

CHAPTER V

Attitude and Conservation Measures

Tena tyaktena bhuñjīthā
Īṣopanīṣad

Background

The history of the human civilization is intimately associated with plants, beasts and birds.

With the progress of civilization man learnt to use plants and herbs, the roots of some trees as food and also as drug for curing diseases of man and animal as well. Simultaneously studies and observation on animal life were continued by the ancient people. The Indus people made remarkable achievement in agricultural activities. They possessed good knowledge on animal life. All are evident in archaeological remains. They had reverence for some animals. But we have least information other than the extant remains of the Harappan culture regarding their attitude towards the living world.

The Vedic Indians in this respect are in a convenient position to convey their message to the posterity. It is evident from the *R̥gveda* and other Vedic works that the Aryans were careful observers of flora and fauna of the new country, they migrated to. Certain factors undoubtedly helped the Aryans in the study of Indian flora. Being new comers to this country, they might have acquired some knowledge of Indian plants from the Chalcolithic peoples of the Indus valley.

In course of time certain tree became objects of veneration possibly being identified as useful and having medicinal value through observation. As instances of attribution of divinity to plants with particular reference to their efficacy in healing diseases we may mention

a few verses from the *Ṛgveda* and also from the *Atharvaveda*. Thus, it appears that the healing science developed out of practical need of the people. The fondness for nature and animal attains a full-bodied form in the writings of the consequent authors. The valuable information regarding nature presented in metaphorical form in literature is not bereft of scientific value. The idea of identity of the self with the universe continues throughout the evolution of Indian thinking process.

The *Rāmāyana* being rich in poetic imagination describes the splendour of nature but the *Mahābhārata* being more historical, advances a number of arguments to establish the truth that the plant is as living as man¹.

By the time of Gautama Buddha some two thousand and five hundred years before, agriculture and pastoralism had covered a wider area of northern India². Buddhism and Jainism had played significant role in designing social conventions which promoted the conservation practice of nature. These religions extended their compassionate attitude towards all living creature, imposed ban on killing of animals and suggested plantation and protection of trees.

With the introduction of agriculture in the Neolithic period, man began to exercise considerable influence on plant life. With the growing population and increasing demand on the forests for a clearance of land for cultivation, unforeseen problems started to feature the whole canvass of history. The people had to clear off the jungles for pastoral and agricultural purposes, cut down the trees for constructing houses and for gathering fuels on the one hand; on the other, he came to learn more and more about the plants and animals. With the passage of time he came to learn how to use plants herbs and roots of some trees as drugs for curing various diseases. Taming and training of animals and to utilize their strength and vigour for the protection of kingdom and security of state came to be recognized as another area of investigation.

Plant science and animal science as they are called, practically form, to a large extent the theme of Biology, a science of modern origin. It may seem too much to equate the two branches of knowledge in their

archaic form with the modern Biology. But it should be remembered that for each science, there was earlier processes suggesting its possibility for future. Plant and animal science in India thus originated through long association of the people with nature and urge of people for gaining knowledge to overcome crisis and problems of day to day life.

It is equally important to note the concerns of the ancients for environment which is expressed in the code of *Kauṭilya*, *Manu* and other law-framers. These codes were formulated and reiterated in the legal texts of later years for the preservation of environmental and ecological balance and for the social order as well.

A survey of the works deemed to be scientific, brings forth a clear picture that most of the texts consist of two parts, the one being speculative and the other practical. In one part we find metaphysical component and propitiatory rites even to the extreme of superstitious practices and the other carries the store house of empirical knowledge obtained through long experience and trial-error process, founding a base for better scientific study.

To S.N. Sen, definition of science is 'a system of behaviour by which man acquires mastery of his environment'. This system of behaviour comprises man's knowledge and skills. With these two, human societies make and enlarge their environment for the betterment of their lot³. The so called division, between scientific culture and humanistic culture becomes blurred when the point of social origin of science is taken as prime point of consideration.

When we closely look into the basic human ends as conceived in the Hindu tradition, '*Puruṣārthas* — *dharma*, *artha*, *kāma* and *mokṣa*, it is not difficult to realize that this broad spectrum of values contain both material and spiritual elements in it⁴. In reality, therefore, life-denying and life-affirming are appraised as having existed alongside of each other in India and these two elements have been taken as constituting an organic unity in Indian world view and this is said to serve as much the metaphysical requirement as the practical life of the Indian people⁵.

The term *Vārttā* gives a clear hint to the growth and development of practical sciences in ancient India. *Vārttā* is known to the *Kauṭilyan Arthaśāstra* as agriculture, animal husbandry and commerce. The literature on farming, cattle breeding commerce and banking is to be found in the *purāṇas*, the epics as well as in the *Brhatsaṃhitā*. R.C. Majumdar, in his discourse on the functions of the ancient guilds has shown with the help of inscriptions, that the guilds served the functions of modern banks⁶. However, treatises on applied economics known as *Vārttāśāstra* can not be yet traced back to the Gupta period. Many of the *Vārttā* and *śilpa* books have been regarded by B.K. Sarkar as 'exact sciences'. He thinks that Hindu mineralogy, Hindu botany (including *Vṛkṣāyurveda*) and Hindu Zoology (including *Aśvaśāstra* and *Gajaśāstra*) and along with them Hindu medicine (*Āyurveda*) are essentially studies in the *Vārttā* positivism of the Hindus⁷. The period of nine hundred years from *Pāṇini* to *Varāhamihira* according to his opinion is a period of scientific growth and development of India in the past.

The question of conservation and protection which has become the kernel of environmental studies to-day did not remain unattended by the ancient social and legal thinkers. The march of human society created an ever increasing demand over soil and plants. People of ancient India showed their height of knowledge by introducing various injunctions and prohibitions against any unnecessary spoil of animal life and destruction of plant life. The purpose of these scriptural injunctions and social prohibitions was to create a congenial atmosphere for the living world. The continuous exploitation of nature actually drags the human civilization towards a total environmental collapse. As the economy of people was totally dependent on plant resources and agriculture in early period, any profligacy in using the nature's wealth could be perilous to the very existence of man himself. The principle of *ṛta* or orderliness stands for a law for cosmic equilibrium, violation of which would be injurious to all components of nature.

To avoid any such fatal situation, the ancient Indian thinkers seriously took the job of creating an environment of social consciousness for the conservation of plants as well as of animals by implementing

state prohibitions and social injunctions. Conservation has been defined by the modern scientist as ‘the management for the benefit of all life including human kind of the biosphere so that it may yield sustainable benefit to the present generation while maintaining its potential to meet the needs and aspirations of the future generations’⁸. The question of conservation as well as protection of trees and animals came to the fore as the utilization of natural resources by the people was intensified with the passage of time and growth of human population. From the literary texts e.g. from the *Arthaśāstra*, one can make an idea about the multifarious uses of natural resources for human welfare. The entire civilization practically dependent on natural resources satisfies its each and every need e.g. food, drinks, garments, shelter, upholstery, medicine and luxuries from the nature. Therefore prudent and sustainable use of all the resources can only save the universe from the perilous fate. Consumption without a feeling of sacrifice has been discouraged in *Upaniṣadic* thought. Enjoyment and sacrifice should go hand in hand — this philosophy finds its fullest expression in the *Iṣopaniṣad*.

It is said,

Īśā bāsyamidam sarvaṃ yat kiñca
Jagatyām jagat |
Tena tyaktena bhujñīthā mā gṛdhaḥ
Kasyasvid dhanam⁹ ||

The sublime philosophy underlying the lines quoted above which exalts the ideal of great cosmic unity and sharing of the whole as a unit of this great universe seems to be in accord with the principle of conservation as it connotes to be in the modern sense.

..... Practically conservation is an ethical relationship between people, land and resources. It means no wanton destruction of natural resources but the wise and prudent use of land and resources so that they continue to function properly and serve human kind in the future. Without developing a philosophy of sacrifice in the human psyche or viewing everything as component unit of the whole, it seems simply impracticable to go on with the conservation measures for the benefit of

the people, the plants, and the whole living world around. The realization of the Upaniṣadic people might not have been acquired exclusively from a surrealistic experience, rather it had a strong footing on the ground of reality, nurturing at the same time a feeling of involvement and non involvement in human mind.

Thus the Indians may search for the origin of protection and conservation management in their ancient treatises, traditions, folk lore, and above all in their belief system, social institutions and pattern of life. Perhaps for this reason Smt. Indira Gandhi the late Prime Minister emphasized the Indian heritage of care, Conservation and worship of trees and animals while launching the World Conservation Strategy in India on 6th March, 1989, by saying, ‘The interest in conservation is not sentimental one but the rediscovery of a truth well-known to our sages. The Indian tradition teaches us that all forms of life, human, animal and plants are so closely linked that disturbance in one gives rise to imbalance in the others’¹⁰

The professional practices of any country can not be separated from social and religious beliefs of the people. The cult of tree worship is older than or as old as the Indian civilization. In fact the earliest objects to be worshipped in Indian culture were trees and animals. It has generally been assumed that the designs on the Indus valley seals were of religious character and showed that the people were animal worshippers.¹¹

The representation of a figure standing in the bifurcated branch of a *pipal* tree appears to depict the Mother Goddess¹². The *pipal* tree is still held to be sacred in India though not associated with the cult of the Mother Goddess.

