

## CHAPTER I.

## THE DISTRICT.

## SECTION A.—DESCRIPTIVE.

The Ambála district is the southern-most of the three districts of the Ambála division, and lies between north latitude 29°49' and 30°46' and east longitude 76°26' and 77°39'. (It occupies the angle where the Siwálíks meet the Jamná, and stretches westwards under the former, and southwards along the latter. Its greatest length from north-west to south-east is 92 miles, and its breadth at the widest part 67 miles. It is bounded on the north-east by the Himalayas, among which lie the Simla Hill States, on the south-east by the Jamná, which separates it from the Saháranpur district of the North-Western Provinces, on the south by the district of Karnál, on the west by the Native State of Patiála and the Lúdhíánah district, and on the north-west by the Sutlaj. These boundaries, however, include the greater portion of the territory belonging to the Native State of Kalsiá, which lies scattered about among the British villages. It is divided into six *tahsils*, of which those of Píplí and Ambála include all the south-eastern portion of the district, while Jagádhri, Naráingarh, Kharar, and Ropar lie under the hills in that order from east to west.) The *tahsils* are further sub-divided into *parganahs* as follows:—Ambála into Ambála and Mulána; Jagádhri, into Jagádhri, Mustafábád, and Khizrábád; Ropar, into Ropar and Morinda; Kharar, into Kharar and Mobárikpur; Naráingarh, into Naráingarh, Sádhaúra, and Kutáha; and Píplí, into Thanesar, Sháhábád, and Ládwa.

Some leading statistics regarding the district and the several *tahsils* into which it is divided are given in Table No. I. on the opposite page. The district contains five towns of more than 10,000 souls, as follows:—Ambála, 67,463; Jagádhri, 12,300; Sádhaúra, 10,794; Ropar, 10,326; Sháhábád, 10,218. The administrative head-quarters are situated at Ambála on the Scinde, Punjab and Delhi Railway, and at about the centre of the district. Ambála stands 19th in order of area and 1st in order of population among the 32 districts of the province, comprising 2·41 per cent. of the total area, 5·66 per cent. of

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General description.

Town.	N. Latitude.	E. Longitude.	Feet above sea-level.
Ambala ... ..	30°21'	76°52'	902
Kharar ... ..	30°45'	76°41'	920*
Jagadhri ... ..	30°10'	77°21'	924
Naraingarh ... ..	30°29'	77°10'	1,000*
Ropar ... ..	30°58'	76°34'	900*
Thanesar ... ..	29°58'	76°52'	800*
Shahabad ... ..	30°10'	76°55'	850*

\* Approximate.

the total population, and 5·75 per cent. of the urban population of British territory. The latitude, longitude, and height in feet above the sea of the principal places in the district are shown in the margin.

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A strip of Patiāla territory jutting into the district from the south-west, separates it into two uneven halves, which are connected only by a neck of land immediately below the hills, not more than two miles wide at its narrowest point. Of these two portions, the southern is the larger, and has the shape of an irregular square, two sides of which rest upon the Jamná and the Himalayas respectively. The northern and smaller portion stretches north-west along the face of the hills as far as the Sutlaj. Towards the Himalayas the portion is comparatively straight, the first slope of the hills marking throughout the greater part of the district's length the border of British territory, beyond which lies the independent State of Nahan or Sarmaur; at two points only does the district extend into the hills; once at its eastern extremity upon the Jamná, and again nearly opposite its narrowest point, about midway between the Jamná and the Sutlaj. The eastern projection into the hills is a tract of a few square miles only, but is valuable for the *sál* timber, with which it is thickly grown. The other hill tract, known as the Morni *iláka* of the Kutáha *parganah*, is 97 square miles in extent. It differs so completely from the remainder of the district, as well physically as in its history and the races of its inhabitants, that the account of it requires to be kept quite separate from that of the district at large. It is printed, therefore, in the form of a separate appendix to this volume. Below the hills, the face of the country assumes immediately the appearance, to the eye, of a perfectly level plain. It has, however, a uniform slope towards the south-west, and near the hills its surface is broken at short intervals by the beds of mountain torrents. These form the most characteristic feature in the physical aspect of the country.

