CHAPTER V

INDUSTRIES

Industrial population

THE district of South Kanara continues to be predominantly agricultural though, however, it has made some progress in the field of industries. In 1931, there were 1,40,152 people actually engaged in some industry or other including transport services or, as the census has put it, " in the preparation and supply of material substances ". They formed 10.2 per cent of the population. The 1951 census recorded a considerable increase in this number and the total number of persons engaged in various industries including transport services formed 16 per cent during that year. The next census in 1961 showed 2,08,303 persons under the following classifications :—

(*a*) Employers	..	14,532
(*b*) Employees	..	1,17,161
(*c*) Single workers	..	62,580
(*d*) Family workers	..	14,030

This worked out to 35.18 per cent in 1961. In 1971, with a population of 19,39,315, the number of workers other than cultivators and agricultural labourers was 3,43,208, constituting about 45.84 per cent of the total number of workers.

There is now relatively a better industrial climate in the district. With a copious and unfailing rainfall and with the hills clad with forests of rich timber and the plains and hill slopes studded with large coconut plantations, the talipot, sago and arecanut palms the district possesses abundant materials for several industries.

The district has a coast-line of about 140.8 kms. and is the richest district in the Mysore State so far as the fishery resources are concerned and provides occupation for a large number of people in fishing and in industries connected with fish-curing and

manufacture of fish oil, an article of commercial value. The existence of a fine kind of clay has given rise to the establishment of a number of factories for the manufacture of building, flooring, ceiling and ridge tiles which have come to be known as "Mangalore Tiles", and are exported to all parts of India, Sri Lanka and East Africa. Among other industries of importance may be mentioned the cashew industry and the manufacture of motor springs. The different parts of the district are now well-connected by roads and have comparatively a better developed transport system. The West Coast Highway is at the completion stage. The Hassan-Mangalore railway and the all-weather port at Panambur are under construction. In recent decades, the district has witnessed a phenomenal progress in the field of general, technical and professionl education, and there is also high percentage of literacy. The district has two engineering colleges and two polytechnics, one for men and another for women, and several industrial training institutions.

The Mangalore Chemicals and Fertilizers, Ltd., which is being set up as a large-scale industry at Panambur, will be a mother industry. The proposed project of the National Mineral Development Corporation with an outlay of Rs. 175 crores for the export of iron ore from Kudremukh will also be a big step for the progress of industries in the district. For establishing a second Industrial Estate in the district, about 390 acres have already been set apart at Baikampady near Mangalore and this will give added encouragement for starting industries. The banking facilities are highly well developed in the district for which the district is reputed. Besides the various commercial banks and nationalised banks, there are several other agencies providing credit to industries like the State Industries Department, the South Kanara District Industrial Co-operative Bank Ltd., the Mysore State Financial Corporation and the National Small Industries Corporation. A most important contributory factor is the entreprenurial quality of the pepole and the very encouraging attitude shown by the banks in the matter of providing timely financial accommodation to the needy small industries.

Industrial units

In 1968-69, there were 719 industrial units in the district and their taluk-wise break-up is given below :—

Buntwal ..	31	Mangalore ..	390
Belthangady ..	5	Puttur ..	42
Coondapur ..	88	Sullia ..	3
Karkal ..	49	Udipi ..	111
		Total ..	719

(*Source* :—Report of the Lead Bank Survey)

The following are the number of different industrial units (category-wise) during the same year :—

1.	Food, beverages and tobacco ..	205
2.	Processing industries relating to wood, stone and glass ..	196
3.	General engineering including manufacturing ..	112
4.	Ceramic and glass products ..	33
5.	Chemicals ..	29
6.	Printing ..	23
7.	Metallic products ..	39
8.	Textiles ..	55
9.	Other miscellaneous industries ..	27
	Total ..	719

Power Supply

Having had a period of thermal power generated and maintained by private companies earlier, South Kanara came to obtain hydel power from the Mahatma Gandhi Hydro-Electric Works at Jog in 1956. Before the reorganisation of States, the Chief Engineer for Electricity, Madras Government, had worked out a comprehensive scheme for getting power supply from the Mysore Government. The scheme was originally estimated to cost Rs. 70 lakhs, but due to unforeseen circumstances, the estimated figure went up to nearly Rs. 90 lakhs. The then Madras Government opened negotiations with the Mysore Government and as per the agreement arrived at, the Jog power was to be tapped from the Shimoga sub-station. From Shimoga, a high power transmission line was to be constructed to a place called Balabare on the South Kanara-Shimoga district border by the Mysore State Electricity Department. The proposals for erecting these lines were administratively approved in 1954 and work was started in right earnest. From Balabare the Madras Government extended the 110 K.V. line *via* Hosangadi, Siddapur, Shankaranarayana and Haladi and then on through Hiriadka to Karkal, Udipi, Coondapur and Mangalore. Earlier, the 68 mile main 110 K.V. line from the old Mysore border up to Mangalore was also completed. At Kulashekhara near Maroli, a step-down transformer was put up to change the load from 110 K.V. to 33 and 11 K.V. for supply of electricity to Mangalore and the area around. In July 1966, the 120 kilometre long transmission link between Jog and Mangalore was completed.

Diesel power house

There was earlier a diesel power-house at Udipi. On 25th April 1955, the 33 K.V. line connecting Udipi and Karkal was

energised from this power-house. The surplus power from this diesel power-house was supplied to Coondapur. In the meantime, urgent representations were submitted to the Madras Government to improve the distribution mains in Mangalore city in order to cope up with the increased supply from jog. By July 1956, the work of drawing up power lines from Jog to the Hulikal Ghat border and a 75-mile long link between Hulikal and Mangalore was completed. Supply of power was inaugurated on 7th July 1956. Thus, the long-cherished desire to get hydel power from Jog was fulfilled by the combined efforts of the Madras and Mysore Governments.

According to the scheme worked out earlier the initial supply of power from Jog to South Kanara was to be 2,800 K.W. and it was to be increased to 3,500 K.W. at the end of two years and to 6,000 K.W. at the end of six years. But the excessive demand on the load at Jog prevented a full supply of power. At present (1972), South Kanara is getting a maximum power of 1960 K.W.

At the time of taking over of power supply by the Mysore State Electricity Board, there was electric supply to only four towns of the district, namely, Mangalore, Karkal, Coondapur and Udipi. Therefore, a programme to extend power lines to the other important towns was drawn up and the following five taluk head-quarter towns were electrified on the dates shown below :—

Sl. No.	*Name of town*	*Date of electrification*
1.	Coondapur ..	14–8–1954*
2.	Buntwal ..	22–9–1956
3.	Belthangady ..	1–4–1963
4.	Puttur ..	18–10–1957
5.	Sullia ..	8–4–1965

* (Diesel power supplied from Udipi).

By 1972, a 220 K.V. transmission line had laso been drawn and a sub-station with an installed capacity of 200 MVA had been set up at Marakada village near Mangalore to cater to the needs of industries, both big and small, and to other classes of consumers of Mangalore and other areas. There are two 110/33/12KV. sub-stations and six 33/11 K.V. sub-stations in the district as shown below :—

Sl. No.	*Location of sub-station*	*Installed capacity*
	110/33/12 K.V. Sub-Stations :	
1.	Kulashekhara	1 of 36 M.V.A.
2.	Hiriadka	1 of 16.5 M.V.A.
	33/11 K. V. Sub-Stations :	
3.	Udipi	1 of 10 M.V.A.
4.	Coondapur	1 of 5 M.V.A.
5.	Karkal	1 of 5 M.V.A.
6.	Puttur	1 of 5 M.V.A.
7.	Belthangady	1 of 1500 K.V.A.
8.	Sullia	1 of 2000 K.V.A.

Rural electrification

After the advent of hydel power in the district in 1956, rural electrification and supply of power to irrigation pumpsets were taken up and a transmission and distribution network was laid in all the taluks of the district in a phased manner. From the year 1961 onwards, there was a steady increase in power supply to villages and irrigation pumpsets. There has been good progress in this respect. The following is the taluk-wise break-up of villages electrified and irrigation pumpsets energised in the district as on 1st April 1972 :—

Taluk	*Total number of villages*	*Number of villages electrified*	*Number of villages to be electrified*	*No. of irrigation pumpsets energised*
Buntwal ..	85	64	21	1,559
Belthangady ..	83	52	31	509
Coondapur ..	101	71	30	2,093
Karkal ..	79	56	23	1,397
Mangalore ..	114	114	..	3,189
Puttur ..	65	45	20	802
Sullia ..	46	31	15	603
Udipi ..	115	109	6	4,665
Total ..	688	542	146	14,817

Since there are no major irrigation works in the district owing to the difficult nature of the terrain, the farmers have to resort to lift-irrigation either from wells or from river beds. They raise their first crop by rainfed water and the second and third crops mainly by lift irrigation. So, greater importance was given to rural electrification and energisation of pumpsets. This has brought about

a significant change in the cropping pattern. Introduction of cereals, pulses, sugarcane, vegetables and other varieties of crops brought an additional income per cultivated acre during the Third and Fourth Five-Year Plans. The following statement gives the number of different types of electrical connections in the district as in March 1972 :—

1.	Lighting ..	54,367	4.	High-tension power ..	40
2.	All-electric Homes ..	2,701	5.	Irrigation pumpsets ..	14,817
3.	Industries ..	2,606	6.	Street lights ..	14,563

The consumption of power in the district increased from 36.5 million units in 1962 to 68.2 million units in 1972, as shown below :—

Year	*Consumption in million units*	*year*	*Consumption in million units*
1962	36.5		
1963	28.3	1968	33.15
1964	46.5	1969	41.8
1965	35.62	1970	38.77
1966	32.5	1971	45.22
1967	41.5	1972	68.2

Small-scale Industries

The Central Government has adopted the following definitions in respect of industries. Small-scale industries include all industrial units with a capital investment of not more than Rs. 7½ lakhs (on plant and machinery), irrespective of the number of persons employed. In case of ancillary units, the limit of value of machinery and plant is Rs. ten lakhs. All industrial undertakings with a capital investment between Rs. 7½ lakhs and Rs. 25 lakhs are considered as medium-scale industries. Industries with a capital investment of over Rs. 25 lakhs but not more than Rs. five crores are large-scale Industries. An industry with a capital exceeding Rs. five crores is treated as a heavy-industry.

Manufacture of tiles

Manufacture of what have come to be known as " Mangalore Tiles " is the prominent industry of this district. The first tile factory was started in this area in 1865 as a result of the pioneering work of the Basel Mission. Prior to the establishment of tile factories, the tile press was worked at first by hand and then by bullocks. Mr. Plebat, to whom belongs the credit of being the pioneer of this tile industry, at first employed only 12 men whose daily out-turn was 560 tiles.

In 1972, there were 43 tile factories in Mangalore city alone which has become a flourishing industrial centre and about 26 at other places in the district. The total number of tile factories in the district comes to 69, out of which eight to ten factories are not functioning at present. The whole of the northern bank of the Netravati river in Mangalore is studded with chimneys. These tile factories have been supplying the needs of India, Sri Lanka, Burma, East Africa, Australia and other parts of the world.

The main reason for the location of this industry here is the availability of a suitable type of natural clay. The cheap and abundant quantity of firewood that can be obtained in the district has helped to sustain this industry. The tile factories are mostly located on the banks of rivers, canals and backwaters, and the seashore. This kind of location has made it convenient for the easy and cheap transportation of clay and firewood by water from the nearby fields and forests and re-transportation of manufactured tiles to the coastal centres for further distribution.

Process of manufacture

The clay required for the manufacture of tiles is plastic, smooth, and mixture of dull colours of ash grey and amber. The raw clay brought to the factory is moulded and compounded well, layer by layer, with sprinklings of water whenever necessary, and by removing stones and other hard impurities. Then, this is fed to the de-airing pug mill to make the clay a compact mass, free from air cavities. The outcoming consistent stiff clay from the pug mill is cut into slices, each slice being sufficient for a single tile. The methods for the manufacture of tiles are the same in principle but differ in detail in different factories. The clay slice is fed to the mould and pressed by hand-operated press. The excess of clay coming out from the sides of the mould is cut and removed by means of a smoothing flat, *i.e.*, wooden blade. The pressed and raw tile is then transferred from the mould to the wooden base and the person in attendance at once carries the tile away and sets it on the rack for natural drying under absolute shade. A hand-operated press with seven persons can make about 2,500 tiles per day of eight hours. Now, in some factories, revolving presses operated by power are introduced which produce about 5,500 to 6,000 tiles per working shift. But this has been opposed because of the fear that it may reduce employment opportunities in the tile factories.

The tiles, after complete natural drying under shade, are fired in the kiln at a temperature of 900°C. The ordinary kiln consists of a large chamber capable of holding 5,000 to 7,000 tiles, provided with series of deep fire places, so deep as to be almost called gas producers, on each side. The tiles are stocked in the kiln and then the fire lighted, ample air being admitted to ensure the combustion and to circulate through the loosely stocked tiles, before

going to the chimney. Such a kiln takes about six hours to work up the heat, eight hours heating up, eight hours firing and two days for cooling. Modern methods of continuous kiln constructions have been introduced in order to achieve fuel economy. Down draught kilns waste the hot flue gases when the tiles are unloaded for allowing them to cool down, whereas in the continuous kilns, the hot flue gas is diverted to another chamber for burning the tiles and thereby the heat is not wasted and fuel cost is reduced.

The burnt (biscuited) tiles are unloaded from the kilns, after they are sufficiently cooled for handling. These tiles have a pleasing dull rose-red colour and have a metallic sound. They are graded according to quality which depends on the correct metallic sound they give. This sound will not be present if there are manufacturing defects.