In the *Atharvaveda*, urge for protection of cattle is expressed in the following hymn — ‘To the draft-oxen [do thou] first, to the milch kine [do thou], O Arundhati, to the non-milch cow; in order to vigour [Vāvas], to four-footed creatures do thou yield protection¹³. (AV., VI. 59.1).

A number of verses have been composed praising the excellence of plants and herbs in the Vedas.

Buddhism and Jainism do not draw their inspiration from the Vedas but it is interesting as well as historical that both the religions show their deep concern for nature and animal life in the same manner as their Hindu counterpart do. Buddhism and Jainism began to play a role in designing social conventions which promoted the prudent use of resources. 'In part, such conservation practices would have been founded on earlier one inherited from food-gathering societies'¹⁴. In fact, most Indian rural and tribal people believe that their culture was born and nourished in the forest.

The best-known ancient state-sponsored conservation campaign was undertaken by the Mauryan emperor *Aśoka*, following his conversion to Buddhism. The *Aśokan* edicts advocate both restraint in the killing of animals and advice for planting and protection of trees. Along with protection measures, we have already noticed that plant and animal diseases have been dealt with in a number of medical treatises. The realization that the animals and plants play no less in maintaining nature's balance gave birth to such disciplines of study. The textual references to the practice of medical treatment of animal alongside that of the man have a unique corroboration in the famous Edict of *Aśoka* found in Dhauri (2nd Major Rock Edict).

The Edict of the third century B.C. from Dhauri goes as: 'Everywhere in the empire of the Beloved of the Gods, the King *Piyadassi* and even in the lands on its frontiers, those of the Colas., and as far as Ceylon and of the Greek King named Antiochus and those kings who are neighbours of that Antiochus, everywhere the two medical services of the Beloved of the Gods, the King *Piyadassi*, have been provided'. These consist of the medical care of man and the care of animals. Medicinal herbs whether useful to man or to beast, have been brought and planted wherever they did not grow; similarly, roots and fruits have been brought and planted wherever they did not grow. Along the roads wells have been dug and trees planted for the use of men and

beasts. What a compassionate attitude for welfare of all the living creatures of a great statesman in ancient India! The edict announces the great message of Dhamma in which human being and other living creatures are projected as standing on the same footing as the two relative parts of a body. The simultaneous efforts for the well-being of the people and the non-human living beings bring forth to the present world that the Indian people since long past could understand the utility of both the plants and animals for the very existence of man.

In the hey-day of Buddhism and Jainism, the ideal of non-violence was so pervasive that a widespread perception of the need to protect the plants and animals reached perfection in that age. These religions had perforce to suggest broad principles, such as compassion towards all living creatures, a ban on killing animals, and planting as well as protecting trees. The Jainas, especially the Digambara Jainas follow the ideal of non-violence to its extreme limit. The extreme ethics of non-violence led to complete ban on cow-slaughter and to the taboo against beef by all the upper and lower caste people¹⁵.

The most direct appropriation of narratives from the folk tradition in the *Jātakas* is the animal stories and even more significant is the fact that the Buddha himself is the principal character in the animal stories. Stories about animals exclusively reflect norms and values that prevailed in the society. Recourse to animal stories in fact indicates a close relation between man and animal. Even at the time that *Jātakas* were taking its final shape, men, women and beasts continued to live in close proximity and the animal world was thus integral to the experience of the early Buddhists.¹⁶ The depiction of animals expressing social value in the *Jātaka* stories often created a feeling of affinity between man and animal, which was an important factor in shaping the thought process of the people.

Conservation from Above

Protection and Conservation Measures

The first known attempts to protect plants and trees as well as living creatures are codified in the *Arthaśāstra*.

The Forest Department is placed in the charge of the Director of forest produce i.e. *Kūpyādhyakṣa*. The Director had to bear the responsibility of improving the productivity of forests. But simultaneously, the Director was assigned the responsibility of giving punishment to the miss-doers.

It is said, 'The superintendent of forest produce shall collect timber and other products of forests by employing those who guard productive forests. He shall not only start productive works in forests, but also fix adequate fines and compensations to be levied from those who cause any damage to productive forests except in calamities'.

Those who depend more on plant and animals for their daily needs, take care to ensure protection of natural resources from wanton destruction. The state played a vital role by imposing restriction and penal measures from above. *Kauṭilya* states that, if any one collects flowers and fruits from flower garden and fruit orchards, one is to pay 54 *paṇas* as fine (*K.A.*, 2.22.11. p.146). Probably this penalty was applicable in case of unauthorized collections.

Similarly for taking vegetable, roots and bulbous roots, a fine of 51.75 *paṇas* should be levied. For collecting crop from paddy field one is to give penalty of 53 *paṇas*.

References of cities and municipal organizations are found in ancient literature. A graphic picture of the plan and layout of an early Indian city is given in *Milinda-pañha*¹⁷. It speaks of a city 'fine and regulars, measured out into quarters, with excavated moats and ramparts about it with stout gatehouses.... Open shops, well provided with parks, gardens, lakes, lotus ponds and wells, adorned with many kinds of temples of the gods, free from every fault and standing in all its glory.' Naturally, one of the main concerns of the city administration was to look after the maintenance of the city parks, garden and water bodies which were constructed for pleasure making, beautification and maintenance of environmental health as well.

Besides city parks, animal parks were laid out for King's recreation. Such parks contained shrubs and bushes bearing sweet fruits, trees without thorn, shallow pools of water and tamed deer and animals, wild animals with their claws and teeth removed. Besides, such animal park should be established where all animals would be given full protection (*K.A.*, 2.20.3.4., p. 59).

Thus it appears that parks and gardens were essential for city life. So stringent measures were adopted to restrain any kind of assault on public parks and recreational forests for the royal people and the *abhayāranyas* (where animals are given full protection).

Assaults on the sites mentioned above have been brought under the category of 'Physical Injury' in the *Arthaśāstra* which may be described as criminal offence as it is in the present Indian penal code.

It is mentioned — 'For cutting the shoots of trees in city parks that bear flowers or fruits or yield shade (the fine shall be) six *paṇas*, for cutting small branches twelve *paṇas*, for destroying trunks the lowest fine for violence, for uprooting (the tree) the middle (fine)'. (*K.A.*, 3.19.28, p.249.).

In case of bushes and creepers bearing flower and fruit or yielding shade, the fines shall be half and also in the case of trees in the holy places or cremation ground. In the case of trees at the boundaries and in sanctuaries or in cases of prominent trees, the fines would be double. The same should be imposed in case of royal parks. Regarding animals *Kautilyas* penal provisions are as follow:

For causing hurt to small animals with wood and other things, the fine shall be one *paṇa* or two *paṇas*, double that for causing bleeding. For these same offences concerning big animals, the fine shall be double and (payment of) expenses for treatment and cure'. (*K.A.*, 3. 19. 26.p. 249).

On the question of conservation and protection of forests, open spaces etc. *Kautilya* seems to be in favour of more rigorous punishment to deal with misdeeds in comparison to the laws of the present day. He even is not hesitant to make provision of capital punishment for such

offences. His clear instruction is: 'He (Superintendent of Forest) shall caused to be burnt in fire one who sets on fire a posture, a field, a threshing ground, a house, a produce-forest or an elephant-forest' (*K.A.*, 4.11.20, p. 284).

During the days of growing agrarian economy in the days of the Mauryas such stringent measures had to be adopted from above for an undeterred and steady improvement in agriculture and also for the protection of all types of animals and the forests as well.

The conservation-protection programme is not confined to such punishment measures in the *Arthaśāstra*. The Director had to possess knowledge regarding qualities of wood obtainable from different trees so that he may take measures to increase the growth and supply. Bamboos, reeds and canes were to be classified. He is to identify all kinds of flowering plants, medicinal herbs and poisonous plants. Collection of fibrous plants and writing materials and also the preservation of venom were among his responsibilities. Collection of skin of the dead animals also was the duty of his office.

The defence of the country largely depended upon the various products of forests. The logs of hard woods were used for setting up palisades for the protection of cities. Leather constituted the essential element for making various types of defence equipments. The horn, the tusks or wood, bamboo were used for the hilts. Naturally wanton destruction of forest resources could call on a disastrous situation. Sustainable use of nature, therefore, became an accepted norm of the society.

By this time, we have already found that elephant was established as the important component of the war machine and it is obvious that *Kautilya* discusses in some details the quality of elephants, their capture and care as well as the conservation of the elephant forests. The elephant forests in the frontiers were undoubtedly inhabited by food gathering tribes. These tribes were the trappers, *Sabaras*, *Puliṅḍas* and *Caṇḍālas*. These forest people presumably served the purpose of guarding the intervening regions between the fortresses of the frontier chiefs and the

boundary of the forests (*K.A.,II.,1.5,6, p.56*). The Superintendent of elephant's forest depended on the forest guards for the protection of the animals whether on mountainous or in swampy region because these forest people were familiar with all the network of paths in the dense of jungles and also with the entrance and exit of the forest. The forest guards were to maintain a record of (every) elephant in writing and keep keen vigil on their movements. The census of elephants by observing the behaviour, foot prints, dung, sleeping places of the animals was a very hard task in those days. But the state had the responsibility of keeping complete information on the elephants so that immediate measures could be devised to avoid any problems and do anything if needed by the situation.

