

BIJAPUR DISTRICT

CHAPTER I

GENERAL

THE district derives its name from its headquarters town, **Origin of name** Bijapur, as do many other districts in the State. Bijapur is also called in Kannada as Vijapur which is the shortened form of the Sanskrit term 'Vijayapura', meaning 'city of victory'. It is not known when exactly the place was named 'Vijayapura' and which victory it was intended to perpetuate. But the massiveness and the character of the ornaments of a stone pillar, probably a victory pillar, found east of the main gate of the citadel, Ark-killa, in the town, suggests that the pillar may be of not later than the seventh century. The town seems to have been a place of some importance during this period and there may be some connection between the victory pillar and the name Vijayapura, 'city of victory', given to the town. In that case, the origin of the name goes back to the seventh century.

Some inscriptions discovered near about Bijapur reveal that the name 'Vijayapura' was current from as early a period as 1036 A.D.* For instance, an inscription belonging to the reign of the Chalukya King, Jagadekamalla or Jayasimha II (A.D. 1018-1042), records a gift to the deity, Narasimha Deva of 'Vijayapura' by Anandapala Mahapradhana Senadhipati of Jagadekamalla. The town was also referred to as 'Rajadhani' or 'Raya-Rajadhani', meaning that it was a royal seat, and as 'Dakshina Varanasi', Benares of the South, which gives the impression that it must have been an important religious centre of the Hindus. There is a reference to Vijayapura in the Kannada work, 'Mallinatha Purana', written by Nagachandra about 1100 A.D. and the late Sri R. Narasimhachar, who was the Director of Archæological Researches in Mysore, is of the opinion that it refers to the present Bijapur town. This view is further supported by one of the inscriptions found near about Bijapur and now kept in the

* "Studies in Inscriptions-III" by Dr. S. C. Nandimath, published in the Journal of the Karnatak University, Vol. III No. 2, June 1959.

Bijapur museum, which contains a verse from Nagachandra's works.

The Bijapur District Gazetteer published by the Bombay Government in 1884 mentions that Bijapur is on the site of the old village of Bichkanhalli. According to another version, seven villages, namely, Gajakanahalli, Bajakanahally, Chandankeri, Kyadgi, Khatarkeri, Kurubanhatti and Kujankuti, were amalgamated to form one town named Bijjanhalli. When this town grew into a city, it is said, 'halli' was changed to 'pur' and by dropping the 'n' it became Bijapur or Bijapur. Dr. S. C. Nandimath is of the view that it does not seem to be quite correct to call Bijapur, Gijaganahalli or Bijjanhalli, as the name Vijayapura is undoubtedly very ancient.

There were several attempts during the Adil Shahi rule to change the name of the town. Ibrahim II named it Badyapur and Sultan Muhammed renamed it Muhammedapur. In an inscription found on the wall near Ibrahim Roza, Bijapur is called Vidyapur, the city of learning. In an old Persian manuscript map, Bijapur is called Darul-Zafar, 'Abode of Victory'. But the place has retained the original name of Bijapur or Vijapur in Kannada.

Location

The Bijapur District is in the northern part of the Mysore State. It is situated well in the interior of the Deccan Peninsula and is about 130 miles from the West Coast. It lies between North latitude $15^{\circ}20'$ and $17^{\circ}28'$ and East longitude $74^{\circ}59'$ and $76^{\circ}28'$.

General Boundaries

It is bounded on the north by the Sholapur district and on the north-west by the Sangli district, both of Maharashtra State, and on all other sides by the districts of Mysore State.

On the north and north-east, the Bhima river is a boundary between it and the Sholapur district; a stretch of the river separates Bijapur from the Gulbarga district. On the east and south-east, the boundary runs up to about 150 miles and is purely administrative, dividing this district from the Gulbarga and Raichur districts. On the south, it is bordered by the Ron and Nargund taluks of the Dharwar district; and on the west by the Athani, Raibag, Gokak, Ramdurg and Paragad taluks of the Belgaum district. It is, on the whole, a compact administrative unit.

Area and Population

Bijapur is the largest of all the districts in the State and occupies an area of 6,566.9 square miles or 17,008.3* square kilometres. Its north-south extension is about 110 miles and its

*According to the figures furnished by the Survey of India, the area of the District is 6,591.55 square miles or 17,071.98 square kilometres. See also Appendix Table I.

east-west extension is about 90 miles. With a population of 1,660,178 (1961 census), it ranks fifth among the districts of the State. In density, with a population of 253 persons per square mile, it ranks eleventh and is below the State average of 319.

Bijapur formed a part of the Gulbarga province of the Bahmani Kingdom founded by Alla-ud-din Hassan Gangu Bahmani in 1347. A new province called the Bijapur province was created in the Bahmani Kingdom about the year 1478 and it was assigned to Khwaja Mahmud Gavan. When he was executed in 1481, Yusuf Adil Khan was put in charge of the province. When the Bahmani dynasty lost its strength in the last decades of the 15th century, the kingdom was broken up and Yusuf Adil Khan of Bijapur was one of the provincial Governors who declared their independence. Bijapur thus became a separate kingdom under the Adil Shahi rulers in 1489. During their reign, there were about sixteen administrative divisions called Sircars under the direct control of Bijapur. The metropolitan division called Aval Sircar, Bijapur, consisted of 30 parganas. In 1686, Bijapur capitulated to Aurangzeb and was under the Mughals upto 1723 when it became a part of the Nizam's Dominions. In 1760 it was ceded by the Nizam to Balaji Peshwa who placed it under a Governor responsible to him. It remained under the Peshwas till 1818 except for a brief period of nine years from 1778 to 1787 when the southern portion came under the supremacy of Haidar Ali and Tippu.

**Administra-
tive History of
the District**

After the fall of the Peshwas in 1818, the areas comprising the present Bijapur district fell to the British under the proclamation of the 11th February 1818. Of these, Bijapur taluk was made over to the Raja of Satara. Indi and Muddebihal taluks which together contained 345 villages were placed under the Sub-Collector of Bagalkot who was subordinate to the Collector of Dharwar. The sub-collectorate was abolished in 1820 and the two taluks formed part of the Dharwar Collectorate till 1825 when they were transferred to Poona. They were again retransferred to Dharwar in 1830 and when the Sholapur Collectorate was formed in 1838, they were made over to Sholapur. On the death of Siddoji Rao Nimbalkar, Chief of Nipani, 31 villages of the Chandkavathe and Nidgundi parganas were attached to the Sholapur Collectorate in 1839. The addition was so important that a new taluk with its headquarters at Hippargi (Sindgi) was formed in 1839 by transfers from Indi and Muddebihal. In 1842 there was another large addition in consequence of an exchange of territory with the Raja of Satara and another taluk with headquarters at Mangoli (Bagewadi) was formed in that year. On the death of the chief of Kagvadi, 14 villages of the Chimalgi pargana were included in Mangoli or Bagewadi taluk. When the Raja of Satara died without heirs, Bijapur was taken over by the British and incorporated

with Satara Collectorate in 1848 and later in 1862 it was transferred to Sholapur. These five taluks or sub-divisions as they were known then, namely, Indi, Muddebihal, Hippargi (Sindgi), Mangoli (Bagewadi) and Bijapur, which lie to the north of the Krishna, belonged to the Sholapur Collectorate till the end of November 1864.

The three taluks of Bagalkot, Badami and Hungund which had also come under the British after the fall of the Peshwas, formed part of Dharwar Collectorate from 1818 to 1837 when they were made over to the new district of Belgaum. Two important additions to these three taluks between the period 1818 when they came under the British and 1864 when the new Kaladgi (Bijapur) district was formed, were the fifteen villages which lapsed in 1839-40 on the death of Govind Rao Patvardhan of Chinchili and another fifteen villages that were annexed in 1857-58 on the conviction of Bhaskar Rao, the chief of Nargund. There were, besides the eight taluks, two sub-taluks or petty sub-divisions as they were called then, namely Bilgi, subordinate to Bagalkot taluk and Kerur subordinate to Badami taluk.

Mr. W. Hart, the Revenue Commissioner of the Southern Division, recommended early in 1864 that, for administrative convenience, a new district should be formed. In sending his proposal for the formation of the district, Mr. Hart wrote :—

“ Most of these sub-divisions are so remote from Sholapur and Belgaum, the headquarters of the Collectorates to which they belong, that the Collector's personal observation of their requirements is necessarily small, and no zeal on the part of assistants and deputies can be expected to make up for the want of the frequent presence of the chief revenue and magisterial officers whether as regards mere revenue management or the exertion of influence over the people to induce them to assist in providing for their local requirements.”

In order to remedy these defects, a new Collectorate comprising the eight taluks of Indi, Hippargi (Sindgi), Bijapur, Mangoli (Bagewadi), Muddebihal, Bagalkot, Badami and Hungund, was formed on the 1st of December 1864 with its headquarters at Kaladgi. Of these the first five lying between the Bhima on the north and the Krishna in the south were taken from the Sholapur Collectorate and the last three from the Belgaum Collectorate to form the new Kaladgi district. Bilgi continued to remain a petha or sub-taluk, while Kerur sub-taluk attached to Badami was abolished on its transfer to Kaladgi. In 1868 Hippargi was named Sindgi and Mangoli as Bagewadi.

The revenue officers in charge of the sub-divisions (taluks) were called Mamalatdars and that of the petty division (petha or sub-taluk) as Mahalkari. There was no major change in the composition of the district till 1947, except that the headquarters of the district was shifted from Kaladgi to Bijapur in 1885 and the district came to be known as Bijapur district. The names of taluks, their area, number of villages and population as they existed in 1881 are given below:—

| <i>Name of Taluk</i> | | | <i>Area in sq. miles</i> | <i>No. of villages</i> | <i>Population</i> |
|----------------------|----|----|----------------------------------|----------------------------|-------------------|
| Indi | .. | .. | 871 | 136 | 71,940 |
| Sindgi | .. | .. | 812 | 150 | 72,650 |
| Bijapur | .. | .. | 869 | 108 | 76,896 |
| Bagewadi | .. | .. | 764 | 126 | 86,743 |
| Muddebihal | .. | .. | 564 | 161 | 65,024 |
| Bagalkot | .. | .. | 683 | 200 | 96,156 |
| Badami | .. | .. | 676 | 236 | 89,047 |
| Hungund | .. | .. | 518 | 217 | 80,037 |
| Total | | | 5,757 | 1,334 | 638,493 |

There were several exchanges of villages from time to time between Bijapur and its adjoining districts for the sake of administrative convenience. Between 1941 and 1951, 28 villages were transferred from Badami taluk to Belgaum district, three villages from Bijapur taluk to Jath taluk of former Satara South district, one village from Indi taluk to Mangalwedhe taluk of Sholapur district and two villages from Sindgi taluk to Gulbarga district and four villages were added to Bijapur district from Athani taluk of Belgaum district.

