton (1981:535-545) reminds us that "proto-humans did not evolve in the savannas, but rather came gradually to them from tropical forests;" consequently, "the hominid line represents an intensification of what must have been a pre-existing trend in primate evolution [through] millions of years of adaptations to forest conditions." She presumes that the ancestral line leading to hominids had been oriented strongly toward the efficient location of sessile plant resources, first in the tropical forest environment and then later in a savanna-mosaic environment.

A trend in increased cranial capacity can be observed, for example, in primate groups strongly dependent on patchily distributed plant foods (i.e. fruits) in tropical forests which require foraging strategies based on advanced mental abilities such as memory and learning. Selective pressures related to an increased efficiency in exploiting

this type of diet was the most likely factor involved in this cerebral expansion. Similar selective pressures might have produced a primate line even more strongly dependent on the development of mental abilities in a savanna-mosaic setting, where climatic or other environmental change may have altered the resource base such that new foraging behaviors were favored by selection (l.c.).

About one million years ago, after the final rapid upheaval of the Himalaya had subsided, the natural environment began to undergo additional major changes with the advent of the Quarternary Period. This was a time of successive alternating cold and warm periods of several glacial and interglacial ages (see Figure 1). The changes between these periods in relation to the evolution of the Hominidae in India have not been well explained (Ammal 1956:325). Undoubtedly, early hominoid primates in India must have had to develop physically, intellectually and socially in adapting to the flux of deteriorating environmental conditions. In natural environments ranging from dry to humid and from highland to lowland, some may have evolved to Australopithecus, however, the fossil evidence in North India for this development is lacking.

Although it is impossible to determine when humans (as Homo sapiens) first appeared on the scene in India, it has been suggested that, as naked animals, they could have arisen in a tropical or subtropical forest environment

CLIMATIC PHASES OF THE UPPER PLEISTOCENE IN THE MEDITERRANEAN REGION (Presumably applicable also to N.W. Indo-Pakistan)

Years before Present*	PHASE	Climate compared to that of today
20-10,000	LATE GLACIAL	Drier & cooler
65-20,000	FULL GLACIAL	Drier & colder
75-65,000	EARLY GLACIAL	Moister & cooler
85-75,000	MOIST INTER-GLACIAL	Moister & warmer
95-85,000	DRY-INTER-GLACIAL	Similar

*Dating is highly approximate

Adapted largely from Butzer, *Environment and Archaeology*, 1963, p. 38

CLIMATIC FLUCTUATIONS, HUMAN EVOLUTION, AND CULTURE TYPES DURING THE QUATERNARY PERIOD OF GEOLOGIC TIME.

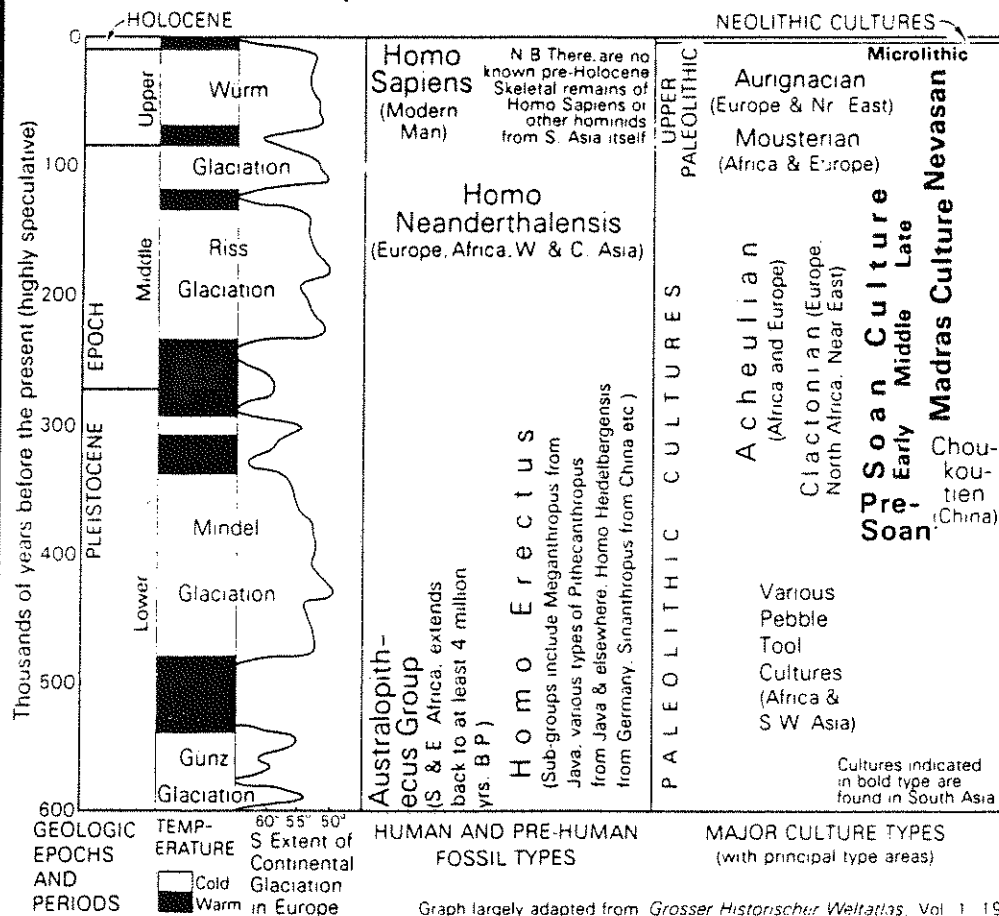


Figure 1. Climatic Fluctuation and Human Evolution
Source: Schwartzberg 1978, p.7

around the Riss-Wurm Interglacial Period (Ammal 1956:325, Suzuki l.c.:27-36). Because of the low incidence of fossil hominids from the Pleistocene, the main evidence of human occupation in this part of the world before 10,000 years ago is the archeological record of ubiquitous stone artifacts and traces of occupation-activity sites (Kennedy 1980:397). According to Majumdar (1947 in Ammal l.c.), Paleolithic people of the Australoid type, from whom the proto-Dravidian race may have evolved, were present in the Punjab Valley. Kennedy (1980:402) suggests that perhaps the earliest direct evidence of Homo sapiens in India comes from human skeletal remains found in burial deposits at Sarai Nahar Rai in the Ganges Valley, however, their radio-carbon date of 8,050 B.C. is much debated.

The range of human activity and occupation in the primeval forests of North India was no doubt influenced by early man's omnivorous diet and foraging habits. Scavenging and/or hunting food from a higher trophic level was necessary in order to augment sometimes scarce or nutritionally incomplete vegetable sources (Milton 1981:543). Before the development of cultivation and cooking, man also probably depended on the availability of nearby plant sources of palatable and digestible food. Through trial and error, he came to acquire a taste for those plant species in the forest which were the most accessible (within reach), reliable (seasonally) and prolific (abundant) sources. Probably

the most important feature affecting this selection process was the predominance of certain widely-dispersed species. In the case of a tropical or subtropical forest, the presence of fruit-bearing trees would have been of obvious importance in helping to sustain an omnivorous human population.

It is known that the warmer subtropical and tropical forest areas of Asia harbored many trees of the genus Ficus. On a broader scale, Ficus flora extended widely over tropical regions of the earth by the end of the Pleistocene, with a distribution of some 1500 species of the genus worldwide. Approximately 895 of these species occurred in tropical Asia; Upper and Himalayan India was the original locality of approximately 39 different Ficus species (Sata 1944: 1-6,43,49-50).

Among this number of species there existed many economically useful plants, including fruit-bearing trees. These trees grew primarily along rivers and creeks of subtropical and tropical mountain regions and in the deep forests of low to medium elevations. Constituting a unique life-form especially adapted to extremely dense and wet rain forest conditions, and owing to their profusiveness and wide distribution, the ancient figs probably were a major source of plant food for early humans in India (Galil 1984:186).

Human Consciousness and the Tree

If one accepts the theory of human evolution from the ape as outlined above, then this line of descent was obviously arboreal, and "man began slowly working his way into consciousness in the primeval forests" which continued throughout the glacial and interglacial ages (Collis 1954: 20-25; Suzuki 1981:30). How must have early human consciousness been affected by a primeval forest habitat? What kind of awareness developed from dwelling under the boughs and dense canopy of towering trees? What feelings were aroused in the human mind at circumstance with stark nature in a world of trees?

Paradoxically, while the forest may have constituted a threatening, menacing environment, teeming with known and unknown biotic and abiotic forces, it also provided the early forest dwellers protection, sheltering them against extreme weather conditions and hiding them from enemies. For example, in grass plains adjacent to forests, the wood margin would be the natural site to look for cover and safety (Westhof 1983:9). In an open forest or within the deep forest itself, a single tree or group of trees with dense foliage or canopy might serve the same purpose. As human habitation became more territorialized with continued occupance, important clusters of familiar food trees on or near traditional arboreal pathways established boundaries

for a localized home range. As such, the "tree" became the initial objectified essence of "landschaft," providing a center for the scope of early human activity as well as a world view (Stilgoe 1982:19).

From the previous discussion, we see that human evolution and the beginning of human consciousness occurred as a natural development stemming from deep roots in the primeval forest environment. Early impressions of this tree world were formed by primary requirements for survival: food and shelter. Intimately connected and central to these pre-cognitive impressions, as a predominate life-form associated with both primate and human evolution, was the tree.

These earliest impressions are deeply embedded within what Jung (in Horia 1969:389) calls the "collective unconscious," and form the template upon which further development of conceptual thought proceeds. According to this theory of "essential psychology," the roots of the unconscious are not existential but essential. Our interior world is based on something more than strictly personal experience. Our behavior is influenced by innate experiences belonging to a psychic inheritance, an "ancestral complex" that precedes the individual and that is directly related to his lineage and roots.

"When today we enter the tropical forests we do so with perhaps a million years' consciousness behind us" (Collis 1954:22).

Jung characterizes the common manifestations of the collective unconscious as "archetypes." They represent the survival of primordial religious concepts of life in civilized man and constitute true "psychic organs" which have formed through the millenia due to the contact of the psychic being with the universe, in the same way that our corporal organs have formed during the lengthy contact of our body with the physical forces of nature (in Horia 1969:390). Unless we are able to dive into the deepest center of our common consciousness, we cannot reexperience or relive the organic growth that led to the creation of these archetypes, which to our intellect have merely an historical or aesthetic significance. The tree, as an important archetype, probably took root and became firmly implanted in the natural mind of man before the dawn of human consciousness in the primeval forest.

Planting the Sacred Seed

In tracing the evolution of the sacred tree, at this point in my discussion, I am still confining the subject to its earliest stage. In the history of religious development, this stage lies behind the historic era, for it is traceable

only in the pre-religion of folklore and myth, and traditional survivals in later ritual and symbolism (Hastings 1925:448). Systematic research devoted to the mechanisms of human mentality has revealed the importance of myths and symbols in conceptual thought and also the fundamental part they play in the life of all human societies.

However, these myths and symbols were not spontaneous discoveries of primeval man, arising from a conceptual vacuum. They answer to not only an historical situation (in the sense of being conditioned solely by geographical, economic, social or physical factors of the contemporaneous historical moment), but always disclose a boundary situation of man. "A boundary situation is one which man discovers in becoming conscious of his place in the universe" (Eliade 1952:9,32-34). The boundary situation represented by the sacred tree "rests on the earliest conceptions of the unity of life in nature, in the sense of communion and fellowship with the divine centre and source of life" (Hastings 1925:448).

As I have already tried to establish, the tree provided early man with basic requirements for survival. As such it was an important integral aspect for both his physical and conceptual orientation. In attempting to understand this relationship and its impact on the invisible thought and mind of early man, it may be helpful to consider Redfield's following reflection (1953:104):

"In the primary condition of humanity, man looked [from beneath the tree] upon a cosmos partaking at once the qualities of man, nature and God. That which man confronted [oriented himself] was not three separate things but rather one thing with aspects which, in the light of distinctions that have become much sharper since, we call by these three terms. If later world views might be compared with reference to a triangle of these three conceptions--Man, Nature, God--the primary world view was one in which the triangle itself was not very apparent. This unitary character of the cosmos in the case of the folk peoples is recognized on the one hand when it is said that the world is pervaded with sacredness. On the other hand, it is recognized when it is said that the world of the folk is personal. The two ideas, put together, refer to the hardly separable interpenetration of Man, Nature and God in that which the precivilized man confronted."

The main characteristic of this assertion of precivilized man's world view is a cosmic unity which is based on a primary indistinction of personal and natural qualities, where the "thing confronted is known directly and inarticulately without detachment" (l.c.:105). If we accept this assertion as man's original conception of himself in relation to the universe, we might question how both a "sacred" and a "personal" condition could have evolved, for they immediately imply a "distinctive" character as opposed to the initial one of unity, or indistinction.

That a living thing has a personal character or personality implies that it has distinctive qualities and traits. The "personification" of an object presupposes that the object is first perceived as such, i.e. as a thing and not as a person, and that the thing is only later personified

(Kelsen 1943:24). Similarly, while one definition of the term "sacred" designates something as being regarded with religious veneration, another definition delineates a condition of being set apart or separated. How, then, did these distinctions within apparent unity arise in the mind of early man?

The conception of nature as a single connected system of events united by laws must have been arrived at before there could be any division (Durkheim 1965:41; Otto 1923:118). In the process of "coming into consciousness," in becoming aware of the world and the different objects within it, man began to separate parts of his visible reality and to name them according to their apparent qualities and functions. Gradually, he also became aware of something else, present in the world and in these objects, which was beyond his ordinary visual perception. The realization of an invisible entity, "a Thing behind a thing, a Force behind or within the [objective] appearance" gave rise to the conception of an order of reality wholly different from the "natural reality" yet contained within it (Collis 1954:24-27; Eliade 1957:10).

This object of an awareness which is neither that of ordinary perceiving nor ordinary conceiving, is referred to by Otto (1931) as "das ganz Andere" (the wholly Other), or "the feeling of the numinous." As an acknowledgement of the unseen elemental powers pervading all of nature, this

distinction between the visible and invisible supports the intuition of a living unity. At the same time, it is this recognition of something "wholly other" in the objective situation which leads eventually to a cosmic division, creating the boundary situation of the sacred and the profane.

Germination of the Sacred Seed

The conception of a "living unity" which contained the distinction between material and non-material substance gave birth to the idea of a "soul" (Kelsen 1943:40). As a world view, it is based on the assumption that early humankind commonly thought of nature as indwelling spirit, that is, "animistically" (Frazer 1926:6; Tylor in Redfield 1953:104).

"Plants, partaking with animals the phenomena of life and death, health and sickness, not unnaturally have some kind of soul ascribed to them" (Tylor 1958:58). The same life force which permeated all forms of nature was akin to that of human or animal organisms (James 1966:4). Personality and life were ascribed not only to men and beasts but also to inanimate objects such as rivers, stones, trees, etc., as commented on by Hume (in Tylor 1958:61):

'There is universal tendency among mankind to conceive all beings like themselves, and to transfer to every object those qualities with which they are familiarly acquainted, and of which they are intimately conscious.'

Kelsen (1943:24-41) points out that a personalistic interpretation of nature, which results from man's actual behavior toward it, is an essential prerequisite to the idea of the "animation" of nature. This interpretation was in analogy with man's earliest and most impressive experience, namely, the relationship to his fellow-man. He considered his relationship with animals, plants and inanimate objects to be equal to that with members of his human group, and to be regulated by the same principles which regulated his conduct toward other men. He comprehended reality immediately in the personal category, so that the Powers of Nature were regarded as concrete objects which were consequently designated as persons.

However, this early view of nature, Kelsen argues further, is not the result of "personification" (the "projection of the ego upon the external world"), which is the commonly accepted definition of animism. He maintains that the alleged idea of "egocentricity" or an "anthropomorphic" view of nature was not possible simply because primitive man lacked a fully developed ego-consciousness independent of his group. While he did not regard the objects of his cognition as homogeneous with

himself (lacking the necessary ego-consciousness), he did consider them homogeneous with his kinsmen, and they were important to him, essentially similar to the men with whom he lived and knew from direct experience (Chauby 1970:88). Thus, it was not his ego which he projected upon nature when he interpreted it personalistically. With his lack of ego-consciousness and the all-pervading social character of his thinking and feeling, primitive man did not interpret nature according to objective impersonal "forces," but according to social categories, as a manifestation of subjective, personal "powers."

With a gradual sharpening of his awareness, primitive man came to determine external differences between men and other forms of life and inanimate objects, however he did not relinquish his "original personalistic apperception" (Kelsen 1943:40-41). If a tree, for example, in its external appearance, obviously to him was not a human being, but it was capable of behaving as a human being, then it must have been the residence of an invisible man.

The socio-personalistic interpretation of nature is often associated with the belief in the soul of the dead. The death soul may assume any form; consequently anything is or may be the dead. "The notion of the universal animation of nature is here apparently no more than primitive man's belief that nature is inhabited by personal beings, namely,

his ancestors" (l.c.). This theory is generally supported by Spencer and Tylor (in Crooke 1896:83) and Frazer (1933:39).

To the contrary, Otto (1923:119-121) argues that the belief in death souls and ancestor worship does not necessarily arise from animism, but only holds the attention of man because of its emotive qualities, i.e. fear and honor. In general, Otto is more concerned with the qualitative element of feeling relative to all souls or spirits, rather than their origin in their ideational aspect: "the essence of the 'soul' lies not in the imaginative or conceptual expression of it, but first and foremost in the fact that it is a spectre; that it arouses dread or awe." As opposed to the theory of the omnipresence of 'spirit' or 'soul,' he counters that natural objects were regarded by early man as being alive according to a simpler criterion of "living efficacy and agency."

We cannot doubt that the forest evokes a sense of mystery and awe. The profuseness of vegetative forms and processes overwhelming man's existence and phantasy could have conditioned in early man a sensitivity to the numinous, the Other, or the invisibilities (Westhoff 1983:10; Collis 1956:24). In this numinous environment, the forest became inhabited with supramundane powers and spirits associated with elemental forms and processes:

"In their solitudes it appeared spirits had their abode and in the rustling of the leaves their voices and whisperings could be heard, just as the hum of insects, the cawing of rooks, the song of birds, the cooing of pigeons, and perhaps the distant forbidding roaring of lions and trumpetings of elephants or mammoths, breaking the silence, were attributed to superhuman denizens for good or ill" (James 1966:4).

By whatever means man came to recognize the indwelling spirit of natural objects, one can assume that they primarily served subjective non-cognitive interests influenced by feeling and volition. Natural events, real or imaginary, that touched upon his vital interests evoked an immediate response that was an emotional reaction. This emotional-normative tendency most likely dominated primitive consciousness, for a rational and objective cognition of reality according to the laws of causality was weakly developed. As a connection of phenomena independent of desires and fears, nature did not exist for early man (Kelsen 1943:1-7).

Genesis of the Tree Spirit

The subject of the origins of vegetative souls or spirits is difficult to trace and define. While on the one hand, the doctrine of transmigration widely and clearly accepts that trees or smaller plants are animated by human souls, on the other hand the belief in tree spirits and the

practice of tree worship involves the notion of trees having souls of their own (Tylor 1958:60).

A significant point of murgence for the two theories which explain the "soul," as the result of "personalistic" process or "living efficacy" respectively, occurs when the idea of "power" is introduced. In his struggle to survive in the forest, early man was faced with the dangers of nature from all sides, and no doubt recogized that there were other "living agencies" or "human-like forces" that were bigger, greater and more powerful than he, whom he was powerless to control (Durkheim 1965:104). In this sense, they were super-human beings, objects to be feared or respected because of their inherent fearful or awesome qualities, viz. power. Nevertheless, they were entities that had to be dealt with.

If the natural object, for example a tree, was regarded as a being endowed with superhuman powers, one could only attempt to relate to it according to behavior that corresponded to its status or power (Kelsen 1943:39). In his attempt to approach this object, man employed numinous means, viz. magic; by doing so he also accepted the object as something having numinous, viz. some magical, qualities (Otto 1923:121). It is at this juncture that the object (in this case a tree) becomes "divine"--an object of worship--or a "god," and man achieves parity with it. At the same moment, a boundary situation is imposed, whereby the object

(tree) distinguished in this manner also becomes separated, set apart from ordinary reality, viz. sacred.

Otto (l.c.), however, reminds us that the object in question does not really become a "divine being" or a "god" until man turns to it with desire and petition. In an environment where man is at a technical disadvantage against the forces of nature, it is reasonable to assume that he will make an effort to secure for himself the favor of these invisible forces. The resort to magic is essentially based on the idea that behind the events of nature stand "personal demiurges" whose help can be secured for good or evil, which Kelsen (1943:39) signifies as the "social interpretation of nature."

At the basis of this recognition of superhuman authority, and the attempt to influence it, is a weak ego-consciousness and lack of self-confidence, abased by permanent pressure, which explains the predominant use of magic in the lives of all men (l.c.:1-11). The "feeling of the numen" actually "devalues" or humbles the self and the group to which the person belongs, which passes the depreciative judgement of "profaneness" upon his existence as a creature before that which is greater (Otto 1923:51). In reciprocation, a judgement of appreciation is passed upon the numinous object, and in contradistinction to the "profane" person, it assumes a positive worth or value of "holy" or "sacred."

Concomittant to the appreciation of the divine in life, the moral obligation (duty) of fellowship and respect developed (Hastings 1925:448). This respect, ranking as a claim of the divine being upon man, represented man's admission of its divine supremacy (Otto 1923:51). He regarded these divine beings as authorities toward whom he must behave respectfully, just as he would toward individuals in whom his group authority resided (Kelsen 1943:44).

Continuing with Kelsen's discussion, this behavior was determined by "sanctions" instituted by the superhuman authorities which served to guarantee social order and to establish social duties of individuals, so that divine authority also came to represent social authority. Natural order and social order consequently were seen as identical. The relationship of primitive man to nature was thus based upon a social relationship with a marked normative character. A violation of social norms constituted the violation of the laws of nature. Subsequently, in the early mythologies, to make sure that the laws of nature were observed, guardians were instituted. It was probably at this stage, high above man in the overhanging boughs of the sacred tree, that the tree spirit was conceived.

I I I. S H O O T S

The groundwork for the relationship between the evolution of the sacred tree and human mental development covered in the preceding chapter, which includes mostly pre-cognitive impressions dominated by emotional tendencies, might be assigned to that state of human affairs referred to as 'pre-religion' (Otto 1931:96). Durkheim (1965:93) suggests that religion really commences when natural forces are no longer represented in the mind in abstract form; they are transformed into a hierarchy of concrete objects such as conscious beings or gods. Essentially, the transition from the lower form to the higher seems to be a uniform and constant function of human psychology, in that psychological processes are used by man in attempting to convince or to move spiritual beings (as conscious beings), either with the aid of words (prayers), offerings or sacrifices. Because religion's objective is to regulate man's relations with these beings, the underlying psychology and its aids are needed to support religion's function (l.c.:44).

In order for the growth of religion and human organization to succeed as a function of orderliness, a form of symbolic discourse based on socially tried and accepted truths would seem to be a necessary requirement, both within and between these two systems. According to Max Muller (in Durkheim l.c.:93), language is the important facilitator of

this metamorphosis, because of the action which it exercises upon thought. Rappaport (1971a:74; 1971b:29) supports this assumption and goes further to assert that "the concept of the sacred has not only been made possible by symbolic communication, but it has made symbolic communication possible."

If one chooses Durkheim's definition (1965:56-63, 18-22), then religion is a system made up of beliefs and their corresponding rites, relative to sacred things. Beliefs are the representations which express the nature of sacred things and the relations which they sustain with profane things; rites are the rules of conduct which prescribe human behavior in the presence of sacred objects. Religion, then, is eminently a social construct: where [1] religious representations are collective representations which express collective realities, and [2] rites determine a conformity of conduct, which presupposes a conformity of thought.

An important point to consider is that these beliefs and rites, grouped under the heading of religion as a body of corporate realities and codes of conduct, must have had some practical utility in providing a collective conception of world order and well-being. Otherwise, they would not have been acceptable for collective adoption, i.e. they could never have been perpetuated unless they had been practically workable for everyone. For example, an object

becomes sacred as the result of the sentiment, inspired by the group in its members, projected on to it (l.c.:98-99, 261). As a product of social causes, religion assumes validity and efficacy only if it is generally expedient for the security and welfare of its individual believers as members sharing a larger group existence and a communal mind. From this one might conclude that "anything which is universal to human culture is likely to contribute to human survival" (Rappaport 1971b:23).

The term "sacred," which is a distinctive trait of all religions, refers to the "quality of unquestionable truthfulness imputed by the faithful to unverifiable propositions (Rappaport 1971a:69-71; 1971b:29-31). Rappaport observes that while sacred propositions "ultimately do not have material referents (and are therefore unfalsifiable), they are supported by emotions, which are material (in that they reflect actual psychological-physiological states), but, because nondiscursive, [are] also unfalsifiable." As such, he considers that they may be socially important as meta-statements concerning material conditions.

This definition at once embraces two opposing viewpoints: [1] that religion evolved as a system of ideas and practices based in reality ('Nihil est in intellectu quod ante sensu') and [2] that religion expresses no physical reality and is based purely on emotion (the wholly Other) (Durkheim 1965:91). In the end each is but the opposite side

of the same coin: one may pursue the sacred through the emotions or look at it objectively by examining the methods used to circumscribe it and make it useful to man (Huxley 1974:16). What is really important here, then, are the circumstances which lead to the creation of these religious ideas based on emotional/empirical constructs.

One possible workable explanation might be found by considering the importance of religion to human adaptation. Rappaport (1971a:70-71; 1971b:23-24,39) argues that the sacred is part of an encompassing cybernetic loop which maintains homeostasis among variables critical to the group's survival in the face of both short-term environmental fluctuations and long-term changes in the composition and structure of its environment. In this view, sacred propositions function as a part of social control hierarchies as well as ecological regulatory mechanisms.

Having established some fundamental concepts vital to the primary growth of religion, we can now proceed above ground, so to speak, to examine further how they relate to the evolution of the sacred tree. In the light of these aforementioned considerations, and in accordance with our initial hypothesis, we will be continuing to investigate the co-evolutionary development of idea and form.

Conditions of Primary Growth

"The races of the earth are like trees. Each according to its kind brings forth the fruit known as civilization" (Huntington 1924:1).

The ground is broken for an examination of the co-evolution of man and the sacred tree in the historic era with an important archeological discovery in the Thar desert of Northwest India (now Pakistan). It is here, at Mohenjo-daro in the Indus River Valley, that Sir John Marshall (1931) uncovered the oldest known record of the sacred tree and of human civilization in India (see Figure 2). Evidence shows that along this riverine strip a highly developed Chalcolithic urban civilization based on an agricultural economy became established between the 3rd and 2nd millennia B.C. In its ruins were found the frequent occurrence of cylinder stone seals (dated c.3000 B.C.) bearing the stylized image of a fig tree, commonly known as the pipal (Ficus religiosa), one of the earliest and most widely venerated trees to be associated with man (see Figure 3).

The implications of this historic association are far-reaching in the present inquiry, for it provides a temporal and spatial reference upon which further investigation rests. One important inference based on Mohenjo-daro is that, having arrived in association at this particular place

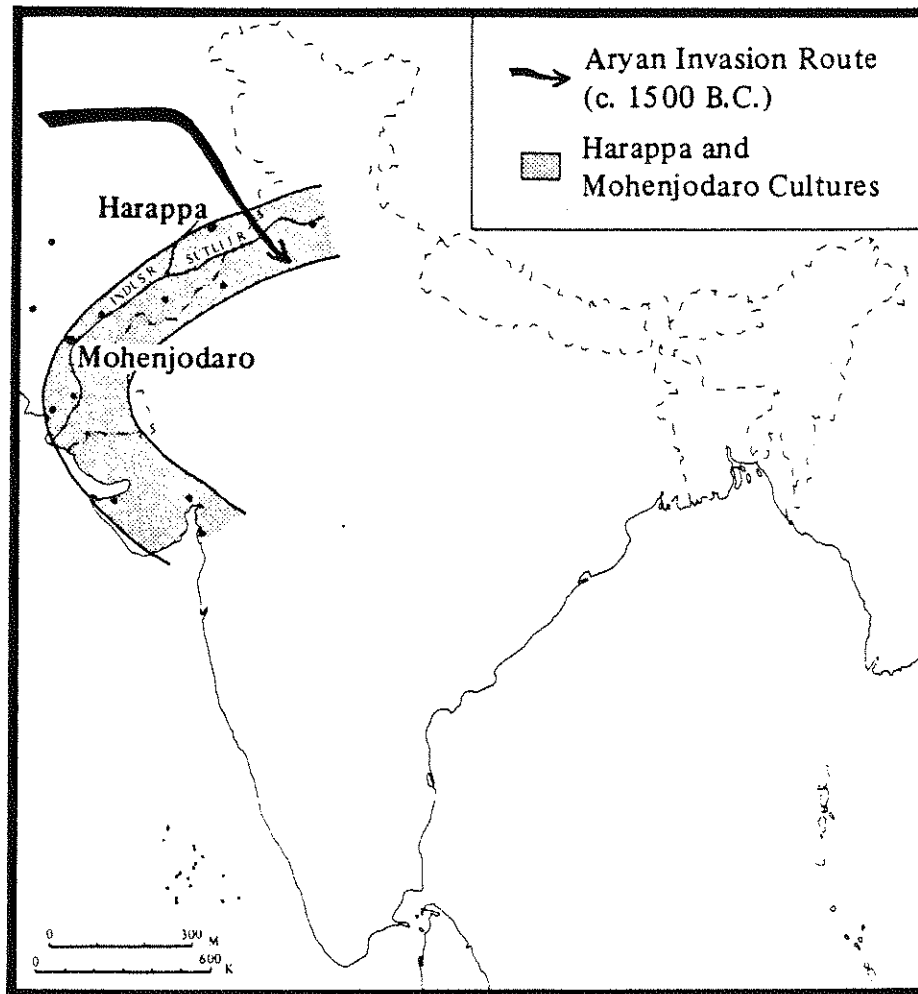


Figure 2. Mohenjo-daro
Source: Dutt et al. 1976, p.13



Figure 3. Seal with Stylized Pipal Tree:
Mohenjo-daro
Source: Randhawa 1964, p.6

and time from their common origin in the dense tropical forest, mankind and the sacred fig must have traversed a common evolutionary pathway. An historico-ecological analysis of this relationship might reveal that certain environmental conditions were required for its development.

Three essential questions to be answered in this context are: [1] What conditions prompted early man to leave the forest and undertake a more intensive, organized system of securing food, viz. irrigated cultivation? [2] Of what significance was this particular tree species of tropical forest origin to an agriculturally based community? [3] Did the "fruit" known as civilization and that of the sacred fig tree depend on the same conditions for growth?

In his classic work Climate and Civilization, Huntington (1924) considers climate to be the most fundamental determinant of culture, by reason of its vital influence upon the quantity and quality of man's food and most of his other resources. Mainly, his hypothesis is that the climate of historic times seems to have undergone a pronounced series of "pulsations" (variations) consisting of alternating dry/wet regimes. If one accepts this suggestion, the effects of this changing climatic environment can then be related to corresponding influences of other factors of the physical environment, along with human factors such as customs, ideas and institutions, to form a true "picture of history" (l.c.:29). Using this approach, answers to the

questions put forward above might be obtained from a reconstruction of past climates of North India and an examination of their relation to certain environmental conditions.

Light

The culmination of the last glacial age (13,000-9,000 B.C.) saw a rapid increase of temperature worldwide, with ensuing environmental changes (Wissmann 1956:281). The immediate effect of this post-glacial warming was a change in the dense vegetative cover that had prevailed during the moister, cooler conditions of the glacial age; gradually it gave way to the extension of dry land and, in some areas, desert. According to Suzuki (1981:47-48), the climatological environment of Northwest India 11,000 years ago was roughly the same as that today (see Figure 4). It was during this period, in the semi-evergreen forest adjacent to the tropical evergreen forest where man had a better chance of subduing the vegetation, that primitive agriculture might have evolved (Ammal 1956:330).