Trespassers upon a forest reserve were to be severely punished. The forest guards were authorized to kill any one slaying an elephant. A person bringing a pair of tusk from a naturally dead elephant should be rewarded with four *panas* and a quarter (*K.A., II. 2.8, 9, p. 60*).

The government of the contemporary period could realize that the hunters or fowlers could be instrumental in checking the onslaughts by the enemies or the wild tribes. At the approach of robbers or enemies, they should produce a sound with conch shells or drums. They shall hide themselves in such a way by ascending trees or mountains as to escape from the thieves. And he should convey to the king movements of enemies by means of trained pigeons carrying sealed letters or by a series of smokes and fires. (*K.A.,II.34.9,10,11, pp.181-182*). Regarding conservation and protection of forests with the help of the peoples group living in the fringes of forest, the ancient thinkers developed a unique practical concept, the reflection of which we get in the *Arthaśāstra*. Along with the common aim of collecting road-cess, escort of caravans, resisting robbery, protection of cattle etc. a main concern of the government was to ensure livelihood of the people in produce (forest) as well as in elephant forests. In reality conservation cum protection programme can be materialized if the people residing in the frontiers of forest area are provided with alternative livelihood. This concept was not unknown to the author of the *Arthaśāstra*. At present different forest

development agencies have been organized for implementing protection and conservation programme of the government. Mention may be made of the 'Eco Development Committee' and the 'Forest Protection Committee'¹⁸. These committees are constituted mainly with the nearby people of the forested areas. They take active part in different activities for protection and conservation of the forest resources. Forest management of present days in India is not unrelated to India's ancient tradition. Rather the seeds of such rational concept may be traced in ancient Indian texts like the *Arthaśāstra* and others.

A comprehensive idea may be made about the conservation and protection measures of the time by collating the instructions and penal measures extended in different sections of *Arthaśāstra*. The duties and responsibilities of the Superintendent of Slaughter-house have been defined by the author, obviously keeping in view the conservation and protection of animals, birds and fishes. It is said — 'The Supervisor of Slaughter should impose the highest fine (for violence) for binding, killing or injuring deer, beasts, birds or fish for whom safety has been proclaimed and who are kept in reserved parks, the middle fine on householders (for these offences) in reserved park enclosures, (K.A., II. 26.1.p.157).

For binding, killing or injuring fish and birds that do not prey upon other animals, the superintendent is instructed to impose a fine of 26.75 *panas* and when the torture is done to deer and other beasts, the fine will be twice, (K.A., II,26.2.) To maintain the balance of number of living creature in the sanctuary park one sixth part of the total number of birds and deer was to set free every year.

Fish from sea, rivers, lakes, tanks and canals and all other creatures were generally advised to be protected from all dangers of injury.

In the *Arthaśāstra*, specific fine has been fixed for causing harm to animals. For causing hurt to small animals with wood and other thing the fines is fixed at one or two *panas*, and double that for causing bleeding. For committing same injuries to big animals the fine shall be exactly the

double and the payment of expenses for treatment and cure. (K.A.,III.19.26,27,p.249).

The Supervisor of animal slaughter should ensure protection to the cattle. The provision is — ‘The calf, the bull and the milch-cow among these (animals) are not to be killed. For one killing (them, there shall be) a fine of fifty *panas* also for (one) torturing (them) to death’. (K.A., II.26, 10,11, p.158).

The next provision is also important as it is concerned with the issue of health and hygiene of man.

It is said — ‘they shall not sell (meat that is) swollen, without head, feet and bones, foul-smelling and (of a) naturally dead (animal). For such offences, the fine will be twelve *panas*. (K.A.,II.26.12,p158).

The verse number 12 is also from the point of view of human welfare. Strict vigil is to be kept on the meat sellers so that no disaster should happen due to taking of decomposed flesh by the common people.

The above mentioned laws probably were in force during the reign of *Candragupta Maurya*. In the time of *Aśoka* the scope of the Forest and Game Laws was further widened. The Game Law was replaced by the Law of Piety and brought under the category of *Dhammaniyamas*.

By the time of Gautam Buddha, settled agriculture and pastoralism had covered wide tracts of the country. The Brahmanical *yagnas* were antagonistic to the interest of agricultural expansion as because numerous animals were sacrificed in these rituals. The situation, thus, might have demanded a rise of social awareness for protecting the living creatures. The emphasis on a compassionate attitude towards all living-beings in Jainism and Buddhism may be analyzed in this perspective. Great emphasis is laid on *Ahimsā*, perhaps to a further extent in Jainism than Buddhism. The catholicity which characterizes

norms of Jainism, yet it should be remembered that Jainism also lays down that where absolute abstinence from injury to life is impossible, one must try to live with minimum of injury to other living beings. Thus it tries to establish in the society the principle of 'live and let live'¹⁹. This message may be taken as the explicit articulation of India's age long tradition of conservation ethics.

Aśoka on Protection and Conservation

Aśoka's conservation policy has found expression in Rock Edict I, Rock Edict II, Rock Edict III, Rock Edict XI, Pillar Edict V and also in two Aramaic Edicts of *Priyadarśī* from Laghman.

Edict I forbade the general destruction of life both in the King's own kitchen and in his empire. *Aśoka's* Pillar Edict V, which contains his regulation of piety, has been translated as follows:²⁰ 'Thus speaks the Beloved of the Gods, the King *Piyadassi*: When I had been consecrated for twenty six years I forbade the killing of the following species of animals, namely, parrots, *mainās*, red headed ducks (?), *cakravākā-geese*, swans, *nandi-mukhas* (birds encountered in rice fields?), pigeons, bats ants, tortoises, boneless fish, *vedaveyakas*, *puputas* of the Ganges (fish?), skate, porcupines, squirrels, deer, lizards, domesticated animals, rhinoceroses, white pigeons, domestic pigcons, and all quadrupeds which are of no utility and are not eaten. She-goats, ewes, and sows which are with young or are giving suck are not to be killed, neither are their young up to the age of six months. Capons must not be made. Chaff which contains living things must not be set on fire. Forests must not be burned in order to kill living things or without any good reason. An animal must

animals likewise must not be killed. On the eighth, fourteenth, and fifteenth days of the fortnight, on the days of the star *Tiṣya* and *Punarvasu*, on the three first full moons of the four-monthly seasons and on festival days, bulls, goats, rams, boars and other animals which it is customary to castrate, are not to be castrated. On the days of the stars *Tiṣya* and *Punarvasu*, on the first full moon days of the four-monthly seasons and on the fortnights following them, cattle and horses are not to be branded.

In the period [from my consecration] to [the anniversary on which] I had been consecrated twenty-six years, twenty-five releases of prisoners have been made. Thus in the edict a long list of animals, birds and fishes which are not to be killed has been recorded. M. Chakravarti has identified many of the beasts and birds mentioned in the Pillar Edict V. He has also thrown light on qualities of flesh of different animals on the basis of different ancient texts²¹.

‘Three *caturmāsis*’ has been explained differently by different scholars. According to B.M. Barua ‘the fish and other creatures got relief for not less than seventy-two days in the year, calculated at the rate of 3 days in every lunar half-month, viz., the first, the eighth and the full or new moon’. The three *Cāturmāsis* and *Tiṣya* full moon days are all included in the list of full moon days through out the year. C.D. Chatterjee gives the number of non-slaughter day as 72 in a year but his mode of calculation varies from that of Barua.

S.L. Hora after a careful examination of the prohibitions laid down by *Aśoka* in the Pillar Edict V, expresses his view that ‘there is some indication that *Aśoka*’s Pillar Edict V records an advancement of knowledge over what *Kauṭilya* had recommended in his *Arthaśāstra*

the peak breeding period of India's principal food fishes is July, August, and September but *Aśoka's* prohibition period extends up to the middle of November. This extended period is also scientifically logical, because after breeding in shallow areas or upriver the spent fishes fall back to their normal habitats in deeper water, or in the case of Hilsa to the estuaries and the sea. The young also move down to safer habitats after the rains are over and the flooded areas begin to contract. The young and the weakened spent fishes need protection and it is indeed remarkable that even this was thought of in the remote ancient age²³. The Great Emperor *Aśoka* by this legislation set an example of highest degree of piety being extended to a newly spent mother fish which in reality is a well-thought-out conservation measure. Rock Edict VIII tells us that *Aśoka* totally abolished royal hunt in the tenth regnal year. In the past King went on pleasure tours which consisted of hunts and other similar amusements. But from the tenth Regnal year, the pleasure excursions (*vihāra yātra*) typified by hunting expedition (*magavyā*) were replaced by *dhamma-yātrā*. Earlier, the hunting expedition was a favourite pursuit with the Kings of India. We may refer to the description of Strabo on the occasion of hunting expedition²⁴. The King leaves his palace to go to the chase, for which he departs in *Bacchanalian* fashion. Crowds of women surround him, and outside this circle spearmen are engaged. The road is marked off with ropes, and it is death penalty, for men and women alike, to pass within ropes. Men with drums and gongs lead the procession. The King hunts in the fenced enclosures and shoots from the back of an elephant or from the platform of a chariot. Of the women some are in chariots, some on horses, and some on elephants back and they are equipped with weapons of every kind, as if they were going on a campaign. The portrayal of entrance and exit of the King into and from the royal palace for hunting games or for other purposes in the *Arthaśāstra* (*K.A.*, I.21,23,26, p. 54) resemble that described by Strabo. It is evident from various references in the *Kāmaṇḍaka Nītisāra* or *Śukranīti* that the King's routing work.

