4.0.0.0 PRESENT STATE OF THE AREA

Since the colonial times the forests of the study area have undergone various changes. The land-soil-vegetation relationships are no longer as simplistic as they were in the past because various developments related to agriculture, settlement, industry and communication have denuded, degraded and altered the density and the composition of the forests and the numerous exotic varieties of trees have been introduced in the region through efforts at regeneration of forests. The present state of the forests still show appreciable links with land and soil characteristics which should be discussed along with the character of existing vegetation cover of the region.

4.1.0.0 CHARACTERISTICS OF LAND

South-western West Bengal exhibits a unique characteristic in its physical features, completely different from the other parts of the state. Geologically the basement rock of the area is formed of Precambrian and Archaean rocks (Gaz. Bir., 1975; Pur., 1985), and the surface rocks are of intrusive origin, being granitic, porphyritic gneiss and schistose rocks (Spate, 1954; Pecsi, 1968). This rock type in combination with climate and weathering process has given rise to some unique geomorphic surface features as well as laterites and lateritic red soils (Biswas, 1987).

4.1.1.0 GEOMORPHIC CHARACTERISTICS

The whole area slopes down from west to east and south-east well marked by the direction of the streams flowing through the area
PHYSIOGRAPHIC PROVINCES OF SOUTH-WESTERN WEST BENGAL

LEGEND
- Hills
- Erosional Plain with Isolated Hills
- Erosional Plain
- Riverine Depositional Plain
- Deltaic Plain

Source: 1) Dr A Banerji, 1970
        2) Charaborty, 1982

MAP 6
(Chatterjee, Gupta and Mukhopadhyay, ed., 1970). The topographic expression in combination with the river valleys, floodplains, uplands and knolls exhibit a well-defined ridge and valley topography characterised by features like isolated hornhardts, gullies and stream-bank erosion. The Ranchi plateau is an erosional surface rather than a planation surface (Pecsi, 1968). Thus the western part of our study area may be defined as the eastern extension of Chhotanagpur plateau. The knolls, ridges and hills are thought to be originated due to differential weathering (Pecsi, 1968). According to Pecsi (1968) the plateau part may also be termed as a fossil surface. The height from sea level in this part exceeds 620 meters in some places (Gaz. Pur., 1985).

In its north, the landscape is more similar to that of the Rarh plain of Murshidabad and Barddhaman (Gaz. Bir., 1975), but its western narrow extensions are actually the extension of the dissected plateau contiguous to Santal Parganas. This part comprising Khoyrasole, Rajnagar, Dubrajpur, Suri, Mahammad Bazar and Rampurhat police stations are located actually on the base of the south-southeast projecting plateau. The projecting spurs, extending eastwards are wavy. These western highlands are resting on impervious hard crystalline rocks while the rest is made up of Gondwana sediments, Tertiaries and laterites, and old alluvium (Gaz. Bir., 1975). Here the surface of the entire area is broken by a succession of these undulations, the general trend being from north-west to south-east. At the western boundary of the area, they rise into high ridges capped with laterites, duly separated by river valleys. Though these ridges appear like sea-cliffs, they are actually spurs. These upland ridges and the ramifications fade out towards the south-east, valleys becoming shallow, gradually merging with the plains. The ridges rise almost to hills in the extreme north of the Rampurhat sub-division. These basaltic hillocks are extensions of the Rajmahal hills. Starting from foot of the Chhotanagpur plateau, they cease abruptly and for a greater part the surface is only slightly hummocky (Gaz. Bir., 1975). There are a few detached hillocks such
SLOPE MAP OF
SOUTH-WESTERN WEST BENGAL

LEGEND

1 ft/mile
2 ft/mile
4 ft/mile
6 ft/mile
10 ft/mile
15 ft/mile
20 ft/mile
105 to 425 ft/mile
425 to 800 ft/mile
800 to 1585 ft/mile
Above 1585 ft/mile

Constructed after maps published by Sen 1970 and NATMO 1982

MAP 7
as Seurapahari, Nanchpahari, Kantapahari and Kangalpahari. High spurs are evident in Mohammad Bazar and Suri police stations. On the south of Mayurakshi valley they sink into undulations. (Gaz. Bir., 1975).

The geomorphic character of the part of the area between the Damodar and the Subarnarekha is more prominent. Administratively the area covers whole of Puruliya and Bankura districts. Physiographically this part forms the last two steps in the descent from the hills of Chhotanagpur plateau to the Damodar plains. It is composed of eastern Ranchi peneplain and western lower Bengal plain. With its old age characteristics the area displays a moderate absolute relief and moderately low relative relief. Absolute relief increases towards the west and south marked by a line of sharply rising but almost flat-topped arches; the gently undulating topography also exhibits some occasional hillocks of old crystalline rocks (Gaz. Pur., 1985).

Because of the step-like character of the area, roughly the 300 meter contour line is the dividing line between the higher western highlands and hills (Gaz. Pur., 1985) and the eastern undulating plains. Occasionally, these high lands have elevations well above 600 meters. The highlands are bordered by steep and precipitous escarpments, eroded headward and dissected by several streams of various sizes. Placing one leg on the lower plain and other on the higher peneplain, numerous dissected ridges stand out with outward facing scarps and splendid waterfalls.

The trijunction of Puruliya, Ranchi and Hazaribagh districts, at the extreme north-west is located at the confluence of the Danka Garha nala that descends from Ghoramara Pahar to the north.

The hills of the area occupy some specific importance. Because these hillocks at present in some parts show considerable vegetative covers and in other parts are completely bare in character and hold some relevance to the tribal culture.
DRAINAGE
SOUTH WESTERN WEST BENGAL

MAP 8
Ajodhya Pahar, an outlier of the Chhotanagpur highlands, forms the main highland part of the whole region and acts as an watershed between Subarnarekha and Kasai. A number of hills, more technically bornhardts occur to the south-east and north, isolated and detached from the present mass (Gaz. Pur., 1985).

In Jhalda area many such outliers rise sharply from a relatively plain surface at 300 meters to more than 500 meters and diversify the local landscape on either side of the Jhalda-Muri road. Among them, Chamtu is the highest point (688 meters) on the south-western flank. Some of these prominences are covered with dwarf jungles whereas others are devoid of vegetation.

Many of these hills have cuboids of rocks on their summits and upper slopes. The weathered blocks of rocks slide down the steeper sides of the hills and come to rest on flatter parts as jumbled masses of rock wastes holding between them some open spaces.

Massive granites and gneisses have formed well balanced tors on numerous hills. Dome shaped hills or the bornhardts of porphyritic granites are common.

The Jhalda and Raghunathpur groups of domes are located in the western and the eastern parts of Puruliya plain respectively. The hillocks like Jaichandi, Jogardhala, Jogweswar, Kalipahar belong to the Raghunathpur domes and the Jhalda group includes the Sikra, Bansa, Dhelaburu hills etc. Sita Pahar, another hillock is located to the west of the Raghunathpur domes. Near Bero railway station, a few other small hillocks also appear (Bhattacharya, 1988).

The major geomorphic or physiographic unity of the region lies in the fact that all rivers draining the area flow eastward or south-eastward almost parallel to one another. The physiographic boundary between the erosional surface and the depositional plain has a special significance in the sense that it is a winding line advancing
towards the east along interfluves and receding westward along the river valleys and almost coinciding with the past extension of the forests. Throughout the history this line has moved back and forth in response to the spatial extension or to withdrawal of cultivation as aftermaths of agricultural prosperity interspersed with famines and in response to political changes (Smithy, 1925).

The major physiographic provinces of south-western West Bengal are the following:

(i) hills in the extreme west, known as Baghmundi-Ajodhya hills (sometimes called plateau) containing on their top a small hillgirt plain and rising to above 600 metres above mean sea level, thought to be an outlier of the eastern Ranchi plateau;

(ii) erosional plain with isolated hills, appearing through the rest of Puruliya and covering also the western flanks of Medinipur, Bankura, Barddhaman and only a negligible area in Birbhum, overlain only by a thin veneer of soil through which rise isolated hills like the granitic domes of Raghunathpur and Jhalda and other hills like Susunia, Biharinath, Bero etc.;

(iii) erosional plain occupies a large part of the area with its north-south extension covering almost the western half of Birbhum, the whole of the Bankura except some small tracts on its west and east, middle part of Barddhaman and Medinipur districts; the eastern boundary of the erosional plain is extremely winding advancing eastward along the interfluves and receding westward along the valleys of the major streams like Subarnarekha, Kansabati, Silabati, Damodar, Ajoy and Mayurakhshi; this area is mostly covered by the so called old alluvium;
GEOHYDROLOGY OF SOUTHWESTERN WEST BENGAL

LEGEND

- Restricted confined aquifer conditions in various depths in consolidated formations with poor groundwater prospects
- Restricted confined aquifer conditions in various depths in semiconsolidated formations
- Limited groundwater prospects in confined/unconfined aquifers
- Aquifers with limited extent occurring at depths between 100 and 150 metres
- Fairly extensive thick aquifers occurring beyond the depth of 150 metres
- High groundwater prospects in confined aquifers

Note: Constructed after maps published by GSI and WATMO
(iv) *riverine depositional plain*, forms the western part of Birbhum and Barddhaman, very small tracts of east and south-east Bankura and compared to them a larger part of Medinipur, this plain has gained extension into the erosional plain to its west through the valleys of the rivers like Subarnarekha, Silabati or Silai and Kansabati or Kasai flowing eastward, the province is covered with new alluvium;

(v) *deltaic plain*, appearing on the eastern part of Medinipur and a narrow belt south of Hugli the province covers a considerable area; the tracts adjacent to the lower courses and the confluence points of the rivers like Kaliaghai, Haldi and Rupnarayan experience tidal waves of the Bay of Bengal which have added salinity in the soils; the tracts also experience active coastal erosion.

4.1.2.0 EDAPHIC CHARACTERISTICS

The entire area, according to our conventional idea of soils, is composed of four soil types. Except the foothills of Baghmundi-Ajodhya hills in the west, almost the entire district of Puruliya is covered with red and gravelly residual soils. On the east of this tract, in a belt extending from north to south comprising western Birbhum, western Barddhaman, western Bankura and western Medinipur are found lateritic soils many of which are true laterites. Eastward further in eastern Birbhum, in north-central Barddhaman and in the western part of Bishnupur sub-division of Bankura, red soils are seen. In the extreme eastern portion of the area are found alluvial soils merging gradually with the alluvial plains of the Bhagirathi-Hugli system. The red gravelly soils of the district of Puruliya are also designated as colluvial soils (Chatterjee, Gupta & Mukhopadhyay, ed., 1970).
In the zones of lateritic soils true laterites are mixed with red soils in which the distinctive characteristic of true laterites, namely, duricrusts are very rare. In their lower layers both mottled and pallied horizons may be present. What we get in the belt next to this type of soil has generally been designated as red soil and it has been accepted that this soil was deposited at the margin of the Bengal basin sometime in the past from the materials derived from the erosion of the Chhotanagpur region (Biswas, 1987). In fact it will not be wrong to call this soil older alluvium. But it has got to be remembered that in many places this older alluvium has lost the characteristics of ordinary alluvium and has given rise to a completely different type of soil within which, in quite a number of places, one may get evidences of laterisation in large scale. Not only that, in number of instances this older alluvium is projected eastward below a thin veneer of newer alluvium (Biswas, 1987).

