

BELLARY DISTRICT

CHAPTER I

GENERAL

BELLARY district takes its name from its headquarters town **Origin of name** which is the seat of the district administration. Several theories have been current in respect of the origin of the name of Bellary which is of considerable antiquity that can be traced back to the twelfth century at least. It is rather difficult to say which of them is correct. In one of the lithic inscriptions dating back to 1131 A.D. found at Byloor, the name 'Ballare' is found. In the several later inscriptions also, found at Sindigeri, Kolur, Kurugodu, etc., the word 'Ballare' has been used. In three Hoysala inscriptions of the years 1161 A.D. (Belur-193), 1178 A.D. (Nagamangala-70) and 1183 A.D. (Belur-137), 'Ballare' is mentioned as one of the places captured by the Hoysala king Vishnuvardhana. From the context of enumeration of places in these records, it is clear that the place referred to therein as Ballare is Bellary of the present days.

There is a legendary theory derived from one of the stories in *Basava Purana*. It says that at Kolur, which is in the proximity of the district headquarters, there was a Shiva *Bhakta* (devotee) by name 'Ballesha Mallayya', who would have his food only after worshipping the *linga*. His great desire was to see the vision of Mallesha (Shiva). To fulfil the desire of his devotee, Lord Shiva, it is said, revealed himself in a 'Balla', a grain measure, in use in and around Bellary. The place where Mallesha manifested himself in the 'Balla' was called Bellary. There is an old Shiva temple of Malleshwara in the fort. The same story has later found expression in the songs of Sarpa-bhushana Shivayogi, a great mystic poet of Karnataka.

Another theory connects the name of Bellary with goddess Durgamma, whose temple is in Gandhinagar, Bellary. In poet Janna's *Yashodhara Charite*, the word Balari (ಬಲರಿ) is used to

mean a goddess and the town is said to have derived its name from this word, because Durgamma had manifested herself in this town. The old District Gazetteer of Bellary (published in 1904) refers to a traditional account according to which, the origin of the name is connected with the defeat and death, at the hands of Indra, of Bala, a demon king, who was harassing the *devakanyas*. The place where he was slain came to be known as 'Bala-hari' meaning "the defeat of Bala". It could be also Bala+Ari (enemy of Bala). It may be noted also that 'Bhalari' (ಬಹಲರಿ) which is derived from Sanskrit Bhatari (Bhata+Ari=enemy of demon), occurs in inscriptions, e.g., No. 74 of 981 A.D., S.I.I. Vol. IX, pt. I. Even today, the name is written and pronounced in Kannada as 'Ballari'. Its anglicised form is 'Bellary'.

Location

Bellary district is elongated from south-west to north-east and is situated on the eastern side, almost in the centre (north to south) of Mysore State. Its greatest length as the crow flies from Harivi in Harapanahalli taluk in the south-west to Tsallakudluru in Siruguppa taluk in the north-east is about 186.7 kilometres or 116 miles, but from Hirebannamatti in Hadagalli taluk in the west to Karekallu-Virapuram in Bellary taluk in the east, it is only about 161 kilometres or 100 miles. The greatest distance from the Tungabhadra near Hampi in Hospet taluk in the north to Aluru in Kudligi taluk in the south is about 83.7 kilometres or 52 miles. The district is situated between 14° 30' and 15° 50' north latitude and 75° 40' and 77° 11' east longitude.

General boundaries

The district is bounded on the north by the Raichur district, on the west by the Dharwar district, on the south by the Chitradurga district (all these being parts of the Mysore State) and on the east by the Anantapur and Kurnool districts of Andhra Pradesh. When the district formed part of the composite Madras State, it was the western-most district of that State and was roughly triangular in shape. The three taluks of Adoni, Alur and Rayadurga were separated from the district and attached to Andhra State, when it was formed in October 1953. The new district of Bellary (*i.e.*, without those three taluks), which was joined to the old Mysore State, roughly resembles the lower half of a vine leaf cut into two along its central vein and is irregular in shape.

Area and population

The geographical area of the district, as computed by the Surveyor-General of India and cleared by the Central Statistical Organisation of the Government of India, is 9,897.50 square kilometres (or 3,821.46 square miles). But the reporting area of the district for land utilisation purposes, as worked out by the Commissioner for Survey, Settlement and Land Records in Mysore, is 9,895.9 square kilometres or 3,820.8 square miles. This slight difference is due to the different methods employed by them in

measuring the area. The population of the district, according to the 1961 census, was 9,15,261. But according to the final population figures of the 1971 Census, published by the Director of Census Operations, Mysore, in June 1972, the population of the district had gone up to 11,22,686, registering a decennial growth of 22.64 per cent. In terms of area, it has the eleventh place among the districts of the State, while in respect of population, it occupied the thirteenth place in 1971. It accounts for 5.15 per cent of the total area, while it had 3.84 per cent of the total population of the State in 1971, the density of population at the time being 113 per square kilometre, and this was far below the State average of 153 per square kilometre.

The area, which forms the present Bellary district, is associated with certain events mentioned in the great epic *Ramayana*. Kishkindha, where Rama, in the course of his search for Seeta, met and befriended Sugreeva and Hanuman, is believed to have existed very close to Hampi, which place in the fourteenth century became the capital of the celebrated Vijayanagara kingdom.

**History of
district as an
administrative
unit**

During historical times, this district formed part of the territories of several well-known dynasties such as the Satavahanas, Kadambas, Chalukyas of Badami, Rashtrakutas, Gangas, Chalukyas of Kalyana, Kalachuryas, Sevunas and Hoysalas whereafter it came under the sway of the Vijayanagara rulers. Vijayanagara, the 'City of Victory', was built on the bank of the Tungabhadra river at Hampi in Hospet taluk. Having had a golden period of prosperity, the area again fell into political confusion after the fall of Vijayanagara in 1565 and was successively in the hands of Muslim rulers of the Deccan and the Marathas.

The Muslim kings of the Deccan, who had combined against Vijayanagara, fell out among themselves because of mutual jealousies and did not follow up their victory to conquer the south, with the result that a number of small chiefs in the tract called Palayagars assumed almost independent power in the patches of country round about them, though the area was under the nominal suzerainty of the Sultan of Bijapur. In 1678, Bellary passed into the hands of Shivaji, who had annexed some of the possessions held by the Sultan of Bijapur. Later, one of his generals subdued the several Palayagars in the neighbourhood. Finally the tract was ceded to Shivaji by the Sultan of Bijapur and all the Palayagars paid him the *chauth* (tribute). The area was added to the Mughal Subah of Bijapur after it was seized from the Marathas by the forces of Emperor Aurangzeb in 1687; but the Palayagars continued in a semi-independent position. About the year 1713, Siddoji, Ghorpade, a Maratha general, conquered the valley of Sandur from the Palayagar of Jaramali.

Annexation by
Haidar Ali

In 1768, Haidar Ali defeated Basalat Jung, who had encroached upon Bellary, and annexed it to Mysore while, in 1786, Tipu Sultan attacked Adoni and captured it. An inscription of Haidar Ali dated in the year 1780 A.D. was found in Bellary (No. 706, S.I.I. Vol. IX, pt. III). In 1790, Lord Cornwallis, the then Governor-General of India, entered into an alliance with the Marathas and the Nizam against Tipu on the understanding that whatever territory was acquired should be divided amongst them. After the defeat of Tipu Sultan in 1792 at the hands of the allies, the Maratha chief of Sandur and the Palayagars of Rayadurga and Harapanahalli were left to continue in their possessions and a part of the Bellary district was allotted to the Nizam. War was again declared against Mysore by the allies. After the fall of Srirangapatna and the death of Tipu in 1799, the Marathas were allotted Harapanahalli and certain portions attached to it, while the rest of the district went to the Nizam. As, however, the Peshwa refused to accept the share given to him, the territory was divided between the Nizam and the British, and the Nizam received Harapanahalli.

After the fall of Srirangapatna, General Harris of the East India Company marched northwards to reduce that part of the territory which had not yet acknowledged the supremacy of the British. Somashekhara, Palayagar of Harapanahalli, who had again captured the place, surrendered it on the advice of his Dewan to the British in exchange for a Jahgir yielding Rs. 60,000. Thus, Sandur alone of the present Bellary district continued to retain its position as a separate entity under the descendants of Siddoji Ghorpade except for two short intervals in 1775-76 when it was annexed by Haidar Ali and in 1817 when it was incorporated in the British territory after it was surrendered by Shivarao. The next year, Shivarao was reinstated.

