THE HAZARIBAGH DISTRICT:

General Description - The district of Hazaribagh forms the north-eastern portion of the Chotanagpur Division and lies between 230 25' and 240 48' north latitude and 840 29' and 860 38' east longitude. Its area is 7,016 square miles. The principal town and administrative headquarters is Hazaribagh, which is situated towards the west of the higher Hazaribagh plateau at an elevation of about 2,000 feet. The town and the district take their name from the mango grove at Hazari, one of the villages which make up the town of Hazaribagh. Hazaribagh, that literally means a 'thousands baghs", is situated in the centre of Chotanagpur plateau at a height of 2019 feets above MSL.

Brief History: The district of Hazaribagh has been named after the town of Hazaribagh, its present headquarters, which has in turn derived its name from the mango grove at Hazari, one of the villages which make up the town. This village is still on the western edge of the town. (1) In the earliest maps of the district published in 1779 by Major James Rennell, the first Surveyor General of India, the present town appears as Ocunhazari. A print of this map available in the Survey Office, Gulzarbagh, Patna has been included in this book. It owes its existence to the raising of the Ramgarh Battalion about 1780, and the decision to station it permanently near the villages of Okni and Hazari, on the road from Chatra to Ichak, which had become an important place after the Raja of Ramgarh had made it his capital in 1772. (2)

The district forms the north-eastern portion of the present Chotanagpur Division which, it is generally believed, was in very early times covered with inaccessible hills and forests to which many non-Aryan tribes who refused to surrender to the steadily advancing Aryans retired at different times. We do not know the name by which the tract was known to the ancient Aryans. All through the long centuries of Hindu rule in India Chotanagpur appears to have remained unmolested, though foreign invaders on rare occasions might have succeeded in exercising nominal overlordship over it.. It is stated that during Asoka (C. 273-C. 232 B. C.) the Atavi or Forest states too acknowledged Magadha supremacy, and this may justify the conclusion that Chotanagpur was included in the Mauryan empire at least in his reign. There are clear evidences to show that this tract was in touch with many other parts of India. There was frequent intercourse between Kashi and Hazaribagh.

Physiography and Natural Divisions: The district forms part of Chotanagpur plateau. It is a region of plateaus, residual hills and intermountane valleys. The Chotanagpur plateau is a region of uplift; the differential movement along its northern and eastern sides is approximately 800 to 1,000 feet.

The district can be divided into the following major physiographic regions:

Hazaribagh,the higher plateau;

Chauparan-Kodarma -Girighi sub-plateau or lower plateau; and

Damodar Trough or Upper Damodar basin.

In addition to the above there is a rugged tract to the west of Hazaribagh plateau. It is broken country formed of inter-locking spurs and ridges and does not form a major region. The tableland near Hazaribagh town forms the origin of several important rivers. The Bokaro and the Konar originate near village Sultana on the Hazaribagh-Chatra Road. The Barakar originates near Ichak. The Mohane also originates near village Bendi and forms the western boundary between Hazaribagh West and Chatra South Divisions.

Public Facility Available to Public of Jharkhand :

According to census report public facilities availed by people of Jharkhand are 27% household use drinking water, 15.4% use latrine - Govt. of India, survey report says that only 12.1% flush latrine used by people of Jharkhand, 84.6% depend upon open fields. According to survey report (1991) only 18% people live in pucca house, 82% have no pucca house, 14.6% house are not fully pucca. Two third population live in huts.

75-80 percent people of districts like Godda, Gumla, Deoghar, Palamau, Giridih, Hazaribagh and Lohardaga have neither proper house and nor safe drinkable water. Only 23.6% of the population have electricity facility. 75% population of Ranchi district, 94-95% population of second capital city Dumka and 96% population of district Gumla have no electrity.

Public Facility Available to Public in the District:

(Drinking water, electricity & latrine facilities)
Dist. Hazaribagh including Chatra & Kodarma

Total Geographical area	5998 sq. kms.
Total Forest	2088 Sq Kms.

	Population Owning a House	Electricity	Drinking Water	Toilets	Percentage Having on facility
Rural	377530	9.19%	15.24%	5.19%	78.35%
Urban	926407	73.08%	61.07%	58.83%	15.94%
Total	470170	1.78%	24.39%	15.76%	66.05%

Statistics of Hazaribagh District:

Population - According to census 2001 total Population of Jharkhand was 2.69 crore out of which 27.67 % that is 73.40 lakhs population resides in Hazaribagh.

Distribution of population as follows:-

Area	Total Population	Male	Female	Density (sq km)	Population 1991	Increase
Jharkhand State	26909428	13861277	13048151	269	5065519	
Rural	20922731	10660130	10262301	3340	372	
Urban	5986657	3200847	32785850	370	1345	38.94%
Hazaribagh	1601567				299	10.00%
Percent	24.02%	23.10%	27.15%			

Population - Male female Ratio:

Year	Female/1000 Male		Remarks
	Jharkhand	Hazaribagh	
1901	1032	1066	Female Ratio decreas from 1901 to 1991 and slightly increased in year 2001
1951	961	988	
1961	960	968	
1971	945	954	
1981	940	933	
1991	922	819	
2001	941	950	

Population by Caste distribution

Cast	Jharkhand	%	Hazaribagh	Percent
Geneal	5677939	26	413231	80.0%
OBC	7532710	34.48	735912	45.95%
S.C	258952	11.05	234308	14.65%
S.T.	6044010	27.67	218121	13.62%

Literacy Scenario of District Hazaribagh.

	Population in lakh			Perentape		
	Total	Male	Female	Total	Male	Female
Total	10.82	6.91	3.91	58.05	72.16	43.15
Rural	7.22	4.73	2.49	51.26	66.94	35.46
urban	3.6	2.17	1.43	79.05	86.92	69.46

School & Colleges in Hazaribagh District

Pri School	Upper Pri School	Secondary School	Higher Secondary School	Total	Degree College
1236	319	86	11	1652	13

Land use for non agriculture and construction work	-	3311.50 ha-0.30%
Agricultural land	-	536738.50 ha 48.07%
Waste Land	-	12407.00 ha 1.11 %
River & water Structures	-	7686.00 ha - 0.69%
Crop by available land		
Use for Kharif crop	-	532551.50 ha
Rabi crop	-	25618.50 ha
Two crop	-	25618.50 ha
Crop density	-	104.81 %

Soil - Mainly two type of soil found in Hazaribagh District.

Red Soil - Due to iron element soil of Hazaribagh is Red. Carbonic element Nitrate and lime not found in soil. The colours of soil due to mica mixed is pinkish, lower layer of soil is yellowish due to mistune in soil.

Sand loam - Sandy loam soil found around the Damodar River basin. The colour of soil is slightly Red, brownish & yellowish.

THE PEOPLE:

The population of the old district of Hazaribagh in 1862 was reported by Captain Thomson, Revenue Surveyor as 7,16,065. The first census of the district was taken in 1872. In 1901 census the population increased to 11,77,961 and in 1951 it became 19,37,210. Between 1881 and 1951 i.e., in 70 years the population of the district has recorded a net increase of 8,32,468 persons. In 1941 and 1951 the population of the Sadar subdivision was 8,39,551 with a density of 247, and 9,74,494 with a density of 286 per square mile.

At present as per 2001 census the population of the new Hazaribagh district is 2,277,475. The population of new districts carved out of old Hazaribagh district i.e. Chatra, Koderma, and Giridih is now 791,434, 499,403 and 1,904,430 respectively a total of 3,195,267.

The incidence of growth or otherwise of the population of the district of Hazaribagh is in conformity with the economic trends of the district. There was an enormous development in the coal mines of Giridih subdivision. This explains the increase in population between 1881 and 1891 chiefly in that subdivision. The rate of increase during 1901-1911 was high. Giridih subdivision gained 50 per cent increase in population owing to the development of the Giridih coal-fields and the growth of the new town which is the present district head-quarters. The other areas/ thans that gained a remarkable increase in population were Peterbar, Dumri , Gumia and Mandu and Ramgarh . These thanas are all in the Damodar Valley and south east in the district and have a very consider-able aboriginal element. Apparently, the comparative absence of emigration had contributed

to the great increase of population in these areas. The other thanas that gained in population were Bagodar ,Gawan , Kodarma, and Humtergunj . The increase in Bagodar area,could be associated with the opening of the Grand Chord Railway. The area of Kodarma had a great development,of the mica mines and naturally this led to an increase in the population. It may also be mentioned that the landlords had always tried to keep landless serfs tied to them and not to allow them to leave the district.

Another remarkable trend of the population was seen in the elements in the population of the district that had been born outside it. In the Census of 1911 there were 41,631 persons residing in the district who had been born outside it . The percentage of immigrants from Gaya has always been large. The peons, barahils and other employees of landlords and a fair element among the settlers in the district have been drawn from the neighbouring district of Gaya.

In the Census of 1911 it was found that 1,44,541 inhabitants of Hazaribagh district were residing outside it. Regarding the number of men of the Hazaribagh district residing outside it Sir J. D. Sifton in the Final Report in the Survey and Settlement Operations in the district of Hazaribagh (1908-1916) observed as follows:-

"Of this total 32,000 have gone to the adjoining districts of Gaya, Monghyr,Santhal Parganas, Ranchi, Palamau and Manbhum, probably for agriculture: 3,300 are working in the coal mines of Jharia and Burdwan; 1,500 are in tea gardens of Jalpaiguri and Chittagong. Besides this ,there is considerable emigration to Assam and the mills around Calcutta, and there is a large recruitment of Khalasis from Hazaribagh for Survey operations in Eastern Bengal and Burma ,and for the Burma Forest Department."

In the Census of 1921 the population of the district, had decreased largely due to the terrible cholera epidemic which broke out in 1917 and which was followed by an equally severe influenza epidemic. There was also a distress that resulted from the failure of rains. It has been said that before the end of 1918, as many as 82,000 men had perished of whom 68,000 died of fever only.

It is a note-worthy fact that Chatra, the portion of the district which contained the gate of the Jharkhand and as the highway between Bihar and Lohardaga, was the tract first penetrated and occupied by Biharis, is now by far the most sparsely populated part of the district," [Final Report on the Survey and Settlement Operations in the district of Hazaribagh (1908-1916) by Sir J. D. Sifton, age 12.]. During the decade 1921-1931, the growth of population was most pronounced in the south and south-east of the district. These are colliery areas, and here the natural increase was supplemented by a great influx of labour from outside.

POPULATION ACCORDING TO CASTES

The majority of the population in Hazaribagh are Hindus. Some of them, like the Bhuiyas and the Kharwars are aboriginal or semi aboriginal in origin. The castes of Brahmins, Bhumihar Brahmins, Rajputs and Kayasthas are well represented. The most numerous functional castes

are, however, Gowalas, Telies, Koiris, Kahars, Hajjams, Burhees, Dusadhs, Kumhars, Turis, Suris, Sokiars and others. The Gowalas are mostly found in the northern half of the district. Most of them are taken to have come to Hazaribagh from the neighboring district of Gaya. A large number of them have given up pastoral pursuits and are now only cultivators. The Koiris are essentially an agricultural and horticultural class . Telis, are engaged as oil pressers and also as cultivators. The kahars, hajjams, Burhees and Kumhars, who are the other common functional castes, are well distributed throughout the district . There are other functional castes well distributed all over the district like Dhobis (washermen), Lohars (ironsmiths), Mallahas (fishermen) and sonars (Goldsmiths), etc.

There are a number of aboriginal and quasi-aboriginal tribes in Hazaribagh district. They are Bedias, Bhogtas, Bhuiyas, Ghatwals. Mundas, Oraons, Rajwars, Birhors, Santhals and Kurmees. Authorities like Messrs. J.D. Sifton and S.C. Roy have referred to these tribes as such in their *Final Report on the Survey and Settlement Operations in the district of Hazaribagh* (1908-1915) and Roy's works respectively. These tribes have been found in the district of Hazaribagh from remote times although their origin or immigration is shrouded in legend and mystery. There is, however, no doubt that in the remote past some of these tribes were masters of certain portions of the district.

Some of the important tribals as original residents in the district, are Mundas, Birhors, Oraons, Santhals and Bhuiyas. The other tribes which are not so important numerically are Bedias, Bhogtas, Ghatwals, Kurmees, kurmalis and Rajwars. A brief note on these tribes is given first.