Some of the tile factories are run by oil engines, manned by manual labour, while others are run by electricity. The Commonwealth Tile Factory at Jeppu has set up a modern net-work of machines for the manufacture of tiles. Glass tiles, gaoglets, flower pots, flooring bricks, pots, jugs, pipes, ridges and ceiling tiles are some of the other articles manufactured by these factories.

Marketing

This industry provides employment to about 8,000 workers. A sum of about four-and-a-half crores of rupees has been invested in the industry. The average output per year is estimated around the figure of Rs. 15 crores, of which the district consumes only a small quantity; thus the tile industry acquires the characteristics of a major export industry. A break-up of the export figures valued at about Rs. 100 lakhs indicate that 572 lakhs of tiles are sent to the various ports in India, 45 lakhs to East Africa, 14 lakhs to Sri Lanka and 1½ lakhs to Aden, and from Aden to some European countries. The present cost of manufacturing tiles is between Rs. 90 and Rs. 100 per 1,000 tiles while the average ruling prices during the last five years were between Rs. 120 and Rs. 140 per 1,000 tiles. South Kanara may well be proud that 25 per cent of the total Indian manufacture of tiles is undertaken within this district alone. The wages of male workers in the different tile factories vary from Rs. 1-75 to Rs. 3 per day and that of female workers from Rs. 1-50 to Rs. 2. The workers are also paid Dearness Allowance and such other allowances . They are organised into a trade union entitled "Mangalore Tile Workers' Union" affiliated to the All-India Trade Union Congress.

This industry works in full strength and capacity for about six to seven months in the year when the sun shines. All the factories have to be idle for 5 to 6 months in the year during the monsoon period which does not allow the raw tiles to get dry and thus the workers are forced to face "a period of enforced

idleness" in that period. It is essential, therefore, to provide opportunities for these workers to engage themselves in supplementary industries in order to see that they are free from the threat of seasonal unemployment. Among the industries that provide employment to the workers during these periods of "enforced idleness" may be cottage industries like mat-making, basket-making, etc., which are dealt with in later pages.

A statement showing the year-wise export of tiles from the Mangalore Port is given below :—

Year	*Quantity in metric tonnes*	*Value in* Rs.	*Destination*
1958—59 ..	15,59,500	2,02,990	Dar-es-Salaam (Africa)
	5,34,000	72,769	Mombasa (Africa)
	31,250	4,787	Jafna (Sri Lanka)
Total ..	21,24,750	2,80,546	
1959—60 ..	4,18,000	55,420	Dar-es-Salaam (Africa)
	48,000	6,240	Tanganica (Africa)
	86,000	11,025	Mombasa (Africa)
Total ..	5,52,000	72,685	
1960—61 ..	1,31,280	14,600	Dar-es-Salaam (Africa)
	60,180	9,145	Zanzibar (Africa)
Total ..	1,91,460	23,745	
1961—62 ..	25,000	4,000	Dar-es-Salaam (Africa)
1962—63 ..	1,95,330	39,010	do
1963—64 ..	No Exports		
1964—65 ..	1,76,000	29,920	Colombo (Sri Lanka)

The subjoined table gives particulars of tile factories which employed more than 100 persons, as in 1972 :—

Sl. No.	*Name*	*Year of establish-ment*	*Capital invested (in Rs.)*	*No. of persons employed*	*Production (No. of tiles)*
1	2	3	4	5	6
1.	Commonwealth Tile Factory, Mangalore.	1865	N.A.	450	80,00,000
2.	Albuquerque and Sons Tile Works, Mangalore.	1868	N.A.	300	45,00,000
3.	Rego Tile Works, Mangalore ..	1871	N.A.	150	36,50,000
4.	Premier Tile Works, Mangalore	1882	3,85,000	117	16,50,000
5.	Highland Tile Works, Mangalore	1887	24,000	104	18,00,000

1	2	3	4	5	6
6.	M. Rebello & Sons Tile Works, Mangalore.	1889	N.A.	140	24,00,000
7.	Battery Tile Works, Mangalore	1890	38,000	114	20,00,000
8.	Pioneer Tile Works, Mangalore	1902	N.A.	100	18,00,000
9.	Sudarshan Tile Works, Managalore	1914	1,70,945	134	23,00,000
10.	National Tile Works, Mangalore	1915	6,00,000	116	12,50,000
11.	Sujircar Tile Factory, Mangalore	1918	5,80,000	150	23,00,000
12.	Sovereign Tile Works, Mangalore	1929	1,77,300	200	42,28,000
13.	Prabhakara Tile Works, Mangalore	1931	1,78,442	135	33,80,106
14.	The Commonwealth Tile Factory, Udipi.	1938	2,43,810	140	19,98,600
15.	Pompie Tile Works, Mangalore.	1940	5,00,000	150	30,75,000
16.	Standard Tile Co., Mangalore ..	1941	5,00,000	120	20,37,500
17.	Standard Tile Co., Mangalore ..	1942	N.A.	131	16,80,000
18.	The Mangalore Tiles Ltd., Coondapur.	1947	1,38,650	100	22,06,000
19.	Prabhakara Tile Works, Coondapur	1956	1,43,840	125	32,03,535
20.	Kamat Tile Works, Coondapur	1957	5,00,000	110	23,00,000
21.	Udaya Industries, Ullal (Mangalore taluk).	1959	3,10,000	107	6,00,000*
22.	Bava Tiles and Clay Industries, Mangalore.	1961	6,00,000	130	35,00,000
23.	Modern Tile Works, Buntwal ..	1961	4,46,500	200	4,27,000*
24.	Mukambika Industries Tile Factory, Coondapur.	1961	2,58,000	100	30,00,000
25.	Indian National Tile Works, Mangalore.	1962	4,25,000	137	20,00,000
26.	Sitaram Industries, Mangalore	1965	2,59,110	105	24,00,000
27.	Coronet Tile Works, Udipi ..	1969	3,23,097	129	22,50,000
28.	T. H. Morgan & Sons, Mangalore	N.A.	4,25,000	153	32,00,000*

N.A.—Not available.

* Figures indicate value of tiles in rupees.

After the establishment of tile factories in Sri Lanka and South Africa, the quantity of exports of tiles from India has gone down. As people have started constructing terraced houses, the internal demand for tiles is also reduced. The Reserve Bank of India conducted a survey regarding the deteriorating condition of the tile industry and suggested measures to overcome the difficulties.

Mosaic tiles

Mosaic flooring tiles are also manufactured in the district by M/s. Techno Flooring, situated in Mangalore, which was established in 1962. The capital invested was Rs. 67,370 and the value of production was about Rs. 2,03,800 in the year 1970. Most of the raw materials such as marble chips, powders, colours, etc., required for this industry are easily available from indigenous sources. The problem faced by the industry was in respect of supply of adequate quantity of cement. The demand for mosaic tiles is increasing year by year for use in the better class buildings.

The production of mosaic flooring tiles here meets only about 20 per cent of the estimated demand in the district.

Tile Manufacturers Association

The Western India Tile Maunfacturers Association, Mangalore, was established in the year 1948 with the main object of protecting and promoting the interests of the tile industry in all its aspects including the purchase of raw materials like clay, fuel, timber, framers, machines, machine tools, oil, lubricants and all other articles required in the manufacture of tiles or allied products. As in 1970, the Association had a capital fund of Rs. 19,850-90 with a total membership of 33. The Association has helped the member tile manufacturers in tiding over their difficulties by representing to the Government authorities concerned. The difficulties faced by the industry included requirement of finance caused by accumulation of huge stocks of tiles and the question of procurement of enough quantities of fuel.

Cashew Industry

Another important industry in the district is the cashew industry. It was started for the first time in India in Mangalore in the second decade of this century. Mangalore is thus the birth-place of this industry. Thereafter, the industry spread to other parts of the country. Now, nearly 80 per cent of this industry in India is centred in and around Quilon in the Kerala State, and South Kanara accounts for about 12 per cent (on the basis of the exports made by the factories). The area under cashew-nut cultivation in the district in 1971-72 was 1,00,294 acres. But the produce of the district is not sufficient to meet the requirements of the cashew-nut factories. Hence large quantities of raw cashew-nut are being imported from Africa. Some quantitites are also obtained from the North Kanara district and also from Kerala State. The raw cashew-nuts grown in India and made available to the cashew factories constitute hardly one-third of the total requirements of the cashew factories.

There are three varieties of raw cashew-nut used in the factories at Mangalore. They are: (1) Local nuts of Puttur, Vittal and other places which are uniformly large and good for out-turn and oil contents; (2) African nuts, which are smaller than the local nuts, and noted for their out-turn which are more by about 5 to 6 lbs., but their oil content is less by 10 to 14 lbs. per bag of 168 lbs; (3) North Kanara nuts, which resemble those grown in Coondapur but are not so good as the local nuts. The cashew-nut consists of a Kernel covered with a thin pink skin enclosed in a double-walled shell, the space between the outer and inner walls being a thin-walled honey-comb structure. The outer wall is smooth, grey-green in colour and leathery. The honey-comb structure contains what is known as cashew shell liquid. The cashew kernel forms about 25 per cent of the whole nut by weight and its extraction requires special and careful processing.

The processes of extracting kernels from raw cashew-nuts are roasting, shelling, drying and peeling.

As the shell of the cashew-nut is leathery, it is necessary for the raw nuts to be roasted before the kernels can be extracted from them. Until 1935, the roasting process resulted in the loss of casesw liquid which is a versatile product. It was only in 1935, that a process of roasting, whereby the cashew shell liquid could be extracted was evolved. The nuts are roasted at high temperatures either in steel drums out of contact with air, or in cashew-nut shell liquid oil bath (this process is know as Hot Oil Bath Process) to roast the outer hard shell and prepare them for being shelled. During the process of roasting, cashew kernel is extracted from the shell which, at the same time, is made brittle and easier to break. The roasted nuts coming out of the roasting plant have a small coating of cashew shell liquid which is removed by centrifuging before taking to the shellers for shelling.

After roasting, the nuts are to be shelled. This denotes the porcess of breaking open the outer thick shell and removing the kernel with its husk or peel attached to its surface. This is done either by hand-shelling in which the roasted nuts are cracked open by beating with a wooden mallet provided with a metallic cap at the breaking end or by machine shelling which denotes shelling by cutting open the outer shell by a machine operated manually; the latter process is more economical and easy. This work requires patience and precision lest the kernels would be broken to pieces.

The shelled kernels have a pink skin covering which has to be removed before the kernels are made edible. This skin is attached fast to the kernel and can only be loosened after the kernels have been dried and the moisture in the peel or husk is removed by contact with hot air. After the kernels are kept for several hours in a hot room or a drying chamber, they lose much of their moisture and shrink slightly. Thereafter the thin skin is removed by hand without difficulty. The process of removing the thin skin is known as "peeling". This is again a precision job done exclusively by female labour. The kernels, which are dried, are then peeled by hand by means of a blunt metallic knife. Care is to be taken to avoid breakage of the kernels as much value will be lost if the kernels are allowed to break. As in the case of shelling, peeling has to be done with one kernel at a time.

Grades

The peeled kernels are then graded into different grades depending on the size, colour, appearance, either wholes or pieces, and such other considerations. Grading is a delicate operation, done manually by hand-picking. Although the accuracy of the

graders in their sorting is remarkable, samples are drawn continuously from each grader and checked on a sensitive scale to ensure that the standard is maintained. The Export Inspection Agency has recommended about 22 grades and all these grades are sold in the export market. The grades of cashew kernels vary from 210 counts to 500 counts. Among the more important grades may be mentioned those of scorched wholes and dessert wholes No. 1 and 2. The tips of the kernels of the grade of scorched whole are burnt a little. This is considered to be of a superior quality when compared to the dessert wholes. Under dessert wholes No. 1, there are two grades, namely, the Indian grade and the continental grade: these are said to be slightly inferior to those of scorched wholes. These are not exported to America. The grade called dessert whole No. 2 is still inferior to the above grades and it is not also exported outside. Among the other grades may be mentioned the bits, splits, white large pieces, white small pieces, scorched pieces and dessert pieces. From one bag of 108 lbs. of raw cashew-nuts, about 24 to 26 lbs. of the grades from 210 counts to 500 counts and the grade called scorched wholes are obtained in addition to about 10 to 11 lbs. of white pieces and dessert pieces, and about 3 to 4 lbs. of scorched pieces. And from about the same quantity, 19 to 20 lbs. of cashew oil is extracted.

The cashew kernels are highly susceptible to infestation and insect-attack when exposed to even ordinary atmospheric conditions in storage. The kernels are packed in sealed tins which are vacumised, and the vacuum is filled with carbon-dioxide. This process is known as the Vitapack process. It ensures that infestation of the kernels inside is eliminated.

Marketing

They are shipped from Mangalore, Calicut or Cochin depending upon the availability of steamers and weather conditions. Apart from regular examination of stocks in factories by the factory managers, samples are selected at random prior to each shipment and these are given a thorough examination to ensure accuracy of grading, colour and size. Only with the certificate issued by the Export Inspection Agency, shipment can be arranged. The number of cases of cashew kernels exported from the district were as follows :—

Year	*Cases*
1960	85,964
1965	67,527
1970	65,244
1971	77,607

(1 case is equal to 45.36 kgs.)

There are 13 cashew-nut factories in this district. They together provide employment to about 8,000 workers. Most of the workers live in rented houses miles away from the factory. The Employees' State Insurance has been made applicable to the cashew proceessing industry. However, free medical aid is made availablc to thcm in the factories. There is a vigorous trade union activity and there are three unions, namely, the Cashew Workers' Union, *Geru-Beeja Shramika Sangha* and Cashew-nut and Allied Workers' Union representing most of the workers.