If we probe a little deeper it will be seen that throughout the entire region a single pedological process operates - a process which goes by the name of laterisation whether on older alluvium or on the eroded residual soils of more western locations. This single process has given the entire region a personality which is different from the character of the newer alluvium. Moreover, the difference appears to be quite distinct wherever the older alluvium and the newer alluvium are juxtaposed. In many places over the interfluves, low cliffs separate the red older alluvium from the grey newer alluvium (Gaz. Pur., 1985). The topographic location of the ferrallitic older alluvium varies from 33 metres above the mean sea level in the district of Medinipur to above 50 metres in the north-western parts of the district of Birbhum (Biswas, 1987).

It is often said that laterite is a fossil soil and that the process of laterisation is equivalent to the death of soil (Zonn, 1986). The life supporting capacity of the laterites and the lateritic soils is very limited because they are almost devoid of humus and clayey materials in the surface horizons causing a very low water retention capacity.
and also because of their extreme rigidity which develops due to the oxidation of the ferrallitic materials in contact with the atmosphere. Only those trees which can penetrate their roots through cracks and fissures of the rigid duricrust and can extract water from great depths are capable of establishing themselves and multiplying their numbers. This is the reason why from immemorial past there was an invariable relationship between these soils and a particular type of vegetation association, namely, the tropical dry and wet forests with sal as the climax vegetation. At present this relationship has been disturbed greatly by anthropogenic factors which we shall examine in detail in relevant sections.

The principal soils of south-western West Bengal are the following:

(i) **Alluvial latosols** are distributed in the three isolated patches such as on the flat tops of Ajodhya hills, in a comparatively large area covering the northernmost part of Puruliya and Bankura districts, western parts of Barddhaman and a narrow crescentic tract of south-west Birbhum and in some areas south of the Suharnarekha river, in Medinipur.

(ii) **Red and gravelly soils with schistose regolith** cover the whole of Puruliya except those parts covered with alluvial latosols, western parts of Bankura and Medinipur and a relatively small area of western Birbhum. These are skeletal soils that contain large amount of gravels and coarse sands.

(iii) **Laterites including lateritic soils** cover large parts of the districts of Birbhum, Bankura, Medinipur and Barddhaman. This soil zone is frequently marked by soil erosion. Lateritic rocks are exposed at many places and large areas of wastelands are without any vegetative cover. The surface of this soil zone is undulated,
SOILS OF SOUTHWESTERN WEST BENGAL

LEGEND

- ALLUVIAL LATOSOLS
- RED AND GRAVELLY SOILS WITH SCHISTOSE REGOLITH
- LATERITE SOILS
- RED SOILS
- RIVERINE ALLUVIUM
- DELTAIC ALLUVIUM

traversed by numerous small rivers which remain dry for most parts of the year except the rainy season during which the soils become subject to severe erosion. Laterite beds with typical honeycomb structure are frequently exposed at several places (Chatterjee, Gupta & Mukhopadhyay, ed., 1970; Biswas, 1987).

(iv) Red soils cover large parts of eastern Birbhum, east-central parts of Barddhaman and east-north-eastern part of Bankura. They are formed due to weathering of older crystalline and metamorphic rocks and are allochthonous as they have been transported from the hills of Chhotanagpur plateau region. They considerably vary in thickness with or without concretions of lime in the profile and murrum or feldspar below. The landscape is also one of eroded sal forests alike that on laterites. The red soils are shallow, coarse-textured, mildly acidic in reaction, poor in organic matter and other plant nutrients. Pisolitic concretions containing sesquioxides are numerous in some places and form blocks resembling laterites (Chatterjee, Gupta & Mukhopadhyay, ed., 1970; Biswas, 1987);

(v) Riverine alluvium is found in small parts of south-east Birbhum, east Barddhaman and Medinipur. The profiles of riverine alluvium have layers without any regular sequence and have irregular stratification, with occasional bands of coarse sand and are yellowish brown in colour. They have nearly neutral pH and average lime and base status, poor in organic matter and available plant nutrients (Chatterjee, Gupta & Mukhopadhyay, ed., 1970); The forests from over the alluvium have vanished long ago due to its agricultural significance.
(vi) Deltaic alluvium is found over a small stretch in the district of Medinipur and has little relevance to the kind of forests which now characterise south-western West Bengal. These degraded saline and alkaline soils were once covered by mangroves but now they are fully cultivated except in newly afforested patches.

4.1.3.0 CLIMATIC CHARACTERISTICS

South-western West Bengal as a whole is characterised by dry and wet subhumid tropical climate within the regime of south-west monsoon. According to Koppen the tract falls under Aw type of climate (Spate, 1954). Climatic difference, even for a shorter distance, may be caused by climatic controls like altitude and presence of vegetation.

This has resulted in clear climatic differences between the two sub-areas of the tract i.e., between the eastern plains and the western highlands (Singh, ed., 1971). Rainfall data shows that the plains receive considerably more rainfall than the western part. In addition, due to the proximity to the southern part of the district of Medinipur is more humid than the north. The rocky bare surface of the plateau area is much hotter than the plains in summer. Micro-climatic differences are consequently found within the dissected areas of the ridges and valleys. Diurnal temperature variation, occurrence of fog, inversion of temperature in local scale are felt in such pockets (Chatterjee, Gupta and Mukhopadhyay, ed., 1970).

Characteristically, the climate of the plateau fringe from Chhotanagpur westward to the border of the plains (Beverley, 1873) was "dry and healthy" (Gastrel, 1863), when surface was not bare as it is today. The climate is very pleasant during the rains which start in June and last, on an average, till the middle of September. When the rest of the major part of West Bengal remains damp and
heavy, in the same season, the area under study remains relatively cool. The winter season is far more bracing and enjoyable (Gastrel. 1863) and the air is clearer than in the eastern plains.

Broadly speaking, the climate of the area is characterized by a hot summer, cool winter with very little difference in seasonal rainfall except for a few pockets (western Burdwan, for example) having oppressive hot summers (Gaz. Bir., 1975). Beyond traditional description, the year may be divided into four sharply recognizable seasons (Gaz. Pur., 1985). From about middle of November starts (i) the cold season which continues upto the end of February, then (ii) the hot weather season follows and extends upto May. Thereafter follows (iii) the south-west monsoon season and continues upto the end of September, (iv) the post monsoon season extends over October and the first half of November.

Distribution of annual average rainfall in the region shows some differences between the districts (Table 2).

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<td>1236</td>
<td>1391</td>
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<td>1428 1498</td>
</tr>
</tbody>
</table>

Source: 1. Directorate of Agriculture, Agricultural Meteorological Section, Govt. of West Bengal 2. Economic Review 1986–87, 1990–91, Govt. of West Bengal
MEAN ANNUAL RAINFALL OF
SOUTH-WESTERN WEST BENGAL

LEGEND

- BELOW 1300 mm
- 1300 - 1400 mm
- 1400 - 1500 mm
- 1500 - 1600 mm
- ABOVE 1600 mm

Based on Chatterjee 1970

MAP 11
The rainfall for the whole area except Medinipur increases from east and north-east towards south-west. To the west, forest-clad hilly areas of the plateau fringe get the highest of the rain for the area. There is very little rain in cold and hot seasons, before the advent of monsoon. Of the total rainfall, 81 percent occurs between June and September, July being the rainiest month of the year. One of the special features of climate is that a considerable proportion of the monsoon rainfall occurs in association with the movement of cyclonic depressions which pass over the area between June and September. Therefore, it is important to note that by no means the monsoon season is a period of continuous rain. This pulsatory character of rain is ideal for growth of agricultural crops, as well as of natural vegetation. Considerable variation in the amount of rainfall is noticeable in the region. For example, the highest annual rainfall in Puruliya district in the fifty year period from 1901-1950, was 136 percent of the normal (occurring in 1917) while the lowest annual rainfall was 61 percent of the normal (occurring in 1915). In the same fifty years, rainfall less than 80 percent of the normal occurred only in two years and these were not consecutive. Puruliya as a whole, western Bankura and western Birbhum in part suffer more from famine conditions than any other districts of West Bengal whenever there is a drought (Gaz. Pur., 1985).

Throughout the region, temperatures rise rapidly from about beginning of the March, May being the hottest month. In this season of summer, mean daily temperature touches to 40.3°C at Puruliya and 39.7°C in Suri (Birbhum). Mean minimums are 27.2°C and 26.3°C respectively. In western Barddhaman (Asansol) and in some pockets of Puruliya, bare rock exposures (Singh, ed., 1971) contribute, in some days of May and June, a little higher average occasionally above 45°C-46°C (Gaz, Pur., 1985). Welcome relief from heat starts when thunder showers occur during this period. The diurnal range of temperature is greatest in the dry months and at least in the rainy season. The day temperature for the whole region starts to decrease with the onset of monsoon. After the withdrawal of the
RAINFALL BARGRAPHS OF SOUTH-WESTERN WEST BENGAL

Based on Chatterjee, 1957
south-west monsoon both day and night temperatures begin to decrease. Drop in the night temperatures, particularly in the hilly tracts, are more rapid. By the end of October, cooler currents of air set in, when, in fine clear weather, the air becomes cool shortly before morning. January is the coldest month for the whole season (Singh, ed., 1971).

During the monsoon seasons, relative humidity is high enough, generally ranges between 75 percent and 85 percent. It decreases gradually after the withdrawal of south-west monsoon. Hot season is driest for the year when, in some areas, it comes down to 25 percent. In the southern portion, due to its proximity to Bay of Bengal relative humidity is higher even in hot weather season than in the northern part. For the area as a whole, moderate cloud cover occurs in May and heavy to overcast condition occurs in south-west monsoon season.

In May and in the post-monsoon season, sometimes storms and depressions from the Bay of Bengal reach the districts and cause widespread heavy rain with strong winds. During the hot weather seasons, thunderstorms are common mostly in the afternoons.

