CHAPTER I.

THE DISTRICT.

SECTION A.—DESCRIPTIVE.

General description.

The Gurgáon district is the southernmost of the three districts of the Delhí division, and lies between north latitude 27° 39′ and 28° 31′, and east longitude 76° 21′ and 77° 35′ forming the extreme south-east corner of the Province. Its shape is exceedingly irregular. It is bounded on the north-east by the Delhí district; on the east by the Jamná which separates it from the districts of Bulandshahr and Alígarh of the North-West Provinces; on the south by the Mathrá District of the North-West Provinces and by the state of Bhartpur; on the west by the Alwar state; on the south-west (that is south of the Rewárí *tahsíl*, by the Jaipur *parganah* of Kotkásim, by the Báwal *parganah* of Nábha, and by Alwar; on the north-west by the Kánti *parganah* of Nábha; and on the north by Dujáná, the British district of Rohtak, and the little state of Pátaudí which it almost embraces in its clasp.

It is divided into five *tahsíls*, of which that of Fírozpur embraces the southern, that of Palwal the east-central, that of Núh the west-central, that of Gurgáon the northern, and that of Rewárí the outlying north-western portion of the district. Some leading statistics regarding the district and the several *tahsíls* into which it is divided are given in Table No. I on the opposite page. The district contains two towns of more than 10,000 souls, as follows :—

Rewárí	...	...	...	...	23,972
Palwal	...	...	...	...	10,635

The administrative head-quarters are situated at Gurgáon, on the Rájpútáná State Railway, 22 miles from Delhí in the extreme north-eastern corner of the district. Gurgáon stands 25th in order of area and 13th in order of population among the 32 districts of the Province, comprising 1·82 per cent. of the total area, 3·41 per cent. of the total population, and 2·96 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.

Town.	N. Latitude.	E. Longitude.	Feet above sea level.
Gurgaon ..	28° 28′	77° 4′	800 *
Firozpur (Jhirka),	27° 47′	77° 0′	680 *
Nuh ..	28° 7′	77° 2′	700 *
Palwal ..	28° 9′	77° 22′	690 *
Rewari ..	28° 12′	76° 40′	700 *

* Approximate.

The Hills.

The hill ranges of the district form a marked feature in its physical characteristics: they are connected with the great Aravalí chain, of which they are among the most northern spurs, and like that range their general direction is from S. S.-W. to N. N.-E. One chain forms the western border of the district from the south-western corner of the Fírozpur *tahsíl* to a point about opposite the town of Núh. There the district boundary line turns off to the west, while

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the range runs on in the same course, and then sweeping off in a curve to the west, ends in three short spurs, two thrown out to the north and one to the west. Another range on the east of this one runs almost parallel to, but gradually diverging from it. After a course of 25 miles northwards from the southern border of the district, it becomes more and more broken, and for 20 miles its existence can only be traced by a line of detached rocky hillocks of various sizes, appearing here and there above the surface of the ground. Then it once more re-appears as a range, and, forming the north-eastern boundary of the district, runs with gradually lessening height past the northern boundary of the district into Delhí. These are the only chains of any unbroken length; but short broken ranges and detached hills are numerous in the south and west of Rewárí, whence they just cross the border into Rohtak and are also found to the north-east of Rewárí, the north-west of Núh, and in the eastern portion of the Fírozpur *tahsíl*, formerly known as the *parganah* of Púnáháná. The total hill area of the district is shown by the professional survey as 99·397 square miles. Iron, inferior plumbago, and mica are found in these hills, and what are alleged to be traces of copper. The hills are generally of inconsiderable height, generally lessening as you proceed northwards, of the same general character as the well-known ridge at Delhí, and frequently of considerable breadth at the summit; the range between Delhí and Gurgáon is in places more than three miles broad. The ordinary height of the ranges above the plain is from 500 to 750 feet: the hill above Meolí is marked on the map as 1,347 feet above the sea, the elevation of the plain below being about 625 feet. The isolated hill of Tánkrí is the highest in the district, and must reach quite 2,000 feet above the sea.

Rivers and streams. The Jamná. The Sáhibí.

Except the Jamná the deep stream of which forms the eastern boundary of the district and the province, within which it is therefore partly contained, there is no river of permanent flow in the district; but the Sáhibí, which rises in Jaipur, passes through the east of Rewárí, where its sandy bed is in places more than half-a-mile broad, into Pátaudí and the Rohtak district, one branch passing also through the north-west of Gurgáon. After heavy rain in Jaipur, this stream sometimes comes down with great force, and it has twice, within the last generation, flooded the town of Rewárí, in 1845 and on the 15th August 1873. On both occasions the water came from the south by Lálpur and Dawáná, having left the proper bed, which must gradually have been raised by the deposits of sand in the Alwar state. In August 1873, the water came at mid-night, and was some three feet deep in the city; it flowed away to the northwards in some three or four hours, but caused considerable damage in the city, and outside, it utterly destroyed the railway bungalow and swept away large portions of the line.

The Kansáoti.

The Kansáotí or Kasáwatí, another stream rising in Jaipur, runs through the north-west of Rewárí and passes into Dujáná: formerly, according to the old maps, it joined the Sáhibí in Rohtak, but its waters now never reach so far. Like the Sáhibí and most of the other streams, it brings down a great deal of sand. Two

The Indorí.

different streams go by the name of Indorí, so called from Indor in the Alwar hills not far from Núh, near which they both rise, or

rather commence their course; for like all the other streams of occasional flow, they are merely torrents running for a few hours after rain. One of these streams enters the district at Nandrámpurbás and falls into the Sáhibí opposite Jarthal: the other flows northward into the country round Táorú, and after being joined by a number of other small *nulláhs*, bringing down the drainage of the surrounding hills, spreads its waters over the low country south of Bahorá, and eventually joins the Sáhibí. Thus the Sáhibí, while it only comes down in full force after heavy rain in the north of Jaipur, flows with a smaller stream after merely local rain, carrying off the discharge of the Indorí.

The Indorí.