Aśoka stopped this practice in the tenth year of his reign.

The two Aramaic Edicts of *Priyadarśī* from Laghman are also important additions to the existing knowledge on *Aśoka*'s attempt for conservation of the living world through large scale implementation of his law of piety²⁵.

B.N. Mukherjee states that there is much similarity between the contents of the two Laghman records and both of them have three distinct sections. Section one, he adds, indicates that after the expiry of the Sixteenth year, (from the date of his consecration) *Priyadarśī* expelled from his subjects those who indulged in killing of creatures and fishes and those who used to do frivolous things.

In RE IV it is stated that 'as has not happened for many hundred years, now by the inoculation of the Law of piety made by King *Priyadarśī* the Beloved of the Gods have now increased abstention from slaughter of lives, avoidance of injury to creatures'. PE VII also tells 'the want of injury to beings and avoidance of slaughter of living creatures as a result of the 'growth of the Law of piety'. A similar sentiment is expressed in RE XI and the Shar-i-Kuna Greek Edict. For the implementation of the non-violence and no-slaughter programme, of the great king essential infra-structure was constituted with the government officials. Thus, in RE III the King asked the *Yuktas* and *Prādeśikas* to preach among his subjects that 'abstention from slaughter of living creatures is an excellent thing'. In the Taxila inscription he preached non-violence. The Kandahar Greek Edict also claims that he had given order to abstain from (consuming) animals. It appears from the above data that after promulgating the Law of Piety, *Aśoka* issued edicts one after another in and outlying areas of his vast empire, obviously keeping in view the sublime principle of non-violence which ushered in a new era of conservation in Indian history. All the references prove beyond doubt that *Aśoka*'s purpose was to stop any unnecessary killing or torture of any animals whether useful or not. The Laghman edicts also, in the opinion of B.N. Mukherjee, are linked with the emperor's policy of non-violence and the Law of Piety. He thinks that the statement in the Laghman edict might have especially been made for the fishermen

who could have indulged in excessive catching of fishes in the Laghman river on the bank of which, the inscriptions were engraved²⁶.

Hora has identified the fishes mentioned in Pillar Edict V as inviolable and at the same time as no eatable. He has given an explanation of the instructions of the edict by way of scientific interpretation of prejudices against eating some of the varieties of identified fishes.

Hora's identification is as follows²⁷.

1. *Anāthikamachhe* — Sharks, boneless fishes.
2. *Vedaveyake* — Eels, fishes easily eluding grasp.
3. *Gaṅgāpuputake* — Porpoise, fish-like animal with a lumpy body.
4. *Samkujamachhe* — Skate or Ray, fishes moving by contracting and expanding their bodies.
5. *Kaphata sayake* — Glob-fish, fish like a porcupine and feigning death when in danger.

Hora expresses that even judged by modern religious sentiment of the Hindus which has already shaken off many superstitious practices in a changed social situation, the fact remains that there is a strong prejudice against eating of the five varieties of animals enumerated above. The reason is that some of the fishes are poisonous and should not be eaten. Some are of bitter taste. Gangetic-porpoise is revered by the Hindus. It would thus appear that the present day prejudices are as old as the *Aśokan* period. Hora's ultimate conclusion is scientific when he comments, 'The Law seems to have been enacted to prevent people from eating these harmful or undesirable animals'. It is absolutely correct, therefore, to say that those animals were declared inviolable which 'do not come into man's use, nor are eaten by men'²⁸.

The interpretation transcends the limit of the mono-dimensional ethics of non-violence of the Law of Piety and touches the wider perspective of conservation of the living world at large.

Scriptural Dicta of the Ancient Hindus

Side by side with the pervasive impact of the heterodox religions like Jainism and Buddhism on the mind of the Indian people, the influence of the scriptural literature of the Hindus favouring the protection and conservation of the plant and animal worlds were functional in imbibing the ideological belief by the society of the contemporary period.

Manu on Plant Protection

The Manu's teaching, handed down in a mass of floating verses of rules and observation and were governing the life and conduct of people till very recent days in the past.

Manu's dictums are essentially founded on utilitarian philosophy. The basic principle that the highest perfection of man can not be attained unless his religious and civil conduct (*ācāra* and *vyavahāra*) is refined by a proper regulation. The Indian sages started with this fundamental concept, and its realization led to the formulation from very ancient times of an elaborate scheme of penances and vows seeking the elimination of all sins and evils from the social environment.

The Chapter VIII of the *Manusamhita* deals with the administration of justice and describes penal measures for various offences.

Trees came to be regarded as so important that their felling or depletion without reason and prior permission was looked upon as punishable offence. Various degrees of punishment are prescribed in the Laws of Manu³⁰. It is said, - 'According to the usefulness of the several (kinds of) trees a fine must be inflicted for injuring them; that is the settled rule' (*MS.*, VIII. 284).

Manu advises for state-protect'

to be guarded by companies of soldiers, both stationary and patrolling, and by spies, in order to keep away thieves' (*MS.*, IX. 266).

The Ancient sages from Gautama downwards divided sins into two broad classes, viz. *mahāpātakas* and *upapātakas*. A long list of the minor sins i.e. *upapātakas* is given by *Manu*. *Manu* classifies the offences injuring (living) plants (*MS.*, XI. 64) and cutting down green trees for fire wood ... (*MS.*, XI. 65) as *upapātakas*. *Manu* has further laid down minor penal measures for restraining man from destroying plants. These are: 'For cutting fruit trees, shrubs, creepers, lianes or flowering plants, one hundred *Rikas* must be muttered' (*MS.*, XI. 143).

Another verse is, 'If a man destroys for no good purpose plants produced by cultivation, or such as spontaneously spring up in the forest, he shall attend a cow during one day, subsisting on milk'. (*MS.*, XI. 145).

The guilt incurred intentionally or unintentionally by injuring (created beings) can be removed by means of these penances; hear (now, how) all (sins) committed by partaking of forbidden food (or drink; can be expiated) (*MS.*, XI. 146).

Viṣṇu's Dictum on Plant Protection

In *Viṣṇusamhitā*³¹, we find a series of laws to restrain people from doing any harm to plant and herbs. In the chapter dealing with crime and penalties, punishment measures have been prescribed to check such misdoings. The penalty fines are determined by the immediate utility of the plants, herbs and trees and respective damages done to these mute creations of nature. The prescribed rules are:

1. the hewer of fruit bearing trees shall be punished fine (*VS.*, V. 54).
2. the hewer of flower trees with an iron axe shall be punished. (*VS.*, V. 55).

3. The hewer of creepers and groves (shall be fined) a hundred *karṣapaṇas* (VS., V. 56).
4. The destroyer of grass (shall be fined) one *karṣapaṇas* (VS., V.57).

In an ecosystem all kinds of plants contribute to the maintenance of ecological balance. The punitive measures even for damaging the grasses appear to be an example of ecological concerns of the social authorities of those ancient days. *Viṣṇusamhitā* categorizes some offences as falling under the head of *upapātakas* and prescribes expiation measures for emancipation from the guilt. *Viṣṇu* says, 'A person may be guilty of *upapātakas* in case of cutting trees, shrubs, creepers, climbing plants or cereals (VS., XXXVII.24). Persons guilty of *upapātakas* are advised to practice *Cāndrāyana* or to celebrate a cow-sacrifice by way of expiation' (VS., XXXVII, 35).

The institution of penances is based on certain notions like mythological conception of heaven and hell which is deeply ingrained in the traditional culture of India. There are differences of opinion among the Indian philosophers on whether an act of penance can remove the effects of an act of sin. However, the efficacy of penances has a wide acceptance among the people of India and the provision has a positive role in shaping the mind set of the people to abide by the orders of the *Dharmaśāstras*.

Agnipurāṇa

In the *Agnipurāṇa*³² penal measures are defined for spoiling trees — 'In case of cutting the twigs; trunk and roots of banyan tree, the fine shall be twenty *paṇas*, forty *paṇas* and respectively' (*Ag. Pu.*, 258. 25).

It is categorically stated: that 'a man shall ca'

The reference indicates that the punitive measures were...
measures in dealing with any attempt by any person to bl...

destruction of dwellings, crop field or forests, by firing. Such crimes, they thought, should be treated with most stringent penalty measure i.e. capital punishment and that also to be executed by way of burning. At present, for such offences, such type of punishment is not in vogue. But the *purāṇic* strictures were far more stringent in preserving the environment, plants and animals, crop field and the forests as well.