Serious problems

In 1956, the shortage of raw nuts faced by the cashew industry in this district resulted in the closure of the factories for about four months in that ycar. There was a grcat need to extend the area under cashew-nut cultivation and under a Cashew Development Scheme, Government assigned wastelands for cashew cultivation and also granted financial aid to those interested in cultivating cashew-nut. Technical know-how was also provided under this scheme. The industry is now in a fairly steady condition. The following table gives particulars of cashew factories in the district as in 1970 : —

Sl. No.	*Name of firm*	*Year of establishment*	*Capital invested*	*Number of persons employed*	*Production*	
					Quantity in metric tonnes	*Value in Rs.*
1	2	3	4	5	6	7
1.	Ashoka Cashew Industries, Karkal.	1967	9,000	N.A.	10	11,500
2.	Bola Raghavendra Kamath & Sons, Karkal.	1958	97,800	161	188.5	37,71,100
3.	Kamath Cashew Company, Mangalore.	1966	60,000	62	450 80	6,00,000 40,000
4.	Kamath Cashew Works, Mangalore.	1963	62,000	40	300 60	4,00,000 30,000
5.	Mizar Govinda Annappa Pai and Sons, Mangalore.	1947	3,40,000	1,200	450 400	30,00,000 6,00,000
6.	Pierce Leslie and Company Ltd., Jeppu, Mangalore.	1924	17,99,276	1,781	14,716	5,29,75,980
7.	Pierce Leslie and Company Ltd., Mangalore.	1946	18,14,400	1,502	1,906* 566*	40,55,670 N.A.
8.	Swastik Cashew Industries, Mangalore.	1952	5,08,000	650	474 1,885*	37,71,100 N.A.

1	2	3	4	5	6	7
9.	T. Mukunda Prabhu, Karkal.	1966	9,000	19	20	32,000
10.	Yeknath Cashew Industries, Mangalore.	1939	70,000	100	20 40	1,60,000 20,000
11.	Ganesh Cashew-nut Industries, Karkal.	1958	2,80,000	250	750	11,25,000
12.	M. V. S. Prabhu & Co., Mangalore.	1967	80,000	78	N.A.	N.A.
13.	U. N. Mallya Cashew Factory and Konchady Oil Mills, Mangalore.	1924	2,00,000	400	N.A.	N.A.

N.A. =Not available. * Figures refer to cashew shell oil.

Cashew Shell Oil

Cashew shell liquid is an important bye-product obtained while processing cashew-nuts and extracting the kernels. During the process of roasting, most of the oil in the shell oozes out and this is collected. The shells obtained after shelling are crushed in expellers to separate the oil which is left in the shells. The commercial shell oil obtained by the roasting of cashew-nuts is a dark brown viscous oil, easily soluble in most of the organic solvents. Although not a glyceride, it is a drying oil. With suitable driers, it gives a smooth, shining film of dark-brown colour. In India, the oil is employed as a water-proofing agent, and also as a preservative in the painting of boats, fishing nets and light wood work. It is only in recent years, mainly as a result of the investigations of Messrs Harvey and Caplan, that the oil has attained technical importance, and America, Japan and U.K. are now the chief buyers of the oil produced in India. The industrial applications of the shell oil are based upon its polymerization to a rubber-like material under the influence of acids, and on the formation of a wide range of condensation products with aldehydes. The latter are generally hard, infusible and extremely resistant to the action of chemicals such as acids and alkalies. The cashew shell liquid is now used in the manufacture of brake liners, paints, varnishes, lacquers and insulators. The total export of cashew shell liquid in the year 1971-72 was 5,503 tonnes valued at Rs. 62 lakhs.

Manufacture of beedies

The district is well-known for its *beedi* industry. The Mangalore beedies are famous for their smart structures and tasty blend of tobacco dust. It is a common sight to see workers squatting and moving their fingers in a set pattern rolling *beedies* and chatting and sometimes singing. It is one of the important cottage-type industries extensively prevalent in various parts of the district. The organisation of this industry is unique in the sense that the *beedi*-rolling work is being done by a few thousands

of people of either sex, both in the rural and the urban areas, who do the work on piece-rate basis getting all the raw materials from authorised agents of the leading *beedi* concerns. A large number of people, particularly women, find it a good source of income and an easy and convenient pastime. The important centres of this industry are Mangalore, Buntwal, Panemangalore, Gurpur, Bajpe, Kinnigoli, Mulki, Haleyangady, Ullal, Karkal and Udipi. There are about 35 prominent factories in this district, leading ones among them being located in Mangalore. These factories are linked with a network of branches and contractors in different places of the district.

It is estimated that about 70,000 workers live by rolling beedies in this district. As it has been a paying occupation, it has attracted boys, adults and women-folk alike in large numbers. Of the total number of workers, about a thousand get the benefit of the Factories Act and other labour legislations. The rest are "out-door workers" who take tobacco and *beedi* leaves to their homes for making *beedies*.

The *beedi* leaves, tobacco dust and yarn are the raw materials required for this industry. The *beedi* leaves are imported on a large scale by the principal factories and other wholesale dealers from Raipur (Madhya Pradesh), Kerala, Shimoga, etc. Tobacco dust is mainly imported from Sangli, Kolhapur, Jaisingapore and Nippani. To a small extent, tobacco is also grown in South Kanara district and according to recent estimates, the total area under tobacco cultivation is 173 acres out of which Puttur taluk alone has 128 acres. *Beedi* leaves are cut into rectangular pieces and then rolled with tobacco dust into beedies. There are supeiror and inferior qualities of *beedi* leaves. Leaves having slight blackish colour are classified as inferior as the *beedies* prepared out of these leaves do not give an attractive appearance to the consumers.

Beedi workers

The working conditions of the *beedi* workers in this district are different form those in other districts of Mysore State. Workers, who are engaged in the manufacture of *beedies,* get *beedi* leaves and tobacco from contractors and out of these raw materials they prepare *beedies* and get a piece-wage of Rs. 2.50 to Rs. 4.30 per thousand *beedies*. The contractual obligation in this respect is oral and no written agreement is entered into. The raw materials are given to the out-door workers on trust and long-standing relationship. In recent years, relationship between the workers and the contractors has not been very cordial and many hitches arose. Before 1956, a special investigating officer of the Madras Government had enquired into this question. It was found after examination that the system of out-door labour on contractual basis presented several difficulties. There is also a

growing tendency among the workers to resort to an agitational approach to better their conditions. The Minimum Wages Committee, which went into the question, had also remarked about the unsatisfactory condition of the workers. The system of outdoor work based on the whims of proprietary contractors has been found to be not very satisfactory. The total turnover of this industry in this district is valued at about Rs. 6 crores annually while the total production is reported to be about 4.5 crores of *beedies* per day.

The following are some of the important *beedi* factories in the district as in 1972 :—

Sl. No.	*Name of firm*	*Year of establishment*	*Capital invested in Rs.*	*Number of persons employed*	*Production value in Rs.*
1	2	3	4	5	6
1.	Mahalakshmi Beedi Works, Panemangalore.	1914	20,000	305	2,88,200
2.	P. V. S. Beedies, Mangalore..	1918	4,00,000	75	90,00,000
3.	Bharat Beedi Works, Karkal	1930	N.A.	19	2,12,00,000
4.	Ganesh Beedi Works Buntwal.	1930	50,000	72	55,00,000
5.	Cutlery Beedi Works, Puttur	1940	20,000	80	1,80,000
6.	Mangalore Ganesh Beedi Works, Mangalore.	1940	7,00,000	60	65,00,000
7.	Prakash Beedies, Mangalore..	1940	48,000	64	85,00,000
8.	Sri Ganesh Beedies Puttur.	1947	1,30,000	50	42,00,000
9.	General Beedi Works, Puttur	1946	35,000	9	2,500
10.	Ganesh Beedi Works, Mangalore.	1948	80,000	30	52,00,000
11.	Sri Ganesh Beedi Works Uppinangady, Puttur Taluk.	1958	10,000	12	2,00,000
12.	Udaya Beedi Works, Puttur	1958	10,000	4	5,000
13.	Sadhu Beedies, Mangalore ..	1963	2,00,000	65	70,00,000
14.	Udaya Beedi Works, Sullia ..	1963	1,120	2	2,000
15.	Chitra Beedies, Belthangady	N.A.	18,000	6	15,000
16.	Manmohan Beedies, Belthangady	N.A.	N.A.	3	8,000
17.	Shenoy Beedi Works, Karkal	1932	3,800	83	1,74,600

Ferrous and Non-Ferrous Industries

There were, as in 1970, 46 units which were manufacturing steel wire, industrial stamples, structurals, non-ferrous castings, machine fabrications, leaf springs, brake-drums, hubs, cylinder liners, spring steel, spare parts of factory machinery, automobile parts, agricultural implements, M.S. rounds and squares, moulding rings, bronze bearings, non-ferrous fittings and steel metal products, suit cases, trunks, domestic utensils, tin containers, etc.

They had a capital of about 90 lakhs of rupees and about 800 persons were employed in them. The value of their annual production was of the order of 60 lakhs of rupees. Two of these industrial units, namely, the Canara Workshops Ltd., and the Canara Wire and Wire Products, which have invested the largest amounts and employed the highest number of persons, are mentioned below in detail.

Manufacture of motor springs

A recent important addition to the industries at Mangalore has been the manufacture of auto-springs by the Canara Workshops, Ltd. The industry stands as a symbol of the ingenuity and organisational skill for which the district is well-known. The popularity of these springs is indicated by the fast-growing volume of output since its inception.

The Canara Workshop Ltd. was started as a public joint stock company in 1043 with a subscribed capital of Rs. 2 lakhs and a paid-up capital of Rs. 59,613. In 1972, the paid-up capital stood at Rs. 69 lakhs. It took over the motor repairs workshop of the Canara Public Conveyance Co. Ltd. and expanded it with specialised equipment to effect quick and efficient repairs. During the period of the war, spare parts for motor vehicles were not easily available and the Company's factory manufactured several of the components required for buses and cars. Subsequently, the Company considered the question of manufacturing vehicle components on production basis. After considerable experiments, the Company finally started manufacturing automobile springs in 1950.

Formerly, these springs were manufactured from ordinary market quality of carbon steel by crude methods such as heating the steel by the fire of coconut husks and tempering by heating and testing the temperature by spreading saw dust on the heated blade. Now, the springs are manufactured according to the latest methods which are followed in countries like the United Kingdom and the United States of America. The products gained considerable popularity and the factory was extended in 1955 and U-Bolt manufacture was also started at this time. The Company obtained a licence to start a spring factory at Nagpur and this was opened on 3rd June 1961. Unfortunately, this new factory had to be closed down in November 1966 owing to labour trouble.

The Company, in the meanwhile, went in for a diversification of its activities. It secured a licence to manufacture alloy steel as raw material for the manufacture of springs and also the necessary licence for import of plant and equipments for the purpose. After some teething troubles, the plant is now manufacturing spring steel which is mainly intended as a raw material for its own spring-manufacturing unit.

The Company also obtained a licence for manufacture of hubs, brake-drums and cylinder livers and a factory to manufacture the

above items was started in about September 1963. Modern equipment has been installed in this factory for the production of brake-drums on a small scale. It had initially technical collaboration with the International Nickel Company (Monop) Ltd., London, for the production of spheroidal graphite iron for manufacture of hubs. In the manufacture of steel, the Company had collaboration with Concast A.G. of Zurich (Switzerland).

About 500 wrokers are employed by the Company. They are provided with a subsidised canteen and loan facilities and there are also educational amenities for the children of the workers. The following statement indicates the figures of production in the workshops of this Company :—

Year		*Production*
1953	..	289.76 tonnes
1957	..	1,168.922 tonnes
1970 :		
Leaf springs	..	2,350 tonnes
Spring steel	..	626 tonnes
Brake-drums	..	7,600 (numbers)
Cylinder lines	..	1,600 (numbers)

Canara Wire and Wire Products

The Canara Wire and Wire Products Ltd., Mangalore, was established in 1964, with an initial capital of Rs. 1.94 lakhs, which was increased to six lakhs of rupees by 1970-71. Originally this Company was started for the manufacture of wire rods. An 8" scrip and billet re-rolling mill with a rated capacity of 16 metric tonnes per shift was installed and subsequently, the 8" mill was replaced by a 14" ranging stand and 10" finishing stand with necessary equipment with a rated capacity of 32 metric tonnes per day. As in 1972, 10 mm. to 25 mm.. M.S. rounds were then manufactured.

There are more than 100 workers and they are getting the benefits of Employees' State Insurance and Provident Fund. The production from 1964-65 to 1970-71 was as given below :—

Year		*Production in metric tonnes*	*Value in Rs.*
1964-65	..	1,879.338	12,95,818
1965-66	..	2,441.794	24,13,797
1966-67	..	3,298.545	28,68,795
1967-68	..	7,536.852	57,55,098
1968-69	..	7,412.734	57,40,582
1969-70	..	6,151.214	78,22,504
1970-71	..	2,646.489	39,89,713

St. Joseph's Asylum Industrial Workshops

The St. Joseph's Asylum Industrial Workshops, a charitable institution, was started in the year 1889, by the Diocese of Mangalore. It began as a small repair workshop for the purpose of training and rehabilitating the destitutes in the St. Joseph's Asylum. As at present (1973), it has general engineering, carpentry, statuary and saw-milling sections. In addition to the repair work, new machines and instruments such as tile-making machine, band saws, cashew-nut roasters, oil chucks, etc., are also manufactured here. The capital investment, as in 1973, was Rs. 13,75,107. The value of goods produced in 1971 was about Rs. 2,48,200. The workshop has about 100 workers and they are provided with quarters at concessional rates of rent. A club and a reading room are also provided. Apprentices are also taken for training under the Apprenticeship Scheme of 1961 in the trades of turner, machinist, fitter and moulder.