For the region as a whole the annual rainfall varies from 1000 - 1500 mm, 70 percent of which comes between July and September. Summer temperatures in shade may rise to as high as 44°C, frost is unknown. Because of this peculiarly dry nature of the climate and poor soil, the growth of trees is very slow. Run-off is excessive due to the bare and sloping lands with consequent erosion aggravated by clean forest floor, resulting from grazing and repeated annual fires, the latter spreading with incredible speed because of extreme dry conditions prevailing in summer (Dir. of For., 1966).
4.1.4.0 NATURAL VEGETATION CHARACTERISTICS

The forests of south-western West Bengal have been altered much. Once dense and continuous, these forests have been so denuded that no parts of them can be seen as virgin or except in some inaccessible areas they are hardly natural forests in the true sense of the term. (Puri, Meher-Homji, Gupta & Puri, 1960). Empiric observations show that though the periphery of forest-tracts is covered by larger trees, the inner parts are vacant; only thin and stunted bushes are dominant. Whatever the causes of such denudation may be, the continuity and personality of the forests almost in all places have been lost. Due to haphazard forest clearing along river valleys and communication lines, forests have been reduced to isolated blocks of limited area and density. Reduction in the rate of their natural regeneration by erosion of surface soil has in turn caused scarcity of firewood, soil moisture, geochemical nutrients and stunted growth of trees. This bushy vegetation is used mostly as firewood. Even the roots and stumps of the trees are dug out for fuel demand thereby accelerating soil erosion. In parts, on excavated regoliths it is hard to grow even a single blade of grass. Gullies have penetrated to the inner parts of the jungles, by the side of which subsurface root anchorage has become totally exposed. Except in some parts, the forest has been denuded in all sense. There are large gaps, voids or bare rocky spaces in many interior parts of standing forests. This may be one of the causes behind the reforestation of some bare spaces with exotic species having more tolerance than native species. Unlike the cultivation of spices and vegetables under the shades of forests in Sri Lanka (Johnson & Scrivenor, 1981), in south-western West Bengal croplands have been created in the inner parts of forests after clearing out forest trees.

Thus, throughout the south-western fringe, the forests have become scattered and now exist only on small hills and foothills, little on plains and undulating lands (Sinha, 1962). The central tract of the
area, taking Puruliya as the central point, is particularly deficit in forest cover. This comparatively treeless tract extends its arms to near Jhalda on the west, towards Balarampur and Chandil on south-west, to Barabazar and Manbazar on the south, to Hura, Puncha and Kashipur on the east, to Raghunathpur on the north-east and to Chandankiary and Chas of Bihar on the north and north-west (Sinha, 1962). The same is true for all the other forests of the area. In Medinipur, Bankura and Birbhum, the forests have little luxurious growth. In type, they are no longer tropical wet and dry forests but are only stunted dry bushy jungles (Puri, Meher-Homji, Gupta & Puri, 1960).

In general acceptance vegetation refers to the collection of plants (Randall, 1978). Here the term natural vegetation denotes the plant communities (Odum, 1959) of the prescribed area prior to its modification by humans (Goudie, 1985) as well as those species which still exists on the spaces considerably altered by man. Randall (1978) described vegetation quoting Tansley (1939), "plants are gregarious being because they are mostly fixed in the soil and propagate themselves largely in social masses, either from broadcast seed or spores or vegetatively, by means of rhizomes, runners, corns or bulbs and sometimes by new shoots (suckers) arising from the roots. In this way they produce vegetation". Vegetation forms the most important component of ecosystem of the space where it exists (Simmons, 1974) and is an extremely important element of the landscape (Randall, 1978). From the dawn of human civilisation plants had been the very basis of man's existence giving him all resources he needed to survive. Beginning from the prehistory to date, either directly or indirectly via animals (Kormondy, 1969), greenplants have provided his food, clothing, housing, industrial raw materials and above all, the condition of environment in which man lives in (Randall 1978). It should be remembered that the Industrial Revolution of Europe has come out of the ashes of forests (Johnston, Grayson & Bradley, 1967). Man clears out of forests to an extent he needs for settlement or he plants trees where it is absent (Mather,
1986). For our specific study area, natural vegetation was more than a resource base through which the evolution of physical and cultural environment has been achieved. Consequently we feel the necessity to analyse in short the characteristics of natural vegetation.

Various literature, records and reports show that this area once covered by impassable forests (Biswas, 1976; Gaz. Pur., 1985) with trees of larger growth (Gastrel, 1863). Schlich (1885) described that from Manbhum (now Puruliya) to Bankura, Medinipur to Singbhum, the whole of Chhotanagpur once constituted a "vast sea of sal forest". Even at the end of the 19th century, Sal forest existed throughout most parts of the area. This informs us about the dominant species of vegetation. This tract was first named Jharkhand (forest tract), a portion of the great Dandaka Forest (Beverley, 1873) and later named the Jangal Mahal (Jha, 1967). The northern part of this tract formed Damin-i-koh or hills covered by dense jungles (Beverley, 1873).

The natural vegetation of the area is essentially arboreal but it has been devegetised in such a scale degraded and cleared replaced by shrubs, bushes, pastures and cultivated fields that this statement is of no practical significance today (Gaz. Pur., 1985). Being a part of the past Jangal Mahal, it was a land of tropical moist deciduous forests which now have been degraded into tropical dry deciduous forests (Puri, Meher-Homji, Gupta & Puri, 1960). Degradation has been invited through biotic interferences like shifting cultivation, fire, grazing and mostly by unwise forest management. Such interferences have affected the vegetation character of the area either by checking the progression of vegetation to the higher successional stages or by bringing about a retrogression.

The natural vegetation of the area, as described by Sinha (1962), conforms to Champion's peninsular type of A.3.
In the revised classification of Champion and Seth (1968) the vegetation of the area has been classified as Tropical Dry Deciduous Forest of Group-5, the sub-groups being 5A/C3-southern mixed deciduous forest, 5B/C1-dry sal bearing forest, 5B/C1C-dry peninsular sal forest and 5/D31 - dry deciduous scrub forest and also 4B/C2 northern tropical dry deciduous-dry sal group (Dir. of For., 1966).

Throughout the area, three types of vegetational landscapes (Gaz. Pur., 1985) may be identified. Firstly, the patches of land under cultivation on the better watered plains. Secondly, widely spaced savanna like low trees, shrubs and tufts of various annual grasses on more undulating surfaces. Attacked and destroyed by soil erosion and badlands, this open forest-cum-grassland association looks like a wild park. Growing singly or in groups in specifically favoured areas, they do not form any continuous cover. The important plant species in this wild park are ashsheora, bel, chalta, sajina, bhat, chikum, shiora and dumur. Some other varieties of figs, most notably pipal or ashwattha and bot with simul, aam, kul, siakul, amra, jiyal, nim, palas, sirish, sotsal, tentul, sidha, kadam, karam, mahua, kendu, lodh, kanthal etc. make up the arborescent part of these thickets. Bans, khejur and tal also occur in large numbers.

A number of creepers, hedges and stunted shrubs grow in these tracts and in khowais or khulas, most important to mention are the naturalized exotic varenda, ban okra, the hog-gum and soft silk cotton producing golgol, various species of fibre yielding shrubs, colic pain killing maronphal, the culinary oil producing climber raerui, safed bhangra, alkushi, bichuti, dhutura are important to mention. Several bushy species are habla, dye yielding mehendi, dhatki, the fragrant sitik, akanda the inner bark of which produces a strong fiber used for bow strings, the silky hair covering the seeds for stuffing pillows and the root as a dye and similar trees are present.
The more distinguishable species of upland scrub jungle are *gamar*, *dacom*, *kurchi*, *indrajaba*, *nishinda*, *asan* etc. The scrub jungle gradually merges into the forests. The third category covers wooded patches forming actual forests in the inaccessible uplands of Ajodhya, Baghmundi, Panchet and Dalma and the upper catchments of the rivers. But even in these tracts the forests are rarely virgin and is more of secondary growth followed by clearing. These dry deciduous secondary forests are neither dense nor lofty in comparison to the virgin moist deciduous forests as they grow usually on impoverished soils (Gaz.Pur., 1985).

The upper canopy of these forests are closed, though uneven, due to a combination of different species. The trees sometimes reach a height of about 20 metres, a height half of the original moist deciduous forests of the past (Gaz. Pur., 1985).

The top canopy in the forest area is represented predominantly by *sal* forming a considerable reserve. The usual associates of *sal* are *khair*, *haldu*, *bahera*, *simul*, *pial*, *palas*, *kendu*, *amlaki*, *gamar*, *sidha*, *mahua*, *sona*, *pea sal*, *bhela*, *kusum*, *rehan*, *arjun*, and *haritaki*.

The undergrowth of the forests and their outskirts usually contain species of *jati*, *geio* or *kantakoi*, *karanda*, *bhai birrang*, *parshi*, *bincha*, *kurchi*, *sakina*, *rangan*, *champa baha*, *kokoaru*, *pind khejur*, *chakulia*, *dhai*, *moyena*, *kul*, *siakul* etc. Some of the common lianes and climbers of the forest regions are *satamul*, *lata palas* or *bandan*, *anantamul*, *dudhi lata*, *alkusi*, *kumarika* etc. Parasites and hemi-parasites like *akasbel*, *sarna lata* and *bara manda* are also found. Epiphytes and ferns are rare and are represented by *rasna*, *nanha*, *bhut raj* and a few other species.

The best known fodder grasses found almost throughout the area are *durba* and *bachkom*. *Kher* or *sauri* are grasses tall enough and used for thatching of mud houses. Besides, most of the undergrowth and shrubs, in some cases leaves of higher trees are
used as cattle feeds. The botanical names of the vegetation species mentioned above are presented in Appendix I.

Morphologically, all the vascular trees are reasonably woody enough, trunks are of considerable diameter and except sal others are densely branched with broad leaves. The leaves are so flat and broad that they are suitable for making plates and wrappers. Particularly the trees of mahua, teak and sal are relatively broader than others. The leaves are very rich in green chlorophyll. The tops of vascular trees except sal form a canopy of larger size, umbrella-like in shape (Puri, Meher-Homji, Gupta & Puri, 1960). The trees are hardwood deciduous which keep a balance of photosynthesis and preservation of water by reducing evapotranspiration through leaf in summer when soil moisture deficiency arises (Odum, 1959). The tree roots are fairly well branched to collect sap from distance and long enough to reach the moisture level, sometimes penetrating through the cracks of hard rocks. The roots of bushes, undergrowths and grasses spread horizontally through the moist upper layer of the soil but are short in depth due to the existence of hardpan gravelly duricrust just below the upper layer of the soil.

On the basis of ownership, all forests are Government Forests, managed by the Forest Department, Government of West Bengal. According to the basis of Legal Status the forests are classified into

(i) Reserved Forests and
(ii) Protected Forests (Sinha, 1962).

On the basis of composition all the forests fall into Subtropical Dry Deciduous Forest (Puri, Meher-Homji, Gupta & Puri, 1960).

A clear succession is visible throughout the area. Broad successional belts intervened by cultivated stretches spread out almost in all directions starting from small pure stands of sal which are found only towards the interiors of individual forest areas with
compositions as sal mixed with sidha and parasi, sidha and parasi mixed with mahua and palas, mahua and palas forming pure stands, and palas (found in more extensive stretches in Puruliya district particularly), simul, babla and khair followed by stunted xerophytic thickets. Some basic points regarding the terms to be used here solely to denote vegetation such as 'forest', 'woodland', 'tree communities' etc. are to be remembered. This is because over greater parts of India, the natural vegetation is basically one or other kind of forest (Puri, Meher-Homji, Gupta & Puri, 1960).

The forest climaxes for all over India have been largely destroyed and replaced at cases by grasslands, scrubs, savannas, and at cases into deserts through continued exploitation by man and his demesticated animals. These altered biotic or bio-edaphic communities may represent post-climax, pre-climax and sub-climax stages. In considerable areas relief communities that are quite unlike the surrounding vegetation, do not conform to the conventional definition of a forest (Puri, Meher-Homji, Gupta & Puri, 1960).