The Bádsháhpur *nulláh* brings down the drainage of part of the Ballabgarh *tahsíl* of Delhí, through a gorge in the range, dividing Delhí and Gurgáon: it formerly flowed southwards through the Bhúndsí valley, but more than a century-and-a-half ago it was diverted by the construction of a *band* by Bahádur Singh of Ghásera into its present course, falling into the Najafgarh *jhíl*. In the heavy floods of 1875, part of its stream found out its old channel and swept down past Bhúndsí. Another important stream is the Landohá, which is formed by the union of two streams in Alwar, one flowing south from the direction of Tijárah and the other joining it nearly at right angles from the west. After pursuing its southward course to a point nearly directly west of the southern end of the Fírozpur *tahsíl*, it sweeps round in a curve, and, crossing the border, flows northwards up the Fírozpur valley, and if left to itself would finally fall into the Kotla *jhíl*. Formerly a far more important stream, the Manasne or (Mánasle, *i. e.*, man taker), now generally known as the Rúpáreil, entered the district from Alwar and passed up the Fírozpur valley along the Landohá channel. Bábar in his Autobiography mentions that it then fell into the Kotla lake, but later, it either was artificially diverted or naturally found out its present course into Bhartpur. The tradition as recorded by Mr. C. Gubbins is, that some Meos violated and then murdered some women in the bed of the river, then dry in the hot winds, and that a *fakír* who lived near by left it with the curse, that the streams should never again enter the polluted bed. Besides these more important streams, there are numerous torrents of short course, which, after rain, rush down with the water drained from the hill-sides, and spread their floods over the lower levels. There are also a few petty brooks fed by springs, the most important of which is the Jhir of Fírozpur.

The Bádsháhpur *Nulláh*.

The Landohá.

The Manasne.

Other streams.

Another marked physical characteristic of the district is found in its *jhíls* or lakes. The most important of these is the Najafgarh *jhíl* on the northern border of the district; but this is mainly situated in the Delhí district. Into it the Sáhibí, swollen by the Indorí, and the Bádsháhpur stream pour their waters. Another *jhíl*, but of very much smaller size, is that known as the Sarmathlá *jhíl* in the south-east of the Gurgáon *tahsíl* near the Delhí border. The other *jhíls* of the district are found in the tract of Núh, lying under the first range of hills mentioned above. This is a low-lying strip of country, the natural receptacle of the drainage of the Fírozpur valley and parts of Alwar to the south; of the higher land to the east; of the hills

The *Jhils*.

The Najafgarh *Jhil*.

The Sarmathla *Jhil*.

The Núh system of *Jhils*.

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The Núh system of *Jhíls.*

that lie on both sides the Bhúndsí valley to the north; and of the eastern slopes of the bounding range to the west. From all these four quarters, but principally from the north and south, come during the rainy season the surplus drainage waters of the surrounding country. Omitting, for the present, mention of the works which will hereafter be described, the natural course of these flood-waters is

The Khalílpur *Jhíl.*

from the north part into the Khalílpur *jhíl.* This receives the overflow of the Sarmathlá *jhíl,* which passes to the south through a sort of escape channel, the drainage of the eastern slope of the southern part of the range dividing Delhí and Gurgáon, and part of the drainage of the Bhúndsí valley. The Khalílpur *jhíl* again has a natural escape channel which conducts the surplus waters into the

The Chandaini *Jhíl.* The Kotlá *Jhíl.*

Chandaini *jhíl,* which also receives directly the other part of the drainage of the Bhúndsí valley. The only natural outlet for the waters of the Chandaini *jhíl* is towards the Kotlá *jhíl,* lying further south immediately under the Fírozpur-Alwar hills and on the borders of the Núh and Fírozpur *tahsíls.* This *jhíl* also forms the natural receptacle of the drainage of the Fírozpur valley, including the Landohá, and in former days the Mánasne. It is the largest of the Gurgáon lakes, and is some three miles long from north to south, by 2½ miles broad. Although a great part of the water, which would naturally pour into it, is diverted by artificial works, the *jhíl* remained filled during 1874-5-6, and before these works were constructed can hardly ever have been free from water. The other *jhíls* are usually quite dry in the hot weather, and unless the rains have been somewhat heavy, their whole area is generally cultivated, either with the usual spring crops or the later sown melons, and spring *júár* used for fodder. But after heavy rain the greater part of this low tract of Núh is flooded, and one continuous sheet of water sometimes exists for nearly 20 miles.

Brief account of the general aspect of the district.

More detailed accounts of the country will be found in the description of the assessment circles (Chapter V, Section B). It will be sufficient here to say that although the Gurgáon and Rewárí *tahsíls,* forming the northern and western parts of the district, are generally sandy,—the lands near the hills are very inferior and often cut up into a perfect net-work of ravines,—further from the hills, in some tracts, the soil is better, approaching a light loam in its character; in other places it is of very loose consistency, and some parts present a desolate appearance with high hillocks of sand. To the south-east and south-west of Gurgáon, the low-lying lands of a better character are found, which are benefited by natural irrigation; and on the north border of Gurgáon is the low basis of the Najafgarh *jhíl.* The banks of the Jamná are generally high; but in the north-east corner of the Palwal *tahsíl* there is a small tract between the main and a small branch channel of the river, low-lying and liable to inundation. From the Jamná and this tract westwards there is a stretch of country some 30 to 35 miles from north to south, and some 15 to 20 miles from east to west, of a level good loam, rising gradually from the Jamná and then sloping to the east and south, and extending over most of the Palwal *tahsíl* and the eastern portions of the Núh and Fírozpur *taksíls.* Between this plain and the range of hills mentioned as dividing Gurgáon and Alwar, there is in Núh the low-lying country before mentioned. There the prevailing soil is clay, but immediately

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Descriptive.

under the hill and to the north-east of Núh and in the north-west of Palwal, the country is very sandy. The part of Núh which lies above the hills is a high-lying table-land of a consistent but sandy loam, inferior near the hills, but sloping down towards the somewhat better lands in its central and western parts; while the part of Fírozpur not contained in the plain above mentioned consists of a valley between two ranges of hills, the lands of which are generally good, but are partly damaged by sand deposits; the soils near the hills are generally inferior, and the valley merges on the north in the Núh tract of depression.

Brief account of the general aspect of the district.

A marked peculiarity of the Gurgáon district is the saltness or brackishness of the water supply in many parts; in some tracts, such as Chak Chiknot of Fírozpur, the water is invariably salt, in others it is everywhere sweet, and in others again it is impossible to tell beforehand whether a well will be sweet or salt; and sometimes there are two strata of water, one salt and the other sweet, so that the well when first worked is sweet, and after being worked some little time, yields salt water. It may be said that the wells are especially liable to be salt (1), when the depth to water is considerable and the soil of a clayey character (as a rule, in sandy villages the water is sweet); (2), in tracts which are low-lying and receive and retain the drainage of higher lands; the salt producing tracts near Farrukhnagar and near Núh both fall under this heading. The wells are classed in the Settlement papers as sweet, brackish, or salt; the effect of the character of the water on the produce depends partly on the nature of the soil; where this is sandy, a certain amount of saltness in the water is a positive benefit, and where the water is very salt, very fine crops can be grown if the seed is once sprouted by rain water; on the other hand, on a clay soil saltness in the water is very prejudicial. For vegetables and tobacco, sweet or only slightly brackish water is ordinarily necessary. Besides the above three descriptions of water, there is a kind of water found in some wells in Rewárí, known as *matwálá*, or hard, the crops on which are generally good; and there are also a few wells in which the water is sweet *kallar;* on sweet *kallar* wells and on very salt wells on clayey soils, it is often necessary to let the land, which has been watered one year, lie fallow or be cultivated with rain crops the next year, in order to prevent its becoming unculturable. In some parts of the district the only drinking water which the people can get is procured from wells sunk close to the village tank or pond, and is in fact, the pond water roughly filtered. If the pond goes dry in the hot weather, water has to be fetched sometimes from a distance of two or three miles. Another point which may be noticed is, that the water-supply in the wells situated in that part of the district which lies east of a line drawn along the range of hills on the Alwar border, and thence prolonged northwards, is, as a rule, comparatively scanty, while west of that line it is abundant; the cause of this is probably connected with the fact shown by the course of the Sáhibí, that this western part of the district is lower than the Rájpútáná country to the south.