After the attainment of Independence, several princely States acceded to the Indian Union and such of the bigger States as

could conveniently be grouped together or independently formed into States were made into Part 'B' States under Rajpramukhs. Small States, which could not be attached to other States to form a State or independently made a State, were amalgamated with the adjoining districts of Part 'A' (former British Indian) States. In 1948, villages and towns of several such small princely States were also merged in the State of Bombay. The areas added to Bijapur district consisted of 17 villages of the former Aundh State, 52 villages and four towns of the former Jamkhandi State, nine villages of the former Kurundwad Senior State, 77 villages and two towns of the former Mudhol State, 13 villages of the former Sangli State. The former princely State of Ramdurg comprising an area of 476 square miles, after its merger with the former Bombay State, was first attached to Bijapur district in 1948 as a separate taluk but it was later on transferred to Belgaum district in 1950. However, one village comprising an area of 4.4 square miles, was retained in Bijapur district and was added to Badami taluk.

After these changes the district had in 1951 a population of 1,396,185 and an area of 6,600.7 square miles, according to the area figure furnished by the Surveyor-General of India. Jamkhandi and Mudhol, which had previously formed parts of the princely States, were reconstituted as separate taluks soon after their merger in 1948 bringing the total number of taluks to ten, besides Bilgi which continued as a petha or sub-taluk. Three villages from the Bilgi petha were added to the reconstituted Jamkhandi taluk.

As a result of the reorganisation of States in 1956, several adjoining Kannada districts and areas were integrated with Mysore State with effect from 1st November 1956 to form the New Mysore State.

The State, which by the addition of districts of Bijapur, Belgaum, Dharwar and North Kanara from Bombay, Gulbarga, Bidar and Raichur from Hyderabad, South Kanara and Kollegal taluk from Madras and the Part 'C' State of Coorg had become large, was divided into Bangalore, Mysore, Belgaum and Gulbarga Divisions for administrative convenience.

Bijapur district along with Dharwar, North Kanara and Belgaum, which were popularly called the Bombay Karnatak areas of the former Bombay State, constitute the Belgaum Division.

Bilgi was converted into a taluk with effect from 1st October 1959.

The district has been, for purposes of revenue administration, divided into four sub-divisions which are again divided into 11 taluks. There are 1,245 inhabited villages in the district. The following statistical table gives the names of sub-divisions and taluks with their area and the population :—

| <i>Sub-Division</i> | <i>Name of Taluk</i> | <i>Area in sq. miles</i> | <i>Area in sq. kilometres</i> | <i>Popula- tion (1961 census)</i> |
|---------------------|----------------------|------------------------------|-----------------------------------|---|
| 1 | 2 | 3 | 4 | 5 |
| Bijapur | .. Bagewadi | .. 764.3 | 1,979.5 | 1,64,128 |
| | Bijapur | .. 1,027.8 | 2,662.0 | 2,50,907 |
| | Muddebihal | .. 570.4 | 1,477.4 | 1,34,641 |
| Indi | .. Indi | .. 854.3 | 2,212.6 | 1,76,090 |
| | Sindgi | .. 829.9 | 2,149.4 | 1,62,810 |
| Bagalkot | .. Badami | .. 531.9 | 1,377.6 | 1,55,900 |
| | Bagalkot | .. 351.5 | 910.4 | 1,20,420 |
| | Hungund | .. 512.0 | 1,326.1 | 1,60,168 |
| Jamkhandi | .. Mudhol | .. 349.1 | 904.2 | 99,235 |
| | Jamkhandi | .. 448.3 | 1,161.1 | 1,67,719 |
| | Bilgi | .. 327.4 | 848.0 | 68,160 |
| Total | | .. 6,566.9 | 17,008.3 | 1,660,178 |

Revenue
Circles

The villages of the district have been grouped into revenue circles (hoblies) and there are 36 such circles in the district. The names of the revenue circles and the taluks to which they belong are given below :—

| <i>Sl. No.</i> | <i>Name of Taluk</i> | <i>No. of Revenue circles</i> | <i>Name of circle</i> |
|--------------------|----------------------|---------------------------------------|--|
| 1 | 2 | 3 | 4 |
| 1. Bijapur | | 5 | (1) Bijapur (2) Nagathan (3) Tikota (4) Bableshwar (5) Mamadapur |
| 2. Indi | | 3 | (1) Indi (2) Chadchan (3) Ballolli |
| 3. Sindgi | | 3 | (1) Sindgi (2) Almel (3) Devar-Hippargi |
| 4. Bagewadi | | 3 | (1) Bagewadi (2) Kolhar (3) Huvin-Hippargi |
| 5. Muddebihal | | 4 | (1) Muddebihal (2) Nalatwad (3) Dhavalagi (4) Talikot |
| 6. Hungund | | 4 | (1) Hungund (2) Karadi (3) Aminagad (4) Ilkal |
| 7. Badami | | 4 | (1) Badami (2) Kulgeri (3) Kerur (4) Guledgud |
| 8. Bagalkot | | 3 | (1) Bagalkot (2) Sitimani (3) Kaladgi |
| 9. Mudhol | | 2 | (1) Mudhol (2) Lokapur |
| 10. Jamkhandi | | 3 | (1) Jamkhandi (2) Savalagi (3) Terdal |
| 11. Bilgi | | 2 | (1) Bilgi (2) Anagawadi |

This district shares, in many respects, the geographical and economic characteristics of the districts of Sholapur, Ahmednagar and Nasik lying to its north. Geographically, the whole district lies in one region, namely the dry and arid tract of the Deccan plateau. The lands of the district may be divided conveniently into two types separated by the Krishna until they meet and merge into one another in Muddebihal taluk. The Dhone valley has its own distinctive characteristics. Broadly, there are three distinct types of landscapes in this area. Firstly, the Deccan trap; secondly, that of the Kaladgi series; and thirdly, that of the peninsular gneiss.

The land between the Bhima and the Krishna rivers is mainly underlain by the traps. Only the eastern margins belonging to Sindgi, Bagewadi, Muddebihal, and Hungund taluks are marked by local outcrops of gneiss and other metamorphic types. Almost everywhere the trappean topography presents a uniform appearance of an undulating plain, extensively furrowed by streams. Wherever these streams are smaller and have a very gentle gradient, there the valleys are wide open areas as in the Dhone basin. But where the action of the stream is more powerful, there the valleys are narrow and deeper. The trap topography of flat table lands and steep sides is well presented here by the main upland chain which, as a continuation of the Mahadeo range in this district, extends from the Tikota environs to Bijapur town; and from here, it bifurcates into northern and south-eastern branches; the northern one has an easterly trend towards Hippargi town, while the south-eastern branch forms a broken and indistinct watershed trending towards Bagewadi and beyond.

The flanks of this central backbone show more varied topography and more remarkable features of earth sculpture. South of the Athani-Bijapur road, the landscape consists of highly eroded residual hills, standing prominently in the form of mesas. Nearer the Krishna river, there are several small knolls. On the other side of the Tikota upland a similar landscape pattern exists; the streams promote small well-formed valleys where running water is available for the major part of the year. These valleys are important in that they form the belts of agricultural development and human concentration. This upland topography continues east of the Bijapur town, but under drier climatic condition, the erosive action is less active, and the topography tends to be semi-arid. The road from Bijapur to Hippargi has such landscape on its flanks.

The general topography of the Deccan traps in this district is one of a rolling character. Nothing but poor grass grows and occasionally in good years and in better patches, *bajra*, because the soil is thin and poor. But down the valley, the soil improves in

colour and quality, and its fertility is well reflected in the cultivated belts bordered usually by *neem* trees and toddy palms. Near the junctions of tributary streams with the Krishna and Bhima, the soil cover outstretches to form open plains of black soil forming the vital agricultural areas of the district.

The Kaladgi Landscape

The area lying between the Krishna and Malaprabha rivers in this district presents a sharp change in landscape and its utilisation by man. The sedimentary and slightly metamorphosed rocks which are collectively known as the Kaladgi series, occur in nearly horizontal bands with a general WNW-ESE strike, though at the eastern end their occurrence is more complex, due to the presence of gneissic rocks. Due to the slight dip of these beds, almost all the hills present a dip-slope on one side and escarpment on the other, and they have a generally uniform crestline. Thus, the outcrops of Kaladgi quartzites occur in two broad bands which in their residual form are generally known as the North Ghataprabha range and the North Malaprabha range. The North Ghataprabha range begins at Terdal and runs as a low continuous chain, with a scarp-face towards the Krishna valley and a dip-slope to the south. The range is associated with historical places like Jamkhandi and Bilgi, and with places of sanctity. At two places, where the gaps are wider, the range is crossed by roads. East of Bilgi, the range loses its clear-cut appearance and where the Ghataprabha joins the Krishna, it is a subdued tract. But southeastwards, it continues its bold features in the region of Kadpati, from where it sends two branches, almost in the fashion of a horse-shoe, through which the Ghataprabha develops two gorges, one a little north-east of Bagalkot town and the other further north, near Herkal.

North Malaprabha Range

This range starts from the neighbourhood of Belgaum city and acts as a watershed between the Ghataprabha and Malaprabha rivers, bearing a close resemblance to the North Ghataprabha range in form and appearance. It has a mellowed uniform crestline, and dip-slopes and escarpments. It generally presents a scarp face on the Malaprabha side, and earns somewhat different local names for its various portions and minor off-shoots. Its western portion is known as the Kerur ridge. In the south-east, the Gajendragad range, mostly belonging to the Dharwar district, is prominent on the horizon. The Badami group of hills in the eastern portion displays a magnificent show of red sandstone, capped here and there by ancient Chalukyan temples. The Guledgud hills are more flat-topped in appearance due to their steep scarps. Weathering and water erosion have given these sandstones a much-broken 'bouldery' appearance and fantastic shapes. On the eastern margin lie the Hungund hills capped with sandstone resting on gneiss, stretching 20 miles east—south-east parallel with the Gajendragad ridge, and like it, end in a bold bluff

which overhangs the small town of Hanamasagar in the Raichur district.

The Peninsular gneissic complex forms the basal rock for all the other types occurring in the Bijapur district. However, gneiss appears on the surface mainly in the south-east portions in the taluks of Hungund and Muddebihal. Here, the harder granite and granitoid outcrops have resisted erosion, and they develop a varied and craggy topography. In places, the topography resembles the topography of the Dharwar region with low 'hog-backs'. The lower reach of the Krishna river in this district traverses outcrops of gneiss and develops a scenery quite unlike that on the traps and the Kaladgis. The land is generally poor from the economic point of view.

