

CHAPTER I

GENERAL

ORIGIN OF THE NAME OF THE DISTRICT

The Mahendragarh town was previously known as Kanaud which took its name from the Kanaudia group of Brahmans. It was founded by Malik Mahdud Khan, a servant of Babar. There is a fort at Mahendragarh which was built by Maratha Ruler, Tantia Tope during the 17th century. The above fort was named as Mahendragarh in 1861 by Narinder Singh, the then ruler of the erstwhile princely state of Patiala, in honour of his son, Mohinder Singh¹ and consequently the town came to be known as Mahendragarh. The name of Narnaul *Nizamat* was changed "to Mohindergarh *nizamat*"².

The Mahendragarh district was formed in 1948 by grouping different tracts of erstwhile princely states; Narnaul and Mahendragarh tahsils from Patiala State, Dadri (Charkhi Dadri) from Jind State and a part of Bawal *nizamat* from Nabha State. The headquarters of the district are at Narnaul. Mahendragarh, in fact, is the only district in the state which has its headquarters at a town different than the one from which the district takes its name.

LOCATION, BOUNDARIES, AREA AND POPULATION

Location and Boundaries.—The district lies between north latitude 27° 48' to 28° 28' and east longitude 75° 56' to 76° 52'. It is bounded on the north by Bhiwani and Rohtak districts, on the east by Gurgaon district and Alwar district of Rajasthan, on the south by Alwar, Jaipur and Sikar districts of Rajasthan, and on the west by Sikar and Jhunjhunu districts of Rajasthan.

Area.—The district has an area of 2,983 square kilometres. It comprises four tahsils covering the area given below :—

Tahsil	Area (Sq. kilometres)		
	Total	Urban	Rural
Narnaul	957.30	7.13	950.17
Mahendragarh	764.94	11.43	753.51
Rewari	1,013.36	6.06	1,007.30
Bawal	247.40	0.36	247.04

1. *Imperial Gazetteer of India, Provincial Series, Punjab* Vol. II, 1908, pp. 305-306.

2. Punjab State Archives, Record of Foreign Office, Patiala, F.H. II-B/1906 A.D. (22-10-1906).

Population.—The population of the district computed on the basis of the 1971 census, was 7,34,143. In population, it was the eighth among eleven districts of the State on March, 31, 1978. Tahsilwise population of the district was as follows :—

Narnaul	2,42,961
Mahendragarh	1,56,010
Rewari	2,77,863
Bawal	57,309
Total:	7,34,143

HISTORY OF THE DISTRICT AS AN ADMINISTRATIVE UNIT

The first mention of the administrative division of the tract now comprising Mahendragarh district is available in the reign of Iltutmish who divided his kingdom into several *iqtas* and the present Mahendragarh district was parcelled into two *iqtas*, namely Narnaul and Rewari. During Sher Shah's reign, the district was under the *sarkars* of Narnaul and Rewari. It was further sub-divided into *parganas* but no direct evidence is available to give the exact number of *parganas* into which the district was divided. It is, however, surmised that their number was six, namely, Rewari, Bawal, Pataudi (Gurgaon District), Narnaul, Kanaud and Kanti. Akbar divided his kingdom into *subahs*, *sarkars* and *mahals* or *parganas*, the district was in the *subahs* of Delhi and Agra and the *sarkar* of Rewari had principal *mahals* of Rewari and Bawal while *sarkar* of Narnaul consisted of principal *mahals* of Kanaud, Kanti, Khudana and Narnaul¹.

The administrative arrangement remained intact during Mughal rule but with the decline of Mughal empire the area remained disturbed in consequence of fighting between the neighbouring chiefs till it was taken over by the British in 1803. The British gifted Narnaul-Kanaud territory to Nawab of Jhajjar. He remained its (Mahendragarh & Narnaul tracts) ruler for about half a century, upto 1857 A.D., the year of the First War of Independence. These tracts, however, were confiscated, because the Nawab of Jhajjar, Abdul Rehman Khan, defied the authority of the British and took part in the uprising of 1857. Jhajjar, including, some areas of Narnaul Kanaud (present Mahendragarh) and Dadri was at first created as a new district but was abolished in 1860. The neighbouring princely states of Punjab helped the British with their resources and forces. Had these states not supported the British in their hotly contested battle, the results would have been different. The

1. Abul Fazl, *Ain-i-Akbari* Vol. II (Eng. Tr. by H.S. Garret, 1949, pp. 291-310).

British in their turn amply and liberally rewarded the loyal states. By the *sanad* of 4th January, 1861, the *pargana* of Kanaud (Mahendragarh), Budh-wana and the *ilaqa* of Narnaul was gifted to Maharaja Narinder Singh of the Patiala State for taking side with the British during the war of 1857. Princely states of Nabha and Jind got respectively Bawal and Dadri (now a part of Bhiwani district).

In 1901, the *nizamat* of Mahendragarh which consisted of two tahsils, viz. Mahendragarh or Kanaud with 111 villages and Narnaul with 157 villages, had in all 268 villages¹. The position of the territories changed after 1947.

ADMINISTRATIVE HISTORY OF REWARI

In the time of Akbar (A.D. 1556—1605), the area of Rewari was a part of Delhi *subah*. The *sarkar* of Rewari had the *dasturs* : Bahora, Taoru, Rewari, Sohna and Lehna. The administrative arrangement remained intact during mughal rule but after the decline of Mughal empire, the area remained disturbed on account of fightings between neighbouring chiefs of princely states. On the collapse of the Mughal empire, Rewari fell first to the Marathas and afterwards to the ruler of Bharatpur. After taking the area from the chief of Bharatpur, the British in 1808-09 handed over fifty eight villages to Rao Tej Singh in *istamarar*.

In 1810, the whole of Delhi territory ceded by the Marathas was subject to the Resident of Delhi, and was divided into two districts. Delhi already under the Resident, and the outlying districts including Rewari, were under the immediate charge of an Assistant to the Resident. In 1819, the Delhi territory was divided into three districts : the central district which included Delhi, the southern which included Rewari; and the north-western had the areas of Panipat, Hansi, Sirsa and Rohtak.

On the outbreak of so called mutiny and cessation of all effective British authority, Rao Tula Ram proclaimed himself ruler of the *paraganas* of Rewari and Bahora with the headquarters at Rampura, 1.5 kilometres south-west of Rewari. Rao Tula Ram was defeated by the British and his estate was confiscated. The territory of Rewari was included into Gurgaon district which was attached to the Punjab in the beginning of 1858.

Rewari tahsil remained a part of Gurgaon district upto 1972. Prior to 1947, Bawal was a part of princely state of Nabha. After Independence, the areas of Bawal were merged with Gurgaon district.

In 1948, with the formation of Pepsu, Mahendragarh territory from Patiala State, Dadri territory from Jind State and Bawal territory from Nabha

1. *Phulkian States Gazetteer (Patiala, Jind and Nabha)*, 1904, pp. 196-97.

State were constituted into Mahendragarh district with headquarters at Narnaul. There were three tahsils, namely, Narnaul, Dadri and Bawal and Mahendragarh was a sub-tahsil. In 1949, Mahendragarh sub-tahsil was made a tahsil.

Under the Provinces and States (Absorption of Enclaves) Order, 1950, 2 villages of Mahendragarh district were transferred to Rajasthan and Bawal tahsil was broken and 78 villages transferred to Gurgaon district forming Bawal sub-tahsil and the remaining villages were added to Narnaul and Mahendragarh tahsils. The tahsilwise position of villages in 1951 was as follows :—

Tahsil	No. of villages
Narnaul	222
Mahendragarh	156
Dadri	184
Total :	562

With the merger of Pepsu with Punjab in 1956, the Mahendragarh district became one of 19 districts of Punjab.