Bedias.- The Bedias are practically confined to Ramgarh Thana and they are now essentially cultivators as distinct from professional snake charmers like their ancestors. According to the Santhal tradition they are the descendants of those Santhals who were feeble-minded and fled from the social outrages threatened by Madho Singh. Hunter treats them as pure Mundas. Their physical features and social customs with the Pahan and similarity of the names of their killis (exogamous subdivision) make them more akin to the Mundas.

Bhogtas.- Bhogtas are confined mainly to the Sadar and Chatra subdivisions. The Bhogtas are mostly herdsmen and cultivators.

Ghatwals.- It is generally believed that Ghatwals were originally Ghatwars of the Bhuiya tribe who used to guard the mountain passes.

Kurmees.- The Kurmees along with Koiris are the best agriculturists of the district.

Kurmalis- They are found mostly in Ramgarh, Golah and Peterbar thanas of the Sadar subdivision. Previously they were iron-smelters (blacksmiths) but now they have become agricultural labourer.

Rajwars-The Rajwars are mostly confined to a narrow strip of the district bordering on Gaya and are now counted as a Scheduled Caste.

Mohamadans- They are found mostly in the Giridih and Sadar subdivisions. The numerically important sections among the Mohamadans are Ansaris, Sheikhs, Kalals and

Pathans. Ansaris are spread all over the district but the majority of them live in the Giridih subdivision. The Mohmadans are mostly cultivators and weavers. There were some Muslim landlords in Sadar subdivision .

Christians-There are several Missions working in Hazaribagh district, namely, the Gossner Evangelical Lutheran Church, the Roman Catholic Mission, the Dublin University Mission and the United Free Church of Scotland Mission. They are working mostly among the aboriginal and backward classes. They are responsible for a number of medical and educational centers which will be noticed at their proper places. It is remarkable that in spite of the work of the Mission for over a century the number of Christians in the district is extremely small and very much in contrast to the neighboring district of Ranchi.

LANGUAGE : The opening of the Damodar Valley Project has drawn a considerable number of people from various parts of India and particularly from Southern India. This is responsible for a variety of languages and dialects being spoken. The principal languages which are spoken by a large population are Hindi, Santhali, Oraon, Mundari.

Distribution of Tribes in Hazaribagh District

Hazaribagh

Tribals	Total	Male	Female	Tribal population of 1971	1981
Birhor	4377	2254	2123	0.07	0.07
Karmali	38651	19706	18945	0.55	0.66
Khond	1264	625	639	0.01	0.02

Population and Percentage of Tribal population in Hazaribagh

1971		1981	
Total pulation of Tribal	% of Tribal Population	Population of Tribal	% of Tribal Population
198792	9.05	9142819	8.68

THE TRIBES: The tribes of the district offer a fascinating study and form an important part of the population.

Mundas.- Col. Dalton, Col. Tickel, Hunter Risley, Ball, Bell, S.C. Roy, Bradley Birt, Reid, the *Settlement Report of the Ranchi District, the Imperial Gazetteer of India and the District Gazetteer of Ranchi* (1917) are of the opinion that the Mundas were the earliest inhabitants of Chotanagpur, and none of them has a word to say about the Bhuiyas or the Chutias as prior to the Munda "The traditions of all the tribes and castes, including the Bhuiyas, of the Ranchi district or the central plateau of Chotanagpur agree in attributing to the present

tribe of Mundas the foundation of its earliest villages after the extermination or absorption of the pre-historic Asuars". *(Chotanagpur Chutias and Bhuiyas,* by S.C. roy in *Journal of Bihar and Orissa Rsearch Society,* Vol. 18, page 68.)

According to the tradition of the Mundas, they came from the north. Being pushed eastward by the advancing tide of the Aryan Conquest. They reached Ajabgarh (present district of Azimgarh in Uttar Pradesh) and dwelt there unmolested for a long time. Azimgarh forms the starting point of their historical traditions. From there, so runs the Munda tradition, the Mundas migrated and settled successively in between places like Kalanjargarh, Garh Chitr, Mandar Pahar, Bijnagarh, Hardinagar, until they reached Omedand, a village not far from the meeting point of the Ranchi, Hazaribagh and Palamau districts, where they founded their first settlement in Chotanagpur, and separated from the Santhals who crossed the Damodar river and passed on to Manbhum and the Santhal Pargnas. Mr. S.C. Roy, the author of "the Mundas and their Country" has accepted this tradition of the Mundas.

As mentioned the route by which the Mundas entered the district of Ranchi was along the border of Hazaribagh and Palamau. They were, it seems, sojourners in this area, and only a small number remained and made permanent settlements in this district. Traces of Mundari settlements are not uncommon over the west and south of the district. The numerous tribal village names such as, Lowalong and Kasilong and the monolithic grave and memorial stones which are found in that area are reminiscent of the mundari settlements there. In this district there is no parha or patti organization. It is however, gathered that not long ago there was a manki-patti round about Laranga to the south of Tandwa. Here there are some conspicuous bid-diris or erect memorial stones; and to the west there is a tola which is still called Mankidih. The Settlement Report (1908-1915) recorded the existence of a Mundari khunt-katti family at Kormbe in thana Ramgarh.

The Mundas are found mostly in the Sadar and Giridih sub divisions, while they are negligible in the Chatra subdivision. The number of the Munda has increased due to the arrival of their fellowmen from Ranchi for employment or settlement but the vast majority of them are the descendants of those who had made early settlements. They have maintained very little contact with the Mundas at Ranchi and thus, under the predominant influence of the Hindus around them, they have lost most of the Munda culture, customs and practices. Many have lost their languge and religion. They are as a class poor and illiterate.

The Mundas were the original reclaimers of the soil over the area in which they settled. Each family made in the virgin forests its clearances and established khunt-katti hotus or the villages of the family of the original settlers. The descendants in the male line of the original settlers are known as khunt-kattidars. The headman of each village was a Munda who exercised civil functions. The pahanr or pahan or priest was the religious head. Several villages of one killi or clan formed an association for common social and administrative matters. It was known as a patti or parha with a Manki or Raja as its head. The Mundas were originally republicans but later on, kingship was instituted and they were gradually reduced to servitude. Their khunt-katti rights, largely due to their own ignorance and folly,

were destroyed everywhere except in 156 villages (153.7 square miles) in the Ranchi district. Only a few fragments of the old khunt-katti lands of the original cleaners of the soil have been left to their descendant as privilege tenures, and these are called their bhuihari lands.

The main occupation of the Mundas is agriculture. The Mundas have no temples or images. The sarnas or groves, the remnants of the ancient forest, within village boundaries, often near a stream, are the only temples known to them. The sal tree cluster has a sacred appeal to them.

The chief officers of a Munda village are the mahato, the pahan and munda. The mahato has taken the first place. The ancient parhas are still in existence. The head of the parha in the khunt-katti area is still called manki. In the Bhuinhari area, he is called raja and is assisted by the dewan, the kuar, the lal, the thakur, the kotwar and other officers. The titles have been adopted from the Hindus. Each parha has a separate flag. Attempts are being made to strengthen the organization.

Birhors.-The number of Birhors in this district was 1,024 in 1911, 1,143 in 1931 and 1,623 in 1941. They are found mostly in the Sadar subdivision. The Birhors or forest men are closely allied to the Mundas who often call them as Bir Mundas or forest Mundas. Their language is but a Mundari dialect, showing a strong Santhali influence. Their origin and advent in this district are not known. It is often said that Madho Singh, who drove out the Mundas and Santhals from Ruidasgarh, was a Birhor.

They still lead a very primitive life. They are divided into two groups, i.e., uthlu (migratory) and jaghis (settled). The uthlu Birhors are quite nomadic and live in groups of three to ten families camping In the jungles, remaining only for a week or two on the same spot except during the rains, and moving from jungle to jungle on a regular round, completed in aabout two years. They return to the original place and start once more on a similar move along the same route. The jaghi Birhors, on the other hand, are those families that, tired of toil-some wanderings, have settled down on some hill top or the outskirts of a jungle. Some of them produce maize or beans during the rainy season. Majority of them are landless. Slightest ill-treatment by the landlord or neighbours makes them migrate to some more suitable place, or fall back to their old uthlu life.

The settlements of the jaghis as well as the temporary encampments of the uthlus are both known as tandas. A tanda cousists of about half a dozen or more huts. The uthlu huts have no walls; they are made of branches covered with leaves. Those of the jaghis are like wise leaf-covered, but are larger and have walls. They live on deer, hares, monkeys, rats and other traped animals, on edible roots and potherbs found in the jungles and on rice procured by the sale or barter of honey or of twine and carrying nets made with the fibre of Bauhinia scandens. They are very skilful in hunting, discovering wild honey and making ropes.

In each tanda or camp there is a naya, temoral and spiritual head, supposed to be supernaturally elected, but practically hereditary. He appoints his helper, the kotwar. There are one or more soothsayers called mati. The Birhors, like the Mundas, are divided into

exogamous clans mostly named after some animal or fruit. They have no temples. The jaghi Birhors worship in a sacred grove called jilu jayer, marked by one or more trees and a few blocks of stone. The uthlu Birhors carry their gods, represented by stones and wooden pegs, in baskets and worship underneath a tree.

Oraons.-The Oraons or Kurukhs are Dravidians. Nothing definite is known about their origin and wanderings. Their own traditions point to the Deccan as their original home. Either owing to over population, or external pressure, or for some other reasons, which cannot be ascertained at this distance of time, they appear to have gone up the Narbada from the Deccan or then across the Vindhyas to what is now the Shahabad district in Bihar. Here they settled down on the hills and valleys as agriculturists and landowners.

The centre of their settlement was Rohtasgarh, the legendary Ruidasgarh of the Mundas and Santhals. The District Gazetteer of Shahabad, read "The tradition that Rohtas was once the seat of their rule lingers among the Kharwars, oraons and Cheros.....the Oraons assert that Rohtasgarh originally belonged to their chiefs and was finally wrested from them by the Hindus who surprised them at night during their great national festival, when the men had fallen senseless from intoxication, and only women were left to fight." (Page 175, Gazetteer of Shahabad by O'Malley, 1924.)

Being ousted from Rohtasgarh, they split up in two groups; one branch still known as male proceeded northward up the valleys of the Ganges or Ganga, and ultimately established on the Rajmahal Hills, and the other branch, the ancestors of Kurukhs, went down the Son and up the north Koel southwards through Palamau into the Chotanagpur plateau where they found the Mundas already in occupation of the country.

The Oraons are divided into a number of clans or gotras. They are totemistic. The fauna and flora supply the bulk of the totem names. The village priest is known as pahan. If the man who originally cleared the jungle from the site which is now the village happened to be a Munda, the Oraons of the village will often have a Munda as their priest, as he will in their view be better able to deal with the village gods. The principal festivals of the Oraons are phagu, sarhul,sohorai. Kadleta and karam held at different seasons of the year. The secular head of the Oraon village is called mahato. A number of villages make a parha or confederacy. It has a raja, a dewan, a kotwar and other officials.

Bhuiyas.- The name Bhuiya has been derived from the Sanskrit word Bhumi meaning land. Mr.B. C. Mazumdar, explained the name by saying that the Bhuiyas were so called because they were owners or "masters of land" (bhui). In his book, "An Account," Mr.Stirling included the Bhuiyyas among the Munda tribes. Dr. Hutton, in the Indian Census Report of 1931, classes the Bhuiyas in the Munda group. Mr. S. C. Roy examined the statements of several authors on the subject and also carefully studied the Bhuiya life specially in Orissa and eventually expressed the opinion that they are a section of the Munda group. This appears to be acceptable .

The Bhuiyas were one of the earliest settlers of the district and for a long time they remained the master of the district. The Bhuiyas had their tribal chiefs. Subsequently, these

chiefs were reduced to the condition of tenure-holders by the ancestors of the present Rajas of Ramgarh (Padma) and Dhanwar. They were made Ghatwar of Ghatwal (guard of the hill passes). They did not remain loyal to their kinsmen for long. They assumed the title of Tikaita or Thakur, posed as Hindus, took the caste of Surajbansi Rajputs denying their Bhuiya origin, and installed Hindu dewans, generally Babhans, to manage their estates. Mr. McPherson, in his Settlement Report of the Santhal Parganas (1898-1907), writes thus of these Bhuiya Chiefs : "Their Chiefs make the usual Kshattriya pretensions and calling themselves Surajbansis disclaim connection with their bhuiya kinsmen. But the physical characteristics are all alike Dravidian, and in Captain Brown's time (1772-78) the Chiefs never thought of claiming to be other than Bhuiya. The Bhuiyas now from an element of landless labourers or petty cultivators throughout the entire district. The Bhuiyas's number is very large but their condition is rather poor and pitiable.