General Engineering

There were 104 units of general engineering in the district as in 1970. They manufacture wheel bolts, nuts, sheds, bushes, agricultural implements, automobile parts, electric fans, furniture including sofa-*cum*-beds, grills, gates, water-tanks, knives, cash boxes, all types of iron works, motor body building, some parts of bullock carts, moulding rings, bronze bearings, water-pots, buckets, tubes, pots, surgical and dental instruments, laboratory equipments, autorickshaw body-building, P.G. clamps, coffee machines and oil fillers, etc. In addition, job works, auto-repairing and such other types of works are undertaken. The capital investment of all these 104 units came to about 70 lakhs of rupees and there were about 1,400 persons working in them. Their total turnover in 1970 was estimated at about Rs. 30 lakhs.

Electrical Appliances

As in 1970, there were nine units manufacturing electrical appliances like commercial refrigerators, electric oven coolers, storage batteries, emergency lights, auto-batteries, freezers, transistors and assembling of radio sets, etc. The capital invested was about Rs. 2,25,000 and the number of persons employed was about 60. The value of production was estimated at about rupees three lakhs.

Printing Presses

There are over 90 printing presses in this district which generally undertake job works like printing of account books, bill books, exercise books, marriage invitations, handbills and labels, and printing and publishing of novels and other literature, diaries, calendars and newspapers (dailies and weeklies). Many of these presses also undertake binding works. Most of them purchase their requirements of paper, etc.,, from local wholesalers and the printing ink is imported from Madras. These presses employ about 1,200 workers. Their annual turnover was estimated at about Rs. 15 crores as in the year 1970. The printing industry as such is also associated with the Based Mission. Detailed infor-

mation about this Mission is given in the addenda. The subjoined table gives particulars of printing presses of which the capital investment is over rupees one lakh, in order of the year of establishement:—

Sl. No.	*Name of printing press*	*Year of establishment*	*Capital invested (Rs.)*	*No. of persons employed*	*Products manufactured*	*Production value (Rs.)*
1.	Dharmaprakash Press & Mills, Mangalore.	1890	2,25,000	6	Almanac, job works, etc.	9,600
2.	Mangalore Trading Association (P) Ltd., Mangalore.	1900	5,34,000	116	Labels, stationery, books, types, blocks.	8,76,950
3.	The City Press, Mangalore.	1923	1,82,000	50	Books, Job works, etc.	2,42,100
4.	Sreenivas Brothers, Mangalore.	1928	3,52,000	8	Note-books, account books, pocket books, binding, etc.	1,50,000
5.	Mangalore Press, Mangalore.	1930	1,25,750	30	Text-books, stationery, and Job work	2,13,300
6.	Manipal Power Press, Manipal.	1941	7,83,000	85	Books, job works, etc.	9,58,300
7.	The Newspaper Publishers & Printers Ltd., Mangalore.	1941	3,97,000	102	Printing, binding, publishing.	11,00,000
8.	Sharada Press, Mangalore.	1957	1,10,000	68	Book-binding, type-casting, job-works.	8,00,000
9.	Hind Art Press, Mangalore.	1962	1,20,750	14	School text-books, Job works, etc.	85,00,000
10.	Bharath Printers, Karkal.	1965	1,60,000	10	Beedi labels, wrappers, posters, etc.	1,62,000
11.	Com-pack, Manipal.	1965	4,20,000	28	Cartons printing, etc.	N.A.
12.	Kodialbail Press, Mangalore.	1966	4,05,600	49	Books, stationery, job works, etc.	1,50,000

Among these, the Manipal Power Press, Manipal, has invested the largest amount of capital and a few details of its working are given here. It was started on 1st May 1941 by Dr. T. M. A. Pai. The initial capital was Rs. 3,501 and the working capital was Rs. 5,000. As in 1972, the capital was Rs. 19,11,400 and the working capital was Rs. 3,50,000. The press undertakes all types of jobs both letter-press and offset, including process, block-making, book-binding, silk-screen printing, etc. The value of production in 1962 was Rs. 2,97,200 and in 1972, it was Rs. 35,29,511. In the year 1971, the press had employed about 186 workers in the press proper and 19 persons in the office. The press runs in two shifts. It has won several awards for excellence in printing. Amenities such as free snack and tea twice a day, mid-day meals at subsidised rates, bonus at 20 per cent on the earning, provident fund benefits, etc., are provided to the workers.

Fishery Industry

The South Kanara district has an immense wealth of fisehry resources. There are about 85 fishing villages with a fisher-folk population of about 60,000. During the Second Five-Year Plan, mechanisation of fishing was introduced in 1958 and a boat-building yard was established at Mangalore. As in 1972, there were 24 boat-building yards in the district, one in the public sector, two in the co-operative sector and 21 in the private sector. The district had 777 mechanised fishing boats in 1972. There were 36 ice plants, nine in the public sector, 25 in the private sector and two in the co-operative sector, besides 16 cold storage plants, eight of which were in the public sector, six in the private sector and two in the co-operative sector during that year. Besides, the district had 15 freezing plants, 12 frozen fish storages, six canning plants and fish oil factories etc. (*See* Chapter IV where the subject of fisheries has been dealt with comprehensively.)

Mangalore Chemicals and Fertilizers

Establishment of a large-scale naphtha-based fertilizer complex at Mangalore was suggested by a fertilizer technical committee which submitted its report to the Government of India in 1960. The Fertilizers and Chemicals (Travancore) Ltd., which carried out detailed techno-economic feasibility studies at the instance of the Government of Mysore and the Bechtel Corporation of the United States of America, which undertook a study of critical evaluation of the fertilizer industry in India, also recommended the establishment of a fertilizer complex at Mangalore. In 1966, the Dugal Enterprises (Private) Ltd., on the basis of a techno-economic study of the project made by the International Development and Investment Company Ltd. (IDIC), obtained an industrial licence which was transferred to Malabar Chemicals and Fertilizers Ltd. Later, the name of the latter company was changed to Mangalore Chemicals and Fertilizers Ltd. (MCF).

The present promoters of the company are the Government of Mysore, the Mysore State Industrial Investment and Development Corporation Ltd. (MSIDC), the Mysore State Co-operative Marketing Federation Ltd. (MSCMF) and the Mysore State Agro-Industries Corporation Ltd. (MSAC). Thus it is a joint-sector company. It has been granted an industrial licence for the manufacture of 2,17,800 tonnes of ammonia and 3,40,000 tonnes of urea per annum. The Company is setting up a fertilizer plant with a capacity to produce 660 tonnes of ammonia and 1,030 tonnes of urea per day in the first phase. In the second phase, it will utilise an additional 60 tonnes of ammonia per day to manufacture compounds of complex fertilizers. The State Government has also made available water and power for the project. It has also allotted about 200 acres of land for the location of the factory adjoining the West Coast High Way. The location of the factory opposite to the Panambur harbour provides certain advantages and imported raw materials like naphtha and fuel oil can be pumped direct from the harbour site to the project site with a minimum cost.

Manufacturing process

The process of manufacture selected is to produce strong, smooth-flowing prills with a low moisture content suitable for shipment and storage in bulk without the use of coating agents. Apart from selecting the optimum process-routing for urea plant, the biuret content for the urea product has also received much attention. The Mangalore Chemicals and Fertilizers, after carrying out investigations, came to the conclusion that the low biuret content is of prime importance where the urea is used as a foliar spray on citrus, pine-apple and coffee crops. For most of the normal ferti lizer applications the standard biuret content of about 0.7 per cent is equally effective as the low biuret content urea. A practical advantage of the standard biuret content urea is that the project cost and the operating cost are lower and the finished product has much better storage properties.

The plant will be so designed as to cope with lower grade naphtha, thus providing a built-in margin for greater capacity, should a superior quality of naphtha be available. The plant will use minimum fuel oil and consume less steam per tonne of urea than usual. The front end of the ammonia plant will continue to run even when a total power failure occurs, thereby minimising the down time. The urea plant designed for this factory has a mixed drive synthesis gas compressor. This compressor will be unique in the sense that the low pressure compressor will be driven by the electric motors and the high pressure compressor will be driven by steam.

Naphtha will be the feed stock for the manufacture of ammonia in this plant. The requirement of naphtha when the

plant works in full capacity will be 18,000 tonnes and the fuel oil for the auxiliary boiler will be 30,000 tonnes. Both these will be supplied from the new harbour installations of the Indian Oil Corporation. The water requirements of four million gallons per day will be supplied by the Government of Mysore. The power requirement of the project at full capacity is estimated to be about 30-35 MVA to be supplied by the Mysore State Electricity Board.

The plant is expected to be erected by the end of May 1974. The Company has carried out detailed market surveys to justify the capacity of its plant, product mix and salability of its products. An organised seeding programme has been planned. Urea fertilizer will be distributed under the Company's brand "Mangala" as soon as it is available for seeding purposes.

The total cost of the project is estimated at Rs.57.5 crores, including the foreign exchange component of approximately Rs. 20.84 crores. The foreign exchange component will be met out of United Kingdom-India mixed project loan. The capital cost is proposed to be financed by a share capital of Rs. 15.5 crores, of which Rs. 12.5 crores will be in the form of equity shares of Rs. 10 each and three crores of rupees in the form of cumulative preference shares of Rs. 100 each. The rest of the capital cost of Rs. 42 crores will be met out by long-term loan from financing institutions and commercial banks. This complex will be a highly important land-mark in the industrial development of the area.

Textiles

There were, as in 1972, 65 units connected with the manufacture of textiles. They make handloom sarees, *lungies*, ready-made garments, hosiery, knitted hosiery, handloom fabrics, etc. and dyeing is also done. The total capital investment was of the order of Rs. 12 lakhs and the number of workers employed was about 2,000. The annual production is estimated to worth Rs. 40 lakhs.

Wood products

As in 1972, there were 67 units manufacturing wooden furniture, plywood articles, mechanical fishing boats, agricultural implements, building materials, packing cases, lorry bodies, veneer, etc. Some of them were sawing timber. The total investment of these 67 units came to approximately 83 lakhs of rupees, providing employment to about 1,100 persons. The annual turnover of these units was about Rs. 40 lakhs.

The Mysore Commercial Union Ltd., Buntwal, is the only concern manufacturing veneers. It was formerly known as the Mysore Plywood Corporation. The factory was started at Bangalore in 1943. A branch was opened at Buntwal in South Kanara in 1965 with a capital of about Rs. 18,00,000 and with about 130 employees. It is producing decorative plywood. Teak,

Indian rosewood, Champ, walnut, padauk and white cedar are the principal timbers used. It is exporting teak plywood to Sri Lanka, Canada and the West Asian countries.

Bakeries and Confectioneries

There were 31 units of confectioneries and bakeries as in 1972, manufacturing bread, cakes, biscuits, etc. The total investment was about Rs. 13 lakhs and about 300 persons were employed. The annual turnover was of the order of Rs. 30 lakhs. Among the units manufacturing confectioneries, the Azad Industries was, as in 1972, the biggest in the district in points of investment, number of persons employed and the total annual turnover.

The Azad Industries, Mangalore, was started in 1960. It was a confectionery and a tin-container manufactory and was registered as a small-scale industrial unit. From 1961, the concern started manufacturing sugar confectionery such as boiled sweets, wrapped and unwrapped sweets and toffee. In the beginning, manual operating machines were used due to want of power supply. In 1963, power supply was obtained and the biscuits were manufactured with the help of semi-automatic machines which were all locally made on foreign model. The basic materials required for manufacturing biscuits are wheat flour, sugar, salt and edible fats such as hydrogenated edible oil or butter. In 1961, the output of sweets was of the order of 1,36,999 kgs. and in the following year it rose to 2,18,975 kgs. At present (1972), the capacity of production of biscuits is four tonnes per shift of eight hours. The concern has business branches in the States of Mysore, Madras, Kerala and Maharashtra.

Coffee-curing

There are six coffee-curing works which, among them, deal with a large quantity of the coffee grown on the Western Ghats of this State. Coffee, on arrival at the works, is first dried in the sun, then mechanically shelled, winnowed, graded and packed for export. Coffee-curing is only a seasonal work beginning in December and continuing till the middle of May, that is, just a few weeks before the onset of the south-west monsoon. About 3,000 labourers, mostly women, are employed during the season in these six large works.

Rice Mills

South Kanara being predominantly a paddy-growing area, rice-milling has become an important industry. About forty years back, there were only three rice mills in the whole of the district. But, at present, there are 770 hullers and 24 shellers in the district. More than 75 per cent of these mills have installed oil engines to run the mills while the rest are power-driven using the electrical energy available in the area. All these rice mills are privately owned and are subject to various regulations like the Factory Act, Rice-milling Control Order and the like.

Miscellaneous Industries

There were, as in 1972, 28 other small-scale industrial units manufacturing polythene bags, sheets, nylon buttons, plastic bangles, polythene tubing, cane chairs and other cane products, gold ornaments, defibering of coir, plastic and celluloid umbrella handles, hume pipes, septic tanks, R.C.C. poles, etc. It was estimated that the capital invested in these industries was about Rs. 18 lakhs and the number of persons employed was about 400 and the production was about Rs. 21 lakhs as in 1972.

Vegetable Oil Industry

Being predominantly a coconut-growing area and having 35,552 acres under its cultivation (as in 1972), vegetable oil manufacture is an important industry in the district. Oil is obtained from dried coconuts called 'kobri' and to a limited extent from gingelly seed, and both these kinds of oil are used for culinary purposes as well as for toilet. Coconuts are removed from the shell, well dried and then cut into thin slices, which are put into the mill for extracting oil. Gingelly seed is cleaned, dried and then fed to the mill. Oil is also extracted sometimes from the seeds of certain plants by boiling them in earthen pots and this oil is used only by the poorer class of people for burning lamps. Recent decades have, however, seen an increasing use of kerosene oil for lighting purposes. This oil is cheaper and emits a brighter light than the vegetable oils.