The district became part of Haryana State at its formation as a separate State of the Indian Union on 1st November, 1966 and remained unaffected upto 1972 except that four villages of Dadri tahsil were transferred to Bhiwani tahsil, 3 (Dharana, Rajgarh and Halluwas) in 1962 and one (Umrawat) in 1969. On December 22, 1972, a new Bhiwani district was constituted under districts re-organisation plan alongwith Sirsa and Sonapat districts during Shri Bansi Lal's Chief Ministership. Dadri sub-division was excluded from Mahendragarh district and included in the Bhiwani district. Simultaneously the Rewari sub-division of Gurgaon district with the exception of 61 villages was added to Mahendragarh district. The number of villages, as shown below, was included in the Mahendragarh district following the territorial re-organisation on December 22, 1972 :—

Tahsil/Sub-tahsil	Villages transferred to Mahendragarh District		
	Inhabited	Un-inhabited	Total
Rewari	249	12	261
Bawal Sub-tahsil	74	1	75
Pataudi Sub-tahsil (partly)	25	4	29
	348	17	365

Similarly 22 villages of Mahendragarh tahsil were excluded and out of these, 20 villages were transferred to the Dadri tahsil and 2 to Loharu tahsil of the Bhiwani district. The following table shows the number of villages in each tahsil on the eve of the re-organisation of the district and immediately thereafter :—

Tahsil	Number of villages on the eve of December 22, 1972	Number of villages on December 22, 1972	Remarks
Narnaul	222	222	
Mahendragarh	156	134	(22 villages were transferred to the new district of Bhiwani).
Rewari	426	365	(The entire Rewari tahsil including sub-tahsil Bawal with the exception of 61 villages in Sub-tahsil Pataudi was made part of Mahendragarh district). ¹

In April, 1974, 6 villages of the Mahendragarh tahsil, were transferred to Bhiwani district, 5 (Barda, Dalanwas, Gadarwas, Madhegarh and Degrota) to the Loharu tahsil and one (Noswa) to the Dadri tahsil¹. One village (Barheri Rehewan) of Rewari tahsil (Mahendragarh district) was transferred to Gurgaon district. However, the Mahendragarh tahsil gained 3 villages (Bhurjat, Kharkhara and Adilpur) from Dadri tahsil of Bhiwani district. In 1977, 81 villages of Rewari tahsil were constituted into Bawal tahsil.

The following table shows the number of villages in each tahsil in 1978 :

Name of tahsil	No. of villages as on March, 31, 1978
Narnaul	222
Mahendragarh	131
Rewari	283
Bawal	81
Total :	717

1. Vide Haryana Government, Revenue Department, Notification No. 2278-R-IV-74/11547, dated April 23, 1974.

SUB-DIVISIONS, TAHSILS AND THANAS

The district comprises four tahsils, namely; Mahendragarh, Rewari, Narnaul and Bawal. There are three sub-divisions, viz. Narnaul, Mahendragarh and Rewari. The Bawal tahsil is under the Sub-Divisional Officer, Rewari.

There are ten police stations and ten police posts. Their details may be seen in the chapter, 'Law and Order And Justice'.

TOPOGRAPHY

The Mahendragarh district is the domain of dry-land topography throughout. Presence of inland streams, sandy plain, shifting sand dunes devoid of vegetation, fixed or fossil sand dunes, dissected upland tract, and often barren, denuded rocky hill ranges and their outcrops provide an ensemble of terrain features truly associated with semi-arid to arid environment. In east-west traverse, many of the above referred features may be recognised. The features are morphologically symmetrical and provide rapid and often large variations in relief and slope characteristics. Consequently, the overall relief is undulatory with a regional north to north-east slope.

Floodplain of seasonal streams .—The Sahibi, the Dohan and the Kasaunti or Krishnawati streams of the district make irregular floodplains. The floodplains occur in association with sandy terrain and dunes of variable morphology.

Sandy Plain.—Two prominent areas of sandy plain may be noted in the district. The first area generally encloses the western and eastern sections of the Aravali ranges, mostly in the Mahendragarh tahsil. Almost a flat sandy surface at 210 to 230 metres above the mean sea level, it is scattered with shifting sand dunes of low height. The second, and the largest of the two, is a notable landscape feature in the Rewari tahsil, east of the Aravalli hills. The plain with a regional slope from west to east falls in elevation from 250 to 190 metres in the same direction. The region is impregnated with sand dunes of variable dimensions. Mostly fixed in nature, dunes reach 3 to 6 metres from the ground level. Since the sandy plain is associated with the Aravali hills, it may be inferred that the sand composing the plain was probably transported across the low relief Aravalli ranges or through the gaps in the hills where it settled due to loss of wind speed.

Sand Dunes Tract.—The sand dune tract consists of both mobile and fixed (fossil) sand dunes. Mobile sand dunes are a common occurrence in the south and south-west of the Mahendragarh tahsil. In the

highly undulating tract of shifting sand, the elevation varies from over 270 metres near the hills in the west to less than 250 metres in the north-east. The dunes are 3 to 6 metres high above the ground. Sometimes, the monotony of the vast tract of sand is disturbed by rocky projections of low relief. The area of shifting sand is locally known as *bagar*. Fossil sand dunes are more significant and most conspicuous features of the sand dune tract. The dunes are largely confined to the Mahendragarh tahsil. Their northern limit roughly coincides with the metre gauge railway line passing through Dahina Zainabad, Kanina Khas and Mahendragarh in the district, and to Loharu in the Bhiwani district. The southern limit of the dunal tract may be roughly placed at the boundary of the Mahendragarh and Narnaul tahsils. The fossil dunes appear in many shapes, but their flanks mostly traverse in east west direction. The elevation falls from about 300 metres in the west to 240 metres in the east. In the east, a smaller area of fossil sand dunes may also be identified to the south-west and north of the now growing Dharuhera town. The base of sand ridges lie at some 250 metres elevation. The ridges rise generally between 3 and 4.5 metres above the surface. The discontinuous and worn-down ridge flanks give the impression of a huge U-shaped dunes; *tals* or depressions within the dunal tract possess good potential for ground water utilisation be minor irrigation works. It is not surprising, therefore, that recent changes in the cropping pattern, particularly of rabi, are related to intensive utilisation of ground water for irrigation in these areas. Generally the dunes are higher in the west, 5 to 20 metres, than in the east where the relief tends to be mostly between 2 and 5 metres. The dunes carry buried soil profile which is of special significance in interpreting the palaeogeographic environment.

Upland tract.—The unit covers the area between northern Narnaul and Nangal Chaudhry hills in the Narnaul tahsil. The highly dissected upland, situated between 284 and 302 metres above the mean sea level, belongs to the Aravalli system.

Rocky outcrops.—Promontories of the pre-Cambrian Aravalli hills traverse through most part of the district in roughly south-west north-east direction. The hills are longer than wide, forming roughly parallel series of ridges. They constitute outliers of scattered older rocks occurring in newer formations or sedimentary deposits. Wide gaps within the ranges have been utilised for rails and roads and also for agriculture. Geologically, these rocky outcrops in the district consist of two distinct series. The Purana rocks in the Rewari tahsil belong to Ajabgarh series of the Delhi system. They are upper pre-Cambrian in age. In the

rest of the district, the rocks of Huronian period belong to Archaean Dharwar system. The rocks of Ajabgarh series consist of biotiteschists, slates, phyllites, quartzites, and limestones. The hillocks and discontinuous ranges are locally called *khols*. The lithologic composition of Archaean group of rocks in the Mahendragarh and Narnaul tahsils is diverse, and consists of crystalline limestones, quartzites, shales, slates, gneiss and sandstones. The outliers are locally called *tillas*.

The *khols* and *tillas* are known for mineral bearing rocks. Important minerals associated with the rocks are iron, calcite, slate, marble, limestone and dolomite. Among the building grade materials, *bajri*, *kankar* and stones are notable.