In 1800, the Nizam agreed to cede to the British all the territories acquired by him under the two treaties of 1792 and 1799 in return for a subsidiary force to be stationed in his dominions and thus the districts of Bellary, Anantapur, Cuddapah and part of Kurnool which, for this reason, were known as the ceded districts, passed into the hands of the British.

Bellary
Collectorate

Major Munro (afterwards Sir Thomas Munro), who later became the Governor of Madras, was appointed the Principal Collector of the ceded districts with his headquarters at Anantapur. Munro divided the region (ceded districts) into four sub-collectorates. He himself held charge of the area comprising the present Anantapur district and also Rayadurga. William Thackeray, Sub-Collector of Adoni, managed Alur and Adoni taluks and that part of the adjoining area which now forms part of Kurnool district. James Cochrane, Sub-Collector of Harapanahalli, was in charge of Bellary and the western taluks. Two

other Sub-Collectors were in charge of the remainder of the ceded districts. In 1808, the ceded districts were split into the two Collectorates of Bellary and Cuddapah. The Bellary Collectorate consisted of 15 taluks, viz., (1) Dharmavaram, (2) Penukonda, (3) Hindupur, (4) Madakashira, (5) Gooty, (6) Tadpatri, (7) Anantapur, (8) Bellary, (9) Hospet, (10) Kudligi, (11) Hadagalli, (12) Harapanahalli, (13) Rayadurga, (14) Alur and (15) Adoni. The Bellary Collectorate was further divided in 1882 into the districts of Anantapur and Bellary, the former comprising the first seven taluks and the latter comprising the remaining eight taluks. Since then several changes have taken place from time to time in the composition and jurisdiction of the divisions and taluks of the Bellary district.

At the beginning of the present century, Bellary district consisted of three divisions which had, in all, eight taluks. Adoni and Alur taluks formed the Adoni division, Bellary and Rayadurga taluks formed the Bellary division while the taluks of Hadagalli, Harapanahalli, Hospet and Kudligi formed the Hospet division. The Hospet division, on account of its importance and size, was usually administered by an officer of the Indian Civil Service, while the Adoni and Bellary divisions were usually headed by Deputy Collectors.

With effect from 1st October 1910, a new taluk called the Siruguppa taluk was formed by transferring to it 46 villages from the Bellary taluk, 29 from the Adoni taluk and 23 from the Alur taluk. At the same time, a new division, the Rayadurga division, consisting of the Rayadurga and Kudligi taluks, was created and there were thus four divisions which had, in all, nine taluks as follows as on 1st October 1910 :—

<i>Division</i>	<i>Taluk</i>
1. Rayadurga	(1) Rayadurga (2) Kudligi
2. Hospet	(1) Hadagalli (2) Harapanahalli (3) Hospet
3. Adoni	(1) Adoni (2) Alur
4. Bellary	(1) Bellary (2) Siruguppa

The Siruguppa taluk was, however, abolished on 1st April 1923 and its 46 villages were added to Bellary taluk, 42 to Adoni taluk and 6 to Alur taluk. With effect from the same date, eleven villages of Adoni taluk were transferred to Alur taluk and ten

villages of Bellary taluk to Rayadurga taluk. The latter was reduced from the position of a division to a taluk. But again, with effect from 15th April 1929, 33 villages in the north-western portion of the Adoni taluk, seven villages in the north of Alur taluk near the Hagari river, along with the villages included in the Siruguppa Deputy Tahsildar's division of Bellary taluk, were constituted into a new taluk with Siruguppa as its headquarters and thus once again Siruguppa attained the position of a taluk. The new taluk, the reduced Bellary taluk and the Rayadurga taluk from that date formed the Bellary division with its headquarters at Bellary. In the year 1931, the taluk of Hadagalli was converted into a sub-taluk under an independent Deputy Tahsildar as a consequence of which 24 villages of that taluk were transferred to Harapanahalli taluk. But these villages were re-transferred to Hadagalli taluk when the taluk was restored in 1941.

**Merger of
Sandur**

After the attainment of Independence in 1947, the Government of India took up the task of integrating the numerous big and small princely States existing at that time. It was clear from the beginning that Sandur, which had an area of only about 158 square miles and a population of 15,814 and was surrounded on all sides by the taluks of Bellary district of the erstwhile Madras State, had no future except merger. The ruler signed the Merger Agreement on 1st April 1949 transferring the administration of the State to the Government of India. The Sandur area was constituted into a separate taluk of Bellary district in 1950 by adding two more hoblies, viz., Chorapur hobli (revenue circle or firka as it is called in Bellary district) from Kudligi taluk and Toranagal hobli from Hospet taluk. Sandur thus became the tenth taluk of the former Bellary district.

As a result of the separation of the judiciary from the executive from 1st January 1950, the Adoni division was abolished and Siruguppa was added to the jurisdiction of the Sub-Collector of the Hospet division. But as desired in representations made by the public of the Siruguppa taluk, the latter was again added to the Bellary division later. About the same time, the villages of Jodikasinayakanahalli, Gouripura, Jodibommayanahalli, Bomnagatta, Sirivaram, Obalapura and Devarabudenahalli of the former Mysore State were absorbed in the Bellary district under the Absorption of Enclaves Order, 1950.

A new sub-taluk of Mallapuram was formed as a temporary measure with effect from 1st July 1951 consisting of forty villages (14 from Hospet taluk and 26 from Hadagalli taluk) bordering on the Tungabhadra river for dealing expeditiously with the problems of the people of the villages coming under submersion under the Tungabhadra project and allied subjects. At the same

time, twelve villages of Harapanahalli taluk were transferred to the reduced Hadagalli taluk in return for four villages from that taluk. The Bellary district then consisted of the two divisions of Bellary and Hospet and ten taluks of (1) Bellary, (2) Siruguppa, (3) Sandur, (4) Hospet, (5) Harapanahalli, (6) Hadagalli, (7) Kudligi, (8) Adoni, (9) Alur and (10) Rayadurga and one sub-taluk of Mallapuram.

Even before the dawn of Independence and in the days of the British regime, the Andhras were demanding that a separate Andhra State comprising all the Telugu-speaking areas should be carved out of the composite Madras State. This demand became more persistent after India attained Independence and the Government of India finally decided to form an Andhra State. In pursuance of this decision, the Government appointed in December 1952 Shri K. N. Wanchoo, the then Chief Justice of the Rajasthan High Court, to consider and report on the financial and other implications of the decision and the questions to be considered in implementing it. In the report presented by him on the 7th February 1953, Mr. Justice Wanchoo found it difficult to make a definite recommendation in respect of the area constituting the district of Bellary, because of conflicting demands about its merger. Mr. Justice Wanchoo obviously could not consider fully the conflicting claims for coming to a conclusion about the future of the district in view of the fact that his enquiry was concerned only with the formation of Andhra State out of the then existing State of Madras and not with allocations of its other linguistic areas to the neighbouring States.

**Demand for
Andhra State**

He, therefore, proceeded to consider merely the questions whether or not the district should be left intact and whether it should be included in the projected State or left with the residuary State of Madras. He, however, recommended that the district should be included in Andhra territory till such time as a Karnataka State consisting of the Kannada-speaking areas was formed. In doing so, he recognised that his recommendation was likely to be strongly opposed by the Kannadigas and he, therefore, thought that an assurance should be given to them that the arrangement was merely temporary, that their rights would be safeguarded by the Andhra State both as regards their language and their interests in the Tungabhadra Project, and that when a Karnataka State was formed, the Kannada-speaking areas would be integrated with it. Alternatively, he suggested that the three taluks, namely, Adoni, Alur and Rayadurga might be allotted to the new State and the remaining seven taluks might be formed into a new Bellary district and included in it temporarily, subject to necessary safeguards for preservation of the Kannada language and culture.

Merger of
Bellary with
Mysore

On the 25th March 1953 the Government of India announced that the Andhra State would be constituted, comprising eleven districts of the then Madras State and a part of Bellary district. With regard to Bellary district, the decision was :

(a) that the district of Bellary would not be treated as a single unit for the purpose of attachment to any of the two States ;

(b) that three of its ten taluks, namely, Adoni, Alur and Rayadurga should form part of Andhra State ; and

(c) that the other taluks, with the exception of the taluk of Bellary, that is to say, Harapanahalli, Hadagalli, Hospet, (including Mallapuram sub-taluk), Kudligi, Sandur and Siruguppa, which had a very large Kannada-speaking population, should form part of the State of Mysore.