Sauer (1947:9) suggests that the origins of planting may be sought in cultures with sedentary qualities and a major concern with the exploitation of plants. He postulates that early Neolithic people lived in family groups forming together a sort of semi-sedentary primitive community that stayed in one place as long as seasonal changes

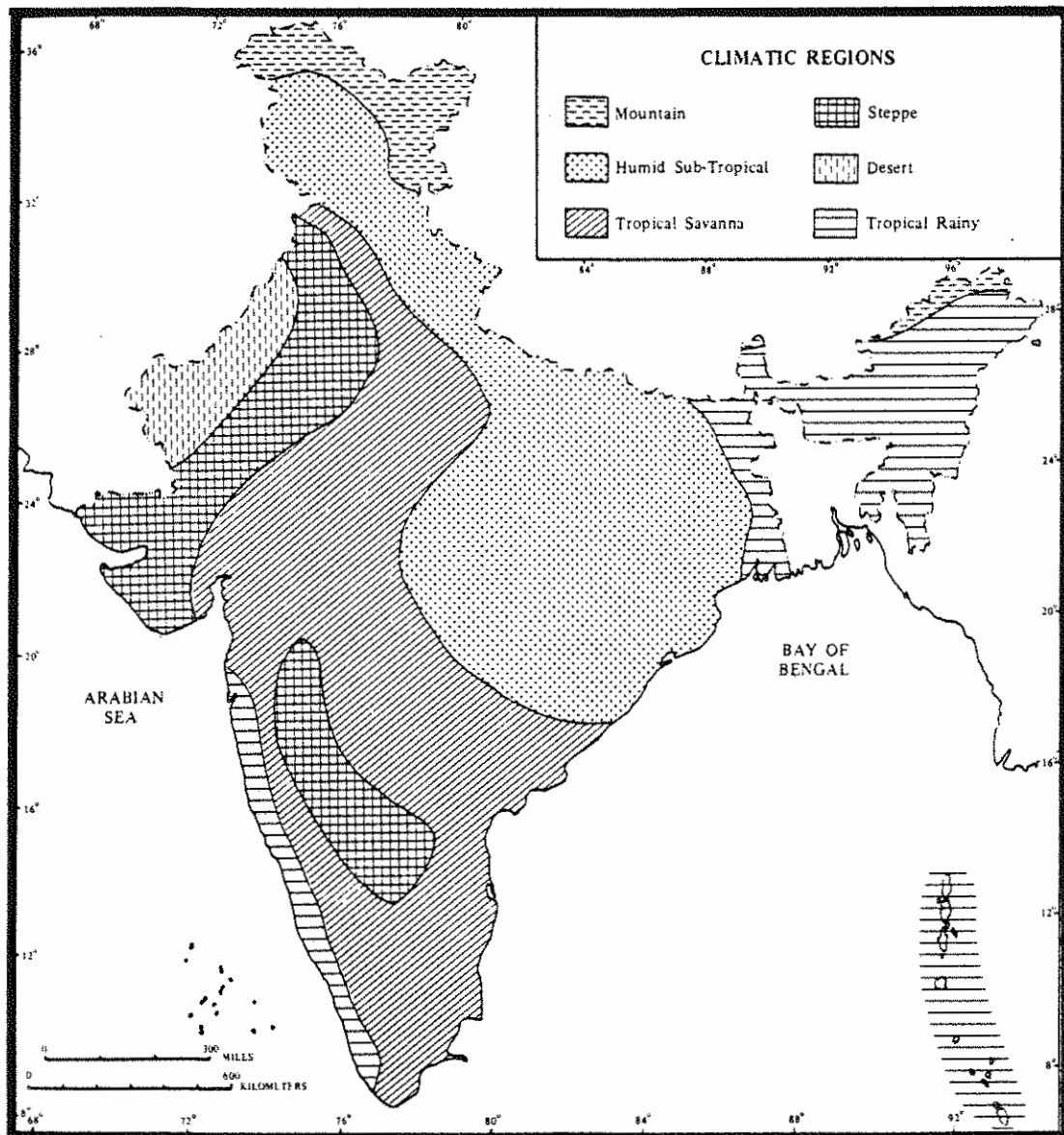


Figure 4. Climatic Regions of India
Source: Dutt, et al. 1976, p.23

in food supply permitted. Also, the ecological effect of light was an important factor contributing to the beginning of agriculture: 'man developed agriculture in a sun-bathed environment' (l.c.:1). Neolithic people tended to live in open places, such as the edges of marshes and streams or the forest margins, where wild sun-loving bush and tree fruits, berries, heavily seeding annuals or roots grew (l.c.:23).

If it can be assumed that certain areas remained under continuous human occupation, then group well-being and survival would have depended on the development of practical skills in using the occupied habitat as it became subjected to increasing exploitation by larger numbers. One such skill, for example, was the destruction of trees by bark peeling with stone tools, whereby open forest habitats were extended by and for a growing human community. In the gradual creation of sunlit spaces, "he unwittingly favored the multiplication of food for himself" by accidental sowing of viable seeds through tillage (digging for edible roots) and later he may have learned to do so deliberately (l.c.:23).

Soil

Although it cannot be proven archeologically, Neolithic tuber-planters, using a digging stick (as man's first agricultural implement), may have practiced the earliest type of

subsistence agriculture in forest clearings (Ammal 1956:328; Bartlett 1956:704; Wissman 1956:283). The cultivation of different kinds of root crops and other early vegetables evolved along with the invention of the hoe, which perhaps at first was a stone attached to a stick (Ammal 1956:328). Associated with a much later stage of agricultural innovation is the plow, which generally separates the tuber-planters from the grain cultivators.

The transition from the digging stick to the hoe and eventually to the plow raises many environmental questions concerning the soil conditions under which agriculture developed. Did continued human occupancy lead to a change from original forest cover to grassland, influencing agricultural innovation? Or, did Neolithic man move out of the forest to a frontier grassland environment, adapting his mode of subsistence to its new requirements? In either case, what were the environmental forces acting on this transition?

Because of a lack of actual historical records for this period in India, the circumstances of changing vegetation and man's relation to them can only be inferred. For example, palaeobotanical evidence suggests that a slash-and-burn type of agriculture had been introduced in western Rajasthan as early as 7500 B.C., indicating that the burning of vegetation by man may have accompanied the beginning of cultivation (Singh in Misra 1977:50; Meher-Homji 1980 in

Puri, et al. 1983:267). From studies of primitive agricultural survivals, it is not unreasonable to assume that fire, whether occurring as a natural hazard or as the agency of man, played an important role in this transition (Bartlett 1956; Sauer 1947 and 1961; Lewis 1972).

The practice of shifting agriculture, whereby temporary forest clearings are created by fire for agricultural use, is known in India today [i.e. jhuming, which involves burning and scattering of seeds in the ash (Ammal 1956: 330)]. In this system, the cleared land is enabled to produce a succession of food crops until the effects of ash (containing concentrated fertilizer salts from burnt trees) are dissipated by leaching and numerous weeds compete with the cultivars. This system is adapted to sparsely inhabited areas, where extensive forest can permit long intervals of forest fallow between burnings.

"Vegetational history shows that, in general, deserted tropical agricultural clearings not burned over after abandonment, if surrounded by damp forest, quickly become seeded and reforested by quick-growing, light-loving trees. These are gradually replaced by many less readily disseminated trees, and a procession of succession is begun which results in the re-establishment of a new forest, ideally becoming, in time, more or less similar in composition to the old" (Bartlett 1956:697).

However, this normal ecological succession can be interrupted by unstable climatic conditions or by repeated burning, leading to transformation of the climax forest to grassland.

As human population increased and primary forest for clearing was no longer available, it became necessary to use the same land repeatedly and, eventually, in a regularly recurrent cycle, so that shifting agriculture developed into a more permanent land utilization scheme (l.c.:704-707). In the case of a deep, closed, tropical forest region, where there was excess moisture to permit natural reforestation and restoration of soil fertility, the agricultural tribes fell into a system of using the land in a regular rotation of crop with protected secondary-forest fallow clearings. However, this could not have happened in a marginal zone where clearing had taken place under conditions of unstable equilibrium. It is in a marginal zone, for example, in which clearings border regularly burned grassland, where soil is most sensitive to seasonal dryness, that the effects of recurrent burning and digging lead to greater disturbance in ecological succession (l.c.:697; Dimbleby 1967:151; Sauer 1947:24).

The ecological changes attributed to fire have been reviewed by Sauer (l.c.), Bartlett (l.c.) and Lewis (1972) and are noted in the following:

- [1] Aggressive weedy plants and grasses, characterized by free seeding, broad tolerance in germination, and robust early growth, gain reproductive advantage.
- [2] During the dry season, these grasses are dormant and are not killed (sprouting again quickly) by annual fires which kill the seedlings and sprouts of most woody plants, so that coarse perennial grasses gradually take dominance.
- [3] A vegetation shift ensues from long-generation to short-generation species, realizing the gradual replacement of trees and shrubs by herbs and grasses.
- [4] The only woody plants able to compete naturally with coarse grasses are those which have the combined adaptive characteristics of fire resistance above ground and vegetative renewal of growth below ground. Many of these are palms and other families which characterize tropical and subtropical areas between typical forest and grassland.
- [5] Whenever plants (trees) of one species are afforded protection from fire or seedling replacement by annuals, through the intervention of man, they establish dominance in a given spot (formation of groves).

According to Bartlett (l.c.:694-695), replacement of all forest by grassland in any tropical region, viz. shifting cultivation, would eventually limit agricultural occupation. One alternative to agricultural abandonment of tropical grassland has been the development of permanent cultivation which has usually taken two forms: [1] the planting of village groves and gardens (horticulture) or [2] the cultivation of periodically overflowed or irrigated land. Both these forms, as opposed to shifting agriculture, tended to stabilize populations.

As shifting cultivation became more and more sedentary, restricted by the ecological limits of the forest, continuous utilization of non-irrigated tropical land was initially achieved by "primitive horticulture" rather than agriculture (l.c.:695,705). In the process of forest clearing, useful trees were preserved either for timber or firewood or for growing vines (Ammal 1956:330). "Unconscious human selection of plants was operative if any protection was given to any stand or clump because of palatability of its fruits, seeds or roots" (Sauer 1947:23). Permanent villages became established as groves of fruit trees interspersed with small patches of other useful plants. With later developments, small tracts of grassland were controlled for grazing of domestic animals or used as fallow in alternation with field crops, rain permitting.

Water

Because India is part of a monsoon region, the development of agriculture in an area was no doubt influenced by the amount and seasonal distribution of rainfall; these factors would be reflected in the type of agricultural economy possible under prevailing conditions of the time. As mentioned previously, the end of the last glacial age saw a rapid temperature increase. World temperature continued to rise, reaching a peak during the "Thermal Maximum"

(5500-2500 B.C.). This was the middle phase (warmer than before or after) of a period called the "Postglaziale Warmzeit" which extended from about 6,800 B.C. to about 800 B.C. (Firbas 1949 and Smolla 1953 in Wissmann 1965:281-282). Significantly, these temperature changes must have affected precipitation and evapotranspiration and therefore the water regime of the region.

Wissman (1956:281-282) suggests that between the culmination of the last ice age and the Thermal Maximum, fluctuations of humidity were comparatively smaller than those of temperature. From this he infers that higher amounts of precipitation were needed in order to maintain the same index of humidity in the shift from a cooler climate to a warmer climate. In Northwest India, Goudie et al. (1973 in Ghosh 1977:64) recognized a major dry phase belonging to the Upper Paleolithic to pre-Harappan Age (pre-8000 to 3000 B.C.) with a minor moist phase (8000-7500 B.C.) in between. However, Lamb (1982:120) suggests that a wetter climate prevailed over the Indus Valley during the Thermal Maximum (see Figure 5). This moister condition might be explained by a northward shift of the equatorial westerlies which come from Africa and blow into the Indian Subcontinent from southwest to northeast, bringing summer rain over the Indus Valley much as they they do today (Suzuki 1981).

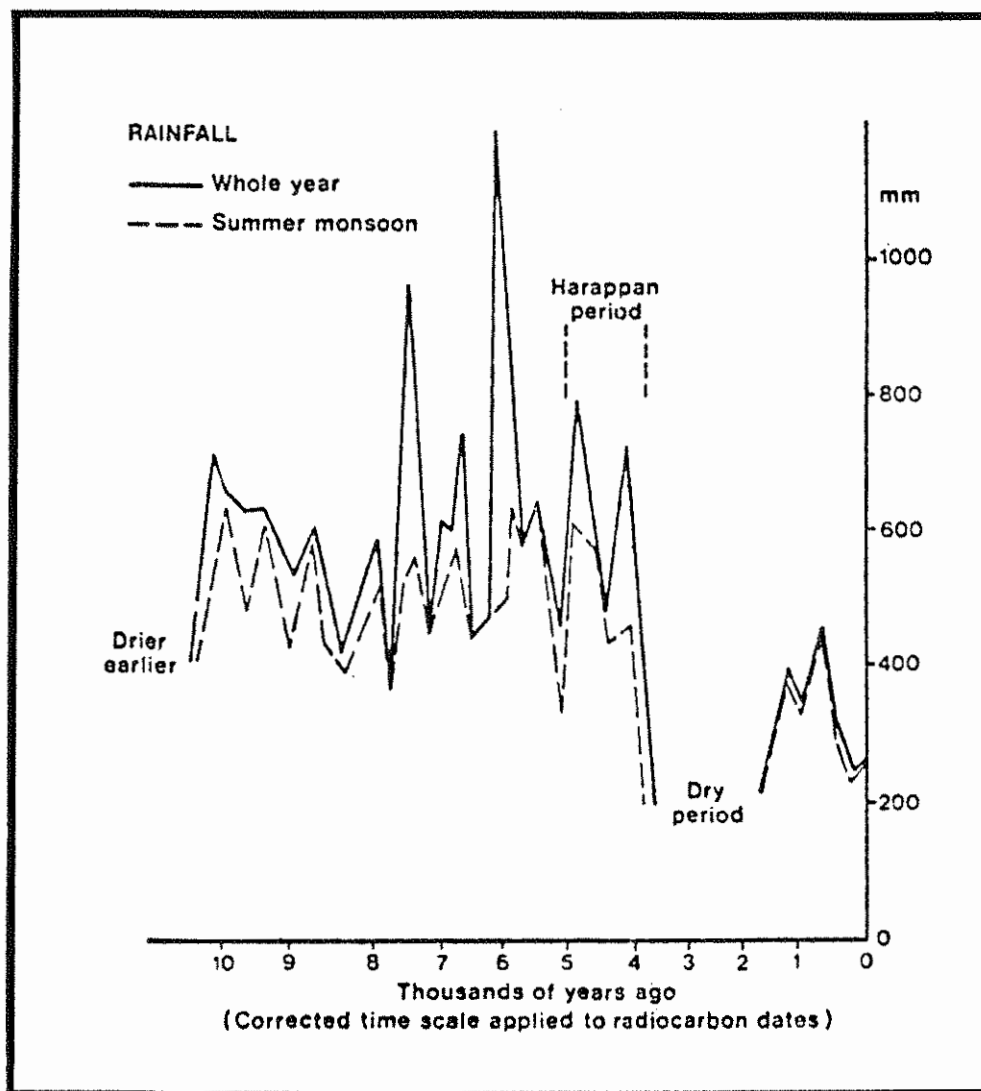


Figure 5. Estimated Variations of Rainfall in Northwest India From Lake Levels and Botanical (Pollen Analysis) Evidence
Source: Lamb 1982, p.123

According to this theory, an amelioration of climate influenced the development and spread of agriculture (as opposed to the "desiccation theory" in which the birth of agriculture was sought in response to progressive desiccation). This would explain the existence of fairly high amounts of rainfall necessary for the seasonal inundation of transistional areas between the monsoonal forests and wooded steppes, where the sowing of small-seeded cereals (the "millets") seems to have begun without the aid of irrigation. Wissmann (1956:285,290) hypothesizes that the cultivation of the "millet" formed the point of transition between tuber-planting and cereal-crop farming, allowing the food-producing economy to leave the forest and enter the wooded steppe and steppe areas of Northwest India during the 6th millenium B.C. "The agricultural front was not pushed forward by the increasing population pressure but was attracted toward the newly born fertile land" (Suzuki 1981:49).

Then, toward the end of the Thermal Maximum, a turning point was reached where a temperature drop, resulting in a change from a warm and moist to a cool and dry climate, caused a deterioration of world climate. Lamb (1982:122) reports a "fluctuation" in this climatic period in India, which he interprets as a "reversion to a stronger northward development of the summer monsoon rainfall and displacement

of the temperate zone rains farther north." Suzuki (1981) suggests that the same equatorial westerlies, which had reached as far as the Indus Valley, began to retreat southward, causing the retreat of the rainy area from northwest to southeast India.

Corresponding to this same period, approximately 5000 years ago, the birth and rapid development of the world's ancient civilizations occurred "along the big rivers," namely the Nile Valley, Mesopotamia, the Indus Valley and the Yellow River Valley. Suzuki (l.c.) suggests that due to the expansion of deserts and the general desiccation in areas near these big rivers, farmers were expelled from their land and forced to take refuge in these river valleys. He further suggests that the original occupants of these valleys had already developed a certain level of urban civilization, and that this influx and concentration of larger numbers of people led to larger settlements which gave rise to a higher level of human organization, advances in technology and increased production of articles.

In the wider plains of the Indus River Valley, cultivators were able to enlarge the scale and dimension of their agriculture through the invention of the plow and highly developed systems of irrigation, which was also necessary to absorb the increasing population pressure. At the same time, in the drier vegetation regions and the wooded and arable steppes around the forest margin, a pastoral mode of life

evolved. The domestication and herding of wild sheep, goats and cattle was combined with cereal farming as a response to the unreliability of rain agriculture. Under these conditions, close-canopied forests and wooded steppe regions were penetrated further and were probably quickly and easily transformed into permanent grassland or fields by fire (natural or set by man) and grazing (Wissmann 1956:282-285; Meher-Homji 1980 in Puri, et al. 1983:267).

The Indus civilization continued to develop, reaching its culmination about 2150 B.C. (Gordon 1958 in Suzuki 1981). Its decline, at first gradual and then rapid, can reasonably be attributed to increasing drought (Lamb 1982: 123). Singh (1971 in Thapar 1977:68 and in Misra 1977:50) deduces from pollen-analysis studies of salt lake deposits in this area an increase in rainfall from 3000-1800 B.C., followed by a period of small-scale climatic oscillation to drier conditions between 1800 B.C. and 1500 B.C.

Suzuki claims that the final collapse of the Indus Civilization around 1500 B.C. occurred as the result of sudden rapid desiccation in the Indus Valley. Cultivated lands became unproductive due to reduced irrigation water and accumulated salt from previous irrigation. He bases this claim on reports of moisture change which point to a "drop in temperature and accordingly a decrease in evapotranspiration" meaning directly "a decrease in [local] precipitation" (Singh et al. 1972; Fairbridges 1976 in Suzuki 1981:117-19).

[One can appreciate the impact of this temperature drop, which according to Suzuki (1.c:113) amounted to more than 3°C, if one considers that today the wheat production of Canada would be nil if the annual temperature fell only 2°C.]

Again, Suzuki associates this drop in temperature and the ensuing change of moisture regime with a sudden southward retreat of the major "rain bringers," the equatorial westerlies. He proposes a climatological age determination for this phenomenon according to the principle that the earth's wind systems are inseparably connected. Accumulated data show that four ancient civilizations ended abruptly and almost simultaneously around 1500 B.C., probably as the result of the same phenomenon: a sudden drop of world temperature caused by frequent worldwide volcanic activity occurring around 1500 B.C. (1.c.:126-127). "Such a view would be supported if climatologists would demonstrate that a reduction in summer rainfall over East Africa with a consequent lowering in the level of the Nile floods, as suggested by the Egyptian documents of the period, would be inevitably associated with a decline in summer rainfall in the Indus Valley region" (McGhee 1981:168).

Sacred Ecology

There is insufficient archeological evidence presently available to suggest that the decline of the Indus civilization was ultimately due to climatic change (l.c.). However, recent geomorphological studies reporting the "rejuvenation of sand dunes around 1500 B.C., and historico-botanical estimates of summer rainfall decline based on evidence from lake levels and pollen analysis all point to devastating drought conditions at the time of its fall (l.c.; Naruse 1976 in Suzuki 1981:119; Singh 1971 in Lamb 1982:123). Actually, the cause of the fall has been under dispute, ascribed variously to invasions by the Aryan race (Wheeler 1966 in McGhee l.c.), drastic tectonic movements which flooded the Indus Valley (Raikes 1964), a major change in the course of the Indus River (Raikes 1968) or a significant decline in annual rainfall (Singh 1971 in McGhee l.c.). While the individual facts are not conclusive in themselves, collectively they point to a "time of troubles."

From the preceding discussion, one can surmise that the conditions of primary growth in the evolution of the sacred tree were influenced by (1) the effects of climatic change on the early forest environment of Northwest India and (2) the impact of Neolithic man's activities within that environment. In attempting an historico-ecological reading of the desolation of this once flowering environment,

inferred from the remains of an ancient civilization abandoned and literally buried under the sands of time, one might be too quick to derive individual causes or to assign individual blame for this apparent desecration. In view of the evidence, scanty though it may be, this calamity can not be interpreted entirely as the work of man; nor can it attributed solely and conclusively to the consequences of natural forces. Rather, it might be more plausible to assume that man's contribution to the environmental devastation may have occurred in conjunction with gradual climatic change to produce a condition of unstable equilibrium or disturbance of the ecosystem.

Against this background of changing environmental circumstances (promoted by digging, cultivation, burning, primitive horticulture, hoeing, permanent agriculture, dessication, civilization building, irrigation, plowing, flooding, grazing, rain and drought) religion slowly evolved as the human mind came to terms with the business of survival in a world of flux. At each stage of his evolutionary journey from the dark tropical forest to the sunlit wooded margin, man developed and adapted his activities within the natural limitations of the situation. Along the way he became fully aware of the controlling powers of Nature associated with these limitations as well as his own capacity, or incapacity, to influence or control them.

No doubt, man's concern was soon directed to those surrounding powers influential to daily life and subsistence, whose weight was substantially increased with the introduction of cultivation (Suzuki 1981:51-54). Religion got a firm footing on the land with the conception of many gods (polytheism), whom people worshipped in natural things relevant to the seasonal change of climate, the physiological nature of plants, water and fertility of the soil (Hughes 1975:27). These gods were connected primarily and essentially with some concrete object or event actually seen or experienced and dealt with directly according to the existing circumstances, arising "from the innumerable potencies revealed in forest, field, vegetation, springs, rivers, wells and the life-giving rain and dews" (James 1966:28). As such they were initially cult objects associated with the structural relationship of the environment in which they occurred. In due course they became departmentalized deities and spirits when they acquired individuality, distinguishing names and specific forms.

Tree worship and a water cult in association with the worship of the Mother Goddess were prominent features of the religious history of the Indus Valley, as revealed at Mohenjo-daro. A belief in the origin of life in the waters must have arisen very naturally where water, whether in the form of seasonal rains or of periodic river flooding, was the most obvious prerequisite of vegetation increase

(Coomaraswamy 1971:II.14). Considering that this cultic combination is so deeply laid in ancient Indian tradition, mythology, romance and folklore, it would seem to have obviously arisen under the climatic and cultural conditions that prevailed in pre- and protohistoric times:

"Arising in the first instance in the urge of life and its renewal, everywhere these dynamic, creative and rejuvenating aspects and functions have given symbolic expression to one of the most deeply laid strivings of mankind in the induction and impulsion of ever-renewing vitality and the riddance and expulsion of barrenness, aridity and sterility " (James 1966:vii,3,21,).

According to Marshall (1931:65), two forms of tree worship are represented in early Indus religious iconography (c.3000 B.C.): one in which the tree itself is worshipped in its natural form, the other in which the tree spirit is personified and endowed with human shape and attributes and elevated to the position of an important goddess (see Figure 6). That trees were protected because of their sanctity is evidenced by depictions of trees set within enclosing walls or railings. Other scenes suggest the process of planting trees by men and gods in a prescribed ritual manner, and protection offered trees by composite and fabulous animal guardians, thus calling attention to their

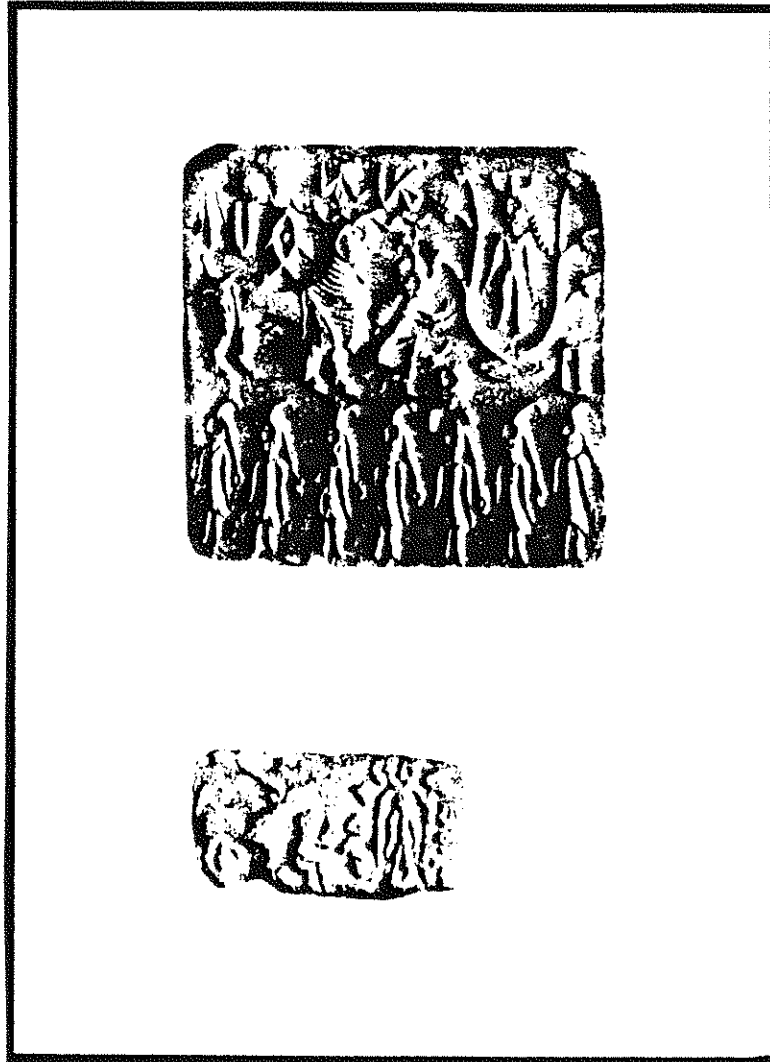


Figure 6. Seals with Tree Goddess in
Stylized Pipal Tree; Mohenjo-daro
Source: Marshall 1931, Pl. XIII

sacrality and threat of desecration. The sanctity of trees is also attested by terracotta figurines found with trees issuing from their wombs, indicative of their association with fertility and creation (Gupta 1971:10).

Meager, however, as these materials are, they furnish the only authentic and contemporary evidence regarding the sacred tree in the religious beliefs of the Indus people. These fragments provide only a record of the popular, devotional and superstitious aspects of belief; its other and more rational side, its esoteric ideas and philosophic concepts remain hidden from view in the undeciphered Indus script. In regard to the expression of outward concrete forms, however, they demonstrate that this body of beliefs was possibly the lineal progenitor of Hinduism (Marshall 1931:77). Therefore, the meaning of the sacred tree might be further illuminated in the examination of later religious forms.

The precise significance and interpretation of the inclusion of the tree motif in this early religious iconography is still a matter of debate, while its recurrence and sacredness in the later cultic milieu of India is not. In the search for explanation, one is reminded that the constructs of all religious imagination seem to stem from a sacralization of some elements of terrestrial geography, and all cultures have tended to assign sanctity to different

categories of natural objects (Sopher 1967:47). These culturally defined categories, however, exist on a cognitive level and must therefore be embodied in some symbolic form in order that they may remain common social property, and that their integrity over time be continued (Custred 1980: 233).

Cognition of the environment implies not only that individuals and groups have information and images about the existence of their environments and of their constituent elements, but also that they have impressions about their character, function, dynamics and structural interrelatedness, and that they imbue them with meaning, significance and mythical-symbolic properties (Moore 1976:xii). In order to comprehend why the pipal tree (Ficus religiosa) was specifically relegated to a symbolic, sacred status, then, it is essential to understand the cognitive situation in which this process arose. One must also understand that this designation, as a symbolic representation, is necessarily "selective" in character, the underlying realities and values being conditioned by their medium and mode of expression.

Sopher (1967:17-18) proposes that every culture operates "selectively" in taking its sacred "resources" from its ecological milieu, so that religion often seems to be the "ritualization of ecology." The techniques employed in protecting or conserving these resources, and the associated cultural and religious practices and behavior become an extended commentary of selected, usually important features of the local resource economy (Loderick 1982 and Rieger 1979:179).

What are these important features of the pipal tree that might have led to its selection from its ecological milieu and thus its sacralization? The evidence presented so far in the discussion suggests that this particular tree must possess some distinguishing adaptive characteristics (especially pertaining to vegetative renewal) which have enabled it to accompany human evolution through the vicissitudes of time and changing landscape of Northwest India up to this point. That early man was not only aware of and acknowledged (valued) these adaptive features, but also encouraged and promoted the growth of the sacred pipal because of them, can not be left unassumed. A closer examination of the worship of the ancient pipal, as adapted and recorded in the succeeding religious developments of India, might further reveal why this tree was invested with supernatural reality and significance and the connotation of the Tree of Life.

I V. S T E M

Occurring simultaneously with the decline of the Indus Civilization (c.2000 B.C.) was the southeastward migration of people believed to have originated from somewhere between the Aegean and Caspian Seas. What specific factor caused the migration of a group of Bronze Age, horse-riding nomads called the Aryans is under question. Those who assume that they were nomadic pastoralists in search of new grasslands attribute it to the increase or the destruction of grass, or both (Burkill 1962:257). For example, as a result of climatic change, the recovery of grassland in Central Asia and the dessication of the Indus Valley might have created a north-south gradient of environmental conditions conducive to such movement (Suzuki 1981:63). Wissmann (1956:286-291) believes they were originally "steppe farmers, becoming more pastoral here, more agricultural there according to the vegetational circumstances," who probably displayed more "nomadic" traits during their migrations and invasions in the struggle for land.

These Aryans entered Northwest India about 1500-1400 B.C. with their war-chariots from a temporary invasion center near Lake Aral (Southern U.S.S.R.) and began to take possession of the land (Burkill 1962:257). Their dairy and cattle culture, which was adaptable to the increasingly drier conditions of the Indus Valley, gradually fused with

the autochthonic, mainly agricultural Dravidian culture, to result in what is known as the Hindu culture. The use of oxen for plowing, which indicates a synthesis of a cattle-keeping tribe with one having an agricultural economy, was just one important development of this emerging Indo-Aryan cultural complex (Ammal 1956:326). For a period of about 500 years, this process of cultural diffusion continued, by which the Indus Mother Goddess, Tree and Water cults were assimilated into the simple natural and clan cults of the Aryans.

Fire and Rain

During this time of initial Aryan settlement in India, the Rgveda, the great collection of the "Thousand and One Hymns," was composed. It is older than the Homeric poems or any other European literature, yet it does not belong to prehistoric times, nor is it the work of uncivilized man. In the case of certain texts it is difficult to discover more than a shadowy outline of the circumstances under which they have reached their present shape, but no criticism of their history is of real value unless it gives consideration to the time and place of their origin. The Rgveda belongs in language and, in the main, substance to the western (European) world, however, one must remember that it was composed and has been preserved by the priestly caste of the

Brahmans upon the soil of Asia, and has therefore been exposed to contact with Eastern habits of life and thought.

According to Arnold (1900:2-3):

"There are no clear geographical references which indicate that any of the hymns were composed before the latter [the Aryans] crossed the mountain barrier of the Hindu Kush, and settled in the valley of the Indus. But, on the other hand, it is only in the very latest hymns that any mention is made of the Ganges: a long period had yet to elapse before Aryan civilization established itself in Central India, and in this period many a fresh development of language and literature, many a new stratum of religious and philosophical thought can still be traced."

The poets of the Rgveda lived at the courts of the Aryan princes and chieftains who were mostly engaged in schemes of conquest and in the search for new settlements. Arnold (l.c.:45-46) believes "the idea that the Vedic poets studied the page of Nature with open and childlike minds... contains but a small element of truth...[rather]...the Dawn seemed to them to open golden gates for the sun to pass in triumph, and while those gates were open, their eyes strove in their childish way to pierce beyond the limits of this finite world." Was Arnold suggesting an attitude of exploration, exploitation or spiritual evolvment with Nature?

For the most part, the very early hymns are composed in honor of many deities and for the use of many clans; therefore they suggest a lack of unity which would be associated with a monotheistic religion or state. In Sanskrit, the word

for God is Deva, from the root 'Div,' which means 'to shine,' to excell over others (Ratnam in Ahluwalla 1982:14). Excellence is often hailed as the manifestation of power, and all centers of power in nature came under the critical scrutiny of the Aryan sages, so that much of their poetry was in praise of the power exhibited by natural forces. To these powers, known as devas, were ascribed the functions of creation, preservation and destruction (Chauby 1970:50).

The Rgveda opens with a verse addressed to Agni:

"We invoke Agni, who is the first to be seated at our sacrifice, performer of the tasks of gods, augmentor of all precious things" (Rgveda I.1.1. trans. in Ahluwalla 1982:14).

Hymns were addressed to Agni (the fire god) with the knowledge that, as the terrestrial representative of the sun, he was the source of all power and the life-giver. Soon after settling in their new habitat, the Aryans discovered that fire was their most needed and intimate friend in their conflicts with the native tribes, for Agni, deity of the sacrificial fire, also assumed the attributes of a warrior (Rgveda I.36.15-20, trans. in Arnold 1900:13-15). Whether these praises of the god refer to the actual use of fire as an aid to the allied Aryan forces, or whether the god's help is conceived as entirely supernatural, can only be answered by historical allusion.

Indra, the national god of war and the traditional protector of his worshippers, is also frequently addressed in the early Vedas (Rgveda I.63.5-6, trans. in Arnold 1.c.:11-12):

"Make a clear path before us, Indra, for our war-horses, and with thy mace smite down our enemies;"

"Very true it is, Indra, that the champions appeal to thee in their struggle for water and free space: this thy help is worth competing for, Indra, when the lordship is to be determined by battle."

From the very earliest hymns, Indra is also worshipped as the rain-god, and in association with atmospheric phenomena is the King of the atmospheric region. Armed with his mace (thunderbolt), he fights with Vayu (the Wind-spirit), and throughout the Rgveda he is attended by the Maruts (storm gods). The treasure which he guards consists of cows which sometimes appear as terrestrial property of the devout worshipper, and at other times as the clouds which at last pour out their blessings on the country at large (Arnold 1.c.:23-24).

In the later periods of the Rgveda, the honor of the god Agni grew into a new form of nature-worship:

"The poets dwell no longer merely on the sacrificial flame, or the divine and human groups gathered around it. The fire spreads in their conceptions till it seems to encircle the whole universe, to quiver in the streams, to laugh in the tree-tops, to encircle the firmament" (l.c.:25-26).