The *khols* and *tillas* are but a continuation of the Aravalli System of Rajasthan into the Mahendragarh district. They abruptly rise from the surrounding undulatory terrain and traverse as discontinuous long linear ridges and elliptical, semicircular to circular mounds of generally bare rocky outcrops. *Khols* are prominent features of terrain west of the Rewari town where numerous isolated, but roughly parallel ranges maintaining a north-east south-west alignment rise abruptly from the level land lying at about 190 metres above the sea level. The hills vary in height from about 345 to 470 metres. South of Bawana Gujar village the *khols* are 397 metres in elevation with a relief of some 61 metres. Near Khorī, their height is about 404 metres above the mean sea level in which the relief is of the order of over 90 metres. However, it is near Khol that the hills reach a maximum elevation of 472 metres with over 180 metres of relative relief. The *khols* are, at places, 4 kilometres wide. A notable feature of the *khols* is a higher degree of dissection by short, very steep gullies and seasonal torrents on the west-facing slopes than on the east-facing slopes which probably are in the rain-shadow of the south-west monsoon winds. The *tillas*, likewise, run in parallel series of discontinuous and isolated rock outcrops. The highest elevation in the district occurs in these hills. Nangal Chaudhry hills in Narnaul tahsil near Haryana-Rajasthan boundary are one of the many occurrences of independent hill ranges in Mahendragarh and Narnaul tahsils. East of the Kasaunti or Krishnawati stream, the elevation of 626 metres and a relative relief of 286 metres is encountered just on border near Tasing (Alwar district-Rajasthan). Towards the west of the Krishnawati stream, two parallel ridges traverse the sandy plain. Elevation of 521 metres and a relative relief of 160 metres is reached near Mukandpura village. North-west and south of Narnaul town, rounded hillocks and elliptical hills are prominent features of the landscape in the sandy terrain between the Dohan and Kasaunti streams. The elevation of the conical hillock near Thana village is the highest, 652 metres. Barren

rock outcrops west of Mahendragarh town sharply rise to over 210 metres above the ground level, reaching a maximum elevation of 525 metres at Khudana. *Tillas* stretch with broken continuity for 25 kilometres in south-west north-east direction. They are from less than 0.5 kilometre to over 2 kilometres wide but reach a maximum width of over 8 kilometres in the highly dissected plateau-like area west of Khudana village. Besides, isolated stretches of small elliptical to rounded hillocks are also present west of the Dohan stream. These ranges peter out northward only to reappear after the stretch of 8 kilometres wide sandy terrain. The ridges and mounds which extend to Dadri tahsil of Bhiwani district disappear completely little to the north-west of Mankawas (Dadri tahsil—Bhiwani district).

NATURAL DRAINAGE

Most of the streams that originate or enter the district gradually shrink and lose water by high rate of evaporation and excessive percolation in sandy material.

The Sahibi, the Dohan and the Kasaunti or Krishnawati are the main seasonal streams of the district. Also, small hillslope torrents—Dhani Chima, Panchnota, Mosnota, Meghot Binza, Ganwari Jat, Nangal Durgo, Ateli mandi, Kheri and many more drain the Aravalli slopes in the Mahendragarh district. These streams originate on local hills and traverse through the village land after which they are named. Only rarely, the Dohan and the Kasaunti can flow past their long established beds to inundate vast low-lying areas. In normal conditions, these streams do not carry large enough volume of water to be of serious consequence to agriculture. The streams are active only during the rainy days.

Sahibi, the most important inland stream of southern Haryana, first enters the district near its south-eastern tip, approximately 1 kilometre south-east of Paoti village, and traverses a course of 3.7 kilometres. It re-enters the district again south east of Jarthal and flows past Khaliawas, Khatoli, Tatarpur Istamrar, and finally leaves the district a little to the west of Malahera. Preparatory to losing itself in the topographic depression of the Jhajjar (Rohtak district) tahsil, the Sahibi stream bifurcates into a separate shallow channel north-west of Daultabad in the Gurgaon district.

In the wake of torrential rain, the stream overflows its banks and inundates vast tract of land adjacent to its course. The ponded water drains slowly by percolation, and suffers heavy evaporation losses.

Some abandoned channel courses, possibly of the Sahibi rivulet occur near Nandrampur Bas, Bhatsana and Kharkhara, all in the eastern part of the district.

Kasaunti or Krishnawati originates about 1.6 kilometres south-east of Nim ka Thana in Jaipur hills (Rajasthan). Flowing in a northerly direction it enters Narnaul tahsil near Bhadanti and Dostpur, about 25 kilometres south of Narnaul. It passes about 1.6 kilometres east of Narnaul town. The stream has a course of about 49 kilometres which terminates near Dahina village at the northern boundary of the Rewari tahsil. When in flood, the water of the stream spreads towards Nuni Kalan, Saloni and Budlana villages in the Narnaul tahsil.

Dohan also takes-off from Jaipur hills about 6 kilometres short of Nim ka Thana (Rajasthan). It flows for 29 kilometres in Rajasthan territory before entering the Mahendragarh tahsil. Dohan is an important source of drinking water for the areas of the Narnaul and Mahendragarh tahsils. It runs a length of about 50 kilometres in the district. The stream peters out at Bassai village which is about 16 kilometres north of Mahendragarh town.

The seasonal flow in Sahibi, Kasaunti and Dohan periodically raises the level of fresh quality sub-soil water. Besides, base flow during early part of the dry season can take place. The surface water potential of these streams has, however, not been determined.

Ground Water

The water table varies from 6.23 m. in the east and 35.56 m. in the west. The main streams in the district are Dohan, Krishnawati and Sahibi which are non-perennial and carry water during S.W. monsoon period only. The ground water moves along a gradient from S.W. to N.E. In this district 87% of the area is having fresh to marginal quality of ground water.

According to assessment of ground water potential approved by NABARD, the total useable recharge is 379.70 m.cu.m. and out of it 451.78 m.cu.m. is being utilized as on 1-4-78.

The % development of the district is 119%. According to ground water assessment seven blocks out of nine blocks, namely; Ateli Nangal, Bawal, Khole, Jatusana, Nangal Chaudhry, Narnaul and Rewari were declared over developed thereby debarring from installation of fresh minor irrigation units in the area.

GEOLOGY

The rocks exposed in the district belong to Delhi Supergroup and are divided into Alwar and Ajabgarh groups. The Alwar group of rocks comprises predominantly of arenaceous sediments and are represented by massive quartzite, usually felspathic in nature, micaceous quartzite with subordinate bands of mica schist and carbonaceous phyllite. The Khudana ridge, besides containing massive quartzite also contains thinly bedded dark grey quartzite with schist intercalations, at places garnetiferous. The Ajabgarh group of rocks in the area is characterised predominantly by argillaceous sediments and include shale, slate, phyllite, pelitic schist, crystalline and impure limestone, marble and calc-schist with intercalations of quartzite. The shale, slate and silt stone occur together with a few quartzitic and cherty bands, siltstone being more predominant than the other two varieties. Both these groups of rocks are intruded by amphibolite, granite, aplite, pegmatite, calcite and vein quartz.

Alkaline earths occur as efflorescence on the surface of earth and contain predominantly carbonate and bicarbonate of sodium. Their presence on the surface make the land infertile, but on the other hand these can be economical source for sodium carbonate when the concentration of such salts reaches high. Alkaline efflorescence are quite extensive around Gohoro (Golwa) and Nangal Durgo in the area.

MINERAL RESOURCES¹

Though the Mahendragarh district has not been geologically investigated thoroughly, yet large number of minerals are available in the area. Some of the important minerals are iron-ores, calcite, limestone, asbestos, barytes, beryl, copper ores, corundum, garnet, etc. Except uses of these minerals, only resources are described here :—

Arsenopyrite.—The main source of the metal arsenic, which is used in medicines, occurs in association with pyrite and chalcopyrite in Teejanwali hills and at Narnaul.

Asbestos.—An occurrence of asbestos has been reported near Nahir-Ka-Bagh, about 2 kilometres from Narnaul railway station and near Durga-Ka-Nangal. Asbestos occurs as sheaf-like small fibrous concentration of bundle of tremolite.

Barytes.—It occurs in minor quantities as very thin veins along the foliation planes in calc-schist rocks in Mosnota area.

1. Kanwar, R.C. and Gupta, V.J. : *Economic Resources of Mahendragarh District*, Haryana Research Journal, Vol. I, pp. 33-34.

Beryl.—Large crystals of beryl have been recorded from a few pegmatites adjacent to Bail-ki-Dhani(Bayal), Mosnota and Sarai Bahadurnagar in the Narnaul tahsil but the workable deposits do not exist in the area.