Character of well water sweet, brackish, and salt.

Difference as to amount of water-supply in the east and in the west of the district.

In former times, under native rule, much irrigation was carried on by throwing dams across the hill streams, and thus causing the water to flood an expanse of country. Many of these works were

Other irrigation works.

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Other irrigation works.

allowed to fall into disrepair while under the management of the irrigation department on account of the small direct revenue derived from them; but since the District Fund Committee took charge in 1879, the system has been extended by repairing old embankments and constructing new ones. The old works now in operation are:—

Dams at Gwálpahárí (lately repaired by the Delhí Committee) Jhúnd *sarai*, Bárgújar, Jhársá, Harsarú, and Raisina in the Gurgáon *tahsíl*; at Dahíná and Nandrámpurbás in Rewárí; drainage canals Aláwalpur and Sangel in Núh; dams at Banársí, Kanmeida, Madapur, Máhaulí and Naglí in Fírozpur; and the connected chain of works consisting of the Kotla embankment and Gubbins' Cut, designed to drain the Chandainí *jhíl*, and utilize the surplus water, and to divert the drainage of the Fírozpur valley away from the Kotla *jhíl*. A description of these latter works will be found in Chapter V, Section B, and the arrangements made for their maintenance will be noticed in the same Section.

A new embankment with irrigation channels and masonry head works and sluices, has lately been constructed across the outlet of a hill torrent at Sohna, at a cost of Rs. 10,000, and capable of irrigating a thousand acres of land; also a dam across the Bádsháhpur stream near Ghátá, costing with a masonry sluice and irrigation channels, Rs. 7,500; and a new embankment at Bhúnd near Fírozpur, costing Rs. 6,500. A supplementary embankment at Bárgújar, and a new dam at Kásan, both in the Gurgáon *tahsíl*, are in course of construction, and projects are being prepared for similar works at Damdamá, Dhuláwat, Harchandpur, and several other suitable sites, in various parts of the district, with a view to utilizing the large volume of drainage water which now runs to waste. A small portion of the canal, constructed for conveying the surplus water of the Najafgarh *jhíl* into the Jamná, lies within this district.

The Agra canal.

Year.	*Kharif.*	*Rabi.*	Total.
1874-75 ..	..	9,405	9,405
1875-76 ..	2,167	7,387	9,554
1876-77 ..	4,848	10,265	15,113
1877-78 ..	16,789	31,837	48,626
1878-79 ..	11,828	29,447	41,275
1879-80 ..	10,452	29,447	39,899
1880-81 ..	9,814	31,054	40,868
1881-82 ..	14,875	28,106	42,981
1882 83 ..	16,212	34,704	50,916

The Agra canal, which is under the control of the Government of the North-Western Provinces, was nominally opened on the 5th March 1874, and irrigation commenced from the *rabi* of 1875. The areas irrigated in the Gurgáon district each year have been as shown in the margin.

In 1882-83, the number of villages which took water in the *kharíf* was 161, of which 102 were in Palwal, 44 in Núh, and 15 in Fírozpur; and the number which took it in the *rabi*, was 133, of which 99 were in Palwal, 24 in Núh and 10 in Fírozpur. Of the total irrigation of 50,916 acres in 1882-83 about one-fifteenth was by lift and the rest by flow. More than 40 miles of new channels are now under construction, and the area of irrigation next year will be proportionately increased.

During the year 1883 several new distributory channels have been opened, and irrigation from the Agra canal in the Gurgáon district has been greatly developed.

As yet the irrigated area under *kharíf* crops is small, sugarcane cultivation being strange to the people, and the main crops grown being

wheat and barley. However, the Canal Officers have grown and distributed among the people young sugar plants, for which there was a demand, but the unprecedentedly low price of sugar during the last two years has restricted the cultivation. It is, however, certain to increase ultimately. That of indigo has been introduced lately and is already becoming popular. In a few places there seems to be some danger of water-logging, producing the same disastrous effects as on the Western Jamná Canal.

Droughts.

The district has from time to time suffered severely from the effects of drought; beginning with the well-known *Chálísá*, the effects of which were so terrible in all this part of India. The years of drought still remembered in the district are the following :—

A. D.	Sambat.		
1783-84	1840	...	Severe famine.
1803-4	1860	...	Scarcity.
1812-13	1869	...	Scarcity.
1817-18	1874	...	Scarcity.
1824-25	1881	...	Scarcity.
1833-34	1890	...	Severe famine.
1837-38	1894	...	Severe famine.
1843-44	1900	...	Scarcity.
1850-51	1907	...	Scarcity.
1860-61	1917	...	Famine.
1868-69	1925	...	Scarcity.

To these must now be added the famine of 1877-78. The effects of the droughts of 1860-61 and 1868-69 were greatly mitigated by the relief afforded by Government, and the liberality with which the people were treated in the matter of collecting the revenue. The people generally compare very unfavourably with the treatment they then received the action taken in what was the worse famine of 1877-78.

Rain-fall, 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 ..	532
1863-64 ..	373
1864-65 ..	219
1865-66 ..	238

The average rain-fall of the district may be taken at about 25 inches.

Gurgáon	...	...	...	26.6
Rewárí	...	...	...	22·4
Núh	...	...	...	24·0
Palwal	...	...	...	25·5
Firozpur	...	...	...	22·3

An analysis of the rain-fall returns given with the Revenue Report for the sixteen years 1863 to 1878, both inclusive, gives the following results :—

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Rain-fall, temperature, and climate.

Month.	Total rain-fall of 16 years.	Annual average.	Number of years in which no rain fell in the month in question.	Maximum rain-fall.
	Inches.	Inches.		Inches.
January	11·9	0·7	4	3·4
February	7·5	0·5	7	1·5
March	10·9	0·7	5	2·1
April	3·3	0·2	9	0·9
May	19·5	1.2	4	2·7
June	40·0	2·5	3	7·6
July	160·8	10·0	...	24·9
August	103·3	6·5	1	16·7
September	89·3	5·6	1	28·2
October	10·9	0·7	9	3·5
November	0·3	...	15	0·3
December	6·9	0·4	8	3·5

But the accuracy of these figures, which gives an average of 29 inches, a maximum of 46·1 inches in 1873, and a minimum of 11·3 inches in 1868, is exceedingly doubtful; and the following statistics collected by Mr. Wilson, are more trustworthy.