The Santhals.- There were 97,836 Santhals in Hazaribagh district according to the Census of 1951. The Santhals speak the Santhali language. It is note-worthy that although there was no written script for Santhali language, human memory as in the case of other tribes like the Mundas and the Uraons had kept up a fund of stories, riddles, folk songs, proverbs, idioms and sayings handed down from generation to generation. Hazaribagh with its picturesque forests, rivers and hills has a strange fascination for the Santhals. The river Damodar has all along been the very heart-throbs of the life of the Santhals. The Parasnath Hills are their marang buru or the sacred hill.

The origin of the appearance of the Santhals in Hazaribagh district can only be guessed. Regarding their original home there has been a belief according to an accepted Santhal tradition that Hihiri, their earliest home, was the pargana Ahuri and from there they moved to Khej Kaman and from there to Hara and then to Sasag-Bera and then ultimately to Chai and Champa. Chai and Champa are recognized parganas in the district of Hazaribagh. Col. Dalton mentions that traditionally the old fort in Chai was occupied by one Jaura, a Santhal Raja. The Santhal tradition in Hazaribagh is that from Chai and Champa a portion of their community migrated to the Santhal Parganas. This theory of the movement of the Santhals cannot be said to be authoritative but there may be some truth in this migration. The river Damodar and the hills and forests of Hazaribagh find a very prominent place in Santhal stories, songs and traditions.

The Santhals are divided into several septs, namely, hansda, murmu, kisku, hembrom, marandi, tuddu, baska, besra, pauria, Chore, bedia, etc. The first seven of these septs are said to have descended practically from the original father and mother of the Santhals, Pilchu Hormom and Pilcuhu Bhurhi, while the remaining septs were added after wards. The septs have certain pass-words by which they are recognized by one another. But the septs Pauria, chore and bedia have no pass words of their own. It is interesting to observe that one of the pass words of hansda sept is tatijhari which is an important village in Champa pargana in Hazaribagh district. This may also be a corroboration of the theory that the original home of the Santhals was in Hazaribagh district.

Santhals have an abandon which is let loose during the festivals. Festivals are their very life. Some of the festivals are intimately connected with their religious traditions. When the sal trees come into flowers during the month of Falgun (February-March) they have their great baha pooja which has its opposite number of bah-parab amongst the Mundas of Chotanagpur. Some of the festivals like sohrai and sankranti pooja are common for all the aboriginals of Chotanagpur. During all these festivals tribal or family sacrifices are held and dances and drinking accompanied with songs, flute-music and beating of the drum (madal) go on for days and nights, Sohrai in the month of Paush (November- December) is called paush-parban in Bengal. It is celebrated for the home-coming of paddy, the chief crop of the year.

Their religion consists of worship of several gods. Marang-buru is at the head of the Santhal Pantheon while the other deties are Thakur, Modeko (Fire God) and Jal-era, the deity of the grove which has its counterpart amongst the Oraons and Mundas in the smaller God that presides over the sacred grove known as saran. Each Santhal family has also two sets of Gods of its own, namely, Ora-bonga, i.e., household God and "Abke-bonya", i.e., great God.

In Hazaribagh district also there was a big Santhal Insurrection in 1855-56 which had little connection with the rise of the Santhals in the Santhal Parganas. The old records show that the administrators in Chotanagpur Division were very alert that the Santhals in Hazaribagh district during 1855-56 Insurrections did not have any contact with the Santhals elsewhere. The Santhal rebellion in Hazaribagh district was purely agrarian. The Santhals found with an alien rule which little understood them. Their best lands were grabbed by the mahajans (money-lenders), or the speculators and they were in perpetual indebtedness. Their tribal laws and panchayats were not regarded as sacred. They thoroughly disliked the idea of going to the courts and be tossed about by the hardened court-birds who sucked them well before they could be taken to the lawyer. All these socio-economic causes led to distrust in the administration and this dissatisfaction slowly crystallized. The socio-economic condition of the Santhals was very poor excepting in the case of the Christian Santhals. The mahajans and the land grabbing speculators had taken full advantage of the simplicity and thriftlessness of the Santhals. Then came the earlier industrialists, mine-owners, forest-contractors and the like. The Santhals gave their life blood for all these groups throughout the 19th century and a part of the earlier 20th century without getting much benefit for their own. They perpetually remained in debt. It is only recently that serious steps have been taken to improve the condition of the Santhals.

TREE WORSHIP

Certain trees as pipal, banyan and auwla are worshipped by the villagers. Pipal tree is considered to be sacred and nobody generally cuts it down or uses its wood for fuel. Spirits are believed to live on pipal trees and they are worshipped if they happen to lie in the village or outside it near a temple, etc.

GEOLOGY AND MINERAL RESOURCES:

The District has long been famous as the home of the well-known ruby mica and has several large coalfields. The portion of the Jharkhand mica belt and the coalfields that lie in this district are economically the most important.

The main geological formations of the district are the following: -

(1) Recent deposits of alluvium and laterite.

(2) Post Gondwana — Dykes of basic Cretaceo-Eocene. Igneous rocks.

Dykes of basic Jurassic and Triand Ultrabasic assic. Igneous rocks.

(3) Gondwana system.	Uppe		Panchet or Mahadevas	Lower Jurassic Lower Triassic.
			Panchet series.	Upper Permian.
			Raniganj series.	
			Ironstone shales.	
				Middle Permian.
	Lower	Damuda	Barakar Series with Karharbari stage.	Lower Permian.
			Talchir series withglacial boulder bed.	Upper carboniferous.

(4) Basic intrusives, meta dolerite, amphibolite and epidiorites.

(5) Mica pegmatites and granite pegmaties.

(6) Chota Nagpur granite gneiss.

(7) Dharwars-Crushed or fault breccia, garnet-amphibole schist, Granulites, schists, phyllites, quartzites, etc.

The pegmatites represent the end products of the granite magma that had earlier formed the dome-gneiss. The pegmatites, which carry mica, are always associated with mica-schists and gneisses, while the pegmatites that traverse the dome-gneisses, do not contain workable quantities of mica. There are two types of pegmatites, namely, simple and complex. The simple pegmatite is a microcline-pegmatite, consisting essentially of microcline and quartz with subordinate muscovite, which is not usually in workable quantity.

The complex pegmatites are mica-bearing. They are plagioclase mica-pegmatites. In addition to plagioclase and muscovite, they contain tourmaline, apatite, garnet and beryl. The minerals occur as big crystals. These do not traverse the granite-gneiss but are confined to the country rocks in the manner of lenses, and the schist inclusions in the granite and they follow the strike and foliation direction of the schists. The 'books' of mica are found on both the foot and the banging walls of mica occur quartz forms as a central core with books of mica on its two sides. The mica in the pegmatite is associated with a

peculiar grey quartz locally known as 'Kajra' Meaning black. There is another type of colloidal silica known as 'Jogni'. These are considered as a good indicator of mica. The quartz is followed by a massive zone of felspars locally called 'Harwa' followed by massive quartz in the core known locally as 'Bhuja' which, as has been said above, may not be present always.

The next younger geological formation in the Division belongs to the Gondwana System, the lower division of which comprises the most important coal measures of India. The coalfields of the Hazaribagh district lying in the Damodar valley are the westerly continuation of the great belt of coalfields beginning with the Raniganj coal-field in West Bengal and followed by the Jharia and the small Chandrpura coal-fields in the Manbhum district. In the Hazaribagh district they begin with the Bokaro followed by the South and North Karanpura coal-fields. All these were once part of a great spread of Gondwana strata along a rift valley formed by through faulting along the Damodar valley-the rift being a branch of the main belt of through faulting following the line of the Narbada-son.

The oldest Gondwana rocks belong to the Talchir Series. They consist of greenish splintery needle shales and greenish buff-coloured earthy sandstones and trappoid shales. These have been found in almost every area of coal-bearing Damuda rocks. The basal boulder-bed is rather uncommon. The Talchirs rest over the older rocks with a great unconformity but are overlain by the Damudas with a slight unconformity. The discovery of striated boulders, and occasional facetted pebbles and glaciated pavements led to the conception of an Ice Age before the end of the Carboniferous period in Gondwanaland. The Talchir boulder-bedhas the appearance of a re-deposited water-sorted moraine formation.

Plant fossils have been found in the shales overlying the boulder-bed with a slight unconformity. The best occurrence is that near Rikba (23o 45' : 85o 22') in the Karanpura coal-field. The plant-bearing rocks are lithologically similar to the Talchirs but pass conformably to the Barakar strata.

Upper Gondwana strata are found in the Bokaro coal-field and the North Karanpura coal-field. In the Bokarofield, all the subdivisions of the Damudas are found. The deepest part of the coal-field is under the Lugu Hill where Talchir rocks show up at the east and west ends of the field below the Barakars. The plinth of the Lugu Hill is made of sandstones which are correlated with the Mhadevas of the Satpura region and the Dubrajpur beds of the Rajmahal Hills. There is, therefore, a great break between the Panchets and these top beds.

In the North Karanpura field the Panchet beds are well developed along the base of several hills, those of Mahudih, Satpahari, Malhan (Gerwa), and Tarhi, where they are capped unconformably by the Supra-Panchets or Mahadevas.

Karanpura Coal-fields :

The Karanpoura coal-fields form two areas of Gondwana rocks in the upper part of

the basin of the Damodar between 23o 38' : 23o 56'; and 84o 46' : 85o 28'. Their extreme length from east to west is about 44 miles and their extreme breadth from north to south is about 22 miles. Their total area is roughly about 550 square miles and they occupy portions of the districts of Hazaribagh, Plamau and Ranchi, about two-thirds of the total area being in the Hazaribagh district. The South Karanpura field lies entirely in the Hazaribagh district.

South Karanpura Coal-field:

The South Karanpura coal-field forms an elongated strip of Barakers along the Chingara fault and has an outlier of Barren Measures with basal Raniganj Measures westward from south of Sanda (23o 40' : 85o 20') to Binja (23o 40' : 85o 13'). It is connected with the North Karanpura field by a small strip of Talchirs about Hosir one and a half miles north-west of Patal Hill. It has an area of 75 square miles between 85o 9' and 85o 30'. The South Karanpura field has been developed greatly and several railways and private firms have their quarries. The railway station of Barkakana is situated at the south-east edge of the field. There are two coal beds, the upper 50 feet and the lower 38 feet thick, separated by sandstone, shales and shaly coal, mixed coal and shale.

North Karanpura Coal-field

The field extends between 84o 49' and 85o 27' and has an area of 550 square miles. Besides Talchirs, Barakars, Raniganj, Panchets and Mahadevas also occur. Coal seams occur in both the Barakars and Raniganj. There is a large number of seams some over 72 feet.

IRON-ORE: Lenticles and nodules of iron-ore are found in the Bokaro, Ramgarh and Karanpura coal-fields. These were at one time used by indigenous smelters.

LIMESTONE: Isolated patches of limestone occur along a belt extending east and west parallel with the coal-fields between Ramgarh and Palamau. These are associated with schists and dip at a steep angle and appear to persist to some depth.

MICA.: The mica industry of Jharkhand is of great importance not only to Jharkhand , but to India and the World. Nearly two third of the world's sheet mica comes from India and eighty per cent of India's total production of mica comes from the Jharkhand mica belt, a part of which is situated in the Hazaribagh West Forest Division. The ruby mica of Jharkhand is regarded as the best mica for electrical purposes. The Kodarma Reserve Forest area was thoroughly prospected by 'Uparchala' mining since many small mica miners abandon the mines filled with debris after scraping off whatever mica is available near the surface. When deep pegmatite is proved, systematic mining is undertaken. Stopping commences after the pegmatite has been thoroughly explored by deep mining methods and yields rich quantities of mica.

INDUSTRIES

The main occupation of the people of Hazaribagh is cultivation but industries in the district are growing in importance and absorb a large number of the people. There are

rich mineral deposits in the district. Mica and coal are the two most important minerals found in abundance. Besides working in the mining areas some of the other main occupations of the people are in connection with timber, firewood and biri leaves.