Building Material

Haryana is famous for its slate deposits of Mahendragarh district which are extensively used as ornamental and building material and form an important source of foreign currency. Other building materials include marble, limestone, quartzite, etc.

The slates are generally of greyish and greyish black colour but black, greenish black and multicoloured slates owing to stains of hydrous ferric oxide are also available, the last one finding a good demand in foreign markets. The chief deposits of slate occur near Kund, Bihali, Bajar, Rampur, Ganiar and Bas. The entire range from Khole to Kanti Khas is worked for slates, blocks and beams of slate and associated shale and siltstone. Slate and siltstone are also worked out from Jatusana area. In Kund area, about 8.78 million tonnes of slate has been estimated, out of which nearly 60% is of multicoloured variety.

The white and saccharoidal marble occurs in good quantity at Antri-Biharipur which extends for about 3 km. Together with this a banded and variegated marble of different shades is also found. White marble is also found near Rasulpur, Khalra, Gohoro, Gangu Tana, Niazalipur, Dholera, Mosnota, Megho Thala, Dhancholi, Bail-ki-Dhani (Bayal), Dobkhera and Isalampur.

Fissile quartzite are worked for roofing slates and other masonry blocks at various places of the district such as Sareli, Tehla, Mukandpura, Panchnota and Sarai Bahadurnagar. Almost all the quartzite hills of the district are being worked for railway ballasts and concrete aggregate, specially at Balana, Rajawas, Khaspur, Azamnagar, Tankri and Dantal.

Calcite.—Two to three veins of calcite occur in the Mundia hill and Sonaro-ki-Pahari of the Khalra group of hills, Bail-ki-Dhani(Bayal) and Panchnota. Transparent calcite in association with white milky calcite has been reported from the Rasulpur hill. A vein of calcite, about 50 m. long and 10 m. thick, occurs in association with quartz veins near Raghunathpura. Another calcite vein about 20m. long and 5m. thick occurs near its vicinity. Near Mosnota also a calcite vein, about 45m. long and one metre thick, occurs in association with pegmatite.

Copper.—Disseminations of chalcopyrite have been reported from the Teejanwali hills, Ghataser, Khalra and Bihali. Extensive malachite encrustations have been recorded from Gohoro and Bihali area. During recent years, substantial efforts have been made to explore these deposits near Khudana and Golwa-Gangu Tana areas. At Khudana, sulphide minerals, occurring as stringers and veins of Alwar, mainly consist of pyrrholite with subordinate pyrite, minor chalcopyrite and sphalerite and rare galena. The results of borehole samples indicate a maximum of 0.5% Cu, 3.1% Zn and 0.13% Pb. The Golwa-Gangu Tana deposit is a low grade but of sizeable dimension and the average tenor of 0.30 to 0.35% copper extends over a cumulative strike length of 3350m. with widths around 30m. Malachite stains have also been observed in Ajabgarhs of Datla hill near Raghunathpura, Dokhera, Megho Thala, Jainpura and Dholhera. Specks of pyrite and chalcopyrite have also been noticed in the crystalline limestone of Dhani Bhathotha, Nangal Kalia and Dostpur.

Felspar.—A number of pegmatites in Ajabgarhs near Mosnota, Panchnota, Nangal Durgo and Bail-ki-Dhani(Bayal) contain pockets of large feldspars—pure white to greyish and bluish white in colour—varying in size from 64 sq.cm. to 900 sq.cm., and the green and pink coloured feldspars are estimated at 8000 tonnes upto a depth of about six metres. Good pink feldspars occur in a pegmatite in Dhanota area.

Garnet.—The Ajabgarh schists and gneisses around Gohoro, Mosnota, Gangu Tana, Bail-ki-Dhani(Bayal), Durga-ka-Nangal are highly garnetiferous and occur along with staurolite crystals. The garnets are pink in colour, translucent to opaque and vary in size from minute grains to about one centimetre in diameter. At the contact of Alwar micaceous quartzite and Ajabgarh calcargillaceous rocks, bigger crystals of garnet have developed on the Sareli-Tehla ridge. During 1967-68, gem variety garnets have been found from Mukandpur, Islampur, Khatoli and Nasibpur.

Iron Ore.—Several small bodies of magnetite-hematite have been found in Dhanota-Dhancholi area. The iron in these ores ranges from 53.2 per cent to 67.2 per cent. In Antri-Biharipur areas, magnetite lenses are formed in between marble and calc-schist or biotite schist. The iron content here varies from 60.51 per cent to 96.39 per cent and the total iron ore reserve with more than 60 per cent iron is 1.5mt up to a depth of 45m. The other localities of iron-ore : Antri-Chhapra-Kamania area, Socla area, Rajawas area, Mokhnota-Bahamanwas area and Chhabra-Bibipur area.

Iron ore also occurs as pockets and lenses in calcareous quartzite in the form of hematite, limonite, jasperoid hematite and streches from Sohla to Zerpur and beyond up to Khudana in minor amounts.

Total iron ore deposits in the district are of the order of 8.084 mt. out of which 3.398 mt. is indicated and the rest is inferred.

Kyanite.—Light blue and yellowish colour kyanite occur in quartz-kyanite rock near Gohoro, where individual crystals measuring upto 10 cm. in length are found along with garnets and staurolite in an area of 100mx10m size.

An occurrence of kyanite was reported from Hassanpur, 8 kilometres away from the south-west of Narnaul. It also occurs in bluish thin blades as well as in short and thick crystals usually in association with Calcite in the hills just west of Narnaul.

Limestone.—Good quality limestone occurs at Dochana and Dhani Bhatthotha and contains 33 to 57 per cent CaO . Dochana limestone runs over a strike length of 1200m. and contain in all about 8 mt. of both crystalline variety and dolomitic limestone, while the Dhani Bhatthotha reserve is of the order of 0.243 mt. upto a depth of 30m. Good quality limestone at Nangal Kalia has been estimated at about 0.17 mt. upto a depth of 14.5 m. The Banihari-Kalva-Bamanwas limestone indicates CaO between 34.5 per cent to 44.9%, MgO between 1.5 per cent to 14.3 per cent, acid insolubles between 7.2 per cent and 28 per cent and R_2O_3 between 1.4 per cent and 6.5 per cent. At Banihari, three bands of grey crystalline limestone occur within dark grey limestone bands and extends over a strike length of 300 m. with a width varying between 8 to 10m. The Mosnota limestone is light coloured crystalline variety and has been estimated at 47,040 metric tonnes with an average CaO —33.79%, MgO —12.93% and acid insoluble—9.36%. At Dhanota three bands of crystalline limestone indicate on an average CaO —32%, MgO —7.9% and acid-insoluble—27.22% and have been estimated at 3,03,740 metric tonnes up to a depth of 35 m. Crystalline limestone at Sadha-ki-Dhani contains CaO as high as 44.9% and acid insolubles upto 18.6% but magnesia content is generally high. Average chemical and analysis for this deposit is CaO —33.7%, MgO —13.9% and acid insolubles—3%.

Quartz.—White granular massive quartz veins occur near Gohoro, Gangu Tana, Ghataser, Khalra, Bail-ki-Dhani(Bayal) and Barundla. Alwar quartzite in the area also contain a number of quartz veins near Atela Khurd and Kapuri ridge. However, crystals of quartz are rarely met with in the area.

Mica.—Muscovite occurs at various places in the Narnaul tahsil in coarse-grained granite. The local deposits which are specially noteworthy are at Ghatasher, Sirohi-Nangal, Pachanota and Mosnota. The area covered by these places measures 20 square kilometres. The mica occurs in lenticular veins and the micabooks obtain size. of 0"x6".

Greenish muscovite also occurs in most of the pegmatites which are found as intrusives in the rocks of Delhi system. These muscovite plates are smaller than a rupee coin and are not of any commercial use.

Manganese.—Extensive deposits of limestone and shale impregnated with manganese-oxide occur at Goela, Durga-ka-Nangal, 15 kilometres in the south-west of Narnaul. It is estimated that Goela mine has 40,000 tonnes of manganiferrous limestone.

