

**ETHNOBOTANICAL STUDIES IN  
THE (PAURI)-GARHWAL DISTRICT OF  
THE GARHWAL HIMALAYAS OF  
UTTAR PRADESH**

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C E R T I F I C A T E

The research work embodied in this dissertation has been carried out in the School of Life Sciences, Jawaharlal Nehru University. The field work was done in the assigned part of the Garhwal District of Uttar Pradesh.

This work is original and has not been submitted in part or full for any degree or diploma of any other University or Institution.

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## CONTENTS

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	Page
Introduction	1
Physiography	10
Literature Review	16
Field Report	26
Discussion	54
References	61

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# INTRODUCTION

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## INTRODUCTION

Beginning as part of early cultural anthropology, ethnobotany has broadened its horizons to become multidisciplinary ever since the term was coined by Harshberger (1895) for the study of differential uses of plants by a culturally homogenous group. Ethnobotany is defined as a science which deals with the study of culture-guided relationships between human ethnic societies and plants. The cultural aspect integrates the field of botany and different branches of anthropology viz. ethnography, cultural-anthropology, physical-anthropology and linguistic anthropology.

### MAN-PLANT INTERACTION

The roots of man-plant interaction can be traced back to the early paleolithic period when man learnt, by trial and error, which plants to eat and which to avoid. As a hunter, man also assimilated the knowledge gathered from observing animals, for instance, watching a deer rub its wounds against geum would have lead him to use the plant when he himself was hurt. It was when he took to agriculture, that plants became intricately woven into the pattern of his life. The man-plant relationship developed along two lines: the concrete and the abstract. The concrete relationship includes plant use for food and fodder; in house building; as dyes and for treatment of various ailments. The abstract relationship deals with the mythical

beliefs about plants; supernatural powers attributed to certain plants; and the stories, songs and folklore about them.

A brief outline of these interactions is given below:

**(i) Plant dyes:**

Originally dyes from plants were used by man for coloring his skin during festivals & for tattooing; later, they came to be used for dyeing cloth and as paints.

Some dye yielding plants of India are: Indigofera tinctora, Aegle marmelos, Carthamus tinctorius, Adhatoda vasica, Mallotus philippinensis and Smilax ocreata.

**(ii) Sacred plants:**

Certain plants came to symbolize God and were thus considered sacred e.g. Ficus religiosa, Ficus bengalensis, Ficus glomerata and Ocimum sanctum are worshipped by the Hindus while Aegle marmelos is considered sacred by the Shaivites.

It is possible that plants of economic importance were said to have been the visible symbol of a deity who, in kindness, sympathy or generosity, presented the plant to man. For instance, Athena became the patroness of Athens for giving the olives to its citizens.

These sacred plants are, naturally, depicted in paintings and sculptures. They also occupy an important

niche in the local folklore viz. songs, stories, myths etc.

In this context it is interesting to note that Vishnu Purana, a sacred text of the Hindus, mentions 12 plants as part of the first creation. These plants include 6 grains and 6 medicinal herbs. One of the medicinal herbs mentioned is maize under the name of Markata which is the modified form of the original name Markataka mentioned in an still earlier religious text of the Sutra literature- Apasthamba Sarutasutra that has been dated to 5th century B.C. at the latest (Ashraf, 1986).

(iii) **Ethnomedicine** (Botanical astrology, Doctrine of signatures and traditional medicinal systems):

The imputation of religious significance to plants lead to the establishment of the doctrine of signatures and botanical astrology.

The botanical astrologists believed that each plant was under the influence of a particular star and so they studied this inter-relationship and used it to cure the diseases of humans.

Under the doctrine of signatures it is considered that plants with curative powers can be easily identified by the particular signatures stamped upon them. Thus a kidney bean is used for kidney afflictions; a walnut to cure madness and migraine headaches; Dutchmans pipe (Aristolachia clematitis) has recurved flowers that look like a womb and thus is used in difficult births; the red sap of bloodrot ( Sanguinaria



canadensis) for blood diseases; the yellow inner bark of barberry (Berberis vulgaris) and yellow turmeric for jaundice; while spleenwort fern (Asplenium) and liverleaf (Hepatica triloba) are used in liver diseases because their lobed fronds resemble the liver.

A systematic approach to ethnomedicine based on observation, experimentation, and rational deduction has been developed in different parts of the world. It lead to the establishment of a number of systems like the traditional Chinese system of medicine; Indian Ayurveda; Unani system; and the ancient system of Greek medicine.

Thus in ethnomedicine, both the concrete and abstract man-plant interactions gave rise to different lines of thought.

#### MODIFICATION WITH TIME

These man-plant relationships are dynamic. An example of how they get modified with the flux of time is the Lantana shrub. Considered till recently a troublesome weed, it is now being utilized by HESCO for the production of incense sticks, baskets, chairs and even to generate electricity.

Another example of the changing man-plant relationship is the modified modern use of some plants used by the tribals e.g. the jojoba oil, originally used by the American Indians in medicine and to cook food, is now being used for

cosmetics and shampoos and as a substitute for sperm whale oil.

#### THREATENED PLANTS OF MEDICINAL USE

Intensive studies of tribal plant use have revealed a number of plants used by them for medicinal purposes, poisons and for various other uses. An unfortunate consequence of this is the over-exploitation of these plants, especially, the medicinally important ones.

Some endangered plant sps. of traditional medicinal importance in India are Rauvolfia serpentina (disappearing due to over collection); Saussurea lappa (over-exploitation); Paphiopedilum druryi (habitat destruction and over-collection); Dendrobium pauciflorum (habitat destruction); Diplomeris hirsuta (habitat destruction); and Dendrobium nobile (over exploitation).

#### CULTURAL OSMOSIS

With the increase in population and the spread of commercialisation, many regions previously considered inhospitable are now in fact overpopulated. The tribals are thus no longer isolated in their inaccessible hills and jungles. With the influx of non-tribals in their areas there is now an osmosis of thoughts, beliefs and folkways. This has lead to modifications in tribal culture which is reflected through changes in their religious and ethno-medical ideas and way of life. It is therefore not only

important to conduct surveys in various areas and observe the ethnic uses of plants by the tribals of the region; but it also becomes necessary to repeat studies after a time gap and record the cultural shift.

### BIODIVERSITY CONSERVATION

The concept of biodiversity is important because ecosystem resilience is promoted by biodiversity. Indigenous people with a historical continuity of resource-use practices often possess a broad knowledge base of the behaviour of complex ecological systems in their localities. The long term historical experience of these people is therefore important with respect to conserving and enhancing biodiversity.

1. Enhancing biodiversity : An example of indigenous knowledge and practices involved in enhancing biodiversity is the long term changes in the forest structure e.g. the creation of forest islands, apete, by the Kayapo Indians of Brazil who live in the southern limit of the rain forest.
2. Conserving biodiversity : Four types of conservation practises are seen.
  - (a) Total protection to many individual biological communities including pools along river courses, ponds, meadows and forests e.g. the sacred groves.

- (b) All individuals of certain species of plants and animals are afforded total protection e.g. the Ficus trees (of all species) are protected in India.
- (c) Certain particularly vulnerable stages in the life history of an organism may be given special protection.
- (d) Many tribals engage once a year in large scale communal hunt. Such a group exercise serves the purpose of group level assessment of the status of prey population and their habitat. This in turn, helps in continually adjusting resource harvest practices so as to sustain yields and conserve biodiversity.

#### THE TRIBES OF U.P.

In June 1967 five tribes of U. P. were declared as Scheduled Tribes. These are the Bhotias, Rajis, Jaunsaris, Tharus and Buxas. There are however many tribes living in the southern zone of the state (bordering northern M.P.) which are as yet non-scheduled.

These tribes live in three well defined areas in the state:

1. In the hill regions of Kumaon and Garhwal Division live the Bhotias, Rajis and Jaunsaris. The term

Jaunsari represents a number of different tribal groups (e.g. Khasas, Koltas and Harijans) inhabiting the Jaunsar area of Dehradun district.

2. The Tharus and Buxas inhabit the Tarai-Bhabhar belt. Both the tribes live in the district of Nainital. While Tharu territory extends to the districts east of Nainital, the Buxas live in the districts west to it.
3. Most of the non-scheduled tribes live in the southern zone of Lalitpur, Jhansi, Banda, Allahabad, Mirzapur and Varanasi districts. The tribes are Agarias, Bhuinyas, Cheros (Baigas), Ghasias, Gonds (Majhwars), Kols, Korwas, Oraons ( Dhangars ), Parahiyas, Panikas and Sahariyas.

**Occupation:**

Tradition and geographical factors, both, have defined the occupation of different tribes e.g. Bhotias live in areas bordering Tibet and have thrived on their trade with Tibet and China. Now that free and unrestricted trade between these areas and China is not possible, the tribals have found a market for their goods in the state and different parts of the country.

The Khasas, Buxas, Tharus and Gonds are basically agriculturists. The other tribes are employed as agricultural labourers or share croppers.

## THE AIM OF THE STUDY

District Garhwal lies in the Lesser Himalayan zone (Upagiri) of the Garhwal-Himalayas of U.P. The three tribes inhabiting the district are the Buxas, Bhotias and Jaunsaris.