The bulk of the coconut oil is produced with the help of *ganas* (heavy wooden mills). These are made from the trunks of large trees, either of tamarind or jack. A portion of the trunk of the required size is cut out, which is first hollowed into the form of a mortar and then planted on a raised piece of ground. In this, a big stout pole works round and round as a pestle which is being drawn mostly by bullocks yoked to a projecting spear.

According to the figures given in the Mysore Industrial Directory, the total number of oil mills (small-scale industrial units), besides the *ganas* and other smaller establishments, was about 31 in the district, out of which the number of mills producing coconut oil was 21 in the year 1970. These coconut oil producing mills are operated with the help of electric power. The total annual turnover of all these coconut oil mills was about Rs. 1,10,22,200 in the year 1970. The quantity of coconut oil produced in the district does not meet fully the local demand and, therefore, there are imports from Kozhikode and Cochin.

Dupa Oil Industry.—The trees called *Vateria Indica* ("Dupamara" in Kannada) are found in abundance on the Western Ghats and they are also planted as avenue trees. The resin of the tree, otherwise called white *danamar*, is collected in the usual way by

incising the trunks. It is only slightly soluble in alcohol, but dissolves at once in turpentine. Like copal, it is chiefly used for making varnish. In South Kanara, the oil extracted from its seeds is used for lamps. It is also used as a medicine in cases of rheumatism. The wood is used for making small boats. The tree flowers in the months of February and March and seeds are obtained from May to July.

Particulars of crushing of copra and production of coconut oil by oil mills in South Kanara district as in 1970 :—

Sl. No.	*Name of oil mill*	*No. of rotaries installed in the mill*	*Basic year chosen ; from 1962 to 1965*	*Actual quantity of copra crushed in tonnes*	*Value in Rs.*	*Actual quantity of oil produced in tonnes*	*Value in Rs.*
1	2	3	4	5	6	7	8
1.	Sri Krishna Mills Company, Mangalore.	14	1965	1,268	38,04,537	801	36,05,067
2.	Sri Sudarshan Mills, Mangalore.	5	1962	571	9,14,400	352	9,43,360
3.	The Hindustan Mills, Mangalore.	9	1963	383	7,28,198	237	7,70,000
4.	Sri Ramakrishna Oil Mills, Mangalore.	6	1965	415	10,32,555	264	11,01,005
5.	Dharmaprakash Press & Mills, Mangalore.	4	1962	112	2,19,948	69	2,23,606
6.	Aruna Mills, Mangalore.	2	1962	128	1,80,180	80	2,14,880
7.	Dada Oil Mills, Mangalore.	5	1962	167	3,43,575	100	2,51,347
8.	Swastick Industries, Mangalore.	2	1963	63	1,24,275	39	1,50,611
9.	Dhanalakshmi Oil Mills, Mangalore.	4	1964	168	3,15,694	107	3,10,330
10.	Sri Venkatesha Mills, Mangalore.	2	1964	116	2,22,220	74	2,07,337
11.	Sri Jayalaxmi Rice and Oil Mills, Panambur.	4	1965	81	2,17,873	52	2,30,143
12.	Sridhara Oil Mills, Moolki.	3	1964	149	3,30,000	95	3,05,000

1	2	3	4	5	6	7	8
13.	Shree Shakthi Mills, Udyavara.	1	1962	32	57,009	20	57,978
14.	Jai Bharath Mills, Udipi.	2	1962	63	N.A.	39	N.A.
15.	K. V. Prabhu Oil Mills, Karkal.	8	1964	1,306	24,50,438	827	26,88,819
16.	Paladka Rice & Oil Mills, Karkal.	2	1965	157	4,36,466	102	N.A.
17.	Sri Prasad Mills, Karkal.	6	1962	262	N.A.	N.A.	N.A.
18.	Sri Ganesh Mills, Karkal.	3	1965	213	5,92,226	135	6,22,872
19.	Bhamy Rice & Oil Mills, Buntwal.	3	1964	47	85,719	29	90,565
20.	Kanara Rice Mills, Panemangalore.	4	1962	114	1,88,185	71	2,14,080
21.	Prabhakara Oil Mills, Udipi.	3	1962	100	1,51,184	61	1,72,444

N.A.—Not Available.

Soap making

Since the past about two decades, the soap-making industry in the district has been gaining importance. There are at present (1972), 16 soap factories, out of which twelve are located in Mangalore itself and four in other parts of the district. The raw materials required for this industry are caustic soda and coconut oil; the former is imported from Bombay and the latter is locally procured from oil mills and to some extent from the Malabar and Cochin markets. There are some popular washing soaps produced in Mangalore. There is only one factory manufacturing toilet soaps. The products of the local factories are consumed largely within the district and some quantity is exported to other districts. The following table gives particulars of soap factories each of which employed five or more workers in the district as in 1972 :—

Sl. No.	*Name of unit*	*No. of workers*	*Production in tonnes*	
			1968—69	1969—70
1.	Sri Ramakrishna Oil Mills, Mangalore	129	17,28.725	16,59.483
2.	West India Soap and Industry, Mangalore	20	641	636
3.	C. G. Kamath and Company, Mangalore	7	157.560	224.780
4.	Mallaya Soap Works, Mangalore ..	17	490	565
5.	Hyco Soap Industry, Mangalore ..	5	130	140
6.	Nityananda Soap Industry, Mangalore	7	100	96

Snuff making

The manufacture of snuff is carried on in an organised way in South Kanara. The snuff made here is very popular. Mangalore and Karkal are the important centres of this industry. There are eleven units at present (1972), of which five are better organised, having a fairly extensive sales network. The manufacture is done mostly by hand-labour without the aid of machines. One or two units, however, are using machines for grinding and pulverizing. The raw material for this industry is tobacco which is obtained from Pallikkara in Kerala. The units do not experience any difficulty in marketing. Sales are effected in Mysore, Gujarat and Maharashtra States. Packing is done in polythene bags, cartons, containers, etc. This industry seems to have some growth prospects. Some of the units cater only to the local demand. This industry is stated to be experiencing at present some difficulty in getting tin containers.

Home Industrial Activities

The Department of Industries and Commerce has been giving grants-in-aid to institutions like the *mahila samajas* in the district for undertaking handicrafts activities such as tailoring, embroidery, knitting, rattan work, mat-weaving, etc. In addition, equipments like sewing machines, etc., are also provided to some of the institutions. Technical assistance is also provided. About 35 registered *mahila samajas* in various parts of the district are being assisted by the Department with maintenance and equipment grants. During 1971-72, a total sum of Rs. 16,479 was disbursed.

Coir Industry

Coir-making is another important cottage industry carried on in the coastal villages and gives employment to a large number of persons. This industry is flourishing in Mangalore, Ullal, Haleangady, Sashihithlu, Udyavara, Harady, Kallianpur, Padubidri Kodi, Paduveri and Angally. It is not confined to any particular class of people, but is carried on by members of different castes in addition to some other occupations such as agriculture and trade. The district is rich in plantations of coconut palm. These are found all along the sea coast and from five to ten miles inland. About 100 trees are planted in an acre and each tree yields about 100 nuts a year; 13,000 coconut husks yield a khandi of coir.

When the nuts are ripe, they are plucked and gathered and then husked; the husks are soaked in water or "retted" in the hot season in marshy places of the beds of rivers called "ghaznis" and removed at the commencement of the rainy season. Foul water has to be expelled and fresh water let in at frequent intervals. The best sites for "retting" are along the brinks of backwaters where the rise and fall of the tides bring about the best conditions. The husks are kept under water from six to ten months and then removed and cleaned with fresh water and dried. They are then beaten with wooden hammers to remove the pith from the fibre. Roughly, about a pound of fibre can be obtained from the husk

of five coconuts. The soaking is the work of men, and the beating for the seperation of the fibre from the pith is that of women, as also the spinning. The loose yarn is then twisted on wooden wheel frames into cords of varying thickness, and with them ropes, halters, noose threads, cattle ropes, door mats and mattresses are made. The twisting work is done by those adult males who cannot do other work, and the women resort to it when they have no other work which pays better. This accounts for the manufacture of coir being commenced soon after the fields are planted and carried on during the monsoon months.

The coir yarn rope and other articles are sold in local shandies and they are also exported to Bombay, Basra, Gujarat and various parts of the Mysore State to the extent of about 1,000 tons a year. The annual turnover of this industry in the district is estimated at about 7 lakhs of rupees. All the members of a family can engage themselves in this industry in addition to cultivation and fishing.

Handloom weaving

In the modern period, weaving was introduced on a commercial scale in the district through the pioneering efforts of Rev. Metz, belonging to the Basel Mission, in 1844. Mr. Hallen, a trained weaving specialist who succeeded him in 1851, introduced the first handloom fitted with the fly-shuttle. Salians and Jedars in certain villages in Mangalore taluk weave on pit-looms, but Christian, Muslim, Billava and Bunt weavers have been using frame-looms introduced by the Basel Missionaries. Form the pit-looms, weavers produce *dhoties* for men and sarees for women, while from the frame-looms are produced coloured and striped sarees for women, shirting cloths and bed-sheets. Recently, frame-looms have also been introduced and are at work in several places in Mangalore and Udipi taluks, all fitted with fly-shuttle and generally with dobbies for making designs on borders. The important centres of handloom weaving are Basrur, Jeppu, Padil, Kankanady, Kulashekara, Konebady, Surathkal, Panambur, Mulki, Kinnigoli, Mijar, Siddakatte, Haleangady, Padupanambur, Buntwal, Panemangalore, Udipi, Brahmavara, Udyavara, Athrady, Parkala and Shirva. The master-weavers of Mangalore taluk specialise in the manufacture of *lungies* known as 'Gintasu', 'Kaitra' and 'Kalli' which find a regular market in Kerala, Singapore, Burma and Sri Lanka. In the centres of Udipi taluk, mostly sarees of 40 to 80 counts and bed-sheets of lower counts are produced. In Brahmavara bath-towels and bed-sheets are woven out of 10 to 20 counts of yarn. In 1972, there were 1,362 handlooms in this district. They were all cotton cloth weaving looms and there were no looms for woollen and silk cloth weaving. About 32,000 persons were employed in cotton weaving. According to the 1951 census, there were about 1,000 establishments and the number of persons engaged in cotton weaving was only about 3,200 persons.

Thus, there is an increase from 3,200 persons engaged in this profession to about 32,000 persons from 1951 to 1972.

The main raw materials required for the handloom weaving industry are cotton yarn, art silk and silk for borders, colours and chemicals. Cotton yarn is brought mainly from Bombay and partly from Coimbatore and Madras by the wholesale merchants of Mangalore and is distributed among the weavers. The yarn is generally supplied to the weavers in bundles and knots. The bulk of yarn used by handloom weavers is sized either in hank form or after the warp has been laid out. Yarn in the form of bundles and hanks is cheaper and more convenient to handle. Pure silk, which is used especially for borders, is mainly imported from Bangalore while art slik, colours and other chemicals are obtained from Bombay.

Almost all the weavers possess their own looms and the supply of raw materials like silk for borders and yarn is made to them by local master-weavers or financiers who take back from them the finished products and pay them the weaving charges. The preparatory processes like winding, warping and sizing are attended to by women and children. Weavers having more than one loom each employ labour in accordance with their needs and pay wages. These workers get wages ranging between Rs. 2 and Rs. 4 per day and in busy seasons they are able to earn even upto Rs. 6 per day. The hours of work are not fixed, but there is a moral binding on the part of these workers to work till they produce a stipulated quantity of cloth, which, in other words, means a system of piece-wages. During 1958, 25 per cent of these weavers were financing their own industry, and were independent of master-weavers, about 55 per cent were financed by the master-weavers and about 20 per cent were in the co-operative fold, who supplied them the raw materials and collected the finished products.

Weavers' Co-operatives

Recent years have seen efforts being made to free the weavers from the clutches of the master-weavers by the establishment of co-operative societies. There are, at present (1972), 19 weavers' co-operative societies with a total membership of 1,300. The value of cotton cloth produced during 1956-57 from the looms which were in the co-operative fold stood at about Rs. 7,48,300, out of which Rs. 7,16,100 worth of cloth was sold in the same year. During 1971-72, the value of production was Rs. 24,12,886 and that of sales was to the extent of Rs. 19,68,034. The details of the working of 9 larger weavers' co-operative societies out of 19 in the district, as in 1971-72, are given in the following table :—

(Amount in rupees)

Sl. No.	Name of Society	No. of looms	Paid-up capital	Production	Sales
1.	Mangalore ..	75	17,739	1,09,297	74,059
2.	Surathkal ..	20	9,482	26,398	27,856
3.	Padupanambur ..	108	22,850	2,18,026	1,96,912
4.	Talipady ..	111	17,489	2,34,106	2,22,014
5.	Udipi ..	315	1,20,440	11,24,022	8,61,744
6.	Shivalli ..	132	24,420	3,52,193	2,53,430
7.	Brahmavara ..	93	28,361	1,40,700	1,29,696
8.	Basarur ..	79	10,339	29,506	20,121
9.	Mijar ..	125	19,810	1,82,434	1,82,199

The Weavers' Co-operative Societies are producing only sarees, bed-sheets and *mundus*. Some of these in the district also provide marketing facilities to their members. The Government are also granting subsidy loans to these societies for the purchase of tools and equipment and for working capital. The Government also provide training facilities and technical advice. In order to encourage the handloom industry, the Government is allowing six per cent rebate on the sale of handloom fabrics manufactured by the Co-operative Societies. There are two dye-houses working in the district. A Weavers' Colony at a cost of Rs. 1.5 lakhs with 25 tenements has been sanctioned to the Udipi Weavers' Co-operative Society. There are no power-looms working in the district.