The decision of the Government was deferred in respect of Bellary taluk, because it was felt that not only its linguistic composition, but certain other matters would also need examination before a final decision was reached. On 23rd April 1953, the Government of India appointed the Chief Justice of the Hyderabad High Court, Mr. Justice L. S. Misra, to enquire into the various factors of the question regarding the future of Bellary taluk and to report thereon. On 28th April 1953, a Memorandum issued by the Government of India, Ministry of Home Affairs (No. 110-53 PSS), specified the following terms of reference for purposes of this enquiry :—

“ Government are of the opinion that it will be desirable that before such final decision about Bellary taluk is taken, there shall be a fuller investigation by a person of high judicial status, into all such relevant factors as would facilitate or enable such a decision. Amongst such factors are linguistic composition and cultural affinity, administrative convenience and economic well-being. For the purpose of this investigation, Government have appointed Shri Justice Lakshmi Shankar Misra, Chief Justice of Hyderabad, who will be requested to carry out this investigation as rapidly as possible on the broad facts and report to Government. Any minor re-alignment considered necessary may be recommended. Generally speaking, however, minor divisions or rectifications will be considered by the Boundary Commission to be appointed after the formation of the Andhra State. Government would like this enquiry by Shri Justice Misra to be concluded by the 15th May 1953.”

Mr. Justice Lakshmi Shankar Misra visited Bellary and received a large number of representations and conducted a full enquiry and examined the question in all its aspects, linguistic composition, administrative convenience, financial implications, economic well-being, cultural affinity and historical background.

He submitted his report to the Government of India on May 19, 1953. The Government of India accepted the recommendation contained in his report that the Bellary taluk should go as a whole to the State of Mysore (Para 35 of his report), subject to transitional arrangements.

The Andhra State came into being on 1st October 1953 and on the same date, the seven taluks of Bellary, Siruguppa, Sandur, Hospet, Harapanahalli, Hadagalli and Kudligi and the sub-taluk of Mallapuram were transferred to the erstwhile Mysore State. Thus Bellary became the tenth district of former Mysore State and this might very well be said to be the fore-runner of the unification of the Kannada-speaking areas under one State which came about three years later on 1st November 1956. The Mallapuram sub-taluk was upgraded into a taluk with effect from 1st April 1960 without any change in its territorial jurisdiction.

With the enactment of the States' Reorganisation Act, 1956, **Present position** and the formation of the new Mysore State by the integration of the Kannada-speaking areas from the adjoining States, the number of districts in the State rose from ten to nineteen. For purposes of administrative convenience, the State was divided into four divisions, each under a Divisional Commissioner. Bellary district, along with the districts of Bangalore, Kolar, Tumkur and Chitradurga, formed the Bangalore Division until 31st January 1966. Later it was detached from the Bangalore Division and included in the Gulbarga Division with effect from 1st February 1966.

At present, Bellary district consists of two revenue sub-divisions, namely, Bellary Sub-division and Hospet Sub-division, which have in all eight taluks. The Bellary Sub-division has three taluks, while there are five taluks in the Hospet Sub-division. The number and names of hoblies (revenue circles or firkas) and the number of villages in each taluk are as follows :—

Revenue Sub-Division		Taluks	Firkas (Hoblies)		Villages	
No.	Name		Name	No.	No.	Total
1	Bellary	1. Bellary	Bellary	5	17	104
			Rupanagudi		24	
			Moka		23	
			Kolur		19	
			Kurugodu		21	
		2. Siruguppa	Siruguppa	4	21	86
			Hatcholli		25	
			Tekkalakota		21	
			Karur		19	
		3. Sandur	Sandur	3	23	85
			Choranur		27	
			Toranagal		35	
Total		3		12		275
2	Hospet	1. Hospet	Hospet	4	16	78
			Mariammanahalli		15	
			Kamalapura		23	
			Kampli		24	
		2. Mallapuram	Mallapuram	2	10	31
			Hampasagara		21	
		3. Kudligi	Kudligi	4	21	98
			Kottur		26	
			Hosahalli		27	
			Gudekota		24	
		4. Hadagalli	Hirehadagalli	4	18	70
			Hadagalli		18	
			Ittigi		18	
			Hagaribommanahalli		16	
		5. Harapanahalli	Chigateri	4	20	76
			Arasikere		18	
			Harapanahalli		19	
Teligi	19					
Total		5		18		353
Grand Total		8		30		628

The area (as computed by the Survey of India and cleared by the Central Statistical Organisation) and population of each taluk is as follows :—

Name of taluk	Area in		Population as per 1971 Census
	Sqare miles	Sqare kilometres	
Bellary	651.56	1,687.53	2,65,294
Harapanahalli	572.54	1,482.87	1,45,714
Hadagalli	468.26	1,212.78	1,27,452
Hospet	344.81	893.05	1,87,830
Kudligi	704.72	1,825.21	1,57,456
Mallapuram	195.42	506.13	35,933
Sandur	482.20	1,248.89	92,904
Siruguppa	401.95	1,041.04	1,10,103
Total	3,821.46	9,897.50	11,22,686

The Tungabhadra river forms the natural boundary dividing the district on the west from the Dharwar district and on the north from the Raichur district. The Bellary district consists of two widely differing natural divisions, an eastern and a western, separated by the Sandur hills which run right across the district from north-west to south-east. The eastern division, which is smaller in size, is made up of the taluks of Siruguppa and Bellary and is a flat, almost treeless, expanse covered mainly with black cotton soil, diversified here and there by the rocky hills which rise out of it "like islands out of the sea", a characteristic feature of the Deccan. The western division, though containing scattered patches of black-cotton soil is, for the most part, covered with mixed and red ferruginous soils; it is broken up (except in Hadagalli taluk) by a constant succession of wild and rugged hills and lies at a greater elevation than the eastern part. It has also a slightly larger rainfall. Both the divisions slope gradually northwards towards the Tungabhadra.

**Natural
Divisions**

The Sandur hills are, after the Tungabhadra, the most noticeable physical feature of the district. They begin at Mallapuram on the bank of the Tungabhadra and run south-east for over 30 miles or 48 kms. with only one break, the two beautiful gorges of the Narihalla. Their highest point is the hill above the famous Kumaraswami temple near their southern boundary which is 3,400 feet above the sea-level. The Ramanmalai in the centre, overlooking the little hill-station of Ramandurga, is 3,256 feet and the bold peak of Jambunatha on the extreme northern limit is 2,980 feet in elevation.

**Hills : Sandur
hills**

Copper Mountain range

About six miles east of the Sandur hills and aligned roughly parallel to them from north-west to south-east is the Copper Mountain range. This mountain range is also called the Sugga-madevi-betta by the local people. It runs from the Daroji tank south-east for 26 miles to within about four miles west of the Hagari river. The highest point in the ridge is 3,285 feet above the sea level.

Mallappanagudda range

About 30 miles south-west of the Sandur hills, in the Hada-galli and Harapanahalli taluks, rises the Mallappanagudda range. Its chief peak, the Mallappanabetta, is 3,177 feet high. Like the Sandur range, it starts close to the Tungabhadra (at the gorge at Honnur) and runs south-east. After about 25 miles, it is broken by the valley of the Chikka-Hagari, but it begins again about seven miles further on and extends into Chitradurga district.

Kallahalligudda range

South-west of Mallappanagudda range and about eight to ten miles from it, are the Kallahalligudda hills, the largest of which, the Kallahalli peak, is about 2,800 feet high. They are about nine miles long and though, as before, their general direction is from north-west to south-east, there is an off-shoot from them, which strikes nearly south-west. This is called the Teligi group of hills. Thereafter, though not without a break in their continuity, they run on to form the group of hills south of Harapanahalli town, the chief of which is the Narasimhadevaragudda, 2,544 feet high, and they end in the south of the taluk in Uchchangidurga (2,674 feet), the precipitous sides of which are crowned by the oldest *durga* (hill fortress) in the district.

Kudligi hills

In the adjoining Kudligi taluk, two lines of hills occur. They are the Kudligi and Gudekota hills. The Kudligi range begins three miles north of Anekallugudda (2,378 feet), passes to the north and east of Kudligi town and terminates some five miles south-east of Jaramalidurga (2,743 feet), its chief peak.

Gudekota hills

The second of these lines, *viz.*, the Gudekota range, begins at Chorapur in Sandur taluk, continues to the south-east and passing to the north of the fort of Gudekota crosses the valley of the Chinna Hagari and the strip of Chitradurga district which is here wedged in between Kudligi taluk and Rayadurg (2,727 feet). The striking mass of Kailasa-konda, just south of this, is 3,011 feet high; in Kudligi taluk the line includes one hill of over 2,800 feet and another of over 2,600 feet, and this group contains perhaps the wildest and most rugged area in the district.