**Nature of the soil,  
scenery, &c.**

The aspect of the country is pleasing, undulating near the hills, then stretching away into the central plains. It is well wooded throughout, especially in the south, where fine mango groves abound. The neighbourhood of the hills, and the moisture imparted by the passage of the numerous hill torrents, give an air of freshness, almost of prettiness, to what would otherwise be a level and uninteresting plain. The Himalayas, in clear weather, are visible from all parts of the district. The whole surface of the country is alluvial, the only distinction being between more ancient and more modern deposits. The high ground which occupies the heart of the district is technically known as *bángar*; the low lying alluvial soil of modern growth is called, in distinction, *khádar*. Of one or other of these kinds is the whole district made up. The formation of the alluvial deposits has been thus described:—

"The flat country about Mulána and Ambála has undoubtedly all, or nearly all, been formed by the silting up of the rivers, which, rushing down from the hills, leave year after year a deposit in their beds, until the beds become too shallow to hold the flood. This then spreads over the country, leaving a deposit throughout its course, until it finds some lower level, through which it works a channel, and for a time leaves its own course entirely. The old shallow bed is ploughed up and cultivated, until after years or centuries the water returns to what has again become the lowest level of the country."



The *bāngar* tract, *par excellence*, of the southern portion of the district, is that which lies between the Sombh and the Mārkaṇḍā, and is drained by the Chatang and Sarassutī. Towards the east it ends abruptly in the high bank of the Jamnā; to the west it slopes gently away in the direction of the Ghaggar and the plain in which lies the city and cantonments of Ambāla.

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In the northern part of the district, beyond the line marked by the Ghaggar, spurs of the Himalayas project further into the plains. Below them the country is rich and well wooded, mostly a level plain even up to their very feet; and though, like the southern portion, it is intersected by mountain torrents, yet these flow, for the most part, in deep channels, and their influence does not extend beyond their immediate limits. They deposit no silt near the hills, and the country, as a natural consequence, is slightly lower than it is to the south of the Ghaggar. The soil too of this portion of the district is much less mixed with sand, and consists, for the most part, of a loamy mould. But the water lying deep, the country is dry, and on this account less fertile than are other tracts, which to all appearance have a poorer soil. In the *khādar* land, near the hills, water is so close to the surface that it can be obtained in the river beds by merely scratching away a little of the earth. But, generally speaking, in *khādar* land, the depth of water below the surface varies from 6 to 20 feet. In such soil the spring harvest is generally grown independent of artificial irrigation. The wells are worked by a rude Persian-wheel or by the hand lever. They are, however, but little used in comparison with those on the higher or *bāngar* lands, where there exists a more constant necessity for irrigation. In some parts of the *bāngar* land, water is hardly obtainable at all for irrigation, and in the parts most remote from the hills many villages do not possess a well, even for drinking purposes, but depend entirely for their water supply on the surface drainage collected in tanks. The general depth below the surface in *bāngar* land varies from 30 to 60 feet, and though the water is abundant, the labour of raising it is great.

The general character of the hill streams, which have already been alluded to as a prominent feature of the district, is that of broad sandy courses, scarcely below the surface of the country, and varying in breadth from a hundred yards to upwards of a mile, dry during the great part of the year, but pouring down a formidable body of water in rainy weather. This character they maintain for a distance, on the average, of 20 miles below the hills. They then gradually tame down into sluggish docile streams, with well-defined clay banks, and a volume which is much diminished, (as well by irrigation as by absorption in the sand.) Eventually all, or almost all, the streams that leave the hills between the Sutlaj and the Jamnā unite in the Ghaggar. This from the commencement is the most important of them all, and is the only one which contains a flow of water throughout the year. Passing the confines of the district, it flows on

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through Patiála and Sirsá, and finally loses itself in the rainless sands of Rájputána. (Two streams, the Sirsa *nadi* and the smaller stream from Valakund, are perennial, and fall into the Sutlaj at about 5 and 11 miles above Ropar respectively. The waters of the Sirsa *nadi* are utilized to turn flour mills. The other streams, without exception, dry up shortly after the cessation of the rains, or, at best, retain water only in a few unconnected pools. In some places their beds are ploughed up for the spring harvest, so that their track is hardly distinguishable from the surrounding fields, until, on the commencement of the rains, they swell again into formidable torrents. The local name for these torrents is *rau*. In the northern part of the district, the river beds are deeper and less sandy than in the south. A short account is given below of the most important.)