Coal-mining is one of the major industries of the district of Hazaribagh. The important coal-fields in the district are Bokaro, Ramgarh, South Karanpura, North Karanpura (partly in the Palamau district). The other important industries in the Hazaribagh district are mica mining and mica splitting. Mica industry in Hazaribagh has certain remarkable features. In spite of the large number of people engaged in this industry and the large output, the industry could still be called a cottage industry so far splitting of mica is concerned. Another important industry of the district is limestone mining. A large quantity of limestone is burnt annually for use in the building trade as lime for mortar and plaster. Limestone is required also by the iron and steel industry and in the manufacture of glass and chemicals. It forms the main ingredient of cement. There are three main areas where limestone is found in the Hazaribagh district, viz., Bundu-Basaria, Kurkuta-Religara and laping Bhurkunda-Kursa.

LAC AND SHELLAO : Another important industry is the cultivation of lac. Lac is extensively grown in the Chatra subdivision and Gola area of Sadar subdivision. Small shellac manufacturers are working in the Chatra subdivision and Gola police-station of the Sadar subdivision. Hazaribagh district had a much more flourishing lac business some years before. Chatra was the main center for lac business.

FOREST PRODUCTS: Hazaribagh district is rich in forests. Valuable timber and other forest raw materials are available from these jungles. A large number of saw mills are running at Ramgarh, Hazaribagh and other places in the district. Biri leaves are collected and the bulk of it is sent to Chakradharpur in Singhbhum district and other places for preparation of biris. Quite a good number of people could be said to be engaged in biri industry.

MINOR COTTAGE INDUSTRIES :

There is a large number of minor cottage and village industries in existence in the district of Hazaribagh. These include sericulture wool-weaving, spinning, knitting, blacksmithy, goldsmithy, stone-carving, wook-work, toy-making, mat-making, bamboo-basket-making, potteries, tiles and bricks-making, oil ghanies, lime-making, charcoal burning, etc. No particular area of the district is specialized in any of these industries. They are found scattered throughout the district.

Agriculture :

Many Kinds of soil, namely, gravely soils, sans loam, red ferruginous loam, rive alluvium and even black sticky clay are found, which show on the average 0.05 percent Nitrogen, 0.001 per cent Phosphate, 0.010 per cnt Potash and 5.5 to 6.8 per cent, the maxium value of Nitrogen being 0.106 per cent and the minimum 0.027 per cent.

According to the commonly accepted terminology the soild of the district can roughly be classified into three categories, namely (1) kewal, (2) lalki matti, (3) daudhiya matti. Kewal soil is dark grey in olour and is the most fertilie in the district. With the help of the common manure of cowdung or cmjpost and chemical fertilizers it has yielded up to 120 maunds of paddy per care. The red soil is more common in the district and grow maize, bajra and arhar during kharif season and surgujiya (oil-seed) during rabi season. If irrigational facilities are available paddy could also be grown and red soil. Durdhiya matti or calcareous soil has an excess of lime and could only be cultivable with the help of a profuse quantity of cowdung and other organic materials.

In the last District Gazetter of Hazaribagh published in 1917 Lister has classified the land of the district under two broad heads namely (a) Don dhan-khet, terraced or wet land, and (b) uplands, tanr, dry cultivation. He made three classifications under both the categories of land and gave the following statistics :-

(1) Don first class - The total area was mentioned as 70,366 acres.

(2) Don second class - This was also known as dorasa, kanali, singha and gogry lands with an area of 11683 acres.

(3) Don third class - This was also known as Tarakla or Tarnkhet with an area of 308497 acres.

Since the publication of the last District Gazetteer much of this classification has naturally changed owing to more intensive and continued cultivation. A large percentage of third class Don lands have been by now transformed into first or second class Don lands. Similiarly Don second class may hae been converted by now into Don first class by better irrigational facilities, construction of ails and use of manures. Some land has also gone out of cultivation.

AGRICULTURAL STATISTICS :

Lister gave the following statistics for uplands or tanr lands for dry cultivation. -

(1) First class - known as bari or charbari including the few plots of land on the level of the river bed which grow sugarcane. The area under this head was 83,364 acres.

(2) Second class - known as bhita lands and covers an area of 373435 acres.

(3) Third class - known as tanr with an area of 33146 acres.

Current fallow Includes -

(a) Land ordinarily cultivated each year, but left uncultivated in the year of period.

(b) "It is the custom of the district to eave tanr lands fallow from time to time. The cycle of years according to which the lands are cropped has been recorded in the case of each field, and reckoning made accordingly. Thus a field of three

cres only cropped one in three years, will appear as three acres in the gross column and as one acre in the net column." The balance of these two areas is shown above as current fallow.

The 1953 agricultural statistics collected by the Agricultural statistics section of the Revenue Department either through sample survey or by eye estimation or national sample survey are as follows:-

		Acres
(1)	Cropped area	1175184
(2)	Current fallow	458433
(3)	Cultivable waste	480442
(4)	Orchard	2682
(5)	Gairmazarua (tanks, houses, etc)	622358
(6)	Uncultivated waste	1817451
	Total	**4556550**

The cropped area expressed in thousand acres now consists of paddy (678), wheat (2) gram (18), barley (14), maie (1,01) masoor (2) arhar (21), khesari (5), sugarcane (9) potato (9) and chillies (10). Marua,, goonli and oil- seeds also occupy some lands.

AGRICULTURAL SURVEY:

The main agricultural seasons in the district are three, namely, (1) kharif, (2) rabi (3) zaid.

Kharif - The Kharif season starts from the third week of May and lasts till the end of October, maize, arhar, etc, Most early varieties of paddy are grown by broadcast method and the seed required is about half a maund per acre. Recently Japanese method of paddy cultivation has been introduced in the district. It is claimed that in some of the areas put under Japanese method of rice cultivation the yield has doubled and has recorded about 30 to 40 maunds of crop per acre. The yield of other crops. i.e. maize, maruna and arhar comes on the average 5 maunds per acre.

Rabi - The season starts by the end of October and lasts up to the last week of February. The main crops grown during the season are surgujiya wheat, gram, mustard, barley, potao, etc. The area sown in this season comes to 148000 acres. Lack of irrigational facilities and stray cattle are some of the reasons that stand in the way of increasing the acreage. Attmepts are being made by the Agricultural Department to encourage the cultiatiors to take the double crop by holding demonstrations of both wheat and paira gram. In double cropping mustard seed is put after maize and wheat after paddy. The variety for wheat recommended is the variety known as NP . 52. The variety as been found good in other

respects except in threshing. The other varieties of wheat that take to the soil are BR 319, NP. 761, 755 and 799. The average yield of surgujiya is 3 maunds per acre.

Zaid - During this season from beginning of March up to the second week of May people grow mostly vegetables, like kadu, kohra, bhindi, French beans, etc. two vegetables belts have been encouraged in the district. One is within the radius of five miles of Hazaribagh belts of the district is about 1700 acres. Vegetables are also grown in the winter and rainy seasons There is a great scope for more vegetables to grow in this district.

LIVE STOCK :

The comparative statistics of the livestock population of Hazaribagh district from 1940 to 1951 have been shown in the statement on page 198. The figures show and increase in the livestock population but the performance is very poor. A cow of this district has an average yield of not more than 6 or 7 chataks of milk and bullocks and buffaloes are also of small statuture. They are not very suitable for hard ploughing. The bulls are of inferior strain. The Animal Husbandry Department has distributed a number f pedigree bulls in the rural areas of the district. Goshalas at Pachamba, Giridih, Hazaribagh and Koderma have also been given some pedigree bulls. An artificial Insemination Centre has been opened at Hazaribagh. The Animals Husbandry Department is discouraging the use of inferior bulls for breeding purposes by encouraging a mss castration of bull calve. A small poultry farm has been opened at Bokaro. There are also small poultry farms at Hazaribagh and Sitagarha.

IRRIGATION

In the last District Gazetteer of Hazaribagh the following paragraphs from the settlement Reports was quoted:-

"Except in Gawan, Satgawan and Hunterganj where the riparian villages are irrigated from the Sakri and Leelajan rivers there is no irrigation in the district except from ahars and wells. Irrigtion from wells is onfined to cultivation with the bari lands adjacent to the village site and to sugarcane. Irrigation from ahars is confined to the lower rice lands which are classed as dhan-kht (1) and (2). The total area of land benefited directly by irrigation is 1382 acres, which represents only 1.07 per cent of the cultivated area."

In comparison to this picture in 1917 there has been a great progress in the provision for irrigational facilities in the district. During the management of Court of Wards of Ramgarh Estate. i.e., from 1913-14 to 1937-38, large number of new ahars or water reservious were excavated along with a number of old ones repaired or re-excavated. Almost all the Khalsa villages were provided with one ahar and nearly 5000 acres of gairmazarua lands were brought under cultivation. The total expenditure amounted to Rs. 374202 and the entire cost was borne by the Estate. Since 1935-36 a large number of schemes had been undertaken by the Government for rural water supply. These schemes are not only meant for domestice water supply but also for irrigation purpose. The State took up this work as he landlords neglected maintaining and constructing small irrigation works due to commutation of produce rent into each and the impending abolition of zamindary.

MARKETS

Within the district of Hazaribagh, Hazaribagh Chatra, Giridih, Koderma (Jhumri Telaiya) and Ramgarh are the main markets. The markets of lesser importance are Gola, Peterbar, Isri, Hazaribagh Road, Bagodar and Chauparan.

Hazaribagh West Forest Division:

Introduction:

The larger part of the area of this Forest Division falls in the catchments of the Damodar River. Only a small portion forming the western and south-western portion of the National Park and the small western portion of Hazaribagh Range lie outside the Damodar catchments.

Hazaribagh Plateau : Hazaribagh plateau, on which Hazaribagh town is situated at its eastern edge, extends for about sixty kms from east to west and about twenty kms north to south. Its northeastern and southern faces are mostly abrupt; but to the west it narrows and descends slowly in the neighborhoods of Simaria and Jabra, where it curves to the south and connects with the Ranchi plateau through Tori. The plateau top scenery is characterized by rolling landscape with a number of peaks of various shapes and sizes breaking the monotony of the horizon. Their summit levels lie between 2,000 feet and 2,500 feet.

Chauparan-Kodarma-Giridih Sub-Plateau or Lower Plateau: This plateau is elevated about 800 feet from the level of the Gaya plain. Eastward its northern edge forms a well-defined water - shed between the heads of the tributaries of the rivers of Gaya and those of the Barakar river, which traverses Hazaribagh district in an easterly direction. The slope of this plateau to the east is uniform and gentle, and is continued past the river, which bears to the south-east, into the Santal Parganas. The western boundary of the plateau is formed by the deep bed of the Lilajan river. The southern boundary consists of the face of the higher plateau as far as its eastern extremity, where for some distance a low and undistinguished water- shed runs eastward to the western spurs of Parasnath. The drainage to the south of this low line passes by the Jamunia river to the Damodar. This plateau so contained has a general elevation of about 1,300 feet.

Damodar Trough or Upper Damodar basin :

The western portion of the Hazaribagh plateau constitutes a broad watershed between the Damodar drainage on the south and the Lilajan and Mohani rivers on the north. The highest hills on this side are called after the villages of Kasiatu, Hesatu and Hudua and rise fronting the south 600 feet above the general level of the plateau. Farther east along the southern face spur projects right up to the Damodar river, where it ends in Aswa Pahar (2,460 feet). This spur serves to isolate Karanpura from the rest of the Damodar valley.

From the south -eastern corner of the plateau Jilinga (long) Hill runs down to the Bokaro river. It has a very extensive base and rounded face. Mahabar Jarimo (2,185 feet) and Barsot (2,120 feet) stand in isolation to the east and on the northwest edge of the plateau Sendraili (2,216 feet) and Mahuda (2,410 feet) are the most prominent features. Isolated on the plateau in the neighborhood of Hazaribagh town are several hills of which the highest (Chendwar) rises to 2,817 feet.