Alur hills

In the north of the district are two other lines of hills, which, though too detached to be called ranges, yet follow generally a direction, parallel to the ones referred to above. The first of

these begins with the Kenchanagudda on the bank of the Tungabhadra in the Siruguppa taluk and runs south-east forming successively the striking cluster of hills round Halekote and the Kanchagara-Belagalli ridge.

Besides all these ranges and lines of hills, the Bellary district contains also several isolated clusters and eminences. The best known of these are the two rugged and picturesque groups lying north of the Sandur range and between it and the Tungabhadra.

The first of them, the Daroji hills, are separated from the Sandur hills by the valley, along which the South-Central Railway runs from Bellary to Hospet, and extend from the Daroji tank nearer to Hospet. The second group, the Kampi hills, lies north again of these and is divided from them by the valley through which passes the road from Daroji to Hampi, the old capital of the Vijayanagara empire. The highest point in this latter group is the Timmapuram hill, which is 2,133 feet high. Another cluster worth a mention is the one at Kurugodu, 14 miles north-north-east of Bellary town (highest point 1,966 feet), and finally there is the Bellary rock itself, the top of which is 1,976 feet above the sea-level.

The Sandur hills, the Copper Mountain range, the Mallappa-

Scenery

magudda and the Kallahalligudda ranges are of Dharwar schists, while the rest of the hills and clusters are of older granitic formation. The difference in the outward appearance of the hills of these two classes is striking. Those belonging to the former have rounded outlines and summits, are cut into ravines, are covered with long grass and are often surrounded by slopes of detritus washed down from their sides. The granite hills, on the other hand, are composed of masses of bare rock; the only relief for the eye are the babul trees and the low thorny scrub which grow in their crevices. This rock has usually weathered and split into boulders of enormous size which have either grouped themselves in lines and castellations, sometimes so regular as to have a most artificial appearance, or have remained poised on end as single tors, or crashed down the sides of the hills to form huge screes. The Sandur valley with its lush green forest growth, is really pleasing to the eye and enchanting. Almost all the western taluks have picturesque valleys and the tree-growth in them offers a refreshing contrast to the great dreary and sandless expanses of black-cotton soil in the Siruguppa and Bellary taluks. But it must be noted that even in these two taluks, it is only in places where there is no standing crop and the dull colour of the untilled soil is apparent, that the view is depressing. Hills are always in sight, and when the sun shines, they take on various hues, ranging from purple to delicate yellow. Mirages are a characteristic feature of this part of the region.

The river system of Bellary is simple. The only important rivers in the district are the Tungabhadra and its tributaries, the Hagari and the Chikka-Hagari.

Rivers

**The Tunga-
bhadra**

After forming the boundary of Bellary along the whole of its western and northern sides, the Tungabhadra falls into the Krishna, a few miles below Kurnool town in Andhra Pradesh. The ancient and puranic name of the river was Pampa, by which it is mentioned in the Ramayana and the *puranas* and which still survives in the name of the village of Hampi, which was originally known as Pampateertha. The river gets its appellation as Tungabhadra from the fact that it is formed by the junction, in Shimoga district, of two rivers called respectively the Tunga and the Bhadra. Both of them rise on the same hill, Varaha Parvatha, high up in the Western Ghats in Chikmagalur district, and after running different courses, unite at the village of Kudali (confluence), eight miles from Shimoga town to form the Tungabhadra. The Mahabharata refers to the Tungavena along with the Jahnavi (the Ganga) and the Krishnaveni (the Krishna) as a sacred river.

**Its
mythological
association**

A puranic legend says that Hiranyaksha, son of Kashyapa Rishi by Diti Devi, seized the earth and bore it down to the lower world. As a result, Brahmanas had to discontinue their usual rites and sacrifices. The gods and goddesses complained to Vishnu, who, assuming the form of a *varaha* or boar, plunged into the ocean, entered the lower world, destroyed the demon and brought up the earth again. The perspiration arising from this exertion of the boar trickled down its tusks as it rested on the Varaha Parvatha and that from the long (*tunga*) left tusk, which he had used as his weapon, issued one stream and that from the firm and strong (*bhadra*) right tusk, with which he had borne up the earth, issued another.

**Special features
of the
Tungabhadra**

The river enters the district near Kadathi village in the Harapanahalli taluk and forms the western and northern boundary of the district for nearly 200 miles (320 kms.) covering the taluks of Harapanahalli, Hadagalli, Mallapuram, Hospet and Siruguppa. At the place where it enters the district, it flows at a height of 1,710 feet above the sea-level. The fall in different sections of the river's course is much unequal. Upto the Vallabhapura anicut in the north of Hadagalli taluk, it drops scarcely, as little as two feet a mile, but between that point and Kampli it falls 381 feet, or nearly 14 feet a mile. Several rapids occur in this part of its course, the most notable being those at Mallapuram, close by the site of the Tungabhadra dam, where the river cuts through the northward extension of the Sandur hills. Another rapid occurs just above Kenchanagudda, in the Siruguppa taluk, where the river passes through the continuation of the Alur line of hills. The waters of the Tungabhadra are reputed to have a peculiar 'sweetness' or 'taste' which has given rise to the saying "Bathé in the Ganga but drink of the Tunga" ("Ganga snaana, Tunga paana").

Where the Tungabhadra enters the district, the river flows between high banks of red loam. Lower down, much of its bed is deep. This feature and the fact that the land usually falls sharply down to the river are two of the reasons why, though the flow of water in the river is perennial, it had been so little used in the past for irrigation. Its margins in many places, especially on the right bank and in the reaches above Mallapuram, are frequently covered with extensive deposits of shingle, which shows that its bed must have originally been much wider than it now is. Those at Makarabbi are several hundred acres in extent and some 100 feet above the present level of the stream. No navigation is possible along the river, as its bed is, for the most part, rocky, but in former times, much timber used to be floated down it from the Shimoga district, which was landed at the Vallabhapura anicut and from there taken to Bellary and elsewhere. Except during the rains, the river is usually fordable and, where it is not, the people cross it in circular boats. Apart from a road bridge near Siruguppa and a high-level causeway at Kampli, two more road bridges below the Tungabhadra dam have been constructed in recent years. Besides these, the dam itself serves as a bridge. The Tungabhadra is crossed by the South-Central Railway near Hospet.

Islands occur here and there in the bed of the Tungabhadra. There is one just below Anguru in the Hadagalli taluk, which gets submerged at high flood. It is partly cultivated. There is another island just above the Mallapuram rapid already mentioned; a third lies in the middle of this rapid and runs down as far as the South-Central Railway bridge; and there are three more at Kenchanagudda, namely, one above the rapids there, one in the middle of them and one just below them. This last, Desanuru island, is the largest of the series, being six miles long; it contains the village of Desanuru and one or two hamlets. Much of this island has richly cultivated land. The Tungabhadra leaves the district and enters the Kurnool district of Andhra Pradesh at Tsallakudlur village in Siruguppa taluk.

The only two tributaries of the Tungabhadra within the Bellary district, which are worthy of the name as river, are the Hagari, which drains the eastern taluks of Bellary and Siruguppa, and the Chikka-Hagari, or 'Little Hagari', which lies sixty miles away on the other side of the Sandur hills and traverses the three western taluks of Harapanahalli, Hadagalli and Kudligi.

**Tributaries
of the
Tungabhadra**

Like the Tungabhadra, the Hagari is also formed by the junction of two streams called the Veda and the Avati, which rise near Mullaiyanagiri in Chikmagalur district and unite at Thangali in the same district. The combined stream of Vedavati after flowing through the district of Chitradurga, enters the Bellary district. While in an inscription of 1130 A.D.

The Hagari

(No. 224, S.S.I., Vol. IX, pt. I), the river is called Hagare, in another inscription of 1169 A.D. (No. 269, S.I.I., Vol. IX, pt. I) it is termed Agha-hari, meaning 'destroyer of sins'. In Chitradurga district, it passes through a striking gorge known as the Marikanive, across which has been constructed an embankment to render its waters available for irrigation. It enters Bellary district a few miles above Rupanagudi in Bellary taluk and flows nearly due north in a wide shallow, sandy bed which is dry for a greater part of the year, but after heavy rains is filled with torrential floods which occasionally do much damage to the wet cultivation along its banks. In 1851, the waters rose and washed away a village on the right bank. The river is crossed by the South-Central Railway near Paramadevanahalli and at this point it flows at an elevation of about 1,330 feet above the sea-level. The length of the river within the district is 58 miles (92.8 kms). It empties itself into the Tungabhadra near Siddaragadde village in Siruguppa taluk. When the bed is dry, strong westerly winds carry much sand out of it and pile this up in dunes on the right bank.