As mentioned earlier the Buxas inhabit the foothills of the Siwaliks, constituting the bhabhar region of the district. Till the 1950s, the bhabhar was considered inhospitable because of its thick jungles and thus the tribals lived in isolation. But the rapid pace of development and the subsequent influx of non-tribals has today, changed the equation.

The aim of this study is to record the plants used by the Buxas and also to analyze the cultural shift of this tribe.

# PHYSIOGRAPHY

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## PHYSIOGRAPHY

### LOCATION

District Garhwal lies in the outer Himalayas, between latitude 29 26' and 30 19' North; and longitude 78 12' and 79 14 East. It is bound by the Chamoli district on the northeast; Bijnor on the south; and Almora and Nainital on the east. The rivers Ganga and Alaknanda form its boundaries with the districts of Dehradun and Tehri-Garhwal, respectively.

### TOPOGRAPHY

The district is entirely mountainous, with the average height varying from 500 to 2600 metres from the mean sea level. The mountainous tract consists of a succession of steep mountain ridges, separated from each other by deep glens. The submontane tract in the southern part of the district is known as bhabhar. The numerous spurs in the mountain system of central Garhwal separate the river valleys from each other. These narrow valleys at the base of the hills are generally streamless and are extensively cultivated except a few.

The drainage of the district is through river Ganga and its affluents. Alaknanda flows on the southwest along the border of the district and after its confluence with Bhagirathi at Devprayag in Tehri-Garhwal district, it is known as Ganga. River Nayar flows in the northern part of



# POSITION OF UTTAR PRADESH IN INDIA, 1981

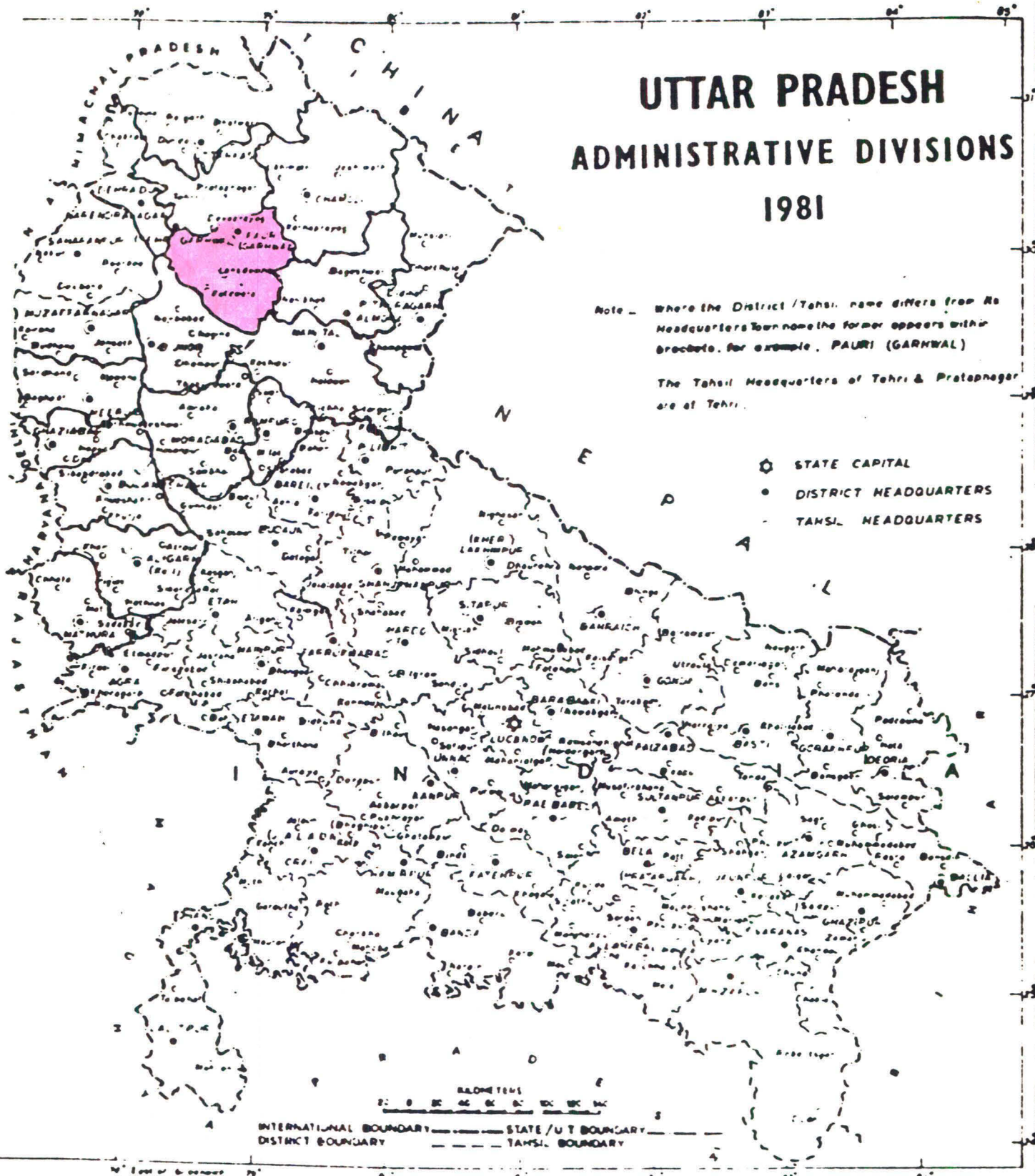


# UTTAR PRADESH ADMINISTRATIVE DIVISIONS 1981

Note - Where the District / Tahsil name differs from its Headquarters Town name the former appears within brackets, for example, PAURI (GARNWAL)

The Tahsil Headquarters of Tehri & Pratapnagar are at Tehri.

- STATE CAPITAL
- DISTRICT HEADQUARTERS
- TAHsil HEADQUARTERS



SCALE IN KILOMETERS  
0 20 40 60 80 100

INTERNATIONAL BOUNDARY ——— STATE / U T BOUNDARY  
DISTRICT BOUNDARY - - - - - TAHsil BOUNDARY

the district and covers more than half the area. The Ramganga flows in the southeast and then towards east before entering Almora district.

On the basis of its physical features, the district is subdivided into five SUB-MICRO REGIONS:

- (i) Ganga basin: extends towards the south of the Ganga river in the northern part of the district. It is bound by Alaknanda basin in the northeast and by Lesser Himalayas and Siwaliks in the south. It is a mountainous zone, with the average height varying from 450 to 2000 m from the mean sea level.
- (ii) Alaknanda basin: extends along the south of the Alaknanda river in the northern part of the district and is bound by the Lesser Himalayas and Ganga basin in the south. Here, a series of high hill ranges form a mountainous topography which consists of a crest of ridges with steep and gentle slopes, falls and valley bottoms. The height ranges from 600 to 2000 m from the mean sea level.
- (iii) Lesser Himalayas: is the largest region and covers the central part of the district. It is bound by the Alaknanda, Ganga and Ramganga basin in the north, northwest and southwest respectively, and the Siwaliks in the southwest. It is a completely hilly zone having peaks, valleys, slope areas, falls and crests etc. The height in this zone varies from about 1000 to 2500 m from the mean sea level.
- (iv) Ramganga basin: is in the southeast of the district. It is bound by the Lesser Himalayas in the north and Siwaliks in the west. This is the foothills of the Lesser Himalayas. Here, the elevation varies between 500 to 1200 m from mean sea level. Kotdwara tahsil is in the southern part of this region.
- (v) Siwalik: extends in the southwest of the district. It is bound by the Ganga basin in the north and Lesser Himalayas in the northeast. Small and low elevated hillocks, saddles and their slope zones and valley bottoms form an undulating topography. The height varies from 400 to 1200 m from the mean

sea level. The region is drained by many tributaries of the Ganga namely Malln, Tellso, Rawason and Khoh.

## GEOLOGY

Geomorphologically, the district is subdivided into four zones:

- (i) the outermost southern belt of the Siwalik rocks forming the southern hill rampart of the district.
- (ii) the mountain range of GankiaDanda-Lansdowne-Ghungti belt.
- (iii) the central valley of the Nayar river and its tributaries opening a belt of slate series.
- (iv) the northern belt of very high mountains of the Golikhal-Sountkhal-Dodatoli Dharmallhori Gali, made up of immense pile of crystalline metamorphic and associated granitic rocks.

The district is situated in the Himalayan Boundary Fault Zone of the central Himalayan thrust and thus experiences the effect of moderate to heavy earthquakes occurring there.

## CLIMATE

A fairly long and moderately severe winter is the chief characteristic of the climate of the district. Being situated on the southern slopes of the Himalayas, it gets a good rainfall from the south-west monsoon current, but tropical heat may be experienced from April to May, and , in the first half of June in the valleys and comparatively lower elevated areas.

The rainy generally commences from the third week of June and lasts till the end of September. The period from October to the middle of November constitutes the post monsoon season, after which winter sets in. Winter lasts till about the middle of March and is followed by the summer or pre-monsoon (middle of March to middle of June).