Annual Rain-fall at each Tahsil (in inches).

Year.	Gurgáon.	Rewárí.	Palwal.	Núh.	Firozpur.
1865-66 ...	29·2	26·9	18·5	16·1	16·0
1866-67 ...	33·0	38·1	28·8	17·0	41·7
1867-68 ...	30·6	25·1	28·6	34·9	16·0
1868-69 ...	11·5	20·1	19·3	15·8	12·9
1869-70 ...	22·9	21·4	22·5	17·9	13·5
1870-71 ...	15·8	19·1	17·4	12·9	17·4
1871-72 ...	27·8	12·6	8·5	20·1	12·9
1872-73 ...	30·4	20·4	31·4	25·8	21·5
1873-74 ...	45·1	34·0	40·5	37·9	37·9
1874-75 ...	31·3	16·8	25·2	29.1	22·2
1875-76 ...	47·0	23·5	42·3	42·6	31·0
1876-77 ...	32·2	15·8	29·6	19·7	19·1
1877-78 ...	18·0	13·6	16·9	17·6	9·9
1878-79 ...	26·6	13·4	17·8	18·6	16·2
1879-80 ...	24·2	34·1	35·7	34·6	36·6
1880-81 ...	17·1	21·0	21·5	21·9	22·8
1881-82 ...	20·7	28·2	27·7	22·8	22·1
1882-83 ...	15·4	19·3	26·3	26·6	32·2
Average of 18 years ...	26·6	22·4	25·5	24·0	22·3

On these figures Mr. Wilson remarks—

"But while these figures represent the average of a series of years, the most marked feature of the return is the variableness of the rainfall; thus at Gurgáon it varied from 11·5 inches in 1868-69 to 47·0 in 1875-76, and in the same year (1871-72) it was 8·5 inches at Palwal and 27·8 inches at Gurgáon, only some 30 miles off. Moreover, the success or failure of the crops depends more on the distribution than on the mere amount of the annual fall; and while the figures showing the total rain-fall are well worth discussion, they are only a very rough index to the nature of the seasons as favourable or otherwise to the crops."

Chapter I, B.

Geology, Fauna and Flora.

Rain-fall, temperature, and climate.

The climate generally is more temperate than that of the Panjáb proper, the cold in winter and the heat in summer being both less extreme. Near the hill ranges, however, and in the Fírozpur valley, bounded as it is by hills on either side, the heat is very great; and in some villages which lie immediately under the hills, the people are accustomed to go out in the fields to sleep at night, so as to escape the heat radiated from the glowing masses of rocks.

The health of the district.

The flooded tracts near Núh are terribly fever-stricken in years of abundant rain-fall, and few men can stand a lengthened residence at Núh without injury to their constitution. The higher parts of the district, and notably the Táorú table-land, and the high plain of Palwal and the east of Núh and Fírozpur, used to be very healthy; but fever has come with the Agra canal into the villages along its course in the high plain; and in 1878-79 the east of the district, and in 1879-80 the whole district was, like the neighbouring tracts, devastated by fever. The town of Rewárí has been unhealthy ever since the incursion of the Sáhibí in 1873. The most unhealthy months are September, October, and November, while in February deaths are at their minimum point. Fever is the chief cause of mortality, but cholera visitations are not rare, and are sometimes very severe: while the district is the worst in the Panjáb for small-pox. 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 in Chapter III, Section A, for the general population, and in Chapter VI, under the heads of he 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.

Among the general agricultural population, there can hardly be said to be any practice of medicine. For fever, which is the most prevalent form of illness, a mixture of butter-milk with flour and water is drunk; or sometimes the more rigorous course of a hard turn at the plough, so as to induce perspiration, is followed. For a scorpion sting you may choose among the following prescriptions; rub the place with the root of a certain onion-like plant; apply the ashes of the scorpion or the dirt from a cow's ear or hare dropping; or cook the scorpion in *ghi* and rub it on the sting. There are somewhat similar recipes for bites from a snake or a mad dog; but the above will suffice to show the character of the ordinary remedies applied in the villages. In the towns *hakíms* are met with, who generally practise the *Yunáni* system of medicine.

SECTION B.—GEOLOGY, FAUNA AND FLORA.

Geology.

Our knowledge of Indian geology is as yet so general in its nature, and so little has been done in the Panjáb in the way of detailed geological investigation, that it is impossible to discuss the local geology of seperate 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

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Sultánpur salt sources.

is published *in extenso* in the Provincial volume of the Gazetteer series, and also as a separate pamphlet.

There are ten clusters of villages south-west of Delhí, situated partly in the Gurgáon and partly in the Rohtak district, where manufacture of salt by the evaporation of brine raised from wells has been carried on from a period long antecedent to British supremacy. They are known as the Sultánpur Mahal, are spread over an area of about 20 square miles, and comprise the villages of Sultánpur, Saídpur, Mahmúdpur, Sadhrána, Káliáwás, Ikbálpur, Mobárikpur, Basírpur, Zahídpur and Sailana. Three of these tracts have been British Territory since 1836, having been included in the Jhársa *parganah*, which lapsed in that year on the death of Begam Sumroo. The others only came to us after the mutiny, five having till then belonged to the Nawáb of Jhajjar and two to the Nawáb of Farrukhnagar. The salt is called Sultánpuri, and is of good quality, containing about 90 to 95 per cent. of sodium chloride. The subjoined table gives full details as to the size of the saline tracts, and the number of wells as they stood in 1870. Since then the number of wells has decreased to 322, but the number of pans has risen to 4,487.

Name of Sar, or Saline tract.	Approximate area of saline tract in acres.	No. of Wells.			Average depth to water.	Average depth of water.	No. of sets of pans now in use.	No. of pans.
		In use.	Disused.	Total.				
Sultánpur	350	39	12	5	14	17½	70	435
Sadhrána	30	21	5	26	8	20	23	284
Saidpur	15	6	6	12	7	17	8	60
Mahmúdpur	16	15	10	25	10	19½	14	138
Mobárikpur	550	72	18	90	18	20	120	1,308
Basírpur	550	49	26	67	16	17	60	530
Ikbálpur	20	16	1	17	17	19	18	243
Káliáwás	4	3	...	3	10	16	4	35
Zahídpur	20	15	5	20	16	21	58	602
Sailána	10	10	1	11	19	20	15	164
					Average.			
Total ...	1,565	246	84	330	13·5	18·7	390	3,799

Process of manufacture.