## The Ghaggar.

The Ghaggar rises in the territory of Náhan or Sarmaur, and, passing through the Kutáha *parganah*, leaves the hills a few miles above the town of Mani Májra. It skirts the border of the Kharar *tahsil* for a few miles, and then crosses the district at its narrowest point. Thence it passes on into Patiála territory, but again touches the border of the district, a short distance to the west of the city of Ambála. Near Mani Májra it is largely used for irrigation, the water being drawn off by means of artificial cuts, or *kuls*. The bed is stony for a few miles below the hills, but soon becomes a wide tract of sand. The upper portion of the course contains water throughout the year, a foot deep in summer, but reaching six feet in the rains. (The greater part of it, however, is drawn off for irrigation in the first few miles of its course, and in dry weather but little escapes for use lower down. When in flood, the current is too dangerous for boats, but, except on rare occasions, the stream is always fordable.) The Ambála and Simla road crosses it by a ford about half way between Kálka and Ambála, and the mails are, during the rains, carried over on elephants. (Immediately after heavy rain, delay is often experienced, but the water quickly subsides sufficiently to allow of fording. The use of the Ghaggar water either for drinking or for irrigation is most prejudicial to health, causing fever, spleen, and goitre. The Settlement Officer of the district, speaking of the tract which it waters, says:—

"These villages are frightfully under-populated. There are but few wells, and the Ghaggar water is drunk. Fever is extensively prevalent, as is proved by the distended spleen of almost every third man. Ask a man to run a few hundred yards alongside of your horse, and he is immediately stopped by a coughing fit; whereas a Ját, living out of the influence of irrigation, will run a couple of miles with the greatest ease. Goitre (called *gillarh*) is very prevalent; and it is by no means uncommon to find four, five or six *cretins* (called *jaggar*) of deformed minds and bodies in a single village. Families die out in the fourth generation. There is not a man in the *chak* who can boast of a residence of more than three generations. \* \* \* \* In fact, it is only the prospect of obtaining immense out-turns to their labour that induces men to settle here."

The area irrigated by the Ghaggar in this district amounts in all to nearly 10,000 acres.)



The Sarassutí is the ancient Saraswati, famous in annals of early Brahminical history. (It rises in the low hills just beyond the border of the district in Sarmaur, and emerges into the plains at Ad Badrí, a place esteemed sacred by all Hindús. A short distance below the hills a branch stream connects it with the Sombh, and a mile or two further, near the village of Chalur, it disappears for a time in the sand, but, percolating underground, re-emerges about three miles further south, at the village of Bhawánpur. At Bálichhappar, again disappearing below the surface, it is apparently lost in the Chatang. At Bara Khera, however, it again reappears, and flows onwards in a south-westerly direction until at Urnai, near Pehowa, it is joined by the Márkanda.) Crossing Karnál, the united river, bearing still the name of Sarassutí, enters Patíala territory and ultimately joins the Ghaggar. In ancient times the Ghaggar, below this junction, appears to have borne the name of its tributary, the Sarassutí, and, undiminished in those days by irrigation near the hills, poured down a considerable volume of water across the Rájputána plains, and debouched into the Indus below the junction of the Panjáb rivers. Its bed can be still traced as far as Mírgarh in Baháwalpúr, but its water penetrates no further than Bhatner in Rájputána.

Much has been written as to the desiccation of the Sarassutí, which is thus represented in ancient times to have been an important river. The phenomenon, however, seems amply explained by the supposition made above, that anciently the Ghaggar was considered an affluent of the Sarassutí, instead of the Sarassutí of the Ghaggar, and that when ancient writers speak of the Sarassutí, they include under that name the united Ghaggar and Sarassutí. If the possibility of this be granted, the failure in the water supply is easily accounted for by the greater volume of water now drawn off for irrigation, and by the silting up of the river beds caused by the dams employed to divert the water over the fields. It is impossible to suppose that the supply of water in the sources has permanently decreased. This varies from year to year with the rainfall, and there is no reason for supposing that the rainfall is less now than it used to be. There is no mystery about the matter. The Ghaggar, it must be remembered, would, if it and its tributaries were left to themselves, receive the whole drainage of the lower Himalayas between the Jamná and the Sutlaj, and this is quite sufficient to provide water during the rains for a considerable river. At the present time, in parts of the courses of the various streams, every village has dams, which, however small individually, carry off in the aggregate an enormous volume of water, quite sufficient to affect the lower parts of the stream. Nor is this the only result of this system of damming back the water for purposes of irrigation. Not only is water drawn off, but the flow of the water which escapes is impeded. This leads to increased absorption in the soil, and increased deposit of silt. And thus, year by year, the power