### VEGETATION

The flora of the district includes the vast range found in the Himalayas, varying from the subtropical species growing in the outer range of low hills and the Bhabhar tract, to the temperate species growing in the higher altitude in the north. The forests extend from 250 m to over 3000 m above sea level and may be divided into three main altitudinal floristic divisions:

- (i) **Outer foot hill forests:** occur between the altitudes of 250 m to 1100 m; Shorea robusta being the dominant species often growing by itself or with a small admixture of associates like Terminalia altavar, Terminalia tomentosa, Adina cordifolia and Lagerstoemia speciosa. The extensive Shorea robusta forests are interrupted by grassy patches in the flat low lying pockets; strips of riverain forests; and tracts of miscellaneous forests.

These forests are of the following types:

- (i) a. Riverain forests: chiefly of Dalbergia sisoo, which occurs pure or mixed with Acacia catechu, Zizyphus sps. and Salmalia malabarica. Among grasses are Saccharum munja, Aristida cyanatha and Typha elephantina. The common shrubs are Adhatoda vasica, Murraya koenighii, Pogostemon sps. Lantana sps. etc.

- (i) b. Plain miscellaneous forests: The common species found here are Acacia catechu, Salmalia malabarica, Dalbergia sissoo, Butea monosperma and Zizyphus sps. at lower elevations; and Syzygium cuminii, Macholus odoratissima, Albizzia sps. Trewia nudiflora, Lannea arandis, Terminalia bellerica and Cassia fistula.
- (i) c. Bhabhar forests: The common species are Adina cordifolia, Sohleishera oleosa, Mytragyna parvifolia, Moringa pterygosperma and Wrightia tomentosa. The undergrowth consists of Milletia ansculter and Clerodenderon infortunatum. The common grasses are Desmostachya bipinnata, Vetiveria zizanioides and Imperata cylinbrica.
- (i) d. Hill forests: The species growing in these forests is Shorea robusta with its chief associates of Semecarpus anacardium, Buchanania latifolia and Terminalia chebula. Dendrocalamus stictus is the common undergrowth. On higher slopes Woodfordia fruticosa and Indigofera sps. are common. At its higher reaches Shorea robusta is closely associated with Pinus roxburghii, forming two storeyed forests.
- (ii) Warm temperate forests: They occur between altitudes of 1000 m to 2000 m above mean sea level. The dominant species is Pinus roxburghii. There is hardly any undergrowth except some Rubus berberis and Indigofera shrubs. The vast Pinus expanses are broken up by pockets of Quercus incana, Rhododendron arboreum and Pieris ovalifolia. At about 2300 m, or even 2000 m in cool places, Quercus incana occurs with Quercus dilatata.
- (iii) Cool temperate forests: Occur between altitudes of 2650m and 3350m. Here Quercus semecarpifolia occurs mixed with high level pines such as silver fir and spruce. Also Alorusnitida sps. and Ulmus willichiana are seen.

## POPULATION

There are 56 districts in the state. Garhwal is 51st in population and 21st in area. 90.18% of the population in the

district is rural and only 9.82% is urban.

The total population of the district is 682535 (\*). The density of population is 117 persons per square kilometre.

The number of inhabited villages is 3237. There are 8 towns.

Scheduled tribes constitute about 0.17% of the total population.

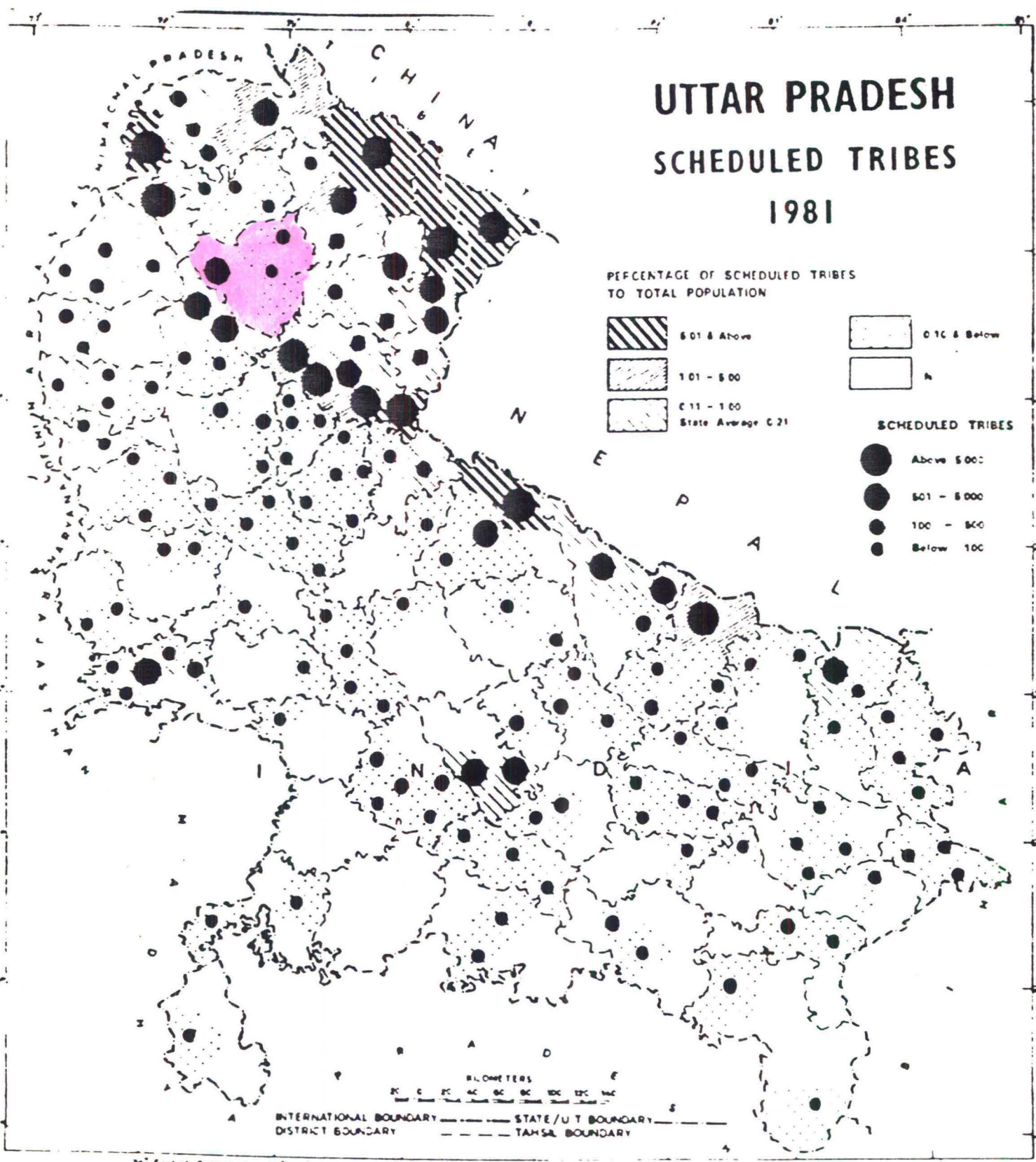
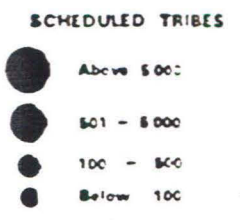
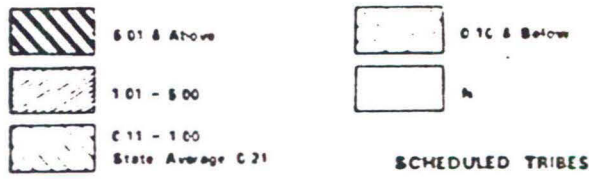
There are three tahsils in the district: Pauri, Lansdowne and Kotdwara. Of these the ST population is highest in Kotdwara tahsil (0.64%) and in its rural areas (0.81%) whereas in the urban areas it is highest in Pauri tahsil(0.48%).

The information about the total population of the three tribes of the district; the literacy rate and the occupation of the tribals in the 3 tahsils of the district is given in tables I and II respectively.

\* Census of India 1991.

# UTTAR PRADESH SCHEDULED TRIBES 1981

PERCENTAGE OF SCHEDULED TRIBES  
TO TOTAL POPULATION



KILOMETERS  
0 20 40 60 80 100 120 140

INTERNATIONAL BOUNDARY ——— STATE/UT BOUNDARY  
DISTRICT BOUNDARY ——— TAHSIL BOUNDARY

10° East of Greenwich



**Table I**  
**BREAK-UP OF THE ST POPULATION OF GARHWAL DISTRICT**

TRIBES	RURAL/URBAN	MALES	FEMALES
ALL ST's	R	550	426
	U	89	32
BHOTIAs	R	77	45
	U	89	32
BUXAs	R	254	200
	U	--	--
JAUNSARIs	R	217	180
	U	--	--

\* SOURCE : Census of India - 1981

Table II

DISTRIBUTION OF SCHEDULED TRIBES IN THE THREE TAHSILS OF GARHWAL DISTRICT

DISTRICT/TAHSIL	TOTAL/ RURAL/ URBAN	PEOPLE	MALES	FEMALES	LITERATES	TOTAL MAIN WORKERS	CULTIVATORS
GARHWAL DISTRICT	T	1097	639	458	287	452	159
	R	976	550	426	189	373	159
	U	121	89	32	98	79	--
PAURI TAHSIL	T	125	94	31	103	81	2
	R	6	6	--	6	3	2
	U	119	88	31	97	78	--
LANDSDOWNE TAHSIL	T	41	26	15	15	23	--
	R	39	25	14	4	22	--
	U	2	1	1	1	1	--
KOTDWARA TAHSIL	T	931	519	412	169	348	157
	R	931	519	412	169	348	157
	U	--	--	--	--	--	--

\* SOURCE : Census of India - 1981

# LITERATURE REVIEW

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## LITERATURE REVIEW

The last quarter of the 19th century saw the beginning of ethnobotanical studies outside India. The primary purpose of such studies was to help cultural anthropology assess the plant resource utilization of a given tribal culture. It was only gradually that these studies acquired independent status and were taken up by botanists themselves.