At this point in the development in the hymns of the Rgveda, Arnold also notices a sudden break or change in the language from a carefully constructed, traditional dialect to a careless, colloquial style. In addition, Surya (the Sun god), whose position in the early literature was quite secondary, had come to occupy the highest ranks of gods together with Indra. Cumulatively, these changes point to the conclusion that a great disturbance has taken place in the mythology.

The probable cause of this disturbance might depend upon a change in both the character of the Aryan conquest and the environmental conditions of India at that time. Burkill (1962:257) reasons that the Aryans, who were centered in the middle Indus Valley by 1000 B.C., "overflowed around the north of the Thar into the Gangetic plains, perhaps having been strengthened, and if so, by a more defined invasion than their original coming." This second wave of Aryans pushed forward from Northwest India, advancing eastward between the Himalaya and the Deccan Plateau, and penetrated the dense forest of the drainage area of the Ganges

River to occupy what is now Uttar Pradesh and Bihar (see Figure 7). At about this same time, incidentally, the discovery of iron had made possible the invention of both the iron-tipped axe and wooden plow, so that large areas of original forest cover were brought under cultivation (Randhawa 1976:46).

Suzuki (1981:63-64) explains the direction of this movement as a consequence of the meandering of the equatorial westerlies, whose southward shift had contributed to the gradual expansion of desiccation starting from the Indus Valley and moving to the east. Drawing from the literature of 1200 B.C., he contends that the area east of the Gandak River (a tributary of the Ganges) had been too wet for human habitation. By 600 B.C., a later literature describes this same area as having been made suitable for dwelling, indicating the eastward advancement of the Aryans and desiccation. Suzuki sees here the vivid process whereby the sun and rain gods gained power, and visualizes the retreat of the forest as being due to both desiccation of climate and incineration by man.

This theory may be partly supported by other findings based on geomorphological and paleopalynological evidence. Lamb (1982:143) reports the evidence of a cooling in the climate in the subtropical and lower latitudes of northern India during this period, with increasing drought as its most obvious feature. Puri, et al. (1983:265-267) also

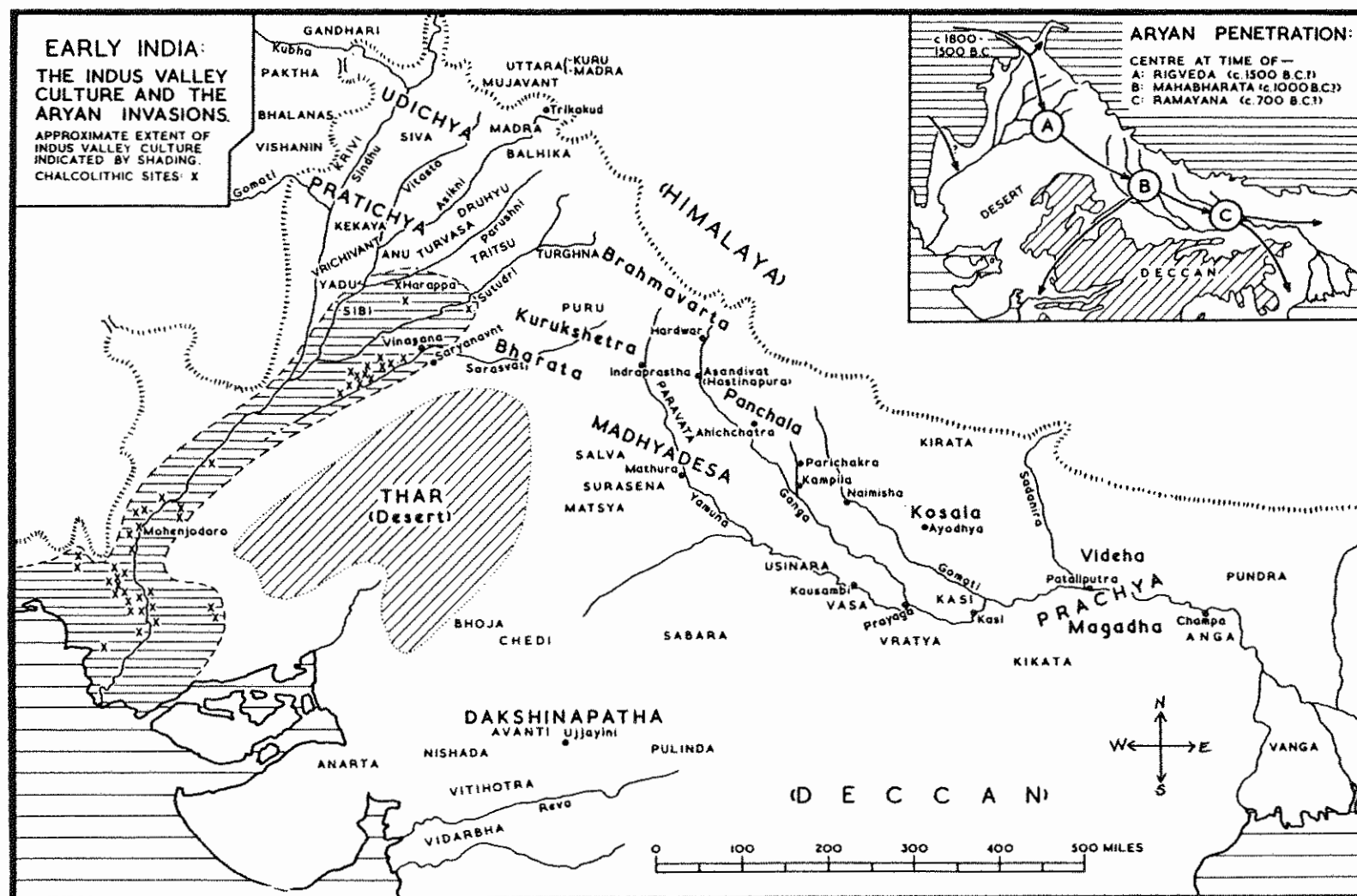


Figure 7. Aryan Penetration of North India
Source: Sellman 1954, p.6

report an eastward expansion of desiccation over Northwest India lasting until 300 B.C., antedating Alexander's campaign. Ghosh (1977:165) asserts that the present arid to semi-arid climate of Rajasthan set in from about 1000 B.C. In Europe also, a relatively dry climate has been envisaged for 1200-600 B.C. (Schwarzbach 1963:203 in Ghosh l.c.). With these findings taken into account alone, one can imagine that for the Indo-Aryans of this period, whose existence was based on the cultivation of the Indian soil, the power of the sun and the rain was quite literally and importantly associated with the beginning of life.

The Cosmic Tree of Life

The poetry of the later period of the Rgveda ceases to consist of hymns of worship, but rather is composed of dramatic accounts of the history of divine or semi-divine beings, representing a considerable body of mythological material. In contrast to the earlier Vedic hymns which reveal nothing of the social life of the people amongst whom they were produced, these later poems are presumed to embody some of the folk-lore of the native population of Northwest India.

This body of myths belonging to the so-called "Indian Period," however, is necessarily an imperfect record of popular beliefs (i.e. the date of the first written account of a fragment of folklore often fails to suggest its true antiquity) (Arnold 1900:1-8, 46-48). It is reasonable to assume that the literary art of poetry provided a written connection to the mental history of a mass of primitive beliefs and practices which in their origin are beyond the time range of the Aryan mind. During this literary era in Aryan India, the progress of centuries had brought change in the form of a settled, stereotyped religious tradition which did not itself take firm root in the convictions of the people and became prone to accept the "superstitions" of the conquered people.

An important element in this non- and pre-Aryan popular religion was tree worship (Zimmer 1955:25). Coomaraswamy (1971:2) warns, however, that it is only the popular and devotional aspect of a primitive faith of which traces are recoverable, for there may have existed esoteric and more philosophical phases of the same belief. In addition, one might expect that the popular folklore of the early period of sectarian literature was influenced by certain prejudices, and thus it was only briefly described (l.c.:4;

Arnold 1900:6). For the purpose of the present discussion, the existent literary references to tree worship will be examined, with a fuller account of its popular aspect in a later chapter.

In the very few verses where the sacred tree appears, its sacredness is not due to the fact that it possesses a spirit, but because it is useful in Vedic ritual, and it is only after a considerable growth of the ritual in which it is used, that it attains sanctity (Chauby 1971:39-40; Coomaraswamy l.c.:II.15). The asvattha became sacrosanct because of its use in religious ceremonies, particularly in the Vedic ritual of kindling the sacrificial fire, where it represents the male element in the "birth of Agni" (Gupta 1971:53). At the same time, it was also a taboo-tree, "the fruit of which is forbidden," which probably stems from an older, previous religious use (Hopkins 1915:6-7). Since the Aryan religion involved the erection of altars with the rite of sacrifice, presumably these places were constructed at the base of the tree, so that it became sacred by association.

Etymology

The asvattha is the oldest religious plant mentioned in the Rgveda (I.135.8; X.97.5 in Sharma 1979:20). Its

fruits are called "pippala" and on this basis it is popularly known as the pipala or pipal tree. Two etymologies have been proposed for asvattha, which is one of the Sanskrit names of Ficus religiosa (Emeneau 1949:369-370).

The first is based on the Vedic myth of Agni taking refuge in the tree in the form of a horse (Kuhn 1852:467 in Emeneau l.c.). Hence, asvattha is derived from asva-stha "the standing-place of the horse," or horse-stand, because the shade of the tree was used for stabling horses (Sinha 1979:36). Replacement of sth by tth is taken to be Middle Indic (the Pali word is assattha, which is also Prakrit). The horseshape of Agni, is considered to be nothing more than etymological invention; however, as a Proto-Middle Indic form borrowed into the hieratic language of the early Rgveda, its importance for a chronological hypothesis cannot be ignored.

The second etymology is derived from a-svastha, with the same Middle Indic intermediary (assattha), which is cited as a parallel to the name caladala, "tremulous-leaved," given for the asvattha in the Sanskrit lexicon Amarakosa (Lassen 1867:304 in Emeneau l.c.). The Latin rendering given by Lassen is "non in se constans," due to the poplar-like continual shivering of its leaves, which is

a feature of the tree noticed by botanists. Emeneau proposes to follow Lassen, "except that a-svastha, 'not self-dependent,' should be taken as referring to the tree's epiphytism, a feature at least as prominent as the shaking of the leaves."

The Tree Established in Heaven

"What tree it was, what kind of wood, of which heaven and earth were once built eternally strong" (Rgveda X.81.4 trans. in Chauby 1970:56-57).

That the ancients were familiar with the growth habits of the asvattha, and correctly identified its epiphytism, is recounted in several early Sanskrit and Indic works. As an epiphyte, it is vital for the germination of its seeds and initial vegetative growth to occur in branch axils and bark crevices, high on the crowns of dense forest trees, since its seedlings would otherwise be unable to survive in the dim light of the forest floor. Initial growth in the soil, then, for this epiphytic fig is not a natural characteristic. Owing to the very high root competition in the ground, the fig clears a living space for itself above ground through descending roots which envelop the stem of its support tree, and, in addition to overshadowing the host with a massive crown, sometimes kills it (Galil 1984:186-187).

These unique competitive features of the asvattha were probably common but, at the same time, miraculous enough to have engaged the attention of the early Vedics:

"How is it that unbound and unsupported he does not fall, though directed downward? By what self-power he moves?" (Rgveda IV.13.5 trans. in Chauby 1970:57);

"In the Unsupported (sky) King Varuna, he of purified intelligence, sets up the top of the tree. Downward are they the branches, above their base. May their rays reside in us" (Rgveda I.24.7 trans. in Coomarasawamy 1971:II.2).

Vedic passages also attest to another competitive feature of the asvattha which the Aryans recognized and respected. Galil (1984:197) has observed that Ficus religiosa behaves differently from other jungle figs in that it is able to "split" living stems:

"This method of damaging living stems by splitting them from the inside closely resembles the behavior of the Ficus religiosa epiphyte in various kinds of masonry, where the roots grow into interices between the bricks and stones, forcing them apart."

Explicit reference to this specific effect of the asvattha on its support is found in the following translation of the text Atharvaveda (III.6 in Emeneau 1949:352):

1. The male sprung from the male, from the khadira;
may it slay my enemies whom I hate and who hate me!

2. Break them, O asvattha! the pertinacious foes,
O you born of the repeller (the khadira)! in
alliance with Indra the demon slayer, with Mitra
and Varuna!
3. As, O asvattha you have broken (the khadira)
within the great ocean (of air), so break all
those whom I hate and who hate me!
4. You who go conquering like a conquering bull,
with you here, O asvattha! may we conquer
our rivals!
5. May Nirrti, O asvattha bind in the indissoluble
fetters of death them, my enemies whom I hate
and who hate me!
6. As, O asvattha! climbing the forest trees you
put them below you, so split apart the head of
my enemy and vanquish him!
7. Let them (the enemies) float down like a boat
cut from its mooring! There is no returning
again for those pushed away by one born of
the repeller.
8. I push them away with my mind, away with my
thought, and with the incantation. We push
them away with the branch of the asvattha tree.

The Aryans, in their own competition for land, power and domination of the native inhabitants, adopted the asvattha, "vanquisher of rivals among forest trees," as a symbol of strength and destruction of the "enemy," and imbued it with power through a metaphorical interpretation of the botanical facts. In all the phraseology of this charm, reference to the growth habits of the asvattha is quite obvious. This hymn actually accompanies a ritual in which an amulet made from the wood of an asvattha growing on a khadira tree (Acacia catechu, Willd.) is used with the hope of destroying enemies (l.c.:351-360).

The World Tree

A period of "great intellectual ferment" among the Aryans is marked from 800 B.C. to 600 B.C. (Gupta 1971:52). The contributing factors which may have led to this time of philosophical and doctrinal change are quite possibly due to circumstances encountered by the Aryans upon entering the forest areas of Northern India. Increasing drought, the most obvious feature of climatic change occurring at this time, is one factor that must be considered (Lamb 1982:143).

Wissmann (1956:296-297) notices a development and spread of human genius, "a growing and deeping of the 'logos' in the human mind," in other cultural centers of the world during this same period corresponding to a retreat to the forest. Traditionally ill-equipped (as herdsmen and steppe farmers) in the practicalities of forest life, the Aryans by necessity or perhaps by force adopted already existent native knowledge as well as pursued their own study of forest lore and practice. Consequently, there developed a body of botanical knowledge together with an increasing association of deities with the plant kingdom, which is traceable in the literature of this period.

The first classics of this period were the Brahmanas, which comment on and expound the doctrines of the Vedic hymns, especially in relation to the ritual of sacrifices. The prominent (and revolutionary in terms of Aryan world

view) literary achievements of a later genre of this period are assembled in the Aranyakas or Forest Books. The expository appendices to the Aranyakas are called the Upanishads (c.1000-600 B.C.), "the sittings down" or "the sermons." The Forest Books were the works of the rishis, ascetic sages who lived in the forests in communion with nature. Their philosophical inquiries into the beginning of life and the World Soul were no doubt inspired by the wonder and mystery of their forest environment (Randhawa 1976:46-47).

For the rishis, the hardy drought resistant trees of the forest were a source of particular admiration, veneration, imagery and cosmological speculation:

"He who knows the tree with the roots above and branches below, that person would not at all believe that death would kill him" (Taittiriya Aranyaka I.11.5 trans. in Emeneau 1949:367).

Through their meditations in the forest, the rishis conceived Atman (the World Soul) to be the most certain and therefore the most substantial thing in the world. Parallel to this realization was a renewed concern about the relation of water to creation: "Water wanted the Creator." Brahma, meaning "to increase" or "to grow," was the demiurge conceived as being the basic principle of all things. From these two conceptions arose the understanding of the "oneness of Brahma and Atman" (Suzuki 1981:65).

The asvattha, in its epiphytic stage, provided the basis for a vegetative-regenerative image:

"This eternal asvattha has its roots above, its branches below; just it is light, it is Brahma, just it is called immortality. In it all the worlds are supported; no one goes beyond it. It assuredly is this." (Katha Upanishad VI.1 trans. in Emeneau 1949:365).

In this capacity, as being rooted in the life principle, Brahma, the asvattha came to be especially regarded as the life-giving tree and symbol of creation. At the same time, this seemingly undying tree, with its roots in the upperworld and its branches below, also provided a structurally central image (i.e. symbol of the inverted tree) for the representation of the cosmos (l.c.:367). As the embodiment of cosmic connection, it represents the "paradoxical situation of transcendence and immanence, i.e., the coming together of the sacred and profane at a given spatio-temporal point" (Reno 1977:79). Occurring together, these two motifs, the "tree of life" and the "cosmic tree," give metaphysical support to the sacredness of the asvattha as the "cosmic tree of life."

The life-giving tree is a continuous traditional symbol (see Figure 8) which appears in the Rgveda (see above: I.24.7) and later again in the Atharvaveda (X.7.38). The basic concept which threads through these and other examples is exemplified in the text:

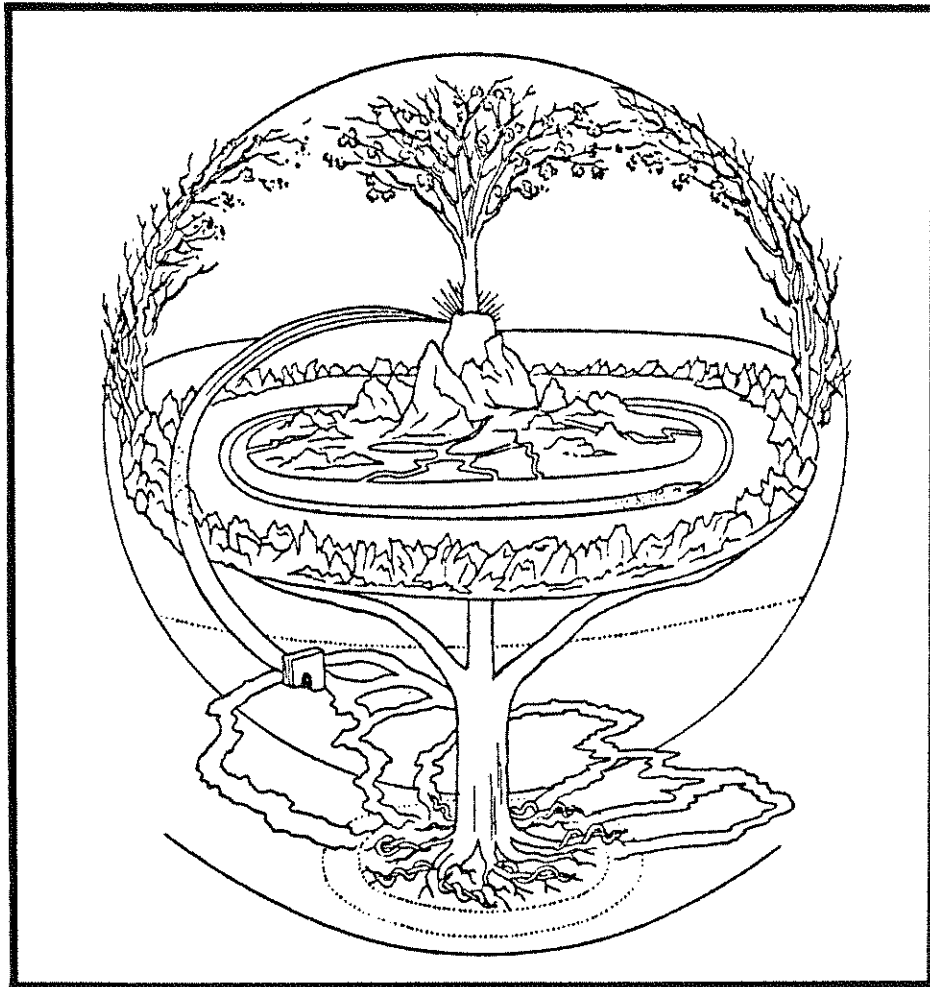


Figure 8. The Cosmic Tree of Life
(Ex. Yggdrasil, Scandanavian World Tree
Source: Philpot 1897, p.115

"Prior to the sky, prior to the earth, prior to the living gods, what is the Germ which the waters held first and in which all the gods existed? The waters held that same Germ in which all the gods exist or find themselves; on the navel of the Unborn stood that [a tree] in which all beings stood" (Rgveda X.82.5 trans. in Coomaraswamy 1971:II.2).

According to Coomaraswamy (l.c.:24-29), the Unborn is the designation of the world-ground; originally known as Varuna, he is referred to as a Yaksa in the Atharaveda, and in subsequent texts as Purusa, Prajapati, Brahma or Narayana. The navel is the seed, the power of procreation. The myth of actual creation, then, takes the form of a tree growing from the navel (seed) of a Primal Male (the Unborn), who rests upon the waters.

The ideology behind the myth essentially is based on a water cosmology: from the primeval waters rose the plants, and from the plants rose all other beings, including gods, men and cattle. There is a cycle in which the vital energy (sap in trees, soma, amrita, semen, milk, rain, honey, mead, liquor) passes from heaven through the waters, typically virile or productive plants and animals, and man, to return ultimately to the waters. The prayers addressed to any member of the series--to the waters, vital energies, plants or the deities controlling them--are almost always in the form of "instigations to function vigorously."

Likewise, the symbol of the inverted tree (obviously derived from formal characteristics of an actual species) has significant cosmological meaning, as shown by its antiquity and its recurrence in successive literatures. Emeneau (1949:369) argues that:

"...because of its striking paradox it spread from its place of origin and that its identification with local flora and its mythological and dogmatic interpretation were always conditioned by the local habit and verbal custom. It is a symbol which gains a different content from each culture that receives it."

The basic theme of this symbol is the expression both of the entire cosmos, and, most important, the central position in the universe occupied by man, with Brahma above and the lower forms of life below. In the Mahabharata, the man who worships asvattha daily worships the whole universe (Anusasana Parva, X.288 in Gupta 1971:52). The symbolism of the cosmic tree acquires additional meaning in the succeeding Epic literature, where it represents cosmic existence centered in samsara (rebirth and the world of sense), suggesting that the ultimate source of all creative activity and spiritual values transcends the activities of the phenomenal world of time and space (James 1966:148-150). An example of the imagery employed to transmit this metaphysical development is found in the Bhagavadgita (15.1-2 trans. in Emeneau 1949:365):

"The eternal asvattha, they say, has its roots above, its branches below. He who knows it whose leaves are the Vedic hymns, he knows the Vedas."

"Extending below and upward are its branches, nourished by the gunas [energies of nature] and with the objects of the senses as its shoots; and spreading below are its roots, resulting in actions, in the world of men."

Rise of the Tree Spirit

"...and by its side, by all analysis, luxuriated beliefs in tree-spirits, in witchcraft and spells, in fetishes, medicine-men, and tribal deities, of which no certain trace remains."
(Arnold 1900:25)

One can assume that in the process of India's Aryanization not all the indigenous tribes and clans were immediately and completely Aryanized. In the same instance one cannot assume that the Aryans were able to guard the sanctity of their own religion against Indian acculturation. According to Coomaraswamy (1971:II.1-2), evidence for the antiquity and popularity of a non-Aryan popular cult known as Yaksa worship can be traced in the early religious history and iconographic evolution of India. He goes further to suggest that as a Life Cult, in connection with the Mother Goddess and Water cults, it may have been the primitive religion of India.

The Yaksas are the Lords of Life, primarily vegetation spirits and guardians of the vegetative source of life (i.e. rasa [the essence of water]=sap of trees=soma=amrita). They include universal deities, tutelary deities of kingdoms or clans, and more localised unnamed male and female spirits "whose power does not exceed beyond the shadow of the tree which is their abode." All these Yaksas directly control and bestow the wealth and fertility of their respective terrestrial habitats.

Coomaraswamy (l.c.:II.15) reasons that among the Aryans, who were essentially nomadic people with a natural emphasis on herds of cattle and horses, these localized deities would not be expected. This might explain why "the operations of the powers of vegetative increase are not fully explained in the Vedas" which "themselves seek to attain their ends rather by sacrifices to celestial powers than by the worship of localized personal and terrestrial deities." Nevertheless, it is possible to trace the acceptance and development of the concept of devotion to these deities and also its significance for the sacred tree in the sectarian literature.

The Yaksa terminology appearing in the earlier references is generally associated with ideas of the "wonderful, mysterious, supernatural, unknown, of magical power, invisibility and spirithood." Hillebrandt (1927 in l.c.:II.1) notices a literary transformation in its meaning from

"unseen spiritual enemy, magician, uncouth being" to a "supernatural being of exalted character" to finally "Yaksa" in the ordinary sense described above.

In the earliest texts, Coomaraswamy (1.c.) recognizes a dual attitude of fear and dislike, and honor and respect. He attributes the first as merely a reflection of Aryan dislike and distrust of aboriginal deities:

"Do not (O Agni) consort with the Yaksa of any smooth swindler..." (Rgveda IV.3.13).

Charpentier (1930 in 1.c.) suggests that the cult was hateful to the Aryans because of human sacrifices performed in connection with it as described in the Rgveda (III.53.14).

The second attitude of respect can be found, for example, in the identification of Yaksa with Brahma, to which the idea of great divinity and great power is referred:

"He who knows that great Yaksa as the primal-born, that is, that Brahma is the Real, he conquers these worlds" (Brhadaranyaka Upanishad V.4 trans. in 1.c.:II.3).

Coomaraswamy (1.c.:II.2-3) maintains that this concept is developed from the Rgveda (I.24.7) where it is originally applicable to Varuna. Again, reference to Varuna, Brahma or Prajapati as the "Yaksa," supreme and ultimate source of life, is found in the Atharvaveda X.7.38, the

Gopatha Brahmana I.1 and later in the Mahabharata III.272.44 and XII.207.13. In all these examples, the implication of "wonderful being" is involved in association with the Cosmic Tree of Life, which as a species is most often interpreted as Ficus religiosa. Clearly discernible is the emergence and "regeneration" of an older tradition in which the "phraseology and symbolism of the life cults were retained and reinterpreted in sectarian circles, and in connection with deities other than those with whom they were first connected (l.c.:29,39).

The Ramayana and the Mahabharata, the great Aryan epics, were compiled about 500-400 B.C. during a time of social and philosophical transformation involving the elimination or reinterpretation of some traditional Vedic customs and beliefs. Set mainly in the ancient environs of northern India, they trace the inter-tribal wars of the period, often adjusting Aryan and pre-Aryan mythical themes, legends and characters to contemporary events. In the recounting of these tales, conspicuous references to forests, groves, gardens, trees and plants provide a descriptive, naturalistic basis for the transmission of archaic themes and symbolic motifs (Randhawa 1976:48).

The Yaksas begin to appear more frequently and recognizably as familiar figures in the Epics. In the Ramayana (III.11.94) they are associated with "spirithood and immortality," and are ranked below the Devas but above the goblins and ghosts in the Mahabharata (VI.41.1) (Coomaraswamy 1971:5-6). Usually, but not always, they are kind and gentle. Their confusion with Raksasas (a class of demons) can be interpreted as an attempt by Vedic priests to underrate a previously enjoyed beneficent status, a universal device employed by all religions whereby "demons" represent the deities of an older, rejected mythology (Charpentier 1930 in l.c.:II.26).

They may assume any shape, including human form; a female (Yaksi or Yaksini) may appear as a beautiful woman but usually is invisible. In the role of a tree-goddess (vrksata) the Yaksi represents the life-force and fertility of trees. Individuals are seldom named and collectively they are known as "good people;" the number of Yaksas guarding the northern mountains is 352,000 (Mahabharata III.139.7; III.53.13; III.55.17; III.3.64,120; I.63.125; and VII.69.24 in Hopkins 1915:148).

The frequent attention given to these hosts of Yaksas in the epic literature alludes not only to their increasing importance and role in the mythology, but also reveals something about the nature and function of the mythology itself. In attempting to understand the significance and special

purpose of these beings and their mythical milieu, one must remember that myths serve as:

"a narrative resurrection of a primeval reality, told in satisfaction of deep religious wants, moral cravings, social submissions, assertions, and even practical requirements, enhancing and codifying belief, vouching for the efficacy of the ritual in which it lives on, and providing a supernatural sanction for faith and ethical conduct" (Malinowski 1954:101).

In addition, these sacred narratives often provide a charter or 'warrant of antiquity' which testifies to a group's right to land and privileges surrounding that land. As such they summarize general cultural patterns from which are derived specific social arrangements, which in turn are sanctified and validated (Malinowski 1955 in Peacock 1969: 168). Examples of these "specific arrangements" can be seen in the protection of certain trees by early religious injunction.

The Mahabharata warns that cutting down trees on the day of the full moon is a sin equal to that of murdering a priest [the moon here being the source of vegetal energy] (XIII.123.8,127.3 in Hopkins 1915:7). In the Ramayana, an injunction against felling a sacred tree is so strict that Ravana is made to say, "I have not cut down a fig tree in the month of Vaisakh, why then does the calamity befall me?" (Sinha 1979:32).

The Epics give further clues to the extensiveness of a tree cult with the designation of caitya, which sometimes is no more than a sacred tree, or a tree with an altar (caitya-vrksas). Information regarding the description of caityas and human behavior toward them is given in the Mahabharata (XII.59.63; S.R. XII.69.41 trans. in Hopkins 1915:72):

"...a sightly tree, holy as the abode of spirits, not to be cut down, or to be cut only as a tactical exploit in invasion;"

"...one should avoid to cut them down, as not even the leaf of a caitya may be destroyed, for caityas are the resorts of Gods, Yaksas, Raksas, Nagas, Pisacas, Serpents, Gandharvas, Apsarasas, and cruel Bhuts."

Warning is even given to avoid caityas in pitching a camp (Mahabharata III.16.3 in l.c.:71).

Trees are apparently worshipped not only because of their function as the abodes of spiritual beings, but also as wish-granting sentient beings themselves, who are capable of hearing, seeing, feeling and moving (as philosophically proved in the Mahabharata XII.184.10 in l.c.). The asvattha is regarded as the chief of trees and to revere this tree is equivalent to worshipping God (Mahabharata VI.34.26; XIII.126.5, 149.101 in l.c.). A mound or sacred edifice also makes holy the tree upon it, and in a village the "one tree" which is conspicuous is to be revered like a divinty

(Mahabharata I.153.33 in l.c.). Explicit reference to the worship of tree spirits and trees is cited in the following text (Mahabharata V.192.58; Ramayana VI.130.2 in l.c.):

"Let pure men revere with perfumes and wreaths and music the devatas and caityas of the city."

V. B R A N C H E S

The gradual eastward spread of the Indo-Aryans across North India occurred in the wake of the migration of indigenous tribes who retired to the safety of the inner-most reaches of the sub-Himalayan valleys. The northern routes offered by the Gandaki, Revati, Kausiki, Vagwati and Karnali river systems seem to have been particularly accessible and active with the migration of these ancient and historically important people. The attractiveness of this region was probably due to the availability and abundance of its natural resources. Because of the special structure and relief found in the sharp variations of slope, altitude and drainage of the Himalaya and their foothills, the range of rock and soil conditions, as well as that of indigenous flora and fauna, afforded the early emigrants selective advantages in the hunting, gathering or production of food. Later, the Indo-Aryan penetration of the Himalaya followed this same route (Bahadur 1971:9,23-24).

Significantly, the northern route through western Nepal came to serve as a major thoroughfare not only for migration but also as a nexus for trade. The roads of the Gandaki river basins joined the Tibetan, Central Asiatic and Chinese worlds with the ancient civilizations of Ghandara and the Indus Valley, while the only east-west highway of North India crossed the Gandaki at Chitaunighat (in district

Gorakhpore). Due to this situation, those tribes who settled in the Gandaki river valleys grew to achieve economic and material prosperity.

The name "Gandaki" (the gold bearing river) can be traced to the Persian word "gazn" meaning treasure, derived from the more common word "gang." According to Bahadur (l.c.:13-15), the word "gand," for treasure, appears in the very early inscriptions of North India, and the later transcription of "Gandaki" is Hiranyavati, which is revered as a sacred river. The upland sources of the seven Gandaki river systems were vaguely known in Sanskrit texts as Suvarnabhumi or Suvarnagotra (Gold Country), or Stirajya (Kingdom of Women) because of the beautiful Kinnaris, Yaksis and Savaris who hailed from those mysterious regions. The special feature of this region, reported by early Chinese writers, was that it produced gold, winter wheat, cattle, rock salt and wool (l.c.:25).