In Karanpura there are two conspicuous masses of sandstone hills. South of Tandwa and near the Palamau border Satpahri (2,081 feet) is roughly triangular in shape. Eastward stretches Mahudi Hill, rising to 2,389 feet of which the last 800 are a bold scrap of sheer sandstone and from the north side a detached crescent forms a striking outwork. Further down the Damodar basin, away to the east of Mandu, the great sandstone mass of Lugu compels attention by the boldness of its outline. It is the most prominent natural object around. On the north, it falls almost sheer in a swoon of 2,200 feet to the bed of the Bokaro river, which separates it from the opposing cliff of Jilinga. Its greatest height is 3,200 feet. Inaccessible and covered with thick forests of sal trees, it is the appropriate scene of somber legends of the neighbouring tribes. On the south of the Damodar river the ground rises sharply to the level of the Ranchi plateau, of which the highest station on the border is Baragoan or Marang Buru (3,445 feet). As one proceed northwards to the conspicuous block of Parasnath immediately north of the Damodar a stretch of wooded country is crossed which rises up to the water - shed of the Jamunia. The valley - widening process resulting from the Barakar in the north and Jamunia in the south, have produced the sharp concave crest of the hills running roughly from the west to east. The concavity of the slopes is caused by humid tropical climate.

Chauparan-Kodarma-Giridih sub-plateau and the northern edge of the Hazaribagh plateau show a remarkable topographical feature. "The Grand Trunk Road runs along from Bagodar to Barhi and then moves slightly away but up to Chauparan on the water-shed. It is a dark wall of rocks rising abruptly nearly 1,000 feet or more from the lower plateau below. The most formidable part of the Mahabal ridge near Barkatha, which resembles a huge knife edge, six miles long and 2,251 feet high. Near it is Surjkund, a hot spring from which sulphurous steam and hot water pours out continuously.

The Forest Division: The shape of the Division is oblong crescent about 100 km. long and average 50 km. broad. Total Forest area under the Division is 1775.35 Sq. Km The topography is extremely variable. In the south, the forest of Ramgarh range are mostly situated on the steep northern slope of Ranchi plateau. In Barkagaon and Tandwa Ranges the forests occur on the southern slopes of Hazaribagh plateau and on isolated hills like Mahudi Pahar Niri and Khapia etc. The topography of Mahudi hill needs special mention. It is a high range with precipitous slopes. These slopes are devoid of any vegetation. The forests of Hazaribagh Range occur on the main Hazaribagh plateau where the topography is generally easy to undulating. The topography of National Park range is undulating to hilly. In Barhi Range the forests occur on the northern slopes of Hazaribagh pleateau and on easier topography in the portion north of G.T. Road.

The prominent hills are the Hudu (2761), the Ashwar Pahar (24681) the Batekhut Pahar (2425), the Mahudi hill (2388) and the Mahabal ridge (22511) near Barkatha. In the upper basin of the Damodar forms a through like lands round about Barkagaon and Tandwa surrounded by high hills on all sides.

The Division has a narrow crescent shape extending between the northern slope of Ranchi Plateau on the south and Barakar River on the North.

Adjoining Forest Divisions :-

North :- Kodarma Forest Division
South:- Latehar Forest Division & Ranchi East Forest Division
East:- Bokaro Forest Division
West :- Chatara Forest Divisions

Area Distribution: - On the east there are no natural divisions for the greater part of the boundary. On the north the face of the lower Chauparan - Kodarma-Gridih plateau coincides roughly with the border. On the west the boundary is physically capricious, except where the Morhar River is followed. To the south the crest of the Ranchi plateau is utilized irregularly and in places the Damodar and Subarnrekha rivers.

Water Resources & Utility In Jharkhand :

Jharkhand is full of forest. Forest needs water, and 11 rivers run in the State of Jharkhand. On an average 1200 mm rainfall is recorded in the State, better than the states like Rajasthan, Punjab, Haryana etc. Frequently many Districts of Jharkhand suffer from draught. In the year 1769-70 to 1860 In India country wide draught occurred and lakhs of people died, but in Jharkhand death by scarcity of food or draught was not recorded thanks to good water management in Jharkhand.

The major 10 rivers across the Jharkhand are as follows:-

	Name of the River	Major River / Bay being the mouth of the River
1.	Gumani	Ganges
2.	Mayurakshi	Bhagirathi
3.	Ajay	Bhagirathi
4.	Shankh	South Koel
5.	South Koel	Brahmani
6.	North Koel	Sone
7.	Barakar	Damodar
8.	Kharkai	Suwarn Rekha
9.	Suwarn Rekha	Bay of Bengal
10.	Damodar	Bhagirathi

Annual Availability of Water in the basin of the Major Rivers of Jharkhand (on the basis of 75% dependences)

Total Surface water available	260162 lakh cubic mtrs.
Total Underground water available	49924 lakh mtrs.

USE OF WATER IN JHARKHAND STATE

Irrigation Purpose

Major & Small Irrigation Projects	33727.80 lakh cu. mts
Minor Irrigation Projects	5915.8 lakh cu. mts
Use of surface water in irrigation	39643.60 lakh cu. mts
Use of ground water in irrigation	7715 lakh cu. mts

Households Supply

Surface water	824 lakh cu. mts
Ground water	5561 lakh cu. mts

Industries & Railways

Surface water	6713 lakh cu. mts.
Ground water	1.00 lakh cu. mts.

Surplus water

Surface Water	197117 lakh cu. mts (inside the Basin) 2090 lakh cu. mts (outside the Basin)
Ground Water	36641 lakh cu. mts

Only 23.4% surface water used in State and unused 76.6% water runaway to the sea. 26.6% of ground water used and rest 73.4% ground water has been stored.

Water Resources & Utility In the District :

Damodar-Barakar River Basin

River Damodar valley birth near South-east of District Palamau and join Bhagirathi near Kolkata (West Bengal). Doenand, Rahera, Saphi, Garhi, Hararo, Batuka, Dhogdaha, Marmaha, Chutua, Bherha, Konar, Jamunia, Khajo, Gowari, Ejhari are the main contributary sources. There are eight District like Palamau (5.28%). Lohardaga (7.33%) Dhanbad-Bokaro (61.94%), Ranchi (14.08%), Hazaribagh-Chatra (35.99%), Giridih (32.44%) of land cover by Damodar-Barakar river-basin.

Barakar River -

Barakar river take birth in the forest of Hazaribagh and run 200 km parallel to Damodar and after that bend to east to meet Damodar. The main contributors are as follows :- Sakari, Barsati, Khero, Bakara, Egara, Usari, Chikari, Khyudia, Beri, Rajoya. River Barakar covers six district like Hazaribagh-Chatra (21.77%), Giridih (43.67%), Dhanbad-Bokaro (38.05%) & Dumka

(8.80%) of total land.

Damodar River Basin Irrigate as follows :-

Sl. No.	Block	Percentage of land in basin
Hazaribagh		
1.	Keredari	100%
2.	Barakagaon	100%
3.	Nagari Churchu	100%
4.	Echak	32.50%
5.	Ramgarh	100%
6.	Gola	72.60%

Barakar River Basin Irrigate as follows :-

Hazaribagh		
1.	Choupan	33.50%
2.	Barhi	100%
3.	Bishungarh	28.50%

Estimation of Irrigation projects on Damodar-Bokaro River basin :

1.	Large and Small Irrigation Project (21)	109472 ha.
2.	Minor Irrigation and Reservoir Project	4547 ha.
3.	Lift Irrigation Projects	16366
4.	Deep well (total 68415)	58891 ha

Blocks of Hazaribagh :

1. Hazaribagh, 2. Churchu, 3. Barkagaon, 4. Keredari, 5. Katkamsandi,
6. Echak, 7. Barhi, 8. Bishungarh, 9. Ramgarh, 10. Patratu,
11. Gola, 12. Mandu, 13. Chauparan, 14. Padma, 15. Barakatha.

RIVERS :

The Damodar Water Shed : The outstanding feature of the drainage of the division is the watershed which separates the basin of the Damodar from that the streams which flow north to join the Ganges. Within that basin the distribution between the Damodar and its tributary the Barakar is of great importance. The main water-shed starts on the western boundary south-west of Simaria on the northern side of Kasiatu Hill, where it runs north and east along the higher plateau passing about seven miles north-west of the town of Hazaribagh. Then it curves beyond Ithkhori and meets the edge of the lower plateau, with which it coincides till the eastern boundary of the district is reached. The Damodar and is tributaries drain the main area in the division.

The Damodar River : After a course of about one hundred sixty kms in the district it traverses Manbhum, Bankura, Bardwan and Hoogly till it joins the river Hoogly below Kolkatta. Near its entrance into the district, where it is joined by the Garhi, its bed is 1,326 feet above sea level. At Ramgrah in thirty-eight mile it has fallen to 1,030 feet and at the junction with Konar after a further course of thirty-five miles the elevation is 713 feet. For the grater part of its course it passes through a sparsely peopled forest country and the long sandy reaches. Near Rajabera, where it prepares to leave the district, it has worn for itself a rocky bed, where except rainy season or heavy rain it breaks into a chain of deep and placid pools. Other than in the dry season it is liable to severe floods in the rains.

Tributaries :

The first tributary from Hazaribagh is the Garhi on Tandwa river, which rises near Kasiatu Hill and drains the western portion of Barkagaon police - station. Next comes the Haharo, on the east of the Muhundi Hill, bearing the drainage of the eastern Karanpura valley. Both are about thirty miles long. "The first three northern tributaries, West Haharo, run through the Gondwana deposits of Karanpura. Their course over the Hazaribagh plateau is insignificant. Here they rise in the jagged peaky Hudua range of hills forming the south-western edge of the Hazaribagh plateau. They create magnificient cascades as they fall over the south-facing escarpment, such as the 100 feet waterfall in the Ghaghra Nadi eight miles to the north-west of the little valley town of Barkagaon. Some of them have also carved out narrow V-shaped gorges, such as the east-west running Taria gorge south of Rajhar Hill, which is barely ten miles south of Hazaribagh town. Once the streams have escaped from these crystalline gorges they flow through the Godwana sediments. The supra- Panchets which are the youngest of these sediments and which consist of massive sandstones and conglomerates here form conspicuous topographic features. They stand as large chunks of flat- topped surfaces, which steep, towering scraps facing outwards and irregularly dented from all sides. The summit levels over their flat tops are nearly 2,500 feet high being equal to those found on the Ranchi and Hazaribagh plateaus, supporting the theory that they are remnants of the same eroded platform. The sandstones and the conglomerates form sheer vertical walls, specially at the top, and stupendous talus slopes at the base. Some of the chunks have been separated from the main blocks, by incutting valleys and stand out separately. The scrap face of Mahundi looks formidable from Barkagaon. The crystalline escarpments of Hazaribagh form gentler slopes. At a point just opposite to Barkagaon a small stream falls over the escarpment a sheer 1,000 feet and creates a ' bottomless' plunge hole, about which there are many folk - lores.

" The southern tributaries of Damodar have developed characteristic valleys inside the edges of the escarpment, sending long arms into parallel ridges. Naikari Nadi has developed the largest number of such valleys. The east - west running face of the escarpment sends out spurs nearly parallel to itself, roughly in an ESE-WNW direction and arms of the valleys run into them flowing in the same direction. This part of the scarp face culminates in Baragaon peak 3,443 feet high which is a conspicuous landmark south of

Ramgrah. Farther down Bhera Nadi sends similar long arms of valleys, this time going up from east towards west right up to Barkagaon.

"Near Ramgrah the Damodar flows over a large rolling plain, nearly 1,000 feet high. Below Ramgarh the river is entrenched in the rocks while it keeps a meandering form. and the last important affluent is the Jamunia, which rises near Bishungarh and after running near the Grand Trunk Road from Bagodar past Dumra turns south to form the boundary with Manbhum.

The river Barakar rises cultivated fields near Ichak, a small town seven miles north of Hazaribagh. But the gorge it has notched in the northern escarpment of the plateau has reached a point only six miles from the source near Padma. Here the river tumbles over a number of small falls and rapids in a wild setting, locally known as the Tiger Pool. Other affluents of the river form a board tree-like pattern on the plateau. But some of these streams have developed valleys parallel to the edge of the escarpment, such as that of the Ketwa.

Emerging from the plateau the Baraker runs northwards and crosses the Grand Trunk Road near Barhi. Here it twice demolished the bridge over it in sudden floods, the last time in October, 1946, after a heavy tropical downpour. "(2) A new cement concrete bridge has been recently constructed. Farther down near the little village of Tilaiya, where Barakar was emerging out of a pair of wall - like ridges, a dam has been constructed. Thus the huge Tilaiya reservoir has been formed.