The manufacture of the salt is exclusively from natural brine derived from wells. The brine seems inexhaustible, as some of the works have been in operation apparently for the last 200 years, and no deterioration is observable. The brine is evaporated by solar heat in shallow *chunam*-lined pans, which vary in extent from 200 feet by 60 feet to only 60 feet by 40 feet, and in depth from 10 to 12 inches. To each well is attached one or more sets of pans, each set consisting on an average of about 9 pans so arranged that there is a slight fall from each pan into the one next beyond it. When after

Process of manufacture.

the annual repairs, which take place about February, the pans are all in order, the highest is filled with brine from the well, and the brine is allowed to stand there for one, two or more days according to the season and the weather, the period being shorter in the hot and longer in the cold weather. After thus standing, the brine is run into the second pan, the first being refilled, and then from the second to the third pan and so on, until the brine reaches the last pan but one, and there it is allowed to remain, receiving perhaps one or two accessions, from the higher pans, until a commencement of crystallization is observed, when it is at once turned into the last pan and crystallization allowed to proceed. This is the most delicate part of the process; if the best salt is to be made, and at the same time none wasted, the progress of the deposit (for the crystals form on the floor of the pans) must be closely watched. Up to a certain period nothing but edible salt is deposited; after that other allied salts begin to drop, and the edible salt must then be at once removed, and the mother liquor, of which no further use is made, run off: otherwise, especially at some works, the gross products of evaporation, taken as a whole, are bitter and uneatable. Not more than 8 inches depth of brine at most is run into the first pan, and it is reduced to half that quantity or even less before it reaches the last but one pan. When the brine has sufficiently concentrated to be transferred to the crystallizing pan, the manufacturer skims the surface of it (taking care not to disturb the sediment) with some flat curved instrument, usually a cow's rib bone, with which he succeeds in removing all the lighter impurities together with leaves, straw, and the like, that may have settled on the brine. In the cold weather the salt rarely crystallizes under a month from the date the brine is drawn, but in the hot weather a period of 10 or 12 days suffices.

The process of manufacture varies much in details. In some factories the water is not detained, as indicated above, in the last pan but one, but allowed to run on, at once, into the last. The former course, however, is more usual. At times, it is said that in some works the whole liquid is allowed to evaporate, and the gross deposit taken as salt. This may account for the inferior quality of some of the salt, but this process is only possible where the brine is exceptionally pure; in most factories it would spoil the salt altogether. The quality of the brine varies surprisingly in different wells, and in the same wells at different seasons. During the rainy season, and for a month or so after, the water is barely brackish in wells, which in warm weather (and then all the wells are at their best) yield excellent brine. The proportion of salt in the water varies from one *chittúk* in the maund, or about 0·16 per cent., the lowest workable rate, to as high, in the hot weather, as one *chittúk* in 2½ seers or 3 per cent.* The average depth of water below the surface, in March, varies in different *sars* from 7 to 19 feet.

The salt, when removed from the pans, is stacked in conical heaps, and, when fresh, is stamped with the Government seal all over. A few days hardens the exterior into a crust, which is not only sufficient to

* This is according to the statement of the salt-workers. The Commissioner of Customs, who visited the spot in the winter months of 1866 67, records that he could find none of this strength.

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prevent any salt being removed without detection, but also to protect the heap against all ordinary rains. The salt fetches a better price when fresh, and is never pitted if the owner can help it, until the rainy season, when, perforce, any stock remaining unsold has to be pitted. Although the process of manufacture is essentially the same as a rule everywhere, and although the salt has even locally but one name, its qualities differ vastly according, chiefly, to the *sars* in which it is made. A *palla* (a local measure. = 3 maunds 30 seers standard) of Basírpur salt, for instance, sold in January 1868, for Rs. 2-3, while the same quantity of Zahídpur salt was selling at 11 annas and 6 pie. The real cost of production cannot be ascertained, as the mass of the workers are agriculturists during the rains and the better portion of the cold weather, and only turn to their salt pans when their fields no longer need their labour. The cattle that till their lands draw the brine, and the labour they employ is mostly that of their own household. They work on capital borrowed at exorbitant rates.

Process of manufacture.

The prospects of the trade are good and the salt maintains its position in the market.

Salumbhá salt sources.

There were other clusters of villages in the Gurgáon district, consisting of the Salumbhá, Núh, and eight other tracts or *sars*, and situated at the foot of the Mewát hills to the north of Sohná, and commonly called the Núh Mahál, the salt of which was known as Salumbhá, where manufacture used to be carried on in the same way and under the same preventive arrangements as in the Sultánpur Mahál; but the salt was of very inferior quality and very dear, and the demand for it diminished year by year after the opening of Railway communication with the Sultánpur Salt Works and the Sámbhar Lake, until in 1882-83 manufacture and sales almost entirely ceased. The works were closed in April 1883. The process of manufacture here differed in many respects from that adopted at the Sultánpuri works. In both, the salt was made by solar evaporation, in *chunam*-lined pans; but whereas at Sultánpur these pans are but a few inches deep, at Núh they were from 30 to 40 inches deep. Again, the crystallization of the salt at Núh was aided, by the introduction into the concentrated brine of large bunches of thorny twigs and shrubs, the salt not being allowed to form of itself at the bottom of the pan. The pans of a set were much fewer in number, and the brine, when it had reached a certain state of concentration in one pan, was commonly transferred to the formation pan by means of the *lenrí*, or lifting basket so commonly used for irrigation, where the difference of levels is slight. Lastly, the great depth of the pans introduced a great difference in the time in which results are obtained. At Sultánpur, in a good season ten or twelve successive "crops" may be obtained, while at Núh one was the average; and although two were sometimes taken, it happened quite as frequently that the brine had been drawn more than a year from the wells before the salt was extracted. Long before the crystallization was complete, the brine had assumed a deep brownish red hue, was dirty to a degree, and smelled most unpleasantly. The salt was extracted from the vats (for this seems a more appropriate designation than pans) before the evaporation was complete; but even with this precaution, a certain

quantity of other salts of soda, magnesia, and lime, were deposited at the same time as the chloride, and the fresh produce was so bitter as to be unsaleable. Salumbhá salt was therefore always pitted as soon as possible, and in most of the factories was not reckoned marketable until it had been a year buried. The salt varied a good deal in quality. None of it was good, but that of some of the saline tracts was so bad, as to be barely saleable, when plenty of Bhartpur or Sultánpuri salt was in the market.

Salumbhá salt sources.

The number of manufacturers employed in 1882-83 was 298, the number of wells worked was 322, and the number of pans 4,487. The annual yield averages some 6½ *lákhs* of maunds (see figures given in Chapter V). The produce belongs to the manufacturer who sells it at the current price of the period, unless, as generally happens, it has been hypothecated, in which case the creditor takes possession. After paying the Government dues, the salt is exported to the south-eastern districts of the Panjáb and into the North-Western Provinces and Oudh. The Rájpútáná-Málwa Railway from Delhí passes close to some of the salt works, and there is a branch line from the Gurhi station with sidings to the works. The price of the salt at the works ranges from 9 annas to 2½ annas per maund, according to quality, the average being about 5¾ annas per maund. In the markets which it enters after paying the duty and *Hákimí* cess, it sells according to distance and amount of freight at from Rs. 3-2-6 to Rs. 2-10-0 per maund. The preventive system in force is described in Chapter V.