In India, studies in ethnobotany were initiated by Dr. E.K. Janaki Ammal. She studied subsistence food plants of certain tribes of southern India. From 1960 onwards intensive field studies were initiated by Dr. S. K. Jain among tribals of central India and later eastern India. He has been monumental in providing the thrust towards this field. Glimpses of Indian Ethnobotany (ed. Jain, S.K. 1981) is the first book dealing with Indian ethnobotany. It is a compilation of articles dealing with the tribal uses of plants in different parts of the country, based on field studies conducted in remote villages and forests.

Depending upon the aim, the subject can be approached in many different ways namely, ethnobotanical studies of certain large or small geographic regions; of selected primitive or otherwise ethnobotanically interesting human societies; of certain plant groups or individual plant species; or of certain specific utility groups like food, medicine, dyes, hallucinogens etc.

## ETHNOBOTANICAL ZONING OF INDIA

The Indian subcontinent can be divided into three zones:

- I. Indo-Gangetic low lands
- II. Peninsular India
- III. The Himalayas

### I. INDO-GANGETIC LOWLANDS

In this zone, Lal and Lata (1980) conducted ethnobotanical surveys in Punjab. They investigated the plants used by Bhat community of Gurdaspur and Hoshiarpur districts, with emphasis on the plants used for regulating fertility.

In Haryana, Lal and Yadav (1983) studied the folk medicine of Kurukshetra district. Jain (1984) studied the ethnobotany of Morni and Kabsar tribes of Ambala district.

The area of Uttar Pradesh covered under this zone excludes the mountainous and sub-mountainous region of the state. Here Saxena and Vyas (1981) recorded 20 plant species used for various infectious diseases by the tribals of Banda district. Later (1983) they investigated medicinal plants of Dhasan valley in Bundelkhand region. Maheshwari et.al. (1981) conducted studies on the Tharus of Kheri district. Singh and Maheshwari (1983) surveyed the Kol, Kharwar, Chero and Mushar tribes of Varanasi district. In their study they dealt with the therapeutic value of 53 medicinal plants,

their dose and mode of usage. Dixit and Pandey (1984) studied the plants used as folk medicine in the Jhansi and Lalitpur sections of Bundelkhand.

Notable studies of ethnobotanical interest in Bengal have been undertaken by Jain and De (1964). They noted the food plants among the tribals of Purulia district. Pal (1980) collected information about veterinary uses of plants in Bengal and adjoining areas of Bihar and Orissa. Chaudhary et. al. (1982) studied the plants used in traditional medicine by the Mech, Oraon and Rabha tribals of Jalpaiguri district. Das and others (1983) dealt with 84 species of angiosperms used variously by the aboriginals of Totopara district and its adjoining areas. Molla (1985) studied the Rabhas inhabiting the Kodal basti, Chilapata and Nimati areas of Jalpaiguri district.

Ethnobotanical studies in Rajasthan have been conducted by Bhandari (1974) who paid special attention to famine foods in the desert. Singh and Pandey (1980) identified 123 species of medicinal plants in this area. Later (1982) they studied the plants used in religion and magico-religious beliefs in Rajasthan. Joshi (1982) conducted a comprehensive study of the Bhils of Rajasthan. In his surveys of the Dungarpur and Banswara districts he has touched upon almost all the aspects of Bhil life 'i.e. their magicoreligious beliefs; food habits; ethnomedicine and plant products used for weapons, as fish poisons and as construction materials. Sebastine (1984) studied the plants used in veterinary

medicine and for fodder in the forest areas of Rajasthan. Shekhawat and Anand (1984) studied the Jaisalmer, Jodhpur and Nagaur districts and recorded 78 species used by the local village communities. The knowledge of certain phenological signals in plants which were to precede some characteristic weather event has been imparted through generations within a tribal community. Such weather-indicating plants of the tribals of southern Rajasthan were studied by Joshi (1985).

## II. PENINSULAR INDIA

From Gujarat state, Bedi (1978) gathered data on ethnobotany of Ratan Mahal hills. Bennet (1978) studied native drugs in the Nagarhaveli forest area. Joshi et. al. (1980) studied folk medicines of the Dangs in Gujarat. Shah et. al. (1981) studied the Saurashtra region and enumerated different uses of 133 species of plants. Shah and Gopal (1985) reported the ethnomedicinal uses of plants by the tribals of northern Gujarat.

In Maharashtra, Kamble and Pradhan (1980) studied the ethnobotany of the Korku tribe. Badhe et. al. (1982) collected information about the mantra and tantra folklore of Korku, Gavalis and other villagers in western Melghat. Saxena and Vyas (1983) studied the ethnobotany of Dhasan valley. Sharma and Malhotra ((1984) reported 52 useful and medicinal plants of the state. Sharma and Lakshminarsimhan (1986) explored the tribal areas of Nasik district. They

studied in detail the various uses of plants for food, fodder, and medicine. They also noted the dye yielding plants and the plants used for making musical instruments.

In Bihar, Jain and Tarafder (1970) studied the medicinal plant lore of the Santhals. Pal and Srivastava (1976) studied the ethnobotany of the Ho tribals in Singhbhum district. Paul (1977) noted the medicinal plants of the Netarhat plateau in the state. Srivastava and Verma (1981) reported 110 species of ethnobotanical interest from the tribal majority region of Santhal Parganas. Chandra et. al. (1987) also studied the Santhals in Dumka district. They have described the drug plants used by the tribals along with their mode of administration.

In Orissa state, Pal and Banerjee (1971) noted the less known food plants among the tribals. Mudgal and Pal (1980) dealt with the folk medicinal plants of the Mayurbhanj district. Pal (1980) reported the folklore about plants used in veterinary medicine. Chaudhuri (1988) reported the medicinal plants of Bhubaneswar and its neighbouring areas. Hemadri et. al. (1990) conducted a comprehensive survey of the Koraput and Phulbani districts of the state.

Different areas of Madhya Pradesh have been worked out in detail by Jain (1963, 1964, 1965). He studied in detail the plants used by the tribals for food, fibre, medicine and for making musical instruments. Sahu (1982) reported the plants used for various disorders among tribal women. Rai



(1985) surveyed ethnomedicobotany of the Gond, Korku, Pardhan and Bhabha tribes of Chindwara district. Saxena (1986) recorded folk uses of 88 plant species. Maheshwari and Dwivedi (1988) dealt with ethnomedicinal plants of Bhabha tribals of Pataalkot valley in Chindwara district.

In Karnataka, Rao (1977) described medicoethnobotanical aspects of some plants of Mysore district. Yoganarasimhan et. al. (1982) studied the medicobotany of Tumkur district. Gowda et. al. (1988) dealt with ethnobotanical aspects of Western Ghats and conservation of medicinal plants.

Pal and Banerjee (1971) recorded some less known food plants among the tribals of Andhra Pradesh. Jain Banerjee and Pal (1973) conducted surveys among the Chenchu, Reddi, Valmiki and Gond tribes of the state and recorded the medicinal plants used by them. Hemadri et. al. (1980) gave an account of the folklore claims from different parts of the state.

TH-7128

In Tamil Nadu, Ramachandran and Nair (1981) worked on the ethnobotany of Irulars. They recorded 138 species of plants used by this tribe for various purposes. Abraham (1981) conducted a comprehensive ethnobotanical survey of the Todas, Kotas and Irulars of Nilgiri hills.

In Kerala, Ramachandran and Nair (1981) dealt with the ethnobotany of the locals of Cannmore district. Bhat et. al. (1982) surveyed the silent valley and adjoining areas of Palghat district.



Thothathri (1974, 1980) studied the useful plants of Andaman and Nicobar Islands. Lal et. al. (1982) discussed the medicinal properties of 10 fern species of this region. Bhargava (1983) studied the ethnobotany of Onge tribals. Yoganarasimhan et. al. (1984) recorded information on medicobotany of these islands. Dagar and Dagar (1984) studied the ethnobotany of Onge tribe of Little Andaman and listed 80 species of plants used by this tribe.

### III. THE HIMALAYAS

Jain and Dam (1979) gathered ethnobotanical information from herbaria, from the hill region and identified 48 species of useful plants in the North Himalayan India. Arora (1981) reported about 300 plants of food value in north Indian hills. Shah (1982) discussed folk medicine of the hills of northern India.

