CHAPTER V.

AGRICULTURE AND TRADE.

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Agricultural classes.

SOUTH CANARA is essentially an agricultural district. About seventy-five per cent. of the working population obtain their livelihood by means of cultivation, and the majority of the unoccupied population subsist on incomes derived from the same source. All classes, castes and creeds are represented, the landowners being mainly Brahmins, Bants, Jains and Christians. The Bants, however, may be said to be the landowning and cultivating class *par excellence*, both on account of their numerical preponderance in that capacity, and their almost complete abstention from all other professions or occupations. The Havig Brahmins have devoted themselves mainly to the raising of areca-nut plantations, in the management of which they, and in some localities the Chitpávan Brahmins, seem to excel all others. Except in the neighbourhood of large towns, or where large extents of land are owned by religious corporations, landowners usually reside on their estates, and, whether the landowners are absent or not, the tenants have their houses on the holdings or on the waste land immediately adjoining, there being nothing in this district like the practice on the other coast of all the cultivators of a village residing on the common village-site. Forty acres is considered a large holding and five acres a small one. Tenures and natural circumstances being alike favourable, and the agricultural classes being generally industrious, a large number of the ryots are in easy and prosperous circumstances, and comfort is probably more widely diffused than in most other parts of Southern India.

A great part of the uncultivated waste consists of forest-clad hill land, but there is also a large extent of grass land, particularly on the upland laterite plateaus between the coast plain and the inland forests. Cultivation is carried on mainly in the valleys which are very fertile and specially adapted for rice crops..

Classification of land.

The principal division is into rice and garden lands, according to the crop for the cultivation of which the soil is best adapted. The rice lands are classified more with regard to the water-supply

Classification of land.

than to the nature of the soil, but as water brings silt with it, the lands, with the best water-supply, have also better soil than other lands in the same locality. The first class is called *bail* and comprises all the low-lying fields which are abundantly supplied with water, the direct annual rainfall being supplemented by water brought by channels from rivulets or streams, or raised from rivers by baling, or by picottahs. In some parts of South Canara, three rice crops, called, respectively, *yénelu* or *kártika*, *suggi*, and *kolake* are raised on the best land of the *bail* kind. In others it gives two crops of rice and one of dry grain. *Bail* producing three crops of rice a year is called *kolake gadde* (Canarese *gadde*, field) after the name of the third rice crop. The same kind of land giving two rice crops annually is called either merely *bail gadde* from the fact that the greater part of *bail* gives only two crops, or *suggi gadde* after the name of the second crop. Those *bail* fields which lie so low as to be submerged during the first few months of the monsoon are called *potla gadde* and yield, as a rule, only one rice crop after the rains are over, which, however, is a very abundant one.

The *majal* or second class of rice land consists of those fields in the higher parts of the valleys which, though not entirely dependent on the annual rainfall, have yet a considerably smaller supply of water than those situated lower down. On the *majal* fields two crops of rice, or one of rice and another of some dry grain or pulse, are raised every year.

The third class of rice land is called *bett* and comprises those fields which are entirely dependent on the rainfall (*báne bett*, from 'báne,' a hill or grass land), and those which have a supply of water only sufficient to last during a short break in the monsoon. As the rainfall, however, is very abundant, one good crop of rice is usually obtained from the *bett* lands where the soil is not of a bad quality.

Garden land specially adapted for the formation of cocoanut and areca-nut plantations is called *bágáyet*.

Price of land.

The productive capacity of the land being extremely variable, it is not easy to fix on an average selling value for the different classes, and it is rendered more difficult by the fact that sale-transactions usually cover lands of different classes without separate prices being fixed for each. The largest selling price which has come under observation is Rs. 5,300 for 11½ acres giving an average of Rs. 481 per acre. On a rough average the selling price of ordinary *bett* land may be taken at from Rs. 20 to Rs. 25 per acre, *majal* from Rs. 25 to Rs. 100 and *bail* from Rs. 100 to Rs. 250, though the best *bail* land and good gardens will certainly fetch still higher prices.

Mortgages.

Loans are freely given on the mortgage of landed property, the ordinary rate of interest being from twelve per cent. for small loans to six per cent. for large ones. Where more favourable terms are given, it is due either to the terms not being governed by business considerations, or to a designing money-lender offering favourable terms with the view of involving the borrower in difficulties, and ultimately becoming the owner of the land.

Landlords and tenants.

The proprietors or *wargdárs* either cultivate their lands themselves through their own labourers, or lease them out to tenants, who are broadly divided into two classes, *Múlgéni* and *Chálgéni*, according to the nature of their leases. The *Chálgénidárs* are mere tenants-at-will who, on condition of payment of an annual rent, obtain a yearly lease of land for purposes of cultivation. *Múlgénidars*, on the other hand, are tenants in perpetuity, who possess certain restricted saleable interests in the lands leased to them. There is also a third class of tenants called *Váidegénidárs*, whose lease lasts only for a specified term of years.[1]

Rents.

Rents, as a rule, are fixed at a high figure, but all landlords recognize the necessity of making remissions when tenants are in difficulties. This arrangement is better understood by the people, and possibly in a district of small estates where each landlord can know his tenants' circumstances thoroughly, better suited to their present moral and material condition than a uniform moderate rent for good and bad seasons alike. Except in cases in which a premium has been paid, or land has had to be improved by the tenants, or some other reason for favourable rates has existed, *múlgéni* rents are, as might be expected, higher than those paid by *Chálgénidárs*. The rents of rice lands are usually paid in kind, the money-value ordinarily ranging from Rs. 16 to Rs. 26 per acre for *bail* land, from Rs. 8 to Rs. 16 for *majal*, and from Rs. 2 to Rs. 8 for *bett*. Garden rents vary according to the condition of the gardens and frequently rise as high as Rs. 40 per acre.

Stock.

The ryots cultivate their lands by means of bullocks and buffaloes. The climate of South Canara is unfavourable to cattle, which are not bred in the district, except to a very limited extent. To the north of the district some of the ploughing cattle are obtained from the taluks of North Canara above the ghauts, but the importation is mainly from Mysore, and Subramanya in the Uppinangadi taluk is the great cattle mart of the district, about 50,000 head of cattle being annually brought down the Bisli Ghaut to a fair held just before the great festival at Subramanya which

[1] For a fuller account of these different kinds of tenures, see the chapter on Revenue History and Administration of the Land.

is held in December and is attended by ryots from all parts of the district. The price of an ordinary pair of bullocks is between 20 and 30 rupees, and that of an ordinary pair of male buffaloes from 30 to 40 rupees. Many of the large landholders among the Bants keep very fine racing buffaloes which are known as '*kambla kónagalu*.'

Agricultural implements.

The agricultural implements ordinarily used throughout the district and their cost are as follows:

	RS.	A.	P.
(1) Plough	1	8	0
(2) Yoke	1	0	0
(3) 'Muttu palai' or levelling board used before ploughing	1	8	0
(4) 'Marana nalli,' an instrument for levelling used in the Coondapoor taluk...	0	12	0
(5) 'Halke' or rake	1	0	0
(6) 'Kudanṭi' or wooden mallet for breaking clods of earth	0	4	0
(7) 'Kordu,' another instrument used for the same purpose in the Coondapoor taluk	0	8	0
(8) Mamoti	1	0	0
(9) 'Kodali' or axe	1	8	0
(10) 'Korgi' or seed drill used in the Coondapoor taluk	3	0	0
(11) Wooden thrashing frame	4	0	0
(12) Fork for tossing straw	0	6	0
(13) A wooden mallet used in making rice up into '*múras*' or packages of 84 lb. with straw coverings	0	4	0
(14) Sickle	1	4	0
(15) Bill-hook	1	8	0
(16) Fork for manure	1	0	0
(17) Rice-sifter	0	2	0
(18) Mortar for beating rice	1	8	0
(19) Cattle-trough	1	8	0
(20) Basket	0	3	0
(21) Knife	1	8	0
(22) 'Kaipalai' or instrument for gathering or strewing paddy	0	12	0

As may be inferred from the cost the instruments are of the rudest and most primitive description, but rude as they are they are not ill-adapted for the puddle cultivation of rice for which they are mainly required. Attempts by Government officers to

Manure.

introduce improved ploughs have not as yet met with much success.