The Gneissic Landscape

This general sketch of the geography of the Bijapur district would not be complete without a brief description of the regional variations that characterise it. Differences in the physical setting and in economic development show the following well-marked geographical regions :—

Geographical Regions

1. The Bhima Basin ;
2. The Central Uplands ;
3. The Dhone Basin ;
4. The Bijapur Urban Area ;
5. The Krishna Basin ;
6. The Southern Ranges and
7. The South-eastern Hills and the Hungund Plain.

(1) *The Bhima Basin* is a belt about 4 to 8 miles wide spreading out from the southern bank of the Bhima river. The river influences the local economy in two ways : (a) the areas that are flooded during the monsoons, and which receive annually good soil cover, also retain moisture, and hence these are well known for their agricultural products ; (b) the immediate banks which are covered with Bhima waters for a longer duration. These are mainly the flooded terraces given to garden cultivation. The villages situated in this region are therefore generally large and prosperous. They are usually sited on the knolls that have escaped erosion.

(2) *The Central Uplands*.—South of this narrow belt of the Bhima basin, the landscape changes more or less abruptly into waving and bare uplands interspersed with small but well-wooded valleys. These are the Central Uplands. There is a gradual rise in height till the central parts marked by low residual chains of hillocks are reached. Separated in the centre by the Dhone Basin, the same landscape continues on the southern margins of the uplands where the land gradually falls to the level of the Krishna Basin. The bare aspect of the billowy uplands is

well reflected in the low density of population which resides in small and impoverished hamlets having mud and wattle houses. Most of these are shepherd villages inhabited by those who tend large flocks of sheep and cover a large area following their flocks, especially during the rainy season. Agriculture is restricted to valley courses, where the upper slopes are given to inferior crops like bajri and the lower ones, where the soils get richer, to jowar and wheat. Where irrigation is possible, gardens of sugarcane and other 'wet' crops can be seen. It is the better soil accumulated from the uplands as a result of sheet erosion and wind transport and not irrigation that makes the valleys agriculturally useful and inhabited by people. The threat of scarcity and famine persists. The villages cling to the valley sides, and generally most of them have a population between 500 and 1,500. Only the market villages are somewhat better populated. Downstream, near almost all the tributaries of the Bhima and the Krishna, the villages increase in their size, evidently under the influence of better agricultural conditions. Some of them gain a greater importance because of a road passing through, or better still, a road junction. Some of them have become important, because, they have been chosen as taluk headquarters. The population is essentially agricultural, but an appreciable percentage of it depends upon sheep-farming.

(3) *The Dhone Basin*.—Although a part of the central Uplands, the Dhone Basin must be considered as a separate geographical region because it has a distinctive landscape. Its wide expanse, its deep black soil cover that is furrowed by many gullies, the saline patches interspersed with bull-rush marsh, are in contrast with the deeply notched flanks of the uplands on either side. A bumper crop of jowar, wheat, pulses and safflower always awaits the farmer in years of good rain, but in years of scanty rainfall it becomes a notorious famine tract which takes a heavy toll of cattle and causes much distress and forced migration of the people. The villages are comparatively few but are large-sized.

(4) *The Bijapur Urban Area*.—It is situated practically at the terminal end of the Central Uplands. Standing slightly to the north of the Dhone Basin is the historical city of Bijapur. It is situated on the narrow crest of the Central Uplands and commands a magnificent view on all the four sides. Perhaps, it was this advantage, coupled with the availability of a copious underground water supply, that must have induced the Adil Shahi kings to choose this site for their capital. The famine tract on the north must have been a secondary factor. It must have acted as a protective apron against invading armies. Bijapur city has had a glorious past and an account of it will be found elsewhere in this volume. At the zenith of its prosperity, it must have occupied an area of not less than 30 square miles. With the fall of the Adil Shahi monarchy, towards the close of the seventeenth century, the city was deserted. What was once a flourishing urban area

became a desolate land, over-run by cacti and other scrub. In fact, with the extension of the British rule, Kaladgi was chosen as the headquarters and not Bijapur. Only in 1884, were the district headquarters transferred from Kaladgi to Bijapur, and ever since that date the town began to record some growth, though at a tardy pace. Bijapur even today is a city of monuments. The present town is essentially restricted to the area within the second wall. From the Jorapur end, the city has again grown northwards and southwards in a compact form, and it has a slender projection outside the wall on the west. After its selection as district headquarters, trade has increased and the place is now getting to be well-known as an exporting centre for products like safflower, pulses, wheat and cotton raised in the surrounding areas. Industries are still few. But social and educational amenities are increasing. Compared with Sholapur and Hubli, its growth has been slow and this must have been probably due to the frequent incidence of famines.

Bijapur has had the privilege of being chosen for the location of the Sainik School Project, estimated to cost Rs. 90.00 lakhs. At present the first stage amounting to Rs. 43.84 lakhs has been sanctioned and is in progress. The works include construction of Administrative Block, Dining Hall, two Dormitories, quarters for officers and men, water supply, sanitary arrangements, internal roads, electricity, levelling of site, parade ground, playing fields and erection of Kittur Rani Channamma's statue. The first stage of work was targeted to be completed by December 1965 and the final stage by December 1968.

Some other major buildings that have been sanctioned lately and have been taken up for construction in Bijapur are Nehru Market, Polytechnic Building, Hostel for Polytechnic and Industrial Training Institute.

It is expected that Bijapur town will grow in importance as the result of the location of these institutions and several other schemes that are being implemented in the district, both under the Plan and non-Plan Schemes.

(5) *The Krishna Basin.*—The 1,750 feet level approximately marks off the Krishna valley as a distinct landscape from the adjoining trappean land on the north and the Kaladgi sandstones on the south. This is essentially the area covered annually by the flood waters of the river. There is very significant difference between the annually flooded lands and those which are left uncovered. The former area due to rich freshly-deposited silt and soaking of water, becomes one of the most highly prized agricultural lands, while the latter has a very thin soil cover and yields but poorer crops. Such seasonally flooded areas are best seen in

the neighbourhood of Algur in the Jamkhandi sub-division. These are open expanses underlain by deep cover of alluvium and then trap. The landscape is thus extensively furrowed by gullies and 'cut-off' channels, as near Jambgi, through which the river is trying to straighten its meandering course. The immediate banks of the river have terraces on both sides, but their extent depends upon the nature of the meandering course of the river. Generally, a concave bank tends to destroy them. These terraces are probably due to seasonal floods and their erosive effect on the banks. Such terraces are about 20 to 30 feet high from the river bed, and above them there is a narrow 'bench.' Above the bench there is again a steep slope which joins up the plain beyond. These topographical variations exercise a great influence on land use and human settlements. The steeper slopes are given to meadow and to shevri which protects the banks from erosion, and vegetable gardening, especially of brinjals and cucumbers. The flat terrace bench is much more prized for such type of farming. On the fodder crop of these terraces depends the famous Krishna breed of cattle. Recently, however, the region has been acquiring new agricultural importance as a sugar-producing area. The villages situated on the Krishna banks are large, compact and prosperous. They are essentially agricultural settlements, dairying playing an important role. Below Jainapur, however, the region loses its rich economic character under the growing influence of the sandstone topography. The river threads its course, develops a major arm below Takalki and after enclosing a large island of about 12 square miles, flows again as a single stream below Munagur. Because of its wide bed in this section, the river is a barrier to communication. The recently constructed bridge at Padasalgi is calculated to make the Bijapur-Belgaum road *via* Jamkhandi a major artery in transport.

(6) *The Southern Ranges.*—This region consists of the North Ghataprabha and the North Malaprabha ranges and offers a striking contrast in the scenery to the regions on the north and south. Harder rocks, sandstones and quartzites in particular prevail. The sandstones and quartzites, being harder, stand out as ridges, while other rock types like limestone and clay shales yield to water erosion to develop valleys. This is the general pattern of landscape of this region. It has an intimate reflection in the land use, settlements, and the economy of the inhabitants. The two ridges, on account of poorer stony soils, yield hardly anything but scrub, mostly consisting of *euphorbias* and *tarwad*. Hemmed in between these Ghataprabha and Malaprabha ranges, lies a very interesting tract drained by the Ghataprabha river. Here, the topography is very uneven, due to the geological structure and the nature of drainage.

(7) *The South-eastern Hills and the Hungund Plain.*—This region differs from its neighbouring parts of the Bijapur district

in several ways. It begins from the Sitimani hills. The landscape is typically that of gneiss and granite, with irregular rock exposures separated by black soil. On the north, the trappean topography merges somewhat abruptly with that of the granites. Wherever sandstones and quartzites outcrop, as near Muddebihal and Talikot, the topography consists of low lines of ridges. The valley widens out wherever the gneiss outcrops, and gives a good agricultural land capable of local irrigation. The Nandikeshwar-Mahakut section is most interesting in this respect. Locked in between two gorges, it was in the Chalukyan days a flourishing tract as could be seen from the extensive historical ruins. The valley is well protected all round by the steep scarps of sandstone ridges, and that must have been the principal reason for the choice of this site by the Chalukyan rulers. Pattadakal, right on the left bank of the Malaprabha, shows its ancient glory even today. Mahakut is an ancient shrine visited by thousands of devotees. Banashankari, situated in a small sandstone ridge valley, is an equally famous place. The approaches to Badami, four miles north of Banashankari, are heralded by numerous ruins. The Chalukyan glory is still vividly seen in the rock-cut temples and other structures. Nandikeshwar is a small village now. Another famous centre of Chalukyan antiquity, Aihole, is situated near. Further downstream, below the Aihole gorge, the Malaprabha opens out to form a broader valley, but here urban handicrafts become more important than agriculture.

The area is drained by the Krishna river, which is the most important river of the district, and by its leading tributaries in the north and south. On the north, the Bhima drains the northern strip for about 20 miles; the river acts as a boundary for about 95 miles. In the centre, the land is drained by the Dhone river, which too joins the Krishna just outside the administrative limits of the district. Several small streams drain the immediate borders of the Krishna, but on the southern side the Ghataprabha and Malaprabha are the leading tributaries. The lowest levels are recorded by the Krishna water course which runs at about 1,800 to 1,750 feet above sea level, but the base levels of the other tributaries are not very much higher. An obvious inference from this is that the whole network of drainage in this district has been developed almost at one and the same time. It is a paradox that there should be acute scarcity of water in this district in spite of the fact that five rivers flow through it.