According to Chambers Twentieth Century Dictionary, the word forest means "a large uncultivated tract of land covered with trees and under wood". It denotes, in a common sense, a group or stand of trees in a closed canopy (Puri, Meher-Homji, Gupta & Puri, 1960).

"A forest is a closed homogeneous or diverse assemblage of trees allowing no break in the overhead canopy" (Willis, 1951).

"Woodland is the vegetation of woody plants and trees growing in a closed condition constituting a forest" (Schimper, 1923).

A forest is "an area set aside for the production of timber and other forest products or maintained under woody vegetation for certain indirect benefits which it provides e.g. climatic or protective" (Indian Forest Records, New Series, 1936, cited by Puri et.al.).
According to the World Forest Inventory of FAO (1960), forest may be defined as "All lands bearing vegetative associations dominated by trees of any size, exploited or not, capable of producing wood or of exerting an influence on the local climate or on the water regime, or providing shelter for livestock and wildlife" (cited by Puri et. al.)

In its ecological sense, the term forest signifies a complex organism, composed of distinct biological units known as forest communities which have resulted by the action, reaction and co-action combinedly by a variety of organisms with the complex factors of the habitat that themselves change in space and time (Puri, Meher-Homji, Gupta & Puri, 1983).

The term "jungle" at present is used to describe a collection of trees, shrubs, scrubs etc. which are not grown regularly, as contrasted with 'forest' which means any vegetation under systematic management. Even barren wastelands are sometimes classified under forests for the purpose of afforestation (Gaz. Pur., 1985).

According to the latest classification of forests of this area made by the Department of Space with the help of remote sensing data, the accepted categories are dense sal, dense mixed sal, open sal, open mixed forest, eucalyptus and degraded forest (Principal Chief Conservator of Forests, West Bengal, 1991). If all these categories are considered to be forest proper, then the area of our study seems to have a forest cover to the tune of 25.67 percent of the total geographical area (excluding the plains of eastern Barddhaman and eastern Birbhum). But if the degraded forests are omitted from such a consideration, then the forest cover is reduced to 17.96 percent of the geographical area (Tables 3 & 4).
Table 3

CLASSIFICATION OF FORESTS IN SOUTH-WESTERN WEST BENGAL: 1990-91

<table>
<thead>
<tr>
<th>Classes</th>
<th>Bankura</th>
<th>Medinipur</th>
<th>Puruliya</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dense sal</td>
<td>261.10</td>
<td>439.50</td>
<td>48.07</td>
<td>748.67</td>
</tr>
<tr>
<td>Dense mixed forest</td>
<td>109.47</td>
<td>62.09</td>
<td>195.28</td>
<td>366.84</td>
</tr>
<tr>
<td>Open sal</td>
<td>916.40</td>
<td>1235.62</td>
<td>111.94</td>
<td>2263.96</td>
</tr>
<tr>
<td>Open mixed forest</td>
<td>380.28</td>
<td>173.64</td>
<td>758.78</td>
<td>1312.70</td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>29.62</td>
<td>165.36</td>
<td></td>
<td>194.98</td>
</tr>
<tr>
<td>Degraded</td>
<td>648.33</td>
<td>321.60</td>
<td>1129.74</td>
<td>2099.67</td>
</tr>
<tr>
<td>Total</td>
<td>2345.20</td>
<td>2397.81</td>
<td>2243.81</td>
<td>6986.82</td>
</tr>
</tbody>
</table>


Table 4

PERCENT AREA UNDER FOREST CLASSES 1990-91

<table>
<thead>
<tr>
<th>Classes</th>
<th>Bankura North</th>
<th>Bankura South</th>
<th>Medinipur</th>
<th>Puruliya</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dense sal</td>
<td>4.05</td>
<td>3.45</td>
<td>3.12</td>
<td>0.77</td>
</tr>
<tr>
<td>Dense mixed forest</td>
<td>0.98</td>
<td>2.91</td>
<td>0.44</td>
<td>3.12</td>
</tr>
<tr>
<td>Open sal</td>
<td>13.54</td>
<td>13.02</td>
<td>8.78</td>
<td>1.79</td>
</tr>
<tr>
<td>Open mixed forest</td>
<td>4.51</td>
<td>6.85</td>
<td>1.23</td>
<td>12.12</td>
</tr>
<tr>
<td>Eucalyptus</td>
<td>0.39</td>
<td>0.48</td>
<td>1.17</td>
<td></td>
</tr>
<tr>
<td>Degraded</td>
<td>8.05</td>
<td>11.21</td>
<td>2.28</td>
<td>18.05</td>
</tr>
<tr>
<td>Total</td>
<td>31.52</td>
<td>37.92</td>
<td>17.02</td>
<td>35.85</td>
</tr>
<tr>
<td>Without degraded forests</td>
<td>23.07</td>
<td>26.71</td>
<td>14.74</td>
<td>17.80</td>
</tr>
</tbody>
</table>

4.1.5.0 LANDUSE CHARACTERISTICS

The pattern of land utilisation of the area under study manifests a close relationship between the general topographic specialities and the productive occupation of land (Biswas, 1976). Compared to the landuse of the eastern districts contiguous to this region, the most important features of land and their modes of utilisation are the relatively higher proportion of barren and wastelands and a significantly large area under forests.

Throughout the region, relief differences are associated with differences in the nature of landuse with the plain showing a heavy concentration of agriculture and population. The principal cause behind this is that movement on rugged terrain is always more difficult and strenuous than on flat plains. But what is significant for the western lateritic terrain is that relief has not been a limiting factor to productive occupation. The absence of alternative grounds to break has compelled the inhabitants to make this area economically productive with intensive labour.

The major part of the total geographical area is used as agricultural lands. Most suitable agricultural lands are concentrated mainly in the eastern parts of the districts. These are alluvial flat lands formed by the deposition of rivers flowing from the west, and are similar to those alluvial flat lands of Hugli and Haora districts. This type of lands in the western undulated tracts are distributed in narrow belts along the valleys of rivers and their tributaries, though the soils are not as deep and moist as in the eastern plains (Tables 5 & 6).

The area under forest is fairly large though the actual vegetation coverage is debatable. Within the area legally marked as forest, vast areas are found to be bare, treeless or sown with crops. Figures presented in different settlement and survey reports create enough confusion regarding the area under forests (Mitra, 1953). Of late,
Table 5

LAND UTILIZATION IN PERCENT IN WEST BENGAL

<table>
<thead>
<tr>
<th></th>
<th>1985-85</th>
<th>1985-87</th>
<th>1988-89</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Net area sown</td>
<td>63.6</td>
<td>61.1</td>
<td>60.3</td>
</tr>
<tr>
<td>2. Current follows</td>
<td>0.7</td>
<td>3.9</td>
<td>4.5</td>
</tr>
<tr>
<td>3. Area under forests</td>
<td>13.4</td>
<td>13.4</td>
<td>13.4</td>
</tr>
<tr>
<td>4. Area not available for cultivation</td>
<td>15.6</td>
<td>18.7</td>
<td>19.4</td>
</tr>
<tr>
<td>5. Other cultivated lands excluding current follows</td>
<td>6.7</td>
<td>2.9</td>
<td>2.4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>


Table 6

BROAD LANDUSE STATISTICS: 1990-91

<table>
<thead>
<tr>
<th>Classes</th>
<th>Bankura</th>
<th>Medinipur</th>
<th>Puruliya</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>3014.49</td>
<td>8522.02</td>
<td>2777.38</td>
<td>14313.89</td>
</tr>
<tr>
<td>Forest</td>
<td>2345.14</td>
<td>2397.81</td>
<td>2243.81</td>
<td>6986.76</td>
</tr>
<tr>
<td>Wastelands</td>
<td>976.1</td>
<td>849.23</td>
<td>844.52</td>
<td>2669.85</td>
</tr>
<tr>
<td>Build-up Area</td>
<td>43.47</td>
<td>112.29</td>
<td>51.35</td>
<td>207.11</td>
</tr>
<tr>
<td>Water Bodies</td>
<td>270.39</td>
<td>1049.96</td>
<td>225.9</td>
<td>1546.25</td>
</tr>
<tr>
<td>Roads, rail &amp; unclassified</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>232.68</td>
<td>1149.49</td>
<td>115.82</td>
<td>1497.99</td>
</tr>
<tr>
<td>Total</td>
<td>6882.27</td>
<td>14080.8</td>
<td>6258.78</td>
<td>27221.85</td>
</tr>
</tbody>
</table>


78
cultivation has encroached into the forests in most areas and the forests exist on hillslopes, piedmonts and discontinuous upland patches. It is necessary to mention that though it is difficult to show how exactly lands under agriculture has expanded, it is found to appear from the landuse statistics that agricultural lands have increased considerably through the last half century by land reclamation out of extensive forest tracts, though an opposite trend may be discerned in very recent years.

Availability of water is the most important determinant of both landuse and cropping pattern. Flowing over these lands, the rainfed rivers like Mayurakhsi, Ajoy, Damodar, Darakeshwär, Kasai and Silai fail to provide the terrain with easy irrigation, while the eastern plains are endowed with the huge run-off from the western undulations. Irrigation potentiality in these two parts naturally differ greatly. The main source of irrigation in the western parts are tanks and bundhs from accumulation of run-off water. So irrigation and agriculture depend on the amount and distribution of rainfall (Gaz. Pur., 1985). Thus there exists every possibility of crop failure during the long dry spells or in the years when rainfall is below normal. And if so, the dams in the lower reaches of the rivers flowing over this area would not have adequate storage of water to provide irrigation to the plain areas. An appropriate strategy to be taken to cope with this situation have been suggested by Biswas and Bandyopadhyay (1977).

Agricultural lands are divided according to slopes and geomorphic location. According to the local nomenclature, from upslopes to low lands, they are known as tanr or gora land, baid, kanali and bahal, in Puruliya and Bankura in particular. Tanr or gora is also known as jedanga or danga in Birbhum and as kala in Medinipur. Baid is coterminous with dhosa in Medinipur and suna in Birbhum and Barddhaman. Birbhum's closest counterpart of kanali is olan or ola. Bahal in other places is generally called sali or awl.
Of these, the bahal or low lands are the most productive and high priced lands used for growing paddy, both aman and boro. Quality of soil and productivity of land decreases gradually from bahal to gor lands in successively upper slopes.

It has been already mentioned that forests and cultivated lands have interchanged their positions in consonance with periods of famine and phase of prosperity, particularly at their margins. Usually when cultivation extended into forests either during the colonial past or even in recent times, it was mainly the baid or suna lands which were commissioned first under rainfed agriculture. Within the canal commands of Mayurakshi, Damodar and Kansabati systems, however, even the danga lands were brought under the plough as these lands are located close to the main branches of the gravity-flow canals. Within hill-forest associations cultivation has replaced forests from two ends, from gor lands reclaimed out of forests are given to rainfed crops on or along ridge-tops and spur-crests, and from kanali lands reclaimed out of river-bank forests with intensive labour and subsequently given to irrigated crops. Although cultivated lands may show some shrinkage in recent years due to the spread of settlements and communication lines, their increasing dominance is responsible for the dwindling forest area of the present time.