The manure commonly used all over the district is chiefly a compost of rotten leaves and the products of cattle. Ashes, when available, and *sudu mannu*, a mixture of loppings of trees, or twigs and leaves, or vegetable rubbish and dry earth burnt together, are also used very extensively, and in the inland tracts, where forest is still abundant, leaves and twigs are sometimes applied directly to the fields without either being burnt or mixed with animal products. The stubble is also ploughed in, that of the first crop being left 8 or 10 inches high for the purpose. For the preparation of cattle manure the floor of the shed, where the cattle are penned for the night, is strewed with branches and leaves, which are ordinarily allowed to remain there rotting in the urine and dung of the animals until the whole has been trampled into a pulpy mass. This process is simply a slovenly way of preparing what is generally regarded by European agriculturists as the best of all manures for ordinary agricultural purposes, but it is only a very limited number of the ryots who take the trouble to renew the top layer of bedding with sufficient frequency to prevent the sheds becoming extremely offensive. As matters are managed, the effect upon the cattle cannot but be injurious, and the ryots admit that it leads to continual attacks of foot-rot, but they find it pays them even to sacrifice their cattle for the manure thereby obtained. Near the coast it is a common practice for ryots to obtain as many cattle as possible from non-agricultural owners on condition of their being well fed and properly taken care of, and in such cases more attention is paid to the well-being of the animals. Wood-ashes are a very favourite manure and are used in a very thorough-going manner in the form of cultivation known as 'kumari,' in which standing forest is felled and burnt on the spot and seed sown in the ashes. Liberal privileges have been conceded to the ryots with regard to the use of leaves and loppings from the forests and all round cultivation a belt of 100 yards of land is left for the exclusive use of the adjoining cultivator for the supply of manure, fuel, pasturage and other domestic and agricultural aids. Such lands are known by the name of *kumaki* (assistance).[2] The manure used for rice lands is frequently burnt, but in gardens the ground round the foot of the trees is dug to a small depth and the pit covered over with earth after being filled with fresh leaves, those of the Strychnos nux-vomica being preferred for cocoanut trees. Salt is much valued as a manure for these trees. The duty on it

[2] For fuller information on this subject, see the chapter on the Revenue History.

renders its direct application impossible now, but it is supplied in the form of mud from the bottom of the tidal rivers, &c.

The rainfall during the south-west monsoon being unfailing and abundant, there are no extensive irrigation works in South Canara. The rainfall alone is sufficient to ensure one crop even on lands where there are no facilities for storing water, while the streams and springs, which continue to flow for some time after the rain has ceased, enable the ryot to raise two or even three rice crops on the low-lying lands at the bottom of the valleys. For areca-nut plantations small tanks are usually made at the head of the valley in which the plantation is situated, and for the second and third rice crops, the cultivators are in the habit of damming up the water in the streams and the smaller rivers. Small anicuts of this kind are found in abundance all over the district though perhaps there are more in the Uppinangadi taluk and fewer in Kásaragód than elsewhere. For the annual construction of these dams a slight remission called *kattutar* was made long ago from the assessment. The amount was merely nominal and in no way represents the value of the labour annually expended on the works. Though nothing is spent directly by Government in connection with irrigation, numbers of small tanks supplied by springs and affording means of irrigation to different petty holdings are still considered Government property, but when the water goes all to one or two holdings, the tank is treated as attached to the holdings. Near the coast, where water is found near the surface, large numbers of small private tanks or reservoirs have been dug by private owners.

Where water for irrigation cannot be obtained by direct flow, it is raised by a variety of primitive contrivances according to the depth from which it has to be procured. Sometimes it is a matter of only a few inches, in which case it is ordinarily thrown up by means of a small wooden scoop held in the hand. When the depth is a little more, a somewhat larger scoop is suspended from a small tripod, and by this machine, which is called 'keidambe,' water can be raised by one man from a depth of about 3 feet. A more efficacious method, however, is to have two men to scoop the water up with a basket suspended on two ropes, one of which is held by each of the men. When the water is at a greater depth than 3 feet, a 'yátam' or 'picottah' is used, the lever being pulled down by men or women holding on to ropes and dropping into a pit, by the side of which there is an inclined plane, by means of which they walk up again to repeat their jump as soon as they have arrived at the top. The method prevailing on the eastern coast of working a picottah by means of a man walking up and down the lever is not in use here, and as there is very little

cultivation from deep wells, the ordinary 'yátam' is a much smaller machine than the common Madras picottah. Large ones are to be seen occasionally, however, especially in the compounds of the houses of wealthy landholders, where it is used mainly for drawing water for domestic purposes.

Farm labourers.

Cultivation is carried on chiefly by means of *Kúliálugalu* or hired labourers, but there still remain some *Múladálugalu* or hereditary serfs. Most of the labourers employed on farms belong to the class known as Dhérs or Holeyas, and such of them as are not still considered as farm slaves or *Múlada Holeyas* come as a rule under the designation of '*Sálada Holeya*,' or a Holeya, who is bound to his master by a debt. Slavery of course is legally abolished, but custom dies hard, and notwithstanding the temptation of high wages offered by coffee planters above the ghauts, many of the old estate serfs or slaves acknowledge their ancestral master and do not care to leave his service so long as they are fairly treated according to the tradition of their class. The Jain and Brahmin farmers are especially dependent on their services. These labourers are paid in paddy or rice, and, especially in the case of *Sálada Holeyas* their wages are subject to deductions on account of debts contracted by them to meet the expenses of marriage, &c. For gathering the harvest and storing it up, hired labourers are not paid at so much per day, but receive a certain proportion of the produce of the harvest. So also for preparing rice from paddy they receive three seers of rice for preparing one *múra* of 42 seers. At the time of transplanting and reaping, females are largely employed and are generally paid at the rate of two seers per day. This subject is treated more fully under the head of wages.

Products.

The staple produce of South Canara is rice (*Oryza sativa*), which is cultivated in all the valleys of this well-watered district, as many as three crops being grown every year on a considerable portion of the low-lying lands. Next in importance comes the cocoanut, of which there are extensive plantations all along the coast line, and the areca-nut which is grown more inland and especially in the shaded valleys on the slopes of the ghauts, or the spurs which run down from them in all directions. The following figures from the latest statistical returns indicate the extent to which the different products of the district are cultivated:

	ACRES.
Rice (*Oryza sativa*).	473,680
Cocoanuts (*Cocos nucifera*)	24,894
Areca-nuts (*Areca catechu*)	9,246
Horse gram (*Dolichos biflorus*)	13,013
Black gram (*Phaseolus radiatus*)	10,993

	ACRES.
Green gram (*Phaseolus mungo*)	9,786
Ragi (*Eleusine corocana*)	2,977
Gingelly (*Sesamum indicum*)	3,859
Pepper (*Piper nigrum*)	4,618
Cardamoms (*Elettaria cardamomum*) ...	1,063
Chillies (*Capsicum frutescens*)	1,073
Sugar-cane (*Saccharum officinarum*) ...	922
Tobacco (*Nicotiana tabacum*)	893
Betel-leaf (*Piper betel*)	600
Castor-oil (*Ricinus communis*)	369
Turmeric (*Curcuma longa*)	149
Cotton (*Gossypium indicum*)	139
Hemp (*Crotolaria juncea*)	78
Coffee (*Coffea arabica*)	98
Plantains (*Musa paradisiaca*)	44
Ginger (*Zingiber officinale*)	24