From Arunachal Pradesh, Tiwari et. al. (1978) surveyed the Tirap district and listed the medicinal plants of the region. Dam and Hajra (1981) studied the ethnobotany of Monpas of Kameng district. Later, Tiwari et. al. (1984) recorded 43 medicinal plants from Siang and Subansiri district.

Majumdar et. al. (1978) studied the folk medicine of Assam. Jain and Borthakur (1980) surveyed the Mikirs of the Karbi-Anglong district. They reported the plants used by these tribals for food, medicine and magicoreligious beliefs. Boissya and Majumdar (1980) recorded the folklore

claims from Brahmaputra valley. Bhattacharjee et. al. (1980) studied the folklore medicine from Kamrup district. Puri (1983), Baruah et. al. (1984) also worked on the ethnomedicobotany of Assam.

Different areas and tribes of Meghalaya have been studied by Kumar et. al. (1980). They worked among the Garo tribals. Rao and Neogi (1980) surveyed Garo and Khasi tribes and recorded miscellaneous uses of 65 plant species. Tiwari et. al. (1986) enumerated 100 species of plants important in classical Ayurvedic and folk medicine of Garo hills.

In Nagaland, Rao and Jamir (1982a, 1982b) have given details of plants used for various diseases by the locals. Megoneisto and Rao (1983) reported 52 medicinal plants used by Angami Nagas.

In his survey of Sikkim, Uniyal (1980) reported Arisaema wallichianum, a plant used as food by the natives. Bennet (1983) listed 40 plants of ethnobotanical relevance from Sikkim. Mudaiya et. al. (1988) have reported the threatened and rare medicinal plants of the state.

In Kashmir, Srivastava et. al. (1980) systematically surveyed the medicinal plants of Kailash, and recorded 180 species. Gupta et. al. (1980, 1981) phytochemically screened some useful plants of Ladakh. Srivastava et. al. (1984) surveyed the Gurez valley of the state. Dar et. al. (1984) surveyed the Sind valley. Kaul et. al. (1985) worked on the wild edible plants of Ladakh. They recorded 20 drugs, most

of them unknown to modern medicine and discussed the scope for analyzing them on modern scientific lines.

Kapoor (1953) studied the minor forest products of Chamba district of Himachal Pradesh. In this context he examined the scope for development of minor forest products. Gupta (1964, 1971) recorded the medicinal and aromatic plants of Chamba district. Arora et. al. (1982) phytochemically screened Inula racemosa, an aromatic plant of Lahaul valley. Uniyal et. al. (1982) conducted a preliminary survey of the medicinal plants of Lahaul Spiti forest division.

Garhwal district which is surveyed in this study is located in the hilly regions of Uttar Pradesh. In this area, Shah and Joshi (1971) studied the ethnobotany of Kumaon region. Shah (1975) investigated the prospects of drugs plants and of controlling their depletion. Issar (1981) dealt with traditionally important medicinal plants used for treatment of animals. The plants discussed are used for various ailments like fracture or dislocation of bones; khurria of hooped animals; corneal trauma etc. Nautiyal (1981) discussed the medicinal plants of Garhwal hills. Gaur (1983) recorded 59 species of little known wild edibles of Garhwal. Maheshwari and Singh (1984) dealt with important plants used by the Bhoja tribe. Gaur, Semwal and Tiwari (1985) studied the flora occurring between 3000-5000 meters above sea level, in the region. They recorded 71 species of plants, their description and medicinal importance.

Aggarwal et. al. (1989) phytochemically screened 5 medicinal plants of the Kumaon & Garhwal Division and recorded the chemical constituents detected.

# FIELD REPORT

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## FIELD REPORT

The villages covered are in the Doggada block of tahsil Kotdwara. The villages are:

In Nilkanth N.P. : village Maral

In Lachchampur N.P.: village Bhudeopur  
Luthapur  
Haldukhata malla  
Haldukhata talla  
Jashodharpur  
Lachchampur

In Motadhak N.P. : village Nandpur  
Padampur  
Shivrajpur  
Deorampur  
Jeevanandpur

(note: N.P. signifies nayay panchayat)

The field report is divided into two sections.

### SECTION I

#### THE TRIBE

The Buxas belong to the Mongoloid racial stock, but over the centuries the Buxa genealogists have invented stories of a Rajput origin. They claim descent from the Rajput nobles of Jaipur and Jodhpur who fled after heroic battles with the Mughals and sought refuge in the thick jungles of the Tarai.

The social organization of the tribe is not based on a caste hierarchy. Families are, however divided into

exogamous gotras or septs. While most of the gotras are identical with the Hindu gotras or subcastes, there are some peculiar to the tribe. For instance:

doi sept: doi denotes a large wooden spoon used to ladle out food.

hardia sept: the name is derived from hardi or haldi (turmeric).

muswani sept: the name comes from muswan or musalman. It is believed that the people belonging to this sept are of muslim origin.

The Buxa habitations are typical. Two rows of houses in perfect straight lines are built facing each other. In smaller hamlets, the space between the two rows is used as a common courtyard while in bigger hamlets a mud passage runs in the middle. The huts are single storied with the roof supported by large horizontally fixed ballis or logs made of Shorea robusta or Adina cordifolia wood. The ballis are in turn supported by pillars made of Acacia catechu. The walls, made of wooden frames with rubble fillings, are mud-plastered.

#### RELIGION

The impact of Hinduism on the Buxa society is very strong. They celebrate most of the Hindu festivals. There are however some deities which are typical of this tribe:

Bhumsen: is considered the protector of the village. The deity is installed on a mud platform in front of the Padhans house. (The village chief is called Padhan). Bhumsen is ceremoniously worshipped once a year.



Bhumia : is the family deity and is installed in every house. Bhumia is worshipped ceremoniously once a year by the family after the harvesting season.

There is also considerable Muslim impact on the tribal society. As already mentioned, the families belonging to the muswani sept are of Muslim origin and follow certain Muslim customs. Also, the village seyana invokes the Prophet in their chants to cure diseases and drive away evil spirits. Crooke mentions two Muslim saints, Sarwar Lakhi and Kalu Sayyid among the deities worshipped by the Buxas (Crooke1).

Thus the religious structure of the tribe mainly consists of popular Hinduism, coated with tribal religion and a light sprinkling of Muslim thoughts and ideas.

#### AGRICULTURE

They are a primarily agricultural tribe. Rice is the main kharif crop. Maize and Bajra are also grown widely. The main rabi crops are wheat, gram and lentil. Vegetables are grown on a small patch for family consumption. The common vegetables grown are Momordica charantia, Brassica oleracea var. botrytis, Amaranthus mangostanus, Amaranthus hybridus and Lycopersicon esculentum.

The growing or eating of Brassica rapa is considered taboo.

The following RITUALS are connected with agriculture :

1. Before sowing or planting paddy in kharif & wheat and barley in rabi, a havan is performed in the field to worship Mother Earth. No rituals are however performed at the time of sowing other crops.
2. Before harvesting the principal crops, two seers (about 4.5 kilogrammes) of gram are taken and pounded into flour. Of this, tikkars are baked which along with buttermilk, are first offered to the Bhumia and then distributed among the assemblage. After this the crop is harvested. The first ears of paddy, wheat or barley are offered to Bhumsen, the village deity.

#### ANCESTOR WORSHIP

The tribals also believe in ancestor worship. In the month of April-May they make images of grass, symbolising their ancestors, which are fixed near the river bank. These are watered for 16 days.

#### TRIBAL MEDICINE

The tribals use a combination of herbal medicine and magic.

Though many village elders have a knowledge of the properties of plants to cure boils, eruptions, wounds, fractured bones, piles etc.; there are some diseases like jaundice and mental disorders for which the curative power of magic is trusted.

The Buxa village has a seyana who is basically a witch doctor. He is called to cure people suffering from afflictions of unknown nature. The seyana checks the pulse of the patient and chants mantras, while waving twigs of Azadirachtus indica or peacock feathers over the patients head. He thus exorcises the spirit and rids the person of the disease. This ritual called jhar-pir may continue for several days.

### THE TAKHAT

In the past (till about five decades back), the Buxas were a close knit community and had an efficient and strong inter-village organisation called TAKHAT. The function of the Takhat was to lay down norms for social conduct and behaviour, ensure observance of age old traditions, to prescribe guidelines in socio-religious and economic matters and to settle disputes and punish the guilty, if necessary.

The village chief called the Pradhan had considerable influence in village matters and he settled minor disputes of his village with or without the help of village elders. But for major issues and also for inter-village disputes the tribals looked up to the Takhat.

This inter-village panchayat was headed by a chief who was called Takhat. He was assisted, in his duty, by the following functionaries:

1. Munsif : advised the Takhat and assisted him in the disposal of cases.

2. Darogha : summoned the parties to a sitting and ensured compliance of the decisions of the Takhat.
3. Sipahis : messengers appointed by the Darogha to convey messages to bring parties to sittings and to perform other odd jobs.

This system functioned very efficiently. However, now it is merely a shadow of its former self and almost non-functional in the villages surveyed.

## SECTION II

The plants used by the tribals are enlisted in this section. The information regarding the folk uses of the plants was provided by the village elders.

The plants are grouped under their specific families and the families are arranged taxonomically, following the Hutchinsons system of classification.