4.2.0.0 CHARACTERISTICS OF THE PEOPLE

The people of this region demands a separate treatment for the fact that in other region of West Bengal or India, for that matter, one can find a comparable assemblage of so many races or tribes (Beverley, 1873). The so called Chuars (Hunter, 1883) and the aryanised Bhadraloks need to be seen in terms of their ethnic composition and occupational characteristics as these two facts may have important inter-connections.
DENSITY OF POPULATION, 1971
SOUTH-WESTERN WEST BENGAL
DENSITY OF POPULATION, 1981
SOUTH WESTERN WEST BENGAL

MAP 14
DENSITY OF RURAL POPULATION, 1991
SOUTH-WESTERN WEST BENGAL

PERSONS / Sq. Km

MAP 15
Ethnicity, in the real sense of the term, has been obscured due to increasing intermixture of blood and culture. But ethnic traces can still be found through religion and language. Unfortunately, such data are not published due to socio-political reasons. At the same time due to another kind of socio-political reason, the population is divided into constitutional categories of scheduled castes, scheduled tribes and others. In this regard also, the final figures of Census 1991 are yet to be available, but whatever information can be gathered from Primary Abstracts supplemented by field observations may be summarized as follows. (Table 7)

Table 7

Percentage of Major Ethnic Groups

<table>
<thead>
<tr>
<th>District</th>
<th>Scheduled Caste</th>
<th>Scheduled Tribe</th>
<th>Muslims</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birbhum</td>
<td>38</td>
<td>7</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Barddhaman</td>
<td>31</td>
<td>6</td>
<td>17</td>
<td>46</td>
</tr>
<tr>
<td>Bankura</td>
<td>35</td>
<td>10</td>
<td>6</td>
<td>49</td>
</tr>
<tr>
<td>Puruliya</td>
<td>19</td>
<td>19</td>
<td>5</td>
<td>57</td>
</tr>
<tr>
<td>Medinipur</td>
<td>18</td>
<td>8</td>
<td>8</td>
<td>66</td>
</tr>
<tr>
<td>5 District Average</td>
<td>28</td>
<td>10</td>
<td>13</td>
<td>49</td>
</tr>
</tbody>
</table>

Source: Primary Census Abstracts, 1991
The entire area has experienced an average decadal growth rate of nearly 22 percent from the base year of 1971. Within this overall growth the relative proportions of the scheduled castes and scheduled tribes have remained more or less the same as also of Muslims and others. There is, however, one particular point to mention in this connection. The scheduled caste population in West Bengal has shown an increase from 20 percent of the total population in 1971 to nearly 24 percent (23.62) of the total population in 1991. In the broad study area this percentage has gone up from 22 in 1971 to nearly 28 in 1991. While field investigations indicate that there has been no positive change in the natural growth rates of the different groups of people, the relative growth in the number of scheduled caste people is due to the fact that a large number of persons have declared themselves as scheduled caste on the basis of their surnames as this would help them to secure jobs under the provisions of reservations accepted by the Government. Consequently the percentage of people belonging to the non-scheduled and non-Muslim communities has gone down from around 54 in 1971 to 50 in 1991 in West Bengal and from nearly 55 in 1971 to 49 in 1991 in the five districts comprising the study area.

While caste-wise and tribe-wise enumeration of population is not done in recent censuses, one may very well refer to the 1941 Census in which 73 caste names along with their populations were recorded for the different districts of West Bengal. Interestingly at least 10 out of these 73 are identified as tribes in the general understanding of the ethnic situation in Bengal. According to anthropologists and sociologists these 10 groups along with a few other constitute the tribe-caste continuum (Sinha, 1965). These are, namely, Bhumij, Ho, Kurmi, Kora, Kharia, Lodha, Mahali, Malpaharia, Parhaia, Sabar, Dosadh, Lohar, Rajwar etc.

According to 1941 Census enumeration Bhumij, Lodha, Kharia and Kora were numerically dominant in Medinipur; Kharia, Lohar, Bhumij and Kora in Bankura; Kora, Kharia and Lohar in Birbhum and Bhumij,
Kharia, Kora and Lohar in Barddhaman districts. In case of Puruliya this type of data for that period is not available, and therefore similar information have been taken from Manbhum district Census Handbook. Here the dominance of the tribe-caste continuum, according to numerical strength, are Bhumij, Kurmi, Kora, Oraon, Mahali, Korwa and Savar. It signifies that Puruliya has some groups of people under this category who are not dominant in the other four districts of the study area.

The 1941 Census has no reference to Puruliya because the district was non-existent during that time. But it is quite possible to derive some information about the then ethnic composition of the tract now named as Puruliya from the Manbhum District Census Handbook of 1951, Manbhum District Gazetteer 1911 edited by Coupland and the Census figures of 1961 and 1971 pertaining to Puruliya about what could have been the probable estimates of the number of scheduled castes and tribes in 1941. These estimates along with the 1941 census figures for the districts of Bankura, Barddhaman, Birbhum and Medinipur place the scheduled caste population of these five districts at around 1,828,000 and the scheduled tribe population at nearly 468,000 by including Bhumij and Rajwar people within the scheduled castes as was done by the 1941 Census itself. Later in 1961, Bhumij and Rajwar populations were identified as scheduled tribes. If this definition were extended back to 1941, then the populations of scheduled castes and tribes would have been 1,786,000 and 679,000 respectively in 1941.

According to 1941 definition of castes and tribes, the five districts had at least 24 scheduled caste groups whose individual populations exceeded at least a hundredth of the total scheduled caste population of the region. These castes along with their percentages to the total scheduled caste population of the region are Bauri(22), Bagdi(21), Muchi(7), Bhumij(6), Dom(6), Patni(5), Hari(4), Mal(4), Namasudra(3), Sunri(3), Lohar(2.7), Dhoba(2), Jalia Kaibartta(2), Kharia(2), Kora(2), Rajwar(1.3), Bhuiya(1.3), Chamar(1), Konai(0.9), Kandra(0.7), Lodha(0.7), Mahali(0.5), Kotal(0.3) and Dosadh(0.2).
There were some regional differences as to the dominance of different castes in different districts. In Puruliya, Bauri, Bhumij, Rajwar, Hari and Lohars were dominant; in Medinipur, Bhumij, Lodha, Kora and Kharia; in Bankura, Bauri, Bagdi, Lohar and Kharia; in Birbhum, Bagdi, Bauri, Dom and Hari and in Barddhaman, Bagdi, Bauri, Dom and Hari were the most important groups.

The scheduled tribe population excluding Bhumij and Rajwar in 1941 was 597,000 with Santals 459,000 (97.04%), Mundas 13,000 (2.18%) and Oraons 4,700 (0.78%).

If the Bhumij and the Rajwar are included in the scheduled tribes, then the distribution would be as follows: Santals (91.00%), Mundas (2.00%), Oraons (0.70%), Bhumij (4.40%) and Rajwars (1.90%).

The above mentioned principal castes and tribes have survived through the last half a century with equal facility as they did in the past and therefore are present in the area in almost the same proportions as of 1941. The 1971 and 1991 Census statistics of scheduled castes and tribes should bear out the fact that their relative proportions in the total population have not appreciably changed except in the case of scheduled tribes in recent years due to socio-political reasons as mentioned earlier.

The tribals of south-western West Bengal partially subjected to aryan influences may be rightly designated as aboriginals. The term aboriginal here used does not mean that they were or are the indigenous autochthones of this land (Beverley, 1873). It signifies that these people were non-aryans to whom there has been less admixture of aryan blood and culture which has left its impressions upon the inhabitants of riverine plains (Hunter, 1883). What happened to the other tribes of India, wave after wave of immigration of different races have poured into India in the long past, each tribe had been successively pushed on in turn by more valiant or more numerous invaders. The aboriginals now settled in
this tract had followed the same fate (Dalton, 1872). The tribals, first immigrated in this area before few thousand years, were pushed on by the aryans intruders from the north, and later by the plains' agriculturists from the east, and driven towards more rugged hill-forests (Chakraborty, 1982).

The people belonging to the Santal, the Bhumij, the Birhore, the Lodha etc. are pre-Dravidian in physical characteristics like stature, nasal and cephalic structure, colour of skin and coarse hair, and Austric and Dravidian in linguistic features. But it should be noted that the aboriginals of this area may be grouped into the "forest tribes" (Kol, Santal, Bheels etc.) and Dravidians (the other tribals and semi-tribals) (Dalton, 1872).

The Santals may be regarded as typical example of the pure Dravidian stock from the point of physical characteristics, and on linguistic grounds as Kolarian. Their complexion shows considerable variation from very dark brown to a peculiar charcoal like black, nasal structure resembles those of the Negro, the bridge being more depressed, large mouth, thick and projecting lips, coarse, black and occasionally curly hair (Risley, 1891).

The tribe has twelve exogamous septs - Hansdak, Murmu, Kisku, Hembram, Marandi, Saren, Tudu, Baske, Besra, Pauria, Chore and Bede. All of these septs are exogamous (Dalton, 1872). The majority of the Santal working population of the area are marginal cultivators and share-croppers. A considerable proportion of them are landless agricultural labourers and some of them work in other sectors as wage-earners (Das, Roychoudhury & Raha, 1966).

Oraon is a Dravidian cultivating tribe, on linguistic grounds claimed as Dravidians. Their complexion is darkest brown, approaching to black, hair being jet black and coarse. Broad flat noses, low narrow foreheads, thick lips, projecting jaws and teeth are the features easily attractive. They are of numerous exogamous septs, which all can be identified as totemistic, the totem being taboo to the members of the sept.
The Oraons were certainly among the earliest settlers on the plateau of Chhotanagpur and claim to have introduced plough cultivation. Many of them even now hold Bhuinhari tenures by rights of being the first clearer of the soil, but now their right has passed out of their hands making them agricultural labourers (Risley, 1891).

Munda is a considerably large Dravidian tribe, on linguistic grounds, they are classed as Kolarian, and closely akin to the Hos and Santals. Most of the Mundas are now either landless agricultural labourers or share-croppers and a large number are subsistence farmers with small holdings.

The Chhotanagpur plateau was a part of and connected with the great Vindhyan range. A portion of the country formerly known as the great Dandaka forest, was also called as Jharkhand, covered with grand sal trees. The Mundaris have settled for ages in the heart of the territory, wherein some other aborigines found their secured asylum, retreating from all sides up the courses of the rivers originating from the plateau. In such an elevated region like a natural fortress (Jha, 1967), the conquered races ascended and found refuge from their common enemy (Dalton, 1872).