As this district has never been surveyed there is no accurate record of the extent under cultivation and the figures above given are consequently mere estimates. The total acreage shown also includes the second and third rice crops, and other crops grown in the cold weather on fields on which a rice crop had been grown during the monsoon. The cultivation of rice, cocoanuts, areca-nuts, betel-leaf and sugar-cane will be described in some detail further on. With regard to the other crops only a few passing remarks seem called for. The gram crops are grown mainly as a second crop on the *majal* rice fields, and in *kumari* and *hakkal* cultivation as will be explained hereafter. Ragi also is mainly grown in *kumari* and *hakkal*. Pepper and cardamoms are quasi-forest products, a certain amount being of spontaneous growth, which, however, is very trifling unless supplemented by planting and training creepers in the case of pepper, and partial clearing to let in light and air in the very moist and secluded spots in which alone cardamoms are to be found. The cultivation of pepper and cardamoms in areca-nut gardens is carried out to only a very limited extent in South Canara. Chillies, turmeric, gingelly and ginger are mainly *hakkal* crops. Tobacco is grown only to the south of the Kásaragód taluk. The crop requires careful watching and a liberal use of fish manure but pays well. The leaf is badly cured locally and is used mainly for snuff within the district, but a small quantity is made into cigars, and a little is exported to Bombay. Cotton is grown only in the Kásaragód *kumaris*. The only kind of hemp raised in the district on account of the fibre is the 'sunn' hemp (*Crotolaria juncea*), but a small amount of Indian hemp (*Cannabis sativa*) is grown in private gardens for the

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Products.

manufacture of bhang. Besides agricultural products most of the ordinary South Indian fruits thrive well in Canara. Pine-apples are particularly abundant and are of very fine quality when carefully cultivated. There are also some good grafts of mangoes in the district which have been largely extended of late years. All over the waste lands in the vicinity of the coast the cashew-nut tree (*Anacardium occidentale*) now abounds and is valued not only for the nut, but for the spirit which can be distilled from the apple at a trifling outlay. Besides cardamoms and pepper above alluded to, the minor products of the forests of Canara are numerous and abundant, the most important being myrabolans, shige-kai or the fruit of the *Acacia concinna*, cinnamon flowers, catechu, wild mace, wild nutmeg, and nux-vomica. The oil nut most largely grown in the district is of course the cocoanut, but gingelly and castor are grown to some extent, and a considerable quantity of lamp oil is also made from the seed of the Alexandrian laurel (*Calophyllum inophyllum*) which flourishes along the coast.

Rice.

As explained above, there are three main classes of rice lands, viz., *bail* or rich low-lying land, *majal* or middling land, and *bett* or rain-irrigated upland. The *yénelu* or *kártika* is the earliest rice crop of the season on whatever description of land grown. While[3] the Hindus in Canara mostly reckon their time by the moon, (Chándramána), the rice cultivators, for their purposes, prefer the solar year (Souramána). The Souramána year commences on the *Vishu* or *Mésha sankaramána*, when the sun is supposed to enter the sign of Aries. This day falls on the 12th of April of every year. April, therefore, is the month during which change of owners or tenants commonly takes place, and the preliminary operations for the cultivation of paddy-fields are commenced.

In anticipation of the setting in of the south-west monsoon, the cultivator commences work with ploughing the *bail* lands in the beginning of May, and laying aside every other concern which might interfere with the proper occupation of the season, he devotes his undivided attention to his rice fields, the produce of which constitutes by far the greater proportion of his annual profits. When the fields have been, in a certain measure, levelled, they are manured and by a second ploughing the manure is driven into the soil. The soil being thus laid open to the powerful rays of the sun, it becomes exceedingly dry and parched, where by grubs and insects, and especially weeds, are destroyed. This done, the seed is sown in those fields where it is intended to prepare the nursery, if possible for the whole farm. The seed remains

[3] From a paper on rice cultivation in South Canara by the Rev. H. A. Kaundinya in the Proceedings of the Board of Revenue, dated 9th November 1869, No. 869.

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in the ground, almost unchanged, awaiting the rains, when it germinates. This is called *hudi néji* (dry nursery). But if there is a tank or spring water sufficient for making the nursery before the monsoon sets in, the seed is sown about the middle of May and *watered*. This is called *nir néji* (water nursery). Where there is no such water obtainable and difficulties stand in the way of preparing a dry nursery, the cultivator sows the seed at the beginning of the monsoon, and makes what is also called *nir néji*. Of these three kinds, the nursery prepared with the help of tank or spring water, *before* the monsoon, or of old water, as the people call it, is considered the best and most remunerative. The 'dry nursery' is the second best, and often found equal to the above. But the nursery made at the commencement of the rainy season, with the help of the opening showers of the monsoon, is found to be decidedly inferior to the other two kinds. Thirty days after the appearance of the seedlings above the ground, the crop will be about a foot in height and fit for transplanting. During these thirty days, the rice fields, other than those set aside for the preparation of the nurseries are ploughed, manured and got ready for the reception of the young crop removed for transplantation from the nurseries. The work of transplanting is done from the middle of June to about the middle of July. Two months later—about the middle of September—the first crop or *yénelu* comes fully into ear and, within a month from that time, has ripened sufficiently to be in a fit condition for reaping. All this time rice fields are kept under water, which is allowed to stand in the fields about 2 inches deep. Care, however, is taken to drain off the water for a space of three or four days immediately after the seedlings have been transplanted, as also while the harvest is being reaped. In reaping the stalks are left standing to the height of 8 or 10 inches. These are ploughed up in the soil to serve as manure for the next crop.

As soon as the first crop is harvested, that is about the middle of October, the fields are again ploughed up for the *suggi* or second rice crop and fifteen days are allowed for the *yénelu* stalks to decay thoroughly, fresh manure being also added. Before sowing, the bundle of straw in which the seed of the second crop is tied up is immersed under water about a foot deep and pressed down by the weight of stones placed over it. After remaining in this position for about twelve hours, it is removed, and the following day, the seed is well mixed with thick cow-dung and water. The next day if nurseries are not used the seed is sown broadcast upon the fields, containing perhaps half an inch of water. The fourth day all the water is allowed to run out of the fields and for about four days immediately succeeding, the fields are left to stand dry. If any

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rain falls during this time, it is injurious to the rice crop. The nursery for the second crop is prepared in the same manner as for the first, only with this difference, that the one requires thick sowing and the other does not. If a nursery has been made, the seedlings are transplanted after the lapse of about four weeks from the time of sowing. The *suggi* crop is reaped in the early part of January and, in reaping, the stems are cut to within 3 inches of the ground.

The third rice crop or *kolake* is only grown on the best rice land with a large supply of water. Its cultivation commences immediately after the harvesting of the *suggi* or second crop. After ploughing, eight days suffice for the *suggi* stalks to decay, these having been cut down near to the ground, and being moreover much finer than those of the *yénelu* crop. The *kolake* is sown in January and reaped in the latter half of April.

The proportion that the yield of the second crop will bear to that of the first must naturally depend upon so many varying circumstances that no fixed proportion can be given. With some degree of approximation to the truth it may be said that, in general, the outturn of the second crop to that of the first is as two to three, or three to four, or even four to five, and, in certain exceptional cases, the one may be equal to the other, or even more than the first. The *suggi* rice is much inferior in quality to the *yénelu* rice which, being finer, is mostly reserved for exportation, while the former is used by the cultivators for home consumption.[4]

If a rice field capable of giving two crops is allowed to lie fallow and uncultivated after the first crop, it will harbour different kinds of noxious weeds which would not only eat away the strength of the manure still remaining in the soil, but would even deteriorate the land to such an extent as to throw a great deal of unnecessary labour on the cultivator when preparing his fields every year for his single crop. It is seldom, therefore, that the opportunity of raising a second crop is neglected even in unfavourable seasons. The different sorts of crops are not grown from seed of the same kind. The *yénelu* seed is of a species that will not do for *suggi* and *vice versâ*. On the other hand, *yénelu* seed may be used for *kolake* and *vice versâ*, but even in this case a cultivator will prefer a distinct kind of seed called *samage* for the *kolake* crop.

Where the fields contain saline matter in the soil, or where they are subject to the influence of sea water, the farmers in the

[4] The ordinary outturn on *bail* land near the coast is said to be from nine to twenty-one fold, on *majal* ground from six to twelve fold and on *bett* from two to eight fold.

southern parts of South Canara grow what is called *oguru dodda,* and another called *oguru kalame:* the former gives a very black rice and the latter, a tolerably white kind. These seeds are used in such places because, on account of the presence of saline matter, no other rice would grow well.