Khadi and Village Industries

The khadi and village industries are of considerable importance in improving the economic conditions of some sections of the population. An economist has pointed out that "improvement of agriculture largely depends upon the resuscitation of small-scale rural industries. In a place like Mysore particularly, where agriculture is the mainstay of the population, provision of subsidiary occupations is of great necessity. In the absence of these auxiliaries, there will be an exodus of rural population to industrial centres during periods of enforced inactivity in agriculture. This will be put out of gear the tranquillity of rural economy". ("Industrial Development of Mysore" by R. Balakrishna, 1940 pp. 60-61). Realising this fact, the Government of Mysore have been encouraging these industries. The district office of the Khadi and Village Industries Board was opened in 1961.

There are about 13 different types of khadi and village industries spread over the South Kanara district. They are: (1) village oil industry, (2) cereals and pulses industry, (3) village pottery industry, (4) village leather industry, (5) carpentry and blacksmithy industry, (6) lime industry, (7) *gur* and

khandsari industry, (8) palm *gur* industry, (9) medicinal plants and fruits preservation, (10) bee-keeping industry, (11) hand-made paper unit, (12) *gobbar* gas plant industry, and (13) khadi industry.

Assistance

In order to develop the village industries in a scientific way, the Khadi and Village Industries Board is financing co-operative societies and individuals. The Board is also imparting technical advice; supervision, periodical checks, inspection and audits have been also taken up. Efforts are being made to guide them and assistance is being rendered on the pattern prescribed by the Khadi and Village Industries Commission and Board. The subjoined table gives the number of institutions or societies working, relating to different industries, as in 1972 :—

Sl. No.	*Type of industry*	*No. of institutions*
1.	Village Oil Industries Co-operative Societies or other Institutions	6
2.	Cereals and Pulses Co-operative Societies	19
3.	Pottery Co-operative Societies	6
4.	Village Leather Industries Co-operative Societies	4
5.	Hand-made Paper Industry	1
6.	Palm Gur Industry	97
7.	Bee-keeping Industry	2
8.	Medicinal Plants and Fruits preservation Industry	1
9.	Lime Industry	1
10.	Carpentry and Blacksmithy Industry	3
11.	Khadi Industry	3
12.	*Gobbar* gas plant Industry (Individuals)	6

The Board is granting loans and grants. The amounts of loans and grants given to the societies from the inception (1961) to 1972 are shown below :—

Sl. No.	*Industry*	*Loans in* Rs.	*Grants in* Rs.
1.	Hand-pounding of paddy	27,01,396	71,605
2.	Leather	1,14,950	59,340
3.	Lime	14,000	2,400
4.	Medicinal plants	20,750	2,550
5.	Carpentry and Blacksmithy	38,100	23,900
6.	Bee-keeping	4,500	21,338
7.	Pottery	44,050	16,940
8.	Palm gur	1,20,629	49,601
9.	Village oil	1,44,385	8,890
10.	Khadi	44,000	63,554
11.	Non-edible oil and soap	10,250	8,400
12.	Hand-made paper	47,000	30,000
13.	*Gobbar* gas plant	3,800	1,200
14.	*Gur* and Khandsari	1,22,414	9,000

Rural Industrialisation Scheme

The Rural Industrialisation Scheme, which had been sponsored by the late Dr. M. Visvesvaraya, was introduced in this district during 1957-58. For encouraging rural industries, co-operative societies were organised at Mangalore, Udipi, Coondapur, Karkal, Belthangady, Buntwal and Puttur.. A Government subvention of Rs. 3,000 was paid at the beginning to each of these societies. These institutions are financing rural artisans. Although these societies continue to function and provide credit facilities for the development of rural industries, the works of the Rural Industrialisation Scheme, as such was merged with the activities of the Industries and Commerce Department with effect from 1st January 1960. There were, as in 1972, seven such societies with a total membership of 1,039 and a total share capital of Rs. 36,062.

There were 12 Coir Co-operative Societies in the district and the relevant figures pertaining to them in 1972 were as follows :—

Sl. No.	*Place of societies*	*Member-ship*	*Share capital* Rs.	*Govt. loan* Rs.	*Govt. grant* Rs.
1.	Udipi	225	2,830	50,000	3,600
2.	Ullal	142	1,720	20,000	6,000
3.	Mulki	91	537	13,200	3,600
4.	Gangolli	49	280	18,700	7,200
5.	Kallianpur	80	632	13,500	6,300
6.	Kaup	79	490	13,500	6,300
7.	Brahmavara	127	760	12,500	6,300
8.	Angalli	16	510	16,000	4,640
9.	Shiroor	84	1,245	16,880	6,400
10.	Thekkatte	33	580	12,000	9,270
11.	Kodi	31	520	5,000	1,500
12.	Coir Emporium, Mangalore ..	54	5,170	30,000	33,000

The following were the four Small-scale Industrial Co-operative Societies in the district as in 1972 :—

Sl. No.	*Name of society*	*Member-ship*	*Share capital* Rs.	*Govt. loan* Rs.	*Govt. grant* Rs.
1.	Balmatta Industrial Co-operative Society, Mangalore.	122	3,590	63,620	8,190
2.	South Kanara District S.C. and S.T. Industrial Co-operative Society, Kadri, Mangalore.	110	7,928	71,600	11,655
3.	Fisheries and Fish Products Manufacturing Co-operative Society, Udyavara.	1,348	30,300	4,07,830	1,230
4.	Belve Carpenters' Co-operative Society, Belve.	50	925	79,500	4,200

There were two Goldsmiths' Co-operative Societies in the district. The following were the particulars of these societies as in 1972 :—

Sl. No.	*Place of society*	*Member-ship*	*Share Capital*	*Govt. Loan*	*Govt. grant*
1.	South Kanara Goldsmith's Industrial Co-operative Society, Mangalore	55	5,305	40,000	*N.A.*
2.	Vishwakarma Kushala Kaigarika Kelasagarara Sahakara Sangha, Kota	74	4,520	30,000	*N.A.*

The subjoined statement gives the details of the Handicrafts Co-operative Societies in the district as in 1972 :—

	Place of society	*Member-ship*	*Share Capital*	*Govt Loan*	*Govt. grant*
1.	Buntwal Bronze Metal Workers' Industrial Co-operative Society, Buntwal.	16	680	8,600	3,400
2.	Mandekolu Girijana Bettada Kushala Kaigarika Sahakari Sangha, Mandekolu.	31	250	2,500	500
3.	Ajekar Basket-Makers' Co-operative Cottage Industrial Society, Muniyal	172	872	..	12,000
4.	Yelgith Creepers and Cane Workers' Co-operative Society, Yelgith	29	966	..	12,000
5.	Coondapur Metal Works Co-operative Society, Coondapur	33	497	5,000	..
6.	Naravi Basket-Makers' Co-operative Society, Naravi.	111	4,139	..	10,000

Village Oil Producers Industrial Co-operative Society

The Village Oil-Producers' Industrial Co-operative Society, Ltd., Vishnunagar, Amaramudnur, was established in 1961. A section relating to "Medicinal Plants Industry" is also functioning in this institution. The main function of this industry is to collect medicinal plants and herbs and to sell the same to ayurvedic pharmacists. This industry is financed by the Khadi and Village Industries Commission. The following herbs and medicinal plants are collected and sold : (1) *Garudapatala,* (2) *Chitramoola,* (3) *Nux Vomica* seeds and barks, (4) Pepper, (5) Cardamom, (6) *Ramapatre,* (7) *Bharani,* (8) *Bhadramushti,* (9) *Nagadanthi,* (10) *Manorajitham,* (11) *Darbe,* (12) *Geru Beeja,* (13) *Dalchinni* barks, (14) *Shanthi kai,* (15) *Anile kai* and (16) *Maredarchina,* etc.

Bee-keeping

Bee-keeping was not considered to be an important occupation in the district until 1938. Adivasis of the *Malnad* area used

to collect honey from the forests only during the summer months and sell them at a very low price. Only here and there people were seen maintaining bee-colonies in earthen pots and the extraction was done mostly once a year. This was due to lack of technical knowledge about bee-keeping.

The South Kanara Co-operative Bee-keeping, Honey Produce and Sales Society Ltd., was established in the year 1938, to popularise bee-keeping as a profitable village industry and to provide the bee-keepers with the technical know-how. In 1945, the society conducted the first all-India conference on bee-keeping in Mangalore. In 1954, the Khadi and Village Industries Commission recognised this institution as its agency for bee-keeping. It has been assisting this Society since then financially for implementing various schemes. There were 35 sub-stations, one model apiary, 10 bee-clubs and 18 schools with bee-keeping industry and 10 commercial apiaries in the beginning. As at present, there are 977 members and a paid-up share capital of Rs. 5,520. It manufactures queen-gates, honey-extractors, wax-sheets, etc. It also sells bee-hive boxes to bee-keepers and it sold about 2,224 boxes by 1972.

The Khadi and Village Industries Commission has set up two area offices in the district, one at Puttur and the other at Udipi. The Society has four sub-stations, one each at Belman (Karkal taluk), Mudipur (Buntwal taluk), Kudmar (Puttur taluk) and Garadady (Belthangady taluk). It conducts practical training camps for the benefit of bee-keepers and undertakes propaganda for the development of the industry and distributes prizes to those who serve the industry with distinction. It also tries to maintain a good price level for honey, by purchasing all available pure honey in the district.

Basket-making

Baskets are an agricultural and domestic necessity and basketry of some kind or the other exists in all parts of the district. Baskets are made of bamboos, rattan and wild creepers by people belonging to the Ranyadeva, Bellara, Koraga, Gowda and Kudubi castes. For some persons, basket-making is the main occupation while for others, it is a subsidiary occupation along with agriculture. About 2,000 families are depending on this industry mainly in Coondapur, Karkal, Belthangady and Sullia taluks. The bamboos split into thin strips and inter-woven into different sizes and shapes. Where any village cannot produce its own baskets, it has to get them from other villages and the localization of the industry depends to a large extent upon the availability of raw material near a particular place.

In some portions of the taluks bordering on the Western Ghats, namely, Puttur, Karkal and Coondapur, where canes are found in abundance, cane baskets are made and in places like Udipi and

Mangalore baskets are made out of bamboos and creepers which are found in the neighbouring jungles. Shivapura, three miles from Hebri, is one of the chief centres of this industry. Karkal is another centre where rod and creeper baskets are made on a large scale by Koragas. These people also work as labourers, but revert to basket-making when they find no other employment.

Formerly, these basket-makers were mostly exploited by the forest contractors and local merchants who took undue advantage of their poor economic condition. They were advancing money at the rate of 25 paise to 30 paise per cane basket and were selling the same at 70 paise to 75 paise depriving the basket-makers of the substantial margin. In order to overcome this difficulty and to better the economic condition of these workers, now industrial co-operative societies have been organised in the following places; Yelgith and Siddapur (Coondapur taluk), Nadpal and Ajekar (Karkal taluk), Naravi and Arasinamakki (Belthangady taluk) and Mandekolu (Sullia taluk).

Mat-making

(*a*) Grass mats.—A rough kind of mat made of bamboo or reeds is used for protecting stocks of grain or to cover carts. Those of a superior quality are imported from Malabar. They are made of a grass called "Dore" which grows in marshes by the side of rivers and from the leaves of the wild screwpine (known as "Mundagi" in Kannada) or Kedige, which grows by the side of water courses or field banks. They are also prepared from the leaves of a palm called 'ichalagida' which grows on hills in the north-eastern parts of Udipi. The leaves of the plants are dried and exposed to dew when they become pliable for work. The prickly edges are removed and the leaves are then split into thin strips after which they are soaked in water and woven into mats of different sizes. Many of the workers are women from different classes such as Harijans, Kusas, Mapillas, Bunts, Servegars, goldsmiths and carpenters. Mundagi mats are made at Hebri and the surrounding villages of Karkal taluk and in parts of Udipi, Mangalore and Coondapur taluks. Carpenter and goldsmith women weave them. They get the supply of raw material from the surrounding forests or from private hedges, the owners of which get one or two mats free from the weavers. The mats are generally 5′ to 2½′ and a woman can ordinarily make two mats in three days working 2 to 3 hours a day. These mats are sold largely in Mangalore. From the same materials, mats of a softer variety can be also made.

(*b*) *Date mats.*—Date mats are made in several villages in Udipi taluk and about a thousand families in that taluk and 200 familes in Hosur and near about places are engaged in this industry. The workers are mostly women and boys. They get the materials from forest date trees which are found in plenty in this district. The leaves are dried and stocked in summer for

use in the rainy season and plaited to the required length but with a narrow width of three inches; a number of them are sewn together length-wise to give the required width. The mats are sold in shandies or to traders. They are used for packing jaggery and tobacco and for spreading on the floor.

vessels

South Kanara is famous for the manufacture of copper utensils and also for its brass industry. Copper and brass vessels of Udipi have earned a name for exquisite finish and elegant appearance and have a flourishing market during the *paryaya* season. In 1970, there were 15 manufacturers of brass and copper vessels and aluminium wares and three of stainless steel utensils. The total turnover of these industries was estimated at Rs. seven lakhs per year. The brass, copper, aluminium and stainless steel sheets required for the industry are imported mainly from Bombay. The vessels are generally manufactured by workmen on contract system. The copper vessels and, to some extent, brass vessels are mostly consumed within the district and a small quantity is exported to other districts of the State.