At present, classed as "Hindu", a group of people are settled in south-western West Bengal. They show some important elements of culture and folk traditions more akin to the aboriginals rather than the Hindus. Bhumijs are the most numerous of their group of people (Ghosh, 1957). The Bhumijs of the former Jangal Mahals were once known as Chuar, who launched a series of fights against the British annexation of their territory, commonly known in history as Chuar Rebellion (Dalton, 1872). They have been grouped into a non-aryan tribe of Manbhum, western Bengal and Singhbhum, mainly on linguistic grounds as "Kolarian" (Dalton, 1872; Risley, 1891). The Bhumijs were actually very closely related to the Mundas and were one of their branches. More they shifted towards the east more they came close to the Hindu influences and were alienated from the
original tribal heritage. The term Bhumij literally means 'the sons of
the soil'. The Kols of Dhalbhum and Singbhum call the Bhumij
Patkum. As stated by Dalton -

"The Bhumij are no doubt, the original inhabitants of
Dhalbhum, Patkum, Bagmundi and still form the bulk of
the population in those and adjoining estates. They may
be described roughly as being chiefly located in the
country between the Kasai and Subarnarekha rivers.
They had formerly large settlements to the north of the
former river, but they were dislodged by Aryans, who
as Hindus of the Kurmi caste now occupy their old
village sites. The Bhumij have no tradition of their own
origin, generally asserting that they were produced
where they are found, but some who dwell in the
vicinity of old Jain temples declare that the founders of
the temples proceeded them, though they can tell us
nothing of those founders, nor of the architects of
there ruined and deserted Hindu temples existing as
additional mark of a prior occupation of the country by
a more civilized people".

The regional centers of the settlement of Bhumij are disturbed over
Barabhum, Dhalbhum, Singbhum, Manbhum (Puruliya), and Bankura
with Patkum on the west, Singbhum on the south-west, Dhalbhum on
the south, Kuilapal on the east, and Panchakote (Panchet) and
Baghmundi on the north. Majority of the people of this tract is
Bhumij, but a few of them are upper caste Hindus, Banians and a
very few Muslims (Ghosh, 1957).

According to the reports of the British rulers on Chhotanagpur
Jangal Mahal, the Bhumis accepted Bengali as their own language
along with some Hindu rituals and customs from the end of the
eighteenth century. The local leaders of the Bhumis were called
Ghatwals (Dalton, 1872). There were armed guards and forces under
these leaders. They did occupy vast tracts, cleared jungles, made them capable of agriculture and settlement and later acquired Jagirs from rulers in exchange of very nominal rent. Later probably all the Bhumijrajas of Birbhum, Dhalbhum, Gopebhum, Marbhum, Makkhbum, Singhbhum etc. claimed to be as Rajputs. But many of them ultimately accepted and were mixed with caste Hindus. The majority of the Bhumijrajas are rich farmers and jotedars who lend their lands to share-croppers for cultivation or cultivate their lands with the help of hired landless agricultural labourers. A fair number of them are small farmers and marginal cultivators, as well as some are share-croppers and landless labourers (Das, Roychoudhury & Raha, 1966).

According to Risley (1891), Bagdi is a cultivating, fishing and menial caste of central and western Bengal, and for their features and complexion they were described as aboriginals of Dravidian descent. But Oldham in his Ethnical Report of Burdwan, stated that among the semi-Hinduised aborigins, Bagdis are the oldest settled race, and he connected them to the Malpaharias of the Rajmahal hills; they were not autochthonous to the area. Bagdis, or more properly the Malpaharias were the only adventurous aboriginal tribes who had their own kings and armies. As presumed by Oldham, the Bagdis were driven eastward by aryanised cultivators and settled themselves in the Rajmahal and Damin-i-koh hills. But for the insufficient space and insecurity, they proceeded further easterly direction and proved unconquerable, and subdued the original inhabitants of Birbhum, Baradhaman, Bankura and Medinipur and founded a kingdom known as the Bishnupur Raj (Census, Bir. 1891). After the area was controlled fully by the Hindu rulers, the Bagdis peacefully settled under them and experienced infusion of Aryan blood. Upto the Vedic time the most traceable long established custom of the aryans was to marry the women of the conquered race, without distinction of caste and creed. Thus, the Bagdis got admittance into the fold of Hinduism, and gradually learned and followed the rituals and doctrines of Hindus.
Another larger section of the Dravidian race found throughout the area are the Bauris, falling under the social category of scheduled castes. According to a few scholars like Risley and Dalton, the Bauris came after the Bagdis had settled. In physical features they show less uniformity with the aryans than do the Bagdis. This indicates a less infusion of Hindu blood among them, and proves that they came long after the Hindu settlement.

Most of the Bauris are marginal farmers practising subsistence agriculture. Many of them are landless agricultural labourers, migrate during paddy transplantation and harvesting to the eastern plains for agricultural works.

The Bhuimali or the Hari is another semi-Hinduised race, about whom Oldham thought that they were the recruits of the out-caste Bauris.

The Sadgops are concentrated more in the northern and eastern part of the area and are the oldest settled people among the caste population. They all claim their origin to the Gopebhum in Bharddhaman district, the place they occupied as their own soil, having a king of their own race. The majority of them are rich and hardworking farmers and only a few are marginal cultivators, small traders and landless agricultural labourers.

The Mahatos, according to some scholars, are the Hinduised branch of the Kurmis of Bihar who after having taken to settled agriculture, built up their fortune from land and then separated themselves from the original community. They are the rich owner-cultivators or lend their lands to the small cultivators and sharecroppers. Besides, a fair number of them are engaged in tertiary activities also.
The koras form a significant part of the total scheduled tribe population of the area, a large chunk of them are concentrated in Birbhum district. Probably an offshoot of the Munda tribe, the name kora signifies the occupation of earth-digging (Das, 1964). Although they are expert earth-workers, they are also share-croppers and most of them are landless agricultural labourers.

The Rajwars are a community of people belonging to the tribe-caste continuum. Most of the working population of the Rajwars are subsistence-level cultivators, owners of small holdings and the others are mainly landless agricultural labourers.

Occupational statistics for the region are available from various census reports although census categories have changed from time to time making temporal comparisons difficult. The 1971 Census gives a fairly detailed set of information at various levels including that of the mouzas. But such a detailed treatment may be out of place here because over-emphasis may lead to diversion from the central theme of this work. Even a district level comparison is capable of revealing the key characteristics of the occupational structure of the area.

Tables in Appendix II make it evident that there is a striking uniformity in the occupational structure of the region which can be understood better when examined along with the ethnic composition of the districts and sex-ratio of the migrant population.

Except the eastern parts of the districts of Barddhaman and Birbhum, the entire region is a sea of rural backwardness with agricultural pursuits dominating the occupational structure. In this agriculture dominated scene, the relative proportions of cultivators and agricultural labours is an important indicator of the economy. Although the number of cultivators may often be inflated due to the inclusion of those who actually manage their farms by hiring landless labourer, it does give an idea as to the tendency of the
land owners, most of whom are only small farmers, towards employing self-labour or family-labour for making productive whatever small bits of lands they possess. It is already an accepted fact that the tribals seldom go in for hired labour as the concept was practically absent in their idea and practice, are the scheduled castes and also the Muslim small farmers. In Puruliya, Bankura and Medinipur, where the tribals have a larger concentration, cultivators are decidedly more numerous than agricultural labourers. The picture becomes confusing in Barddhaman and Birbhum, but one has to remember that the eastern part of these two districts are really not part of the typical topography on which the tribals have finally chosen to live (Tables 8 & 9).

In West Bengal in general, in eight out of the fifteen districts (Calcutta excluded), tribes and scheduled castes (or Muslims where scheduled castes and tribes are negligible) have a relative concentration in terms of the West Bengal average, and in all of them cultivators prevail in number over agricultural labourers (Table 10).

The above relationships could have been stronger if the entire population were a stay-at-home society. But there has been considerable migration even to and from the rural districts of West Bengal, particularly after the Partition. It is true that a large majority of the people coming from outside have chosen the cities and towns as their residence and place of work; but, the striking differences in the male-female ratio within the migrant population for the districts of Puruliya, Bankura and Medinipur suggest that these districts experienced in-family migration during an earlier phase. Later, the male members of the migrant families left the women-folk behind and went out in search of jobs to other more urbanised districts. (Barddhaman for obvious reasons, drew-in male workers in large numbers to the mines and industries of its western parts, which is why, it tells a different tale). The male members who could not move out though relatively small in number, have chosen to
### Table 8

**Rural Occupational Structure Of Study Area 1971**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Percent in rural population</th>
<th>Percent in total population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cultivator</td>
<td>Agricultural labourer</td>
</tr>
<tr>
<td>Birbhum</td>
<td>40</td>
<td>44</td>
</tr>
<tr>
<td>Barddhaman</td>
<td>30</td>
<td>39</td>
</tr>
<tr>
<td>Bankura</td>
<td>45</td>
<td>42</td>
</tr>
<tr>
<td>Puruliya</td>
<td>48</td>
<td>36</td>
</tr>
<tr>
<td>Medinipur</td>
<td>49</td>
<td>36</td>
</tr>
<tr>
<td>Districts Average:</td>
<td>42.4</td>
<td>39.4</td>
</tr>
<tr>
<td>West Bengal</td>
<td>43</td>
<td>35</td>
</tr>
</tbody>
</table>

Source: Biswas, 1980

### Table 9

**Urban Occupational Structure Of Study Area 1971**

<table>
<thead>
<tr>
<th>Districts</th>
<th>Industry</th>
<th>Transport &amp; storage</th>
<th>Trade &amp; commerce</th>
<th>Other services</th>
<th>Agriculture</th>
<th>Household industry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birbhum</td>
<td>13</td>
<td>12</td>
<td>20</td>
<td>27</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>Barddhaman</td>
<td>36</td>
<td>13</td>
<td>19</td>
<td>12</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Bankura</td>
<td>11</td>
<td>11</td>
<td>20</td>
<td>26</td>
<td>14</td>
<td>15</td>
</tr>
<tr>
<td>Puruliya</td>
<td>14</td>
<td>23</td>
<td>19</td>
<td>23</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Medinipur</td>
<td>12</td>
<td>25</td>
<td>14</td>
<td>23</td>
<td>21</td>
<td>2</td>
</tr>
<tr>
<td>Districts' Average</td>
<td>17.2</td>
<td>16.8</td>
<td>18.4</td>
<td>22.2</td>
<td>15.4</td>
<td>5.8</td>
</tr>
<tr>
<td>West Bengal</td>
<td>33</td>
<td>12</td>
<td>21</td>
<td>24</td>
<td>5</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Biswas, 1980
### Table 10

**AGRICULTURAL LABOURS: CULTIVATORS RATIO, 1991**

<table>
<thead>
<tr>
<th>District</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Puruliya</td>
<td>1.47</td>
</tr>
<tr>
<td>Bundwan</td>
<td>1.86</td>
</tr>
<tr>
<td>Manbazar</td>
<td>2.14</td>
</tr>
<tr>
<td>Baghmundi</td>
<td>1.88</td>
</tr>
<tr>
<td>Balarampur</td>
<td>2.43</td>
</tr>
<tr>
<td>Borabazar</td>
<td>1.92</td>
</tr>
<tr>
<td>Santuri</td>
<td></td>
</tr>
<tr>
<td>Bankura</td>
<td></td>
</tr>
<tr>
<td>Ranibandh</td>
<td>2.2</td>
</tr>
<tr>
<td>Roipur</td>
<td>1.3</td>
</tr>
<tr>
<td>Khatra</td>
<td>1.21</td>
</tr>
<tr>
<td>Medinipur</td>
<td></td>
</tr>
<tr>
<td>Birpur</td>
<td>1.39</td>
</tr>
<tr>
<td>Jamboni</td>
<td>0.88</td>
</tr>
<tr>
<td>Nayagram</td>
<td>1.2</td>
</tr>
<tr>
<td>Sankrail</td>
<td>1.37</td>
</tr>
<tr>
<td>Gopibakavpur</td>
<td>0.98</td>
</tr>
<tr>
<td>Keshiary</td>
<td>0.94</td>
</tr>
</tbody>
</table>


### Table 11

**Migration into Study Area**

<table>
<thead>
<tr>
<th>District</th>
<th>Percent of immigrants in to population</th>
<th>Number of females per thousand males</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Rural</td>
</tr>
<tr>
<td>Birbhum</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Barddhaman</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>Bankura</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Puruliya</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Medinipur</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Districts' Average</td>
<td>5.5</td>
<td>4</td>
</tr>
<tr>
<td>West Bengal</td>
<td>15</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: Biswas, 1980
work in agricultural fields as wage-earners and have made the tribe-self-cultivator relationship somewhat weaker (Table 11).