Rice.

Whenever the ryot can afford it all rice lands are well manured, but naturally most attention is paid to the best lands, so that, as a matter of fact, comparatively, little manure is given to the *bett* fields. Very little manure is also given to a class of land called 'potla' which has not been noticed above, as it is only limited in extent. It is low-lying land which is submerged during the heavy part of the monsoon, and the silt deposited naturally upon it makes it possible to grow a very fine crop on it late in the year without the addition of much manure. The preference of transplantation to broadcast sowing is also mainly a question of expense, and consequently broadcast sowing is the rule as regards all the *bett* and a considerable portion of the *majal* land. For broadcast sowing the seed is always sprouted, except for a few exceptional soils, the most important exception being sandy tracts to the south of the Kásaragód taluk where dry seed is sown broadcast early in the season and left to germinate when the first showers fall.

In a few localities the paddy is trodden out of the ears by cattle, but thrashing is ordinarily performed by beating a handful of stalks against a wooden or bamboo grating through which the grains fall, after which they are collected and tied up in straw bundles called 'múras,' each bundle containing one *múra* or 42 seers of 80 tolas weight. All classes of rice are usually boiled before husking to such an extent that the husk bursts open after which the paddy is dried in the sun and then pounded. The better sorts when so prepared are called 'mascati,' owing, it is said, to large quantities of it having formerly been exported to Muscat. Rice husked without boiling is called 'beltige.' With a few exceptions all the finer grains grown in the *yénelu* and *kolake* crops are made into 'muscati,' but the very finest rices, such as the table rice used by Europeans and a few of the wealthier classes of natives, are husked unboiled. The coarse rice grown in the *suggi* crop and known as 'rási' is boiled before husking.

The principal varieties of rice are:

1. Jíra sále.
2. Gandasále.
3. Menthesále.
4. Sómasále.
5. Ajipasále.
6. Kalame.
7. Ambatte.
8. Doddare.
9. Kinnibíja.
10. Kayame.
11. Samunge.
12. Mundale.

13. Allige.
14. Dadde.
15. Kápikaje.
16. Kudrubíja.
17. Sungal.
18. Vonthecare.
19. Kunderakutti.
20. Thekkamboliari.

Rice.

In this connection a custom of long standing is deserving of passing notice. Before reaping a crop, a tenant is bound to present his landlord with what is known as *bele-káṇike* (crop present). The shape assumed by the present differs according to the class to which the landlord belongs, a fowl being considered suitable in the case of a Christian or Muhammadan, while vegetables or fruit are offered to a Hindu. The landlord then takes the opportunity of looking up his account with the tenant and if there are any arrears an agreement has to be come to before the present is accepted, acceptance being an intimation that the reaping of the crop may be proceeded with.

Cocoanuts.

Cocoanut plantations extend along the whole coast line of South Canara in tolerably extensive plantations and scattered trees are grown on the banks of fields and in other favorable spots throughout nearly the whole district. Cocoanut trees are usually propagated from nuts which have not been plucked, but have been allowed to ripen and fall off from the tree, preference being always given to those with large eyes and grown on mature trees. They are allowed to lie out in the open air for some time until the liquid inside has been nearly absorbed by the kernel and then in the month of September, they are put down in moist ploughed ground with the tops above the surface. They usually sprout within three months and, after a year or two, according as the ground is soft or hard, they are transplanted in square pits 3 feet in width, 3 feet deep, and about 6 or 7 yards distant from one another. The seedling is planted at the bottom of the pit, which gradually gets filled up with mud in the course of three or four years. The manure used consists mainly of earth from the bottom of backwaters and consequently impregnated with salt, and the leaves of the nux-vomica tree. When the plants are young constant watering is required, but as plantations are usually formed only where the sub-soil water is near the surface, it can usually be discontinued after four or five years. On high lands, however, watering during a portion of the dry weather at any rate must be carried on so long as the tree lives. Trees come into bearing after five to twelve years, according to the nature of the soil, and continue in vigour until sixty after which they decay. In the low-lying islands in the backwater where cocoanut gardens thrive best, the seedlings are not transplanted into pits, but earth is raised round them. In a good cocoanut plantation about 120 trees are usually raised on an acre of ground and a tree in full bearing

ought to give fifty nuts annually. If tapped for toddy, an ordinary cocoanut tree is estimated to produce five bottles a day for the half year during which the tapping usually continues, and in favourable circumstances, and if the tree is specially cared for, this may be kept up throughout the whole year.

Areca-nut or betel-nut.

Areca-nut cultivation is carried on mainly near the ghauts in the deep narrow valleys in which there are perennial streams and abundance of shade and moisture, but gardens are also found nearer the coast in the glens on the sides of the laterite plateaus which rise to some 400 or 500 feet in height, and also on the sides of isolated hills which are found here and there in many parts of the district. Near Vittal in the Kásaragód taluk not more than 15 miles from the sea, and much farther from the line of ghauts, there are a number of these gardens producing areca-nuts which fetch a higher price than any grown in other parts of the district, with the exception of a small portion of the Coondapoor taluk which lies above the ghauts.

For planting purposes nuts are selected from the second crop of mature trees and are put down with the eyes uppermost in a well-moistened shady spot, the ends of the nuts being left visible above the surface of the ground. This is usually done early in February and daily watering is required until the monsoon has fairly set in, when the seedlings are transplanted to the neighbourhood of one of the small channels which run through every areca-nut plantation. They are left there for three years and are then finally retransplanted, each young tree being put down at the bottom of a pit 3 feet square and 3 feet deep, the pits being dug at a distance of 16 feet from each other in one direction and 8 feet apart in the other. A quantity of wood-ashes is first strewed at the bottom of the pits and, after the young trees have been put in, the roots are surrounded with fresh leaves and cattle manure. After these have come into full bearing, a similar number of young trees are planted between the old ones, and after these are well grown, a third set are planted. The distances between the trees being as above mentioned, the number planted each time would be at the rate of about 340 per acre, so that in an old plantation an acre would contain about 1,000 trees. The system of planting described above is that adopted by the cultivators in the neighbourhood of Vittal, where, as above said, the plantations are the finest to be found below the ghauts. In some places the method of cultivation differs somewhat from that described, and above the ghauts the trees are put down much closer than at Vittal.

An areca-nut tree begins to bear about ten years after its first, or seven years after its second planting. From its fiftieth year until its death, which happens between the seventieth and hundredth

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Areca-nut or betel-nut.

year, the fruit produced annually gradually diminishes, but the quality rather improves than otherwise. A tree in full bearing produces annually three bunches which ripen in succession between November and January. Each bunch contains from 30 to 100 nuts, so that 200 nuts may be taken as the average produce of an areca-nut tree in full vigour. The crop is sometimes plucked green between September and November, and the nuts are then boiled, cut into pieces and dried, the result being known by the name of *hâḷu aḍike*. Such of the nuts as are not plucked before November ripen on the tree and are gathered in December and January. These are called *biḷe gôṭu*.

In most of the areca-nut plantations, pepper creepers and plantain trees are grown in addition to areca-nut trees, and of late coffee plants have also been introduced. The culture of the cardamom plant in such gardens is also common, especially in the Hannar Mágane of the Coondapoor taluk.

Betel-leaf.

The mode of cultivating the betel-leaf in South Canara has been well described by Buchanan in his "*Mysore, Canara and Malabar*," and, as his description is applicable even now, the following passage has been extracted from that work.[5]

"*Betel-leaf* (Piper betel) is here (South Canara) cultivated in "separate gardens, as is the case in most parts of India, except in "*Malabar*. For this purpose a red stony soil on the side of a "rising ground is preferred. Some of the gardens are watered "from tanks; others, by means of the *yátam*, from wells, in "which the water stands from 12 to 24 feet under the surface. "Between the 23rd of April and the 23rd of May the ground "is first dug, and is then formed into beds 6 cubits wide, which "are separated by trenches three-fourths of a cubit broad, and "half a cubit deep. In the centre of each trench, at four finger-"breadths from each other are planted, in rows, cuttings of the "betel-vine, each a cubit in length. If there is no rain, they "must be slightly watered five times a day, and then covered with "branches to keep off the sun. At the end of the first and second "months, a little fresh red soil, mixed with small stones, are "put in the bottoms of the trenches. At the end of the third "month a row of branches, at 6 or 8 cubits from each other, is "planted on each side of every trench. The branches are intended "to grow up to trees as supports to the vines. Those chosen are "the *sougary* (Erythrina), the *nuriga* (Moringa), and the *agashay* "(Eschynomene grandiflora). At the same time, a little more "earth and some dung are put into the trenches. In the sixth "month more earth and dung is given; and *bamboos* having been

[5] Vol. iii. p. 54.