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of the streams to sweep away obstacles becomes less, while the obstacles themselves become more formidable. (There can be no doubt that the process of desiccation of the lower parts of the Ambála streams will go on and increase until the introduction of a new and improved method of utilizing their waters.) In the Ambála district the bed of the Sarassutí is for the most part well defined, but expands, here and there, into a broad belt of sand. It never contains more than two feet of water, and is dry for eight months in the year, water remaining only in occasional parts or in spots where it is dammed up to provide bathing places for pilgrims. General Cunningham, in his *Archæological Report* for 1863-64, gives the following account of the river :—

"The Sarassutí, in Sanskrit *Saraswati*, is too well known to require more than a mere notice. Its name is derived from *Saras*, a 'lake or pool,' and *vati*, 'like,' meaning the 'river of lakes or pools,' a character which it still bears, as it partially dries up early in the year, and becomes a mere succession of pools without any visible stream. The Bráhmans have cleverly taken advantage of these pools, to each of which they have attached a legend with its accompanying shrine. Thus, along the bank of the Sarassutí to the north of Thánesar, from *Ratan Jaksh* on the east to *Aujas Ghat* on the west, a distance of only five miles, there are no less than 34 shrines, or seven shrines in one mile, or a shrine at every 250 yards. Of these the most celebrated is the *Kula Práchin*, or *Gangatirath*, in which the Ganges herself is said to have bathed to get rid of the load of sin with which the people had defiled her waters. Another famous place is the *Sthánutirath*, where *Vena Rája* dedicated a shrine to Siva, under the name of *Sthánu*. According to the legend, the leprous *Rája Ben*, whose name I have found as widely diffused as those of the Pándus themselves, while travelling in a *doli* was set down by the bearers on the bank of the Saraswati. A dog crossed the river and stopped near the *doli* to shake himself, when some water was sprinkled on the Rája, who was astonished on seeing that each spot thus wetted immediately became whole. He at once plunged into the stream and came out entirely cleansed from his leprosy. These two legends are alone sufficient to account for the deeply-rooted belief of the people in the purifying quality of the waters of the Saraswati. Some places refer to the destruction of the Kshatriyas by Parasu-Ráma, and other spots are dedicated to the story of the Pándus, such as *Kshiriki-vása* and *Asthípur*. In the first of these places the water of the river was changed to milk (*kshira*) for the use of the wearied Pándus, and in the other their bones (*asthi*) were collected together in a heap. In A.D. 634 these bones were shown to the Chinese pilgrim, Hwen Thsang, who records that they were of very large size. All my enquiries for them were fruitless, but the site of *Asthípur* is still pointed out in the plain to the west of the city towards *Aujas Ghat*."

The Hindú tradition attached to the disappearance of the river in the sand is as follows. Sarassutí was the daughter of Mahádeo; but her father one day, in a fit of drunkenness, approaching with intent to violate her modesty; she fled, and in her flight, whenever she saw her pursuer gaining, she dived under ground, re-emerging a few miles further on. The river sprang up in her track, and where she disappeared in order to commemorate her exploit there the river also to this day, dives under ground.

## The Chatang.

(The Chatang rises in the plains a few miles to the south-east of the Sarassutí, and the two streams run parallel to each other



until the point of their secret junction. From this point the bed of the Chatang strikes more to the south and runs for some distance parallel with the Jamná; then, turning westward, it passes in the direction of Hási and Hisár. In this part of its course, its bed is utilized for the Hisár branch of the Western Jamná canal. Traces of its bed are visible as far as the Ghaggar, which it used to join some miles below Bhatner.

The Tángri rises in the hills of Kutáhá, and flowing in a southerly direction as far as Panjokhra, a village about five miles north-east of Ambála, there separates into two main channels, which still keep a southerly course, running one on either side of the cantonment of Ambála. Each branch, after passing Ambála, again subdivides, and the whole is finally lost in the sand near Thol and other villages, about 15 miles south-west of Ambála. The banks of the main stream and of the eastern branch are high and steep. The bed is sandy throughout, dry except in the rains, when the water attains a depth of 12 feet. The adjacent lands are sandy, no islands are formed, nor is the current dangerous. The river deposits large quantities of sand. It is usually fordable throughout its whole length except when heavy floods come down. These, however, continue only for a few hours at a time. The water of the western branch, which has sloping banks and an ill-defined channel, spreads over the neighbouring fields on both sides, fertilizing a considerable tract. The Grand Trunk Road crosses the Tángri by a masonry bridge.