The Mohani rises about twelve miles from Hazaribagh and drains the north-western part of the Hazaribagh plateau. Its tributaries from the west are Dhab and Garhi. Below its confluence with Garhi, about three miles north-west of Itkhori, it flows through a long and narrow gorge. Here it falls about 100 feet and continues some distance through the gorge. The meandering course of the river indicates that the gorge is due to erosion and not tectonic. It then crosses Grand Trunk Road about two miles from the foot of the Danua pass and flows on into the Gaya plain. The Lilajan begins its journey north of Simaria in the broken country to the west of Hazaribagh plateau and flows through a deep and rocky channel till it reaches the neighbourhood of Jori.

The rivers of Hazaribagh are alike in that they are fed by the surface precipitation of rain water. This is for the most part promptly discharged by the watercourses and very little sinks below the surface; and though springs are numerous there is no single one which yields a copious supply of water. The river basins are for the most part steep and frequently rocky; and rainfall in succeeded by sudden floods of brief duration. At other times a scanty stream trickles over the river's rocky channel or is lost beneath a deep bed of gravel and sand, makuing fisheries valueless and irrigation impracticable except on the lower courses of the Sakri and Lilajan, whose level valleys have been formed from the debris of the ravines above. There are no natural lakes or marshes in the district. A vast reservoir has been formed by putting a dam across the river Barakar near Tilaiya.

CLIMATE : In general the climate of Hazaribagh plateau is much the same as that

of Ranchi, differing from the other neighbouring districts not only in its lower average temperature, but also in the comparative dryness of the air in the rainy season. After the break of the rains in June, the first three months are usually quite pleasant and by the middle of September the mornings already promise the cold weather. From November to the middle of February there is the occasional excessive cold which follows on rain.

As per the data collected for a number of years by an observatory at Hazaribagh, maintained by the Indian Meteorological Department and records of temperature, humidity, rainfall, wind velocity, etc. the mean daily minimum temperature is 99.40F in May and the mean daily minimum temperature is 500F in December. The mean annual humidity is 60 per cent and the average velocity of wind is 5.7 miles per hour. The mean annual rainfall at Hazaribagh is 53.04 inches.

There are the a number of rainfall recording stations established by the Damodar valley Corporation in the Damodar catchment area.

A great variation occurs in the amount of precipitation and distribution of rainfall throughout the district. Continuous rainfall in the end of June or July coupled with absence of sunshine is injurious to the crops . Heavy rain in July is needed for the transplantation of rice and marua, though it can be postponed as regards the former crops till the middle of August without serious loss; but none of the crops already n the ground in July can bear a long drought in that month. The rains should continue at short intervals and in fairly heavy quantities till the middle of September, when slightly longer breaks are desirable for the harvesting of the earlier bhadai crops. But it is most important that there should be good fall in the first week of October, to fill the ears of the early rice, and to give a final supply of water to the lower terraces in which are planted the late maturing varieties. It is on this rain that the fortunes of the farmers depends for without it even the lowest lands will disappoint and higher terraces will yield little or nothing. Owing to the great importance of the mahua crop it is very necessary that there should be no rain whilst the buds are maturing from about the middle of March or earlier, to the middle of April, during which period untimely showers may arrest or prevent the formation of the followers.

SOIL :

The soil derived from the archean rocks are generally sandy loam. The general name given to it is "RED SOIL". The soil is generally acidic. Available - patansh is rich but phosphate is low. The soil derived from quartzite is poor and shallow. The soil overlying the shale of the Gondwana system tends to be clayey & heavy while that overlying the sand stone is sandy loam and light.

The degree of soil erosion varies from sheet erosion to formation of deep gullies. Due to frequent fire and grazing the soil floor is rendered bare of any vegetative cover or cover by dead fallen leaves few rains of the summer monsoon. Water level generally varies from 8 to 10 meters, even during peak summer the water level does not recede lower than 13 meters except in some localities.

THE FORESTS:

PAST FOREST MANAGEMENT:

In old District Gazetteer of Hazaribagh, a view of the picture presented hereafter of the description of forests have been taken to highlight the importance of forestry in the district. Hazaribagh had been a predominantly forest district, for out of its total area of 7,016 square miles as much as 3,051 square miles was covered with demarcated forest. The distribution of the forests by Civil Subdivisions was as follows: -

Sadar Civil Subdivision	-	1,394 square miles.
Chatra Civil Subdivision	-	1,049 square miles.
Giridih Civil Subdivision	-	608 square miles.

The economy of the people is inextricably bound up with forest. In Hazaribagh district the forest is distributed almost uniformly all over. Forest and village occur in a succession though inevitably some areas have been denuded more than the other. In this district, if the forest disappears the village disappears also, or in any case the latter will find most difficult to hold out. It may be added that such a distribution of forest and population as is met with in Hazaribagh district, is an ideal condition for the best utilization of the forest. It is conducive both to the maximum production of revenue and to the conferment of optimum benefits on the local population.

Formerly when forest covered most of the land surface and cutting and clearance were considered laudatory nobody naturally cared what happened to it. Cutting went on without let or hindrance. As the population grew more cutting took place. The balance between forest and population continued progressively to tilt more and more on the side of population and the forest eventually reached a state of denudation that caused concern. The Government-owned forests in Kodarma and Bengabad thanas were constituted Reserved or Protected Forests and given protection and scientific management. The rest belonged to the zamindars and nothing could be done for them. Later, a long time later, a part of the forests belonging to the then Ramgarh estate and under management by Court of Wards was constituted Reserved Forests by agreement under section 38 of the Indian Forest Act. These forests prospered under scientific management and silvicultural treatment but the rest of the zamindari forests continued to be the prey of the wanton axe. Things thus went on with gradual acceleration of cutting caused by the mounting population.

But the crisis was reached during the period of Second World War. An unlimited demand for timber and poles arose from the Defense Department and these forests being the most accessible received the full brunt of the fury of cutting. Indiscriminate felling went on everywhere and almost all the good timber was cut and removed.

Efforts had earlier been made in this district, as elsewhere in Bihar, to induce private forest owners to come to an agreement with Government under the provisions of section 38 of the Indian Forest Act for scientific management of their forests on terms sufficiently advantageous to them. But the owners were not very agreeable. They accordingly held

out. There is no element of compulsion in the provisions of section 38 of the Indian Forest Act, which rather presupposes the first advance on the part of owner himself. Seeing that the conditions had already deteriorated to a point of almost irretrievable damage to the national property Government had to step in with a compulsive enactment. Thus in the throes of impending calamity to the forest was the Private Forests Act of 1946 born. This was a hundred percent compulsive Act and provided for the taking over of private forests by Government for management without reference to the owner's wishes, but guaranteeing that the forest would remain the property of the owner and assuring to him total net profits from the forest, after deducting only the actual costs and not charging even commission for the management.

The Act also safeguarded the rights of the people and contained provision for settlement of any leases that might be the encumbrance of any given forest at the time of the enactment. This act was not a day too early and fortunately not too late either. The drastic Forest Act had received a wide publicity during its bill stage and people hurried in all corners to lay by what they could before, as they mistakenly understood, the doors of the forest for ever were locked against them. The owners cut and sold, the villagers cut and stocked or even in sheer spite or on instigation cut and destroyed. Provisions of the Forest Act also proved unequal to the occasion, for over an unavoidable period of formalities the forest almost hung in the air- it was taken away from the owners but not taken over by Government and nobody could effectively protect it.

Things were, however, remedied as time went on and the chapter of destruction rapidly came to a close. The Forest Department officers and men had to work against an overwhelming tide of psychological and physical opposition, both from the owners and the people in general-the owners opposed and spread disaffection against Government and the Forest Department because they did not relish the forests being taken away from their hands; the people opposed because, although they would gain in the long run by the continued existence of the forest, they were restrained from wanton cuttings and were subjected to control and regulation which of course nobody likes. Ultimately in 1950 the Bihar Land Reforms Act came into operation and all the private forests vested in the State.

Excerpts from the Vegetation status of the District in old District Gazetteer of Hazaribagh :

The district, for purposes of vegetation, is divided into the following zones :

(1) The hills with a height of over 2,000 feet above sea level.
(2) The hills flanking the lower plateau and the ghats leading to it.
(3) The lower plateau
(4) All other lands on the plateau that are not under forest.
(5) The cultivated lands
(6) The rivers, rivulets and the streams on the plateau.
(7) The rivers, rivulets and the streams on the plateau.
(8) The tank, ponds and depressions on the plateau.

(9) The natural lawns.
(10) The protected grass lands.
(11) The lands along the sides of the roads, especially in and near the towns.
(12) The neglected orchards near the towns and elsewhere on the plateau.
(13) The low lands
(14) The introduced plants.

(1) The hills are covered over with a mixed forest consisting of both deciduous and evergreen species and there are present very many thorny species, reminiscent of the scrub jungle of the past. The chief trees are sal (Shorea robusta), Macoranga denticulate, Phyllanthus emblica, Mitragyna parviflora, Adina cordifolia, Legerstromia parviflora, Semecarpus anacardium, Buchanania latifolia, Diospyros melanoxylon and others. The undergrowth is very dense and composed of a wide variety of plants chief amongst which are Lantana camara, Desmodium palchellum, Woodflordia floribunda, Indigofera pulchella, Leea crispa, Flocourtia spp., Grewia, multiflora, Holarrhena antidysentrica, Nyctanthes arbortristic, Vangueria spinosa and others.

(2) The hills flanking the lower plateau and the ghats leading to it- All such areas are covered with a dense forest. The forest is mainly a deciduous monsoon forest, though along the highways and near villages there is much induced scrub. Sal and its associates are there, but the predominance is of the bamboo (Dendro-calamus strictus)

(3) The lower plateau which forms the major part of the district: - This is a vast flat area, the margins of which are flanked by hillocks and a greater part, particularly around the hills and in the neighbourhood of the rivers and streams, is undulating. Till 1946, the greater part of these belonged to the Zamindars and were mercilessly exploited, and in consequence the vegetation had retrogressed to the scrub stage. The chief plants forming the top canopy are the sal and its associates . In the lower conopy are found Acacia arabica and A. Catechu, wood-fordia, floribunda, Holarrhena antidysentrica, Casaeria tomentosa, Gardenia spp., Carissa spinarum, etc. In the ravines and nalas are found Mangifera India, Alstonia scholaris and Casaeria graveolens. In addition to the species in the protected forests the following are seen:-

In the top conopy : Acacia arbacia, A. catechu, Bassia latifolia, Bauhinia variegata, B. malabarioum, Diospyros spp., Macaranga denticulate, Artocarous lakoocha and Cochleospermum gossypium.

In the lower conopy ; Carissa spinarum, C. paucinerva, Grewia multiflora and others.

Scramblers : Zizyphus penoplia, Asparagus raccemossus.

Clibers and lianas : Vitis spp. Bauhinia anguina, Porana paniculata, Dioscorea tomentosa, Hemidesmus indicus and Smilax spp. The undershrubs and herbs are

represented by Pennistum Setosum, Dichanthium annulatum, D. cricosum, Amphilosphis pertusa, Eragrostis pilosa, Alpuda varies, setaria glauca, Oplismenus burmanni, Sehima nervosum, Heteropogon contortus, Sporobolus dainder, Chrysopogon spp., Perotis latifolia and Eragrostis tenella among the grasses. Of the dicots the following are seen: Triumphetta neglects, vernonia cinerea. Spermaoce hispida, Zornia diphylla, Alysicarpus bupleurj-folius, justicea simplex, etc.

In addition to the sal logs, these forest yield valuable timber (paldu, sandam, bablu) furniture wood (sissoo, om), wood for making match sticks and slate frames (bombax), gum (babul), resins (salai), nuts for tanning (amla, harra, baherra) and many medicinal drugs. In fact, the Adivasis get most of the necessities of life out these forest trees.

(4) The hills flanking the higher plateau and the ghats leading to it- They are also covered with jungles denser then their counterparts in the lower plateau. The trees are much taller and there are not many thorny species. Near the villages, due to intensive felling and grazing, the soil of the hills is exposed and erosion is taking place at a rapid rate. Xerophytic grasses like Sehima nervosum are very prominent in such areas. Lantana and Hyptis fringe such jungles. Early in winter the climbers Porana paniculata and Ichnocarpus frutescence cover up the tops of trees with their small white flowers. Reserve forests as in the upper reaches of the Damodar and Barakar rivers are thicker still and show a predominance of evergreen species. Ficus spp., and other form a large proportion of the species.