Carpentry

Carpentry has been an important age-old occupation in the district which has extensive forests. The village carpenter prepares and mends agricultural implements and makes doors, windows, etc., required for construction of houses. In the urban areas there is even greater demand for them in house-building work and for the manufacture of furniture. Usually they work under a master-craftsman or a petty contractor who provides them work or in family circles. A carpenter earns from about Rs. 3 to Rs. 8 per day. Jack, nandi, mango, teak, black wood, teerva and maruva are the timbers generally used. The supplies of timber are obtained from owners of timber-depots or from private owners of forest lands. Individual carpenters are unable to purchase the wood required on account of their poverty. A few of them have taken up pith work and making of toys in villages. According to the 1951 census, there were 5,182 carpenters and plough-makers in the district. In 1961, there were 5,900 carpenters, joiners and pattern-makers (wood), of these 21 being women. The manufacture of wooden furniture has not been well-organised. Since the number of industrial establishments, schools, colleges, etc., which require wooden furniture of varied types, are increasing and the house-building activities are also on the increase, there is great demand for carpenters. The village carpenters are gradually trying to migrate to towns. A few saw-mills employ carpenters on casual basis during the lean season.

Blacksmithy

Blacksmithy, like carpentry, has been also an age-old profession. Almost all big villages have the services of blacksmiths. The members of blacksmiths' family are engaged in one way or the other in helping to make or mend agricultural implements. It

is a hard work and during the agricultural seasons, these workers are very busy. The blacksmith requires the assistance of an able-bodied man as an hammer-man and another person, may be a woman, to work at the bellows. The equipment of a blacksmith, in general, consists of a big anvil, hammers of different sizes, bellows, furnace, etc. Charcoal and paddy husk are used to keep the fire buring in the furnace. The raw materials, *i.e.,* iron rods for making the implements, are usually brought by the agriculturists. The blacksmith undertakes the work generally on demand. Small agricultural implements like sickles, weeding-hooks, etc., are manufactured in spare time and are sold in the nearby market. A blacksmith may earn from about Rs. 3 to Rs. 6 a day and in the busy seasons he can get more.

Goldsmithy

The district is noted for its fine tradition of goldsmithy which is still mostly a hereditary occupation. In the bygone days when the foreign visitors were frequently visiting Mangalore, the goldsmiths of the district were having some good business from them also. The village goldsmith works usually alone and sometimes may take the assistance of his relatives. In the urban areas, goldsmiths have their own shops wherein they may employ one or two workers to assist them. Sometimes, individual goldsmiths work under a big jeweller in his shop on piece-work basis or on daily wages. In the rural parts, the goldsmiths prepare generally ornaments of the traditional types, while in the towns, they look to the changing tastes and fashions of the day. There are some large and well-organised jewellery shops at Mangalore. The equipment of a goldsmith consists of an anvil, bellows, hammers, crucibles, moulds, saws, scissors, etc. In a few bigger shops, they have the latest instruments. Ordinarily the metal is given by the customers themselves. According to the 1961 census, there were 3,006 jewellers, goldsmiths and silversmiths.

Pottery

The occupation of pot-making is carried on by the "Kumbara" community ,and forms the main source of their livelihood. Coondapur, Arkula, Buntwal, Kallige, Thumbe, Ammunje, Thankabelloor Navoor, Badagaulipadi, Tenkaulipadi, Manel, Surathkal, Panambur, Haleyangadi, Gurpur, etc., are the important cenres of pottery. The producers mostly sell the products in the local shandies and markets and in the daily markets at Mangalore. A few of the potters maintain carts to bring clay and also to take the finished produucts to the market place. The equipment of a potter consists of the traditional wheel, frames and buckets. Making of earthen vessels depends more on the skill of hands than on equipment. The raw materials required are clay and fuel. Availability of fine clay in the vicinity of the village is of great importance as it reduces the cost of transport. The clay is kneaded with horse dung before it is used. The vessels when dried are baked in furnaces. The daily earning of a potter may vary

from about Re. 1.50 to Rs. 5.00 per day. According to the 1951 census, there were 1,458 potters in the district of whom 364 were women. The 1961 census recorded that there were 7,972 potters, kilnmen and clay-formers and related workers, the number of women engaged in the profession being 1,746. It is mostly a rural occupation and only about 1,760 were living in the urban areas.

Manufacture of Jaggery

Jaggery is manufactured from toddy also and this work is confined to toddy-drawers who get the toddy for this purpose in lime-coated pots and boil it in order to convert it into jaggery. The raiyats who grow the sugarcane generally crush it in locally made wooden mills and obtain jaggery by boiling the juice in large iron pans. According to the census of 1951, this jaggery-making occupation provided employment for 1,859 persons, out of whom there were 31 employers and 218 employees, the rest being independent workers. There were 3,983 persons in 1961 who were engaged in this profession, of whom 3,112 were men.

Leather and Rubber Industries

Before 1st November 1956 when Kasaragod was a part of this district, there were 12 tanneries, eleven being in Kasaragod taluk and one in Mangalore taluk. After Kasaragod was joined to Kerala, this district lost its importance in tanning of leather. Shoe-making has been one of the common cottage industries in the district. Their trade has been affected by the large-scale manufacture of shoes by big factories in the country. Mangalore, Udipi and other taluk headquarters and bigger villages have a number of leather-workers who make and repair footwears of different kinds. Belthangady on the ghat road is an important centre for shoe-making. As in 1970, there were 15 units manufacturing *chappals* and other footwear in the district with a production of about 6,500 pairs per year worth about Rs. 50,000. During the same year, there were seven units which were retreading and resoling about 15,000 tyres, the value being about ten lakhs of rupees.

Industrial Estates

With a view to encouraging and assisting rapid and co-ordinated development of small-scale industries, a scheme of establishing industrial estates was taken up in the country during the Second Five-Year Plan at a cost of ten crores of rupees with a target of 120 estates for the whole country. Additional investments were made under this scheme during the Third and Fourth Five-Year Plans and a total number of 600 industrial estates have been built. The estates provide land, rental space, power, water, drainage, roads, common facilities, godowns, postal facilities, banking facilities, canteens, etc., all at one place near the less thickly populated urban regions to enable entrepreneurs with limited resources to start industries. There are two industrial estates in South Kanara, one at Mangalore and another at Manipal near Udipi. The latter is run on a co-operative basis.

The Industiral Estate, Mangalore, was established in 1962, when the Government of Mysore decided to establish 39 estates at the rate of two per district and took up construction of eight estates in various parts of the State including the one at Mangalore. This estate belongs to the category 'B' or urban estate. It stands on a rocky hill covering 17.58 acres. The first phase of construction was completed in 1962. By 1972, two 'B' type, 17 'C' type and six 'D' type sheds had been allotted to entrepreneurs to start industries and a sum of Rs. 15 lakhs had been spent. The 'B' type sheds are having a covered arca of 2,000 sq. ft., 'C' type sheds a covered area of 1,500 sq. ft. and an open area of 1,200 sq. ft. and the 'D' type has a covered area of 750 sq. ft. and an open area of 1,050 sq. ft. The sheds are let on rental basis, the amount of rent ranging from Rs. 200 to Rs. 250 per month depending on the type of the shed and the covered area. Out of these sheds, two 'B' type sheds have been occupied by the Central Food Technologieal Research Institute for doing research in fish products. Three 'C' type sheds have been allotted to a Model Carpentry Centre, a Smithy Centre and a Common Facility Centre which are Government units under the Department of Industries and Commerce. All other sheds have been allotted to private enterpreneurs.

Different kinds of raw materials are supplied to the registered small-scale industrial units in the Industrial Estate. Mutton tallow, coconut oil, palm oil, etc., are supplied to the soap units and M.S. plates, sheets, angles, galvanised sheets, etc., are made available to some other units on the permits issued by the Department of Industries and Commerce. As in 1972, there were about 180 skilled and unskilled workers and about 60 officials working in the Industrial Estate. The total investment of the units on machinery, etc., was about Rs. 20 lakhs. The annual output by the units was about Rs. 30 lakhs. The total expenditure incurred by the Government on the Industrial Estate was Rs. 15 lakhs and works amounting to five more lakhs of rupees were on hand. The units were manufacturing aluminium utensils, groudnut oil, carbon dioxide gas and dry ice, tin containers, polythene and paper bags, plastic umbrella handles, agricultural implements, structural fabrications, plastic novelties, castings, weighing scales, litre measures, steel furniture, electric transformers, air conditioners, ice cream freezers, refrigerators, electrical appliances, etc. In this Industrial Estate, four unemployed engineering graduates have started industries with the help of Government. They are: (1) Electrical Machinery Manufacturing Co., (2) Vinayak Industrial Corporation, (3) Krishna Casting, and (4) Mangalore Paper Products.

Allotment of Industrial Area

Under another scheme, small plots of three categories, namely, 'L', 'M' and 'N' (the plot of each category measuring 900, 1,250 and

2,450 sq. yards respectively), have been allotted near Baikampady. As in 1972, there were 26 'L' type plots and 7 'M' type plots which were allotted to entrepreneurs for starting industries. The plots are allotted on lease-*cum*-hire purchase basis, the period of lease being 20 years. During this period, the Government collects the cost of the plot on easy half-yearly instalments with a nominal interest of 7 per cent. Some plots have been sold outright on payment of 99 per cent of the price (Rs. 20,000 per acre) initially and the balance of one per cent in ten years subject to the condition that the ownership of the plot will be passed on to the party after ten years. In the case of lease-*cum*-hire purchase, the allottee becomes the owner of the plot after 20 years. Meanwhile, the allottee can withdraw from the Estate or transfer the rights if he so desires.

A Second Industrial Estate is also to be started in Mangalore. Lands at Thannirbail, Panambur and Baikampady villages near Mangalore have been acquired to the extent of 112.60 acres, 279.52 acres and 633.16 acres respectively, and handed over to the Area Development Board for distribution to the entrepreneurs.

In the Panambur area, an extent of about 178 acres of land has been handed over to the Mangalore Chemicals and Fertilizers Ltd, (see details elsewhere in the Chapter), and an area of 390 acres has been set apart for the National Mineral Development Corporation for the proposed Kudremukh Iron Ore Project.

The work of the first Industrial Development Layout has been taken up at Baikampady, with an extent of 65 acres divided into 12 plots for distribution to entrepreneurs for setting up small-scale and medium-scale industries on the basis of deferred payment of cost of land.

Co-operative Industrial Estate

The Manipal Co-operative Industrial Estate, Manipal, was started in 1963. The promoters of this Estate are the Manipal Engineering College, run by the Academy of General Education, South Kanara District Council of the All-India Manufacturers' Organisation, Rotary Club of Udipi and some entrepreneurs of Manipal. This Estate is situated on a 15-acre plot near the Manipal Engineering College and was leased out by that college. The Government of Mysore had paid Rs. 60,000 (upto 1972) as its share capital contribution to the Estate. The objective of this Estate is to carry on the business of establishing and running of industrial estates for small-scale industries. As in 1972, the following five types of units were available in this Estate :—

Type	*Plot (in metres)*	*Covered Area (in metres)*
A ..	30 x 48	18 x 27
B ..	24 x 42	12 x 22
C ..	23 x 33	12.6 x 23.2
D ..	21 x 30	12 x 15
E ..	12 x 20	7 x 12

Water and wiring for lighting are provided and the unit-holders have to get the power wiring as well as power supply. The sheds were rented out to the following industries :—

(*a*) Packing Corporation
(*b*) Industrial Marketing Corporation
(*c*) Palace plastics
(*d*) Rajath plastics
(*e*) Gurukripa Corporation
(*f*) Manipal Surgicals

The following products are being manufactured by the above mentioned units : (*a*) paper bags, (*b*) all kinds of packing tins, (*c*) plastic buckets and all kinds of plastic containers, (*d*) plastic bags and candles, (*c*) phenyl, and (*f*) surgical instruments.

Facilities

Several other types of industries are to be started in this Estate. The entrepreneurs have to pay a rent of seven paise per square foot during the first year and there will be no charges for supply of drinking water. The unit-holders have to subscribe one-fifth of the cost of the building towards the share capital of the Estate and this would be returned when the unit-holder vacates the building.

As per a new scheme of the Syndicate Bank, an engineer, technician, craftsman or artisan can avail of loan facilities upto Rs. 50,000 without offering any margin. The units in this Estate are eligible for the following assistance from the State and Central Government agencies :—

(1) Loans under State Aid to Industries, (2) preference in Government stores purchase (reservation and price preference), (3) import of raw materials and machinery and scarce indigenous materials required will be made on terms and conditions ruling at the time, (4) power supply at reasonable rates, (5) purchase of machinery through National Small Industries Corporation under the hire purchase scheme and (6) technical assistance from Small Industries Service Institute, Bangalore and State Industries Directorate.

There are several lathes, shaping and other machines in the Manipal Engineering College and they are avilable to the industries in the Estate during certain hours on nominal hire charges. Besides, laboratory facilities and technical guidance, wherever possible, are given to the unit holders.

Incentives to Entrepreneurs

With a view to assisting the entrepreneurs in establishing and developing industries, several measures have been taken up by the State Government in recent years. An ogranisation called the Mysore State Industrial Investment and Development Corporation was established at Bangalore in 1964-65. It offers complete project reports and marketing data and helps in obtaining industrial licences and possible concessions from Government and also participates in the share capital of such industries and underwrites new issues of shares. Scarce raw materials such as non-ferrous metals (like copper, zinc, lead, etc.,) B.P. and G.P. sheets and the like are supplied to small-scale industrial units through the Mysore Small Industries Corporation, the Minerals and Metals Trading Corporation of India and the State Trading Corporation of India.