The Baliáli is a kindred stream, so connected with the Tángri that the two may be almost considered as branches of one river. They form one stream at Boh, a village adjoining the Ambála cantonments on the north. Formerly they used to inundate the cantonments, but their floods are now shut out by a permanent dam, which turns nearly all the water of the Tángri into the bed of the Baliáli and completely protects the cantonments. At Sháhpur, on the Grand Trunk Road, the river is joined by the Umri, and all three have thenceforward one channel.

The Sádhaurawála *rau*, otherwise known as the Nakti or Sadadhieni *nadi*. This stream is formed a little above the town of Sádhaura, by the confluence of the Súkar, Fandi, and Khandrá torrents. It joins the Márkanda about 13 miles below the hills.

The Márkanda, which rises in the Náhan hills, receives the Run *nadi* at a short distance within the district, and the Sádhaurawála as above noted. It is further swelled, about 6 miles lower down, by the Begná and ultimately joins the Sarassutí, a few miles beyond the border of the district, near Pehowa. The Márkanda is the principal drain of this part of the country. It is a dangerous and treacherous stream, and rises suddenly from rain in the hills, when the water comes down with a rushing noise, like a wall or a wave of the sea, sweeping all before it; then, running off, leaves the river bed a quick-sand,

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except only at the regular beaten fords. The deposit left by this river is very valuable, and the best sugar-cane in the district is grown in land flooded by it and the *Sádhaúra nadi*. But this benefit is in a measure neutralized by the sand, which in dry weather drifts eastward from it, bearing destruction to cultivated lands and at times burying whole villages. The floods, too, have severely damaged or entirely swept away many large villages. The river is, therefore, but a doubtful blessing to the neighbourhood.

**The Begná.**

The Begná, a wide torrent, having two sources in Kutáha and Sarmaur, emerges into the plains near the village of Fatahgarh, and flowing almost due south through the *parganahs* of Naraingarh, Sádhaúra, and Mulána, falls into the Márkanda at Alimun Májra. The banks are shelving and the land adjacent sandy. Like the Márkanda, it is subject to sudden and violent floods, and on subsiding, leaves a valuable deposit of alluvial soil. It is dry three months in the year. Its greatest depth in the rainy season is four feet, and it is fordable nearly everywhere.

**The Kushalla.**

The Kushalla is a small stream coming from the direction of Kálka, and joining the Ghaggar at Chandi. Its banks are abrupt and its bed sandy.

**The Sukhiá.**

The Sukhiá, called also the Sukhna, is a broad stream rising near Pinjaur, which after a course of 15 miles in a southern direction, falls into the Ghaggar at Mubárikpur. It has abrupt banks and a pebbly bed. It is of little use for irrigation, but a few villages derive a fluctuating supply of water from it. It carries three feet of water in the rains, but, except near springs, is dry at other times. It is always fordable.

**The Sugh rau.**

The Sugh rau flows from the Siwálíks in two branches which unite at Bhadal, and the combined stream reaches the Sutlaj two miles below Ropar.

**The Budhi rau.**

The Khizrábádwalí *nadí*, called also Budhi rau, leaves the hills near Mirzápur, and, flowing in a westerly direction for about 20 miles, loses itself near Bairámpur. Its banks are abrupt near the hills, but become shelving further to the west. It carries three feet of water in the rains, but is generally dry.

**The Landra.**

The Landra rises near Parch, in the Mani Májra *parganah*, and flows south-east, under the name of the Patiála rau, through the territory and town of Patiála, until it finally joins the Ghaggar. It has no defined channel, but spreads over the fields with a sandy bed. Its depth in the rains is three feet.

**The Jainti Devi rau.**

The Khánpur, called also rau Jainti Devi, rises in the hills and flows by Kharar. It receives the Choyá *nadí* near Sarhind. The banks are sometimes steep, sometimes shelving. The bed is sandy and contains four feet of water in the rains. The Choyá arises from surface drainage near Sarána, and flows by Sangatpura between Khant and Morinda, and thence into Patiála territory.



The Siswánwáli rises near Siswán, and flows into the Sutlaj nine miles below Ropar. It is of the same character as the last, and carries three feet of water in the rains.

The Run rises in Sarmaur, flows southward, and carries a large body of water into the Márkanda at Dumánwála. Its bed is stony, with banks abrupt and well defined. Its depth of water in the rains is three feet.

The Pathrála, known in the hills as Roti *Ráu* rises on the border of Sarmaur, and, after a course of 20 miles due south, discharges its waters into the Western Jamná Canal near Dádúpur. It carries three feet of water in the rains.