One most interesting element in the statistics presented in the table is the very low proportions of workers engaged in plantation, livestock, fishing, hunting and forestry. But it should be noted that the forest areas of these parts do not offer any legal provisions to be economically used by anybody other than the government itself. Thus, even if the tribals (and other people) derive part of their sustenance from forest, it remains outside the legal eye of the census.

4.2.2.0 GENDER CHARACTERISTICS

A discussion regarding the special features of the people residing in proximity of the forests of south-western West Bengal should include within its fold the position of women particularly when the question of tribe-forest relationship has become involved in the natural course of development of the central theme of this research. Women hold a special place in gathering the daily provisions from the forest particularly fuel and food and also other materials for both domestic and commercial use. Their importance is felt much more in the tribal society because they exercise equal freedom with men in economic and cultural behaviour. It may be interesting to examine whether the tribal dominated pockets in the study area exhibit similar characteristics.

The first enquiry should aim at examining whether women are as strong in number as men are in our target areas. In 1991 West Bengal as a whole had 917 female per thousand of males. But, for the tribal population, West Bengal had a much higher sex ratio of 964. This suggests that the tribal society of West Bengal in spite of poverty has a lower death rate of women than the non-tribal society. Within our broad study area the overall sex ratio was 946.
in 1991. This means that the study area itself has some speciality related to its women population. This speciality is definitely contributed by the tribals because the tribal sex ratio within the region in 1991 was 960. An unmistakable proof in favour of the above statement is forwarded by the fact that within the tribal cores, the sex ratio within the tribals was 969 in 1991 compared to 954 for the population as a whole. This general trend will be corroborated further if we look at the sex ratios of the different cores separately. According to 1991 Census statistics the sex ratio difference between the total population and the tribal population is 27 for the Santuri core (953 & 980), 5 for the Baghmundi - Balarampur core (956 & 961), 18 for the Bundwan core (956 & 974) and 14 for the Nayagram - Keshiary core (948 & 962). Out of the 15 police stations constituting these cores, only Baghmundi, Manbazar and Jamboni have got a lower sex ratio for the tribal than for the total population. The reason behind the comparatively low tribal sex ratios in these three police stations probably lies in the fact that in many instances there are tendencies of the parents to arrange their daughters' marriages to more productive areas where they will sustain themselves better with lesser physical strain. Bundwan is also a poor area but its very large tribal concentration prevents the population from sending their daughters to distant areas (Appendix III).

The almost invariable relationship between tribals and higher sex ratios is significant in the sense that tribal women have quite a strong position in their society. The reason is that they participate much more in gainful outdoor work than non-tribal women do; are less dependent on men folk; consume almost equal amount of food as men do and live longer than non-tribal women which is why they command a much greater respect in their own society in comparison to non-tribals.

That their better position in the society stems from greater economic freedom can be proved by the fact that the female work participation rate in tribal areas is much better than in other areas. In 1991 the
percentage of female cultivators for the whole of West Bengal was 8.54 and that for the female agricultural labour was only 2.76 in comparison. Similar percentages for the core areas were 26.01 and 46.61. Tribal women, however, are not willing to participate in all kinds of works. Their participation in the secondary and the tertiary sectors are minimum. Yet, the categories of cultivators and agricultural labours are so overwhelmingly numerous that they exact the greatest weight on the total work force. The West Bengal figure for women's participation in all kinds of work together was only 12.59 percent of total workers in 1991 compared to 31.78 percent in the tribal core areas. Thus forests, tribes and tribal women do show a definite relationship and disappearance of the forest must lead to a great stress on tribal women because it is they who procure food and fuel for the family.

The argument relating tribal women to forests is not meant to establish that tribal women earn their livelihood or wages directly from the forests. But it is meant to convey the sense that since tribal women carry the major responsibility of running their families it is up to them to procure various non-commercial provisions for life which, used to supply in the past and which are becoming scarce at present after the forests have vanished.

4.2.3.0 THE REBELLIOUS INSTINCT OF THE TRIBES AND THE LOWER CASTES.

Several historical records, particularly after the advent of the British, point to a series of movements waged by the tribals against the British as well as other exploiters (Verma, 1990). These struggles and movements have a bright role in the overall struggle for Independence through class struggle (Rasul, 1954) and were due to the general discontent of the tribal people under the pressure of alien social and political systems (Jha, 1967). But while the tales of rebellion were not written by these illiterate, innocent people, the
historians of class interest have labelled the movements merely as unrest, hangama, disturbance etc. (Baske, 1976). However, it would be more important to note that these struggles were not exclusively participated by purely tribals but the backward and poorer section of the people had an important part also. They got a character of class-struggle or the movement of exploited against the exploiters (Rasul, 1954). The attachment of the peace-loving tribal people to the land traditionally occupied by them is unmatched. Violently and gallantly they resisted invasions on their territory. Each time they strongly reacted against their exploiters represented by foreign rulers, money-lenders, middlemen, contractors, liquor vendors, zamindars and government officials.

The British adopted a double edged policy to divert the grievance of the tribals against their countrymen by giving rein to mahajans (money lenders), contractors, zamindars and officials of excise, revenue, forest and police departments to exploit them. Such exploitation caused indebtedness among tribals and transfer of their lands to non-tribals. Rights of tribals on forests and forest products were substantially dwindled. The vindictive attitude in the long run shattered the economic base of the tribals. Gradually they became isolated from the mainstream of the society and bitterness was created among the tribes against all exploiters, foreigners and countrymen alike causing sporadic movements and armed revolts (Verma, 1990).

Baske (1976) mentions from the Santal Pargana Gazetteer that the intention behind the Santal revolt was establishment of sole right on lands. They wanted to constitute their own territory with their own administration. Baske (1990) also mentions Oldham that the revolt attracted all who experienced exploitation by British officials and mahajans and the dream they tried to realise was to form a free tribal state.
The rebellion of the tribals did not take place only once, but at several times beginning from the middle of the eighteenth century through 1811, 1820, 1831-32, 1855-56, and later in 1871, 1874-75, 1880-81 etc. Among all these revolts, the movement of 1832 and 1855-56 were the most widespread, violent and important (Rasul, 1954). Even the recent movement mainly concentrated in Bihar and West Bengal under the banner of Jharkhand movement have similar cause and character.

A question may be raised as to why such rebellious instincts were roused in the peace-loving, industrious, simple-minded and innocent aboriginal people. When the tribals reclaimed cultivable lands by clearing forests (Hal Hasila) to produce valuable crops with application of tremendous labour, these lands were captured by the zamindars or Mahajans by unfair means. Banians cheated them in various ways, took over all crops at the cheapest possible rate. Mahajans used to lend them money when necessary at exorbitant rates of interest. (Rasul, 1954). The government officials being influenced by them caused unnecessary harassment to the tribals. Over and above such exploitation, the extreme moral degradation and public humiliation of tribal women also prompted their instinct to rise in revolt.

In the middle of the eighteenth century, one of the earlier attempts of the British to enter Chhotanagpur and Santal Pargana in Bihar was violently resisted by the tribals. The entire Chhotanagpur region and the adjoining areas were known as Jharkhand. Penetration of the British in these areas caused a series of unrest in 1789, 1801, 1807-08 and these revolts had to be stopped with armed forces of the Company. Actually numerous rebellions which emerged in the forest-tribe dominated areas had more or less identical grounds, purpose, features. That the revolts broke out in a much wider space beyond the study area, testify to normal behavioural characteristics of the tribals towards revolt. Therefore, to understand rebellious instinct, some of the major events, namely, the Pahariya Movement of
1778, Kol Mutiny of 1831, Bhumij Revolt of 1832-33, Santal Rebellion of 1855, Kandh Rising (Orissa) of 1837-56, Birsa Movement of 1895 and the present Jharkhand Movement may be mentioned here in brief.

The Pahariyas, a martial tribe occupying the Rajmahal hills (Verma, 1990), waged a long struggle against the British to resist the encroachment on their territory. Before Cleveland took charge as Collector of the area in 1778, the Pahariyas bravely fought against the British and ultimately forced Cleveland to adopt a new system of administration. Under this system, the land was held directly from the government free of rent by Pahariya cultivators. The whole area, given this uniform special treatment, came to be known as Damin-i-koh, and was exempted from the jurisdiction of the ordinary courts. Under the Regulation I of 1796, separate rules for the area were made for administration and it actually became a non-regulation area (Verma, 1990). The rate of tax collection from the Damin-i-koh in 1838 was approximately Rs. 2000 per annum and this rose to nearly Rs. 44,000 within a short time in 1851.

After the death of Cleveland (1784) the situation became worse; the exploitation and cruel rules of the government officials and native Mahajans caused the tribals pick up weapons (Baske, 1976). The revolt quickly included the poorer section of caste and other population. A mass revolt emerged throughout the western part of the then Bengal between 1789 and 1791 and the tribal militia directed the movement against the British and zamindars at least for three years so intensely that the British rule for the whole area came to a deadlock. In the western margin of Bengal and in Rajmahal-Birbhum area, in the period mentioned, the disturbance rose to such an extent that it could only be compared to a long lasting civil war (Hunter, 1883).
The poorer people of the nearby plains gave company to the Pahariyas without hesitation and helped them in various ways. Mostly for this fact, the well trained British police experienced defeat for many times to the war strategy followed by the tribals (Baske, 1976). Evidences from various records show that the attack began from the middle of 1788 and the tribals looted the offices of the British and the zamindars for a hundred mile area along the bank of the Ganges. Kitting, the then Collector, applied military force to control the mutiny but failed. In January 1789, the rebels being more united, looted a number of British kuthis and crop-reserves of the zamindars of thirty to forty villages. Then the tribal rebels began to attack the British forces at Birbhum (Hunter, 1883). During the wars, the Pahariyas used even country made guns and swords instead of bows and arrows. Compared to the British military, the tribal rebels were more adept to adjust to the local terrain (Baske, 1976).