Here, in this context reference may be made to *Bhūta-yajña*, by the performance of which the people discharge their duty towards the rest of creation. According to *purāṇic ethics* 'the individual is but a cell in the vast body of creation. All lives around him are part and parcel of the huge world family. Man is bound to care for the life of even the smallest ant. The ethics of *bhūta-yajña* rests on the knowledge of the Atman as immanent in all creatures. The *purāṇas* have recognized life in the plants. Hence rearing trees is considered a great virtue; cutting them is a great sin³³.

An ideal house should have some trees in different sides; the trees specified are as follows — *plākṣa* tree in the north, *nyagrodha* tree in the east, *udumbara* in the south, *aśvattha* tree in the west and there should be a garden in the north (*Ag. Pu.*, 247. 24-25). One thing to be noticed in this context is that there is no provision of cutting or uprooting the trees in any circumstances even if the trees are not planted properly following the *śāstric* dictum. In case the trees are not favourably planted and create some unwarranted problems, the provision is simply to remove the plants and replant them in some other places. The provision for re-plantation certainly hints at the ancient Indians' wisdom of environmental awareness and their urge for conservation of nature.

Planting, grafting and preservation of plants constitute comments *Śukra*. He suggests that the king or the state authority be entrusted with the responsibility of plantation of domestic villages and wild trees in the forestes (*Śuk.*, IV. 91-97).

Manu and Viṣṇu on Animals

On the question of torturing the animals, *Manu's* dictums are: 'If a blow is struck against men or animals in order to (give them) pain, (the judge) shall inflict a fine in proportion to the amount of pain (caused)' (*M.S.*, VIII, 286). This is significant that man and animal have been looked with the same attitude; giving pain to a mute beast as an offence equated with the similar crime to giving pain to a human being.

'For injuring small cattle, the fine shall be two hundred *paṇas*, the fine for beautiful wild quadrupeds and birds shall amount to fifty *paṇas*' (*MS.*, VIII. 297).

'For donkeys, sheep and goat, the fine shall be five *māṣas* but the punishment for killing a dog, or a pig shall be one *māṣa*' (*MS.*, VIII. 298).

Sometimes social authorities of ancient India endeavoured to exploit the psyche of the people by way of creating a socio-religious pressure with a view to restraining the people from injuring or killing animals by imposing fearful provisions of degradation from one's own caste. *Manu* says, 'Killing a donkey, a horse, a camel, a deer, an elephant, a goat, a sheep, a fish, a snake or a buffalo, must be known to degrade (the offender) to a mixed caste' (*Samkarīkaraṇa*) (*MS.*, XI. 69).

'Killing insects, small or large, or birds, eating anything kept close to spirituous liquors, stealing fruit, firewood or flower, (are) offences) which make impure'.

In this context, it should be remembered that such punishments

thereby facilitate the enjoyment of material benefits and social privileges. Consequently a threat for degradation of caste might have more pervasive effect on human mind which logically was imposed from above but functioned as *samskāra* from within.

In *Viṣṇusamhitā* stringent punishment is prescribed to deal with the offences like killing. It is said — ‘The slayer of an elephant, horse, or a camel shall have one hand and one foot cut off’ (*VS.*, V. 47). ‘The slayer of any domesticated animal shall be fined a hundred *karṣapaṇas*’ (*VS.*, V. 49). ‘The killer of birds and fishes shall be fined ten *karṣapaṇas*’ (*VS.*, V. 52).

‘Even small creatures like worms were not neglected and the killer of worms are to be fined one *karṣapaṇa*’ (*VS.*, V. 53).

If one cuts organ of a beast, he is to be fined with hundred *paṇas*. From the two *Smṛtis*, of *Manu* and of *Viṣṇu* and the early *purāṇic* texts, it is evident that the sources indicate marked preference for simpler and easier modes of purification and expiation particularly in respect of the mortal sins. The idea of the practice of gift making and pilgrimage as suitable modes of expiation is introduced for the first time in the *Smṛtis* of *Manu* and *Viṣṇu* which can not be dated earlier than the third century A.D. In *Viṣṇusamhitā*, for expiation of the sin of killing beasts, some penances have been advised. ‘For killing an elephant, one shall make a gift of five *Nila bulls*; a gift of cloth for killing a horse; a one year-old bullock after having killed an ass, or a lamb or a goat’ (*VS.*, L. 24-28).

‘A *kṛṣṇālam* weight of gold should be gifted away for the expiation of the sin of killing a camel. Having killed a dog, one shall fast for three days. Having killed any of these animals, such as a mouse, a cat, an ichneumon, a frog, *dundubha* snake or an *ajagara*, one shall fast for three days and feed a *Brāhmaṇa* and make gift. For killing a lizard, an owl or a fish, one shall fast for three days’ (*VS.*, L. 29-31).

gift of a cow to a *Brāhmaṇa*. Having killed a snake, one

gift of an *abhri* (a digging implement). For killing a boar, a pitcher of a clarified butter; and for a partridge a *droṇa* of sesame was to be given for expiations. If one kills a parrot, a two years-old bullock was to be given as gift and three years old bullock for killing a *Kraunca*. For killing a carnivorous beast, a milch-cow was to be gifted as expiatory measure. A killer of herbivorous animals shall give a female calf (VS., L. 34-41). Fasting is also prescribed for killing water-frequenting animals.

The provision for expiatory rites substituting the stringent penalty of one hand and one foot being cut off indicates a paradigm shift in social and ethical views. The *purāṇic dāna* rites represent a conscious and systematic attempt to collect essential subsistence from the *jajmāna* and thereby giving a loose to the people capable of purchasing release through the performance of expensive expiatory rites. In spite of inherent inner conflict in the *smṛti* and *purāṇic* literature and their ideologies, their over all influence on Indian mind can not be minimized. The *smṛtis* and *purāṇas* over and over again reiterate their view in favour of non-injury to both plants and animals.

Following the convention *Agnipurāṇa* specifies the punishments for injuring or killing animals.

It says ' *duḥkhe ca śonitotpāde śākhāṅga cchedane tathā daṇḍaḥ kṣudra paśūnāṃ syāddvipaṇa prabhṛti kramāt |*

Liṅgasya cchedane mṛtyou madhyamo mūlyameva ca |

Mahāpaśūnāmeteṣu sthāneṣu dviguṇādamāḥ | (Ag.Pu., 258.23,24).

The meaning of the verse quoted above, is — In case of physical torture of the small beasts, the fine shall be two *paṇas*; in case of bleeding, the fine shall be four *paṇas* and in case of amputation of limbs, the offender's fine is six *paṇas*. If the genital organs are cut and tortured to death, the penalty is *madhyamasāhasadaṇḍa*. If the animal would have to be compensated. The fine would be double in case of the same offence done to the big animals like

Hunting by the royal people practically was a constant threat to the wilds in the forests. *Kāmaṇḍaka* reiterates *Kauṭilya*'s provision for laying game sanctuary for royal hunts³⁵. He also appreciates the benefits of hunting which develops excellence in successfully hitting stationary or moving targets with darts. Still he denounces hunting 'which' he proclaims, 'of course are not acceptable to us (the School of *Kāmaṇḍaka*), for its inherent evil of killing (of animals)'³⁶ Even *Kāmaṇḍaka* advocates in favour of hitting at artificial target to acquire accuracy. His advice for a ruler is that he should realize the benefits of hunting and should take it as sport otherwise if he get addicted to it, will turn out to be *vyasana*³⁷.

In *Śukra*'s opinion, hunting operation should not be undertaken without prior permission of the King³⁸. *Śukra* also recognizes the advantages of hunting but at the same time designates cruelty as great defect. Thus the essence that may be extracted from ancient legal texts or treatises, highlights a tradition of nature of protection and protection of the whole living world.

The issue of protection of animals and plants is essentially related to the question of forest protection because these three are the main components of nature and the ancient Indian thinkers had a clear perception to this aspect. It is for this reason that in any study and investigation on environment and its conservation, the origin is sought in ancient treatises³⁸.

Extent of Forests

In course of a discussion on forest protection, it is unav
throw some light on the extent of forests in ancient India (Fi
is hardly any doubt that the Aryans had spread over
territory before the close of the *R̥gvedic* period⁴⁰. In the e
Aryans certainly reached the holy waters of the Jumna :

in the next period (1400 B.C. to 1200 B.C.), th
Atharva Saṃhitās and the earlier *Brāhmaṇas* the geograph.

of the Aryans had extended as far as the *Gaṇḍak* (*Sadānīrā*) in the east and as far as the *Narmadā* in the south as indicated by the *Śatapatha Brāhmaṇa*⁴¹. In the age of the *Āranyakas* and *Upaniṣads* (c.1200 B.C. to 700 B.C.) the eastern limit of the Aryan colonies seems to have been the river *Kośī* and the Ganges beyond which there were dense forests. *Narmadā* continued to be the southern limit till first century A.D. In the *Periplus* (1st cent A.D.) we see the following description⁴². ‘Beyond *Barygaza* the adjoining coast extends in a straight line from north to south, and this region is called *Dachinabades* ... the inland country back from the coast toward the east comprises many desert region and great mountains, and all kinds of wild beasts leopards, tigers, elephants, enormous serpents, *hyenas* and baboons of many sorts, The abundance of such wild beasts clearly proves the existence of dense forest tracts beyond the *Narmadā* River covering a vast area. But on the upper course of the *Godāvarī* there were certain flourishing settlements in *Pratiṣṭhāna*’.