Produce of the manufacture.

Iron ore exists in the hill range near Fírozpur and at Patan Udepurí, a few miles south of Fírozpur; in the time of the Nawábs of Fírozpur the trees on the hills were rigorously preserved, and the ore was worked and smelted at Fírozpur, there being 22 furnaces at work, each of which could turn out two maunds of iron in 18 hours. But on annexing the country the hills were abandoned to the village communities, and the consequent decrease in the supply of fuel soon rendered the manufacture unprofitable, and it has long been abandoned. Traces of copper exist in the range east of Fírozpur, on the road to Rewárí. Mica is found near Bhúndsí, and is occasionally extracted. In 1861 the late Dr. Thomson, Civil Surgeon of Gurgáon, reported the find of a deposit of plumbago near Sohná, and an account of his discovery was published in the *Panjáb Gazette* of 4th January 1862. Some pencils were manufactured out of the plumbago found there, and at first there was good hope of the mine being really valuable, but eventually the substance was pronounced extremely poor and commercially valueless. More recently the locality has been visited by Mr. Hacket, Geological Surveyor; the following extracts from his notes describe the result of his examination :—

Iron.

Copper.
Mica.

Plumbago.

"At the back of the town of Sohná, in the Gurgáon district, a thin irregular band of schist, possibly belonging to the Raiolo group, occurs in the quartzites. From these schists some specimens of plumbago have been taken. There are no traces of any excavations having been made, except a very small pit, which could not have been many feet deep. Anything that I could see was exceedingly poor and hardly deserved the name of plumbago, and I doubt if anything much richer was ever taken from this locality. The specimen sent to me by the Deputy Commissioner was as poor as those I picked up.

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Gold.

"When examining these schists, the Sohná *lambardár* told me that after every rain, small quantities of gold were discovered in the sand, mud, &c., of the little water-courses at the bottom of the hill. I had up, and examined, *mehtars* of the town, who told me that it was true that they made a few rupees every year in this way, and that the heavier the rains the larger the amount of gold. Last year, for instance, as the rains were so slight, they did not get any, or did not think it worth while looking for. The only rocks exposed in this gully are the Alwar quartzites, and these schists. As I cannot imagine that the gold could be washed out of the hard quartzites, I presume it must come from these schists."

Slates.

Slates are quarried from the detached knot of hills near Khol, Májra-Bhálkí, and some twelve miles west of Rewárí; the chief quarry has been for some years worked by the Kángra Valley Slate Co., who employ about 250 labourers on their branch in this district. During the four years, 1876 to 1879, the quarries supplied about 300,000 square feet of roofing slates, and about 34,000 square feet of slabs; while in 1883, some 600,000 superficial feet of slate was excavated. The slate in question corresponds with what is known as the Granwacke slate, which is laminated claystone, containing sand, mica, &c., and is inferior to clay slate. The cleavage does not appear as clean or as good as in slates from the hill districts, nor is the colour uniform or the grain fine. In Granwacke slates the laminæ of deposition on all the vertical planes are parallel to the plane of stratification, and so far differ from clay slates whose laminæ cross the plane. But the slates, although not of first class quality, are good and serviceable and will suit most buildings. Slates from these hills have been very largely used in roofing and flooring the stations of the Rájpútáná and Rewárí State Railways, as well as in buildings generally along both lines.

Sulphur springs at Sohna.

The town of Sohná has long been celebrated for the hot sulphurous spring, possessing no mean medical qualities, which issues from the foot of the Mewát hills, against the eastern side of which the town is built. The water at the present time wells up into a substantial reservoir, covered in with a dome-shaped roof. Round this well-house is a courtyard containing the bathing tanks, and closed in by well constructed native buildings. The largest tank measures 36 feet long by 24 broad, and 5 deep, and is supplied with water from the main reservoir. The virtue of the spring was first tested for Europeans in 1863, when a party of invalids was sent out from Dehlí to try the water as a cure for the well-known Delhí ulcers. The report of the medical officer in charge was most satisfactory. The water was found to be at a temperature varying from 115° Fahr. to 125°. This was in the month of October. In 1872 a medical man, Dr. Charles Smith, was sent to report upon the springs as a cure in cases of rheumatism. The following is extracted from his report:—

"By reference to my note-book on the 9th February, I find that the temperature of the water was low, in consequence of a cold wind having been blowing for three or four days successively; on this occasion the temperature was 92°, while four days previously it had been 110° 5′ Fahrenheit. On the above date, at 12 A.M., I found forty-five people of both sexes and all ages bathing in this very limited space, and I am informed that at certain times (during a *melá* or native fair) as many as two hundred and fifty may be seen bathing at the same time. When the water is comparatively cold, as it was on the 9th February, the bathers remain in the water ten or twenty minutes; when the temperature is

Sulphur springs at Sohná.

higher, they remain as long as one and even two hours, and come out, as one may easily imagine, sick and faint. I found men bathing, washing their dirty clothes, and drinking the same water, and was not surprised to hear that diarrhœa and dysentery occasionally prevailed in the neighbourhood.

"On the same date (9th February) I examined the main spring which is uncontaminated by bathers. I found the temperature of the water 110° Fahr., or 18·5, warmer than the outside tank which was exposed to the wind. On looking into the well, which is about 21 feet deep, the water was found to be fairly clear and of a greenish colour; there was a vapour of steam on the suface, and bubbles of probably sulphurous acid gas were rapidly rising, and there was a strong smell of sulphur perceptible; my face exposed to this vapour rapidly broke out into beads of perspiration. This tank is of faulty construction, insomuch that the drain leads off only the surface water, whereas, as is obvious, much greater cleanliness would result by having it let off from the bottom by a syphon drain. That the tanks should be more frequently cleansed is evident, as natives suffering from open sores, itch, and all sorts of cutaneous diseases, bathe, and actually, as I saw, drink the same water. A capital bath has been built for the use of Europeans, but this is also faultily constructed. When I first arrived I found the bath empty. It is placed in a house, about fifteen yards from the main spring, from which an iron pipe leads the hot water to the bath: this iron pipe is only two inches in diameter, and has been considerably narrowed by the incrustation caused by the chemical action of the sulphurous acid on the iron of the pipe. The dimensions of the European bath are as follows:—18′ × 16′ × 5¾′. I used this bath daily after it was again filled, and enjoyed it much; the temperature never rose above 82° Fahr., in consequence of the faulty construction of the leading pipe above alluded to. This might be easily remedied by having a glazed tiled drain substituted for the iron pipe. The bath is now useless for all medicinal purposes, but is a very pleasant one for ordinary use.