"tied horizontally along the rows of branches, the young *betel-* "*vines* are tied up to these. At the same time, in the middle of "every second bed, a channel is formed, which every other day "is filled with water; and from thence, by means of *kaypallay*, "the water must be thrown on the plants. Every month, a little "dung and red earth is put to the roots of the vines, and these "are tied up to the *bamboos* and trees. When a year old, the "garden begins to produce leaves for sale; after which, once in "two months, it requires to be manured, and in dry weather to "be watered once in two days. In the centre of each of the beds "that have no channels is then put a row of plantain trees. "The garden is generally surrounded by a quickset hedge, at "other times by a dead hedge of prickly bushes, and in the inter- "val between the fence and vines are planted *capsicums* and other "kitchen stuffs. Every four years the *betel-vines* die; but in their "stead others are immediately planted, and a new trench being "dug in the situation of each old one. In eighteen or twenty years, "the soil having been exhausted, all that is near the trees is "removed, and in its place fresh red earth is brought into the "gardens. The trees last for fifty or sixty years; but when, by "accident, one dies sooner, a fresh branch is planted to supply its "loss. These substitutes, however, do not thrive. When from "old age, the whole trees begin to decay, the garden is abandoned, "and a new one is formed in another place."

Betel-leaf.

Sugar-cane.

In South Canara four kinds of sugar-cane are cultivated—

(1) *Rastáli kabbu*, a green cane which is preferred for eating.

(2) *Dúsa kabbu*, a brown cane with yellow longitudinal stripes.

(3) *Kari kabba*, a dark-brown cane.

(4) *Bidiru kabbu*, a light green cane with long internodes not unlike a young bamboo whence it derives its name.

Alluvial soil suits all kinds best, but the fourth kind can be grown in a gravelly soil, and an admixture of sand is not bad for the first. The class of field called 'majal' which is considered the second best for rice is what is usually preferred for sugar-cane. The low-lying lands which produce three crops of rice seem to be too wet for sugar-cane at certain seasons of the year.

Between December and March the field chosen for the cultivation of sugar-cane is twice ploughed and once harrowed. This process is repeated five times. Trenches are then dug about 2 feet apart from each other, each trench being about 12 feet long and 1½ feet wide at the top and about 1 foot at the bottom. The earth at the bottom of the trench is then loosened with a pickaxe, and over this loosened earth, rubbish, dried leaves, &c., are heaped up

Sugar-cane.

and burnt, and with the manure thus produced some burnt earth is mixed. Water is then let into the trenches and the cuttings are planted. The cuttings are each 1 or 1½ feet long, and before being planted they are immersed in water, or they are covered with straw which is constantly wetted, for three days, after which they are taken up and dried in the shade for twenty-four hours. The cuttings are placed horizontally along the trenches, the end of one cutting usually overlapping that of the other as far as the middle, but in some parts the cuttings do not overlap. In the case of the fourth kind of sugar-cane the cuttings are laid in three rows along the trenches. Earth from both sides of the trenches is thrown over the cuttings so as to cover them, and they are then watered. The cuttings sprout in about eight days and in about a month the canes are about 2 feet high. At this stage burnt earth mixed with ashes, powdered dung, or fish manure is used, and a layer of earth is spread over the manure. In the inland tracts a common manure is nux-vomica or emblic myrabolan leaves. Manuring is repeated every month or at least thrice before the setting in of the rains, and on the last occasion in which manure is put the trenches are filled up. When the rain begins ridges are raised to the height of about half a foot. Thirty tons of manure are said to be required for an acre of good sugar-cane.

After the planting of the cuttings the land is irrigated either daily, or on alternate days, or once in three or four days until the rain falls. In the monsoon months the growing sugar-cane requires little or no attention, and the canes are fit for the mill or market after from nine to twelve months from the time of planting.

Neither coarse nor refined sugar is made in the district. The juice obtained from sugar-cane passed through the common wooden mill of the district is put into large boilers, earthen or metal, and heated over the fire for about four hours, and when it thickens lime is added at the rate of 1 tola for 28 lbs. of juice. The juice is then poured into earthen or wooden vessels and stirred for sometime with a stick after which it is transferred to moulds, and turned out in the form of small cakes of jaggery.

Kumari.

As in all countries in which there is a large extent of forest waste, crops are raised in Canara by felling and burning patches of forest, the clearings thus made being singularly fertile owing to the ash manure and the abundance of *humus* always to be found in forest of any considerable age. In old days there seems to have been but two kinds of cultivation in Canara, the 'kumari,' or temporary cultivation of forest clearings on which the forest was again allowed to grow, and the rice cultivation in the permanent clearings in the valleys, and as a consequence even to this day the cultivation of dry crops on upland grass land is often

called 'kumari' by the people though it is officially termed 'hakkal,' and all forest has long since disappeared from the neighbourhood.

Kumari.

The nomadic form of kumari cultivation seems to have prevailed only to a small extent in Canara for many years, owing to the landholders of a village regarding themselves as the owners of the waste, as well as of their holdings, and demanding fees and perquisites and even regular rent from any one who cut 'kumari' in the village forests.

The early British Administrators seem to have accepted things as they found them, and kumari in Canara was divided into 'sirkar' kumari and 'warg' kumari, according as the kumari cutters paid dues direct to Government, or to landholders who paid to Government a small 'kumari' assessment. In course of time the rights of Government over the forests became better understood and restrictions were placed on the exactions of landholders in dealing with forest cultivators, and eventually, as attention was directed to the destructive effect on forest of allowing kumari cultivation to be carried on at all, orders were issued in 1860 remitting 'warg' kumari assessment and prohibiting 'sirkar' kumari cultivation except in such localities as the Collector considered it necessary to allow it to prevent great suffering amongst forest tribes who were unaccustomed to any other form of cultivation. An exception was also made with regard to 'warg' kumari in the Békal máganés of the Kásaragód taluk where it had become a firmly established practice, and kumaris were bought, sold and mortgaged as freely as any other holdings.

The following account of kumari, as practised in South Canara, appears in the Proceedings of the Board of Revenue, dated 16th April 1859:

"It is the name given to cultivation which takes place on forest "clearings. A hill side is always selected, on the slopes of which "a space is cleared at the end of the year. The wood is left to "dry till the following March or April and then burned; in moist "localities the seed is sown in the ashes on the fall of the first rain "without the soil being touched by implement of any kind, but "in the taluk of Békal the land is ploughed. The only further "operations are weeding and fencing. A small crop is taken off "the ground in the second year, and sometimes in the third, after "which the spot is deserted until the jungle is sufficiently high to "tempt the kumari cutter to renew the process."

In the 'warg' kumaris of the Békal máganés of Kásaragód the crop raised is usually rice mixed with dhâll and cotton. Elsewhere rági and gram are the principal crops with a small

Sugar-cane.

amount of dhâll, castor-oil, gingelly, chillies and vegetables of different sorts. After the restrictive orders of 1860 'sirkar' kumari was allowed only in the Coondapoor taluk, but a limited amount has recently been sanctioned under the regulation of the Forest Department in portions of the Uppinangadi and Kásaragód taluks, and it seems clear that in extensive forests the complete prohibition of kumari means the depopulation of the tract to such an extent that labourers cannot be found to collect minor forest produce and carry on other operations of forestry. [6]

Hakkal.