The Hos of Singhbhum area of Chhotanagpur offered tough resistance to the British attempt at entering the area. The British force forcibly annexed five sub-divisions of the Mayurbhanj State and formed the district of Singhbhum, entirely inhabited by the Ho tribe, also called the Larka Kols, the term Larka implying 'fighter'. The British-zamindar dual ruling system forced the tribes to pay taxes for their properties against which the Kols protested since 1821 (Verma, 1990).

The Mundas of Chhotanagpur had already started agitation against the exploitation by the zamindars, money lenders and British officials. The Mundas and Hos jointly rebelled over a large part of Chhotanagpur covering areas of present Ranchi and Hazaribagh districts, a wide tract of Palamau district and western part of Manbhum and the adjoining areas. Finally this rising was cruelly quelled with armed forces (Verma, 1990). This uprising was commonly known as the Kol Mutiny. Actually, this movement was an outcome of a long discontentment among the tribals caused by transfer of their
lands to outsiders who were the instruments of occupation and exploitation. The revolt was more triggered with the treatment meted out to the Mankis and Mundas, the village functionaries of the tribes. The Kol Mutiny was a wide-spread protest of different sections of tribals against the inequalities, injustice and mal-administration by the British and a manifestation of a movement which sought restoration of their rights and protection of their lives and lands from encroachment and sanctity of their women (Verma, 1990). To some scholars, the Kol Mutiny may be reckoned as the first freedom struggle by the tribals.

The Bhumijs are one of the old settlers of the area mentioned in the ancient and medieval chronicles as Jharkhand, which formed a larger part of Jangal Mahals. The process of detribalisation on the one hand and Bengali-Hinduisation on the other started long ago. The local chiefs of the hitherto non-stratified communities became supervisors, arbitrators and regulators of various operations and communications. When the jungle tracts of Jharkhand were brought under the suzerainty of distant authorities, the Bhumij chiefs, para-chiefs and sub-chiefs got placated through recognition of their sway over their respective territories. These traditional Bhumij chiefs with rent-free territories against performance of certain stipulated police duties, became local rulers or Ghatwals or guardians of jungle passes. The lands under their sway, from which they collected their rents but did not pay any revenue, came to be known as Ghatwali holdings. Ghatwals, in their turn, had the power to parcel out jungle tracts among those people of the community as were obliged to render armed service when required and to pay some customary tributes. There arose thus a systematic hierarchy of the Sardar Ghatwals, Sadiyals, Tabedars, Ghatwals, Digwars, Simanadars, Itmandars and Mandals. These war-like people in 1832-33 made a violent revolt against their oppression by the British rulers and outsiders almost throughout our study area, known in history as the Bhumij Revolt or Chuar Rebellion.
The place of origin of the Bhumij Revolt was the then Manbhum district. Jha (1967) refers Russel -

"Whenever any disturbances have occurred in this district, they have always originated either with the Jageerdars of Coleapal or in the Pergunnahs of Patcoom and Barabhum. Their inhabitants are chiefly of the Bhumij class, notorious in former years for plunder and rapine and late events have shown how prone they still are to join in any predatory expedition".

In another letter Russel also stated that the lower class of the western border were very prone to join any system of plunder (Jha, 1967).

These people in these backward areas owing to appalling oppression and exploitation, to the loss of their ancestral lands and economic enslavement, frequently broke into rebellion. The Darogas, the Munsifs and the Mahajans had the principal responsibility for the grief and poverty of the tribes, which ultimately were channelised into revolt. In general terms the Bhumij explosion of 1832-33 may have been caused by the pressure of outsiders upon tribal life, and the wicked, misguiding action of the East India Company bringing down the people to the complex regulations of judicial and revenue systems made for the other developed areas (Baske, 1976).

Some scholars opined that if the tribal people had been left under their chiefs or the Sardar-Ghatwals, and the British maintained a close control over their subordinates, the rising could have been avoided (Jha, 1967).

Some historians believe that there might have been a relation between the early success of the Kol Mutiny, the rising of Dhanger Kols and Cheros in Palamau with the Bhumij rising. The Court of Directors correctly asserted that the insurrection in the Jungle Estates had its origin in the disturbances that prevailed in the forested hill
areas (Mayurbhanj, Kolhan, Bamanghati etc.). The rising in 1832-33, known as Ganga Narayan Hangama thus falls into place as natural continuation of the earlier resistance to the British system. Though the name of Ganga Narayan had become a legend, it is undeniable that had there been no pre-existing general discontent among the tribal masses, such influences could not have been obtained by Ganga Narayan (Jha, 1967).

Though the turmoil started with the hierarchical dispute in the ruling family, yet it was an opposition against the British system imposed upon the tribals. The disturbance first took place in Bandhdih at Medinipur and then at Barabhum. The British troops and police found themselves helpless in facing such a violent rebellion. The Magistrate of Medinipur stated that until the five Sardars (Taraf Sardars of Barabhum) with Gouman Gunjan, the head of the Chuars at Dhaka, Beersing at Simlapal and Tribhuban Singh at Katajor were apprehended, the Jangal Mahals should be always liable to the depredations of these chuars as also the contiguous district of Barddhaman and Panchet. The police Daroga of Barabhum could not suppress the unrest and could not secure any intelligence. Except the leading figures in Barabhum, the problems were made particularly intractable. It was in Barabhum that disorders first broke out. Later, in a number of the other Parganas of Jangal Mahals, there were similar events as certain grievances were always common to most parts of that area. On the other hand, over most of the Jangal Mahals, zamindars were deeply involved in debt; most of their creditors were the principal Mahajans in their respective estates. Consequently, their houses were marked out for plunder (Jha, 1967).

On the borders of the Jangal Mahal and the Ramgarh districts, the Patkum area was disturbed since in 1831 the Kol insurrection had begun. Its people were akin both to the Mundas of Chhotanagpur and Tamar and to the Bhumijs of Barabhum. However, in Patkum, the specific grievances were against the actions of the non-tribal Sajawals appointed by the Court of Wards. Some zamindars of the
neighbouring estates such as Silli, Jhalda and Torang had leagues with the insurgents. Similar risings took place in Kashipur, Manbhum, Ambikanagar, Panchet, Shamsundarpur, Phulkusma and Dhalbhum.

In 1832, the tribal peasantry of the western parts of the Jangal Mahals and of Dhalbhum was seething with discontent against all foreign encroachments and anomalies. The Bhumijs had been shorn of all tribal privileges and immunities they had enjoyed in the past. They were looked down and oppressed. Their last bid to escape from the trap closing round them took the shape of armed revolt.

On the lands cleared out of forests by the Santal tribals, there were encroachment and influx of outsiders including the land-grabbing zamindars, large farmers and money lenders. As a consequence, the hitherto self-sufficient tribal economy faced the danger of the market economy (Verma, 1990). Crops cultivated by hard labour of tribals were taken off the tribals either by cheating or by application of force. The Santals in several places became bonded labour for even a nominal amount of loan with higher interests. They never got any help from the British except harassment. The newly opened railway through this area was another means of exploitation.

A large rebellious mass was formed in early 1854 in Lakshmipur under the leadership of Parganait Bir Singh of Sasan. The other leaders were Bir Singh Majhi of Borio, Kaola Paramanik of Sindri and Doman Majhi of Hatbandha (Rasul, 1954).

Being unable to tolerate any more exploitation and injustice, four landless Santal brothers - Sidhu, Kanhu, Chand and Bhairab insisted upon the fellow Santals to unite and rise against the exploiters (Verma, 1990). They belonged to the village of Bhagnadihi of Santal Parganas and were the motive force behind the movement which challenged the power of the British rulers. With the call of Sidhu and Kanhu in their village by the symbolic message sent with a living branch of sal tree, in the night of 30th June 1855, at least
10,000 Santal delegates from about 400 villages met at a gathering, where they took oath of fighting against the rulers and the exploiters (Rasul, 1954). Starting at Bhagnadihi near Barhait or the capital of Damin-i-koh the revolt spread out to the surrounding areas of Bhagalpur, Birbhum, Hazaribagh and Manbhum (Baske, 1976).

The principal demands of their rebellion were land for cultivation, freedom of life, escape from the exploitation of zamindars, Mahajans and government and production from land in peace. The main causes, as they stated, behind their revolt were dominance of untruth, ignorance by authorities, cheating and exploitation by Mahajans, greed and corruption by officials and torture by police (Rasul, 1954).

In early 1855, a mass of Santals numbering about 6 to 7 thousands coming from Birbhum, Bankura, Chhotanagpur and Hazaribagh gathered in Damin-i-koh. Gocho, a Santal leader with his few thousands of followers marched towards Khanpur-Bahadurpur and Sidhu and Kanhu with larger flock of rebels advanced towards Sultanabad and Mahespur. Within a short time the rebels after capturing the whole area from Borio to Kahalgaon advanced towards Bhagalpur and Rajmahal. Postal and railway communications were stopped, even the government highways from Pirpainti to Sakrigali had come to their hands. The area throughout which the revolt spread in include the whole Birbhum district, larger portion of Bhagalpur and few parts of Murshidabad district. The main centre of revolt was its north-eastern part, but in other parts it was also strong. Without any formal education of war, and having no pre-existing organisation, thousands of Santal willfully combined with the rebels. They fought as a real and systematic people's army. With sound of drums, thousands of them gathered quickly, their actual weapons being bows and arrows, axes and swords. They killed a number of Darogas, Sepoy and Mahajans. But the instructions of rebel leaders to protect all sections of people, except the exploiters were maintained as far as practicable.
In July 1855, the troop of Major Burroughs was defeated by the rebels near Pirpainti. At Palarpur on the bank of Sundra river a large number of Sepoys were killed. Failing to face the attack, the government forces went back from the field 6 miles away from Khoirasole in Birbhum (Rasul, 1954).

Consequently a large force had to be deployed. The Santal though armed with only bows, arrows and axes showed rare chivalry and fought desperately against the troops equipped with up-to-date weapons. The rebellion was finally crushed with the use of massive force.

In the Santal Rebellion of 1855, along with the Santals, a large section of Lohar, Kumhar, Teli, Goala, Chamar, Bhuiia, Bagdi, Hari, Dom etc. of backward castes and some Muslims also took an important part.

According to Roy (1970), the Santal Rebellion of 1855-57 is almost incomparable in the history of peasant movements in India, close only to the people's movement of 1857. Truly, the rebellion can not be regarded as a minor local encounter originating from insignificant causes, but a revolt against oppression, exploitation and injustice, a revolt against the prevailing maladies in the administrative and economic system which needed careful scrutiny for their redressal. In fact, the rebellion of 1855-57 opened a new chapter in the tribal history of India.

The Santal Rebellion opened the British eyes to the exploitation of the santals by the zamindars, money lenders and lower level of government officials and the inability of the administration to deal with them. Accordingly, the Regulation of XXXVII of 1855 was enacted, which exempted the district called the Damin-i-koh and other districts chiefly inhabited by the Santals from the jurisdiction of the general laws and regulations, and the district of Santal Pargana with four parts, namely, Dumka, Godda, Deoghar and Rajmahal was formed (Rasul, 1954; Verma, 1990).