"I must add that the population appear healthy, and I have noticed no skin diseases amongst them, or ulcers, or boils. Many people have consulted me, suffering from chronic forms of ophthalmia, and other surgical cases have come to my notice; but no medical ones. The sanitary state of the city is decidedly bad, the streets are narrow and undrained, sewage from the houses is allowed to soak into the ground, and accumulations of filth are to be found in every corner. The water which flows out of the baths is a source of nuisance, for the outside drain is so badly constructed that in many places a fermenting pool of filth is the result, from other refuse being thrown into it. The Civil Surgeon at Gurgáon visits Sohná once a month, and sends any cases requiring attention to his hospital at Gurgáon. There is a very comfortable *dák* bungalow at Sohná, now rarely frequented, in which Europeans might make themselves quite at home, bringing their own servants and bedding. Invalids suffering from rheumatism, or Delhí boils, or cutaneous diseases, might give this place a trial. Those who might be too helpless to go to the bath could have the water brought to them to the bungalow in *chatties* or *mussaks*, and have it raised to any temperature by boiling and then putting it into their own baths. The country round Sohná is very pretty and fertile, and the rocky ridge which surrounds the place affords a nice change to those accustomed to the uniformity of the plain scenery. Small game abound in the fields and neighbouring jungle; vegetables are procurable, and the drinking water is pure and soft. The water of the hot spring possesses bleaching properties of no mean order. I have now, in conclusion, to state that I have no hesitation in asserting that all the men whom

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I brought out from Delhí have derived great benefit from the use of the hot sulphur-spring baths, assisted by the change of air, warmer temperature, and comfort of the hospital marquées; and I would venture to recommend that on another occasion further experiments be tried in similar cases, also for Delhí boils and cutaneous diseases. I would also beg to suggest that improvements be made to the tank, that a house be built over it to exclude the cold air and afford greater comfort by keeping up the temperature of the waters; again, that the sanitary state of the town be looked to, as it would be unadvisable to establish a sanitarium at this place before some action is taken in this respect."

Vegitation of the district.

The district is not well wooded, and some portions of it, such as the low-lying tract in Núh, are peculiarly bare of trees. In Rewárí the *farásh (Tamarix Orientalis)* is especially prevalent, and here the *farásh* trees in waste lands and along the village roads often form the subject of an ownership, distinct from the ownership of the soil. The *kíkar (Acacia Arabica)* is found all over the district; it grows in large numbers in some villages a few miles south-west of Gurgáon, and in the Palwal *tahsíl* may be found instances of *kíkar* plantations carefully preserved by the village communities. The *kábli kíkar (Acacia Farnesiana)* is also common. The *nim (Azadirachta Indica)* is generally found growing in and around the village sites, where also the *pípal (Ficus religiosa)* and the *bar (Ficus Indica)* are of frequent occurrence. In some parts of the district, particularly in low-lying flooded tracts, in which the soil is naturally sandy, as at Sultánpur in the Gurgáon *tahsíl*, and near Sailání, the *khíjúr* or date-palm (*Phœnix sylvestris*) grows abundantly; but the fruit is very inferior. In the east and south of the district there are a few scattered specimens of the *tari* or palmyra (*Borassus flabelliformis*). The Palwal *tahsíl* is by far the best wooded; there most Ját villages preserve a certain portion of their area sacred from the plough, and regard in a semi-sacrilegious light the cutting down of the trees growing there. The greater part of the vegetation ordinarily found in such *banís* or *rikhíás*, as they are called, consists of the *karíl (Capparis aphylla)*, the *híns* or *jhokar (Capparis horrida)*, the *ják* or *dongar (Salvadora oleoides*, the *raunjh (Prosopis spicigera)*, and the *khair (Acacia catechu)*; but there are also found the *dhák (Butea frondosa)*, the *gular (Ficus glomerata)*, the *papri (Pongamia glabra)*, and the *lasaura (Cordia latifolia)*, as well as some of the other trees already mentioned. The *kadam (Nanclea cardifolia)* is fairly common towards Palwal and Hodal; the *barwa (Cranœva religiosa)* and the *imli (Tamarindus Indica)* are met with, but are not common. The *am (Mangifera Indica)* is extremely rare. The *bakáin (Melia sempervirens)* is of ordinary occurrence, and the *amaltás (Catharto-carpus fistula)* is not very infrequent. The *ber (Zizyphus jujuba)* is planted in orchards for the sake of its fruit especially near large towns, and is also found elsewhere. The *shisham, (Dalbergia sissu)* and the *siras (Acacia sirissa)* are confined to the sides of the roads, where they have been planted by the District Officers; near Gurgáon a very successful experiment has been made in planting an avenue with the *Bignonia Millingtonia*, locally known as *wiláyati bakáin*, a handsome quick-growing tree with a beautiful white flower. The special tree of the hill ranges is the *dhauk (Anogeissus latifolia?* or *pendula?)*; at one time the hills are said

Vegetation of the district.

to have been very fairly covered with *dhauk* trees, but now, except in a few places where the villages preserve the trees, until they reach a size which fits them for sale, every sapling is at once cut down or grazed down by goats. On the Tánkrí hill there are some *gúgal* or balsam trees.

One of the most characteristic plants of the district is the *zizyphus nummularia*, ordinarily called *pálá* or *jhar-berí*. This is common all over the district, except in low-lying inundated tracts; but it especially favours high-lying and sandy lands, such as are found near Táorú and in parts of Rewárí; there in September and October the fields are often so thickly covered with this prickly shrub that it is not easy either to walk or ride over them. It is invaluable to the people: the leaves are threshed out and given as fodder to the cattle, the fruit is eaten or taken for sale to the towns, the thorny branches are used for hedges or fuel, and the root for dyeing leather. Hardly less useful is the *múnj* grass (*Saccharum sara*), which is found all over the district, and seems to flourish both in high sandy lands, as near Bolní in Rewárí, and in low flooded tracts, as near Palwal on the east. Its uses are too well known to require description here. Among the numerous other plants found in the district, the following deserve notice:—

The *jháú* (*tamarix dioica*) covers the low alluvial lands along the banks of the Jamná; its twigs are used in basket-making and in the construction of temporary well-cylinders. The *bánsá* (*tephrosia purpurea*) grows abundantly near the hills; the cylinders of temporary wells are ordinarily made by weaving together its branches. *Kíhp* (*orthanthera viminea*) grows on salt lands, and used to be used in the Núh salt-pans to quicken the crystallization of the salt. *Bathuá* (*chenopodium album*) and *chaulái* (*Amaranthus?*) are common pot herbs: the former grows chiefly in irrigated lands. The seeds of the *sánwak* (*panicum colonum*) are also eaten by the poor. The *náli* (*ipomœa reptans*), which grows in submerged lands, is also used as a pot herb: and among the wild gourds the *kachrí* (*cucumis pubescens*) and the *bankarelá* (*momordica charantia*) are eaten by the people. In poor soils near the hills there often grow the *kans* grass (*saccharum spontaneum*) and the *bhurt* (*cenchrus echinatus*) with its troublesome and prickly burs; and in the flooded lands of some villages in the north of Fírozpur (especially in Gohánáand Bahádrí) is found the *narsal* (*arundo karka*), a most tenacious aquatic plant, which it is almost impossible to eradicate, and which had to be considered in fixing the assessment of those estates. Pipe stems are made of its reeds. The only other plant which it seems necessary to mention is the *nág-phaní* (*cactus Indicus*), which forms a thick hedge round many villages in Rewárí.