The botanical name is followed by the tribal name, Hindi name and the English name, in that order.

The abbreviations used are:

Bu	:	Buxa name
H	:	Hindi name
Eng	:	English name

## LIST OF PLANTS

### DICOTYLEDONS

#### I. ANNONACEAE

##### 1. Annona squamosa Linn.

Bu/H : SHARIFA  
Eng : SUGAR APPLE

The roots are regarded a drastic purgative and are administered in acute dysentery. They are also given internally in spinal diseases and depression of spirits. The green leaves are pounded thoroughly and applied on unhealthy ulcers.

The ripe fruit is considered a maturant. It is crushed and mixed with salt and applied to tumors.

The seeds are crushed, mixed with a little mustard oil and applied on the head to destroy lice.

#### II. CAESALPINIACEAE

##### 1. Bauhinia vahlii W & A.

Bu/H : MALU

In case of redness of eyes, the leaves are crushed and the filtered juice dropped in the eyes.

The pods are roasted over fire till they split open. The seeds are taken out and eaten raw or fried.

The leaves are sewn together and used as cups, plates etc.

2. Caesalpinia crista Linn.

Bu : KARAINJVA  
H : KARAUNJ

The seeds are crushed and given with water to children suffering from intestinal worms.

The kernels are used as a tonic in intermittent fevers.

3. Cassia fistula Linn.

Bu/H : AMALTAS  
Eng : INDIAN LABURNUM

The juice of tender leaves is taken internally for jaundice.

4. Cassia tora Linn.

Bu/H : CHAKUNDA  
Eng : THE FOETID CASSIA

The seeds are ground into a fine paste with water and this is applied to joints in cases of rheumatism. The seeds are usually fried in ghee and stored for future use.

The leaves are given in the form of a decoction to children having feverish attacks while teething. The leaves are boiled and eaten as a vegetable in general, and in particular by the rheumatic patients.

5. Tamarindus indica Linn.

Bu/H : IMLI

A poultice of flowers is applied in inflammation of

eyes. Juice expressed from the flowers is given internally for bleeding piles.

For fever, the leaves are soaked overnight and later ground with black pepper. This is taken with a glass of water.

### III. MIMOSACEAE

1. Acacia catechu Willd.

Bu/H : KHAIR

The resinous extract called katha is given for drying wounds.

2. Albizzia lebbek Benth.

Bu/H : SIRIS  
Eng : THE SIRIS TREE

The leaves are warmed and applied on painful swellings.

Flowers are considered to have a cooling effect and are applied externally to boils, eruptions and swellings.

The powder of rootbark is used to strengthen spongy and ulcerated gums.

### IV. PAPILIONACEAE

1. Abrus precatorius Linn.

Bu/H : RATTI/KANCHAN  
Eng : INDIAN or WILD LABURNUM

Powdered root is given with ginger for coughs including whooping cough.

Leaves steeped in warm mustard oil are applied over the seat of pain in rheumatism to give relief. Also, leaves warmed over fire or the juice extracted from leaves gives relief in painful local swellings.

A paste of unripe seeds can also be applied to swellings.

2. Butea monosperma (Lam.) Kuntze.

Bu/H : DHAK/PALAS

The stem bark is crushed and tied over fractured bones.

3. Dalbergia sissoo Roxb.

Bu/H : SISU

A decoction of leaves is given internally for skin eruptions and to stop vomiting.

4. Desmodium gangeticum (Linn.) DC.

Bu/H : SALIPARNI

A decoction of the roots is used in fever and in affections of chest.

5. Dolichos biflorus Linn.

Bu/H : GAHAT

A preparation is given in case of kidney stones and stomach ailments.

6. Lens esculenta Moench.

Bu/H : MASUR



A decoction of seeds is considered useful for toothaches and swollen gums. It is taken for constipation and intestinal affections also. In form of paste or poultice, the pulse is used as an application to ulcers occurring after smallpox.

V. **MORACEAE**

1. Ficus bengalensis Linn.

Bu/H : BARGAD  
Eng : BANYAN TREE

The tender ends of the hanging roots are given for obstinate vomiting.

An infusion of the stem bark is considered a powerful tonic and effective in treatment of diabetes.

The milky juice is considered an anodyne. It is externally applied for pains and bruises and also in rheumatism and toothaches.

The young buds are astringent and useful in diarrhoea.

2. Ficus glomerata Roxb.

Bu/H : GULAR

The roots are used in dysentery. The sap of roots is used for diabetes.

The trunk bark is an astringent and a wash for wounds. The bark is ground with onion and cumin and given to cattle to rid them of pests.

The leaves are dried, powdered mixed with honey and given for bilious disorders. The small blister like galls common on the leaves are soaked in milk, mixed with a little honey and given to prevent pitting in smallpox.

The milky juice is used in piles and diarrhea. It is also applied locally for mumps and other inflammatory glandular enlargements. The juice is considered to have a cooling effect and is useful for eye inflammations.

The fruits are astringent and stomachic.

3. Ficus palmata Forsk.

Bu/H : BEDU

The fruits contain sugar and therefore act as a demulcent and laxative. They are generally eaten by the locals and are specially taken as a diet in constipation and in diseases of lung and the bladder.

4. Ficus religiosa Linn.

Bu/H : PEEPAL

The bark is astringent and used for scabies.

The leaves and young shoots are purgative. They are also used in skin diseases.

The stem bark is part of a little complicated recipe for the treatment of piles: The tribals take the dhatu seeds and the stem barks of Ficus religiosa and

Azadirachta indica. These are then burnt in an open field at noon. The ashes obtained are applied externally.

It is believed that if the shadow of a person (or even an animal) falls on the mixture while it is burning, the healing power in the ashes will be lost.

5. Ficus roxburghii Wall.

Bu/H : TIMLA

The ripe fruits are eaten by the tribals.

VI. NYCTAGINACEAE

1. Boerhaavia diffusa Linn.

Bu/H : GADA-PURNA

The roots are laxative and a cooling medicine. They are used in form of infusion or as powder. Bruised in water, they are applied on feet in cases of general debility.

The leaves are used as a poultice for abscesses.

VII. CAPPARIDACEAE

1. Cleome viscosa Linn.

Bu/H : JANGALI-HARKAR/ JAKHAYA

The leaves are made into a paste and applied to wounds.

The seeds are prized as condiment and are used with vegetable preparations, pickles and curries.

## VIII. MORINGACEAE

### 1. Moringa pterygosperma Gartn.

Bu/H : SOANJNA

A decoction of the root bark is given for internal or deep seated inflammation. It is also applied externally as plaster.

The leaves ground into a paste with ginger and turmeric, are applied externally over dog bite.

The flowers act as a tonic and diuretic.

The pods are eaten as a vegetable and also used as an antihelmintic.

## IX. MALVACEAE

### 1. Abutilon indicum G. Don.

Bu/H : KANGAI

The leaves are applied as poultice on wounds. The mucilaginous extract from the leaves is used as demulcent.

The seeds are taken as a cure for persistent coughs.

### 2. Kydia calycina Roxb.

Bu/H : PUTA

The mucilaginous bark is given internally for diabetes.

### 3. Sida cordifolia Linn.

Bu/H : KHARENTI

A decoction of roots with ginger is given in intermittent fevers. The roots are considered cooling and a tonic.

The leaves are applied over wounds.

The seeds are considered an aphrodisiac.

**X. EUPHORBIACEAE**

1. Acalypha ciliata Forsk.

Bu/H : KOKALI

The leaf juice is applied on ulcerous wounds.

The whole plant is used in bronchitis, asthma, pneumonia and rheumatism.

2. Emblica officinalis Gaertn.

Bu/H : AONLA/ANWLA

The fruits are used as a cooling agent, and laxative. The boiled extract from dried fruits is used to wash feet swollen due to infection.

3. Mallotus philippinensis Muell-Arg.

Bu/H : KAMELA/REONI

The powdery substance obtained as a glandular pubescence from the exterior of the fruits is known as kamela. It has various medicinal properties:

It is considered anthelmintic, and is given with curd as a cure for intestinal worms. It is applied

externally along with some mustard oil in case of itch.  
This same mixture is also applied to check hair loss.

The kamela is collected and sold to the forest department. It is therefore also a source of income.

4. Ricinus communis Linn.

Bu/H : ARANDI  
Eng : CASTOR OIL PLANT

The leaves are warmed and applied on wounds and bruises. While the juice of leaves taken internally increases the flow of milk in nursing mothers; the external application of poultice of leaves checks the flow. The fresh juice of leaves is considered an emetic. A poultice of leaves is applied on eye inflammations.

A poultice of seeds reduces gouty and rheumatic swellings.

XI. DIPTEROCARPACEAE

1. Shorea robusta Gaertn.

Bu/H : SAL

The resin is taken internally and also applied to wounds.

XII. MYRTACEAE

1. Caryophyllus aromaticus Linn.

Bu/H : LAUNG  
Eng : CLOVE

The dried flower buds are ground on a hard surface with a little water and applied (carefully) on the boils occurring on the upper or lower eyelids.