The Rákshi is a small stream rising in the plains at Dharmkot near Biláspur. It flows south-west by Jagádhrí, and joins the Chatang near Ládwa. Its course is through a well-defined clay bed, with steep banks, and it carries four feet of water in rainy seasons.

The Sombh, a broad hill torrent, rises in Sarmaur, and takes a southerly course between the Pathrála and Sarassutí and nearly parallel to both. After a course of 25 miles, it discharges its waters into the Western Jamná Canal at Dádúpur. The bed is a mass of sand with sloping banks, so that the river is constantly changing its course. Dry during nine months of the year, it carries four feet of water during the rains. Its floods are exceedingly rapid and violent, but quickly drain off. They are most beneficial to the country on its banks.

The Umri, or Sháhzádpurwáli *nadi*, is formed of water collected in the plains during the rainy season. It begins at Rataur, and flowing south-west by Sháhzádpur and Májra, joins the Baliáli, or Tángri, at Sháhpur on the Grand Trunk Road. It spreads wide over the country, and, in places, leaves a rich deposit of good soil.

The Sutlaj has a front towards the district of about 45 miles. It first touches its border just below Kíratpur, and, from this point as far as Ropar, flows southwards, forming the boundary between the districts of Ambála and Hoshiárpur. Opposite Ropar, having cleared the end of the Siwálik range in Hoshiárpur, the river sweeps round in a semi-circle, and from this point flows due west still forming the boundary of the district. Above Ropar, the bed is rough and full of boulders, rapid and dangerous for navigation. Below, the boulders give place to sand, and the stream becomes smooth and navigable. The average depth of water is, in the cold weather, 10 feet, in the summer 15, and during the rains as much as 20. The action of the river is capricious; flowing through a wide bed, the deep stream one year is on the west side, another on the east; and the area of villages upon its banks is modified every year. Its tendency at present is to encroach eastwards. Both banks of the river are abrupt, so as to prevent the use of the water to any great extent for irrigation purposes. Below the bank, however, on the Ambálaside, is a belt of

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alluvial soil, richly cultivated, and the most productive tract in the district. Fordable in some places during the cold weather, the river is crossed by ferries which are noticed in Chapter V. Large quantities of timber are rafted down the Sutlaj from the hills, and there is an important timber depôt on its banks at Ropar. Boats are used in the part of the river which washes this district, only for ferrying passengers and goods from side to side. They are flat-bottomed, and from 36 to 40 feet in length by 9 or 10 feet broad. They have a capacity of 150 to 250 maunds burden, and are capable of carrying from 50 to 100 passengers. This river, as well as the Jamná, is navigable by such boats at all seasons of the year. A few individuals obtain a livelihood by fishing in the Sutlaj and the Jamná. Weighted nets are used for this purpose.

**The Jamná.**

The Jamná finally leaves the hills at a place called Hathní Kund, formerly the site of the upper head of the Western Jamná Canal. On the eastern, or Saháranpur side, the hills terminate some  $3\frac{1}{4}$  miles higher up the river. On either side, immediately below the debouch of the river from the hills, old channels, known as Búdhi Jamná, diverge from the present bed, and, running nearly parallel to it, rejoin it, the eastern branch at about 21 miles, the western at about 17 miles, below Hathní Kund. They are dry when the river is low, but carry a considerable volume of water in time of flood, derived both from the main Jamná and from hill torrents which fall into them. The bed of the Búdhi Jamná on the Ambála side is almost on the same level as that of the main river. Above it, to the west, rises the high bank which marks the limit of the river's valley. This bank is abrupt and well defined, near the hills as much as 100 feet in height, but rapidly sloping down till it ranges from 10 to 12 feet. The interval between the old and new beds is scarcely above the flood level of the river, and is intersected everywhere by cross channels, some of which are permanently dry, while others contain water during the rains. The river beds, both old and new, are formed, to a distance of  $\frac{1}{4}$ th mile below Hathní Kund, of boulders brought down from the hills, and even below this point boulders, cropping out here and there, cause rapids in the stream. They are replaced by shingle, which at the 15th mile below the hills disappears in sand, and it is not till this point is reached that the river becomes uniformly smooth. It is navigable, however, by country boats to within a short distance of Hathní Kund. The average fall below Hathní Kund is about 1 in 344. The river is crossed by the iron railway bridge, and by a bridge of boats opposite Jagádhri.)