The Chikka-Hagari

The Chikka-Hagari, also a tributary of the Tungabhadra, rises in Chitradurga district. It enters the district near Anjigeri village in the Harapanahalli taluk. Its course is nearly due north and after draining parts of Harapanahalli, Kudligi and Hadagalli taluks, it joins the backwaters of the Tungabhadra reservoir. Its length in the district is 40 miles (64 kms). A dam has been constructed across this river near Hagaribommanahalli for purposes of irrigation.

The Chinna-Hagari

The only noteworthy tributary of the Hagari is the Chinna-Hagari, known as Janagahalla in Chitradurga district, in which it rises. It enters the district near Kallahalli in the south of Kudligi taluk and forms the boundary between Chitradurga and Bellary districts for a few miles. It drains the eastern parts of Kudligi taluk and joins the Hagari to the north of Rayadurg taluk in Andhra Pradesh. Its length in the district is only five miles (8 kms). Pedda Vanka (big nala), a stream (one of several streams so named) which rises in the Copper Mountain range, is a major tributary of this river. It joins the Chinna-Hagari near Kumati village in the south-east of the Kudligi taluk.

Minor streams

The minor streams, which flow into the Tungabhadra, are no bigger than *nalas*. Going from the south to north, the chief of them are the Haggaranuru stream, rising near Harapanahalli and draining the region west of the Mallappanagudda hills; the Hampasagara stream which joins the Tungabhadra at the village of that name; the Hampapatna or Bellahunishi stream which drains the hilly region north of Kudligi; the Gauripura stream which runs along the western base of the Sandur hills; and the Narihalla, which flows across Sandur taluk through the beautiful

Obalagandi and Bheemagandi gorges. It is called Narayani in an epigraph of 1541 A.D. It is dammed up to form the Daroji tank and thence flows northwards to the Tungabhadra. There is also the Harivanam stream or Karji Vanka which takes its birth near Naganathanahalli in the Alur taluk of Andhra Pradesh and enters Siruguppa taluk near Harivanam, also a village in Andhra Pradesh. It flows mostly through the villages of Hatcholli hobli and empties itself into the Tungabhadra near Tsallakudlur.

Besides these, there are some other streams like Madihalla, Teligihalla and Ittigihalla in Harapanahalli taluk and Urahalla, Tippapurahalla and Hirhalla in Hadagalli taluk which are made use of for irrigation purposes. Generally, the flow system of irrigation is prevalent and where this is not possible, lift irrigation is adopted by employing the *yatha*.

A number of channels were constructed by the Vijayanagara kings, mostly for drawing water from the Tungabhadra river, at various points and even today they are functioning and are feeding the old ayacut. The following are among the old anicuts and channels in the district :—

Sl. No.	Anicut	Name of the Channel
1.	Valapur	Basavana Channel
2.	Hosakote	Raya Channel
3.	do	Kalghatta Channel
4.	Hosur	Hulgi Channel
5.	Turta	Turta Channel
6.	Ramasagar	Ramasagar Channel
7.	Kampli	Kampli Channel and Belagondinahal Channel
8.	Siruguppa	Siruguppa Channel
9.	Desanur	Desanur Channel

There are, in all, 170 minor and 22 major tanks in the district. Of the minor tanks, two are in Bellary taluk, one in Siruguppa taluk, 23 in Hospet taluk, 40 in Harapanahalli taluk, 16 in Hadagalli taluk, 73 in Kudligi taluk and 15 in Sandur taluk with a total ayacut of 10,013 acres. Of the major tanks, two are in Hospet taluk, six in Harapanahalli taluk, two in Hadagalli taluk, ten in Kudligi taluk and two in Sandur taluk, with a total ayacut of 8,600 acres. Of these, the Daroji tank in Sandur taluk is the biggest in the district with an atchkat of 1,790 acres and a capacity of 788.28 M.Cft.

The district consists mainly of Archaean complex composed of crystalline schists, epidiorites, granitic gneisses and later granites. Basic and acidic dykes are not uncommon. The crystalline schists and epidiorites of the Dharwar system are

reckoned as the oldest rocks which, due to lateral pressure, were crumpled into folds with a general north-west-south-east strike.

The main rock types occurring in the district are arranged in the following sequence :—

<i>Recent and sub-recent</i>	<i>Recent and sub-recent soils and alluvium of Tungabhadra river</i>
ARCHAEANS (i) Newer granites and associated basic dykes.	Pink granites and pegmatites (equivalent to closepet granite) and dolorite dykes.
(ii) Peninsular gneisses	Biotite-granites and other foliated gneisses.
(iii) Dharwars (Crystalline schists)	Epidiorites and epidiorite schists, banded ferruginous quartzite, phyllites enriched with iron and manganese ores and hornblende schists.

Dharwars

The Dharwar series of rocks occur in the form of four prominent bands, striking across the district in north-west to south-east direction. The following are the bands traced from west to east :—

(a) *Kunchur-Kallahalligudda range*.—This practically occupies the western-most part of the district.

(b) *Mallappanagudda-Jajikalgudda range*.—This is the extension of Dambal-Chikkanayakanahalli range and its continuation in Dharwar district is seen as Kapatgudda range of hills.

(c) *Sandur Synclines and the Copper Mountain range*.—This occupies the central portion of the district and starts from Mallapur on the north and continues southwards for a distance of 26 miles (41.8 kms.). This forms the home of economic minerals in the district.

(d) *Pennar-Hagari band*.—This runs from Nadivi (on the bank of the Tungabhadra) towards south-east upto the valley of Hagari river.

The rocks constituting these four bands are similar and exhibit the structure of synclines. The different rock types constituting the Dharwar system are hornblende schists, conglomerates, epidiorites and epidiorite schists, quartzites, phyllitic schists (giving rise to pockets of manganese ore) and banded ferruginous quartzites with frequent concentrations of haematitic iron ore at a number of places. These are generally associated with volcanic flows, sills and other minor intrusions.

Peninsular gneisses comprise the granitoids and foliated granitic gneisses of grey and light pink colours. They exhibit the same strike as the Dharwar bands and are exposed mostly in the eastern parts of the district.

Pink and porphyritic granite similar to Closepet granite occur to the north-east of Bellary town, while medium to coarse-grained, uniformly deep pink granites occur near Dommur and Sirigere in Siruguppa taluk. They consist of deep red feldspars with light blue quartz and a negligible proportion of biotite mica. These form attractive decorative building stones. They are found to take good polish and have attracted foreign market for decorative purposes.

Fairly good number of basic dykes occur traversing the district and most of them follow the general strike of the Dharwar bands. **Dolerite dykes**

Reddish sandy loam, reddish brown and black cotton varieties of soils occur in the district. The black cotton soil occurs over wide stretches of land in Bellary and Hadagalli taluks. Reddish sandy loam is characteristic of the banks of the Tungabhadra and Hagari rivers. The reddish brown soils occur at the fringes of the hills due to the decomposition of the rocks. **Soils**

The Dharwar schists of the district form the home of economic minerals such as haematitic iron ore and red oxide of iron, manganese ore, white clay, soapstone, etc. The other mineral deposits which occur in the district are gold, copper ore, galena, gypsum, magnesite, calcite, quartz, corundum, garnets, ochres, kankar sand, plastic clays and decorative building stones. **Mineral resources**

Numerous bands of banded haematitic iron ore of high grade occur cresting the synclinal folds of the Dharwar bands, specially the 'Sandur synclines'. These beds of haematitic ore contain very rich Fe. content and are considered among the world's richest iron ores. They occur extensively in several parallel and disconnected bands for a length of nearly 30 miles in north-west-south-east strike direction. **Iron Ore**

The following are some of the important localities where the haematitic iron ore occurs :—

- (i) Half-a-mile south-west of Kummatharuvu village, forming the Kumaraswamy plateau in Sandur taluk ;
- (ii) On the crest and eastern flanks of Devadarigudda, two miles south of Sandur town ;
- (iii) The Donimalai range, about five miles south-east of Sandur town ;

- (iv) The Ettinahatti-Ubbalagundi range, parallel to and east of Donimalai range ;
- (v) The Ramandurga range north-west of Sandur town ;
- (vi) Timmappanagudda-Karadikolla range, *i.e.*, north and north-eastern branches of Sandur synclines ;
- (vii) Halakundi-Belagal range, six miles west of Bellary town ; and
- (viii) Mallappanagudda-Jajikalgudda range east of Harapanahalli town.