The cultivation of ordinary dry grain crops on land prepared by clearing brushwood or scrub jungle or grass is termed hakkal to distinguish it from kumari, but as above noted the term kumari is often applied by the people to any casual cultivation of upland waste. The crops and method are the same as in kumari except that more tillage is required, and where there is no brushwood, burnt earth or ash manure has to be brought and spread. With the increase of population, the rise in prices and the advance in knowledge as to what can be done with manure, 'hakkal' cultivation is not so completely left as formerly to the hill tribes or lowest classes of labourers, and in the neighbourhood of the coast, land hitherto left waste, or only occasionally cultivated, is now being permanently taken up for the same class of cultivation on an assessment of one rupee per acre or double the amount charged for casual 'hakkal.' The crops mainly grown are 'kumari' rice, rági, horse-gram, turmeric and chillies, the last being the most paying, but at the same time involving great labour and considerable outlay. Farm labourers frequently grow a small 'hakkal' crop on their own account on the 'kumaki' or waste land adjoining an estate, and on this no assessment is charged.

Wages.

As already stated the ordinary agricultural labourers of this district are Holeyas or Pariahs of two classes, known as 'Múlada Holeyas' and 'Sálada Holeyas,' the former being the old hereditary serfs attached to *múli wargs* (estates) and the latter labourers bound to their masters' service by being in debt to them. Now-a-days, however, there is little difference between the two classes. Neither are much given to changing masters, and though a 'Múlada Holeya' is no longer a slave, he is usually as much in debt as a 'Sálada Holeya,' and can only change when his new master takes the debt over. To these labourers cash payments are unknown, except occasionally in the case of 'Sálada Holeyas' where there is a nominal annual payment to be set off against interest on the debt. In other cases interest is foregone, one or other of the perquisites being sometimes docked as an equi-

[6] For Kumari assessment *see* chapter iii.

Wages.

valent. The grain wage consists of rice or paddy, and the local seer used is on the average, as nearly as possible, one of 80 tolas. The daily rice payments to men, women and children vary as follows:

Men	.. ..	from 1 seer to 2 seers.
Women	.. ..	„ $\frac{2}{3}$ „ to 2 „
Children	.. ..	„ $\frac{2}{8}$ „ to 1 seer.

The variations in the rates obtaining in the different parts of the district are determined by a variety of local causes but, speaking broadly, the rates are higher in the inland parts where population is comparatively sparse and the labourers are tempted to migrate to the coast or to coffee plantations above the ghauts. If money equivalents be looked to, it may be said that the rates are not higher as rice is there cheaper, but, as a matter of fact, the wages really are higher as the labourer gets more of what he wants and the landlord pays away a larger proportion of his produce. It is only in the Malayalam *máganés* in the south of the district that the minimum rates above given prevail, and even there higher rates are given at the time of harvesting, sowing, &c. For the district generally, the typical rates of daily wages may be taken as:

Men	.. $1\frac{1}{2}$ seers rice and condiments = 1 anna 8 pies.
Women	.. $1\frac{1}{4}$ seers rice and condiments = 1 anna 5 pies.
Children	.. $\frac{1}{2}$ seer of boiled rice with condiments = 7 pies.

In addition to the daily wages and the midday meal of boiled rice which is given in almost all parts, there are annual perquisites or privileges. Except on the coast of the Mangalore taluk and in the Coondapoor taluk every family of Holeyas is allowed rent free from $\frac{1}{8}$ to $\frac{1}{3}$ acre of land and one or two cocoanut or palmyra trees with sometimes a jack or mango tree in addition. The money-value of the produce of this little allotment is variously estimated at from 1 to 5 rupees per annum. The average may be taken at Rs. 3, which shows that the most is not usually made of the allotment. Throughout the whole district cloths are given every year to each labourer, the money-value being estimated at 1 rupee per adult and 6 annas for a child. It is also customary to give a *cumbly* (blanket) in the neighbourhood of the ghauts where the damp and cold render a warm covering necessary. On three or four important festivals presents of rice and other eatables, oil and salt are given to each labourer, or, in some cases, to each family. The average value of these may be taken at 1 rupee per labourer, or Rs. 4 per family. Presents are also made on the occasion of a birth, marriage, or funeral, the value of which varies very much in individual cases.

Wages.

If an ordinary family be supposed to consist of a man and his wife and three children, of whom two are old enough to do a little work about the farm, the annual receipts of the household on the typical rates given above will be—

			RS.	A.	P.
1 man	..1½ seers rice and condiments	=	0	1	8
1 woman	..1¼ seers rice and condiments	=	0	1	5
2 children	..1 seer rice and condiments	=	0	1	2
	3¾ seers rice and condiments	=	0	4	3
	365				365
	1,368¾ seers rice and condiments	=	96	15	3
	Value of produce of land	=	3	0	0
	Value of cloths ..	=	3	2	0
	Value of presents on festivals	=	4	0	0
	Total ..		107	1	3

The above calculation is based on the assumption that each member of the family has been fit for work every day of the year, but some allowance must be made for casual absence from sickness, when bare subsistence is provided, and in some cases not even that.

Whole families of Holeyas are attached to the farms, but when their master does not require their services he expects them to go and work elsewhere in places where such work is to be got. In the interior, outside work is not to be had at many seasons, and the master has to pay them even if there is not much for them to do, but, one way or another, he usually manages to keep them pretty well employed all the year round. In places where labour is scarce, farmers have to arrange to help each other with labourers. The great bulk of the farm labour of the district is done by the 'Múlada' and 'Sálada' Holeyas, but other permanently employed farm labourers are not unknown. They may be of any caste and the wages vary greatly. Some seem to be mere dependents, or relatives, of the farmer who reside in his house and get merely their meals and clothes. On the coast, where this class of labourers is most common, the daily wages vary from 2 to 2½ seers of rice with, in some cases, condiments and an allowance for firewood. In many places a cloth is also given annually and, in the interior, they frequently get presents at festivals also. Speaking

of the district generally, the average money-value of the daily wages of these permanently employed farm labourers may be taken at from 2 to 2½ annas.

Wages.

For certain particular classes of work such as irrigating, building embankments, plucking cocoanuts or areca-nuts, husking paddy, &c., labourers are sometimes paid daily wages and sometimes by contract or piece-work. When paid by daily wages the amounts vary from 2 annas to 3 annas 4 pies. The following may be mentioned as specimens of the contract rates:

For irrigating.—In the Mangalore taluk, one múra of rice (42 seers) is given for irrigating one acre of land for one crop.

For building embankments.—For each 100 cubic yards of earthwork there is paid in some parts of the district, Rs. 4 in cash, one múra (42 seers) of rice (Rs. 2–8–0), condiments (As. 6–0), six cocoanuts (As. 3–0), three kudtas (1½ seers) of oil (As. 3–0)—Rs. 7–4–0 in all.

For plucking cocoanuts.—From two to five per cent of the cocoanuts plucked.

For plucking areca-nuts.—One pie per tree, or one per cent. of the areca-nuts plucked, or 4 annas for 100 bunches of areca-nuts.

For husking paddy.—Three seers of rice for every múra (42 seers) of rice obtained.

It is generally considered that an able-bodied adult can earn 3 annas a day in any of the above-mentioned ways, while some can earn even more.

The wages of unskilled labourers have not increased within the time for which we have records, but there has been a great rise in the price of skilled labour. Smiths and bricklayers, who in 1850 obtained 4 annas per day, now get 6 annas, and carpenters now receive 8 annas, who then got only 6 annas. Masons sometimes earn as much as 12 annas per day, as do also carpenters who are above the ordinary run of workmen of their class. The smiths and carpenters required for preparing agricultural implements are not employed by the day, but they have each a shop in every village to which the peasants take their work and pay so much in kind for each description of work.

The unskilled labour of the district has found a new outlet in the coffee estates on the Western Ghauts, which offer tempting rates of wages to coolies who are willing to work in them. The Holeyas have, more than any other class, availed themselves of the advantages presented by work in the coffee estates and migrated to them in large numbers.

Weights and measures.

In South Canara, as in other parts of the Presidency, weights and measures were until lately in an unsatisfactory state, owing partly to the want of a definite initial standard, and partly to the

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Weights and measures.

absence of any arrangements for the manufacture of measures of a uniform capacity.