At the southern extension of the Gold Country in the basins of the Gandaki river system, the original tribes established flourishing forest communities from which arose several republican states (see Figure 9). The Sakya and Koli clans, considered as the cream of nobility of the Himalayan highlands, had city-states called Kapilavastu and Ramagama respectively. They represented two of the eleven Indo-Aryan tribes which had established kingdoms in the sub-Himalayan river systems, among whom there developed a philosophical

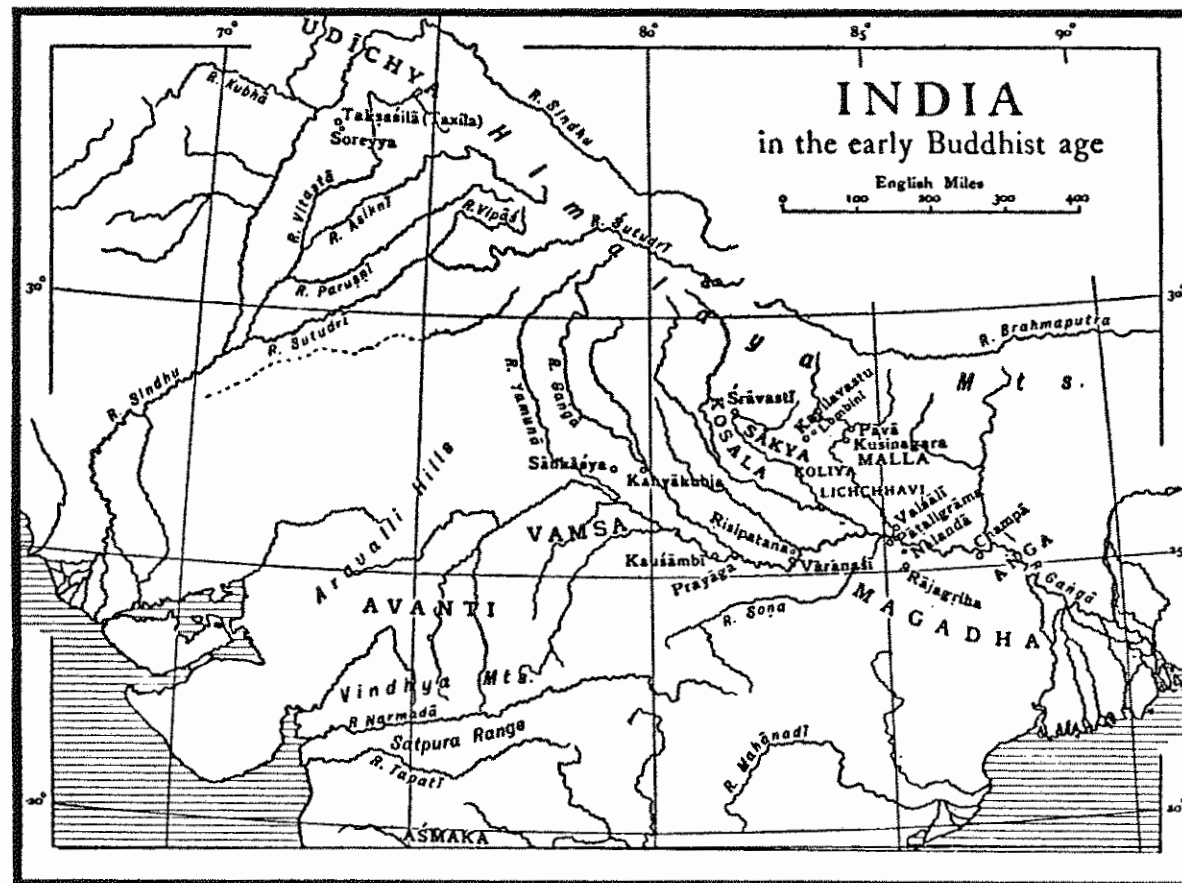


Figure 9. India in the Early Buddhist Age
Source: Masson-Oursel et al. 1967, p.28

and religious schism that contributed greatly to a continued state of flux in the political situation of North India.

The basins of the Kausiki river system were inhabited by tribes (with their capital at Mithila) representing Vedic Indo-Aryans who encouraged slavery and exploitation of the indigenous people. Without any further theological advancement, the Vedic Brahmins of these tribes had allowed their religion to degenerate into a system of ritual magic whereby priests tried to force Vedic gods to comply to their demands. Furthermore, they preached absolute and unquestionable allegiance to the Vedic hymns and spells and laid great emphasis on elaborate sacrifices.

The basins of the Gandaki river system, on the other hand, were the homes of revolutionary "free-thinking" Indo-Aryans who rejected the yoke of orthodox Vedic Brahmanism with its caste system and fostered more democratic principles of social equality which laid the basis for a system of rights, duties and legal status known as the Manava Dharma-sastra (l.c.:27; Randhawa 1976:51). The protagonists of this revolt were led by the Seven Tathagatas (historical Buddhas), who are very well established in early Nepalese hymns, literature and sculpture (Bahadur l.c.:22-31). Simpson (in Sinha 1979:44) analyzes:

"It was a protest against the lavish expenditure of blood in the sacrifices of the Brahmanas and was so far successful as to excite the hatred of the hierarchy and ultimately the persecution of the civil arm."

It seems, however, that this revolt had deeper ideological roots stemming from the scientific theories and practices of a lineage of seven Gandaki philosophers. In his primitive atomic theory, Konagamana (Kanakamuni) conceived that the universe was composed of divisible and indestructible "pudgalas" (kanas or atoms), and that the four basic elements (earth, water, light and air) were composed of different types of pudgalas. According to this theory, different visible objects were formed by the combination of masses of atoms, and in the same way continued to acquire new forms and became endowed with new qualities. Likewise, he conceived that the mind and soul were also composed of atoms, and when these various atoms consolidated themselves, then the objects thus formed acquired consciousness by the nature of the pudgala, rather than by the steady process of natural selection and evolution.

As a logical sequence to this "existentialist" theory, the philosopher Kapilamuni introduced the equally atheistic theory known as the Samkhya system of philosophy, in which he attempted to construct a mathematical model of the universe and the creation and evolution of the species. Also, to Kanakamuni's four basic elements he added the concept of "space " (Bahadur l.c.:27-28).

The adherents of Kanakamuni and Kapilamuni were regarded as agnostics by the Kausik Brahmins, as they had totally broken away from the Vedic principles and practices. They propagated their insights in Prakrit, the vernacular of the masses, rather than the aristocratic Sanskrit used by the Brahmins, so that their message was popularly understood (Randhawa 1976:51; Burkill 1946:328). Their theological communities later became incorporated into the city-state of Kapilavatthu (Kapilavastu), which was named after Kapilamuni and is presently identified with the ruins of Tilaurakot in district Butwal, Western Nepal. By the middle of the sixth century B.C., the enterprising merchant classes and intellectuals of other sub-Himalayan city-states had become powerful enough to defy the injunctions of the Vedic Brahmins and lend their support to the scientific teachings of these revolutionary Buddhas (Bahadur 1971:20-23).

The "Gandaki Piedmont" challenged the theory of chaotic, foundationless, illusory cosmic order preached by the Brahmins, with a peculiar symbolic practice. They "threw the gauntlet" by brandishing the branches of the Jambu tree (Eujena jambolana or rose-apple) and by planting them at important places of Vedic reaction (l.c.:28). One might infer from this dramatic gesture that perhaps the early metaphysicians were simply demonstrating the "groundedness"

and underlying order of the cosmos espoused by their scientific theories. Moreover, as an act of defiance against the Aryan rule and its destructive land-use practices or out of concern for deteriorating environmental conditions (i.e. drought), this tree-planting device might be implicated in an emerging "ecotheology."

During this period the upper Gangetic plains were completely Aryanized except for those few sub-Himalayan river valleys where the early Buddhas lived and preached. The pre-Aryan population lived in small villages in forest clearings, in a vast tropical monsoon forest which extended over the entire surface of North India. One can assume that they probably practiced slash-and-burn agriculture, whereby farmers and herdsman engaged in a precarious cultivation in fields protected by fences of thorny bushes and trees. Wild fruit trees were popular, and shady trees like the pipal and banyan provided relief from the scorching sun in the summer months (Randhawa 1964:7; Burkill 1946:328).

With the advent and spread of Aryan occupation, large-scale conversion of forests to permanent field agriculture and/or grassland for domestic herds took place. In addition, large logging operations were conducted by the Aryan Rajas to meet the increasing demand for timber used in the construction of houses, forts and palaces, as well as chariots, carts and wagons used in extensive military campaigns

(Randhawa 1976:49). Subsequently, this depletion of forest resources might have generated a gradual popular awareness and open concern similar to the early "oecology" movement of Europe (late 19th-early 20th cent.), which likewise witnessed the destruction of much of its forests because of the demand for timber, prompted indirectly by the Industrial Revolution and military activities (Martin 1986).

More convincingly, archeological evidence from the area of Kapilavastu dating from this period of history suggests that the ideas and practices of the Seven Tathagatas might have been influenced by a popular tree cult (Randhawa 1976: 52). Coins showing symbols of trifoliate trees with railings, and temple ruins of a Yaksa god, Sakyavardhana, not only provide a link to the Mohenjo-daro seals but also establish the existence of this form of worship among the Sakyas during the time of the historical Buddhas. The life story of the Sakyamuni Buddha also reveals that it had been Sakyan custom for every new-born baby to be taken to this temple for the god's blessing (Bahadur 1971:vi-ix).

Beal (1871:415-416) theorizes that a characteristic of this period of early Buddhism was the adoption of popular myths and practices, probably as a means for enlisting popular sympathy. He also suggests that no belief was more deeply embedded in the pre-Aryan peoples than reverence for trees and tree spirits, and that this reverence was very

generally prevalent in the time of the early Buddhists. In the beginning they probably had to contend as much with the undercurrent of tree reverence in the popular mind, as with the uppercurrent of Brahmin philosophic opposition.

Tree of Enlightenment

"... the spiritual rebirth of the world starts in the mind of man and the tree of life grows out of his own heart, the center of his being, the axis of his own world. And while he experiences the different world-planes, the tree of life sprouts and develops within him and spreads its branches in ever new infinities; in fact, he himself turns into a tree of life, into a tree of enlightenment" (Govinda 1976:31).

According to Buddhist tradition, each of the 25 successive legendary Buddhas are identified with a different "Bo" tree. Their names are recorded in the Buddhavamsa (Bhat 1969) and can be identified with known trees, many of which are also represented in early Buddhist sculptures (Fergusson 1868:116). Geiger (1912:292-293) denotes a "Buddha" as a being who by his own force has attained possession of the highest knowledge (bodhi or sambodhi), and he is able to use this knowledge to perform certain wonders in accord with the laws of nature.

The attainment of bodhi comes to pass under a bodhivrksha or bodhidruma (tree of knowledge), which is held sacred by all Buddhists. The Bodhi Tree of each Buddha is presumably taken from the local vegetative milieu: for example, Kakusandha Buddha's Bodhi Tree is the Acacia sirissa, Konagamana Buddha's is the Ficus glomerata and Kassapa Buddha's is the Ficus indica (l.c.:77-79,105,107). The asvattha (Ficus religiosa) is the sacred tree of knowledge (samyak sambodhi) associated with the last historical Buddha, known as Sakyamuni. All of these trees, as well as others associated with later events, particularly in Sakyamuni Buddha's life, would have been familiar within the biogeographical limits of early Buddhist activity in North India (Burkill 1946:327).

The seventh historical Buddha is known by several names: [1] Siddhartha, son of Suddadhana, the Raja of Kapilavastu; [2] Gotama (Pali) or Gautama (Sanskrit) of the Gotama clan; [3] Sakyamuni, recluse of the Sakya tribe; or [4] Buddha, the religious philosopher and enlightened teacher (Burkill l.c.:327). The chronology adopted by Randhawa (1976:52) represents Sakyamuni's birth as having taken place at Kapilavastu in 563 B.C.

Various accounts of the nativity describe that it took place under a sal (Shorea robusta), asoka (Saraca indica) or plaksa (Butea monosperma) (Randhawa 1964:7).

The Lalitavistara, a Buddhist epic, tells how the mother Mahamaya came to an asvattha tree "which [had] supported the mothers of the previous Jinas": all the previous Buddhas had been born under the same tree. At the moment of birth, a branch of the tree (Ficus religiosa) bent down towards her; she grasped it in her right hand and the infant sprang forth from her right side: the Buddha was born at the foot of the World Tree (Snodgrass 1985:182).

Halдар (1977:105) and Burkill (1946:338) suggest that this description owes its origin to the belief that the foot of this tree is connected with fertility and offspring. Snodgrass (1985:182) and Snellgrove (1978:343) carry the implications of this story further by pointing out that later iconographic representation of the pose adopted by Mahamaya echoes the classic stance of the Yaksi (female tree spirit) found in pre- and early Buddhist sculpture of North and Central India. Coomaraswamy (1971:34) believes that the tree had originally been a caitya-vrksha (the abode of a tree spirit) when Mahamaya halted beneath it, and that it was the spirit of the tree who bent down the branch.

The Ficus religiosa appears again in connection with another major event in the life of the Sakyamuni Buddha. Having passed through 43 previous incarnations as a tree spirit, he finally attains the highest knowledge (Enlightenment) "sitting under the sacred tree of Brahma" (Hastings 1925:452). With this event, which is assumed to

have taken place on the banks of the Nairanjana River at Bodhgaya (south of Rajgir in the northern Gangetic Plain) in the year 528 B.C., this already sacred tree acquires an historical dimension as a monument with a specific place not only in the sacred story but also in the development of Buddhist religion (Snellgrove 1978:43; Burkill 1985:1946:327). The pipal tree is so closely connected with the Buddha's Enlightenment that it has been adopted as the specific sign of that event and since worshipped as the symbol of that literally "pivotal occurrence" (Snodgrass 1985:183).

At this stage in its evolution, the sacred tree becomes the Tree of Knowledge of Good and Evil. It also becomes vocal in the light of divine wisdom, given expression by Sakyamuni. Concerning this subject, Hastings (1925:449,457) writes:

"The sacred tree, instinct with divine life, is vocal with the word and the will of the deity."

"This voice is the voice of divine wisdom, vocal at Dodona and Cnossus and Delphi, vocal in the burning bush, and vocal today in 'the spirit of wisdom and understanding, the spirit of council and ghostly strength, the spirit of knowledge and true godliness.' And this fruit of the Holy Spirit is the fruit of the sacred tree."

Huxley (1974:16) states that the highest form of knowledge is traditionally that of sacred matters and, as such, combines contradictory concepts (as in the term oxymoron) to illustrate a process "which, if it divides, must also unite, but which can unite only if it has previously divided." As a sacred symbol, the Bodhi Tree of Sakyamuni Buddha encompasses two seemingly opposed strata of significance, one life-giving and beneficent, the other life-destroying and maleficent. However, "those who have vision of the Quiddity do not distinguish between the Vortex of Life (samsara) and the Extinction (nirvana)" (from the Chitta-visuddhi in Snodgrass 1985:184). Whereas, for example, the withering and regrowth of leaves on the tree is a similitude of an ever-perpetuating regeneration of the world, it is also a metaphor of the fleeting transience of life (l.c.).

The Tree of Life, then, is also the Tree of the Knowledge of Good and Evil, which is analogous to Time the Devourer. In the Buddhist view, the tree as cosmos, as the procession of incessant life, yielding all the fruits of existence, is at one and the same time: [1] the Wisdom Tree (jnana-druma) "whose roots strike deep into stability... whose flowers are moral acts...which bears the Dharma as its fruit...and...ought not to be felled," and [2] the Tree of Life, "a vine of coveting that must be felled at the root."

Ultimately, and in the eyes of the Awakened, these two trees, opposite in nature but one in essence, are inseparately joined in non-duality: they are two aspects of one and the same Truism that transcends all dicotomies (1.c.:183-184).

Axis Mundi

The Buddha's attainment of Enlightenment was actually the realization of his centrality, for directional and axial symbolism inheres in every detail of the story (1.c.:41). Turning his back to the tree to face the East and saying, "...this is the immovable spot on which all the Buddhas have planted themselves," he then seated himself cross-legged at the foot of the tree. Mara appeared and tried to persuade the Buddha to relinquish his position, however, he remained unflinchingly steadfast. He then "concentrated his mind and began a meditational ascent of the world's axis, rising to ever higher planes of insight and understanding until he attained perfect Enlightenment, bursting in total Freedom from the apex of the world" (1.c.).

The cosmic symbolism of this event can be understood by examining the significance of the central position taken up by the Buddha at the foot of the sacred tree. Firstly, one must remember that from the time of Mohenjo-daro onwards,

sacred places were constructed around a tree as the principal object of veneration. The prototypic concept of the caitya-vrksa is the sacred enclosure centered on a tree having a stone altar at its base (l.c.:256). The stone altar was the essential element of a Yaksa shrine or holystead when placed beneath a tree sacred to a Yaksa or Yaksi. A tree sacred to a Yaksi was regarded as the personification of life and of fecundity (Coomaraswamy 1971:17; James 1966:147-148).

In Vedic ritualism this stone altar at the foot of the sacred tree held the sacrificial fire of Agni (Snodgrass 1985:153). Such an altar beneath a sacred tree was occupied by the Buddha, who, according to a legend in the Nidanakatha, was mistakenly offered food as a Yaksa by the maiden Sujata: thus the Buddha at the same time represents the tree spirit as well as the sacrifice (Snellgrove 1978:52). In the case of the Bodhi Tree, the transference of these original associations is quite obvious: it becomes evident, then, that the sacred tree and altar are representations of older cults taken over by Buddhism, whereby the pre-Buddhist altar stone became the Buddha's seat of Enlightenment (Coomaraswamy 1971:17).

Secondly, the seat of Gautama's Enlightenment (vajrasana) at the foot of the pipal tree is the visible symbol, positioned in geographical space and in historical time, of an invisible locus, representing a focal point of consciousness and universal being that transcends all geographical and historical contingencies and spatial and temporal limitations. "Mythically, and in physical space, this central point of the cosmos is located beneath the Bodhi Tree at Bodhgaya, but metaphysically it is simultaneously stationed at every point of the universe" (Snodgrass 1985: 157).

In the cosmogonic model of the caitya-vrksa, the tree trunk, with its base fixed in the world below, represents a radial axis or universal pillar (axis mundi) which at once connects and supports heaven and earth, and through which communication between the two cosmic regions is expressed (see Figure 10). Around this cosmic axis lies the world, hence the axis is located "in the middle," at the "navel of the earth;" it is the Center of the World (Eliade 1957:37). "In every symbolic context the Tree is central and axial. It is the perpendicular that centers the cosmos. World Tree and World Axis are coincident" (Snodgrass 1985:151).

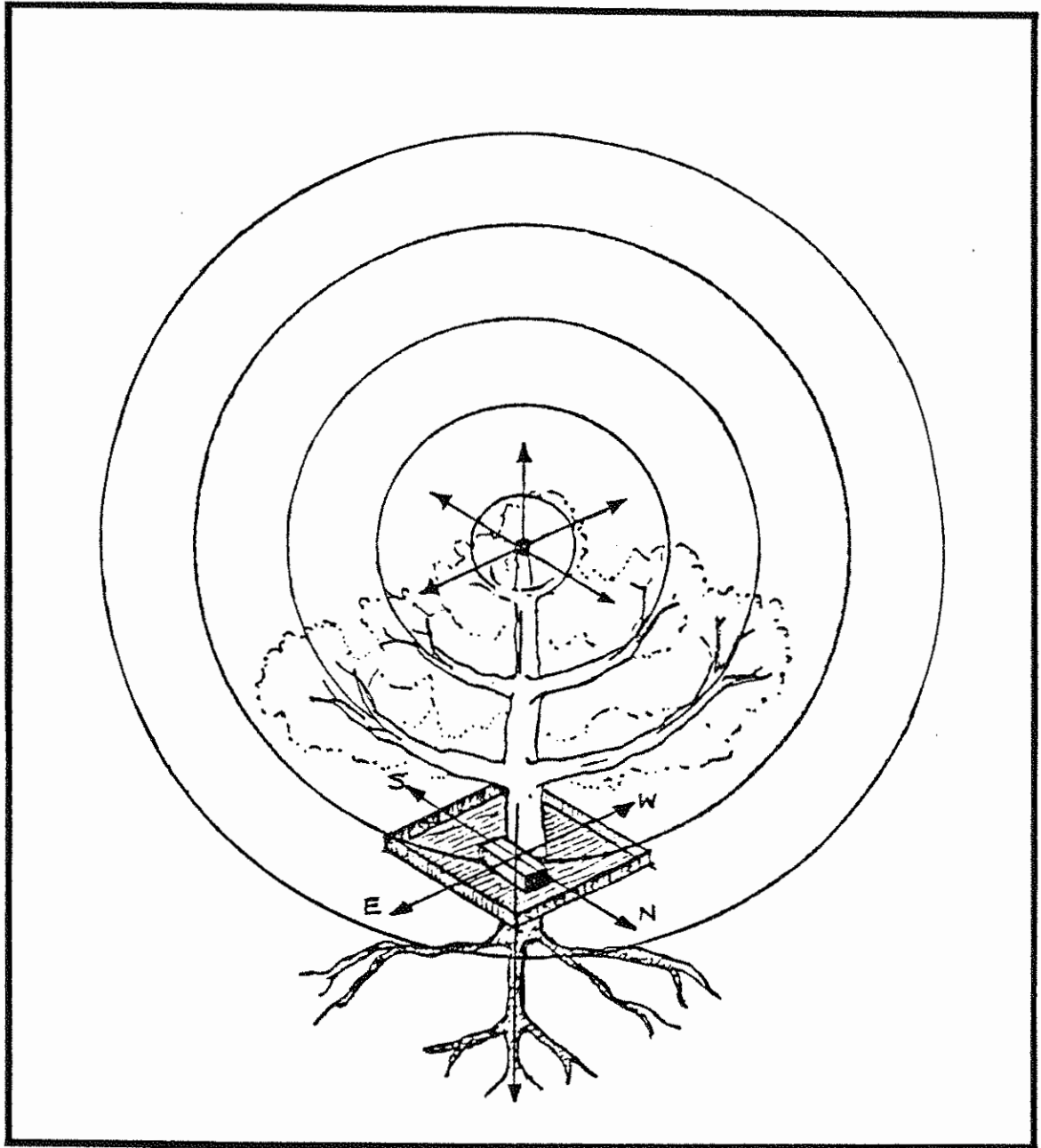


Figure 10. Cosmogonic Model of the Caitya-vrksha
Source: Snodgrass 1985, p.154

This "symbolism of the center," whereby the tree trunk (axis mundi) connects the felly of the world back to the central hub and source of the cosmos, is one of the most widespread and ancient symbolic themes (l.c.:180; Snellgrove 1978:40). The significance of this symbolism in the present discussion is that, by seating himself in the yogic posture of meditation at the base of the tree (i.e. at the point where the axis mundi strikes the earth), the Buddha not only identifies himself with the Center but also assumes the humanized form of axis mundi (Snellgrove l.c.). "From the center of the world he rises through the upper worlds, ascending the perpendicular that leads up to the Centre of Centres where he breaks free from the confines of the cosmos" (Snodgrass l.c.:41). The message of his Enlightenment relates to the same symbolic theme: in contrast to the World Wheel of the unenlightened, which is the wheel of birth and death revolving around ignorance, craving and passion, the World Wheel of the enlightened Buddhas is the Wheel of Dharma ordered by the Norm and turning on the Buddha as its unmoving axle-tree.

The central event of Sakyamuni Buddha's career (i.e. his Enlightenment under the Bodhi tree) has been symbolized by the tree itself: Ficus religiosa as caitya. That the tree is meant to suggest the Buddha himself is proved by inscriptions that actually name it "bhagavato" ("the Exalted One"), and in the Divyavadana the Buddha is

quoted as having described it "as my permanent abode" (Snellgrove 1978:28,42). Elsewhere, when the Buddha is asked what kind of caitya can be used to represent him in his absence, he specifies the Bodhi tree as an appropriate substitute for his presence (Kalingabodhi Jataka in Snodgrass 1985:156).

Here, the caitya, both as an ordinary object of the natural "profane" world and as a reference to a supra-physical reality, serves explicitly as an hierophany or "the manifestation of the sacred...something of a wholly different order" (Eliade 1957:11). The hierophany itself represents an important paradoxical situation: in this case, the tree, as a manifestation of the sacred, becomes "something else," yet it continues to remain "itself," for it continues to be part of its surrounding cosmic milieu. Nothing apparently distinguishes it from other trees, except when, for those to whom it reveals itself as sacred, its immediate reality is transmuted into a supernatural reality (Eliade l.c.:12).

The evolution of the sacred tree as symbol (caitya) acquires an even broader significance if viewed in an etymological or hermeneutic context. The word caitya, derived from ci, "to pile up," was originally used to refer to the piling up of stones or the construction of a fire altar, and came to be associated with any altar, hallowed place or object where an hierophany of the sacred was deemed to occur

(Snodgrass 1985:156). Coomaraswamy (1977 in l.c.:157) notices an etymological concurrence or hermeneutic connection between ci and the closely related root cit, "to regard, to know, to think of, to contemplate." Subhakarasinha (in l.c.) asserts that "the word caitya is essentially the same as cita, which according to esoteric interpretations is 'Mind'." Thus, the Bodhi tree (the Tree of Knowledge) has a more specific reference as a caitya, that is, as an object of contemplation: "then, rising, he stands for seven days more, steadfastly gazing with unblinking eyes at the Bodhi tree" (l.c.:41).

Tree Boundaries and Sacred Space

While the tree as symbol (caitya) represents the Buddha himself, the caitya-vrksa (symbol of tree with altar) more specifically symbolizes the Buddha as the axis of the world. The symbolic importance of the caitya-vrksa derives also from the fact that the sacred tree is enclosed within a vedika (fence, wall, palisade or railing), which defines the enclosed area as sacred space (see Figure 11), an arrangement supposedly developed from a sacred landscape of woods and hills (l.c.:154). Eliade (1958 in Taylor 1979:93) suggests that this sacred association represents a micro-cosmic landscape, with the stone symbolizing the mineral world and the tree representing the vegetal realm.

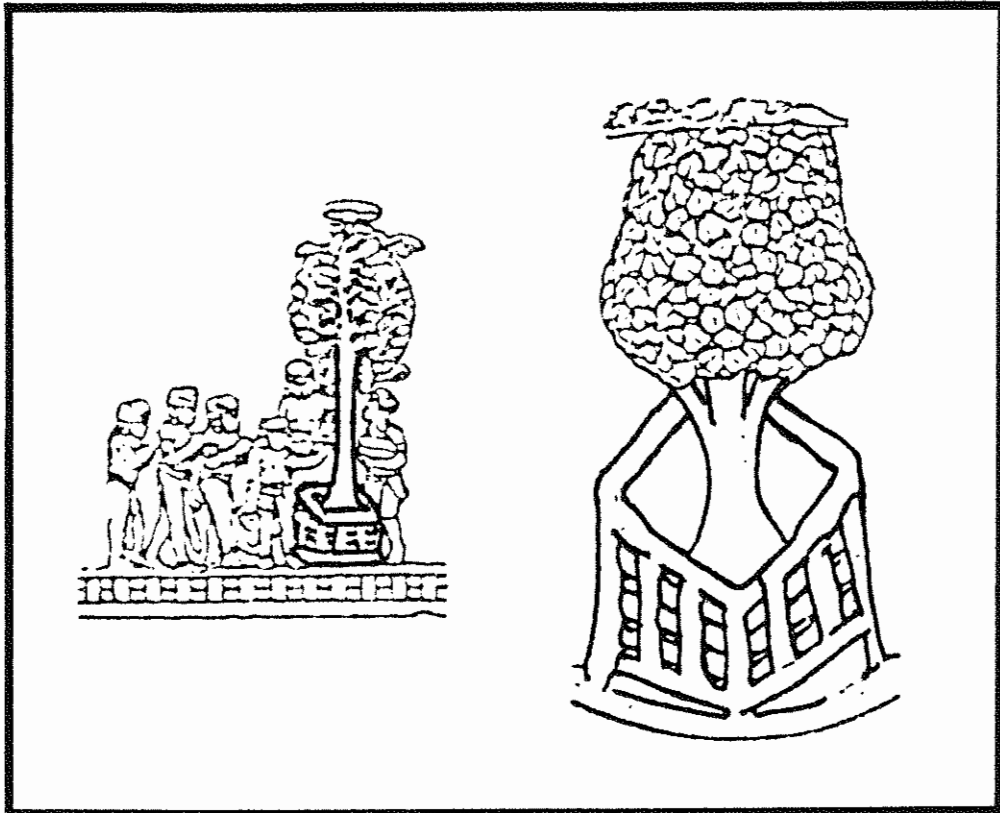


Figure 11. The Caitya-vrksha and Sacred Space Defined by the Sacred Enclosure (Vedika)
Source: Snodgrass 1985, p.154

As previously mentioned, the caitya-vrksa symbolism existed in India's ancient past, depicted on the Mohenjo-daro seals and on pre-Buddhist Vedic coins. Pali texts indicate that it was found throughout India during the Buddha's lifetime (Eliade 1958 in Snodgrass 1985:154). In particular reference to the Bodhi tree, the vedika defines the periphery of cosmic order and establishes the boundaries of the bodhimanda (the Place of the Buddha's Enlightenment), which was measured out upon the ground by the Buddha himself (Nidanakatha in l.c.:41).

More generally, the boundary situation created by the caitya-vrksa adheres to the original meaning of both the Sanskrit word malaka (a space marked off, within which sacred functions are performed) and the Latin word templum: a sacred, cosmicised space set apart from the surrounding chaos of the profane [that which is before (pro) or outside the temple (fanum)] (l.c.:153; Geiger 1912:99). Taylor (1979:86), in his study of the sacred oak, proposes that "the area immediately surrounding the oak tree, an area shaded by its spreading boughs, represented a temenos" so that the oak tree was the temple and beneath its branches lay its sacred precinct.

In addition, the Greeks practiced the custom of erecting sacred images (altars) in the oak temenos. Hughs (1981:13-14; 1984:331-334) reports that such temene were very numerous in ancient Greece and Italy, where trees ("the

original temples") were also considered sacred to the gods. The common feature of these consecrated trees and their immediate surroundings was the rigorously enforced protection provided to them by their sacred limits or boundaries.

In a comparison of art styles and period literatures (East and West) which depict the image of the sacred tree, it would seem that the caitya-vrksa/temenos symbolism was part of a widely diffused Proto-Indo-European tree cult that extended from the Adriatic to the Indus (probably as a consequence of commercial intercourse) (Zimmer 1955:35; Hastings 1925:449; Philpot 1897). By further analogy, it can be demonstrated that this sacred symbolism exhibits another important characteristic--namely, the association of the sacred tree with a thunder-god.

Taylor (1979:133) concludes that oak (genus Quercus) veneration is rooted in Proto-Indo-European culture, supported not only by examples of oak veneration in many language groups, "but also by the fact that, in each case, the oak is inextricably associated with the various thunder-gods." Thus, there is a connection between Zeus and Jupiter: "both were associated with the oak, both were gods of the sky, and subsequently weather and thunder." In turn, both these gods and the Celtic god Taranis correspond to Thor (the god of thunder and the bringer of rain) and his Gothic counterparts--the old high German Donar; the old Saxon Thunaer; the Anglo-Saxon Thunar; and the Norman Thur.

All of these thunder-gods wielded the emblematic thunder-bolt.

In the same context, the preeminent symbol of the Buddha's Enlightenment is the vajra (lightning, thunderbolt or diamond), or "the lightning axis of the world specifically identified with the skambha that supports apart Heaven and Earth" (Snodgrass 1985:157,172). Through additional symbolic contextualization, the Seat of the Buddha's Enlightenment under the Bodhi Tree, facing East, is known as the vajrasana (Adamantine Throne). This eastern situation at the foot of the World Axis locates the "Pillar of Dawn, the column of light that sunders the darkness and props the sky from the earth" (l.c.:41,157).

Coomaraswamy (1935 in l.c.:172) maintains that the representation of the Buddha as a fiery pillar is a survival of the Vedic symbolism embodied by Agni, the god of fire, therefore suggesting an ontological equivalence. By pillar-ing apart the worlds at the dawn and in the East, Agni, to whom the epithet "Awakened at Dawn" is commonly applied, draws men from the annihilation of confused sleep; in the same way, the Buddha, as the "Awakened," awakens them from the sleep of ignorance. Similarly, the designation of Indra as the god of rain (emblem=thunderbolt) and guardian of the East ("the direction of beginnings") is synonymous with the

same theme. Implicit throughout all these associations and their accompanying myths is the connection of the thunderbolt with a god whose sacred tree is asvattha.

The assumption that there is an established connection between thunderbolt/god/tree may help to illuminate the concept of "sacredness" in the development of the caitya-vrksha temenos boundary situation. The inference here is that a tree struck by lightning may have been originally conceived to be the manifestation of a god, and therefore regarded as sacred. The concept of "sacredness" possibly evoked by this phenomena is given definition by Noss (in Taylor 1979:136):

"A primitive man regards anything sacred or holy with a distinct attitude uniting caution with respect. The sacred possesses such significance that he never deals with it carelessly or casually...The proper approach therefore is with a sense of holy mystery, awe, reverence and devout fear...In the presence of the sacred there is a certain anxiety."

The place where lightning struck was immediately declared sacred as the manifestation of the deity. Evidence indicates that such trees (ex. oaks) were fenced off and protected from violation and contamination, thus considered sacred. Fowler (1911 in l.c.:139-141) provides a naturalistic explanation of the religious connection between the sacred oak and thunder in his hypothesis (based on direct observation of the relationship between the conductivity of wood and the scientific laws of electricity) that lightning

strikes the oak more often than other trees. Frazer (1955: xi,300 in l.c.) supports this hypothesis and concludes that the association of the gods of thunder with the oak tree in the primeval forests of Europe, then, was an inference based on the frequency with which the oak was seen to be struck by lightning.

Although there is no direct evidence to support this hypothesis in the case of Ficus religiosa, it is plausible to theorize that this tree, which assumes a great height, whether growing naturally from the ground or as an epiphyte on a tall host tree such as a palm, might conspicuously serve to attract a bolt of lightning. There is a particular reference to this effect in the Gobhila-grhyasutra (iv.,7 trans. in Banerji 1980:9), for example, that warns against the positioning of the asvattha near a house because of the danger (risk) of fire. It is therefore also within reason to assume that the frequency of lightning striking this particular species could have led to its sacralization in pre-Aryan India, in much the same manner that such a universal phenomenon could have elicited a similar response in other parts of the ancient world.

If one accepts this assumption, one must also remember that the religious elements of pre-Aryan India were essentially matriarchal in character, based as they were on the cult of the Mother Goddess, in which the sacred tree was associated with the earth-mother and a water cosmology. The

later association, then, of the thunder-god (as represented by Indra, Agni, and Buddha symbolism) with the sacred asvattha, would seem better suited to the patriarchal elements of the Aryan father-sky cosmology. The practice of setting the asvattha within a sacred enclosure, which pre-dates the Aryan occupation of India, could be attributed to the borrowing of a formal tree cult convention by the early Indus people from their known contacts with contemporary civilizations at the head of the Persian Gulf (Raikes 1964: 284; Burkill 1962:257). Philpot (1897:4-9) provides evidence of this idealized form of tree-worship from Chaldean seals dated 4000-3000 B.C.