This river rises among the Mahabaleshwar section of the Sahyadri hills. It flows south-east through the Satara, Sangli and Kolhapur districts of Maharashtra State and Belgaum district of Mysore State. It enters the Bijapur district a little east of the Southern Railway bridge at Kudachi. It has a course of about 125 miles in this district. In the first fifteen miles of its course, the river forms the boundary between the Bijapur district and the Belgaum district; further downstream, it divides the

Rivers

Krishna River

Bijapur district into two parts, the northern one being slightly larger in size. The course of the river from the point where it enters the district to its confluence with the Ghataprabha is marked by broad and meandering sweeps; its bed and flanks clearly show the influence of the flood regime in the shape of alluvial terraces on both sides. There is tremendous gully erosion during the monsoons. In this part, the river also develops threaded channels, which become prominent during the dry season. At several places the meandering course is being straightened by the river under the influence of the floods. Only at a few places, the river touches exposures of harder rock, as near Padasalgi where it has given a good foundation to the new and important bridge connecting the town of Jamkhandi with Bijapur. On the northern side, the river has a topographical outline of subdued lava uplands and on its left flank runs the smooth chain of hills developed on the sandstones and quartzites of the Kaladgi series. All these features of drainage are important from the point of view of human development in this region. After joining the Ghataprabha near Chimalgi, the river develops a different topography under the influence of the metamorphic and harder sedimentary rocks. It splits into a number of channels; and projecting rocks appear as small islands in the middle of an expanding span of flowing water. The banks are rugged. The scenery is wild. During the monsoons the waters run in a torrential form, while in other seasons, the small shrunken water course exposes the varied nature of the surrounding topography. Before passing into the Jaladurg hills, the river forces its way through granite hills and develops a series of cascades over a stretch of a quarter of a mile, and records a total fall of about 300 feet in its level. At its meeting with the Ghataprabha, the Krishna is about 500 yards broad in the rainy season and the current runs at about $2\frac{1}{2}$ feet per second. About $2\frac{1}{2}$ miles east of its meeting with the Malaprabha at Dhannur, the stream is about 600 yards broad in the rainy season and about 700 yards where the river leaves the district. Mud, silt and sand continually gather along its banks. During the hot season, the stream water is small and in its black sandy bed may be found pebbles swept from the various rocks through which the river has passed. Among these pebbles brought down by the hill freshes, nodules of a reddish brown and white carnelian jasper, chaledony and mocha stones are occasionally found. Ten feet below, the rock of the river bed is generally reached.

In the historical and cultural development of the country, the great rivers have played a vital role. Legend and tradition have sanctified these perennial sources of water, which have given an immense impetus to civilisation and prosperity of the land. These beneficent rivers have exercised a strong influence on the life and imagination of the people. Picturesque spots on their banks have been also abodes of spiritual 'Sadhana'.

The Krishna is one of the three great rivers of South India, the other two being the Cauvery and the Godavari. All these three take their birth in the west and flow across the peninsula. Of the three, the Krishna with its main tributaries commands the largest drainage area and is linked up with the well-being of three States, Mysore, Maharashtra and Andhra Pradesh. It is also called 'Hire Hole' (big or great river) in Kannada.

There have been ample references to the Krishna in the old literature of the country. The puranas speak of the Krishna as Krishnavenya or Krishnavena. The Jatakas know it as Kanha-penna and in the Hathigumpha inscription of Kharavela it is mentioned by the name of Kanhapemna.* The Skanda, Padma and Brahma Puranas narrate the 'merits' and benefits that accrue to those who live in the vicinity of the banks of this river and speak of it as the mother of rivers and as the fountain-head of holy places. She is described as the Ganga of South India. On particular holy occasions, the Ganga and other mighty rivers, it is said, come to the Krishna and live with her.

**Its Mythical
Association**

According to the Skanda Purana, which has a Krishna Mahatmya, a section devoted for the glorification of the Krishna, this river was brought to the earth from the heavens. A legend says that in the early part of the Kaliyuga, the rishis were greatly depressed by the decrease of righteousness and increase of evil deeds. They approached the resourceful Narada who assured them that a remedy would be found to help the good and the saintly. Narada conveyed the grievances of the rishis to his father, Brahma. The latter created a number of teerthas and also suggested to Vishnu to go to the assistance of the rishis. Then Vishnu created the Krishna out of his own body.

Meanwhile, the king of Sahya Mountain had come to know that a holy river was to be created on the earth. He wanted to have the privilege of giving rise to such a sacred river so that he may attain salvation. Hence he did severe penance praying that that river may be born on the Sahyadri. His prayer was granted and accordingly the Krishna appeared on this mountain. God Vishnu invested the river with 'marvellous' powers. Since Vishnu, i.e., Lord Krishna created this river, it is said, the latter received the name of Krishna. The name, according to some, is derived from the river's "power of drawing away the sins". The confluences where this river is joined by the Malaprabha and the Ghataprabha are highly venerated by the Hindus. At Kudala Sangama, where the Krishna is joined by the Malaprabha, Jata-veda Muni had his ashrama and Basaveshwara, the great social

*Immortal India—Vol. IV by J. H. Dave, Bharatiya Vidya Bhavan, Bombay 1961, pp. 42, 44.

and religious reformer, had his earlier spiritual education here and after his return from Kalyana, it was here that he became one with Kudala Sangama Deva, according to a tradition.

Bhima River

This river rises in the Sahyadris and flows east for about 150 miles across the district of Poona. It then turns south-east, and after acting as a boundary between the Poona and Ahmednagar districts over a stretch of about 35 miles, and between Poona and Sholapur for about 60 miles, it flows through Sholapur for about 80 miles. It touches the Bijapur district at Desur. Below Desur it flows east, and acts as a boundary between Bijapur and Sholapur districts for about 30 miles, and between Bijapur and Gulbarga districts for another 30 miles downstream. On its left it receives the waters of the Sina which drains the south-eastern parts of Sholapur and on its right several small streams which drain northern Bijapur, of which the most important is the Bhutnal stream. The river empties its waters into the Krishna about 150 miles further downstream.

The Bijapur district therefore has only the right bank of the Bhima river within its administrative limits. In this section, the banks are overlain by layers of gravel. The bed of the river has a cover of alluvium, about 10 feet thick, below which the hard trap rock is reached. The streams which drain northern Bijapur have a parallel drainage pattern. These afford an ample supply of water for general purposes and in some cases they are useful for irrigation also. After seasons of favourable rainfall, these streams contain shallow threads of running water even during the hot season. During the rainy months, the tributaries of the Bhima river overflow the normal channels and spread over a wider area, which is thereby rendered extremely fertile. In the Indi sub-division, the land along the Bhima river is a rolling plain. Its monotony is partly relieved by small hamlets. The Sindgi portion of the Bhima bank has a rich alluvial and black soil cover, and hence this part has promoted several prosperous large-sized villages. The immediate banks of the Bhima are agriculturally rich areas, where garden crops and wet fodder can be raised. This fodder supports the well-known local breeds of cattle and horse. In the drier months of the year, the river can be forded at several points. The railway bridge between Hotgi and Lachyan stations used till recently, to be the only link that could be used all the year round. The new bridge on the Bijapur-Sholapur main road is an important link between these districts.

The Bhima has figured in the Matsya, Brahma and Vamana Puranas and also in Mahabharatha. It is considered a sacred river and is spoken of as a Maha Nadi, a great river. Near the source of this river in the Western Ghats, there is the Jyotirlinga of Bhimashankar, which is one of the twelve Jyotirlingas highly venerated by the Hindus. It is one of the chief tributaries of the Krishna.

Bhima means a terrific form. The term in its feminine sense is one of the attributes of Parvati, the consort of Shiva. The river Bhima is also known as Bhimarathi. Daksha Prajapati is said to have performed a great sacrifice on the bank of the Bhima at Dhulkhed and the legend further says that Parvati, daughter of Daksha, killed herself there since Shiva, her husband, had been humiliated.

It is said that Bhimaka, a legendary king of Ayodhya, had killed two saintly persons when they had taken the forms of deer. Struck by remorse by his deed, he performed penance at Bhimashankar to obtain a boon from Lord Shiva. When the latter, who was tired and had come to Bhimashankar (in Maharashtra, on the Sahyadris) after overthrowing Tripurasura, who had been tormenting the people, appeared before him, the devotee observed drops of perspiration on Shiva's forehead and prayed that those drops be turned into a river.* This request was granted and thus appeared the Bhima. The river, it is said, got its name Bhima since king Bhimaka was instrumental in bringing it into existence. The banks of the river are dotted with several religious places such as Pandharapur, Agarkhed and Dhulkhed which draw a large number of pilgrims.

With a drainage area of about 400 square miles, the **Dhone River** Dhone, also called Dhoni, Dhona and Don, rises in the upland region of Sangli district, about four miles to the south of the town of Jath. It flows east and then south-east till it reaches Talikot in the Muddebihal taluk. South of Talikot, the river passes through a rocky tract and joins the Krishna river about thirteen miles east of the eastern boundary of the Bijapur district. In this district, it has a length of about 100 miles showing certain interesting drainage characteristics. First, it drains the upland portion that forms the water-shed between the Krishna and Bhima. This is a slightly undulating area, the flanks of which exhibit striking erosional scarps developed by the swift-flowing seasonal streams. In between these scarped walls, runs the sluggish Dhone river, draining the seasonal waters of the central belt. The black soil of the trap, the intensely seasonal nature of the rainfall and the consequent long dry period, and the very low gradient of the river, all these contribute towards making the river basin a distinctive region by itself. Its meandering course has saline waters during the drier months of the year and salt encrustation on the banks and dry bed. Reeds and grass, tarwad bush and toddy palms are typical features of the immediate banks. The bed is alluvial and at places deep and treacherous. The course is extremely meandering. The outer portions of the basin have a deep black soil cover that is extremely fertile and gives the Dhone basin

*Immortal India, Vol. IV by J. H. Dave, Bharatiya Vidya Bhavan, Bombay, 1961, p. 71.

its well-merited reputation as a rich food-producing area during the years of good rains. The Dhone, accordingly, is famous for its rabi crops, especially wheat and safflower. The Talikot area is a particularly rich agricultural tract, but south-east of Talikot, the limestone outcrop introduces a sudden contrast in the scenery of the Dhone basin.

The river develops a series of rapids and this part of the basin is generally poor and economically backward.

The water of this river is generally brackish except during the rainy season when it is used for drinking purposes. The basin experiences scarcity of drinking water in other seasons. This is particularly true of the little Dhone, a tributary, in the Bagewadi taluk. Communication across the Dhone has always been a problem. During the rainy season, the river is subject to sudden spates, which make crossing extremely dangerous. After the rains, too, the river cannot be forded except where there are gravel patches, because the banks and the drying bed are full of deep mud or slush, about as deep as 30 feet in certain places; that denies a foot-hold to men or animals, and reports have been common that men, animals and even fully laden carts just vanish into this deep slush.