From returns submitted in 1836 it appears that the grain measure called a seer was assumed to contain 78 tolas of rice in most parts of the district, but that the seer used at Coondapoor contained 80 tolas. In 1852 it was reported that the seer when struck was calculated to contain 78 rupees weight of rice or 80 rupees of mixed grains of nine varieties, but in the same letter it was stated that in Coondapoor and all taluks to the south of it—that is in the whole of the present district of South Canara, the seer might be assumed to contain when struck 80 rupees weight of grain. In a set of tests of measures in ordinary use at different stations in the district made in 1872 in connection with the preparation of a conversion table for the price returns, the capacities of the measures were found to vary from 79 to 83, and in another set of tests made in 1886, the variations were from 78 to 80½.

In January 1886[1] the Board accepted the Collector's statement that the measures in use throughout the district contained approximately 80 tolas of rice and adopted this as the standard in the conversion tables.

In December 1884 an establishment for stamping weights and measures according to a prescribed standard was started experimentally in the Mangalore taluk, and another in the Udipi taluk in October 1886. These establishments work at times in the other taluks and as large numbers of weights and measures are being stamped by them, there is every reason to hope that uniformity and accuracy will soon prevail throughout the district.

The standards which are based on the rupee or tola of 180 English grains, and the seer of 80 tolas as above explained, are as follows:

Grain measures (struck)—

Pávu or ¼ seer	equal to 20 tolas.
½ seer	equal to 40 ,,
Seer	equal to 80 ,,
Kalsi	equal to 14 seers.

Liquid measures—

½ kudte	equal to 6 tolas of distilled water.
Kudte	equal to 12 ,,
Kutti	equal to 9⅓ kudtes.
½ maund	equal to 5 kutties.
Maund	equal to 10 ,,

Weights—

¼ seer	equal to 6 tolas.
⅓ seer	equal to 12 ,,

[1] Proceedings, dated 1st January 1886, No. 63, para. 21.

Weights and measures.

Weights—cont.

Seer	equal to 24 tolas.
¼ rátal	equal to 10 ,,
⅕ rátal	equal to 20 ,,
Rátal	equal to 40 ,,
¼ maund	equal to 7 rátals.
½ maund	equal to 14 ,,
Maund	equal to 28 ,,

Though the above standards suit all the ordinary requirements, there are some cases in which a particular article of produce has a special measure of its own; thus a maund of jaggery consists of 40 seers only.

The weights used in weighing gold are—

4 rice grains or vîssa	equal to 1 guriginja or hága.
2 guriginjas	equal to 1 manjatti or adda.
2 manjatties	equal to 1 hana.
9 hanas	equal to 1 pagoda or varáha túk.
3 pagodas and 3¾ hanas	equal to 1 tola or rupee.

Land measures.

It has been the practice of the country to estimate the area of a portion of land by what is called 'Bíjawari,' viz., the quantity of seed required to sow it. This quantity varies with the quality of the land and the variations of the local seed measure, so that great diversity exists.

Several experiments were made by actual measurement to obtain such an average as may represent in defined terms what is meant by a *moody* or extent of land requiring a *moody* of 60 seer measures (of 80 tolas' weight in rice) of seed to sow it. In the 'bail' or in the best low level land, the average *moody* was found to be 0·912 acres. In 'majal' land it averaged 1·072 acres, and in the 'bett' high level land 1·116 acres, so that one acre may be assumed as a very rough average equivalent of the *moody*. In some places the *moody* is 56, 50, 48, 45, 40 and 35 seers and in those localities the corresponding quantity of land is of course less than an acre.

Lands measured under orders of the revenue authorities have however been measured in acres and *goontas* or fortieths, as in Bellary, except in the case of some very old grants.

Divisions of time.

Amongst the natives of South Canara both the solar (saura-mána) and luni-solar (chándramána) calendars are in common use. The Sáliváhana era is adopted for both; but the name-years of the Brihaspatichakra or Jovian cycle are only used in connection with the months of the luni-solar system. The solar year begins about the 12th April, and the luni-solar year on the new moon immediately preceding the beginning of the solar year; but the name-year of the cycle is used for both. That the solar system

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Divisions of time.

was the one in earliest use in Canara may be inferred from the fact that there are Tulu names for the solar, but not for the luni-solar months, thus—

Sanskrit.	*Tulu.*
Mésha.	Paggu.
Vrishabha.	Besha.
Mithuna.	Kártél.
Karkataca.	Áte.
Sinha.	Sóna.
Kanya.	Nirnala.
Tulá.	Bóntel.
Vrischika.	Járde.
Dhanus.	Perárde.
Makara.	Puyintél.
Kumbha.	Máyi.
Mína.	Suggi.

The solar system enters rarely into documents, but solar days are given conjointly with lunar ones in horoscopes and other astrological writings. It furnishes dates for no festivals except New Year's Day, the birth of Krishna and Upákarma and certain festival days peculiar to special temples such as the 'Pariyáya' at Udipi and the Kollúr festival. All the operations of cultivation are regulated by the months of the solar system which alone are well known by the cultivating classes, especially in Tuluva proper, but leases, which are always written in Canarese and usually by Brahmins, are dated according to the lunar system though the date of payment of rent is entered according to the solar system, doubtless owing to its being more familiar to the rent-paying classes.

For the lunar months there are no Tulu nor even Canarese names, the Sanskrit terms being used, viz. :

1. Chaitra.	7. Ashwija.
2. Vaishákha.	8. Kártika.
3. Jyéshta.	9. Márgashira.
4. Ásháda.	10. Pushya.
5. Shravana.	11. Mágha.
6. Bhádrapada.	12. Phálguna.

As these are strictly lunar months, and not artificial ones as seem to be the Tamil months having the same names, an extra one has to be intercalated every third year under the name of 'adheka' prefixed to one of the other months as the case may be. This luni-solar system governs as above stated all ordinary religious festivals and observances and is the one ordinarily quoted in documents. In the five southern or Malayalam *máganés*

a Malayalam solar system is in general use with an era called 'Kollam' divided into cycles of 1,000 years.

Divisions of time.

The lunar month is divided into the bright and dark fortnights, called Shuddha or Shukla and Bahula or Krishna, which are sub-divided into 15 'tithis' or days varying in length from about 21 to 24 hours.

The solár system has weeks of seven days corresponding to the English week and the day and night are each divided into 4 jámas of 3 English hours or 7½ 'ghaligas,' each 'ghaliga' being 24 English minutes. A ghaliga is divided into 60 'vighaligas' of 24 English seconds.

The year is also divided into six 'rutus' or seasons as follows:

Vasanta (shining)	... ...	Chaitra. Vaishákha.
Gríshma (hot)	... ...	Jyéshta. Ásháda.
Varsha (rain)	... ...	Shrávana. Bhádrapada.
Sharad (sultry)	... ...	Áshwija. Kártika.
Haimanta (cold)	... ...	Márgashira. Pushya.
Shishira (dew)	... ...	Mágha. Phalguna.

These are quoted in religious services and prayers, but are not much regarded by the cultivating classes who have a local division—

Bésigála (hot)—March, April and May.
Malegála (rainy season)—June to October.
Chalikála (cold season)—November to February.

Trade.

The trade of the west coast of India is frequently alluded to by Greek and Roman writers, but none of the existing ports of Canara can be identified with any of those mentioned. As stated in the chapter on the history of the district, suggestions have been made which, on fuller investigation, have turned out to be erroneous. These have been replaced by new suggestions even more fanciful, and as they are even less likely than their predecessors to stand enquiry, it is unnecessary to discuss them. It may, however, be regarded as certain that South Canara shared in the ancient trade with the west, either directly from its own ports or by means of interportal trade with the large emporiums.