Marble.—Grey coloured banded marble, is being chiefly quarried for lime burning from the mines of Dhani Bathotha, Dongli, Kamania-Chapra Biharpur and Nangal Durgo. Grey banded marble is also found near Nangal Durgo and closely resembles the Dhani Bathotha stone.

The marble samples collected by the Geological Department shows containment of 22.36 per cent insolubles (silica), 3.34 per cent alumina and iron oxide, 24.8 per cent lime and 15.05 per cent magnesia.

White marble similar to that of the Antri-Biharipur ridge occurs at Dhokhera, 8 kilo metres in the south of Biharipur where it forms a high ridge. 125 feet thick band of white and black marble is quarried on the Datla hills and it has been supplied to some extent for the architectural requirements of Narnaul.

A typical white marble also occurs between Dhanauta and Dhan-choli in the south-western part of the district, about 3 kilometres from Nizampur railway station. Marble associated with iron ores at this place is milky white in colour and is of very high grade.

Slate Stone.—Slate stone is found in abundance in the areas of Kund, Behali-Bajar and Ateli.

Gold.—Except for the claim that gold was found in very great percentage in an assey of the material from the so called Teejanwali hill mine at Narnaul, there is no other source for gold in the rocks or alluvium of Narnaul.

Silver.—A geologist has mentioned asseys with 1 oz. 8 cwts. 18 grs. of gold another with 1 oz. 5 cwts, 0 grs. of silver in samples of the so-called copper-ore from Teejanwali hill near Narnaul.

FUTURE POSSIBILITIES

There are some ores and minerals which are found in workable quantities in the Mahendragarh district. But with the increase in demand in the country and hoping to strike more deposits in the area, calcite, garnet, quartz and felspar may become useful but they must be fully investigated before taking up their mining or quarrying. The minerals and ores which appear to have immediate possibilities for working for industrial purposes are iron ores, manganese ores, mica and stone for building and road construction.

The barytes of Bail area requires attention to estimate the reserves before it could be supplied to the oil companies for heavy drilling needs. The limestone of Dhani Bathotha yields good lime and is likely to be an excellent flux in iron ore smelting. In it magnesia percentage is too high for portland cement to be manufactured. However, this aspect of the material is a matter for further attention in combination with the calcite of the Khalra and Datla hills quarries.

FLORA¹

The xerophytic type of flora dominates in the district. The district is inadequately wooded and some parts are practically bare of trees. Tree species found are *khairi*, *jand*, *pahari kikar*, *kikar*, *dhok*, *babool*, *rohera*, *janti* or *reru*, *jal* or *van*, *beri*, *barh*, *pipal*, *lasura*, *imli*, *barna*, *shisham*, *siris*, *neem*, *farash*, *henna*, *papri*, *gular*, *indokh*, *tut*, *gul-mohar*, *simbal* or *samul*, *kandu*, *bakain*, *safeda*, *arind* and *dhak*. *Kikar* or *pahari kikar* is found all over the district. *Farash* is common in Rewari tahsil. *Jand* and *jal* are the dominant species of the sandy areas.

Shrubs found in the district are *pala*, *hins*, *Puthkanda*, *hansa*, *panwar*, *karir*, *kip*, *Aak*, *phog* and *Nagphani*. *Amarbel* is a common parasite climber. One of the most characteristic shrubs is *pala*, a prickly shrub, which covers the fields thickly during September and October. It is very useful shrub; its leaves are used as fodder; its fruits are eaten; its thorny bushes are used for hedges or as fuel and its roots for dyeing leather. *Nagphani* forms thick hedge round many villages in Rewari tahsil.

Medicinal plants found in the district are *indirain*, *asgandha*, *glo*, *kharnthi*, *bhakra* and *dhatura*. However, their collection becomes uneconomical as these are found in scattered form.

The important grasses found in the district are *anjan*, *dhaman*, *dub*, *kana*, *dabh palwa* and *chirya*. The palatable grasses like *anjan*,

1. The botanical names can be seen in the table at the end of the chapter.

dhaman and *dub* have dwindled due to excessive grazing in village common land.

Jand, *neem*, *bakain*, *khairi*, mesquite or *pahari kikkar*, *henna* and *eucalyptus* have been planted to increase the forest wealth.

FAUNA¹

Mammals

The district is inhabited by various groups of mammals. Primates are represented by *rhesus macaque* or *bandar* and the *langur*. The tiger and leopard, once abundant in the district are no more seen here. The carnivorous animals found in the district are the jungle cat, the small Indian civet, jackal and the Indian fox.

The insectivorous like the grey musk-shrew or *chuchunder*, common yellow bat and the Tichelli's bat are usually seen.

The five stripped palm squirrel or *gilheri*, the Indian porcupine or *sahi*, the Indian gerbille, the common house rat and mouse are common rodents found.

The Indian hare belonging to the order *lagomorpha* is also found in the bushes.

Chinkara is seen in the district specially in Bawal tahsil and Nimbi Duloth and Nangal Mala forests in Mahendragarh tahsil. Black buck though in limited number is found near Rewari and Sureti, Dalanwas and Mahendragarh in Mahendragarh tahsil. The blue bull or Nilgai is common all over the district; though it damages the crops yet villagers protect the animal due to religious sentiments.

The species facing extinction in the district are chinkara, black buck, blue bull, stripped hyaena and *bheriya*.

BIRDS

Game birds.—A large number of game birds are found in the district, some are residential while others are winter visitors. Various types of ducks such as spotbill duck, cotton teal, comb duck, large whistling teal, tree duck and dabchick are found throughout the district at suitable habitats. Ducks and geese such as eastern grey-lag goose, barheaded goose, brahminy duck, common shelduck, pintail, common teal, mallard, gadwali, wigeon, blue winged teal, shoveller, common pochard, ferruginous ducks and tufted duck visit the district during winter.

1. The zoological names can be seen in the table at the end of chapter.

Other game birds like black partridges (the state bird) and grey partridges and quails are common. Grey quail is a winter visitor while black-breasted or rain quail, jungle bush quail, whistler or rock bush quail are resident species. Western turtle dove, Indian spotted dove, Senegal dove and Indian emerald dove are generally found in all cultivated fields.

Sandgrouses, namely, the Indian sandgrouse and blackbellied are resident birds while large pintail sandgrouse and spotted sandgrouse visit the district in winter. Their flocks, large and small, regularly visit favourable waterholes.

The district is also inhabited by large number of other birds which add beauty to the wildlife. Birds like large cormorant, little cormorant, darter or snake bird, eastern grey heron and paddy bird are found on the ponds and lakes of the district throughout the year. Other birds like eastern large egrets, median egret, little egret and little bittern affect inland water marshes, *jheels*, etc. Cattle egret can be seen moving along with grazing cattle.

Among cranes, eastern common crane and Demoiselle crane are found near stream beds and fields of winter crops. Indian sarus crane is a resident bird and breeds during rains.

A good number of painted stork, open bill stork, whitenecked stork, blacknecked stork, white ibis, Indian blackibis are found near the streams, *jheels*, marshes, inundated lands and cultivated fields. It is common during rains.

During winter eastern Baillon's crake and spotted crake can be seen on the edges of ponds and lakes feeding on aquatic plants. Indian blue-breasted banded rail, slaty-legged banded crake, northern ruddy crake, whitebreasted waterhen, watercock, Indian moorhen, Indian purple moorhen are resident birds and can be seen on ponds, inundated paddy fields, etc. Coot, is a resident as well as winter visitor and affects *jheels* and tanks.

Different types of waders are also found. Waders like dusky redshank, eastern redshank, marsh sandpiper, green shank, green sandpiper, wood or spotted sandpiper, common sandpiper, pintail snipe, fantail snipe and temminck's stint visit suitable marshy areas and the edges of ponds during winter. Pheasant tailed jacana, painted snipe and Indian blackwinged stilt are resident birds and affect *jheels*, marshes, tanks and ponds. Indian river tern and blackbellied tern are found in

the stream beds throughout the year. Indian whistered tern is a winter visitor.