The main implication that arises from an analysis of the caitya-vrksa/temenos associations outline above, is that there seems to be a direct relationship between lightning, god and the sacred tree in their symbolic functions as harbingers of rain. In ancient Greece, for example, the priests of Zeus (the thunder-god whose sacred tree was the oak) used oak branches as charms or ritual instruments to invoke rain in times of drought (Taylor 1979:130). By analogy, the branch-carrying practice of the Gandaki Buddhas could also be inferred as being implicated in the ritual for invoking rain. According to legend, immediately after attaining his Enlightenment, the Buddha (as the Cosmic Pillar) meditated under the "Tree of the Serpent King," during which time a great "unseasonable" rain storm

occurred; after seven days it dispersed and he was worshipped as the savior of the world (Zimmer 1946:67). This story obviously could be interpreted as representing the connection between the chthonic and uranic worlds in the cyclic process of rain.

Of particular note here is the association of both Indra (the god of rain) and the Buddha with an eastern aspect. The setting of the caitya-vrksa is also enhanced by clear indications of orientation: Hsuan-tsang (an early Chinese traveler and the Jatakas record that caitya-vrksas are normally located to the East of towns and temples (Beal 1906 in Snodgrass 1985:154). Besides being the origin of the rising sun, the direction of East has significance for another important event: the Indian monsoon.

By definition a monsoon is a wind system that reverses its direction seasonally. In summer the southwest monsoon (which is associated with the equatorial westerlies) prevails at low levels over southern Asia except over the northern part of the Bay of Bengal, where it is deflected by the mountains and attracted by the monsoon trough to flow from a southeast direction (see Figure 12). Normally, the monsoon trough runs from north of the Bay of Bengal to the lower Ganges Valley (near Calcutta) and then northwestward over the Gangetic Plain to Lahore (Chang 1972:305-30¹⁴). The East, the "direction of beginnings," then, is also the direction of rain.

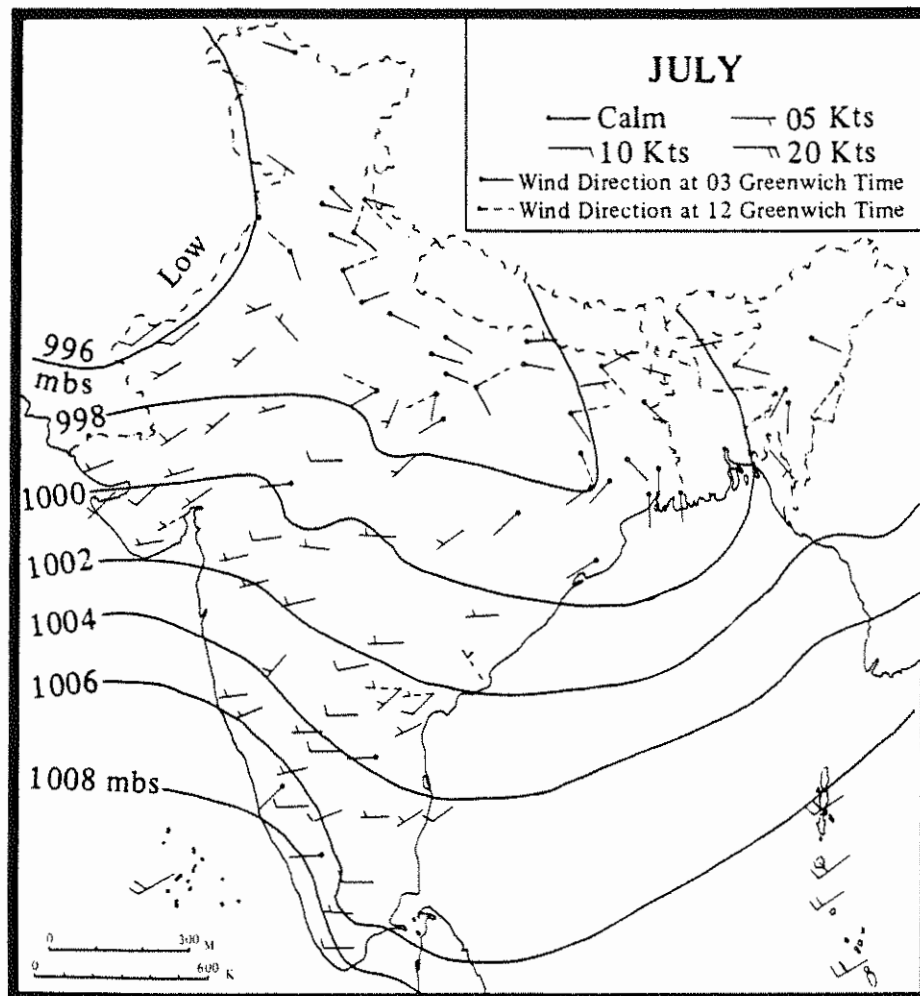


Figure 12. The Indian Monsoon in Summer
Source: Dutt et al. 1976, p.15

Renaissance of the Tree Spirit

"Formerly, communication with Heaven and relations with the divinity were easy and 'natural'; until, in consequence of a ritual fault, these communications were broken off, and the gods withdrew to still higher heavens. Only medicine-men, shamans, priests, and heroes, or the sovereign rulers were now able to re-establish communications with Heaven, and then only in a temporary way for their own use" (Eliade 1952:40-41).

Religion in India during the last millennium B.C., which had already "degenerated into ritualism", colluded in an "unholy alliance with magic and superstition", by which the Brahmin priests subjected the kings and the people to an intolerable yoke of increasing sacrifices and misery (Arnold 1900:38). This over-concern with ritualism and sacrifice would seem to indicate a "disunity" between Heaven and Earth, for it is "disunity" that makes acts of communication necessary, and "disunity" can be overcome only by means of a sacrifice or the undergoing of an ordeal (Huxley 1974:28).

It is apparent that the traditional Vedic ritual was losing its religious efficacy, becoming "fossilized," and no longer enabled men to live in the established order of the "center," the place of communication with Heaven. This breakdown in communication would lead men to seek to restore the former rapport:

"Where is the supreme reality, the sacred, the Centre of Life and the source of immortality, where is the Holy Grail? No one had thought, until then, of asking that central question-- and the world was perishing because of that metaphysical and religious indifference, because of lack of imagination and absence of desire for reality" (Eliade 1952:56).

The breakdown in communication between Heaven and Earth may be seen in this instance as the ineffectualness or inability of the Brahmin priests to placate a growing popular anxiety amidst deteriorating environmental and social conditions. There is evidence of such a breakdown especially in the periods 1200-800 and 600-200 B.C. in North India, when drought probably provoked the great folk migrations and resulting ferment of those times, as suggested by Lamb (1982:146-147):

"The incidence of climatic, like cultural, changes usually has a definable geographical pattern. The impact in the monsoon regions and near the arid fringe of times of globally increased variability of weather from year to year, like the impact of periods of very extensive climatic anomaly such as drought affecting much of one latitude zone, may provide conditions favorable to the spread of a new religion by its enthusiastic missionaries and/or armed support, perhaps most of all through the breakdown of the old way of life and its ordered customs."

The Gautama Buddha (563-483 B.C.) reopened the channels of communication and offered a solution to the problem of suffering in human experience, on both spiritual and material levels, by restoring the symbol of the sacred tree as an instrument of knowledge. At the basis of his philosophical approach there was an utterly realistic, positivistic and empirical immediacy, in addition to an emotional and aesthetic attention upon the nature of all things (Northrop 1946: 353,365,375).

By his selection of the sacred tree as a symbol to represent himself, "it must not be thought that the symbolical application annuls the concrete and specific value" of the tree or its function, nor do the "immediate realities" of the tree negate its "symbolical realities" (Eliade 1952: 177). The fact, that a particular tree is sited at "the Center of the World" and made sacred, does not make it any less a convenience which answers to specific needs and which is conditioned by climate or the economic structure of society (l.c.).

The symbol of the sacred tree in itself expresses an awakening to the knowledge of a "limit situation." Symbols are not merely reflections of cosmic rhythms "as natural phenomena...for a symbol always reveals something more than the aspect of cosmic life it is thought to represent"

(1.c.). The caitya-vrksa symbolism, for example, while it might serve to remind one of the important process of vegetative growth and regeneration, at the same time, in a negative sense it also reveals the real or potential destruction or absence of this vital process when one considers the prohibitory function of the sacred enclosure.

In other words, the existence of the tree itself inside a sacred enclosure presupposes a state of violation or non-existence outside the "protective" limits. This negative aspect, which is not perceived in the tree "as a cosmic phenomenon," is inherent in the caitya-vrksa symbolism. Thus, the symbol of the sacred tree functions by revealing a whole reality (i.e. "the coincidence of opposites") that is inaccessible to other means of knowledge or man's immediate experience (1.c.:176-177). Huxley (1974:13) points out "that the word sacre itself can be either a title of holiness or an execration. In either sense, it is a pronouncement of doom, for good or bad, and its service is an imposition laid upon man." This reconciliation of opposites is clearly present in the Buddha's early teachings, which integrated the polarizing trends of nature-affirmation and nature-rejection in the Vedic and Upanisadic/Sramanic movements, respectively (Thurman 1984:98-99).

Primitive Buddhism, curiously, was a faith that "forbade digging," and would therefore seem an unlikely agent to adopt sacred trees with the object of reforestation in mind. However, "to take a small branch of the Ficus religiosa and to thrust it into the soil as a cutting broke no regulation" (Burkill 1946:327,334). Propagation by cuttings (even large limbs) was very easy and it is a common method of raising this species today (Cameron 1894:283; Santapau 1966:73; Singh 1982:152). [It should be noted that protection of the cuttings from cattle is necessary, which can be insured by putting tree guards or thorny bushes around them (Singh l.c.:138).] As a woody plant, it was suitable for positions in parks, growing in them without particular attention. Burkill (1946:334) posits that the name "bodhi druma" (tree of enlightenment) could not have become a distributed vernacular name for this tree until such events began to take place, for it at first indicated an individual tree.

With the Buddha's consent, a cutting from his own Bodhi tree was planted near the gate of the Jetavana Park in Savatthi, both for its protection and as a place for the performance of puja (Divayavadana in Snodgrass 1985:181; Burkill l.c.). Quite often the centers where the Buddha and his disciples congregated, resided or gave teachings were parks, gardens and groves, sometimes provided by sympathetic

and believing laymen (Bloom 1972:117). These parks are frequently mentioned in the Buddhist literature: the Deer Park at Sarnath; the Bamboo Grove near Rajgir; and the Mahamega Park near Anuradhapura (Geiger 1912:97-99).

Historically, the Buddha's primary teachings were emphasized and institutionalized in a wide-spreading monastic movement which included the mobilization of the populace for support (Thurman 1984:100; Bhat 1969:14). The planting of monasteries in parks and groves between the cities and the wilderness was a factor in opening a middle ground in the culture between excessive naturalistic materialism, with its attendant violence and exploitation, and excessive spiritualism, with its attendant extreme ascetism and neglect of society. The wealth of natural imagery used in these teachings, as well as information based in human culture, indicates an attempt to convey ideas within, and a close relationship with, agricultural and village settings (Bloom 1972:118). Sobhita (in Bhat 1969:50) writes:

"As a great forest is filled with the fragrance of well blossomed trees, so his teaching increased with the fragrance of precepts."

The pipal tree was already an object of miraculous efficacy in pre-Buddhist times, and therefore worthy of worship (puja). When it was incorporated in the new Buddhist cult as the Bodhi Tree of the Sakyamuni Buddha, it was set

inside an enclosed sanctuary (malaka) and later a temple-like edifice (bodhighara) with an overhanging platform or gallery was sometimes built around it (see Figures 13 & 14). (Snellgrove 1987:43; Snodgrass 1985:256; Geiger 1912:27-28).

"Not all sacred trees were honored so ostentatiously, but even the humblest village possessed one, as did the capital city's main districts; so these great trees, on the branches of which villagers or city-dwellers came to hang garlands, were with their surrounding carved railings, a familiar sight throughout the country. As a result it was possible to see in a single populated area a sacred tree surrounded by its fence..." (Auboyer 1965 in Sinha 1979:47).

The prevalence of sacred trees in the landscape of North India was noted in the diaries of Onesekritos, Nearchos and Aristoboulos during Alexander the Great's campaign in the fourth century B.C.: "the Indians reputed as gods whatever they held in reverence, especially trees, which it was death to injure" (Vaczy 1980:25; Philpot 1897:14). Tree worship, which had been confined to the hinterland regions of Aryan rule and mind since the fall of Mohenjo-daro, suddenly seems to reappear in Indian art and religion, first among the folk, then among the governing classes, when Aryan domination in North India began to wane during the last 500 years B.C. (Zimmer 1955:24).

Its return to the surface is evidenced in the early Buddhist stone monuments of Sanchi and Bharhut. According to Fergusson (1868:78,221-222), these great relic shrines

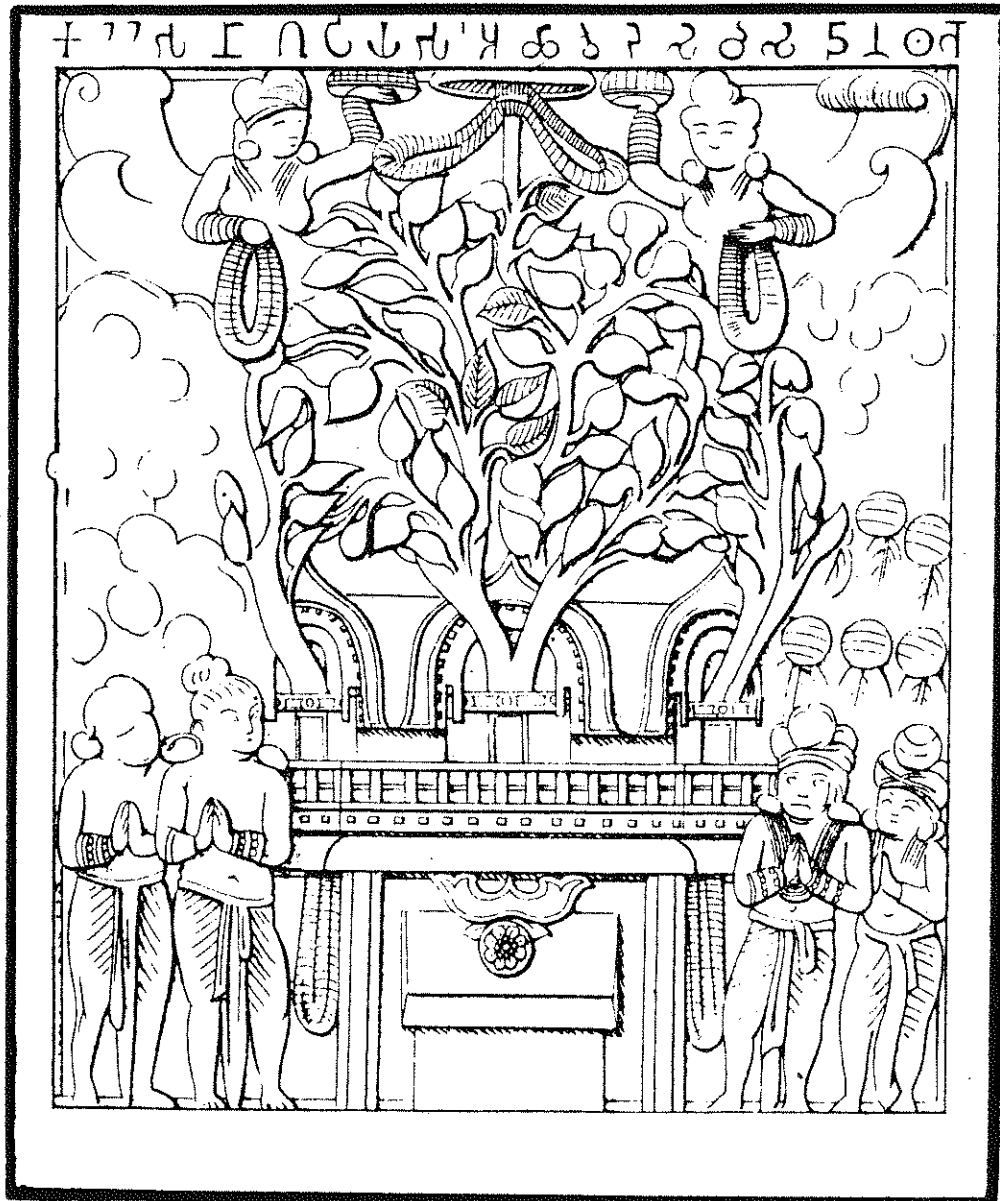


Figure 13. Ficus Religiosa Inside a Bodhighara:
 Eastern Gateway, Sanchi
 Source: Fergusson 1868, Pl. XXV

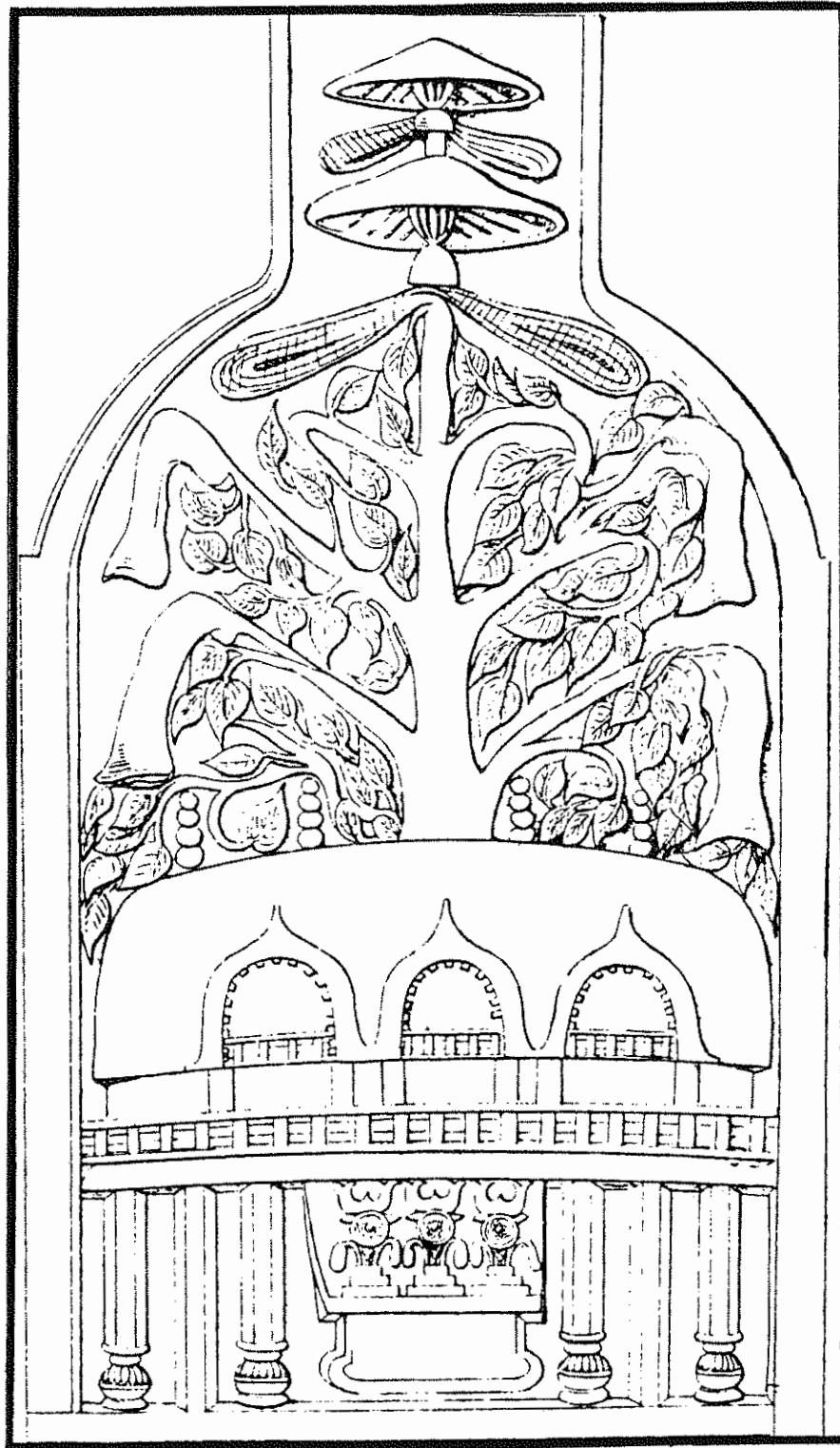


Figure 14. Ficus Religiosa Inside a Bodhighara:
Southern Gateway, Sanchi
Source: Fergusson 1868 Pl. XXX

(stupas) mark the first stage of transition from wood to stone architecture in India, and they occupy the same place in Indian art as that of the Great Epics in Indian literature, for they provide a contemporary record of life and religion.

The Sanchi Stupa complex, founded during the Mauryan Period (4th-2nd cent. B.C.) in the reign of Asoka (c. 250 B.C.) at the site of the ancient capital city of Vidisa (near modern Bhilsa), was discovered in 1815 by General Taylor. It consists of several stupas and a grand balustrade with four richly carved gateways or toranas (Randhawa 1964:26; Sinha 1979:58-59). In his description of Sanchi, Fergusson (1868:120) writes:

"The tree is the most usual and the most important object of worship represented in the sculptures of Sanchi Tope. It can scarcely be doubted but the sculptures are intended to represent the creed, and the whole creed, of the people who erected the Gateways, and the relative importance of each part of the faith. It is probable, therefore, that the frequency or prominence of any object in these Gateways may fairly be assumed as representing its relative importance."

The sculptures at Sanchi are significant in that they are ascribed to the time before the Buddha was represented by anthropomorphic images, thus, there are a number of reliefs showing the worship of the Bodhi Tree (Ficus religiosa) (see Figures 15, 16, 17 & 18). In all these reliefs, the pipal tree is very realistically and accurately portrayed, surrounded by devotees in various acts of worship such as making offerings or garlanding the tree.

With the disintegration of the Mauryan Empire in 187 B.C. rose the Sunga Dynasty, whose religious and cultural ideology is recorded in the sculptures of the Bharhut Stupa (c.150 B.C.), site of the old city of Bhaironpur (in Madhya Pradesh) (Sinha 1979:55-56). The name "Sunga" is thought to mean "plumule" or "new leaf," and scholars believe that this dynastic name may have started the tradition of naming succeeding dynasties after trees (ex.: Kadambas; Pallavas).

Sunga art was patronized by the middle class as well as the rich, and was more popular in character and more collective in its aim and origin than Mauryan art. Like Sanchi, the stupa complex at Bharhut abounds in sculptures representing the worship of trees. The theme of the Bodhi Tree of the Sakyamuni Buddha is repeated in many reliefs (see Figures 19 & 20). In addition, the Bodhi Trees of five other historical Buddhas are represented as being worshipped in

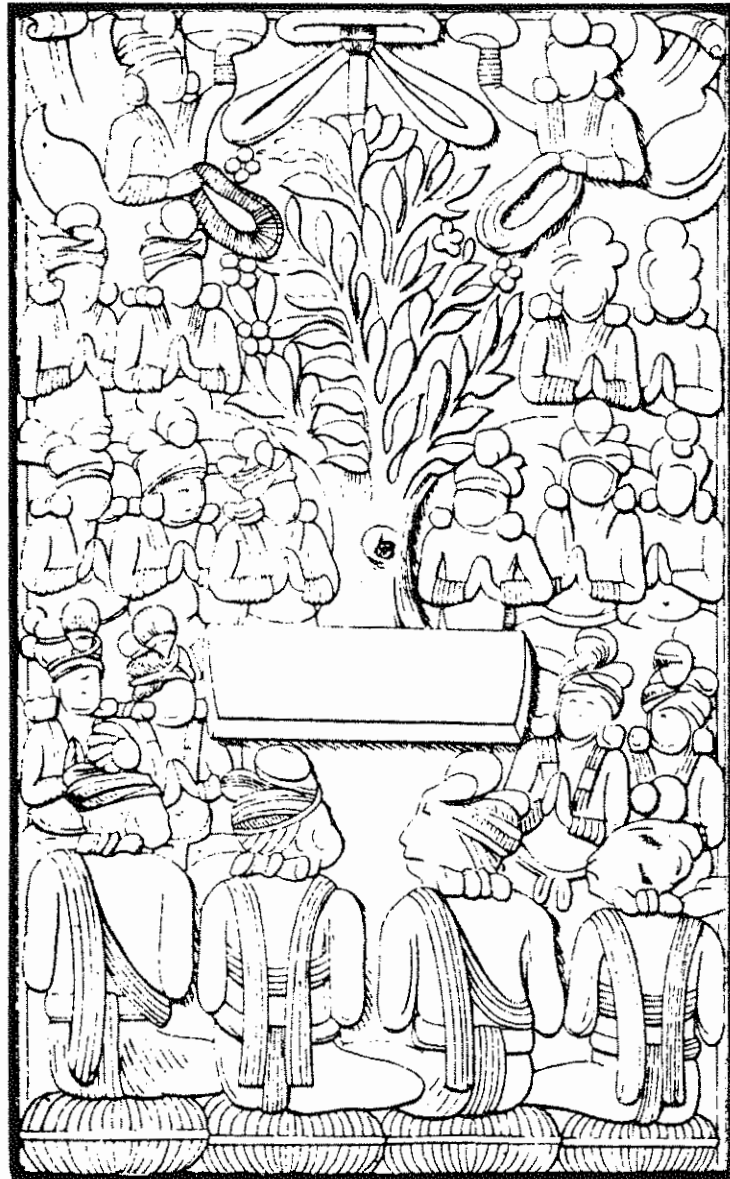


Figure 15. Homage to Ficus Religiosa:
Western Gateway, Sanchi
Source: Fergusson 1868 Pl. XXVII

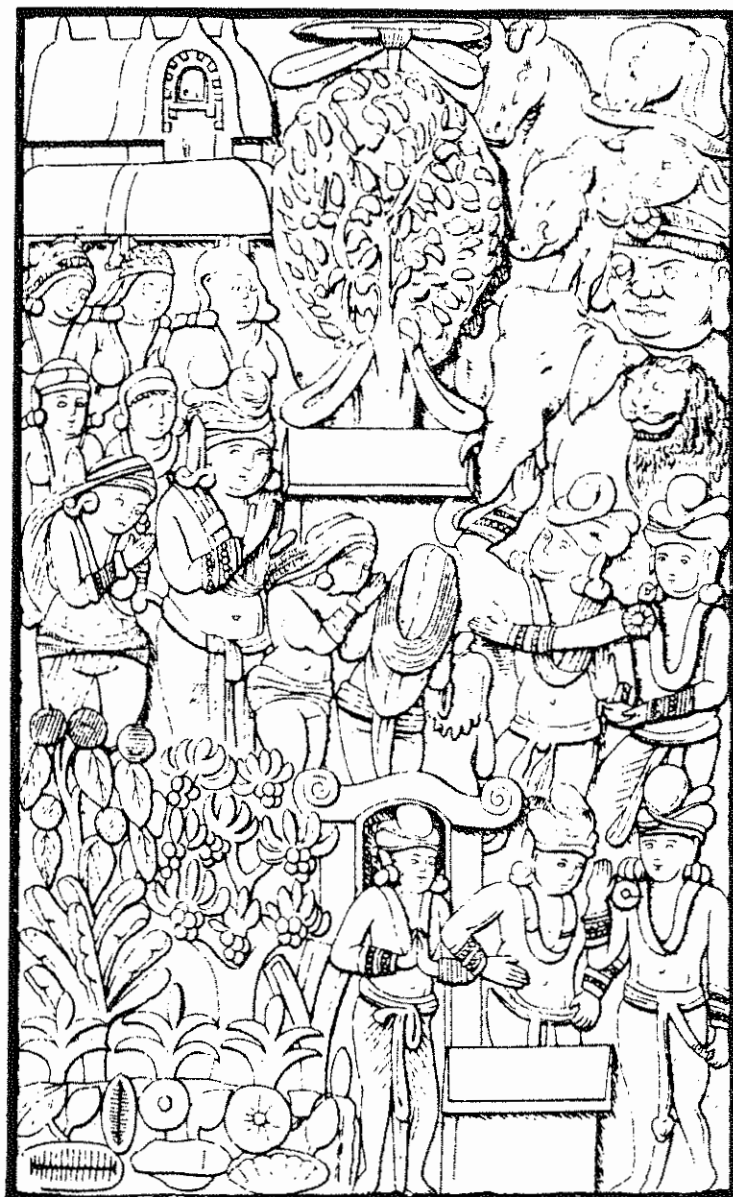


Figure 16. Homage to Ficus Religiosa:
Western Gateway, Sanchi
Source: Fergusson 1868, Pl. XXVII

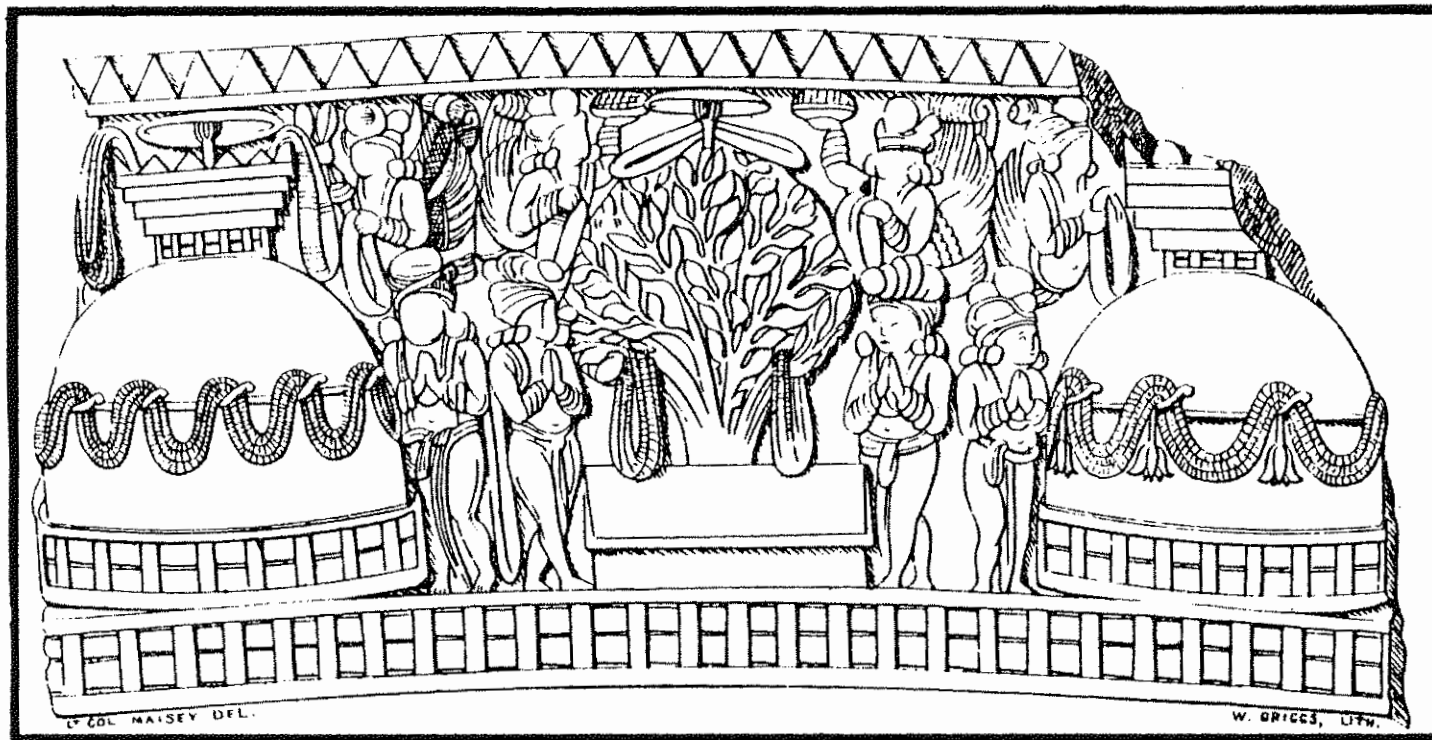


Figure 17. Homage to Ficus Religiosa:
 Northern Gateway, Sanchi
 Source: Fergusson 1868, Pl. XXVIII

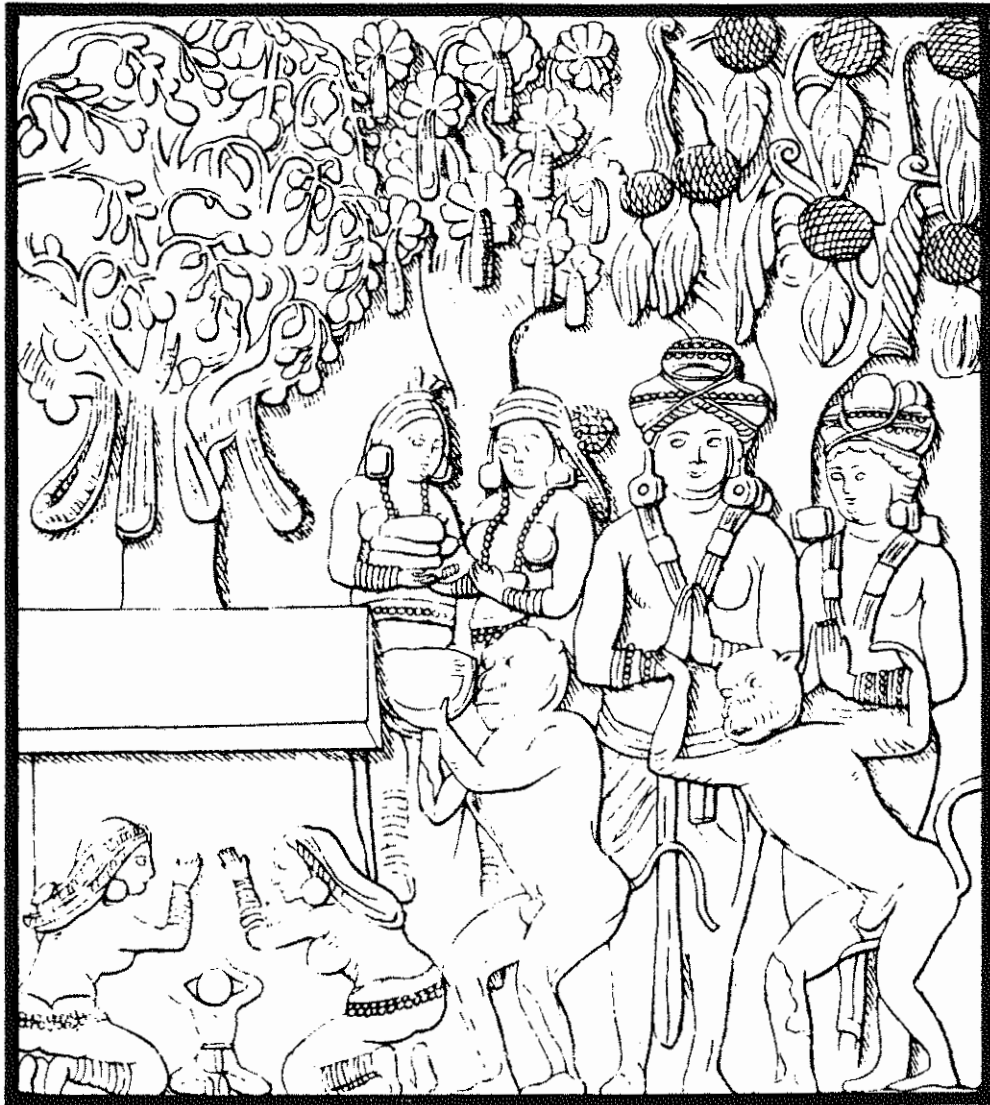


Figure 18. Honey Offering to Ficus Religiosa:
Northern Gateway, Sanchi
Source: Fergusson 1868, Pl. XXVI



Figure 19. Homage to Ficus religiosa: Bharhut
Source: Randhawa 1964, p.14



Figure 20. Homage to Ficus religiosa: Bharhut
Source: Randhawa 1964, p.15

the same manner as the sacred pipal. One well known attribute common to all these trees is that of shade (l.c.:13).