The Dhone valley was the granary of old Bijapur. The importance that was attached to it is borne out by an adage "*Don pike, kon khayega? Don na pike, kon khayega?*" i.e., if the Dhone bears crops, who can eat them? If the Dhone does not bear crops, who can eat?

There is another popular saying about this river which runs as follows :

“ ದೋಣೆ ಬೆಳೆದರೆ, ಒಣ್ಣೆಲ್ಲ ಜೋಳ ”

which means that if the Dhone yields crops, every place would be full of jowar.

Malaprabha River

The Malaprabha has its birth near a village called Kulakumbi and has an easterly course of about 120 miles through the Belgaum district, and enters the Badami taluk of the Bijapur district near Karalkop. From this point, it flows east for about 20 miles, forming the southern boundary between the Bijapur district and the Dharwar district. The river has a course of nearly 65 miles in the Bijapur district. From the point of view of its general pattern in drainage in this area, the Malaprabha is a minor counterpart of the Krishna as a stream flowing at the geological junction; in the case of the Malaprabha, it is the Kaladgi rocks on the north and peninsular complex on the south, but this junctional feature ceases to continue beyond Aihole where the river flows across the Kaladgi series through a succession of rapids and gorges. The northern

flank of the river is marked by the low residual chain of hills developed on the Kaladgi sandstones and quartzites, and there are no major streams of note. The southern flank, on the other hand, commands a large drainage area underlain by the peninsular gneiss and Dharwar rocks, and here the Bennihalla, a leading tributary with almost a similar hydrology as that of the Dhone, meanders to join the Malaprabha a little to the east of Hole-Alur. Much of this undulating tract on the southern flank of the Malaprabha lies outside the administrative boundary of the Bijapur district. The river shows abundant evidence of its historical importance. Pre-historic sites have been recently discovered along its bank between Hole-Alur and Khyad. Aihole, Nandikeshwar and Pattadakal are well-known for their magnificent Chalukyan architecture. Badami, the capital of the Chalukyas, is not far away from the river.

The river Malaprabha* is also called Malapaharini, Malapahari and Malini. It is described as a sacred river in the Banashankari Mahatmya. After Chalachagud and Munavalli, it flows from the south to the north and legends attribute great importance to the flow in such a direction, calling it as Uttaravahini.

It 'carries off sins' of the people and so it is named Malapahari or Malapaharini. Malini is probably a shortened form of Malapaharini. 'Mala' here stands for 'sin'.

According to a legend, god Brahma, after performing a sacrifice, came to this river for his Avabhrita Snana and this helped to sanctify the river. Legends associate god Shiva also with this river in connection with the occasion of killing of Tripurasura and naming of Rudrapadateertha.

Parashurama after defeating his enemies, it is said, washed his weapons in this river and worshipped god Ishwara at Aihole situated on the bank of this river.

The Ghataprabha rises near the edge of the Sahyadris in a place called Ramaghat about 25 miles west of Belgaum city. After an easterly course of about 120 miles, it enters the district in the Mudhol taluk, about eight miles west of Mudhol town. Its length in the Bijapur district is about 70 miles. Through Mudhol and Bagalkot taluks it runs a course of about 50 miles, first southeasterly till the village of Budini, and then easterly up to Bagalkot town. From here it flows in a region of sandstone and quartzite hills. It develops a beautiful gorge near Herkal, and

**Ghataprabha
River**

*The old Bijapur District Gazetteer published in 1884 mentions that Malaprabha means mud-shining, Mala-parva signifies 'full of mud' and the meaning of Malapaharini is mud-robbing.

joins the Krishna near Chimalgi. At the confluence, the river is nearly 100 yards broad, the expanse being much wider during the rainy season.

The Ghataprabha river drains a hilly area. It is forded at some places, the more important being at Mudhol and Yadhalli. Recently, its impounded irrigation waters from the Dhupadal tank are being distributed through a network of canals over tracts where rainfall is uncertain.

Geology

The oldest rocks in the district consist of schists, phyllites, banded hematite-quartzites, occurring as distinct bands mainly to the south-east of the district. The schists include hornblende-schist, mica-schist, chlorite-schist, talc-schist and hematite-schist.

The granites and granite-gneiss of Archaean age intrude into the pre-existing schistose rocks and occur as big, rounded, massive boulders and small isolated hills and knolls near Bilgi, Rolli, Chimalgi, Guledgud, Pattadakal, and Muddebihal. These show considerable variation in texture, from fine and coarse granites to coarse porphyritic and gneissic types and generally vary in colour from greyish to pink. Intrusions of pegmatite and quartz veins and basic dolerite dykes are seen throughout the granitic country.

The Archaean rocks to the south-west of Bijapur are overlain by a series of unfossiliferous, metamorphosed, sedimentary rocks known as the Kaladgi series, corresponding in age with a part of the Cuddapah rocks of Andhra Pradesh.

The Upper Kaladgi series consists of conglomerates, quartzites, shales, limestones, and hematite-schists about 3,500 feet in thickness, occurring in folds in the Kaladgi basin in the vicinity of Kaladgi, Lokapur and Bagalkot. The Lower Kaladgi series, about 8,000 to 10,000 feet thick, comprises basal conglomerates, arkoses, sandstones, quartzites and mud-stones overlain by siliceous limestones, hornstones and shales. Basic doleritic dykes have intruded the Upper Kaladgi rocks near Lokapur and Arakeri.

Another set of unmetamorphosed sediments, known as Bhima series, overlies the ancient gneissic rocks north of Muddebihal. These differ considerably from the Kaladgis which are older in age. The Bhima series is divided into upper and lower divisions. The former includes shales and limestones and occurs around Talikot; the latter comprising quartzites, grits, sandstones and shales, shows a considerable variety in colour and is seen along the southern fringe of the Deccan trap north of the Krishna.

Almost the entire region north of the Krishna river is covered by the sub-aerial Deccan lava flows of Lower Eocene age, in the form of nearly horizontal beds, overlying the earlier formations. The traps vary from a hard, compact, blueish and dark-grey basalt to the comparatively softer, purple, amygdaloidal and scoriaceous types with vesicular cavities generally filled with zeolites, calcite, and quartz.

Though the district, as a whole, is poor in mineral deposits, **Economic Minerals** a few minerals of economic importance like limestone and asbestos, occur in Mudhol and Bagalkot taluks. Asbestos occurs near Yalligutti. A few hundred tons of asbestos have already been taken out from the existing pits and further systematic prospecting may prove the existence of a few important veins in this area.

Building Materials :—Various rocks suitable for constructional purposes occur in large quantities in the district. These include many kinds of building and ornamental stones, sands, limestones and *kankar*, roofing and flooring slates, road metal and railway ballast.

Numerous quartzite and sandstone ridges to the south of the Krishna river and the sandstone ridges north of Muddebihal afford enormous materials for building stones. The Lower Kaladgi limestones in shades of pink, green, purple, grey and cream colours, found near Kaladgi and Bagalkot, the Upper Bhima limestones near Talikot, the hard mudstones near Mareguddi and a light pink sandstone found at various places, could be used as ornamental stones. The beautiful granites of light grey to pink colour occurring near Bilgi, Rolli, Gani, Pattadakal, etc., are capable of taking a high polish and could be used as ornamental stones. Greyish-black slates found near Lokapur afford excellent material for roofing and paving purposes. The compact quartzite quarried at different localities is best suited for use as road metal.

Calcite.—Large pockets and veins of calcite are found near Bagalkot and Gaddanakeri in the Lower Kaladgi limestones.

Copper ore.—Traces of copper ore are noticed on the laminae of talcose limestone at Khajjidoni, four miles from Kaladgi.

Glass Sand.—A medium to fine grained, sugary white sandstone found south of Guledgud may be suitable for making medium to low quality glass. Another band of a whitish quartzite, probably suitable for glass making, occurs in the railway cutting south of Lakshmapur.

Limestone.—The district is endowed with very rich deposits of good quality, high-grade limestone in the taluks of Mudhol and Bagalkot. Recent surveys have proved that the quantity of limestone in this district is plentiful. The Bagalkot Cement Company has been utilising the vast limestone deposits for the manufacture of cement.

Iron ore.—The banded-hematite-quartzites and schists occurring near Bisnal, Herkal, Yalligutti, Kamatgi, Kadlimatti and north-west of Amingad contain occasional bands of rich hematite. One such bed near Ramthal is being largely worked and high grade iron ore obtained and railed from Bagalkot, situated eighteen miles from the area. Thin bands of hematite schists, ironstones, breccias and shales in association with the Lower and Upper Kaladgi rocks occur in the neighbourhood of Lokapur. It is doubtful whether these have any economic importance. Recently reported nodules of ferruginous matter, derived from laterite, from Salotgi, Vibhuti Halli and Masali, are stated to be suitable for local smelting only.

Manganese ore.—Small quantities of manganese ore occur in the hillocks near Kagalgomb, about eight miles south-west of Bagalkot. Traces of the ore are also met with near Kamatgi. Lateritic manganese ore of no economic value is present at Ingaleshvar.

Ochre.—A bed of fine, white and red clay in sandstone is reported at the top of a spur from the Sitadonga hills, overlooking the Ghataprabha river, to the east of Bagalkot. Red, purple, violet and yellow clays, associated with the Kaladgi limestones, occur in the *nalla* sections north of Lokapur in the Mudhol taluk. These find only local use and have not been exploited to any appreciable extent.

Slate.—About a mile north-east of Kadarkop in Mudhol taluk, there are a few quarries of slate. Similar quarries of slate are found a mile and a half south of Kaladgi. The rocks are well-cleaved and jointed, thus facilitating quarrying and dressing operations. The material is very good for making slates and table tops. The inferior varieties could be made use of for flooring and roofing purposes. Other localities which hold out promise of similar deposits are one mile west-south-west of Lakshanahatti and in the *nalla* half a mile north of Varchagal. Slates are also reported from Silikeri and Talikot.

Flora

Very little of natural vegetation cover can be seen in this district, one of the reasons being that much of the land has been brought under cultivation since historical times. The

present day forest cover, according to the latest statistics occupies only about 5 per cent of the total area. Most of this is restricted to the stony uplands and ranges and is of an inferior type of scrub. Thorny shrubs like *Zizyphus* (*bor*) and various *Mimosae* are also to be seen. *Euphorbias* are extensive, but the all too familiar cactus (*Opuntia dilenii*) has disappeared totally after the introduction of the cochineal insect, and this has added to the bareness of the landscape. The river beds are characterised by *Tamarix*, *Eugenias*, etc. On the larger river banks where inundation takes place, *Babul* (*jali*) is familiarly seen. There has been a good deal of experimentation for the regeneration of the sandstone hills for promoting better vegetation cover with a view to increasing the supplies of underground water. Indiscriminate grazing of sheep and cattle is an impediment to such effort. The real remedy would appear to lie in controlled grazing and re-afforestation.