(5) All other lands on the plateau that are not under forest:- A considerable portion of the plateau is not under forest, and cultivation is also not possible there without a good deal of expenditure and special steps, which the tenant is not in a position to undertake. Such portions cover the areas where the rocks are exposed, or where ravines and gulleys have been formed, or where the top soil is washed away due to heavy sheet erosion, or where the land is very steep.

(6) The cultivated lands: - The areas under cultivation are of two types: the highlands where rain water does not accumulate and the lowlands where it does. In the last category may also be placed the banks and beds of the rivers and streams. All such low lands are terraced and put under rice cultivation. No. artificial means of irrigation having been adopted by the cultivators, the richness or the poverty of the paddy crop depends on the vagaries of nature.

The highlands, particularly if not very sloping and not very poor, are planted with a variety of rainy season crops, such as marua, jowar, arhar, sometimes sugarcane. After this crop the land is sown with winter crops if any irrigation is available and is economically feasible. This happens only near the towns where vegetables are in demand. Pea, tomato, patato, cauliflower, mustard seed, etc., are the common winter vegetables. The sloping highlands away from villages, are superficially scratched with the plough once every two to three years and planted with surguja or kulthi. The lands newly brought under cultivation are similarly treated.

Roundabout the villages and the cultivated lands are seen isolated trees of Bassia latifolia, Mangifere indica, Borassus flabellifer and Phoenix sylectris, the first being very common. Most of then have been planted for their great economic importance. The fencings around the winter crop file grow on them sem, lobia and various cururbitas.

(7) The rivers, rivulets and the streams on the plateau - They are many but they run only during the rains and with great force and as such no vegetation is possible in them. In the summer their beds are dry and show rocks or sand. The few pools here and there show a growth of algae in them. The sloping banks of most of these, if not already cut up by gullies and ravines, are terraced and planted with paddy. Where left uncultivated, a wide variety of grasses grown on them. The very low fields near the level of the river beds are moist and after the crop of late rice show some grasses in them.

(8) The tanks, ponds and depression on the plateau- These show very poor vegetation. The chief species found are Asteracantha longifolia, Panicum proliferum, Homalocendhrus hexandrus, Naias graminea, lilies, lotus etc. The ditches that are on the fringes of the villages and urban areas and receive a lot of refuse matter are very rich in vegetation but grow unless plants such as Scirpus articulatus Azolla pinnata, Lilies, Hydrilla, etc.

(9) The natural lawns - They are covered with small closely cropped grasses like Amphilophis pertusa, Dichanthium caricosum, Sporobolus diander, Apluda varia, Eragrostis pilosa, E. Sp., Setaria glauca, Cynodon dacylon, Digitaria royaleana, Brachiaria isachne, Heteropogen contortus and Chrysopogon aciculatus, the last one being the most prominent. Mixed up with these grow many dwarf and prostrate dicots like Rungia parviflora, Indigofera linifolia, Blumea spp., Evolvulus alsinoides, E. nummularius, Desmodium triflorum, Spermacoce stricta, Athrosma laciniata, Alysicarpus monilifer, Euphorbia hirta, E. granulata and E.thymifolia. But for these, the cattle and goats in the towns would go without food and the necessary exercise.

On the edges of the lawns grows Sehima nervsum and in depressions are seen Cyperus spp., Fimbristylis schoenoides and other species, Eleusine aegyptica, Erythiria roxburghii, etc.

Lately there has been some scraping of grass for the cattle. This is bringing in the more xerophytic type of grasses like Paspalidium flavidum, Imperata cylindrical, Saccharum spontaneum etc. which no cattle will relish.

(10) The protected grass lands - They could be seen in fenced off nurseries and young plantation areas in Koderma and Hazaribagh. Mixed up with a dominating cover the species in the list under (9) above are seen many tall grasses like Themeda strigosa, T. quadrivalvis, Apluda varia, Rottboellia exaltata and Amphilophis odorata. The following are also observed : Mimosa pudica, Peristrophe bicalyculata, Achyranthese aspera, Elephantopus scaber, Euphorbia heterophylla, Scoparia dulics, Alysicarpus

bupleurifolius, Sida veronicaefolia and S.acuta, Emilia sonchifolia in shade, Taragia involucrate, Tridax procumbens, Desmodium gangeticum, Zornia diphyla and along and on walls, if any, Chloris virgata and Arthraxon lanceafolius.

(11) The land along the sides of the roads, especially in and near the towns on the plateau - These lands are mostly covered with Scrub, the dominant species of which is Lantana camara. Protected by it and under it grow Cassia fistula, C.tora, Anona squamosa, Urena lobata, Pongamia glabra, Zizyphus spp., Capparis horrida, Carissa spinarum, Clerodendron infortunatum, Elephantopus scaber, Emilia sonchifolia and Ailanthus excelsa. Else where grow Phoenix sylvestris and Hypits suaveoleans. Xanthium strumarium grows near ditches.

(12) The neglected orchards near the towns and elsewhere on the plateau- They show about the same vegetation as seen along the roads, a scrub, the dominant species being Lantana camara. Annual herbs and climbers are seen in great abundance. Perennial climbers like Hemidesmus indicus, Cryptolepis buchananiana, Abrus precatorius and Disoscorea spp. are very common.

The rocky and sandy waste lands also bear a scrub jungle. The species found here are Phoenix sylvestris, Calatropis gignatia, Vitex negundo, Jatropha gossypifolia and annuals like Tridax prioumbens, Martynia diandra, Barleria cristata and others. A few annual climbers are also seen.

The lands left uncultivated in and around the scrub jungles grow various grasses of which Heteropogon contortus, Apluda varia, Eregrosis spp., and Imperata arundinacia are the chief. In the pasture land grow Chrysopogon acciculatus, Paspalidium flavidum and various dicots.

(13) The low lands - They cover the basins of Damodar, Barakar, Konar and other rivers. Excepting just near the foot of the hillocks where there are still some remains of a deciduous forest, all other land is under cultivation. The rocky and sandy waste lands also bear a scrub jungle. The species found here are Phoenix sylvestris, Calatropis gignatia, Vitex negundo, Jatropha gossypifolia and annuals like Tridax prioumbens, Martynia diandra, Barleria cristata and others.

In the tanks and ponds near villages, the vegetation is poor put the following plants are commonly seen. Hydrilla verticillata, Vallisanria spiralis. Ceratophyllum demersum, Lagarosiphon roxburdhii, ottelisa alismodes, Lemna, Pistia, Azolla, Jussia repens grow on the surface and marselia quadrifida, Ipomea reptants Hygrorrhiza aristata and others encroach upon the surface of water from along the margins. The lands left uncultivated in and around the scrub jungles grow various grasses of which Heteropogon contortus, Apluda varia, Eregrosis spp., and Imperata arundinacia are the chief. In the pasture land grow Chrysopogon acciculatus, Paspalidium flavidum and various dicots.

(14) The introduced plants. - In addition to the many plants that have become introduced accidentally, like Lantana camara, Croton sparsiflorus, Acanthospermum hispidum,

Hyptis enaveolens and others, man has introduced a number of useful exotic plants like Eucalyptus, Cashew nut and Casuarian and these plants are thriving.

DESCRIPTION OF THE FORESTS :

Sal (Shorea robusta) is by far the predominant species of trees in the forests of Hazaribagh district. In Hazaribagh district indiscriminate cuttings over a long period and exposure of soil to the desiccating sun have rendered conditions unfavorable to growth of the maximum potentiality. Pole size, namely, 1½ to 2½ feet in girth, is about the commonest but over extensive areas of the more accessible terrain, chiefly the plateau and plain land, only saplings exist. Larger trees, commonly 3 feet to 4 feet in girth, occur on the plateau of Barkagaon and Tandwa. The Kodarma Reserved Forests are supposed to be in the best state of preservation and here sal poles of 2 to 3 feet in girth are quite common. Next in the degree of efficient protection are the ex-Reserved Forests of erstwhile Ramgarh estate. These also contain a good proportion of sal poles. Elsewhere chiefly firewood is available.

Almost all over outside the Kodarma and Khurchutta Reserves there are high stumps with pollard shoots which unmistakably indicate wanton and destructive cuttings in the past. These forests will take time for their rehabilitation. But once they are put in shape they will form a most valuable national property vital to the population of the district. Forest is destroyed not only by the amount of cutting but also-and sometimes this is more important- by the quality and manner of cutting. Every tree in the forest grows every day and at the end of the year there is a certain quantity of accumulated increment of the entire forest. If this increment alone is taken annually it will be the interest or dividend earned by an investment and will not damage the capital of the forest property. But how to take out this annual increment calls for the science and practice of silviculture. Sal pole is cut close to the ground its roof system sends up fresh vigorous coppice shoot which in time replaces the cut tree or even produces a better tree. But if the same pole be cut high, say at a height of 4 feet or so which villagers commonly do, straight coppice shoot will not emerge from the ground level but only thin shoots will grow from the high stump and these will never grow into good trees. Thus only by the wrong manner of cutting a good tree may be destroyed forever. The Forest Department is engaged in the task of teaching, practicing, and publicizing the correct methods of silviculture and in associating the people with the work of proper forest conservation.

The Sal tree is associated with various other species of trees whose names will be given hereafter. But one of the most important associates is bamboo (Dendrocalamus strictus). The bamboo areas are mostly confined to the hills and undulations in between. Bamboo is not uniformly distributed throughout the district but occurs in special localities. The chief locality is the region of forests extending from Chatra to Pratappur, thence to Lawalong and Semaria; from Chatra to Dantar and beyond; the Jhumra Hill and undulating forests from there to near the Hazaribagh-Bagodar road and Hazaribagh-Ranchi road. Elsewhere the occurrence of bamboo is not appreciable. The entire bamboo area needs

not in a position to develop to their best without proper treatment. People in the past cut the bamboos at heights of 3 to 5 feet from the ground and these stumps are dead and add to the baffling congestion. The paper mills have of late been taking these stumps and from this impetus the congestion is being cleared. In course of time the bamboo areas will prove very valuable economically and help industrial development.

Next in importance, or perhaps as important as bamboo, is khair (Acacia catechu). Larger trees have all been cut away and what is left is pollard shoots and thinner stems. From these also kath in restricted quantity is annually prepared, chiefly in the localities of Chatra but it will take sometime for khair area to produce economically exploitable trees. Kath industry is a sizeable enterprise of employment though seasonal. Khair trees are very common in the Chatra subdivision.

Another tree of very common occurrence in the hilly parts of the forest is salai (Boswellia serrata). It is a soft-wood species but the timber in planks splits and is therefore much inferior to simul (Salmalia malabarica) for the packing industry. Simul, however, is fast reaching a state of extinction because it has been very extensively cut out both for the match factories and for packing purposes generally. During the last World War a vast quantity of salai planks had been supplied from the Kodarma Reserved Forest. In most of the accessible areas this species occurs only in pole stage, and will take some time to develop into use for packing industry.

Mahua (Madhuca latifolia, Syn. Bssia latifolia) is another tree that commonly occurs in this forest, particularly on the fringes. Its distribution is specially plentiful in the Huntergunj and Pratappur thanas of Chatra subdivision where Mahua flower is much prized as an item almost of staple food for the poorer class for a part of the year. Elsewhere also the people supplement their food by mahua flower and the rest goes to the distilleries. Its seed also yields useful oil. The local population use it sometimes for cooking purposes or for lighting and the trade uses it in the soap industry. With all its usefulness, however, this tree is looked upon with disfavour by the forest conservationist from its unfortunate association with destructive forest fires. The villager commonly after setting fire does not care to extinguish; he walks away unconcerned while the fire spreads in whichever direction it finds a bridge of dry leaves. The Forest Department have, therefore, of late started the process of departmentally burning away under strict control the dry leaves under every madhua tree in or on the fringe of the forest.

Palas (Butea frondosa) also occurs plentifully in restricted localities, chiefly in Chatra Subdivision. It is an important species for cultivation of lac. Lac industry has not yet been taken up seriously in Hazaribagh district but the potentialities exist.

Kusum (Schleichera trijuga) is another important ac-host but it occurs scattered about and not in groups or patches like palas. Kusmi lac is about the best in quality. Trees of harra (Terminalia chebula), bahera (Terminalia balerica), and amla (Phyllanthus officinalis) jointly yield the well known myrobalans are used chiefly for tanning industry and there is a sizable export trade in this commodity.

Kend (Diospyros melanoxylon) is another species of almost universal occurrence. It is prized for its fruit which the local people eat with relish. It ripens in April-May when the paddy stock runs short and thus comes in handy as a supplement of food.