Conspicuous among these sculptures both at Sanchi and Bharhut associated with the portrayal of tree worship are vrksa-devatas (Yaksini or tree-goddesses), the divinities of the popular religion (see Figures 21, 22 & 23). Their ubiquitous presence "marks the resurgence of an archaic, irrepressible, apparently basic mode of Indian religious belief and experience" (Zimmer 1955:25). Difficult even for the Buddhist priests to dispose of abruptly, their survival is seen as a concession to the belief of the masses (Tucci 1969:3). These tree spirits figure prominently at the gateways and on the pillars at the entrances to the shrines, where they are worshipped with flowers and food.

Another example of tree spirit representation is found on a later panel of the sculptured railing at Bodhgaya (100 B.C.), which depicts a vrksa-devata with two hands projecting from a pipal tree offering food and drink to a traveler (see Figure 24).

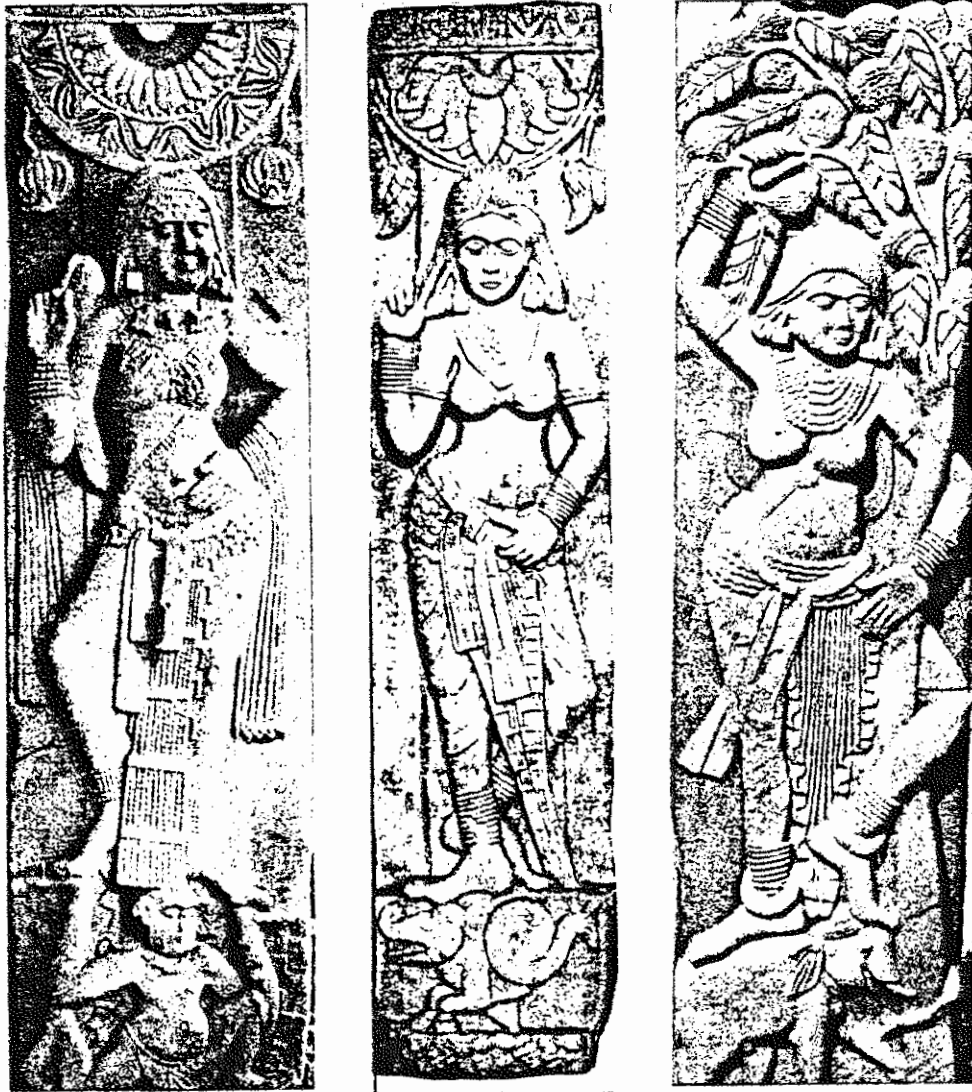


Figure 21. Yaksis: Bharhut
Source: Coomaraswamy 1971, Pl. 4 & 6



Figure 22. Yaksas: Bharhut
Source: Coomaraswamy 1971, Pl. 3



Figure 23. Yaksa: Sanchi
Source: Coomaraswamy 1971, Pl.8



Figure 24. Vrksha-devata: Bodhgaya
Source: Randhawa 1964, p.24

According to the popular belief of the time, as reported by Sinha (1979:54-55), these tree spirits preferred to live in big trees, especially the sacred trees that could be found in every town and village, for chief among their enemies were the woodcutters. Although, by custom, the woodcutters would give warnings and offerings to a tree spirit to leave its abode before cutting the tree, it was never to the spirit's liking, because it considered itself to be an integral part of the tree.

Besides providing a sanctuary for the tree spirit to live in, a sacred tree also served as an ideal observatory from which it could participate in everyday activities. The tree spirit was often consulted for its advice or help, however, its relationship with human beings was based on a kind of mutualism from which both parties benefited equally. The tree spirit's presence guaranteed honor, fertility, longevity and prosperity for the village. In return, the tree was surrounded by a wooden or stone barrier; its trunk and the ground around it were carefully cleaned; sugared water, milk and honey were sprinkled on its trunk; garlands were hung on its branches; and an altar was built near it to receive and hold offerings. To neglect the tree spirit was dangerous and quite often disastrous, for it also stood guard over the treasures of the earth buried at the foot of its tree.

V I. L E A V E S

Movement of men and ideas across the face of Asia is one of the characteristic trends of the last 600 years B.C. Iron technology, for example, had already permeated North India by 500 B.C. and began to spread throughout the Sub-continent (Heitzman 1984:123-124). Village farming communities (previously the only form of stable settlement in parts of South India) and their technologies began to spread throughout all of South India during this same transitional time, while a growth of urban centers occurred in North India (l.c.). During this period the winds of change seem to have been also especially forceful in moving armies, missionaries, merchants, academicians, artists and political refugees from ancient cultural centers to far-flung provincial capitals, mostly along the established caravan routes and royal highways.

The westward migration of the Yueh-chi, a nomadic tribe of North-western China, in the middle of the second century B.C. laid the foundation for the Kushan Empire of Northwest India (Sinha 1979:61). A dispute over water rights (in which Gautama Buddha unsuccessfully tried to intervene) forced the Sakya and Koli tribes to migrate from the Gandaki Valley to the midland valley of Nepal where they founded a village called Koligrama (Kathmandu) (Bahadur 1971:43). With the fall of the Persian Empire and the invasion of Alexander

the Great (327-326 B.C.), the intellectual horizons of North India were expanded by the flood of Persian emigrants and Greek colonialists (l.c.:54). Indian merchant ships had discovered how to cross the Bay of Bengal by this time and began to make trading voyages which ultimately led to the establishment of powerful Hinduized kingdoms in several parts of Southeast Asia (Burkill 1963:297).

By 250 B.C. the Aryan expansion in India itself had reached its zenith under the rule of Asoka (273-236 B.C.) (l.c.:257). Dominant political and economic institutions had become formalized and metal currency (introduced c.500 B.C.) was widely circulated (Heitzman 1984:124). Consequently, one cannot doubt that the social, religious and political atmosphere of North India was surcharged by this movement.

Dispersal

Concurrent with this movement of men and ideas was the widespread dispersal of the sacred pipal tree. Its propagation along the major migration and circulation highways was largely concomitant with the rise and spread of Buddhism in India during this time. Buddhist monastic sites, serving as symbolic structures mediating social hierarchy within a new urban complex, became established at nodes of permanent settlement (in which major institutional forms of imperial power and long-distance trade were centered) and along the trade routes that connected them (see Figure 25) (l.c.:121).

The spread of both Buddhism and its sacred tree owes much to the impetus of Asoka, who adopted Buddhism and arboriculture as state religion and policy, respectively (Randhawa 1964:9). The Constantine of India, Asoka attempted to humanize the conduct of his administration by a combination of politics, morality and spirituality. He confronted the question of social stability through the channel of objective observation and science, by advocating Saddharma (True Law, based upon a well developed science of social psychology) and Porana Pakiti (the Ancient Laws of Nature, inscribed in the Brahmagiri Edict) (Bahadur 1971:98-103). He is also credited for encouraging the planting of trees (preferably fruit-bearing species) in public gardens and along roads in the form of avenues (Randhawa 1964:9;

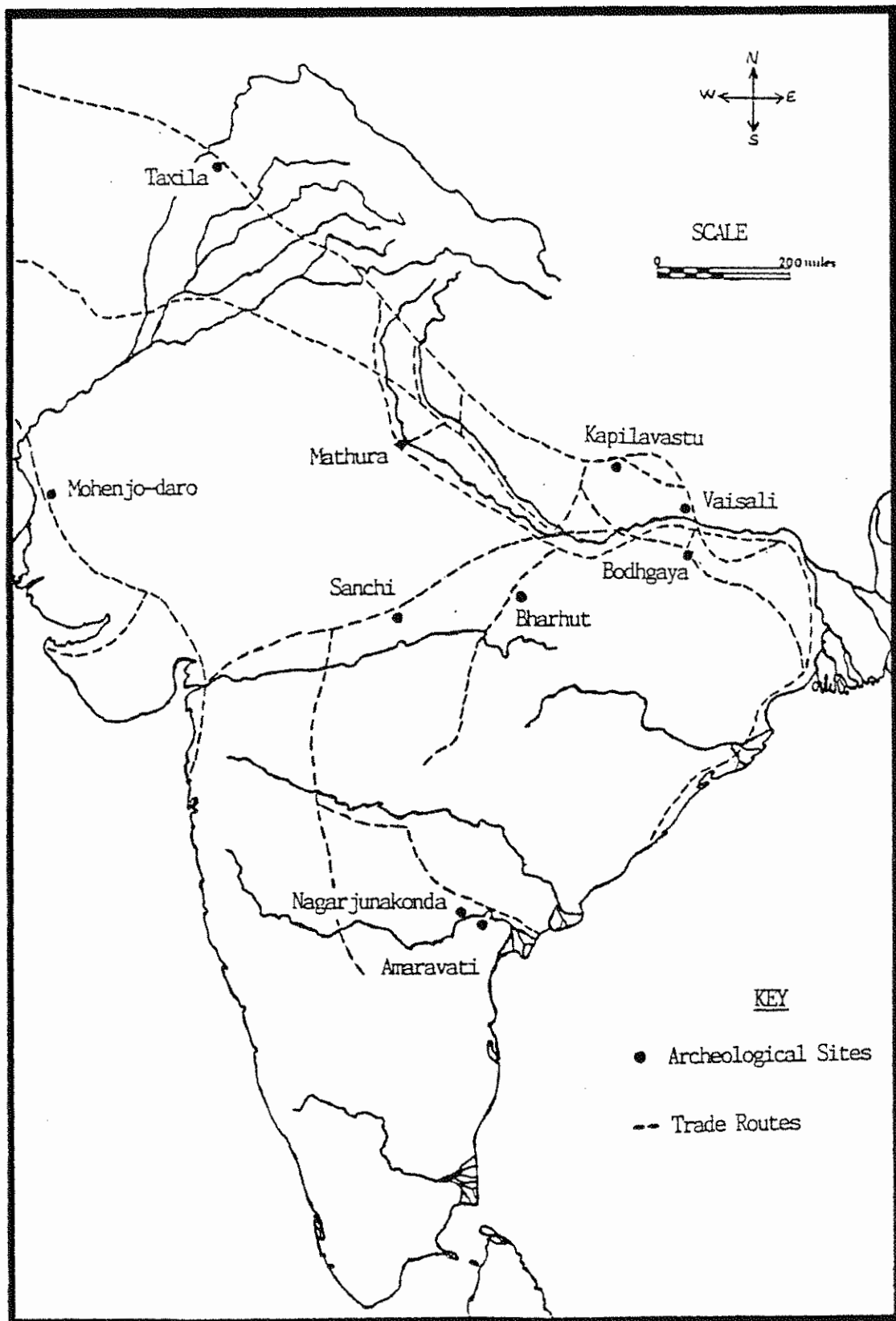


Figure 25. Migration and Circulation Highways of India (3rd Cent. B.C.) Source: Adapted from Heitzman 1984
144

Fergusson 1868:254). An inscription on one of the famous Asoka Pillars (trans. in Fergusson l.c.) bears testimony to these ideals and concerns:

"That two designs have been cherished by Piyadasi--one regarding men, and one relating to animals--that everywhere wholesome vegetables, roots and fruit trees shall be cultivated, and that on the roads wells shall be dug and trees planted, to give enjoyment for both men and animals."

Asoka supposedly came to embrace Buddhism through the counsel of a sylvan deity (Avadana Sataka in Mitra 1882:30). Profoundly impressed by the horrors and destruction of military confrontation which had seemed necessary in suppressing a popular revolt and the will of the people, he became a zealous convert to the new faith of non-violence. The Bodhi Tree (Ficus religiosa), as the symbol of Asoka's new faith, was the favorite object of his worship. After consecrating the Tree at Bodhgaya by building a railing and temple around it, he is credited to having built 84,000 similar religious foundations (Dharmarajikas) throughout his empire (Sinha 1979:57-61; Bahadur 1971:59; Thakur 1977:17).

Ficus religiosa, already of extended dispersal during the time of Gautama Buddha, was given aid for further travel by Buddhist missionaries after the meeting of the Third Council held in 247 B.C. Five groups of missionaries (theras) were sent to Ceylon, Kashmir and Gandhara, Burma, the Himalayan States and Hellenistic kingdoms of the Mediterranean, where Asoka had established diplomatic relations.

The missionaries to Ceylon, Mahinda and Samghamitta (the son and daughter of Asoka) took with them a cutting from the original Bodhi Tree at Bodhgaya and planted it in the Mahameghavana Park (Grove of the Great Cloud) near Anuradhapura in the 19th year of Asoka's reign (Mahavamsa trans. in Geiger 1912:77):

"The King laid out the beautiful Mahameghavana garden, rich in all the good qualities that its name promises and provided with fruit trees and flowering trees. At the time that the place was chosen for the garden, a great cloud, gathering at an unwonted season, poured forth rain."

More cuttings followed until Ceylon had eight, so that the Bodhi Tree became symbolically instrumental in the conversion of Ceylon to Buddhism (Burkill 1946:335). The transference of the branch from the original Bodhi Tree of Bodhgaya to Anuradhapura is regarded as an authentic event. For more than 2000 years the Bodhi Tree has been held in reverence as the chief and most important "numen" of Sri

Lanka, and wherever its lineal descendant (cutting) took root, there also the Tree was held sacred (Fergusson 1868: 56). This process is recorded in the Mahavamsa, written in the second century B.C. and translated in Geiger (1912:127, 136):

"So it came to pass that the festival of adoration of the Bodhi Tree, vivid with gay and lovely flags, great, brilliant and splendid, in the city of flowers, opened the hearts of gods and men (to the faith) (even as) in the lake the sun (opens the lotuses);"

"Bringing about in such wise the good of the dwellers in Lanka, the progress of the Doctrine, the King of Trees, the Great Bodhi Tree, lasted [a] long time on the island of Lanka, in the pleasant Mahamegha Grove, endowed with many wonderous powers."

Further proof of the aid given to the dispersal of Ficus religiosa by the spread of Buddhism can be obtained from the distribution of tree names in other languages derived from the Sanskrit "bodhi druma," collected by Burkill (1946:335): for example, bo gaha or bo tree in Sinhalese; nyaung bo de in Burmese; cay bodhi, cay budde and cay de in Annamese; po ton or po tree in Thai; d'om p'o in the Khmer language; kayu bodi or bodhi in Malaysian; p'u t'i shu or bodhi tree in Chinese; and bodai ju in Japanese.

Burkill (l.c.:339; 1962:278-279) maintains that Ficus religiosa, as a cultivated tree, had its range extended not only by Buddhist priests who needed them for their shrines, but also by those people (whether Buddhist or not) who laid out parks in the "Indian manner," and who therefore appreciated its horticultural value, especially as a "lordly tree."

In order to appreciate the significance of this dispersal of Ficus religiosa, it is necessary to understand the determinative biophysical characteristics of this species' propagation. In natural forest conditions, seed germination of Ficus religiosa rarely takes place on the ground; hence no seedling regeneration occurs from dropped fruit. In addition, the small seeds dry very quickly, requiring continuous humidity (however, excessive moisture is harmful) in the presence of limited light. In virgin habitats, the seeds do not become established naturally on the ground, nor is germination from sown seed very easily accomplished (Singh 1982:152; Galil 1984:186-187).

As an epiphyte, Ficus religiosa is able to achieve spontaneous germination on host trees with persisting leaf bases, in the axils of which the seed obtains sufficient moisture (from accumulating detritus) as well as insulation against desiccation (Davis 1970:11). However, in this situation seed dispersal is dependent upon the selective habits.

of frugivorous animals such as birds, fruit-bats or monkeys (Guy 1977:561). Also, germination and growth of the epiphytic form takes place naturally only under adequate conditions provided at the beginning of the monsoon season (Galil 1984:186-187). Spontaneous germination can also take place in clefts of rocks, house tops, fissures in walls, etc., under conditions of sufficient moisture (Cameron 1894:283). All of the above-mentioned factors acting together normally would produce restricted limits for the natural dispersal of Ficus religiosa.

Artificial propagation of Ficus religiosa by branch cuttings, then, can be seen as a viable and advantageous alternative means for its dispersal. Straight branch cuttings (about two meters long and not less than five centimeters in diameter) root and establish themselves well, especially if planted with the commencement of the monsoon rains. Capable of growing on a wide variety of soils, they prefer deep, alluvial, sandy-loam soil with good drainage. Once established, they are very tolerant of a range of climate (thriving in hot and dry as well as cool climates) and exhibit fast growth provided they are protected from

fire and grazing animals (Cameron l.c.:283; Singh 1982:151-153). In view of the above considerations, it would seem that the uniquely adaptive properties of propagation and the "hardiness" of this particular tree species might partly explain its capacity for a wide distribution, and that "the selection of a seat under it for Gautama's meditation would not be altogether fortuitous" (Burkill 1946:334-335; Galil 1984:201).

The Wish-Granting Tree

"There is such wonderful beauty in the external form of trees, and so welcome a shelter beneath their over-arching boughs, that we should not feel surprise that in the early ages groves were considered as the fittest temples for the gods. There are also, it must be remembered, few things in nature so pleasing to the eye as the form or the color of flowers which adorn at seasons the whole vegetable kingdom, and nothing so grateful to the palate of the rude man as the flavor of the fruits which trees afford. In addition to these were the multifarious uses to which their wood could always be applied. For buildings, for implements of peace and war, or for ornament, it was indispensable. In ancient times it was from wood alone that man obtained that fire which enabled him to cook his food, to warm his dwelling or to sacrifice to his gods. With their poetry, and all their usefulness, we can hardly feel astonished that the primitive races of mankind should have considered trees as the choicest gift of the gods to men and should have believed that their spirits still delighted to dwell among their branches, or spoke oracles through the rustling of their leaves" (Fergusson 1868:1-2).

The theory that tree worship evolved from a perception of the utility of trees is one that cannot be left unexamined. The "usefulness" of the sacred tree, as described in the rituals of religious texts or popular folklore, is quite often veiled by the application of literary metaphor or lost through artistic interpretation. Thus, in this way its utility sometimes is displaced by the aesthetic (Burkill 1946:329).

The Wish-Granting Tree (Kalpa-vrksa), the axis and the progenitive origin of the world, source of all riches, is one example of the use of metaphor. One of the earliest representations of vegetation in Indian sculpture, the Kalpa-vrksa of Besnagar (assigned to the third century B.C.) stands for the mythical wish-fulfilling tree which produced food, drinks, clothes, ornaments and jewels (Randhawa 1976:49). It is a perennial symbol, and was associated with the Aryan god, Indra. It finds specific Buddhist application in the Bodhi Tree (Mahaisukhavati-vyuha 32 trans. in Snodgrass 1985:183):

"...always in leaf, always in flower, always in fruit, of a thousand hues and various foliage, flower and fruit...it is hung with golden strings, adorned with hundreds of gold chains...strings of rose pearls and strings of black pearls...adorned with the symbols of the makara, svastika, nandyavarta and moon...according to the desires of the living beings, whatever their desires may be."

While the wish-fulfilling tree provided material needs to people who had faith in it, at the same time it fulfilled their spiritual needs (Randhawa 1976:49). The Bodhisattva-vadana-Kalpalata ("tree yielding whatever is wanted of it"), for example, is a collection of stories regarding the Buddha's former existences (trans. in Mitra 1882:56-76). In this instance, each story is called a pallava (leaf) and is illustrated by a particular moral maxim. In addition to the "ideational" aspect of this example, one might inquire whether there is an inherent "operational" value of the sacred tree thus described. At this stage, then, in our discussion of Ficus religiosa, an analysis of its traditionally perceived value will be attempted against the background of modern scientific inquiry. The generic name of this present chapter (i.e. leaves) will serve as an example for such an analysis.

Evergreen

"Evergreen, never growing or decreasing, but living on forever for the delight and worship of mankind" (Fergusson 1868:56).

The pipal tree is described as deciduous, sometimes semi-deciduous, or almost evergreen, owing to the fact that it is leafless for a very brief time (7-10 days) at the end of the cold season and the beginning of the hot season (Feb.

to April) (Chaturvedi 1956:28). The time of its strikingly brief leaf-fall has been associated with the observance of Gautama Buddha's death (parinirvana) with obvious symbolic implications of renewal of life. The Chinese traveller Hiuen Tsiang, who visited the Bodhi Tree at Bodhgaya in the seventh century A.D., remarked that:

"The leaves wither not either in winter or summer, but they remain shining and glistening all the year round without change. But at every successive Nirvana day (of the Buddhas) the leaves wither and fall, and then in a moment revive as before. On this day (of the Nirvanva) the princes of different countries and the religious multitudes from different quarters assemble by thousands and ten thousands unbidden, and bathe the roots with scented water and perfumed milk; whilst they raise the sounds of music and scatter flowers and perfumes and offer their religious gifts" (Randhawa 1964:8).

In its annual rejuvenation of life, a deciduous tree produces new leaves and flowers, displaying an outward sign of an inherent potency. Because of a universal tendency to assign particular degrees of sanctity to objects associated with awe-inspiring and arresting natural phenomena which arouse a sense of the numinous, such a tree might be regarded as sacred, depending on its potency. As a symbol of the resurrection of vegetation, this sacred tree became the "Tree of Immortality" and occupies "a central position as an ultimate source of ever-renewing vitality... giving superabundance of life to the dead in a blissful eternity" (James

1966:246). Its symbolism rests on the conception of nature as a "system of interrelated and inherent life... in union with the divine source in its various manifestations" (1.c.).

In many of the attempts to explain the "sacredness" of Ficus religiosa, there is a common reference to the "rustling" of its leaves. Crooke (1896:84-84,89) posits that an allegorical meaning is often attached to certain trees because of the mysterious waving of their leaves and branches: accordingly, these trees are invested with mystic power and the ability to talk. "Was it not the god speaking?" queries Collis (1955:77). In the case of Ficus religiosa, the characteristic fluttering sound of its leaves is a prominent feature that has been recognized by etymologists and botanists and also has been the source of popular interpretation.

Suspended by long slender, flexible petioles, the leaves are easily moved in the slightest breeze and seem to be constantly quivering, flickering or trembling because of the contrast between their lighter and darker leaf surfaces, as in the aspen tree (Populus tremula). A "rustling" sound is produced by the long pointed leaf tips tapping gently on the surfaces of neighboring leaves, which, proceeding from an isolated tree, often when there is no apparent wind, is not unlike the pattering sound of falling rain. It is believed that this sound, if distinctly heard for several

days, indicates the near approach of rain. The "rustling of leaves" then can be regarded as an auspicious sign (announcement) of rain, especially at a time or season when it is usually much needed (Cameron 1894:282).

Botanically speaking, the leaves are alternate, pendulous, coriaceous (leathery), upper-leaf surface perfectly smooth and deep shining green, lower-leaf surface minutely tuberculate when dry, broadly ovate-rotund and caudate (apex suddenly narrowed into a long, slender linear-lanceolate tail or acumen, edges are entire (not toothed), undulate (scallop-waved); the base is broad, rounded to truncate (acute), occasionally emarginate, or even cordate (heart-shaped) in young leaves, with five to seven basal veins; stout mid-rib, pinnately veined with five to nine lateral pairs which unite at their ends to form a wavy line near the leaf margin, reticulation (anastomosis) fine, distinct; length of blade 10-21 cm. of which the apical tail forms about one-third, blade breadth 7.5-12 cm.; petiole (leaf-stalk) nine centimeters long, slender, terete or slightly flattened, joined to leaf blade (Brandis 1874:415 and 1907:60; Cameron 1894:282; Duthie 1903:241; Hooker 1890:513; King 1837:55; Parker 1933:10; Roxburgh 1832:642; Santapau 1966:71-71; Sastri 1956:38; Storrs 1984:133). [See Figure 26.]

Mehra and Gill (1974:670) report small-leaved and normal type forms of Ficus religiosa. The small-leaved form differs from the normal type in having smaller leaves

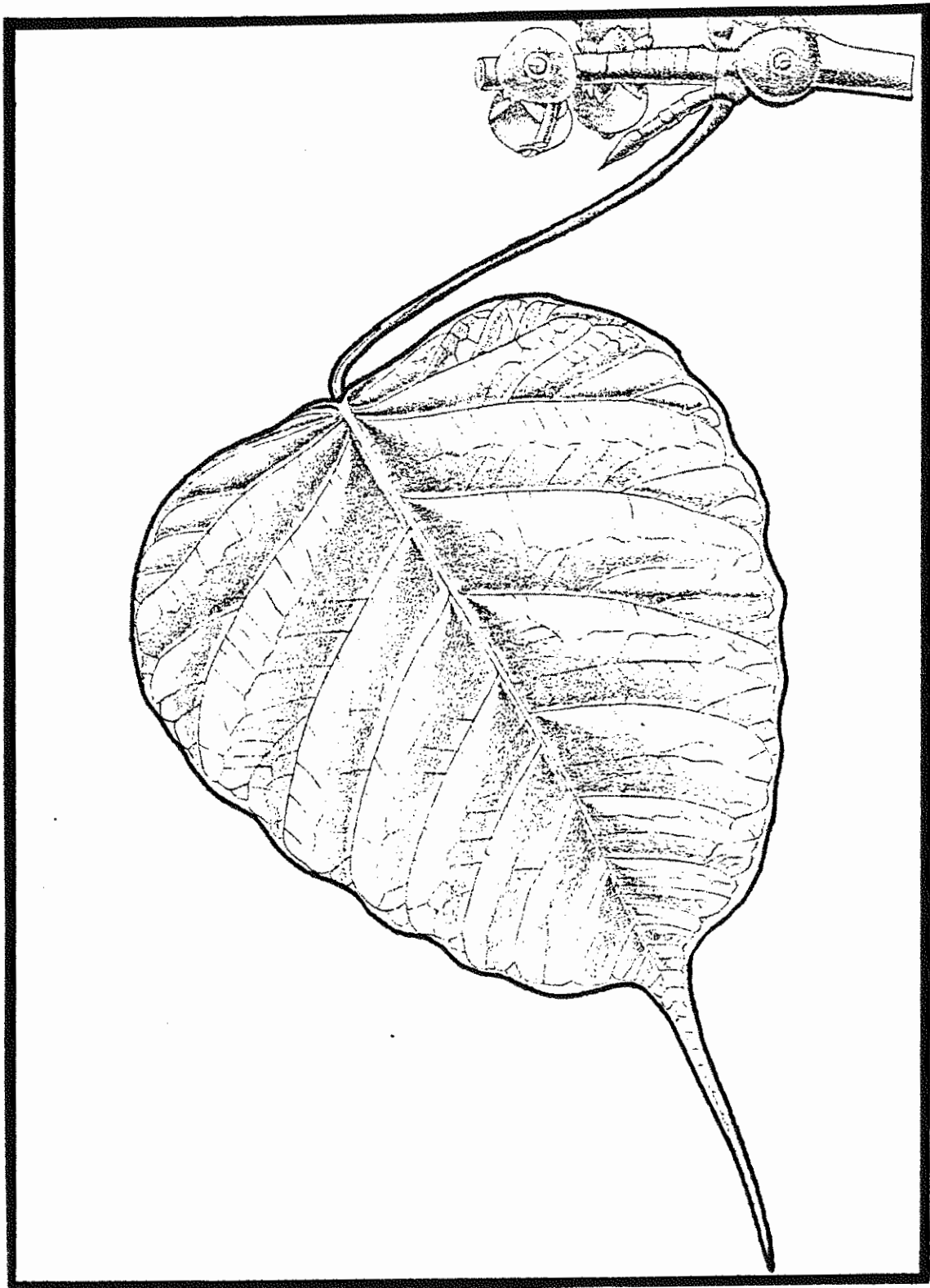


Figure 26. Ficus religiosa Leaf
Source: King 1887, Pl. 67A

(blade length 8-14 cm.), fewer lateral veins and relatively longer acumen. Both forms have the same stomatal size, number of stomata per unit area, and the same chromosomal number ($n=13$), and both forms have sympatric distribution and grow in similar ecological conditions.

Benthall (1984:411) describes the long pointed tail (acumen) at the apex of the leaf as an exaggerated form of a shape that is common in leaves of plants adapted for very wet climates. The tail apparently causes rain-drops to drain away quickly from the leaf surface, allowing it to resume respiratory functions as soon as possible after a rain.

The leaves of Ficus religiosa are predominantly hypostomatic and xeromorphic organs (Sajwan et al. 1977:294-295). Ficus religiosa is a light-demander, tolerating direct sunlight; it has sufficient transpirational cooling so that its leaves do not suffer from heat injury, allowing for resistance to drought (Karschon 1972 and Chaturvedi 1956 in Singh 1982:152). Gupta (1971:50) reports that in India there is a "superstition" that this tree gives off oxygen at night, which suggests that it might have CAM (Crassulacean acid metabolism) photosynthesis, however, this belief is is yet to be supported by scientific evidence.

Fodder

Sheep, goats and cattle browse fondly on the tender young leaves (when unprotected), which are said to increase the flow of milk (Cameron 1894:283). Roxburgh (1832:642) found that next to mulberry leaves, silkworms also like the tender young leaves of the pipal. In Central India, the young leaf-buds are eaten as a vegetable by the hill-tribes during times of scarcity and famine (Benthall 1984:413; Brandis 1874:416; Sastri 1956:39). Mature leaves, lopped chiefly by Muslims, are considered an excellent fodder for buffalo, camels and elephants (Chaturvedi 1956:29; Duthie 1903:241; Storrs 1984:129). Recent attempts have been made to obtain definite knowledge about the nutritional qualities of pipal leaves through the examination of their chemical composition and digestibility.

The average chemical composition (% composition on dry matter basis) of the leaves is: protein, 13.99; ether extract, 2.71; crude fiber, 22.36; N-free extract, 46.02; total ash, 15.06; lime (CaO), 4.64; and phosphorus, 0.52 (Momin and Ray 1943 in Singh 1982:155). According to Sastri (1956:39), the protein content of pipal leaves is two to three times that of grasses and compares favorably with that of leguminous forages; the ether extract is also comparatively high, but it is mostly composed of chlorophyll; and the maximum lime content is two to three times that of leguminous fodders.