The high grade haematitic ore reserves in the district are estimated at 1,000 to 1,250 million tonnes. The annual production of iron ore in the district has averaged three million tonnes and is mainly exported through the ports of Madras, Karwar and Marmagoa. The grade of the ore ranges from 65 to 68 per cent Fe.

Ancient iron smelting centres exist in several places, namely, near Kanivehalli, Kudligi, Kamalapura, Kallahalli and other places in the district ; the softer iron ores quarried from the mines near Sri Kumaraswamy Temple near Deogiri on the Ramandurga plateau and near Jambunatha ridge were smelted by primitive processes to cater to the needs of the agriculturists.

Red Oxide of Iron

Closely associated with haematite beds, workable deposits of red oxide of iron occur in the following localities in the district :—

- (i) About five miles north north-west of Ubbalagundi village in Sandur taluk ;
- (ii) In Karadikolla area, in the NEB range in Sandur taluk ;
- (iii) Ramandurga plateau on the north-western slopes in Sandur taluk ;
- (iv) On the northern slopes of the Janikunta ridge, one mile west of Janikunta village in Bellary taluk ;
- (v) In Kummatharuvu area in Sandur taluk ;
- (vi) On the northern flanks of \angle 2957 in Belagal range near Sugamma temple in Bellary taluk ; and
- (vii) Pale pink to deep red-coloured ochres on the Jajikalgudda range in Harapanahalli taluk.

Annually, red oxide is produced to the extent of about 64,000 tonnes in the district. There are three pulverising mills, two at Hospet and one at Bellary, which are continuously engaged in pulverising red oxide upto 300 mesh for supply to the paint industry in different parts of the country.

Extensive deposits of medium grade manganese ores occur as **Manganese** lenses or pockets in decomposed phyllitic schists underlying the ferruginous quartzites of the several synclinals. Manganese ore is being exploited on a large scale from the well-known Sandur mines since about five decades and most of the workings are confined to the escarpment side of the western-most limb of the Sandur synclinal. The manganese ore found in the district is an admixture of psilomelane, pyrolusite and wad.

The following are the localities in the district where workable deposits of manganese ores occur :—

- (i) On the western fringes of the Ramgad plateau in Sandur taluk ;
- (ii) On the western fringes of Sri Kumaraswami and Deogiri plateau south and south-west of Sandur town ;
- (iii) On the western slopes of Devadarigudda south of Sandur town ;
- (iv) Stray deposits of low-grade manganese ore on the western slopes of the Muraripur hills and Timmapanagudda hills in the NEB range in Sandur taluk ;
- (v) On the eastern slopes of Kallahalli range in Hospet taluk ;
- (vi) Low grade ore on the eastern flanks of Mallappanagudda, two miles north of Kanivehalli in Harapanahalli taluk ; and
- (vii) East and north-east of Kadathi in Harapanahalli taluk.

The total production of manganese ore in the district averages to 2.5 lakh tonnes and the grade of ore ranges from 32 to 40 per cent manganese content.

Galena occurs in the following places in the district :— **Galena**

- (i) One mile north of Metri village in Hospet taluk ; and
- (ii) One mile south of Devalapura, also in Hospet taluk.

The galena occurrence in Devalapura area is found in felsite dyke which strikes east-west.

Gold from alluvial washing was in existence in the following **Gold** localities :—

- (i) Near Chigateri and Konganahosur in Harapanahalli taluk, and

- (ii) Near Kunchur in Kallahalli schist belt, also in Harapanahalli taluk.

Indications of ancient workings for gold are noticed near Konganahosur and Chigateri in Harapanahalli taluk and near Ettinahatti in Sandur taluk. Alluvium in the streams flowing from these areas are found to contain specks of gold.

- Copper** Copper ore occurs in the following places in the district :—
- (i) Along the brecciated quartzite near Harapanahalli town ; and
 - (ii) Near Sugamma temple in the Copper Mountain range in Bellary taluk.
- Magnesite** Thin veins of magnesite occur parallel to the schistose planes and along with joint planes in the schist rocks east of Toranagal village.
- Calcite** Thin veins of calcite occur in weathered trap rocks near Chinnapura, about a mile west of Devalapura in Hospet taluk. Here the calcite crystals frequently indicate the presence of malachite (copper carbonate).
- Gypsum** Gypsum occurs in black cotton soil associated with kankar for a stretch of 6 to 8 miles to the west of Hagari river. Talur in Siruguppa taluk is the centre of gypsum-bearing zone in the district. The percentage of gypsum in the soil varies from 3 to 8 per cent and is distributed in the form of nodules and flakes upto a depth of six feet.
- Asbestos** Thin veins of brittle-fibre amphibole variety of asbestos is found in a patch of chlorite schist near Yerrabalu village in Harapanahalli taluk.
- Garnet** Occurrences of garnet are noticed in the quartz veins in Kikalgudda, south of Nimbapur in Kudligi taluk.
- Corundum** Occurrence of corundum, dull red in colour, is noticed on the western slopes of Vittalapura hill range.
- White Clay** Well-defined white clay bands occur on the synclinal limbs in the following localities :—
- (i) One mile north north-east of Halavagal in Harapanahalli taluk ;
 - (ii) One mile west north-west of Konganahosur village in Harapanahalli taluk ;

- (iii) On the eastern flanks of Mallappanagudda in Hadagalli taluk ;
- (iv) One furlong to the east of Sri Kumaraswami temple in Sandur taluk ; and
- (v) North of Thumbargudi railway siding.

The white clay found in these localities is mostly fine-grained and exhibits snow-white colour.

The following are the localities where soapstone occurs in the district :— **Soapstone**

- (i) A mile south of Narasimhadevara-betta and Arasapur in Harapanahalli taluk ;
- (ii) Stray deposits in granitic gneisses near Uchchangidurga in Harapanahalli taluk ;
- (iii) Nilgunda hill in Harapanahalli taluk ; and
- (iv) Half-a-mile west of Harapanahalli town.

A small patch of vermiculite occurs in gneisses near Aralahalli in Hadagalli taluk. **Vermiculite**

Economically important deposits of quartz are found at Belagal in Bellary taluk, Lingadahalli in Sandur taluk, Haravanahalli in Hospet taluk, Harapanahalli, Uddugatti, Kanchikere and Chetnahalli in Harapanahalli taluk, Niddagarthalli in Kudligi taluk and near Hayarnur, Koilargatta, Chikkakolichi and Basavahalli in Hadagalli taluk. **Quartz**

Old workings, said to be for diamond, exist three miles to the south of Hadagalli town in the conglomerates. These are very similar to Banganapally conglomerates. **Diamond**

Small outcrops of high calcium limestone occur in the following places :— **Limestone**

- (i) To the south of Birrabbi in Hadagalli taluk ;
- (ii) Six miles south-west of Hadagalli town ;
- (iii) Three miles east of Harapanahalli ; and
- (iv) Three-and-a-half miles south-west of Toranagal railway station.

Medium to coarse-grained, grey to pink varieties of granites and porphyrites occur extensively in the district. Some of them are of exquisite quality and are quite suited for being used as decorative stones. **Building and decorative stones**

The following are the important localities where these stones are found :—

- (i) Fine to medium-grained grey granites near Hampi ;
- (ii) Batholithic exposure of grey porphyry near Toranagal village ;
- (iii) Coarse-grained pink porphyritic granites and medium-grained deep pink granites near Dammur and Sirigere respectively in Siruguppa taluk ;
- (iv) Porphyritic granites at Kurikuppi ;
- (v) Jaspery rocks in Sandur taluk ;
- (vi) Trap-porphyry occurring extensively near Chologarki in Bellary taluk ; and
- (vii) Porphyritic dolerites occurring near Huralihal in Kudligi taluk.

Jasper rocks

Jaspery quartzites occurring on the northern portion of Donimalai ridge, and near Ramgolla in N.E.B. range exhibit bright scarlet-red to deep-red and purple-grey colours and they are recommended as a material for inlay work.

Hornblendic diorite

A long dyke of hornblendic diorite occurs in the district traversing in west north-west and east south-east direction from a point three miles east of Lingadahalli in Sandur taluk. This rock is hard, fine-grained and takes good polish and hence it could be utilised as a decorative stone.

Sand

Extensive spreads of sand, suitable for constructional purposes, occur in Chikka-Hagari river bed near Hagaribommanahalli, as also along the bed of Hagari river. In fact, the main source of sand for construction of buildings in Bellary town and for the broad-gauge railway line from Bellary to Guntakal is the Hagari river.

Tank clay

Puzzlonic clay, suitable for surki mortar, is found to occur in several tank-beds in the district. This clay is best suited for the manufacture of bricks.