The ancient Indian thinkers used to think in terms of eight divisions of forests on the basis of availability of elephants with variable qualities. Naturally it means that all these were elephant forests or dense forests.

Kauṭilya refers to elephants from —

1. *Kaliṅga*.
2. *Aṅgara*
3. *Cedi*
4. *Karūṣa*
5. *Daśārṇa*
6. *Aparānta*
7. *Saurāṣṭra*
8. *Pañcanadas*

The distribution of forests according to *Vṛkṣāyu* follows:

1. *Caitraratha*

2. *Kālaka*
3. *Kīrata vana*
4. *Pañcanadavana*
5. *Prācyā*
6. *Vedikāruṣaka*
7. *Aṅgireya*
8. *Kaliṅgeya*
9. *Daśārnaka*
10. *Aparānta*
11. *Saurāṣṭra*

In the *Viṣṇudharmottara Purāna* also we get a list of Forest Division⁴³. These are:

1. *Prācyā vana*
2. *Kāruṣa-vana*
3. *Daśārnaka vana (Mārgareyaka vana)*
4. *Vāmana vana*
5. *Kāleśa vana*
6. *Aparāntaka vana*
7. *Saurāṣṭra vana*
8. *Pañcanada vana*

Someśvara III, the *Calukya* King (1126 A.D. to 1138 A.D.) gives a list of the forest division in the *Mānasollāsa*. It is stated by the *Cālukya* King:⁴⁴

Kāliṅgaṃ cedi kārūśam, dāśārnakaṃ ca vanam varam |
Āṅgireyaṃ tathā prācyam madhyamaṃ vanam iṣyate ||
Aparāntaṃ pāñcanadaṃ saurāṣṭraṃ cādhamam vanam |
Evam = aṣṭau vanānyāhur gajānām janmanaḥ padam ||

The names found in the passages of the *Arthaśāstra* are given in the later texts as above with slight modifications. Thus the information given in the texts reveal that the people were ceaseless in their efforts to collect more and more information about the forest tracts spreading through out the length and breadth of the vast country. In ancient time there were two

types of forests — *Kuñjaravana* (elephant forest) and *Kaṇṭakavana* (thorny shrub forest). According to *Kāmaṇḍaka* the elephant forest was more essential from the view point of state's interest (*Kām.*, V, 78, 79). In the *Prakṛti sampat prakaraṇam adhyāya* a king is advised to take necessary steps to develop resources of land. Elephant forests are considered as one of the resource components. It is said,

Ramyā sakuñjaravanā bāriṣṭhala pathānvitā |

Adevamāṛkā ceti śasyate bhūrvi bhūtaya ||

A king is advised to take care of forests. Though *Kāmaṇḍaka*'s instructions are made totally from economic point of view yet it should be taken into account that sustainable utilization of resources is a constituent part of conservation measures. Proper measure and care for promotion of forest resources are widely connected with the policy of protection.

There is hardly any evidence to prove that there developed a new system of forest administration which was largely different from the model given by *Kauṭilya*. Rather it is logical to think that the basic structure of the forest administration in the later ages was somewhat similar to that of the Mauryas. During the days of rise of the imperial Guptas, the vast forest tracts stretching throughout the Gupta Empire continued to be regarded as source of revenue as before. The importance of trees, plants, shrubs, grasses and woods in a kingdom was highly valued (*Śuk.*, I. 425-428, 429).

The forest in this period did not remain unexplored. *Śukra*'s advice to connect human settlement within the forest tracts with network of *rājamārgas* point to the fact that during this period, state authority came to be conscious of forest resources and began to pay consequent attention for developing the communications with the forest settlements.

The best *rājamārga* should be thirty cubits wide, the average twenty-cubits and the worst fifteen cubits only (*Śuk.*, 11. 207-208).

Sumantra and *Amātyam*, these two state officials, had to look after the affairs of revenue to be earned from forest and the settlement of the forest land (*Śuk.*, 11. 211-212).

The state officials as Superintendent of elephants and Superintendent of horses discharge duties of their respective departments. (*Śuk.*, II,256, 260-263).

The Superintendent of parks and forests had to remain responsible for growth and development of flowers, fruits, trees and treatment of diseases of plants (*Śuk.*, 11, 317-319).

During this time, rampant destruction of living resources was discouraged and hunting could not be carried out without the prior royal approval. The king also in course of his hunting expedition is not allowed to kill animals which are not wild, and cruelty is always discouraged.

There is reference to a category of forests donated to the *brāhmaṇas* for Vedic learning other than the elephant forests, reserve forests and forests for public.

The forests granted to the *brāhmaṇas* did not fall under the jurisdiction of forest laws.

There is a graphic description of an episode which shows that how a mighty king like *Duṣyanta* had to restrain his arrow from throwing it to an antelope which belonged to the hermitage of *Kaṇva muni*.

Duṣyanta (in Act I of *Abhigñāna Śakuntalam* of *Kālidāsa*) when was just making an attempt on an antelope from his chariot, two hermit boys shouted (raising hands):⁴⁵

‘O King, pray, do not kill this antelope, which belongs to the hermitage. No, no, let not your arrow strike the tender body of this deer.

As spark falls on softest down!

How in that right, his gentle life

And your sharp, adamant dart?

Then, pray, withhold your well aimed shaft.

Your weapon should defend the weak
And not assail the innocent’.

The king checked his arrow. This is a unique example in the whole history of protection and conservation of animals in ancient India. That any kind of slaughter of animals in such forests of the hermits was totally prohibited is clearly proved by this literary evidence. The animals in such forests had a feeling of habitual security and this is indicated by the indifferent behaviour of the deer in the *tapovana* even after listening to the rattling sound of the chariot’s wheels. As the deer had no previous experience of being alarmed, it felt no urge for paying care to such a sound and behaved as usual. (Act. I).

The drama is a creation of the Gupta period and this may be treated as reliable evidence on the issue for the Gupta age.

Feudal Grants and the Context of Forests

The historical role of early Indian feudalism was significant for several reasons. The most important economic development related to feudal growth in India is that the land grants served as an important means of bringing virgin soil under cultivation in central India, Orissa and Eastern Bengal and the story is same for South India also. ‘All in all’ says R.S. Sharma, ‘early feudalism was a phase of great agrarian expansion’⁴⁶. But, this process of agrarian expansion had its adverse effect on the existence of forest tracts. The epigraphs seem to suggest that from the Gupta period onwards deliberate attempts were made to extend the arable land by means of grants. The Tippera copper plate grant of Lord *Lokanātha* (650 A.D.) provides an important indication to a policy of reclaiming forest land for cultivation in Eastern India. Thus opening up of space within the forests as effects of feudalization process adds a new dimension to the environmental history of ancient India. A similar process can be observed in some parts of western India⁴⁷.

R.S. Sharma has cited more land grants in the forest areas in Orissa.^{47a} These land grants, as in conventionally held, throw much light

on the socio-economic aspects of feudalism in India. This is true that fiscal rights enjoyed by the rulers and transferred to the donees were different in the backward areas (like forest or jungle) from the privileges granted in the comparatively more developed parts of India. But from the view of environmental history, these may be considered as direct interference with the prevailing order of the plant and wild lives in the forest tracts. Such grants in forest areas were made under the *Bhañja*, the *Somavamśis* and the *Gaṅgas*.

Yaśabhañjadeva of *Khiñjali* granted a village which was surrounded by forests. Trees, creepers, thickets and forests along with the rights to fishing and catching tortoises were given up.

A *Somavamśī* charter of *Mahābhavagupta* IV (11th Century A.D.) granted two villages. By the grant the rights of killing snakes and elephants were conferred. From the name *Airāvatta maṇḍala* of the district, in which the villages were situated, it may be assumed that the area abounded in elephants.

Some more fiscal rights are found granted in a charter of the last *Somavamśī* King *Someśvaradeva*. The charter mentions granting of land along with the rights to the enjoyment of ivory, tiger's skin and various wild animals as well as trees and forests. Significantly, the boundaries are mentioned in none of the three grants mentioned above, and this left scope for their expansion and further encroachment in the jungles.

Agricultural expansion and depletion of forest covers thus are the two historical inevitabilities.

Protection / Conservation of Plants by *Punya* Enticement

The indebtedness of human civilization to plant and animal world is natural phenomenon. Extension of agriculture means decrease in the physical boundary of the forest territory since the primitive period. The primitive people followed the method of acquiring forest land by slash and burn for cultivation since the tribal stage of human civilization⁴⁸. So there is an incessant pressure on earth with its living creatures and plants

and herbs. The imposition of prohibitive scriptural injunctions to combat the ever-growing problems of deforestation became an essential feature of the legal literature at least since the beginning of the state formation. These scriptures are applied keeping in view two perspectives — positive and negative. Prohibitive injunctions have their efficacy in creating a feeling of awe and obligation in human mind to abide by the existing rules and practices and help in a negative way in the implementation of the policy of nature's protection. But this constitutes only the half of the endeavours. The positive approach of the ancient Indian authorities for protection and conservation of the living world is by *punya* enticement.