Among the kingfishers, the most common are the Indian pied kingfisher, Indian small blue kingfisher and whitebreasted kingfisher. These birds can be seen hurling themselves into water to catch fish. These are residential birds.

The common peafowl, the national bird, is quite common and is seen in orchards, fields and gardens.

The other common birds are large Indian parakeet, rose-ringed parakeet, Indian house crow, Indian house sparrow, blue-cheeked bee-eater, goldenbacked woodpecker, blue jay, coppersmith, Indian golden oriole, pied crested cuckoo, *koel*, common crow pheasant, redvented bulbul, white-eared bulbul, verditer flycatcher, Indian magpie robin, Indian purple sunbird, red *munia*, Indian spotted *munia* and crested bunting. Besides, such attractive birds as hoopoe and Indian white-eye are also seen in and around villages.

Birds of Economic Importance.—Scavengers like pariah kite, brahminy kite, whitebacked vulture, tawny eagle, white-eyed buzzard eagle and Indian jungle crow keep the district cleared of dead animals by feeding on them. The Indian scavenger vulture, besides feeding on dead animals, consumes a large quantity of human excreta. Predators like blackwinged kite, Indian *shikara*, laggar falcon and kestrel are residential birds of the district. Other birds like pale harrier, marsh harrier, eastern steppe eagle visit the district in winter. These along with spotted owlet and eagle owl keep a check on the population of rodent pests and various insect pests by consuming them.

Majority of the birds feed on insects and caterpillars injurious to agriculture. Swifts such as Indian house swift, Indian palm swift and swallows like western swallow and Indian wiretailed swallow consume insects as their staple diet. Shrikes or butcher birds as they are popularly known, feed upon a considerable quantity of insects. Other insect eating birds are king crow, Brahminy myna, Indian pied myna, Indian myna, bank myna, babblers, warblers and flycatchers. Larks and wagtails feed on a considerable amount of worms in addition to insects. Rosy paster and common starling both winter visitors may specially be mentioned for their role in destroying numerous insects including locusts on a large scale and thus help in saving crops to some extent.

REPTILES

Snakes.—The common poisonous snakes are krait, cobra, Russel's viper and *phoorsa*. The non-poisonous snakes are blind snake, Indian python, John's sand boa, wolf snake and rat snake.

Lizards.—All the lizards found in the district are non-poisonous. The common lizard can be seen in the houses. *Kirla* or *girgit* is found in the lawns and hedges and attract the attention by changing its colours. *Sanda* is found in sandy areas. Besides, a few other types of lizards are found in bushes and areas of thick vegetation.

Tortoise.—Two species of tortoise are found in the district.

Frogs.—The frogs commonly found, during the rains and in the ponds are Indian bull frog, Indian cricket frog, Indian burrowing frog and common toad.

FISH

The streams and ponds abound in many species of fish. These are *parri*, *katla*, *mrigal*, *bata*, *kalabans*, *rohu*, *puthia* or *kudali*, or *pitula*, *magur*, *singhara*, *ghally*, *mallee*, *dolla* and *curd*.

CLIMATE

The climate, except during the monsoon, is characterised by the dryness of air, a hot summer and a cold winter. The year may be broadly divided into four seasons, viz. winter, summer, monsoon and post monsoon or the transition period. The winter starts in November and continues up to March. The summer season is from April to June. The period from July to mid-September is the south-west monsoon season.—Mid-September to the end of October constitutes the post monsoon or the transition period.

Rainfall.—Though there are six rain-gauge stations (Narnaul, Mahendragarh, Rewari, Bawal, Khole and Jatusana), records of rainfall in the district are available only for 3 stations, Jatusana, Rewari and Khole for sufficiently long periods. The details of rainfall at these stations and for the district as a whole are given in Table I and II of Appendix. The normal annual rainfall in the district is 454.6 mm. The rainfall in the district increases from west to east. About 76 per cent of the annual rainfall in the district is received during the south-west monsoon months, July to September. July and August are rainiest months. There is some rainfall in the pre monsoon month June mostly in the form of thundershowers. The variation in the annual rainfall from year to year is appreciable. In the 50-year period (1901-1950),

the highest annual rainfall which was 244 per cent of the normal occurred in 1917 while the very next year the annual rainfall was the lowest in the 50-year period amounting to only 30 per cent of the normal. The annual rainfall was less than 80 per cent of the normal in 14 years and three consecutive years of such low rainfall occurred once in the district during the fifty-year-period 1901 to 1950. Jatusana had two consecutive years thrice while Khole had five consecutive years once of such low rainfall. The annual rainfall in the district was between 201 and 600 mm. in 39 years out of 50. On an average there are 23 rainy days (i.e. days with rainfall of 2.5 mm. or more) in a year in the district. This number varies from 32 at Rewari to 19 at Jatusana.

The heaviest rainfall in 24 hours recorded at Jatusana station in the district was 370.8 mm on August 12, 1885.

Temperature.—There is one meteorological observatory in the district situated at Narnaul. Normals of meteorological elements have not been compiled for this station as records are not available for sufficient period. The account which follows is therefore based on the records of the observatories in the neighbouring districts where climatic conditions are similar to those in this district. From March temperature begins to increase—May and June are the hottest months, when the mean daily maximum temperature is about 41°C and the mean daily minimum temperature is about 27°C. While days are a little hotter in May than in June, nights are warmer in June than in May. From April onwards hot scorching and dustladen winds blow and these add to discomfort. Maximum temperature may often go above 46°C. With the onset of the monsoon by the end of June there is appreciable drop in the day temperature but due to increased humidity and nights remaining as warm as during the latter part of the summer, the weather remains uncomfortable. After the withdrawal of the monsoon by mid-September till October, the days are as warm as in the monsoon months but the nights become progressively cooler. After October there is decrease in both the day and night temperature, the decrease being more rapid after the middle of November. January is the coldest month. The mean daily minimum temperature is 5.6°C and the mean daily maximum temperature is about 22°C in January. During the cold season the district is affected by cold waves in association with passing western disturbances and on such occasions the minimum temperature occasionally drops down to about the freezing point of water and frosts may occur.

Humidity.—The air is generally dry during the summer season when the humidity is of the order of 40 per cent in the morning and 20 per cent in the afternoon. Humidity is high during the monsoon season, about 75 per cent in the morning and 60 per cent in the afternoon. During winter humidity is about 60 per cent in the morning and 40 per cent in the afternoon.

Winds.—Winds are generally light in the district during the summer and monsoon season. Winds blow generally from the sector south-west-west-north-west during morning and from the north-western quadrant during afternoon throughout the year and during July and August they also blow from east and south-east.

Cloudiness.—In the south-west monsoon season and for brief spells of a day or two in the cold season in association with passing western disturbances, heavily clouded or overcast skies generally prevail. During the rest of the year the sky is mostly clear or lightly clouded.

Special Weather Phenomena.—April to June is the period with the highest incidence of duststorms. Thunder-storms occur throughout the year and its incidence is maximum in August and minimum in November. Thunderstorms are sometimes accompanied with heavy showers, squall and occasional hail. Fog occurs during winter season, Dust storms occur occasionally during summer.

BOTANICAL NAMES (FLORA)

Trees

<i>Khairi</i>	<i>Acacia senegal</i> Willd
<i>Jand</i>	<i>Prosopis cineraria</i> (L.)(Druce)
<i>Dhok</i>	<i>Anogeissus latifolius</i> (Roxb.) Wall. ex Bedd
<i>Babool</i>	<i>Acacia jaouemontii</i> Benth
<i>Rohera</i>	<i>Tacomella undulata</i> (Sm.) Seem
<i>Janti or Reru</i>	<i>Acacia leucophloea</i> Willd
<i>Jal or Van</i>	<i>Salvedora oleoides</i> . Decne
<i>Beri</i>	<i>Ziziphus mauritiana</i> (Lamk)
<i>Barh</i>	<i>Ficus bengalensis</i> (L.)
<i>Pipal</i>	<i>Ficus religiosa</i> (L.)
<i>Lasura</i>	<i>Cordia dichotoma</i> . (Forst)
<i>Imli</i>	<i>Tamarindus indica</i> .L.
<i>Barna</i>	<i>Crateva nurvala</i> Buch.—Ham.
<i>Shisham</i>	<i>Dalbergia sissoo</i> Roxb .
<i>Siris</i>	<i>Albizia Lebbeck</i> (L.) Benth
<i>Neem</i>	<i>Azadirachta indica</i> Juss. Syn.— <i>Melia azadirachta</i> L.
<i>Farash</i>	<i>Tamarix aphylla</i> (L.) Karst
<i>Henna</i>	<i>Acacia tortilis</i> . L.
<i>Papri</i>	<i>Pongamia pinnata</i> (L.) Pierre
<i>Gular</i>	<i>Ficus racemosa</i> L.
<i>Indokh</i>	<i>Anogeissus Coronate</i> Staff
<i>Tut</i>	<i>Morus alba</i> L.
<i>Gulmohar</i>	<i>Delonix regia</i> (Boj.) Raf.
<i>Simbal or Samul</i>	<i>Bombax ceiba</i> L.
<i>Kandu</i>	<i>Diospyros melanoxylon</i> Roxb.