Lime-Kankar

Wide spreads of nodular to concretionary lime-kankar occur in the plains (1) to the east of Rajapuram-Ettinahatti-Joga hill range in Sandur taluk, (2) in Devalapura, Metri and Chennapura in Hospet taluk, and (3) in the low-land adjoining, on the west, the Mallappanagudda range in Harapanahalli taluk. The lime-kankar occurs upto a depth of eight feet and mostly in the form of massive beds.

Rainfall plays an important part in the formation of various **Flora** types of forests. Bellary district is in an arid zone with scanty rainfall, which is also not evenly distributed. As is to be expected in such a tract, the growth is nowhere luxuriant except in the hilly areas of Sandur taluk. Green vegetation as is seen in the *malnad* areas is unknown and there is no evergreen zone in the district.

According to the Divisional Forest Officer, Bellary Division, **Forest flora** the total area under forests in the district is 607.44 square miles or 1,517.19 square kilometres. This works out to about 6.5 per cent of the total area of the district. The types of forests in the district can be divided into two main divisions, dry deciduous forests and scrub forests. Only an area of about 150 square miles is under dry deciduous forests and the rest of the area under forests contain only scrubs. The deciduous forests are mostly situated in Sandur taluk and a smaller portion in Kudligi taluk. The vegetation in the dry deciduous type consists of *Hardwickia binata* (Kamara), *Albizzia*, *Anogeissus latifolia* (Dindiga or Dindala) associated with *Chloroxylon swietenia* (Huragalu) and other fuel species. *Santalum album* (Sandal) is mainly restricted to the Sandur range and some teak is also to be found in this area. In Kudligi taluk, date-palm is found in good numbers. On the eastern side of Bellary, only vast plains consisting of scrub jungles of *Prosopis juliflora* thorny shrubs are to be found in abundance, especially on either side of the Hagari river. In these drier eastern taluks are also found such drought-resisting plants as the *euphorbias*, *asclepaids* and *acacias*, the characteristic tree among these being the *Acacia arabica* (Babul). Among the minor forest produce, tamarind is the most important. The other minor forest products in the district are neem seeds, mango fruits, tupra (beedi) leaves, kakke (*Cassia fistula*) and tangadi (*Cassia auriculata*), honne (*Pterocarpus marsupium*), gum from dindiga, honey and seethaphal. What was once a vast expanse of wasteland is now being converted into regular forests by planting trees, and coppice shoots of fuel species in the district are fast coming up. It is expected that in the course of a few years, the policy of afforestation will yield beneficial results.

In order to solve the problem of erosion, the Forest Department **Soil erosion** has taken up soil conservation measures and afforestation of large areas in Harapanahalli, Kudligi and Hospet ranges, including the newly formed Bellary range, by digging contour trenches of $12' \times 1\frac{1}{2}' \times 1\frac{1}{2}'$ and sowing timber species both inside and on the mounds during the early part of the rainy season. This has given good results and the barren areas are being covered up.

The larger kinds of game are scarce in the district. Formerly, **Fauna** tigers used to be occasionally found in the Sandur area and it is stated that in 1838, they even rendered the road from Hospet to Ramandurga dangerous to the solitary traveller. They probably

came from the adjoining district of Chitradurga, but they are not to be found anywhere in the district now. Spotted deers, sam-bhars, wild boars, cheetas and jackals are found in the *maidan* parts of the district and wild sheep in the Sandur forests. There are bears in the granite hills in Kudligi taluk, especially round about Jaramali and Gudekota and in the Kampli hills; but on account of the Boyas hunting them by turning them out of their caves with spears and torches and later shooting them, their number is considerably reduced now. Black bucks are found roaming in grass in the plantation areas. Hyaenas and wolves are also seen occasionally in some of the western taluks. There are also said to be leopards in the granite hills in Kudligi taluk. Crocodiles are found in the Tungabhadra river.

Birds and Reptiles

Among birds, peacock, wild pigeons, cranes and green parrots are found in large numbers in the district. Peafowl and the Indian bustard are common in the western taluks, especially along the banks of the Tungabhadra. Among reptiles, cobras, pythons and kraits are very common in the district.

There is no game sanctuary in the district. Since the fauna is fast disappearing, appeals are being made to the public through lectures and by holding meetings and distributing publicity material not to kill the game indiscriminately. The Mysore Forest Act and Rules are in force in the district.

Climate

The climate of this district is characterised by dryness in the major part of the year and a hot summer. The year may be divided into four seasons. The period from December to February is the dry, comparatively cool season. The summer season from March to May is followed by the south-west monsoon season from June to September. October and November form the retreating monsoon or post-monsoon season.

Rainfall

The district has a net-work of raingauge stations with records ranging from 42 to 91 years. The details of the rainfall at these stations and for the district as a whole are given in tables 1 and 2, while the talukwise actual annual rainfall from 1951 to 1970 is given in table 3. The average annual rainfall in the district is 574.9 mm. (22.63"). The rainfall is mostly confined to the period from May to November. Sixty per cent of the annual rainfall is received during the period from June to September and about 24 per cent during October and November. September is the month with the highest rainfall.

The variation in the annual rainfall in the district from year to year is large. At individual stations, the range of variation is much higher than for the district as a whole. In the fifty-year period from 1901 to 1950, the highest annual rainfall amounting to 159 per cent of the normal was received in 1933, while the

very next year was one with the lowest rainfall, which was only 58 per cent of the normal. Rainfall less than 80 per cent of the normal occurred in 12 years in this fifty-year period, two consecutive years of such low rainfall occurring twice during this period. At some stations, two or even three consecutive years of such low rainfall have occurred on even four or five occasions. From table 2, it will be seen that the rainfall was between 400 and 700 mm (15.75" and 27.56") in 37 years out of fifty. The heaviest rainfall in 24 hours recorded at any station in the district was 196.1 mm (7.72") at Siruguppa on August 17, 1905.

On an average, the district has 39 rainy days (*i.e.*, days with rainfall of 2.5 mm—10 cents—or more) in a year. This number varies from 27 at Kottur to 49 at Harapanahalli.

The district has a meteorological observatory at Bellary. **Temperature**
The records of temperature and other meteorological conditions of this station may be taken to represent the climatic conditions over the district except in the region of the Sandur hills and the hilly region in the western parts of the district, where the temperature is generally lower by a few degrees than that at Bellary. The period from about the later half of November to the end of February is the coolest part of the year. In December, when the mean temperature is the lowest, the mean daily maximum temperature is 29.7°C (85.5°F) and the mean daily minimum is 16.7°C (62.1°F). By about the end of February, temperature begins to raise rapidly and by April, which is the hottest month, the mean daily maximum temperature is 39.2°C (102.6°F) and the mean daily minimum temperature is 25.2°C (77.4°F). In May also, the weather is nearly as hot as in April and in these two months the heat is oppressive. With the onset of the south-west monsoon early in June, the weather becomes slightly cooler and continues to be so throughout the south-west monsoon season. Both day and night temperatures decrease progressively from about the beginning of October.

The highest maximum temperature recorded at Bellary was 43.9°C (111.0°F) on 30th April 1909 and on 15th May 1897. The lowest minimum temperature was 10.6°C (51.1°F) on 28th December 1926 and 4th January 1891.

The district has, on the whole, a dry climate, the summer **Humidity**
and the cold seasons being the driest part of the year when relative humidities are 45 to 65 per cent in the mornings and 20 to 35 per cent in the afternoons. Relative humidities are higher in the south-west monsoon and retreating monsoon seasons, when they are generally 50 to 70 per cent.

Cloudiness

During the period from May to November, skys are moderately to heavily clouded. In the rest of the year, skys are clear or lightly clouded generally.

Winds

Winds are light to moderate with some strengthening in the south-west monsoon season. During the period from October to April, the winds blow from directions between north-east and south-east and are calm on many days in the mornings. Winds blow from directions between south-west and north-west during the period from May to September.

Special weather phenomena

In October and November, storms originating in the Bay of Bengal sometimes cross the east of India moving in a westerly to north-westerly direction across the peninsula, affect the district and its neighbourhood causing wide-spread rain and high winds. Thunderstorms occur during the periods from April to May and September to October. Dust-raising winds occur in April and May.

Tables 4, 5 and 6 give the temperature and humidity, mean wind speed and frequency of special weather phenomena respectively as recorded at the meteorological observatory at Bellary.

TABLE I
Normals and Extremes of Rainfall in Bellary District.