Except in its southern and western portions, the district has not much forest, the total area for the whole district during 1963-64 being only 2,03,645 acres distributed over the taluks as follows :—

| <i>Taluk</i> | <i>Acres under forest</i> | |
|----------------|---------------------------|----------|
| Badami | .. | 77,253 |
| Bagalkot | .. | 28,759 |
| Bagewadi | .. | 2,826 |
| Bijapur | .. | 2,060 |
| Bilgi | .. | 29,063 |
| Hungund | .. | 24,174 |
| Indi | .. | .. |
| Jamkhandi | .. | 26,440 |
| Muddebihal | .. | .. |
| Mudhol | .. | 13,070 |
| Sindgi | .. | .. |
| District Total | .. | 2,03,645 |

Several schemes have been implemented in the district for developing the forests. Under the Second Five-Year Plan, a sum of Rs. 2,20,000 was spent against an allotment of Rs. 2,50,000 for implementing nine schemes including afforestation of denuded areas and afforestation of waste lands with firewood species. During the Third Plan period, it was proposed to rehabilitate the forests, degraded due to over-exploitation, by means of planting suitable tree species in 500 acres in Bagalkot, Badami, Mudhol and Hungund taluks; to have an effective check on illicit transport of forest produce; to raise road-side, railway side and canal side plantations; to form farm forestry; to create fuel reserve and to

provide fodder and grazing grounds for village cattle ; to undertake soil-conservation by means of afforestation ; to prevent torrent damages and erosion and to plant Agave Hedges in areas vulnerable to soil erosion.

Recently, an afforestation range has been set up with headquarters at Bijapur for the purpose of creating forests in the denuded waste areas and 'Gairanas' of Bijapur, Indi, Muddebihal and Sindgi taluks which have practically little or no forests. Now nearly ninety per cent of the existing forests has been brought under systematic management as per prescriptions of the working plans. Protection, exploitation and regeneration of forests are being carried out according to sanctioned working plans and also under the Five-Year Plan Schemes.

Some of the works that are being undertaken relate to marking of standards, regeneration in felled coups, tending and other silvicultural operations. Since the last about six years, extensive denuded areas are being taken up for afforestation.

In the reserve forests of the district, no rights are granted to the villagers except the facilities of way and water. There are no roads maintained by the Forest Department in the district.

Due to the several measures adopted by the Forest Department, the acreage has gone up and the area under forests is now (1965) estimated to be 2,14,266 acres.

The percentage of forests of this district to the total area is only 5.12 and due to scanty rainfall, the forest is of a poor type and consists entirely of scrub.

The taluks of Bagalkot, Badami, Hungund, Mudhol, Jamkhandi and Bilgi have the largest areas accounting for 90 per cent of the total forest area of the district. Bagewadi and Bijapur taluks have less than 3,000 acres of forest area and the three remaining taluks of Indi, Muddebihal and Sindgi have no forests at all.

The forests of Bijapur district are in the nature of "dry tropical thorn forest" of two categories, the 'hill forest' on the dry slopes with scrubby tree growth and the 'plain forest' of fuel and fodder reserves, which is mainly confined to river banks and midstream islands. The forests of Jamkhandi, Badami, Mudhol and Bilgi are richer than those in the remaining taluks of the district.

The hill forest is composed of the following species—Mashwal (*Chloroxylon swietenia*), Tugli (*Albizzia amara*), Kakai

(*Cassia fistula*), Tembhurni (*Diospyros melanoxylon*), Halgatti (*Wrightia tinctoria*), Dindal (*Anogeissus latifolia*), Bevu (*Azadirachta indica*), Khair (*Acacia catechu*), Ballad (*Acacia leucophlaea*), and Sandal (*Santalum album*). Mashwal and Tugli are the most prominent and wide-spread species in the composition. Dindal occurs in fair quantities mainly in the forests near Sitimani, Arkeri, and Janmatti of Bagalkot Range and Mudkavi of Badami Range. Khair is the predominant species on the forest blocks in the Kaladgi and Mudhol areas. Sandal which had a marked incidence in the past is rarely found in these forests at present. The undergrowth mainly consists of Bandati (*Mundulea suberosa*), Tarwad (*Cassia auriculata*), Kavali (*Carrissa* species), Kanguni (*Gymnosporia montana*), Karvi (*Ganthium parviflorum*) and *Euphorbia* species (Cacti) often form a gregarious mass on open denuded lands. These are seen to give shelter to natural regeneration of indigenous species. The tree-growth comprising this forest type is generally stunted and often bushy. The hills near about Kaladgi, Bagalkot Kamatgi, Guledgud and Badami are almost bare. The vegetation is better preserved in the hills of Badami, Hungund, and parts of Gudur and Kerur and in the Mudhol taluk.

The predominant species of the plain forest is Jali (*Acacia arabica*). The other associate species growing naturally are Hulgal (*Pongamia glabra*), Neeral (*Eugenia jambolana*), Bevu, Sandal, Hunshi (*Tamarindus indica*), and Bor (*Zizyphus jujuba*). The undergrowth consists of Alu (*Vangueria spinosa*) and Tarwad. At present, scattered tree growth of Jali (*Acacia arabica*) raised artificially at some stage or the other occurs only in patches.

The open areas mostly harbour grasses which are not very nutritious as cattle feed. Kusal (*Andrapogon contertus*) is by far the most common species and is widespread. In places close to moisture-retaining bunds, one finds Sophia (*Cymbopogon martinii*) variety of Rosha grass growing. Amongst the chief minor forest produce are the leaves of the Tumri which are used for making beedis, Tarwad and Kakki, Hulgal seeds, Jali pods, Bandurgi leaves (*Dodonea viscosa*), Ulpi sticks (*Grewia salvifolia*), honey, wax and tamarind fruits.

The types of wild animals that exist in Bijapur district are **Fauna** very few indeed. Reduction in tree cover in recent years due to extension of cultivation, and the ever-increasing pressure on the forest lands have deprived the wild animals of their natural protection. Added to this, the extinction of the prickly pear has had a disastrous effect on the wild life of the tract as a whole. The development of the country by opening roads, making even the remotest areas easily accessible, the advent of fast-moving vehicles equipped with powerful lights, and increase in the number and indiscriminate use of fire arms have hastened the pace of

destruction of wild life once abundant in this district. Last but not the least, wholesale, unregulated trapping and netting by *haran-skikaris*, *waddars* and *pardhis* and other communities have greatly reduced the number of table animals like the buck, chinkara and hare and birds like partridges. With the destruction of vegetation and consequent faster pace of erosion, even the big tanks as those of Mamdapur and Kendur have silted up and are only seasonal pools of water. This has affected the water bird population, especially the seasonal visitors from cooler regions. The tiger (*Huli* in Kannada) is not at all seen in this district. In the past, it is said to have existed in the Gudur and Badami hills, especially near the Hullikeri forest near Chiknal. But this must have been the condition obtaining over a century ago and then too, it is believed, the tiger used to come from forests of Dharwar. The bear (*karadi*) and the panther (*chirathe* or *chirachu*) are not now seen in Bijapur district. The member of the cat family available in these parts is the wild cat (*kadu bekku*), which is found throughout the hills. Their number is, no doubt, fast dwindling due to decrease in protective cover and their trapping by some wandering tribes who eat them. Of the canine tribe, the following animals are met with in the district: The hyaena (*katte kiruba*) has decreased considerably during the last 20 years. It is almost scarce in the Muddebihal and Jamkhandi taluks. A few are found in the forests of Adgal, Badami, Mahakut and Gudur and a few more in the Bagewadi taluk. The wolf (*thola*) had almost become extinct about two decades ago, but now it is seen here and there. The jackal (*kunni nari* or *kappal nari*), like the wolf, has been in recent years, causing great damage and even becoming a menace to the villages. On Badami side, the animal is trapped and eaten by some communities and its numbers have remained somewhat in check. The fox (*kempu nari*) is also found all over the district. The animal is trapped and eaten by certain tribes. Of the rodents, the porcupine (*mulluhandi*) is found all over the district and lives in burrows on rocky hillsides and causes great damage to the crops especially in groundnut fields at night. It also causes much damage to the tender seedlings in afforestation areas. Its flesh is edible and is very much relished by certain communities. Its numbers have somewhat decreased during the last few years. Some ferocious dogs have been responsible for killing a great number. The other member of the rodent group is the hare (*mola*) which was in plenty all over the district, but its numbers have greatly decreased due to uncontrolled netting and shooting. Of the deer tribe, there are only two—the black buck (*chigari*) and gazelle (*madari*), commonly called *chinkara*. Both the species have dwindled both in their overall population and in the size of individual herds. The chinkara is seen all over the district in the hilly areas whereas the black buck or the *chigari* is found on hard stone ground. The wild pig (*kadu handi*) which was once a pest and nuisance to agriculturists is now scarce. It is

not seen in the Jamkhandi, Mudhol and Bilgi taluks and very rarely makes its appearance in the other parts. Since its flesh is highly priced, no opportunity is lost of killing one whenever it appears. Two types of monkeys are found in the district, the larger *langur* and the smaller brown monkey. In Kannada both are termed "manga" (*kothi*). Both the varieties have increased beyond all proportion. The big langur is a pest to agriculture, especially in the groundnut fields. The small brown variety is very trouble-some even in houses since large numbers have infested almost every village in most of the taluks. Being held in veneration and not being shot, there seems to be no easy way at all to combat this menace. Hundreds of flying foxes (*toglu bavli*) are found dangling head down at day time from the branches of big trees, specially near Kolur, and are a nuisance to local orchards.