The chemical composition of the leaves varies significantly during different seasons. Patel and Patel (1957) report that in winter the leaves are superior in all the nutrients in comparison to their composition in monsoon or summer. They also suggest that pipal leaves can provide green forage supplement for cattle during winter months, and are an especially valuable source of available nutrients (in their chemical composition) during this time when other natural succulent fodders are scarce and mostly dry or over-ripe.

Pipal leaves are fed to sheep and goats in semi-arid districts of Rajasthan during periods of scarcity and drought. Hussain et al. (in Bhandari and Govil 1978) found that the leaves serve as a satisfactory maintenance ration for sheep and goats in respect to a positive balance of

nitrogen, calcium and phosphorus. In another study, calcium, phosphorus, magnesium and nitrogen of pipal leaves appeared to be well utilized by growing calves (Agrawal and Talapatra 1970). The percentages of digestible nutrients per 100 lbs. of pipal leaves (on a dry matter basis) are: crude protein, 7; ether extract, 1.19; crude fiber, 6.03; N-free extract, 22.56; total digestible nutrients, 38.27; starch equivalent, 22.41 (Sastri 1956:39).

Although digestible crude protein for pipal leaves is high enough to meet protein requirements for these ruminants, in energy value, the leaves are comparable only to poor types of roughages. Chetram and Ray (1943 in Patel and Patel 1957:307) reported that even though pipal leaves are quite rich in their nutrient contents, their digestibility coefficient is comparatively lower than those of grasses and other fodder of similar composition. Their digestibility coefficient is 50% lower in the summer when their composition is likewise poorer.

Singh (1977) found that the high tannin content of pipal leaves is not a limiting factor (as previously believed) in the production of volatile fatty acids or carbohydrate utilization in the digestive processes of goats. Rao et al. (1982:555-556) propose that the low dry matter digestibility of pipal leaves fed to sheep could be

attributed to their high percentage of crude protein. Nevertheless, from these studies it appears that pipal leaves, which are available throughout most of the year, are of considerable value as ration fodder or forage supplement for cattle, goats and sheep in times of scarcity or drought.

Shade

"The forest is a peculiar organism of unlimited kindness and benevolence that makes no demands for its sustenance and extends generously the products of its life activity; it affords protection to all beings, offering shade even to the axeman who destroys it" (Hitopadesa trans.in Banerji 1980:7).

In addition to being a sacred tree, Ficus religiosa is also highly revered because of its dense shade. A full grown pipal tree assumes fairly large dimensions with a well developed spreading crown and many strong branches spreading widely in all directions to a great length and height (80-90 ft.), the lower branches often being nearly horizontal. Its trunk is erect, fluted and buttressed, but rather short in proportion to its thickness (25-30 ft. girth) (Benthall 1984:411; Brandis 1874:415-416; Roxburgh 1832:642; Singh 1982:151). In its natural habitat in North India, where in summer the scorching rays of the sun push maximum shade temperature to 46°C. and hot winds blow across the land, this tree has always offered a dark, extensive, cool shelter to man and animals (Randhawa 1976:44; Sinha 1979:

32). It has always been commonly cultivated in gardens, parks and villages, along avenues in cities or rural roadsides, and more particularly around shrines, temples, wells and exposed single dwellings (Chaturvedi 1956:28; Roxburgh 1832:642; Sastri 1956:23).

The Greeks made special mention of the trees planted along the royal route from the Northwest frontier to Pataliputra (Patna) (Sinha 1979:50). Alexander the Great supposedly sheltered his army under these large trees during his Indian campaign (Corner 1964:46). The recognition of Ficus religiosa as an important shade tree since very early times is revealed in a creation myth from Orissa, where it is considered sacred by several tribes of the Ganjan district (Gupta 1971:53). According to the story, Kittung and his sister lived at a time before there were no trees on this earth. When the intense heat of the summer was upon them, the sister complained that there were no trees to give them shade. Kittung cut off his left hand (which had been maimed except for the middle finger) and put it in a stone which grew into the asvattha tree.

Valued for its shade, under which people have always naturally assembled, the village pipal tree has had a long connection with the social life of the community. Because of the respect paid to it as a sacred tree, it has also served as a convenient center for the worship of local deities (Crooke 1896:84). As the center of the settlement where

public meetings have always taken place on religious or other important occasions, it has been the custom that the head of the community has his seat of honor at the foot of the sacred tree (Zimmer 1976:79). In addition, the ancient custom of dispensing justice under it rests on the prescription that one should never tell a lie while in its shade (Storrs 1984:124-125).

The importance of Ficus religiosa as an individual tree in a landscape denuded of forest cover cannot be underrated, for it also affords protective shade to field crops (Sinha 1971:18). Apart from its shade, it also serves to provide food for thousands of birds and monkeys, which feed on its abundant supply of fruit for several weeks, thus indirectly saving other crops and fruit from destruction (Randhawa 1976:53).

Materia Medica

"Those beings who hear the sound of That Tree moved by the wind, who see it, who smell its scent, who taste its fruits will nevermore suffer diseases of the ear, the eye, the nose or the tongue and for those beings who are lighted up by the light of that Bodhi Tree, no disease of the body is to be feared" (Maha-sukhavati-vyuha 32, trans. in Snodgrass 1985:183).

The wood of Ficus religiosa is very light (30-45 lb./cu.ft.) and open-grained (coarsely fibrous), inferior qualities that make it "unfit for anything except fuel."

It is not a strong wood, however, it is quite durable under water. Like other Ficus species, it yields a milky juice or latex (containing 0.7-5.1% caoutchouc or pure rubber) that when hardened becomes a gum suitable for sealing purposes. As a source of commercial timber it has always been unimportant even though commonly available (Benthall 1984: 413; Brandis 1874:416; Murray 1881:32; Sastri 1956:23,39). It is conceivable that the people of ancient India were aware of these properties of the sacred tree and perhaps also knew about the more important medicinal value of its leaves, bark, roots, flowers and fruit (Banerji 1980:5).

The earliest record of the use of wood in India comes from archeological sites of the proto-historic period (3000 B.C.) (Chowdhury 1955:177-178). In this period, the people of the Indus Valley civilization were using wood for a variety of purposes, from which one might infer that there was an existent knowledge of the different properties of different trees. By the time of Vedic India, various agricultural and sacrificial instruments and vessels were made of wood and a regular science of botany based on the utility of trees had been developed. This ancient botanical knowledge was systematized in works such as the Atharvaveda (c.800 B.C.), the Arthasastra (c.300 B.C.) and the later

Carakai-Samhita or Ayurvedic texts (c.100 A.D.). In these texts the classification of trees was usually based on their external features, food value or medicinal properties (Banerji 1980:9-22; Sharma 1977:6).

With the growth and accumulation of botanical knowledge in India there occurred progress in the medical sciences. The Caraka-Samhita is regarded as a repository of valuable descriptions of the materia medica of ancient India, and has been traditionally used by specialists for the thorough study and cultivation of available medicinal plants and trees (Majumuria & Majumuria 1980:16). Particular references to the medicinal properties of the asvattha can be found also in the earlier texts (e.g. the Rgveda X.97.1-23 trans. in Sengupta 1980:84). The use of amulets (prepared from its branches, leaves, fruit, bark, flowers and roots) to ward off evil spirits is mentioned in the Artharvaveda (Banerji l.c.:4; Sengupta l.c.:85).

Almost all parts of Ficus religiosa are considered to have medicinal properties or therapeutic value, as recorded in the ancient texts and reaffirmed by modern scientific analysis. Traditionally, its leaves, bark and fruit have been officinal in the popular practice of herbal medicine in India (Brandis 1874:416). For example, its leaves and tender shoots are used as a purgative and for treating skin diseases (Chopra et al. 1956:119; Murray 1881:32; Sastri 1956:39). An analysis of its edible ripe fruit,

which is used as an alterative and a laxative, shows that it contains (in % of dry weight): moisture, 9.9; albuminoids, 7.9; fatty matter, 5.3; carbohydrates, 34.9; coloring matter, 7.5; ash, 8.3; silica, 1.85; and phosphorus, 0.69 (Troup 1904 in Sastri l.c.). In powder form it is also used in treating asthma (Dey 1896:132; Murray l.c.).

The bark of Ficus religiosa contains 4% tannin and is therefore astringent: an infusion of the bark is used for treating scabies, ulcers, gonorrhea, leucorrhea and other skin diseases (Dhutt 1900:235; Kurup 1977:11; Kurup et al. 1979:19; Sastri 1956:39). An aqueous extract from the bark exhibits anti-bacterial activity against Staphylococcus aureus and Escherichia coli (Sastri l.c.). Also found in the bark is Beta-sitosterol-D-glucoside, which exhibits hypoglycemic activity that compares favorably with tolbutamide (Kurup l.c.). The leaves and bark of Ficus religiosa are also used in the treatment of diabetes, diarrhea, hysteria, nervous disorders, menorrhagia, sterility, blood diseases, hemophilic conditions, ear-ache, glandular diseases, tooth-ache and gum diseases, urino-genital disorders and snakebite (Kurup l.c.; Kurup et al. l.c.; Majupuria and Majupuria 1980:79).

The association or link between sacred trees and their medicinal aspects is seldom made. For example, botanists usually do not consider the religious value of trees under study while anthropologists and sociologists often fail to

locate the scientific basis of trees mentioned in myths and legends. Meanwhile, cultural and scientific descriptions of sacred trees are usually lost or not available. In a comparative study of sacred plants and trees of Nepal, Majupuria and Majupuria (1978:iii) conclude that the recognition of the multi-medicinal properties of certain trees, including Ficus religiosa, may have led to their sacralization.

V I I. F L O W E R S A N D F R U I T

"Philosophy, nature poetry, gardens, and orderly countryside are products of civilization, but so equally are the deforested mountains, the clogged streams, and, within the densely packed, walled cities, the political intrigue "
(Tuan 1968:105).

Royal patronage of the arts in India, beginning with the Mauryan dynasty and climaxing with the imperial Guptas, occurred side by side with public patronage, as evidenced by the monuments at Bodhgaya, Bharhut, Sanchi, Amaravati, Nagarjunakonda and Mathura. If art is an esthetic expression of human experience, then the Indian experience of this period may be regarded as one closely related to nature, for its art forms clearly express a predominant aesthetic mood and taste for sylvan beauty and reveal a genuine respect for nature. Trees, plants, flowers and groves were venerated throughout the artistic development of successive dynasties, depicted not only in their art and sculpture but also in their literature (Sengupta 1980:87-88).

These references suggest that a tradition of tree protection and forest care existed during this period of Indian history. On the other hand, this concern (in the guise of an aesthetic appreciation of nature) may have risen in response to damages that had already occurred, and therefore might represent an adaptive attitude toward environmental disturbance (Tuan 1968:105; 1970:247).

On this subject, Tuan (1968:101), for example, notices that in China during the Eastern Chou period (8th-3rd centuries B.C.) "deforestation necessitated by the expansion of agriculture and the building of cities seems to have led to an appreciation of the value of trees." Elsewhere in history, Toynbee (in Collis 1954:186-187) suggests that, in the case of the Roman Empire, "a depopulation of the countryside and the congregation of a pauper peasant proletariat in the towns [spawned a] revolution in their whole manner of life with Nature," mainly as the result of destructive ecological processes.

Associated with the above-mentioned period of artistic development in India was the growth of towns and cities. Suzuki (1981:66-67) maintains that this growth of urban areas was indicative of "an apparent prosperity" caused in reality by "the migration of people expelled from the countryside, owing to the continuing droughts." Referring to records of drought in the Indian literature between the 5th and 3rd centuries B.C., Suzuki explains that these droughts were caused by the delay in the arrival of the monsoon.

The seasonal movement of the equatorial westerlies can be confirmed, for example, by reports of the wanderings of thousands of mendicants and Buddhist ascetics, who usually became sedentary during the rainy season wherever and whenever it occurred. Over an extended period of time, these droughts, in addition to regular fires, might have influenced a gradual change in the environment of North India, from a dry-type deciduous forest to savanna-woodland (see Figure 27).

Florescence

The importance of trees in the religious art of North India was borrowed by the Kushan dynasty (c.78-200 A.D.) from the preceding Mauryan and Sunga periods. The cult of tree worship continued to be popular during this time, as evidenced in numerous sculptures of sacred trees and vrksa-devas at Mathura (see Figures 28 & 29). It can also be traced with the spread of Buddhism to South India, which had been part of the Mauryan Empire under Asoka.

There the arts were patronized by the Satvahana kings of the Andhra dynasty (230 B.C. to 220 A.D.), whose greatest monument was the Amaravati Stupa complex built between 200 B.C. and 200 A.D. (Sinha 1979:72-73). In the sculptures of Amaravati, tree worship maintained nearly the same relative position of importance that it did at Sanchi, with numerous,

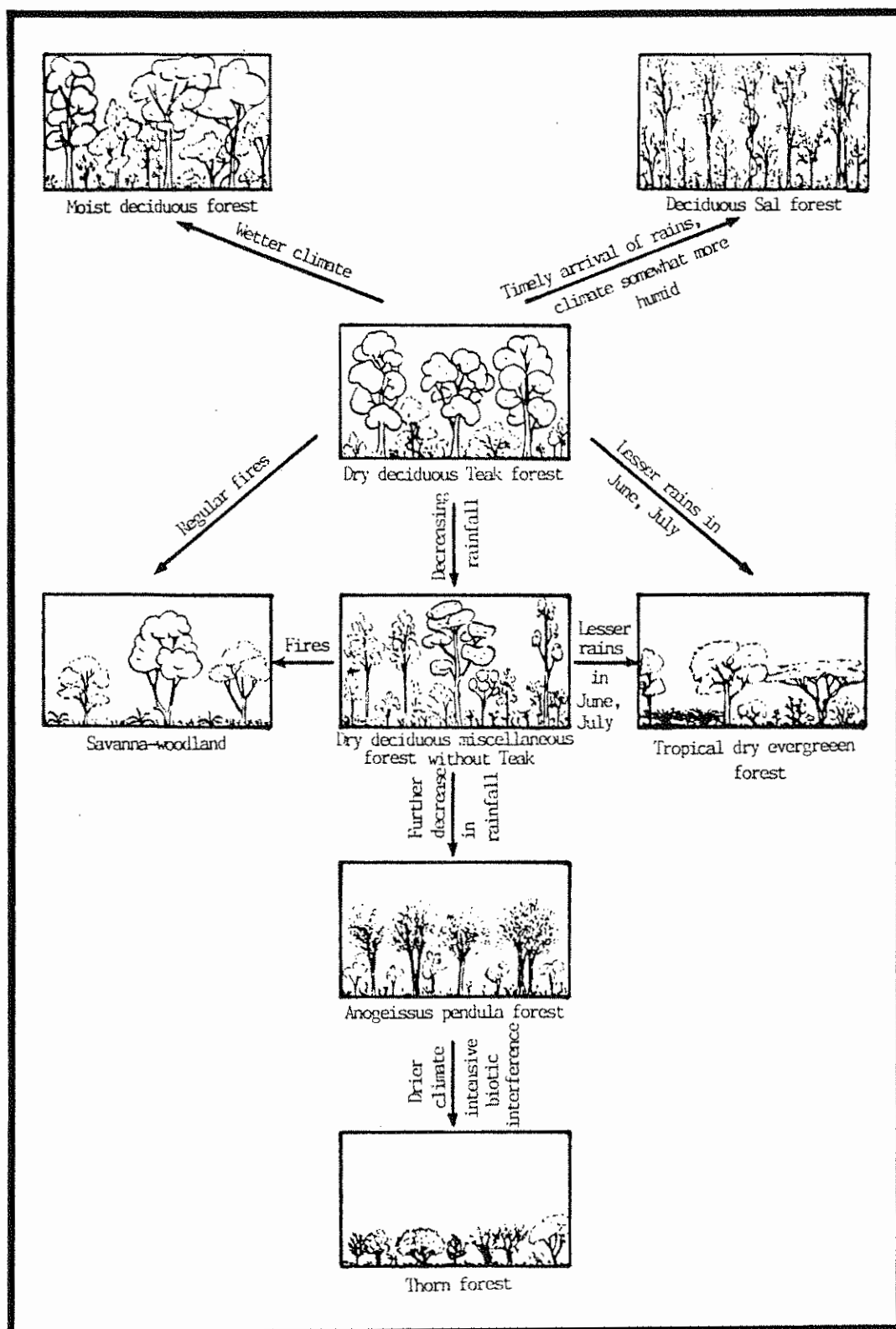


Figure 27. Probable Trends of Progression of Dry Deciduous Teak Forest

Source: Meher-Homji 1977, p.118



Figure 28. Yaksis: Mathura
Source: Coomaraswamy 1971, Pl.6

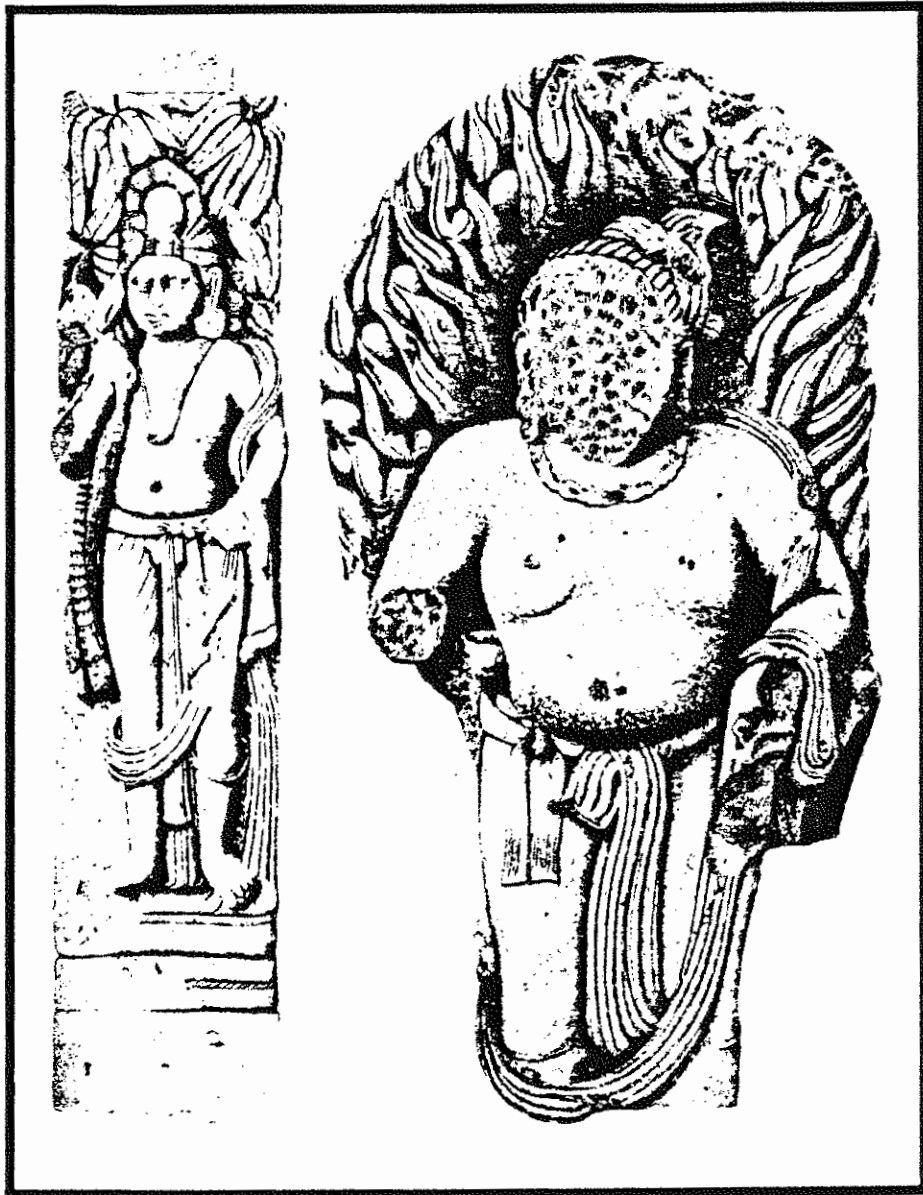


Figure 29. Yaksas: Mathura
Source: Coomaraswamy 1971, Pl. 16

highly naturalistic representations of the Bodhi Tree (Ficus religiosa) (see Figure 30). However, by 150-200 A.D. tree worship was to some extent losing its importance before the sculptures of Amaravati were complete (Fergusson 1868:223).

At Nagarjunakonda, a large Buddhist settlement situated on the right bank of the Krishna River 60 miles north of Amaravati (in Andhra Pradesh), another stupa complex belonging to the same period was built by the Ikshvaku kings (c.175-250 A.D.). Here the Bodhi Tree (Ficus religiosa) is again shown as an important symbol among a remarkable wealth of sculptures depicting the life of Gautama Buddha (see Figure 31).

The Gupta period (319-600 A.D.) is known as the golden age of cultural achievement in India, during which the art of sculpture and Sanskrit literature attained a purity of form. It is usually described as the age of the revival of Hinduism, but more correctly it marks the co-existence of Buddhism and Hinduism (Randhawa 1964:48). With the development of the anthropomorphic Buddha image during this period, the sacred tree was relegated to the background as an artistic symbol of Buddhism, however, it still maintained popularity as shown in the period literature (Sinha 1968:23). This aesthetic development in the intellectual field culminated in the treatises of Mahayanist Buddhist philosophy and also in a revised version of Vedic scriptures known as the Vedanta (Singh 1968:23).



Figure 30. Worship of Pipal Tree: Amaravati
Source: Randhawa 1964 p.42

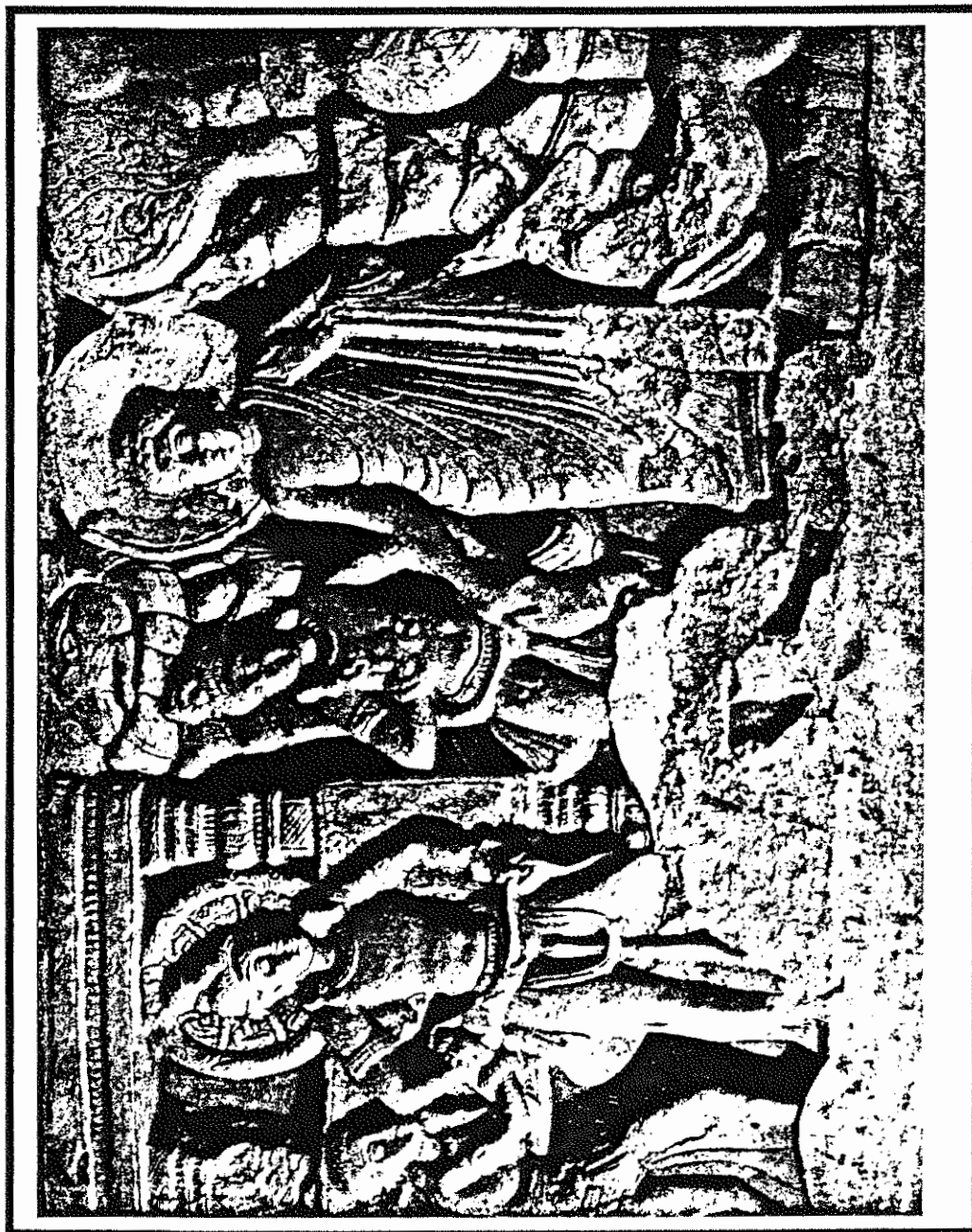


Figure 31. The Bodhi Tree (Ficus religiosa):
Nagarjunakonda Source: Randhawa 1964, p.45

It was during the Gupta period that the Puranas began to take their final literary form. The Puranas are encyclopedic collections of Hindu epics, myths and folklore which are believed to have been compiled at a much earlier period between 400 B.C. and 500 A.D., and began to incorporate matters on Hindu religion and ethics by the sixth century A.D. Tradition demanded that they should be re-edited with the changes in society so that their importance as works of authority might not decrease. Incorporating chapters not only on social and religious matters, but also on law, politics, medicine, science, poetics, art, music and dance, they grew into important codes of Hindu rites and customs (Hazra 1940:5,6,193). Of special interest in their development was a change in form and character whereby they incorporated more materials on social law.

Hazra (l.c.:193-217) points out that prior to this time in India, the rise of various early religious movements (representing 63 different philosophical schools) and the advent of "casteless foreigners" who founded extensive kingdoms, had encouraged the breach of order and discipline in society. After the time of the downfall of the Kushan and Andra dynasties (c.220 A.D.) until the rise of the imperial Guptas, North India had undergone one of the darkest periods of her history. The period evidently was one of extreme confusion as a result of political unrest, foreign invasions, famine and pestilence.

Accounts of widespread social disorder can be ascertained from the early Buddhist literature as well as from the Puranas of this period. This agreement between two opposite sources gives added historical validity to the supposition that a major disintegration of the social fabric had occurred. Under the Guptas, Brahmanical Hinduism was restored to popular favor and conditions improved both socially and economically. The demoralization of society seemed to be checked by the codification of religious and social law in both the literature and the "enlightened" memorials to the imperial emperors.

Sacred Interdictions

At this point in the evolution of religion in India, the religious conception of the sacred tree seems to have further evolved from the point of view of necessity (Sengupta 1980:116). A closer examination of the various sacred trees which were popularly afforded protection by religious injunction reveals that they were also economically useful trees. Trees were considered to be so important that their felling without reason or permission was regarded as a crime against society and even a penal offence, and the Brahman priests and kings ordained severe punishments for the transgressors (e.g. Manu-smṛti VIII.285, 330, 331;

IX.143,145 in Banerji 1980:6). Such a crime could also incur punishment from a higher authority:

"If a man cuts down a useful tree or such trees which are near temples, caityas and groves, famine, epidemic and drought will follow" (Manu-samhita, trans. in Sengupta 1980:88).

In addition, tree planting was encouraged and regarded as a means of obtaining divine favor. The planting of fruit-bearing trees was regarded as an especially religious act, and the donation of fruit orchards (aramas) was deemed a great religious and social service (Padma Purana 1.60.32,34 in Sharma 1979:xii). Examples of this positive reinforcement for arboriculture in the literature of this period are translated in Gupta (1980:88):

"The plantation of trees and the construction of pleasure gardens (for the public) are conducive to purgation of sin and enjoyment of prosperity" (Agni Purana);

"[He who] plants at least one tree, will be able to [remain] in [Indra's heaven] for 30,000 years. The planter of trees [also] liberates the same number of his past and future sins, attains to the highest perfection and is never reborn on earth" (Matsya Purana);

"He never goes to hell who plants an Asvattha, a pichumanda, or a banyan or ten jasmine or two pomegranate or five mango trees. Never cut down trees that bear flowers and fruits if you desire the increase of your family, or your wealth and of your future happiness" (Vayu Puarana);

"Plants are like sons to a sonless man, therefore, plant [the] Asvattha tree, for it does the work of [a] thousand sons" (Padma Purana).

The concept of legality, or the need to have a precedent for individual behavior, is common to all social systems. Traditionally, such precedents can be found in relation to sacred objects and the canon of activities that surround them, which have the tendency to become custom and law imputed to a source beyond society. In this process an absolute is introduced into human affairs, resulting in the "objectifying of one's subjectivity." A sacred injunction, such as one against felling trees, becomes operational in the sense that it prevents one from further action involving "endless regress of cause and effect," and instead presents one "with a plain fact of experience" (Huxley 1974:25,27).

It should be remembered that the existence of a sacred object (i.e. a sacred tree) depends upon a break of continuity or a separation between it and something profane. In the case of the sacred tree, this separation is suggested symbolically by the sacred railing. On the socio-ideational level, this state of separation is reinforced by the imposition of abstentions, or "interdictions," which serve to designate the sacred object (i.e. tree) as being "withdrawn from common use," and to forbid certain ways of acting toward it (Durkheim 1965:328). These interdictions are codified in religious rites, literature and art.

The role of sacred interdictions seems to bear principally on the notion of sacrilege, which implies some type of punishment. According to Durkheim (1.c.):

"... violation of the religious interdicts is frequently believed to bring about material disorders mechanically, from which the guilty man will suffer, and which are regarded as a judgement on his act. But even if these really come about this spontaneous and automatic judgement is not the only one; it is always completed by another one, supposing human intervention. A real punishment is added to this, if it does not anticipate it, and this one is deliberately inflicted by man; or at least there is a blame and public reprobation. Even when the sacrilege has been punished, as it were, by the sickness or natural death of its author, it is also defamed; it offends opinion, which reacts against it; it puts the man who did it in fault."

Punishment itself may be viewed as a kind of "corrective programing." Rappaport (1971b:24) theorizes that "corrective programs" are initiated by an adaptive system "in response to system-endangering changes in the states of its components or in some aspect of the environment." These corrective programs may function to ameliorate the negative effects of environmental change by attempting to "return the deviating component to a safer state, make compensating changes elsewhere in the system or initiate changes in organization."

One might rationalize that the degree of importance of punishment usually is in proportion to the condition of necessity that requires it, and its effectiveness is obviously dependent upon a control hierarchy. Degrees of punishment commensurate with the gravity of offense, in connection with Ficus religiosa, have been prescribed in the Matsya Purana (227.91-95 in Banerji 1980:6). With the added import of specified punishment for the act of sacrilege, the sacred tree, for example, reaches a level of sanctity which connotes less arbitrariness than compelling necessity. The main implication here, in terms of adaptation, is that the level of punishment embodied in sacred interdictions corresponds also to the level of control in a "hierachically organized regulatory structure" (Rappaport 1971b:33-36).

It is possible to argue, then, that these sacred interdictions were ordained to function in social and ecological regulation during a time in Indian history when the arbitrariness of social conventions was increasing but the ability of the authorities to aggregate power or to enforce absolute compliance was limited (l.c.:38-39). "Sanctity, before power, provided a foundation for the regulatory prerogatives of discrete authorities" and the "emergence of such authorities was an important evolutionary advance in which sanctification played a part" (l.c.).

However, the relationship between sanctity and authority changed. Sanctity was degraded with the increasing power of the authorities:

"Whereas the unquestionable status of ultimate sacred propositions previously rested upon affirmation through the religious experience of the faithful, it now came to rest, overtly or covertly, upon force. Whereas previously authority was contingent upon its sanctification, sanctity now became the instrument of authority. Coercion is expensive and difficult, and compliance and docility are achieved more easily and inexpensively through first the encouragement or religious experiences inspired by hopes of salvation in another life and, second, inculcation of the belief that the world's evils are a result of the worshipper's own sinfulness rather than a matter of external exploitation or oppression which the worshipper could possibly resist" (l.c.:41).

Sanctification seems to have evolved to the important role of supporting the conventions which regulated society by limiting the self-interested pursuits of individuals and social groups. In this context it serves to ameliorate the conflict between the individual and the society by presenting the interests and needs of the society to the individual as his own ultimate interests and needs, and his compliance, cooperation, altruism and commitment on behalf of society are rewarded symbolically. In other words, the purpose of a higher-level system is made to appear to one of

its subsets to be its own purpose. Sanctification, then, operates as a counterthrust to recalcitrance or selfish attempts by individuals or social groups to promote their own purposes to positions of dominance in higher-level systems (1.c.:36).

The argument presented above implies that it is coercion rather than sanctity upon which the operation of the control hierarchy depends. Rappaport (1971a:70) asserts that horticultural and hunting-gathering peoples represent systems in which institutionalized references in coercive ability between individuals or social segments are absent or virtually absent. This assertion presupposes the evolution of higher-level control hierarchies in human society requiring "sanctification" of more complex regulatory structures. In the case of the Indian experience, we will now examine a possible source of conflict between the individual and the society which might have led to the evolution of a higher-level control hierarchy and its regulatory structures concerning the sacred tree.