**Canals.**

A detailed description of the canals of the Ambála district has been furnished by the Canal Department and is published at length in the provincial volume of the *Gazetteer*.

**Rainfall, temperature, and climate.**

Table No. III. shows in tenths of an inch the total rainfall registered at each of the rain-gauge stations in the district for



each year, from 1866-67 to 1882-83. (The fall at head-quarters for the four preceding years is shown in the margin.) The distribution of the rainfall throughout the year is shown in Tables Nos. IIIA. and IIIB.

Year.	Tenths of an inch.
1862-63	368
1863-64	577
1864-65	312
1865-66	564

(Fever is most prevalent in the Pipli *tahsil*, but is common everywhere.

The returns show it to be the only regularly recurring cause of serious mortality. Goitre is very common on the banks of the Ghaggar. Blindness is extremely prevalent, the rate being higher in this district than in any other.

In the town of Ropar alone a list is given by the Deputy Commissioner of 77 cases of blindness out of a population of 8,700. Of the 77 cases, 17 are the result of small-pox, 29 of ophthalmia, 31 of other causes. Only two are recorded as born blind. Of the whole, 11 are reported curable, and probably the mass of cases, where blindness is the result of ophthalmia, might have been relieved if treated in time. Unfortunately, though there are competent surgeons at the dispensaries, they are not supplied with the necessary instruments. The terrible ravages of blindness will be fully brought out by a comparison with European statistics. In England, by the census of 1861, the proportion was 1 in 1,037, which was far higher than in most continental countries. The highest proportion in Europe is that of Norway, where it is 1 in 540. Infirmities are discussed in Chapter III., page 29.) Tables Nos. XI., XIA., XIB., and XLIV. give annual and monthly statistics of births and deaths for the district and for its towns during the last five years; (while the birth and death rates since 1868, so far as available, will be found at pages 27 and 28 for the general population, and in Chapter VI. under the heads of the several large towns of the district. Table No. XII.) shows the number of insane, blind, deaf-mutes, and lepers as ascertained at the census of 1881; while Table No. XXXVIII. shows the working of the dispensaries since 1877.

## Chapter I, B. Geology, Fauna and Flora.

Rainfall, tempera-  
ture, and climate.

Disease.

## SECTION B.—GEOLOGY, FAUNA AND FLORA.

Our knowledge of Indian geology is as yet so general in its nature, and so little has been done in the Panjāb in the way of detailed geological investigation, that it is impossible to discuss the local geology of separate districts. But a sketch of the geology of the province as a whole has been most kindly furnished by Mr. Medlicott, Superintendent of the Geological Survey of India, and is published *in extenso* in the provincial volume of the *Gazetteer* series, and also as a separate pamphlet.

Geology.

Gold is said to be found in minute quantities among the sand washed down by some of the streams in the Kharar *tahsil*. The only mineral product of any practical importance is lime. (Large quantities of lime-stone are brought down by the streams from the hills, and form deposits which are collected and burnt

Minerals.

**Chapter I. B.**  
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**Minerals.**

**Wild animals :  
 sport.**

for lime.) The kilns are erected in the lower hills, where wood and stone are abundant. They are made of a cylindrical shape like a well, about 10 or 12 feet in diameter and the same in height; and there are two openings or valves to each furnace. The kiln is then charged with fuel consisting of green wood, the stone to be calcined is heaped on the top, and the whole is ignited and burns for 36 hours. The stone is thrown on to the kiln little by little. In four days the whole cools, and the stone is found to be calcined and of a white colour. It is then slaked by throwing water on it, and the result is lime in powder. In some places the kiln consists merely of a hole dug in the ground.

(This district is considered to be among the best in the Panjáb for sport of several kinds. Game may be readily found in every part of it, but is especially plentiful in the neighbourhood of Kalesar, in the jungles of the Piplí *tahsil* north of Thánesar, and the Morni forest of Kutáha. Tigers even are found in the lower ranges of the Siwálík hills. Leopards and wolves are common in the same locality; while, more to the west and north, at and near Morni in Kutáha, bears are very numerous. Hyenas and wolves are only too common everywhere, the latter being frequently killed within a mile of Ambála city. Of the deer tribe, the district contains no fewer than seven different kinds. *Sámbar* are as great a plague to the Kutáha hill villages as are black-buck in the plains. Along the hills, *chital* are found in fine herds, as well as numbers of *kákar* or barking deer. Ropar, in the north, has its speciality in *chikára* or ravine deer, and the thick *dhák* jungles of Piplí and Thánesar swarm with *nílgái* and *párho*, or hog deer. The common antelope affords excellent sport everywhere, but especially in the Ambála and Jagádhri *tahsils*. There are plenty of pig along the hills and in Piplí; but the nature of the ground is against hunting them on horseback. Small game shooting is not remarkably good. Black partridges are plentiful enough in the Piplí *dhák* jungles, and grey partridges and hares are always to be shot in the fields; but, except in the *khádar* between the Sarhind Canal and the Sutlaj from the 12th to the 15th mile of the canal, there is little or no snipe or duck shooting, owing to the scarcity of water. The quail shooting in March is excellent; and along the foot of the hills, but more specially at Morni, there is remarkably good pheasant and jungle-fowl shooting.