The district abounds in birds, both permanent residents and migratory ones. The pea-fowl (*navilu*) which was plentiful in the old days has dwindled during the last two decades. It has practically disappeared from the Bijapur and Bilgi taluks. Loss of protective cover with the extinction of prickly pear and merciless shooting have resulted in such fast depletion. Even the eggs are rarely found since they are always sought after as food. Both the painted partridge and the grey one (both called *kaujaga* in Kannada) are available in the district, the former being somewhat more abundant than the latter. Here again, uncontrolled and unregulated heavy trapping and shooting have been responsible for the depletion of their numbers. The bird is available throughout the hilly scrub areas of the district as also in the barren and undulating ground between Kolhar and Bijapur. There are three or four varieties of quail in the district. The grey quail and the rain quail are more plentiful, especially in the scrubby, hilly areas. Like partridge, these have also suffered considerable depletion. The bustard is seen throughout the district, though it is more common in the black cotton areas, especially in the vicinity of the banks of the Krishna. The breeding season of this bird is from September to October. Since it is easy to catch the bird, its numbers have gone down considerably. Two varieties of sandgrouse are available, the common sandgrouse and the painted sandgrouse. The bird is extensively trapped by *Pardhis*, specially in the Jamkhandi and Mudhol taluks. The green pigeon is available in the Badami taluk only along some big tanks wherever the Indian fig tree grows. There are two varieties of wild pigeon—the big one which has ash colour and a black ring round its neck, and the smaller one which has fawn colour. Both are available in plenty since they are not commonly shot except for medical purposes. The stone fowl (*kalkoli*) is available in the hilly areas, though very rare. The rosy pastor (*kabbake*) is seen in the district from November to May and in particularly large swarms when the jowar crop is ripening. Though small, it is said to be very delicious food. Of

Birds

the water birds, two varieties of cranes, the common crane (*baka*) and the domicile crane (*kraunch*), are cold weather visitors. The common crane is somewhat larger and has a bald red patch on the nape and no ear tufts. Immense flocks of these are even now seen in the wheat fields along the banks of rivers, big nallas and tanks. Two varieties of snipe, the common snipe and the jack snipe (*ulangi*) are cold weather visitors, but at some places like Mamdapur and Kendur, they are available throughout the year. Snipe is a delicacy of the westerner, but is not much sought after by the local people. Many kinds of ducks visit the district and some stay permanently. The most common ones are the common grey duck, the widgeon, the common teal, the blue winged teal, the shoveller bird, and the pintail bird.

Snakes

Though the snake population is not very large in the district, it nevertheless has quite a few poisonous snakes. The number of persons dying from snake-bites has not been very high. Amongst the non-poisonous varieties, the *Python molurus* (*hebba-havu*) is found near places of vegetation and rocks. It grows to about 18 feet in length and at times weighs more than 200 lbs. It kills its prey, consisting mostly of birds and mammals, by constriction. The colour is brown with patches of deep brown dorsally, a lance shape on the head and pinkish colour at the side of the head. The dust snake (*mannu mukkuhavu*) is so named because of its habit of rolling about in the dust. It is sandy grey, with a dorsal series of large dark brown, black-edged spots. It is often handled by snake-charmers who give it out that it is poisonous. *Ptyas mucous* (*kyare havu*) is a long agile snake and is a friend of the farmer, in that it keeps the rat population down. It is brown with irregular cross-bars on the posterior half of the body. The *Natrix piscator* (*neera havu*) is an olive-coloured snake with dorsal black spots and white belly edged with similar spots and grows up to three feet. It is a prolific breeder and is often found near water. *Boiga triagonata* and *Boiga gokool* (*chingi havu*) are cat snakes growing to about 4 feet in length and feed on lizards. The *Dryophis nasutus* (*hasara havu*) is verdant green above and pale green below. It is essentially a tree snake, found near green vegetation. The bite is not poisonous to human beings.

Among the poisonous varieties, the cobra (*Nagara havu*) is common in the district. This common cobra is both brown and also in certain places blackish in tint. There is a V-shaped mark on the hood but in some cases this may be absent. It raises its hood at the slightest disturbance. It feeds on rats and frogs. The bite is often fatal to humans and can only be cured by a proper antivenom. This snake grows to above five and a half feet in length. The *Bungarus caeruleus* (*mandalada havu*) is a quiet-looking dark snake with white double series of cross bars. It is not very common but can occasionally be seen near human habitations. The bite of this snake is very

poisonous and the poison acts upon the nervous system. The Russell's viper (*Balivadak havu*) is brown in colour with three dorsal rows of deep brown spots and hisses very loudly. The fangs are very big and the bite causes intense burning pain, swelling and other kinds of vascular disorder. The *Echis carinatus* (*phoorsa*) has been observed in dry soils. This is a small snake with deep brown marks and an arrow sign on the head. It rubs the scales on its body which gives out a sound akin to hissing. The bite causes vascular disorders.

The climate of this district, in common with the adjoining districts in the Deccan, is generally dry and healthy. The large variations in the rainfall from year to year both in the amount and in its distribution through the seasons render the district liable to drought and famine. The main seasons follow the pattern for the Deccan. The hot season begins by the middle of February and extends to the end of May or the beginning of June followed by the south-west monsoon season extending to the end of September when the weather is cool and damp. The north-east or the 'retreating' monsoon season is the period between October and November while the cold season is from December to the middle of February. Climate

The district has a well-distributed network of a dozen rain gauge stations with records extending over seventy years. The details of the rainfall at the 12 stations and for the district as a whole are given in tables 1 and 2. The special variations in the annual rainfall over the district are small, being less than 10 per cent of the normal for the district which is 55.61 cm. (21.66"). Though the total rainfall is not high, the district benefits both from the south-west and the north-east monsoons. The south-west monsoon reaches the district by about the first week of June. The rainfall amounts are practically the same for the months of June, July and August. There is a steep increase in rainfall in September; during this month, the district gets more than double the average rainfall of each of the preceding three months. The September rainfall constitutes 27 per cent of the annual rainfall. October and November bring the north-east monsoon rains which fail in some years; 68 per cent of the annual rainfall occurs during June to September (south-west monsoon) while 21 per cent occurs in October and November (north-east monsoon). Rainfall

The variation of rainfall from year to year is large. During the period of 50 years (1901-50), the district experienced the highest rainfall of about twice the normal in 1916; the lowest rainfall amounting to about two-thirds of the normal occurred in 1905, 1920, 1923 and 1942. Considering the individual stations, there have been years when the rainfall at a station was as high as two and a half times the normal or as low as two-fifths of the normal. For the district as a whole, during the fifty-year period, there were 13 occasions when the rainfall was less than 80 per cent

of the normal. Two consecutive years of deficient rainfall occurred on three occasions during this period. In the case of individual stations, records show that rainfall less than 80 per cent of the normal has occurred consecutively for 3, 4 or even 5 years. For instance, Bagewadi experienced low rainfall for all the five years from 1922 to 1926.

On the average, there are 37 rainy days (i.e., days of at least 2.5 mm—10 cents—or more of rain) in the district. As in the case of rain-fall amount, there is very little spatial variation in the average number of rainy days. The two monsoon seasons together account for about 80 per cent of the rainy days.

The highest rainfall in 24 hours recorded over the district was 215.9 mm (8.5 inches) at Indi on September 7, 1895.

The actual rainfall in the district during the five-year period from 1957 to 1961 was as follows :—

| | | | |
|------|----|----|----------|
| 1957 | .. | .. | 670.6 mm |
| 1958 | .. | .. | 531.2 mm |
| 1959 | .. | .. | 496.4 mm |
| 1960 | .. | .. | 639.4 mm |
| 1961 | .. | .. | 493.1 mm |

The taluk-wise rainfall and the district average for the year 1963 is given below :—

| <i>Taluk</i> | | <i>Actual rainfall in mm</i> | |
|--------------|----|------------------------------|-------------------------------|
| Badami | .. | 705.6 | } District average : 682.6 mm |
| Bagalkot | .. | 706.0 | |
| Bagewadi | .. | 530.6 | |
| Bijapur | .. | 721.0 | |
| Bilgi | .. | 783.7 | |
| Hungund | .. | 730.8 | |
| Indi | .. | 895.3 | |
| Jamkhandi | .. | 524.8 | |
| Muddebihal | .. | 721.9 | |
| Mudhol | .. | 503.8 | } |
| Sindgi | .. | 685.2 | |

Tempera- ture

The only meteorological observatory in the district is in Bijapur town. As temperature and other meteorological conditions are fairly uniform throughout the district, the data for Bijapur town can be taken as representative of the district. Table 3 gives the temperature and humidity data based on the observatory records. December is the coldest month of the year when the average minimum temperature is 14.8° C (58.6°F). Temperature begins to rise rapidly from the latter half of February. The mean maximum temperature attains the highest level of 38.6°C (101.5°F) in the month of May. With the onset of the monsoon, weather becomes cooler. The mean maximum temperature in the monsoon months does not differ appreciably from that of the

winter months. The diurnal range of temperature is least (about 9°C) during the monsoon months and highest (about 15°C) during the summer and winter months. The highest maximum temperature ever attained in the shade at Bijapur was 42.8°C (109°F) recorded on May 12, 1951, the lowest minimum was 6.7°C (44.1°F) recorded on December 18, 1897. The Bagalkot-Badami region of the district is reported to be hotter than other parts. The intensity of the summer heat is occasionally relieved by thunderstorms in the afternoon.

The district on the whole enjoys a dry climate. The months from December to May are the driest, the average relative humidity in the afternoons being about 30 per cent and even as low as 10 per cent on individual days. Even during the monsoon months, the average humidity is appreciably below the saturation level. **Humidity**

Skies are generally clear or lightly clouded during the months, December to March. Cloudiness begins to increase progressively from April and during the monsoon months, the skies are heavily clouded on most of the days. **Cloudiness**

Most parts of the district, the Dhone valley in particular, are exposed to strong winds almost throughout the year. By the end of October, a fairly constant wind, which gets cooler with the progress of the season, sets in from the north-east. From November to January, dry and blighting winds blow from directions between north-east and south-east. In February, northerlies and north-westerlies are also common in the forenoon and these become more and more predominant in March and April. The afternoon winds are variable in all these three months. With the advance of summer, dust-raising winds add to the discomfort of the hot weather. During the second half of May, winds increase in force and blow from directions between south-west and north-west. Although they do not bring rain, these winds are cool and refreshing. With the onset of the monsoon, winds strengthen further and blow from west to south-west. By the latter half of September, winds begin to weaken and come more and more from directions between north and east. **Winds**

Occasionally during the post-monsoon months of October and November, storms and depressions from the Bay of Bengal which weaken after crossing the coast and move westwards into the Arabian sea affect the weather over the district, causing widespread and locally heavy rain and strong winds. Being well inland, this district does not experience any full-fledged cyclonic storm. Dust-storms occur occasionally in May and at times in April and also in the beginning of June. Hailstorms occur in some years in February and March and more rarely in January. Thunderstorms occur in the pre-monsoon months of April, May and June and also in September and October. The maximum thunderstorm activity is in May. Tables 3, 4 and 5 give the temperature and humidity, mean wind speed and frequency of special weather phenomena, respectively, for Bijapur. **Special Weather Phenomena**

TABLE I.
Normals and Extremes of Rainfall.