Preservation of the Sacred Seed

An understanding of the relationship between a human population and the sacred tree necessarily must include consideration of a more inclusive set of man-environment relationships of which it is a part. For example, sacred

interdictions prescribing attitudes and behavior toward a sacred tree also seem to respond to the issue of "use" or "non-use" of this particular tree (or species) as a biological resource. As such, a sacred tree may be regarded as being physically a part of a habitat, so that an understanding of the man-tree relationship necessarily entails an examination of its respective habitat and human relationships with that habitat. Therefore, socially exercised restraints or controls regarding the utilization of a particular resource (i.e. sacred tree), may be viewed as the "conjunction of social structure and habitat (Spoehr 1960:114).

The assumption that the sacred tree (Ficus religiosa) is a natural resource, around which social restraints evolved for its protection, then, requires an "ecological perspective" in the investigation of the evolutionary history of human society in the Indian habitat. Before the beginnings of agriculture, India was probably inhabited by hunter-gatherers, some of whom presumably were organized into tribes with exclusive tribal territories. It was perhaps at this stage of human society in India that early forms of resource protection (most likely in the form of restrictions or restraints on hunting) may have first evolved (Gadgil 1985:146).

The development of the concept of territoriality and the control of natural resources probably acquired additional significance when the practice of shifting cultivation, restricted by ecological limits of space, gradually gave way to more settled forms of subsistence such as "primitive" horticulture, swidden agriculture and the beginnings of permanent agriculture. This transition involved the gradual settlement of people on the same plots of land with more or less continuous growth of annual food crops (Russell 1979:219).

Evidence from the practices of modern swidden farmers confirms the conjecture that the cultivation of fruit trees was the first step towards permanent settlement: 'through time the ownership (and distribution) of perennial crops (i.e. mainly fruit trees) was the most important link binding swidden farmers to particular parts of the local landscape' (Conklin 1957 in Russell l.c.:220-221). Connected with the perception of the fruit tree as a resource or piece of property fixed to a place, arose the concept of ownership, the consequences of which may have arisen eventually with ownership of the land itself (l.c.).

Russell (l.c.:222-223) suggests that social regulations introduced at this stage of incipient settlement were concerned in a new way with property. Since ownership ensured continued interest in the fruit tree and its maintenance, it therefore would have been in the interest of the individual

and the society to protect ownership. Theft of fruit and damage to another person's fruit trees would have been recognized by society as an offence. Also, it would have been important to ensure succession of ownership. Inheritance, where succession was based on next of kin, then, began to play a new and important role in life of the tribe. Kinship in turn had to be controlled and certified, giving rise to the concept of the family tree (l.c.).

Russell posits that the stable succession of inheritance ensured that not only could property (i.e. fruit trees) be handed down through a lineage, but so also could knowledge and technique. The beginnings of ownership of fixed property could therefore be associated with the beginnings of monopoly; any kin group possessing important knowledge (i.e. of fruit tree cultivation) would be able to build power on the monopoly of this knowledge. A stable family succession linked to property, knowledge and power provided for a continuity of influence over time. In the context of human cultural evolution, the kin group was probably the 'first great long-lived association,' which, as human society became more complex, gave birth to other associations (l.c.).

Gadgil and Malhotra (1983:465) believe that in India the "monopoly of lineages over particular resources in a given locality favored the cultural evolution of social restraints on resource utilization leading to their sustainable use." This "monopoly of lineages" probably developed over the course of many centuries of interactions among a large number of endogamous tribal groups. Historically, a contributing factor to this development was the long struggle (1500-500 B.C.) between tribal groups of the native hunter-gatherers and the Aryan pastoral-agricultural society. By the end of this phase most of the thick forests of North India had been cleared, all arable land had been taken over from the hunter-gatherers, the settlement of the vast Indo-Gangetic plains had been completed and the gradual spread of agriculture and pastoralism had left its mark on the landscape (Kosambi 1965 and Karve 1967 in Gadgil 1985: 146).

The caste society which crystallized out of these interactions during the first millenium A.D. was largely derived from the adjustments made by these endogamous tribal groups in sharing the different resources of their locality. Each caste (more or less a derivative of an original endogamous tribal group) had come to occupy a restricted geographical range, and to rely on a specialized, hereditary mode of existence directly dependent on the utilization of a particular natural resource (Gadgil 1.c.:135,146).

Inter caste competition for limited resources was moderated or largely removed through diversification in resource use or territorial exclusion (Gadgil and Malhotra 1983:472). Thus, a particular limited resource in a particular geographical region was utilized over many generations by a small homogeneous breeding group which expected the same resource to sustain its future generations (Gadgil 1985:135).

An endogamous caste population may be considered analogous to a biological species having its own biological niche within a biological community comprised of a number of species (Hardesty 1972, 1975 in Gadgil and Malhotra 1983:465). Each caste, leading a traditionally self-regulated, relatively autonomous existence, was a unit within which cultural and perhaps genetic evolution occurred. Several castes were linked in a complementary way to each other through traditionally determined patterns of interaction (l.c.). One ecological implication of this organization of Indian society is that it probably promoted the evolution of cultural traditions ensuring long-term sustainable use of natural resources. The consequent expected stability of the resource base may have not only contributed to the stability of the Indian caste society and its resistance to change, but also may have helped the society to maintain an ecologically steady state with its environment (l.c.:474; Gadgil 1985:135).

The cultural practices that evolved from this "ecological" organization included: [1] restraints on territory over which a given caste could exploit plants or animals; [2] the season in which the resource exploitation was permitted; [3] the sex and life-stage for which exploitation was permitted; [4] the method which could be used for exploitation; [5] the species or biological communities which could never be exploited; and [6] the species which could be exploited by a given caste specialization (Gadgil l.c.). Many of these practices have persisted over the course of many centuries until recent times through symbolic language and the cultural transmission of knowledge (l.c.:137).

Indian society today is still an agglomeration of numerous castes, tribes and religious communities. Many of these different caste populations, unlike tribal populations, have extensive geographical overlap so that village society is generally made up of several overlapping castes (Gadgil and Malhotra 1983:468). An inter-caste tradition of resource protection seems to have evolved, owing to the fact that several plant and animal species in India have been assigned a protected (i.e. sacred) status by more than one caste community and therefore have never been destroyed (Gadgil 1985:142). The most widely protected of such species is the pipal tree (Ficus religiosa), which is traditionally considered sacred by all Hindu castes (l.c.:143).

Revival of the Tree Spirit

"Culture is tradition, and tradition is memory of the past. The past is the root and the present is the fruit which bears seeds for the future" (Radhakrishna in Sengupta 1980:91).

The political and social stability achieved by the imperial Guptas began to disintegrate into confusion and anarchy at the end of the 5th century A.D. and the beginning of the 6th century with the invasion of North India by the White Huns (Randhawa 1964:48). Harsavardhana of the Pusyabhuti dynasty, who attempted a reunification of the country in the first half of the 7th century A.D., is remembered for his emulation of Asoka's policy of tree planting (Sinha 1979:67). After his death in 647 A.D., India was again thrown into a state of turmoil, and a detailed connected account of this period immediately before the Muslim conquest is not available. However, one notable feature of this period (known as the Rajput Period) is that, while there was no paramount power and Hindu kings were often at war with each other, the religious history of India shows a record of growth of Hinduism and a decline of Buddhism.

Evidence such as changes in the level of the Caspian Sea and studies of the intermittent rivers and lakes and abandoned settlements in Central Asia support the suggestion that several serious stages of drought occurred in this region during the period 300-800 A.D. (Lamb 1982:152). Associated with this series of droughts was the stopping of all traffic along the Great Silk Road by the 4th century A.D. and the drying up of pastures used by the nomads, which set off a chain reaction of people migrating out of Central Asia (Huntington 1907).

Another sudden outburst of migrating people from Inner Asia in the early 13th century has been tentatively related to a sudden climatic change during that period (Lamb 1982: 175-176). The significance of these waves of human migration and periods of drought in relation to contemporary events in India can not be fully established because corresponding data on famines and the behavior of the monsoon in India have not yet been analyzed. However, population estimates for India for the period 1000-1600 A.D. produce a sequence which could most likely be explained by famine and disease as the result of a climatic sequence roughly parallel to the one mentioned above.

In consequence of Muslim invasions and the advent of Islam beginning in the 8th century A.D., new values were introduced into Indian society, as evidenced in Indian art and sculpture from this period. The cult of tree worship

seems to have lost some of its former popularity. Trees were carved in a purely symbolic manner without any regard to species identification and the once common vrksa-deva figure became very rare, to the extent that the great tradition of the woman-and-tree motif in Indian sculpture virtually came to an end by the 12th century A.D. On this development Randhawa (1964:57) remarks:

"Perhaps this was a fitting culmination to a great theme, for India was now overrun by hordes of Islamic iconoclasts who not only broke the images but also in due course destroyed the vast forests of northern India. Not only trees were cut but saplings were mercilessly nibbled by the flocks of goats, who converted West Punjab from a green and flourishing land into a virtual desert."

Although much of the architecture from the Medieval Period of India (900-1200 A.D.) was destroyed by Muslim invaders, a sufficient number of temple remains suggest that "where there [was] a temple, there [were] trees also" (Sinha 1979:68). Apparently, trees had not entirely lost their utility and value for Indian society, for they also continued to occupy the "fable" literature of this period (l.c.). After the 12th and 13th centuries, however, the symbolic representation of trees is no longer traceable in Indian art and sculpture (Randhawa 1964:61).

The record of the survival of tree worship in India to modern times commences with the great botanical surveys during British rule. Undertaken undoubtedly with the object

of commercial exploitation in mind, these surveys provide not only a record of the distribution and extent of forests in 19th century India, but also descriptions of the prevailing social forestry management practices. Most important for this present discussion, these records account for the widespread existence of a popular tree cult centered around Ficus religiosa, for unless mentioned otherwise, this particular species was recognized by these early botanists as occurring in the Indian landscape almost exclusively because of its sacred status.

In one of the earliest surveys, Roxburgh (1832:642) reported that Ficus religiosa was "common in every part of India." "Too common to require description," Murray (1881:31) found this tree planted in Bengal, Sind, Central, South and West India, the Berars, the Circars, Punjab, Ceylon and Burma. Hooker (1890:513) cited Ficus religiosa as growing wild in the sub-Himalayan forests as well as "universally planted" in India and Ceylon. In addition, Duthie (1903:241) found it occurring as a planted tree in the Himalaya up to an elevation of 5000 ft. and in other parts of India "chiefly in villages and around Hindu temples." In Oudh, the pipal alone was reported to have "escaped unscathed" the abnormal droughts of 1907-1908 (Chaturvedi 1977:29).

In 1898, Crooke published an important monograph, The Popular Religion and Folklore of Northern India, in which he attempted to explain the popular form of tree worship and its accompanying beliefs. This study was based on answers to a circulated set of questions concerning the names of sacred trees, prejudices against cutting them, and especially their connection with local deities, traditional religious beliefs, legends, ritual devotion and superstition. Crooke (l.c.:87) concluded that tree worship "held an important part in the popular ritual and folklore of North India," and was particularly exhibited by a "very strong" prejudice against cutting trees regarded as sacred.

Conspicuous among the sacred trees reported in Crooke's study was the pipal tree. According to the answers given in the questionnaire, the pipal was regarded as sacred because of the popular belief that it was the abode of Brahma, Vishnu and Shiva, but mainly Vishnu in his incarnation as Krishna (l.c.:98). The basis for this particular belief can be traced to the Padma Purana, in which the pipal is identified as an incarnation of Vishnu (Sinha 1979:65), suggesting a continuity of religious tradition spanning at least 15 centuries.

The persistence of a popular regard for Ficus religiosa as a sacred (and therefore protected) species until the end of 19th century India is remarkable, especially if one considers the completely unregulated exploitation of forest resources that occurred in the 100 years of British rule prior to 1857 (Gadgil 1985:147). Later, from 1860 to 1930 large tracts of communally owned forests, constituting more than one-fifth of India's land mass, were taken over by the Government (against strong local resistance) to meet increasing demands for timber. Traditional or religious concepts of forest management were replaced by new regulations for ensuring "sustainable" exploitation based on the rationale of modern scientific forestry (l.c.:148).

With the loss of cultural restraints, however, forest resources were actually rapidly depleted through commercial "non-sustainable" exploitation, a trend that has accelerated (with disastrous results) until the present time (l.c.:147-150; Gadgil and Malhotra 1983:474). As a consequence of the often wholesale destruction of forests and the replacement of old systems of barter with a money economy, traditional man-land and inter-caste relationships formerly dependent on the sustained use of this resource base have also begun to weaken and break down (l.c.). Subsequently, Gadgil and Vartak (1975:314) warn that even many sacred forests of India are now in danger of losing their traditional protection (see Figure 32).

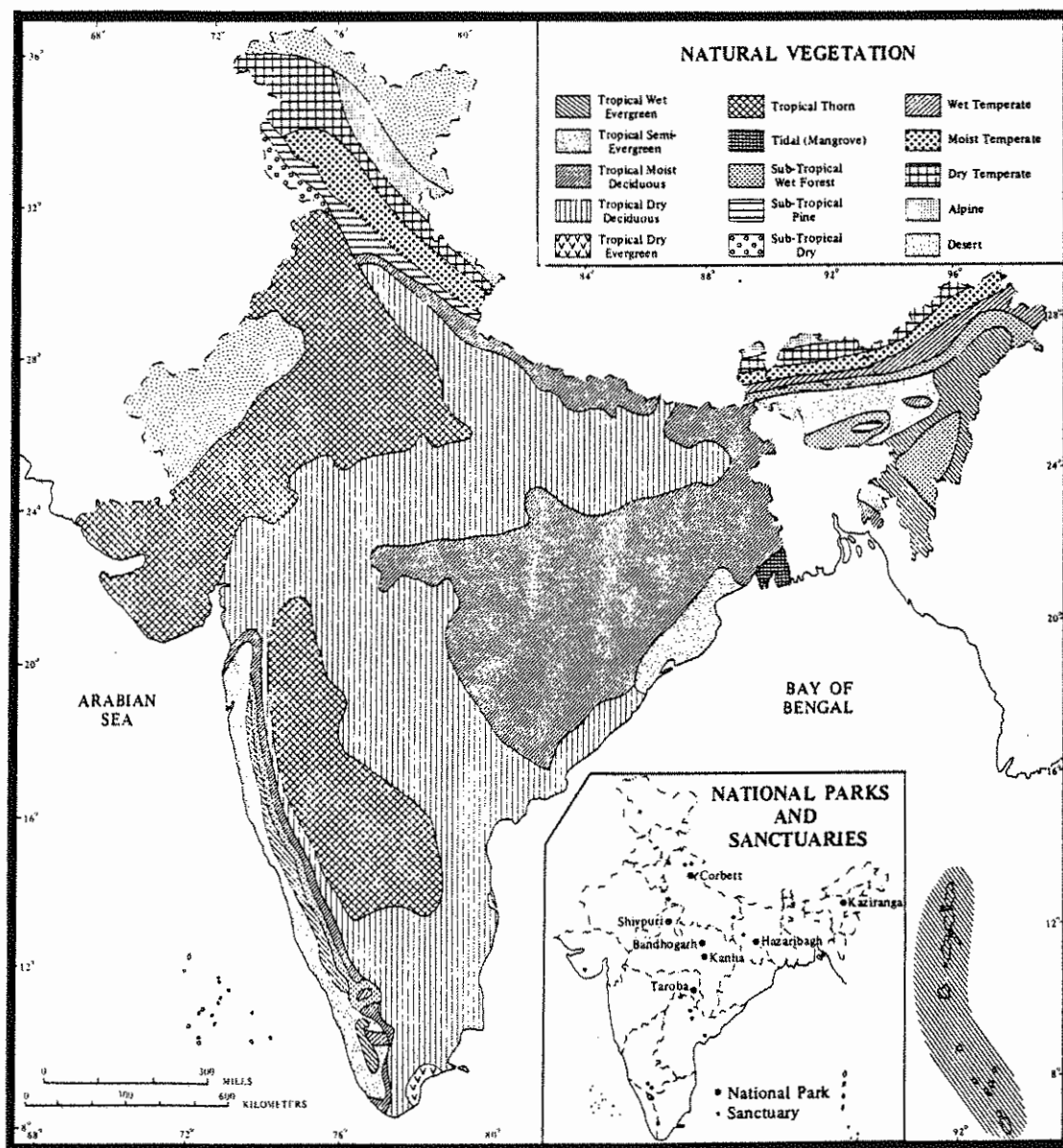


Figure 32. Natural Vegetation of India
Source: Dutt et al. 1976, p.24

That Ficus religiosa should have continued to be valued and warranted a protected status by Indian society in the light of the aforementioned developments, is a botanical anachronism. The presence of the sacred pipal tree in both rural and urban landscapes of India appears also to be an enigma. In a survey of trees in 50 urban localities of Bangalore, for example, Gadgil and Parthasarathy (1977:64-65) concluded that there is "scant regard for trees among the general public." The only trees still largely immune from destruction or mutilation are sacred pipal trees, which are often the only trees left standing in many localities otherwise denuded of tree cover.

In another comparative study of trees in Calcutta, based on the frequency or size of stomata, Ficus religiosa was found to be one of a few species not sensitive to atmospheric gases (i.e. pollution) in industrial areas, which might partly explain its "adaptability" to an urban environment (Debnath and Nayar 1983). As a religious form (i.e. sacred tree), it possibly represents one last remaining vestige of a "rural state of mind" or "rural-urban-continuum" that has persisted in pre-industrial Indian cities until recent times (Presler 1971:241-255).

Recent surveys suggest that a reverence for the pipal tree still remains deep in the heart of rural India, judging from its present frequent occurrence as a cultivated tree in villages, beside temples and on roadsides nearly throughout India (Benthall 1984:413; Sastri 1956:38). It also appears at religious shrines, the confluence of rivers, tombs of saints, places associated with epic or deified heroes and other centers of pilgrimage (Sengupta 1980:56). It is still highly regarded as a sacred tree: as a symbol of Vishnu it is never cut by Hindus, and as the Bodhi Tree it is worshipped now as it was in the days of Asoka (Sinha 1979:85).

The caste system, with its recognition of social responsibility and traditional values, may partly explain this phenomenon, for it has continued for centuries unchanged throughout rural India in some 558,000 villages (comprising 80% of India's population) where village gods and guardian deities are still the most powerful and unifying factor for social unity (Presler 1971:205; Sengupta 1980:118). Presler (l.c.) surmises that the characters of these village divinities are amalgamations of aboriginal (tribal), Brahmic, Buddhist and Jain traits. As such, they respond to the village population as a whole, resembling in character a type of communal religion similar to that of tribalism.

Generally, these village divinities are believed to reside in lonely trees. Thus, according to village belief

systems, the pipal tree is held sacred because it is the abode of many gods, goddesses or spirits: Vishnu, Buddha, Krishna, Siva, Brahma, Lakshmi, A-Lakshmi, Vasudeva, Surya, Mahadeva, Aditya, Vana Durga, Asparas or Gandharvas (Sengupta 1980:59). Invariably, the tree is worshipped because of the spirit or spirits residing in it (Gupta 1971:14). The worship of these different divinities includes many rites, rituals, songs, dances and other devotional practices which are associated with the worship of the sacred tree itself. Some examples of these practices are cited below:

- [1] Somavati Amavasya is observed in North India on the 15th day of the black half of any moon which falls on a Monday. In this ritual worshippers (usually women) pour water and milk on the roots of the pipal tree and circumambulate it 108 times, wrapping its trunk with cotton thread with each round (Upadhyaya 1965 in Sengupta 1980:36).
- [2] In North India a clay pitcher (filled with dali--water, milk, honey and sesame seed) is hung on a tree branch twice daily during the month of Kartick (Oct.-Nov.) in order to elicit the blessings of pitris (ancestors) (l.c.). [Note: A similar ritual was traditionally practiced by Rajput cultivators, who hung pitchers of water on tree branches for birds. If a child was reared on this same water, it was believed that he or she would be able to learn the language of local birds which were considered to be means of drought prediction, and he/she would thus become a sungi (omen reader or predictor) (Bharara 1980:164).]

- [3] In Bengal the ritual Aswatthapata-vrata is observed by women on the last day of the Bengali calendar (Choitra-sankranti) in the month of Vaisakh (April-May). Five leaves of the pipal tree are used in this ritual, each leaf signifying a different stage of human life: a new leaf for the birth of a son, a young green leaf for beauty and youth, an old leaf for the long life of her husband, a dry leaf for the increase of happiness and wealth, and a withered leaf for precious wealth beyond expectation (Sengupta 1980:88).
- [4] In Mysore the pipal is regarded as male and is ceremoniously married to a female neem tree (Azadirachta indica). In Indian villages these two trees are usually grown side-by-side with an earth platform built around them, and intertwined snake stones (fertility symbols) are placed beneath them (Gupta 1971:53). In Rajasthan and Punjab this tree marriage is performed with the symbolic association of the sexes reversed. Sometimes the pipal tree is married to the Kadali tree (Musa sapientum), which often results in the intertwining of trunks. In Orissa, where a large number of tribal groups live and also where tree worship is most current in India, the pipal tree is usually married to a banyan tree Ficus bengalensis (l.c.; Randhawa 1964:61).
- [5] The consecration ceremony, Asvattha Pratishtha, is performed to transform a pipal tree into a sacred tree by inducing the god Vishnu to reside in it (Gupta 1971:52).
- [6] When an elderly family member dies, special offerings are made to a pipal tree during the customary 13 days of mourning (l.c.:51).
- [7] In Bengal childless couples (or whose children die after birth) plant a pipal tree in a ceremony called vrksha-pratistha. Women worship the tree (as a symbol of fertility) for the grant of a child (Sengupta 1980:72).
- [8] The pipal tree is invoked at the sacred thread investiture, at marriages and at foundation-laying ceremonies (l.c.:51).

- [9] Brahmanas worship the asvattha daily after morning ablutions and during evening prayer, facing east and repeating a prayer or singing hymns in praise of the tree:

"Oh Asvattha tree! You are a God. You are king among trees. Your roots represent Brahma, the Creator, your trunk represents Siva, the Destroyer and your branches, Vishnu the Preserver. As such you are the emblem of Trimurti. All those who honor you in this world by performing Upanayama, walk round you, adoring you and singing your praise, obtain remission of their sins in this world and bliss in the next. I praise and adore you. Pardon my sins in this world and give me a place with the blessed after death" (trans. in Gupta 1971:52).

These popular beliefs and practices concerning the sacred pipal tree, it should be remembered, have been handed down from generation to generation for many centuries, accepted as pre-existent, unassessed models of religious tradition. On traditional beliefs, Shils (in Sengupta 1980:57) remarks that they

"are particularistic in the sense that they recommend the primacy of obligations and attachments to bounded collectivities, above all the primordial collectivities of lineage, tribe, locality, ethnicity and the cultural sublimations of primordial ties in linguistic communities and national societies."

Modifications in the form of innovations (i.e. adaptive changes) have sometimes been made imperative by impositions such as environmental changes, poor harvests, epidemics, demographic changes, resource depletion, or military intrusions (l.c.). Nevertheless, it appears that the traditional religious beliefs and practices surrounding the sacred pipal

tree have proven their capacity for survival and self-reassertion in the course of time, their tenacity resting not only on primordial needs, but also on the need to be in contact with the sacred. These needs are identified with the sacred pipal tree itself because of the belief that the Tree Spirit dwells within it. If this belief should ever be discontinued or forgotten, however, the Tree Spirit will leave the tree, and the tree will thus lose its protected status as a form of Sacred Life, but the Tree Spirit will remain immortal.

V I I I. C O N C L U S I O N

The last main division of a discourse usually contains a summation and a statement of opinion or decisions reached. However, in this instance, the purpose is not to suggest any final settlement or decision that would terminate consideration of the topic under investigation, but rather to contribute some thoughts and reflections that might be useful to subsequent research in helping to form a broader comparative perspective within a larger body of knowledge. For example, there are many different species of sacred trees dispersed throughout the world in nearly all cultures, which may or may not share the same symbolic purpose or meaning. Although certain elements of the particular form of the sacred tree in this present study may illustrate an affinity with other forms, a comparative analysis is not attempted at this time.

The sacred pipal tree (alias Ficus religiosa, asvattha, or Bodhi tree) is a particular tree species that has traditionally held a time-honored, revered and protected status in human-environment relations, as evidenced by its conspicuous position in both the cultural landscape of North India and human collective memory for more than 5,000 years. Its designation as a sacred tree has most likely afforded it an evolutionary pathway crucial to its own survival. In terms of concrete or circumstantial evidence, these are clearly

the most obvious findings of this present study. The other more elusive objective of this investigation, i.e. understanding the relationship of the sacred pipal tree to the evolution and perhaps survival of humankind, lies embodied in the less obvious manifestations of the Tree Spirit.

Evolution of the Tree Spirit

There has been a general lack of knowledge about the social, cultural and environmental contexts of traditional forms of tree protection mainly because of lack of knowledge of the cultural processes and their histories operating in traditional societies. In many traditional societies there exist varied forms of institutions for the collective management of natural resources. Since knowledge is a social product, the relation between man and his environment is inevitably threaded through these social and cultural institutions (Thompson and Warburton 1985:204). They represent a time-tested, systematic, reproducible store of knowledge about the environment as well as a guiding behavior within that environment.

In environmental cognition, the term "representation" has often been used to refer to the "symbolic evocation of absent realities...the representation of something absent from the perceptual field through some other means that stands for or symbolizes the absent thing" (Moore 1976:7-8).

This representation of absent realities is termed "symbolic representation" or "symbolization," and although it stands for something else, is directly observable and external. In another sense, the term "representation" has been given a cognitive or conceptual connotation that is used to refer to knowledge not directly observable (i.e. it is an internal representation). From these definitions, then, it becomes necessary to infer internal representations from external symbolic representations.

What is the internal representation, then, in the case of the symbol of the sacred tree? What were the origins of its symbolization and how did it evolve through time? What meaning or message does it reveal? To decipher its message, to specify its particulars and to reconstruct the role through which it has been made manifest, depends not only on a theoretical or conjectural history, but also on circumstantial evidence through some medium. In turn, if the historical evidence of a specific role can only be inferred if it has had permanent effects, how did it continue from the past as a persisting tradition? In the final analysis, there is probably no real proof--there will only be better speculations based on more uncovered fragments of a still incomplete picture.

Symbols have always had an indispensable role in all religious systems. All over the world, trees, for example, have been widely used in worship since ancient times. The

cult of the sacred tree is a collective (universal) symbolic representation, no doubt, yet it is not merely a ritual activity but includes beliefs, superstitions and myths centering around rites. It is a visible expression of the deepest philosophical ideas, and typifies the organic unity of religion, philosophy and art (Sengupta 1980:15).

It is in the symbol of the Cosmic Tree, Tree of Life, Tree of Immortality or Tree of Knowledge, that the "religious valences of vegetation are expressed with the greatest force and clarity" (Eliade 1957:150). In other words, the sacred tree displays a structure that is not seen in the various concrete species: its sacrality unveils the deepest structures of the world. It can be said that all trees that are regarded as sacred owe their privileged situation to the fact that they incarnate the archetype, the "paradigmatic image of vegetation."

In the veneration of trees, trees are worshipped as symbols of gods, spirits or ghosts who cannot be seen in person but only realized in the minds and hearts of men, which is the foundation of nature worship. Regarding the tree as a symbol, or Pritika worship, Swami Vivekananda said, "We may worship a picture as a god, but not God as the picture. God in the picture is right; the picture as God is wrong (in Sengupta 1980:16-17). Thus, worship of the sacred tree is the worship of God, and the Tree Spirit or the tree

itself is a mere symbol. The external symbol is only an aid and a stimulus to the awakening of the Spirit within.

Among the trees which are worshipped in India, some have local appeal, regional characteristics or universal reverence. Magical and supernatural powers have come to be associated with certain varieties of venerated trees, along with the common understanding that these trees are also a source of traditional herbal and folk medicine. The pipal tree is one particular species that meets all of the above criteria for veneration.

That belief systems serve a variety of adaptive functions has been discussed by Lovelace (1984). Their psychological, social and ecological functions are often closely intertwined. For example, beliefs that inspire group confidence and that are, therefore, psychologically adaptive may well be ecologically adaptive in times of environmental stress. Because beliefs often provide interpretations, explanations, understanding, security, and the basis for social solidarity and action, in this sense they are adaptive and sometimes even critical for the survival and maintenance of the social and cultural system.

Similarly, Malinowski (1948) aims to demonstrate the thesis that religion, because it sacralizes the crises of human life and guides people through them, has survival value. He proposes that religion, in its ethics, sanctifies human life and conduct and is the most powerful force of

social control: its dogma supplies a cohesive force and its myth serves as the basis for tradition which in turn preserves the continuity of culture. According to this view, the sacralization or safeguarding of certain animals or plants as a guarantee of future food supply in case of famine is one such example of the function of religion. Malinowski suggests that the focus of religious systems, their messages and ideas are necessary to exploit in order to promote the total life of a well-integrated culture. Within this functionalistic-pragmatic view, it would seem to be of service to the individual and the community to do so, as it would also help to prevent the disintegration of the society.

However, this view neglects the subjective understanding of religion. In the classical view of Truth, the elusive Reality sustaining men and society corresponds to religious belief about it, and this belief, not the act (as in the functionalist-pragmatist view), is primary (Presler 1971:299). This belief depends upon the subjective acknowledgement that the Supernatural or "supernatural" beings exist and operate at the level of human existence. While orthodox religious theologies tend to develop intellectual arguments (defenses) for the existence of the Supernatural, folk religion realizes the fact of the Divine within the context of Nature, and the Reality of its believers corresponds to this belief. Bose and Renner (in Presler l.c.:53)

conclude from their studies of folk religious systems that habitat and religion are complementary. A synthesis of these views on religion (functionalist-pragmatism + subjective belief) might offer a more composite explanation for the co-evolution of social order and natural order, as exemplified in the symbol of the sacred tree.

Religion in all its symbolic forms, until modern times, was the only medium through which a record of mans's accumulated knowledge about the world was kept. At the beginning of this record-keeping, priests and priestesses were the sole possessors and transmitters of this knowledge. The knowledge they promoted was both systematic and abstract in its presentation, but always based in natural reality. Spirits were thought to inhabit not only the heavens but also the physical world, and formed relationships with humankind based on certain codes of cohabitation and communication.

The Tree Spirit was believed to reside in a particular kind of tree and could always be found there if one needed to contact It, and man encoded this information in his collective mental map. Sometimes the Tree Spirit could be useful or helpful to man in his day-to-day experience of survival; therefore, it was in man's best interests to encourage respectful and friendly relations with It. The Tree Spirit, for example, could save a child from the deadly bite of a poisonous snake or help domestic animals survive

an untimely drought, and the priest or priestess of the tribe or village knew how to enlist this aid. This sacred knowledge was accessible to the common people through different modes, including both orthodox and popular religion.

In the spiritual development of India the subjective and functional elements of religion assumed form by means of two different but yet integrated channels of evolution.

Bhakti worship (devotion to a personal deity, including innumerable tutelary and localized deities) came into prominence in the centuries immediately before and after the Christian era not as an isolated sectarian development, but as a general tendency, involving all forms of belief systems (Coomaraswamy 1971:27). These "Life cults" always contained esoteric and exoteric aspects, and "were considered not only the most important factors for assuring the material prosperity of the land and folk, but were also held to be the most appropriate vehicle for imparting the highest religious teaching" (Weston 1920 in Coomaraswamy l.c.:38).

Concurrent with this development was a spiritual and philosophical revolution supported by adherents of the Upanishads and early Buddhism, in which personal fulfillment and salvation (emancipation) was emphasized. However, with the evolution of Indian civilization and the development of sectarian Hindu and Buddhist religious systems, the fulfillment of social function and order (Dharma) became

of ultimate significance and importance. In the process, the Bhakti cults, too strong to be subverted, were either assimilated into the orthodox conventions of these religious systems, or continued through time as distinct forms of popular worship.

Before the invention of manuscript, as a form of symbolic communication, the transmission of environmental knowledge from one generation to another was accomplished through an oral tradition. The Word, and later the written Word, was considered a sacred piece of property in itself. The controversial headings of the Great and Little Traditions were used by Redfield (1953) to demarcate the tradition of the elite and the folk and tribal people of India. In lieu of "Great Tradition," Chatterjee and Srinivas (1950 and 1952 in Sengupta 1980:56) used the term Sanskritization to refer to this distinction, which is essentially descriptive of a formal religious tradition based on scriptural doctrine. On the other hand, Smith (1970: 19-29) asserts that the religion of the illiterate peasantry is not the formal doctrinal notion of scriptural religion, but "is essentially polytheistic and concerned with the magical manipulation of unseen forces for the protection and practical benefit of the worshipper."

As Indian society and economy became more complex, symbolization and abstraction of its ecological and sociological matter increased, but the image of the sacred pipal tree and the Yaksa figure (the oldest known images in India) never completely disappeared from the reality of the Indian psyche. As one of the fruits of civilization, the development of an aesthetic continuum was partly responsible for their survival. Throughout all their symbolic forms, the sacred tree and the Tree Spirit continued to represent a fusion of the environmental and metaphysical realms and a distillation of both experiential and aspirational aspects of humankind. It is at this level of images, that the solidarity of Indian civilization has been perhaps most clearly felt and actuated.

That the symbol of the sacred tree is demonstrative of a certain continuity in both thought pattern and action, suggests that it has not lost its relevance for humankind and may provide an understanding of the critical linkages between man, culture and nature. The search for effective modern solutions to the problems of deforestation and landscape change may find a quarry in the re-examination and redefinition of the tradition, and a revival of the religious values associated with the sacred tree.

In a landscape denuded of its natural forests, woods and groves, the often solitary sacred pipal tree, standing majestically in the center of a dusty village or a concrete metropolis, is a symbol of the vegetative gesture of Life, an arresting but consoling token of man's sacred wisdom and compassionate prudence to protect one last surviving member of a species of Life from total destruction. It is also a living reminder of the Grace of the Tree Spirit.

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