The *Smṛti* and *Purāna* authorities along with the scriptural bans also tried to entice the people for acquiring *punya* through the performances of some *punya rituals*. The idea of religious merit accruing from planting trees or excavating ponds has had a deep impression on the people since the ancient period. In the medieval environment, acquisition of *punya* was a social compulsion⁴⁹. In the list of actions condemned as *upapātakas* felling of trees, sale of tanks and gardens etc. are mentioned along with some other blemishes. The concept of heaven and hell also dominated the ideological domain of the early medieval people. In order to liberate one's own self, *punya* or religious merit should be purchased by offering gifts of trees, cows, land, paddy, edible food and also water sources like wells, tanks (*sarovara*) or ponds (*puṣkariṇī*).

In *Viṣṇusamhitā*, it is stated that trees sown by a man become his sons in the next world (*VS.*, XCI.3); the giver of a tree gladdens the gods with its flowers (*VS.*, CI.4); the *atithis* with its fruits (*VS.*, XCI.5), those with its shadow who chance to sit under it (*VS.*, XCI.6); and the *pitṛs* with the rain water which trickles down from its leaves (*VS.*, XIC.7). It created further enticement by saying that the offerings of flowers to the God would bring to one the boon of having physical charm.

The custom of planting shady fruit trees along the public thoroughfares or constructing gardens and consecrating them for public use has been of great antiquity.

The glory of trees is proclaimed in some of the *purāṇas* too. In the *Matsyapurāṇa* we get: ‘One who sinks a well in a place where there is scarcity of water, lives in heaven for as many years as there are drops of water in it. The effect of digging ten such wells is equivalent to the digging of one pond, and the excavation of ten such ponds is equivalent to that of a lake, and the excavation of ten such lakes has as much effect as that of begetting a virtuous son and the birth of ten such sons has exactly the same effect as that of planting a single tree’⁵⁰ (*Mat. Pu.*, 154. 511-512).

The same *Purāṇa* eulogizes the planting of trees, saying ‘one who plants even one tree, according to the prescribed rites resides in heaven for 30,000 years of *Indra*. The planter of trees, according to the prescribed rites, liberates the same number of his past and future manes, attains to the highest perfection and is never reborn on earth’.

Agnipurāṇa says that planting of trees and construction of pleasure gardens (for the public) is conducive to purgation of sin and enjoyment of prosperity. According to *Padmapurāṇa* ‘plants are like sons to a sonless man.’ *Agnipurāṇa* going a step further observes: ‘the mortal sons are meant for purely selfish purposes whereas the tree-sons serve purely altruistic ones’. The *Varāhapurāṇa* echoes almost the same view.

Hence *Agnipurāṇa* concludes: ‘Therefore never cut down any tree that bears good flowers and fruits, if you desire the increase of your family, of your wealth, and of your future happiness’.

The messages contained in different *purāṇas* thus enable us to perceive the exact attitude as well as notion of the ancient Indian thinkers regarding protection and conservation of the plant domain. At least on the question of plant protection, utilitarian ideology is always perceptible under the apparent speculative arguments. G.P. Majumdar aptly comments, ‘Thus the general idea underlying the whole practice is one of public utility religiously enjoined in order to make it universally understood, appreciated and followed, . . .’.

The aim of all these *punya* rituals seems to have been to inspire common people in the protection and conservation ideology though in an indirect way. It is uncertain, whether the people in general were conscious of the significant role of plant and trees in maintaining nature's balance, yet it may be asserted that the ancient social thinkers were quite aware of the utility of plantation of trees. To the royal personages, their clear instructions are in favour of planting trees in their territory. From *Kautilya* to *Śukra* all the theoreticians advocate in favour of plantation.

In the *Tarumahimā*, section of '*Upavanavinoda* there are a detailed account of acquisition of various grades of *punyas* by means of plantation of trees. The title of the section *Tarumahimā* connotes grace and glory of trees. A king whose palace is provided with spacious gardens is to be regarded as the lord of the earth — the view is expressed in the introduction to glorify the gardening culture. The glory of trees is described in a series of verses. The verses are as follows:

1. (It is) better to have a tree (planted) by the wayside where many rest under its shade than to have many sons born who are devoid of wealth and virtue.
2. We read in the *śāstras* that (excavation of) a pond is equivalent (in virtues) to (sinking of) ten wells, a lake is equivalent to ten ponds, and a son is equivalent to ten such lakes and a tree is as good as ten sons.
3. He, who for pleasure makes him a good garden full of fruit and flower trees, is destined to go to the abode of *Śiva* and resides there for as many as three ages.
4. One should plant trees with full knowledge of these particular, in as much as, from trees proceed virtues, material prosperity, fulfillment of desires and salvation — (i.e. *dharma*, *artha*, *kāma* and *mokṣa*) — these four sovereign things.
5. A man is sure to reside in *Vaikuntha* (abode of *Viṣṇu*) for as many thousand years as there is basil plants planted in his house.

6. *Lakṣmī* (the goddess of wealth) lives for generations in the house of a man who plants the *vilva* trees, peculiarly favourite with *Śiva*.
7. He, who plants *aśvattha* trees after proper methods, no matter where, goes to the abode of *Viṣṇu*.
8. He, who plants the *āmalaka* trees, reaps the fruit of constant asceticism, the giving of earth and of many sacrifices (*Yajña*).
9. He, who plants after a proper method two banyan trees, goes to the abode of *Śiva*, and is waited on by the seraphim.
10. The virtuous man who plants three *nimba* trees attains to the abode of the sun and stays there for three thousand years.
11. There can be no doubt of the fact that the man who plants four *plakṣa* trees enjoys the fruits of a *Rājasūya* sacrifice.
12. He, who plants five *āmra* trees by the wayside or in the garden, secures salvation of fourteen generations past and future, backward and forward.
13. He, who plants six *śirisa* trees by the way side, attains to the abode of *Garuḍa* and spends his days there in as much pleasure as the gods do.
14. The man, who plants either seven or even one *palāśa* tree, gets at the abode of *Brahmā* and is waited upon there by the best of gods.
15. He, who plants eight *udumbara* tree himself or gets them planted by others, reaches the abode of the Moon and enjoy intensity of pleasure there.
16. He, who plants a *madhūka* tree, becomes free from all diseases and by him all the gods, especially the goddess *Pārvatī* is pleased or gratified.
17. He, who plants a tree along with any of these trees: *kṣirika*, kadali, *drākṣā*, *piyāla*, *panasa* etc. ensures himself against all diseases for seven lives (births) to come.
18. He, who plants a *jambū* tree, either with knowledge or in ignorance, enjoys the fruits of virtue in his own house every day.

19. He, who plants trees capable of bearing fruits and flowers beside those that have already been mentioned enjoys the fruits of the gift of one thousand cows of gold.

20. He, who plants *aśvattha*, *pichumanda*, *nyagrodha*, one each, ten tamarind trees, and *kapittha*, *vilva* and *āmalaka*, three each, and five mango trees, is never fated to see hell.

Thus the verses in the *Tarumahimā* section of the *Upavanavinoda* bear a clear testimony to the earnest efforts of the social thinkers of ancient India to inspire the common people in every possible way with the ideals of protection as well as conservation of trees and plants. In this endeavour their project was conceived in a wider perspective. A well defined comprehensive spirit and attitude are visible in most of the verses of the section 'glory of trees'. References to all the leading gods like *Viṣṇu*, *Śiva*, *Pārvati*, *Surya* and *Ganeśa* in the verses make one thing explicit that the author tried to touch the mind of the people of each and every sect belonging to Hindu religion, in a wider sense. Referentially it may be mentioned that the orthodox *brāhmaṇas* known usually as *smārtas* evolved a kind of worship described as *pañcopasanā* in which all the principal deities of five approved Brahmanical Hindu cults were the objects of veneration⁵¹. It has not yet been possible to fix the period accurately of its growth but archaeologically it is proved that it was introduced long before the medieval period⁵².

In the verses of the text, taken under consideration, we get a clear reflection of a liberal attitude of compromise and amity so that a pervasive effect of the nature friendly principles of the treatise may be obtained. For example we may cite the number of the verses as they are arranged above and the concerned deity mentioned therein.

1. Invocation is made to Ganeśa — *Ganapatya* cult.
2. *Śiva* in verses 3, 9 — *Śaiva* cult.
3. *Viṣṇu* in verses 5, 7 — *Vaiṣṇava* cult
Lakṣmī in verse 6 - *Vaiṣṇava* cult
Garuḍa in verse 13 - *Vaiṣṇava* cult

4. *Pārvati* in verse 16 - *Śakti* cult
5. *Surya* in verse 10 - *Saura* cult

Besides, there are mentions of fulfillment of *Puruṣārtha* enjoyment of fruits of any *yajña* or *Rājasūya yajña* or boon to live at abode of *Brahmā* or at the abode of Moon as a result of performing the pious work of planting trees, in the rest of the verses cited above.

The trees are so exalted that in the *Varāhapurāṇa*, tree is designated as *pañcayajña* (observer of five sacrifices).