2. Psidium guyava Linn.

Bu/H : AMRUD

The fruit is taken as a cure for cough, the preparation being a little complicated:

The fruit is cut and wrapped in a piece of paper which is then plastered with wet mud. This is thrown into fire. It is taken out after some time and the mud dusted off. The fruit, thus treated is taken in cases of persistent coughs.

### XIII. COMBRETACEAE

1. Terminalia bellerica Roxb.

Bu/H : BAHERA

The tribals use the fruits for dropsy, piles, diarrhea and also as a remedy for fever.

The gum is demulcent and purgative.

2. Terminalia chebula Ritz.

Bu/H : HEDU/HEDA

Eng : THE CHEBULIC or BLACK MYROBALAN

The leaves are used as fodder. The fruit is eaten when ripe. It is ground into a powder and taken with honey as a cure for coughs.

#### XIV. RHAMNACEAE

1. Zizyphus nummularia (Burm.f.) W.& A.

Bu/H : BER

The bark is used in dysentery and in inflammation of gums.

A paste of the leaves is applied to boils.

2. Zizyphus oenoplia (Linn.) Mill.

Bu/H: BER

The bark is used in dysentery.

An infusion of the leaves is used as an eye lotion in conjunctivitis.

#### XV. EBENACEAE

1. Diospyros montana Roxb.

Bu/H : TENDU

The unripe fruit is are ground and applied to boils and blisters.

The ripe fruits are eaten and much relished.

#### XVI. RUTACEAE

1. Aegle marmelos Corr.

Bu/H : BEL

Eng : BEL FRUIT TREE

The root or stem bark is made into a decoction used for intermittent fevers.



The leaves are made into a poultice used for treatment of ophthalmia. They are also pounded into a pulp and applied cold in form of poultice to unhealthy ulcers. The leaves made into a paste with a little mustard oil give relief from scorpion stings.

The unripe fruit cut up and sun-dried is digestive and stomachic and is taken in diarrhoea and dysentery.

2. Murraya koenigii Spreng.

Bu/H : GANDHLA  
Eng : THE CURRY LEAF TREE

The green leaves are eaten raw as a cure for dysentery. They are bruised and applied externally to cure eruptions. An infusion of washed leaves stops vomiting.

Powdered root mixed with honey and betelnut is considered antiperiodic.

The leaves are used as a spice.

XVII. ANACARDIACEAE

1. Mangifera indica Linn.

Bu/H : AM  
Eng : MANGO TREE

The bark after grinding with water is given for uterine haemorrhages.

The juice of leaves is cooling and is dropped in the eyes in case of boils and inflammation.

The powdered seeds are considered anthelmintic; the kernels of seeds is used in diarrhea and dysentery.

Flowers are astringent; dried flowers are used for chronic dysentery.

#### XVIII. APOCYNACEAE

1. Carrisa carandas Linn.

Bu/H : KARAUNDA

The unripe fruit is astringent and the ripe fruit is cooling and used in bilious complaints.

The root is a bitter stomachic.

2. Holarrhena antidysentrica Wall.

Bu/H : KUDA

The stem bark is mashed into a pulp and applied over wounds, cuts and bruises. For gout and rheumatism: the bark is ground and cooked in water till a thick paste remains, this is applied over the seat of pain.

The fruit is ground into a paste with water and applied to snake bite to allay swelling and irritation.

#### XIX. ASCELPIADACEAE

1. Calotropis procera R.Br.

Bu : AKHADO  
H : AK

The milky juice is used for skin diseases, ring worm of scalp and to destroy piles. It is also applied for

toothache.

The fresh young leaves are roasted and applied to joints and swellings in pain.

The root bark is considered an emetic and expectorant.

## XX. VERBENACEAE

### 1. Callicarpa macrophylla Vahl.

Bu/H : DAYA

The stem bark is ground and applied on tongue infections.

The heated leaves are applied to rheumatic joints.

### 2. Clerodendron viscosum Vent.

Bu/H : KHANT

The leaves are used as a tonic, antiperiodic and laxative. They are also considered antihelminthic and are given in ascariasis.

The root is crushed and applied on boils and skin diseases.

### 3. Tectona grandis Linn.f.

Bu/H : SAGON

The bark is a powerful astringent.

The flowers and seeds are used for urinary troubles.

4. Vitex negundo Linn.

Bu/H : SIWALI

The root is considered a tonic and expectorant.

The leaves are used for various purposes. A decoction of leaves and black pepper is taken in catarrhal fevers with heaviness of head and dullness of hearing. The juice of leaves removes foetid discharges and worms from ulcers. Warm leaves are applied on inflammatory swellings of joints from acute rheumatism. The juice of leaves is dropped in the eye for boils occurring in the inner eyelid.

**XXI. MENISPERMACEAE**

1. Cissampelos pariera Linn.

Bu/H : PARI

The dried root is given in fever, diarrhea and dysentery. It is also taken as a tonic.

2. Tinospora cordifolia Miers.

Bu/H : GILOE

The entire plant is used in fever, skin diseases, rheumatism, dyspepsia.

The root is a powerful emetic.

For alimentary disorders of animals, specially in dyspepsia, a mixture of chopped onions, karela leaves and chopped giloe is mixed with fodder.

## XXII. PIPERACEAE

1. Piper betle Linn.

Bu/H : PAN

The leaves are warmed and smeared with oil and then applied over the chest in cough and dyspnoea. They are also ground with Trachyspermum ammi and turmeric and taken with lukewarm water in coughs.

## XXIII. PAPAVERACEAE

1. Argemone mexicana Linn.

Bu/H : KANTELA

The yellow juice is considered a medicine for jaundice and cutaneous affections. It is applied on blisters and ulcerous wounds. It is considered cooling and is also applied on eye inflammations.

The seeds are emetic.

## XXIV. FUMARIACEAE

1. Fumaria indica (Hausk.) Pugsley.

Bu/H : KHAIRU

It is a herb and when dried it is used as a diuretic, blood purifier and also anthelmintic.

## XXV. AMARANTHACEAE

1. Amaranthus mangostanus Linn.

Bu/H : CHAULAI

It is a herb and much relished as a vegetable.

2. Amaranthus hybridus Linn.

Bu/H : MARCHHA

A decoction of roots or leaves is given in diarrhoea.  
Poultice of leaves is applied over inflamed areas.

Like chaulai, it is also cultivated by the locals for food.

3. Achyranthes aspera Linn.

Bu/H : CHIRCHIRA

Eng : THE PRICKLY CHAFF FLOWER

The whole plant has astringent and diuretic properties.

The dried leaves are smoked in asthma.

The juice of the flowering spikes is considered an antidote to scorpion sting.

The seeds are used in hydrophobia and snake bite.

4. Celosia argentea Linn.

Bu/H : SIRALI/SARWLI

The seeds of this herb are considered a purgative.

**XXVI. SOLANACEAE**

1. Datura stramonium Linn.

Bu/H : DHATURA

The leaves are smoked with tobacco for asthmatic complaints. They are also tied over boils and ulcers. Dhatura leaves are also used as a part of remedy for

the treatment of tumours.

The seeds are crushed and applied for toothaches. The seeds along with the stem barks of Azadirachta indica and Ficus religiosa are a part of a remedy for piles.

2. Solanum nigrum Linn.

Bu/H : MAKOI

The infusion of this herb is useful in dysentery and stomach complaints.

The leaf juice is used over ulcers and skin diseases.

3. Solanum surattense Burm.f.

Bu/H : KANTAKARI

The root of this herb is considered useful for asthma and bronchitis.

## XXVII. CONVULVULACEAE

1. Cuscuta reflexa Roxb.

Bu/H : AMARBEL

The plant is considered to have a cooling effect, and is crushed and kept over the head as an icepack, for severe headaches. It is crushed and tied over the stomach of small children to promote micturition.

The whole plant is pulverized and mixed with dry ginger and butter and is used to clean inveterate ulcers. It is also used for bilious disorders.

## XXVIII. ACANTHACEAE

1. Adhoda vasica Nees.

Bu/H : SAFED BANSA

This shrub is abundant in the rocky dry bed of the river.

The dried bark is smoked to relieve asthmatic fits.

The leaves are taken with ginger for coughs. They are also dried and smoked in asthma. A decoction of fresh leaves is useful in bronchial catarrh. A strong decoction is also used to reduce swellings & in rheumatic pains.

The flowers are bound over eyes to cure inflammation.

The locals make vegetable preparations of the tender leaves and flowers.

## XXIX. LABIATAE

1. Colebrookia oppositifolia Sm.

Bu/H : BIND/BINDI

The leaves are applied to wounds and bruises. For ophthalmia of the cattle:

Tender leaves are chewed along with a little salt and this mixture is spit into the eyes of the animal.

The plant is also a fodder for the animals.



2. Leucas linifolia Spreng.

Bu/H : GUMA

For skin afflictions and ring worm of the scalp, the guma flowers are crushed and applied externally.

3. Pogostemon plectranthoides Linn.

Bu/H : KALA BANSA

The leaves are warmed and applied over wounds. For whooping cough: the ashes of the leaves are mixed with honey and taken internally.

MONOCOTYLEDONS

XXX. DIOSCOREACEAE

1. Dioscorea versicolor Wall.

Bu/H : GENTHI

This large tubers of this climber used to supply the greater of the food for the tribe in the earlier days, when grain was scarce; even today they are eaten as vegetable. Before being cooked they are steeped for a night in ashes and water to remove their acidity.