*Bakain**Melis azedaraeh* L.*Safeda**Eucalyptus**Arind**Recinus communis**Dhak**Butea monosperama* (Lamk.) Taub.*Kikar**Acacia nilotica* (L.) Willd. ex. Del.
Subsp. indica (Benth) Brenan syn.*Pahari Kikar**Prosopis juliflora* (Sw.) DC.**Shrubs***Pala**Zizyphus nummularia**Hins**Capparis sepiara* L. *Carissa*
spinaria L.*Puthikanda**Achyranthes aspera* L.*Bansa**Adhatoda vasica* Nees.*Panwar*(i) *Cassia tora* L.(ii) *Cassia occidentalis* L.*Karir**Capparis decidua* (Forsk.) Edgew*Khip**Leptadenia pyrotechnica* (Forsk.)
Decme. Decne. Syn. *L. spartium*
Wight*Ak**Calotropis procera* (Ait.) Ait. f.*Phog**Calligonum polygonoides* L.*Nagphani**Cactus indicus***Medicinal Plants***Indirain**Citrullus colocynthis* (L.) Schrad*Asgandha**Withania somnifera* (L.) Dunal*Glo**Timospera cordifolia* Miers ex. Hook.
f. & T. Thoms*Kharnthi**Sida acuta* Burm f.*Bhakra**Tribulus terrestris* L.*Dhatura**Datura stramonium* L.

GENERAL

Grasses

Anjan

Dhaman

Dub

Kana

Dabh

Pala

Chirya

Cenchrus ciliaris L.

Cenchrus setigerus Vahl

Cynodon dactylon (L.) Pers.

Saccharum bengalense Retz. Syn.

Erianthus munja (Roxb.) Jesw.

Desmostachya bipinnata (L.) Stapf.

Dichanthi Annulatum (Forest.)

Stapf.

Heteropogon contortus (L.) Beauv

ZOOLOGICAL NAMES (FAUNA)

Mammals

Rhesus macaque or bandar

Common langur

Tiger

Leopard

Jungle cat

Small Indian civet

Common mongoose

Jackal

Indian fox

Grey musk-shrew or *Chuchunder*

Common yellow bat

Tickelli's bat

Five striped palm squirrel or
satheri

Indian porcupine or *sahi*

Indian gerbille

Common house rat

Macaca mulatta (Zimmermann)

Presbytis entellus (Dufresne)

Panthera tigris Linnaeus

Panthera pardus (Linnaeus)

Felis chaus Guldenstaedt

Viverricula indica (Desmarest)

Herpestes edwardsi (Geoffroy)

Canis auris Linnaeus

Vulpes benghalensis (Shaw)

Suncus murinus (Linnaeus)

Scotophilus heathi (Horsfield)

Hesperoptenus tickelli (Blyth)

Funambulus pennanti (Wroughton)

Hystrix indica (Kerr)

Tatera indica (Hardwicke)

Rattus rattus (Linnaeus)

Mouse

Mus musculus (Linnaeus)

Indian hare

Lepus nigricollis (Cuvier)

Chinkara

Gazella gazella (Pallas)

Blackbuck

Antelope cervicapra (Linnaeus)

Bluebull or nilgai

Boselaphus tragocamelus (Pallas)

Birds

Spotbill duck

Anas poecilorhyncha (Forster)

Cotton teal

Nettapus coromandelianus coromandelianus (Gmelin)

Tree duck

Dendrocygna Javanica (Horsfield)

Dabchick

Podiceps reficollis capensis (Salvadori)

Eastern greylag goose

Anser anser rubrirostris (Swindoe)

Barheaded goose

Anser indicus (Latham)

Braminy duck

Adorna ferruginea (Pallas)

Pintail

Anas ecata

Common teal

Anas crecca crecca (Linnaeus)

Mallard

Anas platyrhynchos Linnaeus

Gadwall

Anas strepera strepera Linnaeus

Wigeon

Anas penelope Linnaeus

Bluewinged teal

Anas guerguedula Linnaeus

Shoveller

Anas clypeata Linnaeus

Common pochard

Aythya ferina Linnaeus

Ferruginous duck

Aythya nyroca (Guldenstadt.)

Tufted duck

Aythya fuligula (Linnaeus)

Black partridge (State bird)

Francolinus francolinus asiae (Bonaparte)

Grey partridge

Francolinus pondicerianus interpositus (Hartert)

Grey quail	<i>Coturnix coturnix coturnix</i> (Linnaeus)
Blackbreasted or rain quail	<i>Coturnix coromandelica</i> (Gmelin)
Jungle bush quail	<i>Perdicula asiatica punjaubi</i> (Whistler)
Rock bush quail	<i>Perdicula argoondah</i> (Sykes)
Western turtle dove	<i>Streptopelia orientalis meena</i> (Sykes)
Indian spotted dove	<i>Streptopelia chinensis suratensis</i> (Gmelin)
Senegal dove	<i>Streptopelia senegalensis cambayensis</i> (Gmelin.)
Indian emerald dove	<i>Chalcophaps indica indica</i> Linnaeus
Indian sandgrouse	<i>Pterocles exustus erlangeri</i> (Neumann)
Blackbelled sandgrouse	<i>Pterocles orientalis orientalis</i> Linnaeus
Pintail sandgrouse	<i>Pterocles alchata caudacutus</i> (Gmelin)
Spotted sandgrouse	<i>Pterocles senegallus</i> (Linnaeus)
Large cormorant	<i>Phalacrocorax carbo sinensis</i> (Shaw)
Little cormorant	<i>Phalacrocorax nigar</i> (Vieillot)
Darter or snake bird	<i>Anhinga rufa melanogaster</i> Pennant
Eastern grey heron	<i>Ardea cinerea rectirostris</i> (Gould)
Paddy bird	<i>Ardeola grayii</i> (Sykes)
Eastern large egrets	<i>Egretta alba modesta</i> (J.E. Grey)
Median egret	<i>Egretta intermedia intermedia</i> (Wagler)
Little egret	<i>Egretta garzetta garzetta</i> (Linnaeus)
Little bittern	<i>Ixobrychus minutus minutus</i> (Linnaeus)
Cattle egret	<i>Bubulcus ibis coromandus</i> (Boddaert)
Eastern common crane	<i>Grus grus lilfordi</i> Sharpe
Demoiselle crane	<i>Anthropoides virgo</i> (Linnaeus)
Indian sarus crane	<i>Grus antigone antigone</i> (Linnaeus)