Asan (Terminalia tomentosa) it utilized for growing tassar cocoon. Sal is also a secondary species for cocoon rearing.

Pair (Buchanania latifolia) is also quite common and is prized for its fruit. The pulp is eaten and the kernel of the seed is used in the preparation of sweets.

Bhelwa (Semecarpus anacardium) fruits when ripe and dry are also eaten, specially in the forests of Dumri area. The seed is the common dhobi's nut-it yields an acrid juice which indelibly marks the cloth.

RIGHTS AND CONCESSIONS :

Most of these forests are burdened with rights. The general rule is that the inhabitants of a village within the cadastral boundaries of which the forest is situated have the right to take for their own bona fide use, but not for sale or barter, whatever forest produce they may require. The management of forests is therefore so designed that the requirements of these right-holders are first implemented and the surplus is sold for use of these who have no rights or for export to other markets. Certain forests, for example, the Kodarma Reserved Forests, have no rights in them because sufficient area of forest has already been set apart for the use of right-holders.

UTILISATION OF FOREST PRODUCE:

The commonest demand on these forests is for firewood, fencing material, poles for house-building and timber for agricultural implements, etc. The mica mines of Kodarma area consume an appreciable quantity of sal poles. The coal-fields also call for a large number of pit props and tram-line sleepers. Out of the surplus left over after meeting the local demand, timber, poles, firewood, and bamboos are exported to different markets. Firewood goes to Patna, Banaras, and even to the other towns of Uttar Pradesh as far as Firozabad. There is not much timber in the forest and the bulk of the output is made up of poles. Out of the bamboo baskets, chicks, mats, etc., are made and sold in the local hats. The people also utilize bamboos for their domestic requirements and the surplus goes to the paper mills of Dalmianagar and Calcutta. Katha is manufactured chiefly in Chatra area. Out of the climbers mahulan (Bauhinia vahlii) ropes and strings are manufactured. Toys and utensils are made out of the wood of certain species, chiefly papra (Gardinia latifolia). The forests grow grass used by the cattle and part of which is also cut and utilized for stall-feeding in restricted quantities. Sabai grass is exported for paper manufacture. Lac growing is not practised in sufficient degree in this district but potentialities exist to sustain a large-scale industry, as palas and kusum trees are plentiful.

The forests yield varieties of edible fruits and roots on which the local people subsist for part of the year, especially when there is failure of crop. The chief fruits are kend, piar,

ber, bhelwa, wild jamun, karaunda, bel, etc., and there are several tubers which are known as ban-aaloo.

Simul cotton is collected in places and is locally utilized or sold. There is also a store of medicinal produce like chireta, kalmegh, kurchi, lodh, bark of arjun, satmool anantmool, etc., but there is no organized industry for collection and utilization of these. Kendu leaf exploitation for manufacture of biri is a large-scale industry in the district, specially in the Chatra subdivision. This provides a large volume of employment and also brings in an appreciable revenue to Government.

For management purposes the forests of Hazaribagh district are divided into three Forest Divisions, namely, Hazaribagh Forest Division, Chatra Forest Division, and Giridih Forest Division whose territorial jurisdictions happen at present to coincide with the jurisdiction of the respective Civil Subdivisions. All the forests are managed under a scientific silvicultural system.

REVENUE:

The revenue derived from the forests in Hazaribagh district in the year 1954 was Rs 9,14,455. There is a vast possibility for expansion of revenue from products other than wood, for example, lac, tassar cocoons, medicinal plants, etc. If cottage industries based on forest products are encouraged they will open up wide avenues of employment.

FOREST TYPES:

According to revised classification of forest types of India by Sir H.G.Champion and Shri S .K. Seth the forests of this Division fall into the following types.

The Sal Forests : This corresponds to the Northern Dry sal bearing forests 5B/C1 type. The associates in the top a middle storeys are,. Shorea, robusta, Tertfinalia tomentpsa, Madhuca indica, Pterocarpus, marsapium, Adina, Cordifolia, Diospyrus, tomentosa, Buchannia lanzan, Semicarpur, anacardium. Occasional bamboo brakes are also present. The shrubs consist of "Holarrhena antidysentrica, Nyotanthes arbortrites, Randia species, Casearia species, Ipdigo fera pulchella, Gaissaopaca, Wendlandia tinctona, Woodfordia fruticosa ,Croton oblongifolius, Zizyphus species anS Phoenix, The grasses consist of Heteropogon contortus, Fulaliopsis binata. The climbers are Bauhinia Vahlii, Acacia pinata. Butia-superba, Milletia ouriculata, Smila species and a few species of Asclepiadacene.

The miscellaneous forests : This belongs to the type Northern Dry mixed decidous forest 5B/C2. The trees in the top storey are Boswellia serrata. Anogeissue latifilia, Lagerstroemia, parviflora Diospyrus toroentosa, Pterocarpus marscupium, Adina cordifolia, Mitragyna parvifolia, Buchannia lanzan Sterculiaurens, Cochlospermum, religiosum, Madhuca, Indica, Emblica officinales, Aegle marmelos, Odina wodier (L-grandis) Legerstroemia parviflora.

The-middle story consists of frequent and extensive bamboo brakes of Dendrocalmus strictus where condition of soil is better. The shrubs consist of Wood-fordia fruticosa, Nyctanthes arbortritis, Zizyphus species.

Composition and Condition of Crop:

Sal Forests : Bulk of the forest area will be found to come under this classification. The crop of the entire area is of coppice origin. The general quality of Sal forests is Coppice quality, but localised patches having crop of quality-A are found in several Felling-Series. The purity of Sal varies widely depending upon various locality factors.

The best sal forests are found on the coarse-sandstone of Mahudi and adjoining hills, which belong to the Upper Gondwana system. Extensive patches of almost pure sal forest of better quality are found on this hill for example in Niri P.F. & Ex.R.F. Felling Series. Natural regeneration in whippy seeding stage is generally adequate in this type of crop.

The main associate of the sal forests in the top canopy is the Asan. Its preponderance depends upon the texture of the soil. The heavier the texture of the soil, Sal is gradually replaced by asan and other species like doka, harra, bahera, khair etc., karam, bijasal, burhikaram, sidha , dhaura are other, common species found in the sal forosts..

The main species of the, middle storey are panjan, bauhinia species in localities .having heavier texture of soil and piar, bhelwa, lodh (symplocusracemocous), Casearia species, "amla, kend, Careya arborea in other localities. Quite an extensive area having sal forest has undergone degradation due to extreme biotic interference, i.e. irregular felling by villagers, fire and grazing. Such sal forests generally contain young sapling crop of almost pure sal, the site quality is generally good to support excellent pole crop but due to excessive-repeated irregular fellings for fuelwood and ghoran the crop never grows beyond sapling stage. In certain areas the biotic interference is so much that the crop never grows beyond whippy seedling stage. Areas with such a crop are popularly known as sal rooted waste."

MISCELLANEOUS FOREST

The miscellaneous forests are situated on the warmer aspects and comparatively" drier localities like hill slopes and hill tops having poor soil and moisture condition. Salai is the main species with varying density. The crop is generally open. Other associates are doka. dhaura, sidha, kend, galgal, piar, amla etc. The shrubs consist of woodfordia fruiticosa, harsingar amla, climber are generally absent. The ground cover is also very space.

The outer slopes of Ranch Plateau facing the Damodar basin falling within this Division contain very little except mesh of climbers and miscellaneous shrubs. The climbers are Acacia pinnata, Combretum, decandrum, Bahunea vahhii etc. The tree species are not able to grow to capling or young pole stage due to reckless hacking. Karam, sidha, asan, rori (Mallotus philippinensis) is quite common. Scattered bamboo clumps are also found specially on the slopes facing Ramgarh cantonment area. Such forests were worked under Coppice with - Standard system, but the regenerated crop has not been able to establish due to excessive biotic interference. Scattered semal trees are found in moisture localities while salai is found on ridges and drier localities. Sal occurs near the foot-hill and in well drained moister localities. Doka or jhingan is a common species in such localities.

The forest crop on the slopes of hills facing the G. T. Road in Barhi Range contains bushy growth of miscellaneous species. Scattered trees of salai, semal, karam and scattered clumps of bamboo are found on these slopes. Sal occurs on the foot-hill in varying density. Here again" the crop is not able to grow to pole size due to excessive biotic interference.

Classification of Forests From - Management Point Of View :

The forest can be classified into the following categories from the management point of view :

1. Sal add miscellaneous forests which can regenerate and establish by themselves and grow into polo crop after coppice felling.
2. Sal forests which are perpetually in sapling stage and the sal rooted wastes which are not able to grow up due to excessive biotic interference .
3. The bamboo bearing forests.
4. The khair bearing forests.
5. The blanks and semi-blanks containing scrub and useless species,
6. The plantations.
7. Forests situated on dry hill tops, steep slopes and out-crop of rocks which are not likely to regenerate after coppicing.

DROUGHT

It is one of the important natural factor which causes injuries to the forest. The tract faces periodical drought which is caused due to appreciably lower rainfall than the annual average and long spell of drought before the onset of summer. The plantations suffer most due to drought. Fungus causes a lot of injury to the standing crop of Sal. It causes heart rot in the standing trees. The crop in poorer localities where forest fire is an annual feature is more susceptible to this disease.

THE FAUNA

E. Lister had described the status of wild life in the past in fair details in the district gazetter of Hazaribagh, C.I.E. published in the year 1917. It describes that " there has been no zoological survey of this district and very little has been recorded with special reference to Hazaribagh. It is, however, probable that the wild animals to be found there are practically the same as those in the rest of Chhotanagpur. There is no reason to believe that tigers are specially numerous, in spite of the large number of victims with which they have recently been credited. In a year not more than five or six tiger skins are brought to the Courts for the customary reward of Rs.25 and the number killed by European sportsmen is quite small. They still haunt the Koderma forest, and are permanent residents of the hills near Danto, north of headquarters station. In Khesmi and Doranda, Satgawan and Partappur there appear to be families ordinarily in residence. The great difficulty in meeting with them is the enormous extent of continuous cover over which they may wander free

from observation, and the absence of favourite resorts. Leopards are much more common, and frequently visit the town of Hazaribagh. Bears are not numerous except in the south and east, whence skins are often brought in. They belong to the ordinary sloth variety. Hyaenas are fairly numerous in the neighborhood of the head quarters station. Wolves, for about four years from 1910 to 1914, killed a large number of human beings near Chauparan. Jackals and foxes are common as there is abundant food over the greater part of the district in the form of feathered game and wild fruits, Pigs are numerous in the west and south. Hares are common, except in tracts occupied by the Santhals, whose methods of hunting quickly exterminate all game save snipe. Of deer, sambhar are still found, more especially in Gawan and Partappur. Spotted dear, hog dear, four horned deer and ravine dear are met with, but are not plentiful. Nilgai are found in Partappur.

Precise information about the birds of this district is almost completely wanting, and the following paragraph is necessarily restricted to a mere impression of its sporting resources. Peafowl are fairly numerous in suitable localities and jungle fowl are wide spread. The grey partridge is common all over the district, but the black species is confined to the more wooded parts, as also is the much less numerous spur-fowl. Field quail may be found in spring in the Rabi crops of the west, and bush quail are common. Snipe, though not present in large number e, are wide spread in the cold weather. Green pigeons are common, and golden plover are some times found. A small species of sand grouse is occasionally met with in the north. The great drawback to shooting in the district is the fact that the game is rarely to be found concentrated, and very large bags are seldom obtained. Geese and duck are comparatively very rare as the rivers are too small to be safe resorts, and there are few artificial sheets of water of any size. The landlord used to trap tigers and leopards and sell them to circus and zoo with the help of a device known as tiger trap.

The later Gazetteer of the district by P.C.Roy Choudhary published in 1957 states that deforestation has definitely affected the fauna population, Indiscriminate shooting particularly in the years when military personnel were stationed in the district and its neighborhood in connection with the Second world war is another contributory cause. The Santhals are also indiscriminate hunters. According to the Gazetter of Mr. Roy Choudhary there were 205 breeding birds and 61 migratory birds in this district.

AVI-FAUNA :

The first published work on the Avi-fauna of Hazaribagh district was a paper by V.Bali, "The birds of Chhotanagpur" which appeared in Strary Feathers in '1874, Captain R,H.Baillie contributed a paper on the subject to the journal of the Bengal Natural History- Society Vol. XX of 1946.