| Station | No. of years of data | January | February | March | April | May | June | July | August | September | October | November | December | Annual | Highest annual rainfall as per cent of normal and year** | Lowest annual rainfall as per cent of normal and year** | Heaviest rainfall in 24 hours* | |
|------------|----------------------|---------|----------|-------|-------|------|------|------|--------|-----------|---------|----------|----------|--------|--|---|--------------------------------|-----------------|
| | | | | | | | | | | | | | | | | | Amount (mm) | Date |
| Bijapur | .. 50 | a 5.8 | 2.3 | 7.1 | 19.6 | 29.5 | 76.2 | 58.7 | 65.8 | 141.5 | 76.7 | 30.7 | 6.6 | 520.5 | 190 (1916) | 47 (1918) | 143.8 | 1949 Sep. 22 |
| | | b 0.3 | 0.2 | 0.7 | 1.7 | 2.5 | 5.1 | 4.5 | 4.2 | 8.0 | 4.7 | 1.9 | 0.6 | 34.4 | | | | |
| Indi | .. 50 | a 3.3 | 4.1 | 6.9 | 15.5 | 21.8 | 74.7 | 74.9 | 72.1 | 173.2 | 73.7 | 36.6 | 7.6 | 564.4 | 229 (1916) | 42 (1942) | 215.9 | 1895 Sep. 7 |
| | | b 0.3 | 0.4 | 0.7 | 1.5 | 2.2 | 5.2 | 5.6 | 5.2 | 8.8 | 4.6 | 2.0 | 0.6 | 37.1 | | | | |
| Sindgi | .. 50 | a 5.1 | 4.1 | 6.3 | 14.7 | 27.9 | 82.8 | 72.4 | 75.2 | 150.1 | 74.2 | 29.0 | 9.7 | 551.5 | 168 (1916) | 55 (1936) | 148.6 | 1924 Sep. 26 |
| | | b 0.2 | 0.4 | 0.7 | 1.4 | 2.5 | 5.4 | 5.5 | 5.0 | 8.1 | 4.4 | 1.9 | 0.5 | 36.0 | | | | |
| Bagewadi | .. 50 | a 3.1 | 5.3 | 7.4 | 16.3 | 36.3 | 75.9 | 63.3 | 69.9 | 151.6 | 89.7 | 32.5 | 9.7 | 561.0 | 184 (1933) | 45 (1920) | 150.4 | 1952 Sep. 24 |
| | | b 0.2 | 0.4 | 0.5 | 1.8 | 2.9 | 5.5 | 5.3 | 4.9 | 8.8 | 5.1 | 2.0 | 0.7 | 38.1 | | | | |
| Muddebihal | .. 50 | a 2.8 | 4.1 | 4.8 | 20.3 | 34.3 | 71.1 | 68.1 | 73.9 | 165.1 | 75.7 | 28.7 | 4.6 | 553.5 | 172 (1916) | 62 (1923) | 145.8 | 1949 Sep. 22 |
| | | b 0.2 | 0.3 | 0.4 | 1.8 | 3.2 | 5.2 | 5.8 | 5.7 | 8.4 | 4.8 | 1.8 | 0.5 | 38.1 | | | | |
| Bagalkot | .. 50 | a 1.3 | 4.6 | 5.6 | 19.8 | 41.7 | 67.8 | 71.1 | 62.5 | 143.8 | 84.1 | 33.8 | 8.4 | 544.5 | 225 (1916) | 42 (1945) | 163.6 | 1938 Sep. 14 |
| | | b 0.2 | 0.3 | 0.5 | 1.8 | 3.5 | 4.9 | 6.2 | 5.2 | 7.9 | 5.0 | 2.1 | 0.4 | 38.0 | | | | |
| Bilgi | .. 50 | a 2.5 | 2.8 | 5.1 | 19.3 | 39.1 | 63.7 | 59.9 | 60.5 | 137.9 | 74.2 | 34.0 | 7.9 | 506.9 | 231 (1916) | 38 (1905) | 159.8 | 1921 Nov. 3 |
| | | b 0.2 | 0.3 | 0.4 | 1.7 | 2.7 | 4.1 | 5.2 | 4.4 | 7.5 | 5.0 | 2.0 | 0.5 | 34.0 | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|-----------|----|----|---|-----|-----|-----|------|------|------|------|------|-------|------|------|-----|-------|--------|--------|-------|----------|
| Badami | .. | 50 | a | 1.3 | 2.8 | 4.3 | 22.1 | 49.5 | 60.5 | 64.5 | 71.1 | 145.5 | 91.7 | 45.0 | 7.9 | 566.2 | 241 | 42 | 160.0 | 1916 |
| | | | | | | | | | | | | | | | | | (1916) | (1908) | | Jul. 17 |
| | | | b | 0.2 | 0.3 | 0.3 | 1.8 | 3.6 | 5.0 | 5.9 | 5.5 | 7.5 | 4.8 | 2.1 | 0.6 | 37.6 | | | | |
| Hangund | .. | 50 | a | 4.1 | 4.3 | 5.3 | 24.6 | 41.9 | 64.0 | 68.6 | 80.5 | 148.1 | 86.6 | 38.3 | 7.1 | 573.4 | 181 | 56 | 182.9 | 1937 |
| | | | | | | | | | | | | | | | | | (1916) | (1923) | | Apri. 18 |
| | | | b | 0.3 | 0.3 | 0.4 | 1.9 | 3.5 | 4.8 | 6.1 | 5.8 | 8.2 | 5.1 | 2.0 | 0.5 | 38.9 | | | | |
| Ilkal | .. | 50 | a | 2.8 | 3.3 | 4.3 | 27.2 | 46.0 | 60.5 | 69.3 | 81.3 | 150.6 | 87.1 | 40.6 | 7.6 | 580.6 | 196 | 42 | 177.8 | 1916 |
| | | | | | | | | | | | | | | | | | (1916) | (1923) | | Oct. 31 |
| | | | b | 0.2 | 0.3 | 0.4 | 2.0 | 3.5 | 4.5 | 5.8 | 6.2 | 8.1 | 5.4 | 2.3 | 0.5 | 39.2 | | | | |
| Jamkhandi | .. | 50 | a | 6.1 | 1.3 | 6.1 | 24.6 | 40.6 | 69.9 | 67.3 | 59.9 | 142.5 | 90.4 | 32.0 | 8.1 | 548.8 | 192 | 50 | 134.6 | 1897 |
| | | | | | | | | | | | | | | | | | (1916) | (1942) | | June 16 |
| | | | b | 0.2 | 0.1 | 0.5 | 2.1 | 3.2 | 5.2 | 6.3 | 4.7 | 7.7 | 5.6 | 2.1 | 0.6 | 38.3 | | | | |
| Mudhol | .. | 49 | a | 2.8 | 2.0 | 7.1 | 22.6 | 41.9 | 71.4 | 65.0 | 62.0 | 134.1 | 78.0 | 35.3 | 8.1 | 530.3 | 231 | 52 | 152.4 | 1933 |
| | | | | | | | | | | | | | | | | | (1916) | (1922) | | Sept. 6 |
| | | | b | 0.2 | 0.2 | 0.6 | 2.0 | 3.2 | 4.9 | 5.7 | 4.7 | 7.4 | 5.4 | 1.8 | 0.5 | 36.6 | | | | |
| Bijapur | .. | .. | a | 3.4 | 3.4 | 5.9 | 20.5 | 37.5 | 69.9 | 66.9 | 69.6 | 148.7 | 81.8 | 34.7 | 7.8 | 550.1 | 201 | 64 | .. | .. |
| District | | | b | 0.2 | 0.3 | 0.5 | 1.8 | 3.1 | 5.0 | 5.7 | 5.1 | 8.0 | 5.0 | 2.0 | 0.5 | 37.2 | (1916) | (1905) | .. | .. |

a-Normal rainfall in mm. b-Average number of rainy days(days with rain of 2.5 mm. or more). *Based on data up to 1957. **Years given in brackets

TABLE 2.

FREQUENCY OF ANNUAL RAINFALL IN THE DISTRICT.

(Data 1901-1950).

| <i>Range in mm.</i> | <i>No. of years</i> | <i>Range in mm.</i> | <i>No. of years</i> |
|---------------------|-------------------------|---------------------|-------------------------|
| 301—400 | 8 | 801— 900 | 1 |
| 401—500 | 12 | 901—1000 | 0 |
| 501—600 | 13 | 1001—1100 | 0 |
| 601—700 | 12 | 1101—1200 | 1 |
| 701—800 | 3 | 1201—1300 | 0 |

TABLE 3.
NORMALS OF TEMPERATURE AND RELATIVE HUMIDITY

| Month | Mean Daily Temperature | | Mean Daily Minimum Temperature | | Highest Maximum ever recorded | | Lowest Minimum ever recorded | | Relative Humidity | |
|-----------|------------------------|----|--------------------------------|------|-------------------------------|-------------|------------------------------|--------------|-------------------|-------|
| | °C | | °C | | °C | | °C | | 0830 | 1730* |
| | | | | | Date | | Date | | % | % |
| January | .. | .. | 30.1 | 15.8 | 39.4 | 1948 Jan 16 | 7.2 | 1945 Jan 7 | 59 | 32 |
| February | .. | .. | 32.7 | 17.7 | 41.1 | 1943 Feb 28 | 8.9 | 1930 Feb 15 | 51 | 27 |
| March | .. | .. | 36.1 | 21.2 | 41.1 | 1910 Mar 31 | 13.3 | 1910 Mar 6 | 48 | 27 |
| April | .. | .. | 38.2 | 23.7 | 42.2 | 1931 Apr 23 | 16.1 | 1905 Apr 3 | 51 | 27 |
| May | .. | .. | 38.6 | 23.7 | 42.8 | 1951 May 12 | 17.8 | 1940 May 8 | 59 | 27 |
| June | .. | .. | 33.3 | 22.3 | 42.2 | 1923 June 1 | 17.2 | 1903 June 5 | 73 | 53 |
| July | .. | .. | 30.3 | 21.7 | 36.7 | 1901 July 7 | 16.1 | 1902 July 15 | 77 | 62 |
| August | .. | .. | 30.4 | 21.2 | 35.6 | 1902 Aug 7 | 16.7 | 1906 Aug 21 | 78 | 60 |
| September | .. | .. | 30.7 | 20.9 | 36.7 | 1896 Sep 22 | 16.1 | 1901 Sep 26 | 79 | 59 |
| October | .. | .. | 31.4 | 20.4 | 37.2 | 1896 Oct 7 | 12.2 | 1897 Oct 31 | 68 | 47 |
| November | .. | .. | 29.8 | 17.2 | 35.0 | 1896 Nov 4 | 8.3 | 1904 Nov 23 | 61 | 40 |
| December | .. | .. | 28.9 | 14.8 | 33.3 | 1936 Dec 22 | 6.7 | 1897 Dec 18 | 61 | 34 |
| Annual | .. | .. | 32.5 | 20.1 | .. | .. | .. | .. | 64 | 41 |

*Hours I.S.T.