Painted stork	<i>Ibis leucocephalus</i> (Pennant)
Openbill stork	<i>Ananstomus oscitans</i> (Boddaert)
White ibis	<i>Threskiornis melanocephala</i> (Latham)
Blacknecked stork	<i>Xenorhynchus asiaticus asiaticus</i> (Latham)
Indian Black ibis	<i>Pseudibis papillosa papillosa</i> (Temminck)
Eastern Baillon's crane	<i>Porzana pusilla pusilla</i> (Pallas)
Spotted crane	<i>Porzana porzana</i> (Linnaeus)
Slatylegged banded crane	<i>Rallina eurizonoides amauroptera</i> (Jerson)
Norther ruddy crane	<i>Amaurornis fuscus bakeri</i> (Hartort)
Whitebreasted waterhen	<i>Amaurornis phoenicurus chinensis</i> (Boddaert)
Watercock	<i>Gallicrex cinerea cinerea</i> (Gmelin)
Indian moorhen	<i>Gallinula chloropus indica</i> Blyth
Coot	<i>Fulica atra atra</i> Linnaeus
Dusky Redshank	<i>Iringa erythropus</i> (Pallas)
Eastern Redshank	<i>Iringa totanus eurhinus</i> (Oberholser)
Marsh sandpiper	<i>Iringa stagnatilis</i> (Bechstein)
Green Shank	<i>Iringa nebularia</i> (Gunnerus)
Green sandpiper	<i>Iringa ochropus</i> Linnaeus
Wood sandpiper	<i>Iringa glareola</i> Linnaeus
Common sandpiper	<i>Iringa hypoleucos</i> Linnaeus
Pintail snipe	<i>Capella stenura</i> (Bonnaparte)
Fantail snipe	<i>Capella galinago gallinago</i> (Linnaeus)
Temmincks stint	<i>Calidris temminchii</i> (Leisler)
Pheasant tailed Jacana	<i>Hydrophasianus chiturgus</i> (Scopoli)
Painted snipe	<i>Rostratula benghalensis benghalensis</i> (Linnaeus)

Indian blackwinged stilt	<i>Himantopus himantopus himantopus</i> (Linnaeus)
Indian river tern	<i>Sterna aurantis</i> Grey
Blackbellied tern	<i>Sterna acuticauda</i> Grey
Indian whistered tern	<i>Chlidonais hybrida indica</i> (Stephens)
Indian pied kingfisher	<i>Ceryla rudis leucomelanura reichenbach</i>
Indian small blue kingfisher	<i>Alcedo atthis bengalensis</i> Gmelin
Whitebreasted kingfisher	<i>Haleyon smyrnensis smyrnensis</i> (Linnaeus)
Common peafowl	<i>Pavo cristatus</i> Linnaeus
Large Indian parakeet	<i>Psittacula eupatria</i> (Linnaeus)
Rose ringed parakeet	<i>Psittacula kramari borealis</i> (Neumann)
Indian house crow	<i>Corvus splendens splendens</i> Vieillot
Indian house sparrow	<i>Passer domesticus indicus</i> Jardine and Selby
Blue-cheeked bee-eater	<i>Merops superciliosus</i> (Linnaeus)
Golden backed woodpecker	<i>Dinopium benghalense benghalense</i> (Linnaeus.)
Blue jay	<i>Corais benghalensis bengalensis</i> (Linnaeus)
Coppersmith	<i>Magalaima haemaphysalis indica</i> (Latham)
Indian golden oriole	<i>Oriolus oriolus kundoo</i> Sykes
Pied crested cuckoo	<i>Clamator iacobinus serratus</i> (Sparr- man)
Koel	<i>Eudynamis scolopacea scolopacea</i> (Linnaeus)
Common crow-pheasant	<i>Centropus sinensis sinensis</i> (Stephens)
Redvented bulbul	<i>Pycnonotus cafer</i> (Linnaeus)

White-eared bulbul	<i>Pycnonotus leucogenys</i> (Grey)
Verditer flycatcher	<i>Muscicapa thalassina thalassina</i> Swainson
Indian magpie robin	<i>Copsychus saevicus saevicus</i> (Linnaeus)
Indian purple sunbird	<i>Nectarania asiatica asiatica</i> (Latham)
Red munia	<i>Estrilda amandava amandava</i> (Linn.)
Indian spotted munia	<i>Lonchura punctulata punctulata</i> (Linn.)
Crested bunting	<i>Melophws lathamii</i> (Gray)
Hoopoe	<i>Upupa epops</i> Linnaeus
Indian White eye	<i>Zosterops paepebroza paepebroza</i> (Temminck)
Pariah kite	<i>Milvus migrans</i> (Boddaert)
Brahminy kite	<i>Haliastur indus indus</i>
Whitebacked vulture	<i>Gyps bengalensis</i> (Gmelin)
Tawny eagle	<i>Aquila rapa vinahiana</i> Franklin
White eyed buzzard-eagle	<i>Butastur teera</i> (Franklin)
Indian jungle crow	<i>Corvus macrorhynchos culminatus</i> Sykes
Indian scavenger vulture	<i>Neophron percnopterus givginianus</i> (Latham)
Blackwinged kite	<i>Elanus caeruleus vociferus</i> (Latham)
Indian shikra	<i>Accipiter badius dussumieri</i> (Temminck)
Lagger falcon	<i>Falco biarmicus</i> (Temminck)
Kestrel	<i>Ealco tinnunculus</i> (Linnaeus)
Pale Harrier	<i>Circus macrourus</i> (Gmelin)
Marsh harrier	<i>Circus aerugin sus aeruginous</i> (Linnaeus)
Eastern steppe eagle	<i>Aquila nipalensis nipalensis</i> (Hodgson)

Spotted owlet

Athena brama (Temminck)

Eagle owl

Bubo bubo (Linn.)

Indian house swift

Spus affinis affinis (J.E. Gray)

Indian palm swift

Cypsiurus parvus batasiensis
(J.E. Grey)

Western swallow

Hirundo rustica rustica Linnaeus

Indian wiretailed swallow

Hirundo smithi filifera Stephens

King crow

Dicrurus adsimilis albirictus (Hodgson)

Brahminy myna

Sturnus pagodarum (Gmelin)

Indian pied myna

Sturnus contra contra Linnaeus

Indian myna

Acridotheres tristis tristis (Linnaeus)

Bank myna

Acridotheres ginginianus (Latham)

Rosy paster and starling

Sturnus roseus Linnaeus**Reptiles**

Family : Elapidae

Common Indian Krait

Bungarus caeruleus (Schneider)

Indian cobra

Naja naja (Linn.)

Family : Viperidae

Russels viper

Vipers russelli (Shaw)

Phoorsa

Echis carinalus (Schneider)

Family : Typhopidae

Blind snake

Typhlops porrectus Sloliczke

Family : Boidae

Indian python

Python molurus (Linn.)

John's sand boa

Eryx johani johani (Russell)

Family : Colubridae

Wolf snake

Lycodon striatus (Shaw)

Rat snake

Ptyas mucosus (Linn.)

Common lizards

(i) *Hemidactylus brooki* (Gray)

(ii) *Hemidactylus flaviviridis* (Ruppel)

Kirla or girgit

Calotes versicolour (Daudin)

Sanda

Uromastix hardwicki (Gray)

Other types of lizards found in the district

(i) *Mabuya macularia* (Dum. and Bibr)

(ii) *Ophiomorus tridactylus* (Blyth)

(iii) *Varanus monitor* (Linn.)

Amphibians

Tortoises found in the district

(i) *Geoclemys hamiltoni* (Gray)

(i) *Kachuga dhongoka* (Gray)

Family : Ranidae

Indian bull frog

Rana tigrina (Daudin)

Indian cricket frog

Rana limnocharis neigman

Indian burrowing frog

Rana breviceps Schneider

Family : Bufonidae

Common toad

Bufo melanostictus Schneider

Fishes

Parri

Notopterus notoprerus (Pallas)

Katla

Catla catla (Hamilton)

Mrigal

Cirrhinus mrigala (Hamilton)

Bata

Labeo bata (Hamilton)

Kalabans	<i>Labeo calbasu</i> (Hamilton)
Rohu	<i>Labeo rohita</i> (Hamilton)
Puthia, Kudali or Pitula	<i>Puntius sarana</i> * (Hamilton) *sar.12
Magur	<i>Clarias batrachus</i> (Linnaeus)
Singhara	<i>Aovichihys seenghala</i> (Sykes)
Ghally	<i>Ompok bimaculatus</i> (Bloch)
Mallee	<i>Wallago attu</i> (Block & Schneider)
Dolla	<i>Channa punctatus</i> (Bloch)
Curd	<i>Channa striatus</i> (Bloch)