The tubers are fried and eaten in fevers especially pneumonia.

In earaches: a tuber is hollowed and filled with mustard oil and then warmed over fire. The oil is then drooped in the ear.

The taxonomic position of the families mentioned in the field report is as under:

Phylum Angiospermae  
Subphylum Dicotyledonae

Division I. Lignosae

- Order 1. Annonales
  - Family 1. Annonaceae
- Order 2. Leguminales
  - Family 2. Ceasalpinaceae
  - 3. Mimosaceae
  - 4. Papilionaceae
- Order 3. Urticales
  - Family 5. Moraceae
- Order 4. Thymelaeales
  - Family 6. Nyctaginaceae
- Order 5. Capparidales
  - Family 7. Capparidaceae
  - Family 8. Moringaceae
- Order 6. Malvales
  - Family 9. Malvaceae
- Order 7. Euphorbiales
  - Family 10. Euphorbiaceae
- Order 8. Ochnales
  - Family 11. Dipterocarpaceae
- Order 9. Myrtales
  - Family 12. Myrtaceae
  - Family 13. Combretaceae
- Order 10. Rhamnales
  - Family 14. Rhamnaceae
- Order 11. Ebenales
  - Family 15. Ebenaceae
- Order 12. Rutales
  - Family 16. Rutaceae
- Order 13. Sapindales
  - Family 17. Anacardiaceae
- Order 14. Apocynales
  - Family 18. Apocynaceae
  - Family 19. Asclepiadaceae
- Order 15. Verbenales
  - Family 20. Verbenaceae

Subphylum Dicotyledonae

Division II. Herbaceae

- Order 16. Berberidales
  - Family 21. Menispermaceae
- Order 17. Piperales
  - Family 22. Piperaceae
- Order 18. Rhoadales
  - Family 23. Papaveraceae
  - Family 24. Fumariaceae
- Order 19. Chenopodiales
  - Family 25. Amaranthaceae
- Order 20. Solanales
  - Family 26. Solanaceae
  - Family 27. Convolvulaceae
- Order 21. Personales
  - Family 28. Acanthaceae
- Order 22. Lamiales
  - Family 29. Labiatae ( Lamiaceae )

Subphylum Monocotyledonae

Division I. Corolliferae

- Order 23. Dioscoreales
  - Family 30. Dioscoreaceae

## DISCUSSION

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## DISCUSSION

There is hardly any nation in the contemporary world that does not represent a state of ethnic heterogeneity. The differences between the culturally defined groups vary from situation to situation and over time.

Since prehistoric times, India has been the home of multiple ethno-cultural stocks. By the early historic period, cultural diversities between the various ethnic groups of her population became enormous. The different cultural stocks not only co-existed, but there were also contacts between them in harmony as well as conflict. Such a setting naturally provided scopes for assimilation and also a consequent merger of smaller groups of different cultures into the body of larger ones. Through this process of absorption, the tribal ethnic groups were incorporated into emerging and developing Indian civilization. This process of assimilation and consequent merger was already in motion in the country when the British appeared on the scene. At that time there was still a large populace which, in comparison to the upper classes, appeared to belong to a different culture altogether. These groups of people who remained unassimilated were treated as distinct from the rest of the population and, these discretely treated groups constituted the tribals of India.

According to the 1981 census, the ST population in the country is 5.38 crores (54 million) or about 7.5% of the

total population.

The tribes primarily reside in the North-Western Himalayan region; the Chota nagpur plateau; the Western ghats: and the North-East Frontier region.

#### THE TRIBAL PROBLEM

The principle controversies related to the problems of tribals have always been: Assimilation or Isolation?

Isolating the tribals in well defined areas is an impractical and even an undesirable solution. The path open to tribal development is therefore only that of assimilation. Here assimilation signifies bringing the tribals into the fold of development while trying to preserve their culture, art and religion.

#### The Buxas of bhabhar: a case study for assimilation

Though the tribe has been (in the past) relatively isolated in the Tarai-Bhabhar area, it has never been immune to changes. The Mughal period of medieval India has had a considerable influence on its culture. This is supported by the following facts :

1. Muslim influence on the religion.
2. Names given to the variuos functionaries of the Takhat (e.g. Munsif, Darogha, Sipahi) point to the influence of Mughal administration.

In fact the tribe finds a mention in the Ain-i-Akbari. This historical account also provides aspects of the then tribal situation and the efforts made at incorporation of the tribal societies and ethnic groups into the mainstream.

The recent decades witnessed massive changes in the region. These are:

- (i) An efficient irrigation system leading to the development of the bhabhar into a fertile tract; and access to modern amenities.
- (ii) Influx of non-tribals.

The Buxas have today shifted from some of their original beliefs and ways. The earlier man-plant interactions have given way to new ones. These changed equations are discussed below.

#### THEN

Till the 1950s, the bhabhar was covered with thick jungles of the Siwalik foothills. As grain was scarce, the tribe depended on tubers and roots of plants like Dioscorea versicolor (tuber); Diospyros montana (fruit); Zizyphus sps. (fruit); Terminalia chebula (fruit); and tea made from boiling Psidium guyava leaves. Bauhinia vahlii pods were roasted and eaten. These pods roasted and split open, were used as slippers by the tribals.

The diseases that took a heavy toll of life were malaria and smallpox (now eradicated from the region). Due

to the unsanitary conditions of water storage, diarrhoea and dysentery were also prevalent. Other diseases were leprosy, tuberculosis, cataract, glaucoma and trachoma. The tribe considered the causes of these afflictions to be:

- (i) angry deities
- (ii) ancestors and other ghosts, causing trouble.
- (iii) sorcerers and witches, working for hire.
- (iv) loss of soul
- (v) possession by a spirit
- (vi) loss of basic body equilibrium
- (vii) the evil eye

Illnesses believed to have natural causes were treated in non-magical fashion e.g. excessive cold extracted from the body by warm baths or hot poultices; excessive heat removed by treatment with cold herbs; cold leaves applied to head for headaches; and stem barks used to bandage broken bones. For major afflictions, however, the services of the witch-doctor (seyana) were procured.

Animals and animal products also formed a part of ethnomedicine e.g.

- (i) wax from abandoned honey comb heated and rolled in a cloth was tied to the chest of a person suffering from pneumonia.
- (ii) for whooping cough, the dried leaves of Pogostemon plectranthoides and dried ( & subsequently grounded ) crab was given with honey.

(iii) the horns of antelope ground into a paste with water was applied to the chest in case of severe pain during winters.

#### NOW

Though the plants mentioned before (i.e. Dioscorea versicolor, Diospyros montana, Terminalia chebula and Zizyphus spp.) still form a part of the diet; they are not the principal food for the tribe. The efficient water canal system has rendered the soil fertile for cash crops like rice, wheat and Maize.

Plants now important in tribal economy are :

(i) the cash crops.

(ii) Cassia fistula : the pods are collected and sold to the forest department.

(iii) Kamela from Mallotus philippinensis : Kamela is a powdery substance present on the exterior of ripe fruits of this tree. In the months of March-April the fruits are collected and placed in cloth bags which are then beaten until the reddish kamela is removed from the exterior of the fruit. This is then sifted on a fine cloth to free it from the fruit and broken pieces. The fine powdery kamela is sold to the forest department. It is used to make yellow and red dyes.

(v) Bauhinia vahlii leaves sewn to form cups and plates also find a good market.



Ethnomedicine:

In the villages surveyed the tribals are still familiar with the medicinal uses of plants and the faith in the seyana (witch-doctor) to cure afflictions like jaundice, insanity, snakebite and scorpion sting remains. For other major afflictions, however, the proximity to the town has made them depend on allopathic cures.

Some plants earlier used by the tribe in ethnomedicine for certain ailments, are not used as such now e.g. :

	PLANT	USES
1.	<u>Abrus precatorius</u>	abortifacient
2.	<u>Aegle marmelos</u>	root-antidote to snake bite
3.	<u>Albizzia lebbeck</u>	oil from seeds in leprosy flowers-antidote to poison
4.	<u>Tinospora cordifolia</u>	watery extract of root in used in leprosy
5.	<u>Murraya koenighii</u>	bark-to cure bites of poisonous animals

This shift in the traditional medicine is due to the following reasons :

1. The exposure to different cultural stocks and availability of modern amenities.

2. With the change in way of living and the lifting of the dense forest cover the intimate contact with nature is lost. There is therefore a natural tendency to forget the uses of plants once considered important.

Cassia fistula, a well known purgative, and Holarrhena antidysenterica, a strong antidysenteric, are not used as such by the tribe. It is possible that these uses have also been forgotten by them or that the plants were never used as such by the tribe. If the second assumption is correct, it would point to the fact that the ethnomedicine of a tribe is strongly guided by the culture of the people.

Thus the changes in the Tarai-Bhabhar region have lead to a shift in the tribal culture which is reflected in the changed man-plant interactions. Since modernization has increased the pace of assimilatio of most tribes into the mainstream, there is an urgent need to conduct surveys in remote areas and acquire information on the interaction of indigenous people with their plant resources.

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