Wild Animals: Sport.

The days when tigers abounded in Gurgáon on the then woody banks of the Jamná, are now long since gone by. The panther (*taindwa*) is now the largest representative of the feline family. They occasionally appear in the hills, wandering in from the adjacent hilly tracts of Alwar. A large wild cat (*banbilla*) is also commonly found in the jungles near the hills. Hyenas have a representative in the striped hyena (*jarag*), not common, and found only in the neighbourhood of the hills. The canine group is well represented,

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Wild Animals: Sport.

and wolves (*bheria*), foxes (*lomri*) and jackals (*gídar*) are common in all parts of the district. The mongoose (*niolá*) is common. A larger animal of the same species is found in the hills. It is about twice the size of the ordinary mongoose, and instead of brown, has a dark grey fur. Hares are very plentiful in all parts of the district, and the porcupine is common, generally found in the neighbourhood of the hills. Rats and mice are very common, and the bandicoot infests some of the towns. Dormice are found in all parts, but chiefly in sandy and saline tracts burrowing in the ground and living in large communities, and frequently causing damage to extensive patches of cultivation. In gardens and groves, the striped squirrel is always to be found. Musk rats are common, and so also is the little hedge-hog. Flying foxes are chiefly seen about Gurgáon, where they infest some of the gardens. The common bat inhabits old ruins and *khángahs* in great numbers. The sacred monkey is to be found in great numbers about Hodal, and there are also a few in Rewárí and Gurgáon. At Sohná, a solitary blackfaced monkey lives in the hills above the town, and frequently visits it. The wild boar inhabits the low hills near Bhúndsí and Sohná, and the Khádar lands of the Jamná.

Ruminants are represented by the black buck and the ravine deer, both of which are fairly plentiful. The former in the hilly and sandy parts, the latter in the low lands. The *nílgái* is also found in the southern parts of the Rewárí *tahsíl*, bordering on the foreign states. Hogdeer are occasionally met with in the Khádar lands of the Jamná. During the past five years rewards amounting to Rs. 1,152 were paid for the destruction of 25 leopards, 229 wolves, and 5,624 snakes. The species of snakes found are given below.

Birds.

The *jhíls* of this district attract great numbers and varieties of water fowl. During the cold months, wild geese, the grey and the barred, come in great numbers, arriving about the beginning of October. Also ducks of the mallard, pintail, and painted bill varieties; and pochards, sheldrakes, shovellers, red-heads, wigeons and teal swarm in all the marshes. With them also come a host of cranes, the common and the demoiselles; pelicans, spoon-bills, flamingos, grey curlew, snipe, crakes, rails, and sand-pipers. All these winter visitants disappear about the end of March. The *sáras*, the largest of the cranes, is a permanent resident, and breeds in the rains. They are usually seen in pairs in the lowlands about Núh, and the neighbouring villages. The comb duck, or *nakta*, comes in the rains to breed, and builds its nest generally in old ruins. The painted bill-duck is also a permanent resident of these parts and breeds in the rains. Adjutants and several other cranes come in great numbers during the rains. The ibis visits these parts in the rains in great numbers. Peafowl are considered sacred generally throughout the district. They are very common, and are chiefly seen about villages. The wild or blue pigeon is very common, living in great numbers in ruins and deserted wells. The wood pigeon, or stock dove, comes in great flocks during the cold season, and are chiefly to be seen near Bhadas in the Firozpur *tahsíl*, and Jatauli between Gurgáon and Rewárí. Grey doves, ring doves, and turtle doves are plentiful. There are four kinds of sand-grouse

Birds.

to be found in this district. The Imperial or black-breasted is a winter visitant and abounds in parts of this district, from November to the end of February. They are chiefly to be seen in the neighbourhood of Gurgáon and Farrukhnagar. The common, the pintail, and the painted, are residents of the district. The painted are only to be found on the rocky hills, and are nocturnal in their habits. Grey partridge abound in every part of the district. The black is also plentiful in some parts. Bushquail, both jungle and rock, are common, and when the wheat is about to ripen in March, the common quail appears in great numbers. The *ubara* is occasionally seen. The *lik* or painted florican comes here to breed in the rains in the sandy parts of the district. The Indian Roller, or blue jay is common, and king fishers of the blue and the spotted kind are plentiful near *jhíls*.

Tortoises.

Tortoises are found in the Jamná, and a small kind in some tanks and wells. The small tortoise is sometimes brought from long distances and put into wells and tanks to keep the water pure.

Reptiles.

Snakes appear only in the hot and rainy season, the commonest are the cobra and the *krait* known here as the *Bissanda*. The *daboia* and the *afae* are also found. *Dhawan, domuhi kalgandaith, padam,* Chamelia, *azdahá* (python) are occasionally seen.

The largest of the Lizards is the Goa, a smaller kind is the *biskabra*, supposed to be very poisonous. There are also, the house lizards, the sand lizards, the *sanda* or edible lizards, the tree lizard or Chamelion, and the beautiful *bamni* lizard.

Fish.

Besides the Jamná and the Agrá canal, there are few localities where fish are to be found. The Jhir stream in the hill pass above Fírozpur has a few species of small fish, and here and there some of the large tanks have fish of the ophiscipali (*saol*) and macrones (*tengra*) species peculiar to muddy and stagnant waters. There is a large tank at Hodal that contains some of the smaller kinds of river fish. This tank is fed from the Agrá canal. Of the *jhíls* in the interior of the district; the Najafgarh lake is the only one where there are fish, and this is due to this lake being connected with the Jamná by the drainage canal. In the lake all the better kinds of fish can be caught, but fish, as food, are scarcely known in this district. A few are occasionally brought from the Najafgarh *jhíl* into the market at Gurgáon. The following better kinds of fish are known:—*rohu* (labes rohita) *kalbas* (labes kalleas) *mahasee* (barbastor). *Bhur, narani, bamcha, bam* (eel), *qwalli, singhi, moh, phapta,* are the local names of the commoner kinds.