As to fishing, *máhásir* abound both in the Sutlaj and the Western Jamná Canal. At times, when the canal is low, fine fish of this species have been shot with the rifle.

The natives occasionally catch quail with nets, and adjutants with strings, in which their feet are entangled. Deer are shot by native *shikáris* in large numbers. They stalk them with consummate skill, and, using a charge of slugs, seldom fail to bag their game.)

Rewards are given for killing wild animals as follows: for a tiger, leopard or panther, Rs. 15; for tiger, leopard or panther cubs, Rs. 3; for a wolf, Rs. 5; for wolf cubs, Re. 1. (Four tigers



were destroyed in 1865, and two in 1870. During the last five years rewards to the amount of Rs. 620 have been given for the destruction of 2 tigers, 16 leopards, 1 bear, 136 wolves, and 271 snakes.

(The mango, common in the southern portion of the district, and especially fine in the neighbourhood of the canal, is not found north of Ambála except in the Ropar and Kharar *tahsils*. In the south, fine groves of mangoes form striking objects in the scenery of the district, and are moreover a considerable source of income to the landowner. The commonest timber tree in the district is the *kikar* (*Acacia arabica*), which grows almost everywhere in great abundance. The other indigenous trees are the *pípal* (*Ficus religiosa*), *siris* (*Acacia sirissa*), *tút* (mulberry), *sál* (*Vatica robusta*), *Bargat* (*Ficus indica*), *simbhal* (*Bombax peptaphyl*), *farásh* (*Tamarix orientalis*), and *dhák* (*Butea frondosa*). The *sál* is found only in the Siwálíks.

In parts the growth of trees, especially of the *dhák* and *sál*, becomes so thick as to deserve the name of forest. Such parts as those of the Chháchhra near Thánesar, covering 57,000 acres, of Morni in Kutáha, covering 62,000 acres, and of Kalesar on the border of Sarmaur (Náhan), covering 14,000 acres, are cases in point. In the *pargana* of Ládwa there are 64,788 acres of *dhák* forest, and in that of Sháhábád, 35,926 acres. Both these tracts are in the Píplí *tahsíl*, and not far from Thánesar. The Chháchhra jungle is formed exclusively of *dhák* trees, the Morni jungle of rough scrub with a few bamboos and *chil* (*Pinus longifolia*). The Kalesar forest is the most important, being composed of *sál* trees and yielding valuable timber. It lies on the banks of the Jamná, and, extending up the slopes of the Siwálík range, juts into Sarmaur. It is under the care of the Forest Department. There was formerly another considerable forest tract near the Sutlaj, called Bír Guru, which was the hunting ground of the Sodhi Sardárs; but on the confiscation of the Sodhi estates for misconduct, in 1846, the forest was apportioned to the neighbouring villages, and the greater part has now been brought under cultivation. The forests proper are described in Chapter IV. (Section A).

The only jungle produce requiring mention is that of the *dhák káhir* trees. The *dhák* flowers yield a yellow dye; and a gum, which exudes from the bark, is collected by the poorer classes, chiefly by Purbias from across the Jamná, who rent from the owners the right to tap the trees, and forms an article of their daily diet. The timber of the *dhák* stands long exposure to water without rotting; the *nimchak* of wells and also wooden cylinders put in when a well is breaking down are often made of it. Its wood is excellent fuel. The outer fibres of the root are used to cover the rope (*lao*) of a *charsa* well to prevent friction. Its leaves are a favourite fodder for buffaloes. In bad seasons the fruit of the *káhir* (*Oapparis aphylla*) is collected in great quantities by the poorer classes for food. This tree fruits twice in a dry season, and is a valuable resource in drought. Its fruit is also used as a pickle. The tree is abundant in the stiff soil of the *nardak*.