A cash refund is allowed on all sales-tax paid by entrepreneurs of new industries on raw materials purchased by them, for the first five years from the dates on which the industries go into production. Government have also impressed on all local bodies in the State the importance of rapid industrial development of every area in the State and have urged them to exempt raw materials, building materials and capital equipment needed by the new industries from payment of octroi for a period of five years from the dates on which these units obtain industrial licences or get registered. All new industries are also exempted from the payment of electricity tax for a period of five years from the dates on which these industries go into production. Further the price payable for the land offered by the Mysore Industrial Areas Development Board for starting new industries, has been ordered to be recovered in easy annual instalments spread over 50 items of articles for being exclusively purchased from small-scale industrialists in the purchase programme of the State Government.

The district of South Kanara is declared as industrially backward and the following additional incentives are offered. The price payable for the land offered by the Mysore Industrial Area Development Board is to be recovered as follows : (*a*) 10 per cent cent down payment and (*b*) the balance amount to be recovered in ten equal instalments with interest at a rate to be determined by the Mysore Industrial Area Development Board ,and (*c*) Exemption from the sales-tax would be made applicable in respect of the capital goods, provided they are purchased within the Mysore State by the new industrial units. The Mysore Industrial

Area Development Board will develop and provide infrastructure facilities for the interested enterpreneurs in starting medium and small-scale industries as follows: (1) labour quarters, (2) quarters for middle executives, (3) roads, (4) water, (5) drainage, (6) railway siding and (7) power and lighting. The Mysore State Financial Corporation accepts equitable mortgage in all cases not covered by Government. Exemption is allowed in respect of loans sanctioned to industries in the backward districts.

Credit facilites

The Government in their declaration of industrial policy have assured that all possible assistance would be given to help the growth of industries in the State, both in the public and private sectors. After the formation of the new Mysore State, a uniform State Aid to Industries Act was passed in 1959 laying down the mode and method of extending financial help for the establishment and development of industries. Under the Act, provision has been made to extend financial aid in the form of loan or bank guarantee to such of the industries as are not covered by the Mysore State Financial Corporation Act and also when loan required does not exceed Rs. one lakh. The State Director of Industries and Commerce is the statutory authority for sanctioning loans to industries under this Act. The Assistant Directors of Industries and Commerce in-charge of districts have also powers to sanction loans under this Act upto Rs. 2,000 to small entrepreneurs. The interest charged is 10 per cent subject to four per cent rebate for prompt payment repayable in 10 years on half-yearly instalments. Thirty small-scale industrial units have been granted loans amounting to about Rs. 2,72,101 as follows :—

Sl.No.	*Name of Industry*	*No. of units*	*Loan amount*
			Rs.
1.	Printing	4	22,452
2.	General Engineering	6	34,150
3.	Oil Mills	4	84,500
4.	Coffee-roasting and grinding	2	26,000
5.	Paper Bag	1	24,999
6.	Ink	1	1,000
7.	Cement work	1	2,000
8.	Handloom	1	2,000
9.	Ice candy (Aerated water)	2	7,000
10.	Cane Industry	1	2,000
11.	Sewing Thread	1	5,000
12.	Ready-made garments	2	23,000
13.	Artificial Jewellary	1	13,000
14.	Cashew Processing	1	20,000
15.	Pharmaceutical	1	2,000
16.	Coir Industry	1	2,000
	Total	30	2,72,101

The Mysore State Financial Corporation, which was established by the Government of Mysore in 1959, also advances loans to industries of various categories from Rs. 25,000 to Rs. 10 lakhs. This Corporation had disbursed loans amounting to Rs. 1,06,16,500 to 41 industrial units in the district since inception to 30th September 1972, as follows :—

Sl. No.	*Type of industry*	*No. of loans*	*No. of units*	*Cumulative sanctions* Rs.
1.	Tiles	7	9	14,35,000
2.	Structural Engineering ..	1	4	4,00,000
3.	Hotel	2	2	14,00,000
4.	Transport	6	6	2,64,500
5.	Plywood Manufacturing ..	1	1	49,000
6.	Fibre Glass Trawler	1	1	11,00,000
7.	Staple Manufacturing	1	1	5,00,000
8.	Fish Preservation and Processing ..	3	3	36,50,000
9.	Food Products	1	2	6,45,000
10.	Casting	1	1	25,000
11.	Rice Mills	1	1	35,000
12.	Bolts and Nuts Manufacturing ..	1	1	1,64,000
13.	Coir products	1	1	2,40,000
14.	Tyre Retreading	1	1	2,25,000
15.	Paper Bag Manufacturing ..	1	1	35,000
16.	Mosaic Tiles	1	1	90,000
17.	Electrical Machinery	1	1	1,35,000
18.	Wire Nails	1	1	25,000
19.	P.V.C. Cable Manufacturing ..	1	1	85,000
20.	Wood Industry	1	1	79,000
21.	Cashew Industry	1	1	35,000
	Total ..	35	41	1,06,16,500

The District Industrial Co-operative Bank sanctions mostly working capital loan up to Rs. 20,000 for individual artisans and industrialists. During the year 1971-72, a sum of Rs. 87,151 was sanctioned to seven units. The National Small Industries Corporation, New Delhi, on the recommendations of the Department of Industries and Commerce, arranges to supply machinery, both indigenous and imported, to small-scale industries. The term of supply is payment of 20 per cent of the cost of machinery in the beginning, rest being payable within a period of five to seven years on half-yearly instalment basis. Till 1972, 56 industrial

units of the district were supplied machinery worth Rs. 20,93,000 on this basis. The South Kanara District Industrial Co-operative Bank Ltd., Mangalore, had advanced loans to the extent of Rs. 26,75,000 to 372 units up to 1971-72. The following were the industry-wise amounts of loans advanced :—

Sl. No.	*Name of Industry*	*No. of units*	*Amount sanctioned (Rs. in '000s)*
1.	Leather Industry	1	3
2.	Rice Mills and Flour Mills	39	427
3.	Oil-Seed Crushing	4	37
4.	Palmgur- Canegur and Khandsari Industries	9	57
5.	Canning of fruit and vegetables ..	3	55
6.	Manufacturing and processing of agricultural and marine products and Forest produce including Beverage Industries.	12	162
7.	Carpentry, Blacksmithy and Bee-keeping Industries.	9	99
8.	Handicraft	8	14
9.	General Engineering	83	650
10.	Chemical Industries	51	525
11.	Construction Material	4	45
12.	Coir	7	70
13.	Spinning and Weaving	20	162
14.	Printing and Book-binding	26	107
15.	Saw Mills	18	177
16.	Miscellaneous Industries	79	95
		372	2,675

Industrial Training Facilties

There are various industrial training institutes in the district. The Artisan Training Institute at Karkal and a branch of it at Malpe were started in 1959 for giving training in blacksmithy, carpentry and cotton-weaving at Karkal and coir training at Malpe. For blacksmithy and carpentry, the training is for two years and for the other two crafts, the duration is one year. The intake capacity for the first two trades is 15 each and for the other two crafts, it is 25 each. The stipend for blacksmithy and carpentry is Rs. 40 per month for the institutional training and Rs. 60 per month during the period of inservice training at the Model Carpentry and Smithy Centre, Mangalore. For the other two crafts, the stipend is Rs. 40 per month per trainee. In age, the candidate should be above 13 but not above 20 and he should have passed the fifth standard. An Artisan Training Centre in

soap-stone carving was started in 1969 at Naravi. The intake capacity is six with a stipend of Rs. 40 each per month and the training is of one year's duration, the other conditions being the same as in the case of other crafts.

The Model Carpentry and Smithy Centre, Mangalore, was started in 1959 for imparting training in carpentry and smithy with an intake capacity of 15 candidates in each, with a stipend of Rs. 50 per month. In addition, six carpenters from semi-urban areas are taken for undergoing advance training for 12 months in carpentry on a stipend of Rs. 60 per month. The General Purpose Workshop, Puttur, started in 1965, is training 15 candidates in the age-group of 13-20 years in general engineering for one year and the stipend allowed is Rs. 40 per month. The Facility Centre, Mangalore, is a servicing centre which provides industrial servicing facilities to the small-scale industries of the Industrial Estate, Mangalore. At present (1972), this facility is extended beyond the estate area also. There is a Coir Training Unit in Mangalore started for the benefit of the Scheduled Castes (*see* Chapter XVII). There are two Tailoring Training Centres, one at Mangalore and the other at Udipi, which are imparting training in tailoring to 12 women at a time in each centre. A stipend of Rs. 25 is given to each trainee. After completion of the training, a sewing machine is given to each of the successful candidates. In 1972, a Costume Design Training Centre was sanctioned by the Department of Employment and Training of the State Government and it is being run through the agency of the *Bhagini Samaja*, Mangalore, in this Centre, there were 20 trainees in 1972, and they were given a stipend at the rate of Rs. 25 per month for a period of nine months. There is also a Tailoring Production Unit at Mangalore which was started in 1964. The object of this Unit is to provide employment to trained tailors. About 40 tailors are taken annually. It is working on no-profit and no-loss basis; 25 per cent of the wages earned by the tailors is retained by the Government towards maintenance of the Unit and the remaining 75 per cent is paid out as wages to the tailors.

Pine-apple Fibre Centre

The Pine-apple Fibre Centre, Moodabidri was established in 1956 by the All-India Handicrafts Board to study the behaviour of pine-apple fibre extracted from the leaves of the pine-apple plant and subsequent possibility of starting a "Pine Fibre industry." The centre was handed over to the State Government in 1972. The pina leaves, which were thrown away as useless or waste materials, furnish fine, strong and glossy fibre which can be put to several useful purposes. The Research Centre has demonstrated the possibility of producing a wide variety of fabrics from coarse to fine and even such fibres which are not useful for producing fabrics have been proved to produce floor covering, paper, etc.

As the supply of leaves from the plantations is seasonal, experiments have been carried out to extract fibre from wild variety of leaves which are longer than the plantation leaves. As the fibre is long, it is possible to produce more hanks of knotted fibre yarn per day. The extraction of fibre has been tried by scraping, stripping, retting and machine extraction. The percentage of recovery of fibre by machines is greater and the extraction of fibre is about 100 times faster than any other process. The fibre has good affinity to colours. The wide range of articles produced includes : (1) shirtings, (2) sarees and blouse pieces, (3) dress materials, (4) designed bed-spreads and furnishing materials, (5) coating, (6) curtain materials, (7) carpets, etc. Decorative papers, file covers, etc., have been produced from waste fibre. Attractive dolls and toys have been also made.

For imparting training in the process of production of spun and knotted yarn of pina fibre, a training scheme was formulated in 1963, and courses of three months' duration were started and a stipend of Rs. 50 was paid to each trainee and 180 candidates were trained till 1972. In addition, this training centre also trained eight candidates from Goa, three from Kerala and two from Manipur. The centre is also having a training course of one year in pine-apple fibre weaving and dying.

Other fibres

The stems or leaves of certain other palms about three to eight inches in width and six to fourteen feet in length are cut to convenient sizes and split with a knife and kept soaked in cold water for about six weeks ; the process of retting would be quicker if the green hard layer is thinly peeled off. The softened stems are removed from water and thoroughly washed in fresh water several times until the decay odour is completely washed off and dried in the sun and then it can be bleached or dyed. By using fine cotton or silk yarn or knotted palm yarn for warp, the palm-stem fibre can be joined in the weft easily with the help of a thin, flat long-enough wooden strip with holes at the ends to grip the fibre. Various textures can be obtained in the weaving of the fibre to produce different types of materials.

Banana-stalk Barks

With the help of Raspador machine, banana-stalk barks (covers of the trunk of the plant) can be scraped and fine white fibre is extracted. Soon after extraction, the fibre is cleaned. Unscraped portions may be scraped by hand with the help of a sharp-edged coconut shell, while still wet, before the washing process is complete, the fibre may be beaten lightly by a soft wooden beater, so as to loosen the adhering individual filaments and then finally washed in fresh clean water before drying. This fine and glossy fibre can be bleached or dyed and can be knotted like pina fibre to make a fine yarn. Out of the banana varieties of 'Rasabale', 'Mysore Kadali', 'Devabale' or (Puttubale) and

'Shilanti', the 'Devabale' yields brighter, glossy and stronger fibre and more in percentage than the others. Using knotted yarn, both for warp and weft, pure banana fibre material can be produced to make coloured or designed table cloths, curtains, etc. With mercerised cotton yarn for warp and knotted banana fibre for weft, fine shirtings, beautiful wall-hanging materials and furnishings can be woven skilfully.

Mangalore Productivity Council

The Mangalore Productivity Council was established in the year 1959 under the National Productivity Council which grants monetary help to it by way of matching contributions. The jurisdiction of the Council extends to the entire district. The objectives of the Council are: (*a*) to increase national awareness of the vital need of productivity as the key to raising the standard of living of the people of the district; (*b*) to intensify the interest in the applied aspects of productivity in all the areas of endeavour and (*c*) to make productivity a quest of national concern. The membeship of the Council is open to all industrial enterprises, organisations of industry, employers, employees, educational, research and other institutions and individuals interested in productivity. The total number of members as in 1972 was 206 and the income of the Council was Rs. 5,385 as subscription from members and Rs. 3,222.45 as aid by the National Productivity Council.

The Council is trying to bring home to all concerned the importance of increasing productivity in various spheres of industries, to stimulate and promote productivity consciousness in the region, to provide services with a view to maximising the utilisation of available resources like money, men, machines, materials and power, to wage war against waste and to encourage and to promote cordial relationship between employees and employers. The Council collects and disseminates information regarding productivity techniques and processes through various media. Several programmes were organised for the benefit of the small industrialists with the co-operation of the Small Industries Service Institute, Bangalore.