Station	No. of years of data	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Annual	Highest annual rainfall	Lowest annual rainfall	Heaviest rainfall in 24 hours*	
															as % of normal & year**	as % of normal & year**	Amount (mm)	Date
Bellary	.. 50 a	2.8	6.1	4.8	20.8	48.3	44.5	40.6	69.3	122.4	105.2	50.0	5.1	519.9	182 (1933)	49 (1923)	162.3	21-5-40
	b	0.3	0.4	0.5	1.8	3.5	3.1	3.3	4.0	7.1	5.4	3.1	0.4	32.9				
Kurugodu	.. 22 a	0.3	3.1	1.8	17.8	49.0	37.6	45.0	81.3	130.6	119.4	33.3	5.1	524.3	166 (1933)	40 (1942)	167.6	9-10-44
	b	0.0	0.3	0.1	1.3	2.4	2.5	3.8	4.7	5.6	5.5	2.3	0.5	29.0				
Hospet	.. 50 a	2.0	4.1	4.6	20.6	55.9	66.5	75.9	106.4	155.2	91.4	41.9	8.9	633.4	184 (1917)	57 (1934)	153.7	23-9-1874
	b	0.3	0.3	0.3	2.0	4.0	5.0	7.0	7.4	9.0	5.3	2.6	0.7	43.9				
Siruguppa	.. 50 a	2.3	7.9	5.6	19.6	45.2	72.4	77.5	100.1	164.9	101.3	31.0	4.6	632.4	190 (1916)	51 (1920)	196.1	17-8-05
	b	0.2	0.4	0.4	1.6	3.5	4.6	6.0	6.5	8.6	5.0	2.3	0.4	39.5				
Kampli	.. 50 a	1.3	4.6	2.8	15.2	50.5	55.6	48.3	70.9	138.7	80.8	40.4	4.6	513.7	193 (1917)	46 (1926)	153.4	20-6-31
	b	0.1	0.3	0.4	1.2	3.1	3.3	4.5	5.0	7.0	4.8	2.3	0.5	32.5				

BELLARY DISTRICT

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Hadagalli	.. 50	a	3.6	3.6	4.1	25.9	63.0	67.3	77.7	85.6	127.0	100.1	41.4	10.9	610.2	158	60	148.8	21-5-43
		b	0.2	0.4	0.3	2.1	4.5	5.3	8.6	7.1	8.1	6.1	2.5	0.7	45.9	(1932)	(1949)		
Harapanahalli	50	a	1.3	3.6	5.3	25.9	70.4	73.9	91.9	87.6	109.5	101.9	40.1	9.1	620.5	165	47	154.9	9-9-1880
		b	0.2	0.2	0.4	2.2	4.2	6.7	10.7	8.3	7.3	5.8	2.5	0.5	49.0	(1932)	(1930)		
Kudligi	.. 50	a	2.3	4.3	4.8	23.4	63.3	60.7	75.4	113.8	135.4	90.9	37.1	6.3	617.7	186	49	141.0	9-9-1880
		b	0.2	0.3	0.4	2.1	4.6	5.2	8.4	8.5	8.3	5.7	2.8	0.5	47.0	(1933)	(1934)		
Kottur	.. 23	a	3.8	1.3	1.5	26.2	46.5	50.3	43.2	91.4	102.9	103.6	26.4	4.6	501.7	153	43	152.4	27-9-50
		b	0.2	0.1	0.1	1.7	2.4	2.7	3.8	5.1	4.6	4.7	1.3	0.3	27.0	(1947)	(1934)		
Bellary District		a	2.2	4.3	3.9	21.7	54.7	58.8	63.9	89.6	131.8	99.4	38.0	6.6	574.9	159	58		
		b	0.2	0.3	0.3	1.8	3.6	4.3	6.2	6.3	7.3	5.4	2.4	0.5	38.6	(1933)	(1934)		

(a) Normal rainfall in mm. (b) Average number of rainy days (days with rain of 2.5 mm. or more). *Based on all available data upto 1956.
 **Years given in brackets.

TABLE—2

Frequency of Annual Rainfall in Bellary District
Data 1901-50.

<i>Range in mm.</i>	<i>No. of years</i>	<i>Range in mm.</i>	<i>No. of years</i>
301-400 ..	2	701-800 ..	7
401-500 ..	11	801-900 ..	3
501-600 ..	18	901-1000 ..	1
601-700 ..	8		

TABLE 3
Statement of taluk-wise actual annual rainfall in Bellary district from 1951 to 1970 (In Millimetres)

Year	Bellary	Hospet	Hadagalli	Harapanahalli	Kudligi	Sandur	Mallapuram	Siruguppa	District Average
1951	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
1952	294.5	649.6	729.8	491.8	626.9	N.A.	N.A.	500.8	551.4
1953	699.8	480.1	597.6	948.0	635.3	N.A.	N.A.	563.5	634.5
1954	412.2	729.0	458.0	638.5	590.7	771.3	N.A.	440.2	576.3
1955	723.8	865.9	758.2	990.6	934.5	1101.8	N.A.	935.0	861.8
1956	796.5	1023.8	800.3	854.0	772.7	841.8	N.A.	886.6	853.7
1957	530.1	715.5	690.8	775.7	776.5	768.4	N.A.	769.1	717.5
1958	302.3	796.3	545.3	718.0	660.9	803.5	N.A.	656.1	651.0
1959	692.7	712.8	350.8	527.3	646.5	620.8	679.9	661.7	636.8
1960	310.9	717.6	645.2	829.8	557.6	705.4	623.8	617.7	625.9
1961	240.3	608.4	639.5	975.0	620.3	757.9	633.7	690.2	647.2
1962	642.7	642.4	846.1	662.7	821.7	945.0	616.2	833.7	760.7
1963	553.5	623.6	816.5	817.9	559.3	933.2	545.9	679.8	694.2
1964	573.0	693.3	695.5	1043.5	680.9	840.1	672.8	578.9	721.1
1965	372.3	591.4	513.6	553.5	453.7	556.7	528.6	357.5	482.3
1966	850.0	823.5	688.7	690.7	550.0	780.8	822.4	535.8	727.7
1967	487.3	587.5	363.0	504.5	538.4	584.9	569.7	436.6	506.0
1968	870.5	671.0	696.4	456.6	572.2	773.4	677.2	697.9	639.1
1969	488.4	849.0	672.2	667.5	475.9	1008.6	840.3	553.6	636.3
1970*	454.7	559.9	680.1	965.4	640.8	829.2	396.3	743.4	658.7

N.A.—Not available. *The rainfall data for the year 1970 is provisional.

(Source: Bureau of Economics and Statistics, Bangalore).

TABLE - 4

Normals of Temperature and Relative Humidity at Bellary

B.D.G.

Month	Mean daily		Highest maximum ever				Lowest minimum ever				Relative humidity	
	maximum	minimum	recorded				recorded				0830	1730*
	temperature	temperature	°C		Date		°C		Date		%	%
	°C	°C										
January	30.9	16.9	36.7	1897	Jan.	31	10.6	1891	Jan.	4	64	33
February	34.2	19.1	39.4	1897	Feb.	22	12.2	1891	Feb.	4	53	26
March	37.4	22.5	42.8	1892	March	27	14.4	1885	March	2	46	20
April	39.2	25.2	43.9	1909	April	30	16.1	1905	April	1	50	25
May	38.8	25.5	43.9	1897	May	15	18.3	1890	May	6	55	29
June	34.7	24.5	42.2	1915	June	4	18.9	1956	June	14	62	49
July	32.4	23.9	38.3	1915	July	14	19.4	1930	July	2	66	56
August	32.4	23.3	37.8	1883	Aug.	9	19.4	1933	Aug.	27	68	55
September	32.3	22.8	37.8	1913	Sep.	19	19.4	1919	Sep.	13	70	56
October	32.0	21.9	38.9	1896	Oct.	7	15.0	1889	Oct.	28	69	50
November	30.5	19.1	35.6	1882	Nov.	3	11.7	1910	Nov.	28	68	45
December	29.7	16.7	35.6	1913	Dec.	26	10.6	1926	Dec.	28	67	37
Annual	33.7	21.8									61	40

*Hours I.S.T.

BELLARY DISTRICT

TABLE—5

Mean Wind Speed in Km/hr. at Bellary

January	February	March	April	May	June	July	August	September	October	November	December	Annual
4.3	4.7	5.5	6.4	9.8	12.9	13.8	12.7	10.3	5.1	4.0	3.9	7.8

TABLE—6

Special Weather Phenomena at Bellary

Mean No. of days with	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Thunder	0.3	0.4	0.7	4.2	6.4	1.2	0.4	0.7	3.1	3.0	0.4	0.1	20.9
Hail	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Duststorm	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Squall	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fog	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.4