Thus it appears that the social thinkers showed deep concern for protection of plants and trees. Indians generally believe in the existence of a life beyond death and bear an aspiration in the deep of their mind that they can attain *Śivaloka* or *Viṣṇuloka* by performing *punya* rituals.

The common people sometimes fail to realize the exact need of protecting the green world either due to ignorance or due to indifference. Often wanton destructions of plant and trees are carried out by men only to satisfy their immediate needs.

The social thinkers of the past consequently tried to bring a wise solution of the problem in two ways — one, by imposing restrictions and the other by exploiting the religious emotion and sentiment of the people. The enticement of *Viṣṇuloka*, *Śivaloka* or others can create a positive effect on the Indian mind — was their definite impression.

Conservation from Below

The relationship between man and forest as well as trees is multifaceted ranging from exploitation to protection. In the social and religious life of the people, the forest link is manifest truth. Not only the forest-living tribal folk, even some non-tribal people have totemic relationship with trees and animals. It is almost a universal characteristic of ancient societies surviving to-day, that the peoples living in the forest area borrow their names from the animal or the plant world. The essence of totems is that each clan associates itself with an animal which is called

its totem. There are also taboos associated with totems as for example a dog clan is not allowed to eat dogs⁵³. Besides, the gatherers regard human being as merely part of a community that includes other living creatures. They attribute sacred qualities to individual trees, ponds or mountain peaks or to all members of a plant or animal species. The example of *Ficus* trees may be drawn. ‘At a more concrete level, these ideologies of nature worship are buttressed by specific social practices which orient societies in the gathering mode towards the prudent use of nature’⁵⁴. It has been observed that traditional practices of preserving sacred grove as a tribal value system in a vast patch of container of various biological diversity⁵⁵. Buchmen says, ‘sacred grove contains a large number of species and is considered to be a true ecological jewel’⁵⁶.

From the point of view of protection and conservation of resources the maintenance of sacred groves is one of the finest instances of traditional conservation practice⁵⁷.

The gatherer societies generally have small demands on the resource base. Their belief system and diversified professions for resource sharing with restraint may be regarded as eco-friendly sustainable utilization practices. Such practice of resource-sharing is evident in some *pāli* works which has been pointed out by C.D. Chatterjee⁵⁸. He quotes from the *Dhammapada*:

“ *Udakaṃ hi nayanti nettikā usukārā namayanti tejanaṃ |*
Dāruṃ namayanti tacchakā attāna damayanti paṇḍita ||

Trans: The conduit-makers lead the water, the fletchers shape the arrows, the carpenters bend the wood, (and) the wise men subdue themselves.

It is evident that long before the 6th Century B.C. the descendants of forest dwellers were divided into a number of professional castes entirely dependent on natural resources of the forests. Commonly they are: *Nalakāras* (the rush workers), *Usukāras* (the fletchers), *Cammakāras* (the leather workers), *Tacchakas* or *Vāḍḍakis* (the carpenters), *Pāṣikas* (the trappers and the hunters) etc.

The four modes of resource use as analyzed by Gadgil and Guha are —food gathering, pastoralism, settled cultivation and industrial. Each of the modes is backed by its own pattern of economy, social organization and ideology. The overall ecological impact of the first three modes was not devastating for nature in the view of A. Bandopadhyay, rather he comments, ‘in the broad perception of man-nature relationship each of them has shown its respective preference for the prudent and sustainable use of resources, leading to the evolvement of a number of conservation practices’⁵⁹.

But the industrial mode (which has nothing to do with the pre-industrial society) has proved to be a major disturber of environment due to its nature of resource exploitation.

Most of the tribal communities are living still in and around the forest environment and it is obvious that they are impulsive in their attitude to the forest. Their consciousness and knowledge on ‘ecological niche’ may be designated as traditional wisdom. With the help of this traditional knowledge they practically play a significant role in the conservation and protection strategy of the human society since the long past.

In this context an instance may be cited of a recent event reported in a daily⁶⁰. The Totos of North Bengal (Totopara, near Madarihat, Jalpaiguri) put an end to the age-old practice of using banana leaves for serving food in ceremonial functions with a view to avoid unnecessary spoils of the banana plants as well as the leaves which constitute the principal food of the elephants. Elephants abound in the forests of North Bengal. Banana plants are elephant’s favourite food. By stopping this ancient practice, the tribal people in the locality are trying to make a new adjustment with the changing environmental situation. This is a clear example of prudence of the tribal people in resource uses and thereby promoting the causes of conservation and protection of plants and animals.

Some aphorisms of *Khanā* are much popular among the agrarian people of Bengal. One such maxim is related to plantain leaves. *Khanā* says:⁶¹

Ruya kalā nā keṭa pāt,

Tātei kāpar, tatei bhāt.

English Translations: After you have planted the banana plants, do not cut off their leaves; then it will sustain you by food and clothes.

It is well-established now that the food of plant is manufactured in the green leaves. Before the establishment of this great truth in modern science. *Khanā*, it appears, had the perception of this physiological phenomenon of plant. She had the clear conception that the productive output of plant depends on the manufacture of food in the leaves⁶².

N.R. Ray refers to *Dāk* and *Khanā* whose sayings were very much popular among the agrarian people of Bengal from an earlier time. He expresses his view that these *vacanas* undoubtedly bear the tradition of a very early period. On the basis of the maxims of this illustrious lady (*Khanā*), one can easily think of her wide range of knowledge about soil, tilling, sowing and planting, reaping and harvesting and above all her meteorological observations.⁶³ But one more issue may be added to this knowledge bank i.e. her concern for protection of plants leaves as well as application of manure for their healthy growth.

The conservation and protection measures for the animals both domestic and wild were adopted by the ancient authorities. We have already seen that human civilization in all its facets of development owes a lot to the animals. Human-animal relationship is featured with two opposites — love and conflict. Until and unless an animal is tamed or domesticated, it poses to be a source of danger. But after taming, the same animal serves beneficial purposes of the people. So by imposing prohibitive measures against injuring and killing, the ancient authorities took the first initiative to protect these mute living beings from violence and cruelty of the people.

The animals for their utility and usefulness gradually became an inescapable part of the human society. Consequently different *Āyurvedas* began to be composed by the scholars in veterinary sciences in different corners of the country. Simultaneously, the scientists began to observe the behaviour of the animals, essential for different purposes of the state as well as of the society.

The relation between man and animal got a new colour in the literature of ancient India. Ethics of non-violence made a long head way in the protection and conservation measures.

A recent event of hunting a chinkara (a kind of deer) by a famous film personality of Bombay, in Jodhpur brings before the world the commitment of Bishnoi community to India's long tradition of noninjury to the living creatures. The incident occurred in 1998. The people who were emotionally injured are the Bishnois, estimated to be around 6 millions. They spread over Rajasthan, Gujrat, Haryana, Uttar Pradesh and Madhya Pradesh. The essence of their love for nature is revealed from the dialogue of a Bishnoi girl made to the correspondent of *Mumbai Mirror* on 12 April, 2006. 'We are poor farmers. Though these animals often enter our farms and damage crops, we never hit them with as much as a stick. We worship nature and these animals and trees are our god's reincarnation'⁶⁴.

Such a bond between man and nature is not rare in Indian ethos. Paining nature perhaps has got her fullest expression in the words of *Priyamvadā* at the time of departure of *Śakuntalā* from *Kaṇva's tapovana*— 'you are not alone, beloved friend, to feel the sadness of separation. As it draws near, all the grove evidently shares your feeling.

The browsing deer let the grass fall,
The peacock now dances no more,
The creepers shed upon the ground
Their blighted leaves, like tears of grief'⁶⁵.

(*Abhigñāna Śakuntalam*, Act IV)

Hamsadeva's Mṛga-pakṣī Śāstra throws much light on the behavioural aspects of a large number of mammals, rodents and birds. In this text a compassionate feeling for the animals is apparent. The king *Shaudadeva*, under whose directions *Hamsadeva* composed this classic, was concerned about the long-term adverse effects of hunting animals and birds on the environment.

Hamsadeva's observation on animal should be regarded as the basis of ancient Indian science of animal behaviour though his approach is more compassionate in character than scientific. He firmly believes that all animals and birds are created by god for service of the man. Many of his statements are based on religious bias. But one can not under assess the scientific spirit inherent in the text. If we go by the view of Dewsbury⁶⁶, we can designate the *Mṛgapakṣī Śāstra* as a scientific study on animal behaviour. *Hamsadeva* makes a scientific observation⁶⁷: The surroundings like lakes, sea, big or small rivers, mountain regions, forest-trees, earth, sun, wind, and so on as also difference in the ambience and daily activity affect the characteristics of animals and birds. (*MPS.*, 715).

Simultaneously, the author is eloquent in expressing his belief in God and gets the real meaning of human life in rendering service to the various other animals in the world. He says, 'people who hate these creatures miss a great deal of happiness and pleasure in life. They are in fact bereft of dharma and are worst sinners. Hence people should protect animals as per their ability. It is an act that is conducive to righteousness, fame, long life and good prospects here and hereafter As man is considered the best creation of god similarly these speechless but intelligent animals are also regarded the next best. They can work with humans rather than against them. With a wealth of so many great qualities they are always helpful to rulers in seeking welfare of the nation'⁶⁸.

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