As an indication of the extreme antiquity of the trade between Egypt and India, it may be mentioned that mummies from Egyptian tombs, fully 4,000 years old, have been found wrapped in Indian muslin, but it cannot be said with certainty that these

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reached Egypt by sea from west coast ports. The Phœnician trade however (980 B.C.) between Tyre and India was unquestionably by sea, and the cinnamon and cassia, as well as the apes, peacocks and ivory mentioned in the Bible as imported by King Solomon are common west coast products. In the first century of our era the author of the Periplus states that the Egyptians exported woollen and linen cloth, wine and bullion to India, and received in return spices, gems, silk, pepper, ivory, cotton, betel and tortoise shell. Some of all these, except gems, silk and cotton, very probably came from Canara.

Trade between Canara and Arabia must have existed from very early days, as Arab traders were actually establishing themselves on the west coast in the fourth and fifth centuries A.D. A trade in horses between Persia and Ceylon, which no doubt extended to the west coast of India, is mentioned by Kosmos Indikopleustes in the sixth century, and the Malabar coast is described in *Sindbad the Sailor* and the *Voyage of two Muhammadans*, both of which were written about the ninth century A.D. After the arrival of the Portuguese a long struggle for trade supremacy took place between them and the Muhammadans which culminated in the entire success of the former, who, however, had in their turn to give way, first to some extent to the Dutch and afterwards completely to the English.

In the present day the most important articles of export trade are coffee, rice and paddy, areca-nuts, bricks and tiles, sandalwood, oils, cardamoms, salt-fish, hides and horns, and tobacco; and amongst imports the principal articles are cotton piece-goods, twist and yarn, kerosine oil, salt, copper and copperware, copra, oils, agricultural implements, sugar and tobacco. The coffee exported at Mangalore is grown in Mysore and Coorg, whence it is brought to Mangalore where there are several firms engaged in curing it. That exported to foreign ports chiefly goes to England, but a certain proportion goes to France and a comparatively small amount to Persia and Arabia. There is also a large exportation to Bombay, and to other ports in India the bulk of the latter being taken to ports in Malabar to be cured there for foreign markets. The shipments to Bombay are mainly on account of convenient direct freight to foreign ports not being at the time obtainable. The coffee trade of South Canara is confined to the port of Mangalore.

Rice is the staple crop of the district and after the wants of the people have been fully supplied, a large surplus remains for exportation. Though this article of export comes second to coffee in point of value, it of course far exceeds it in quantity. More than half of the exports go to Malabar, about one-third to

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Goa, and only a small quantity to foreign countries such as Arabia or Zanzibar. Exports go from all the ports of the district, but the rice trade with Goa is chiefly carried on at Hungarkatta, and with Persia, Arabia and Zanzibar at Coondapoor (Gongoli), and Mangalore.

Next in importance come the exports of areca-nuts, all the produce of this district. The foreign trade is chiefly to Kathiawar and Cutch, and the bulk of the remainder goes to Bombay. A large trade in bricks and tiles is carried on with Bombay consisting mainly of machine-made tiles, of which the Basel Mission has two large factories at Mangalore. There are also one European and several native firms engaged in the manufacture on the pattern introduced by the Basel Mission about twenty-five years ago.

Sandalwood is exported in large quantities to Bombay. It is all grown in Mysore and Coorg and brought down for shipment chiefly from Mangalore and Udipi.

Sandalwood oil is manufactured in the Udipi taluk from sandalwood brought down from Mysore and Coorg, and the exports of essential oils consist mainly of sandalwood oils, but there is also some cinnamon oil manufactured mainly in Mysore. All but a small portion of the exports go to Bombay whence much of them find their way to China.

Coir yarn is manufactured to a large extent on the Laccadive Islands as well as on the mainland, and is exported from the port of Mangalore to Bombay and Calcutta. Cardamoms are grown to some extent in the district, one very large plantation being at Neriya near Beltangadi in the Uppinangadi taluk, but the most of those which leave the Canara ports come from Mysore and Coorg; more than half go to Bombay, about a third to England and small quantities to France, Arabia, Persia and Zanzibar.

The salt-fish industry is rapidly extending in South Canara, but a great deal of it is in the hands of adventurous fishermen from Ratnagiri, who make large hauls off the Canara coast and bring them in to the nearest fish-curing yards. About a third of the exports go to Ceylon and the remainder to other ports in India.

Hides and horns are exported mostly to Bombay.

The exports of tobacco are mainly interportal, the tobacco grown in the Kásaragód taluk being in much demand for snuff all over the district. Amongst minor articles of export may be mentioned books and printed matter, copra, pepper, piece-goods, turmeric and shark-fins.

Imports from England rarely come direct to Mangalore or other Canara ports, and the few ordinary direct imports from foreign countries are coal, beer and machinery from England,

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kerosene oil from New York, dates from Persia, and salted fish from Arabia and the Persian Gulf. Amongst imports from all ports cotton piece-goods take by a long way the first place, followed by salt, copper and copperware, areca-nut, tobacco, kerosene oil, twist and yarn copra, and gram, after which in small quantities come sugar, pulse, agricultural implements, and umbrellas. Almost all the piece-goods are used in the district, salt and kerosene oil being the only imported articles of which a large proportion merely passes through to Mysore and Coorg. Three-fourths of the whole sea-borne trade, which may be valued at nearly 150 lakhs, is carried on at the port of Mangalore, which is the only one visited by the weekly steamers of the British India Company. The ports of Coondapoor (Gongoli), Barkúr (Hangarkatta) and Udipi (Malpe) have each about one-tenth of the trade of Mangalore; Mulky has from a third to a half of the trade carried on at these latter, and Kásaragód, Kumbla and Manjéshwar have from one to two lakhs. At Baindúr, the most northern port of the district, the trade is under a lakh.

As above stated, Mangalore is visited weekly in fine weather by the British India Company's coasting steamers, and by those of Sheppard's line, and three or four steamers call every year to take coffee direct to Europe. In addition to this there is an occasional call from some other steamer or large sailing vessel. The trade at the other ports and the remainder of the trade at Mangalore is carried on by means of 'buggalows' from Arabia and the Persian Gulf with a capacity of from 30 to 50 tons, and country craft commonly called pattimars and machwas with an average capacity of about 20 tons, the machwas being, as a rule, smaller than the pattimars. About 2,000 of these vessels enter annually at the port of Mangalore, and from 500 to 1,000 at each of the larger ports above mentioned.

The statistics relating to the external land trade are incomplete, as they have been kept only on the routes leading to the Native State of Mysore. It is known, however, that the imports from Coorg are mainly coffee and cardamoms, while the exports are similar in quantity and kind to those by any one of the main roads to the southern districts of Mysore.

The imports of coffee, sandalwood, cardamoms, rice and cinnamon oil merely pass through South Canara for export. Of the articles of import by land for the use of the people of South Canara, the most important are Indian piece-goods, and cattle which are brought down annually to a great cattle mart at the time of the festival held every November at the temple of Subramanyam near the foot of the Bisli Ghaut. The remaining items are jaggery, chillies, oil and other seeds and tobacco.

Among the exports by land of articles which are the produce of the district the most important items are cocoanuts, cocoanut oil, gums, resins and tiles.

Trade.

Transport of through traffic in the case of bulky goods is usually by boat as far as water way is available and after that by cart. Valuable goods are usually carried by cart alone. Until within the last few years almost all through traffic was carried in Mysore carts, but of late there has been a great increase in the number of carts kept in Canara, and these now get a fair share of the work. Pack bullocks still bring down a certain amount of grain from above the ghauts, especially in the two northern taluks, but their use is being gradually abandoned. They may, however, continue for some years yet in the Coondapoor taluk where the communications above the ghauts have not been opened out so well as farther south and the forest tracts come much closer to the sea.

The facilities for internal trade are considerable, there being nearly 900 miles of made road suitable for cart traffic, besides village roads, and 170 miles of water carriage open the whole year round. Twenty-five years ago there was hardly a cart in Canara, except on two or three of the main lines of road, and all traffic elsewhere was conveyed by pack bullocks or coolies. Now carts are abundant throughout the district, and their number is rapidly increasing. They are kept by all classes, but it is chiefly Mussulmáns who lay themselves out as regular carriers. South of the Udipi taluk the boatmen are almost all Mápillas, and in Udipi and Coondapoor Christians, or Hindus of the fisherman caste.

The Konkani Brahmins are the trading and shop-keeping class of Canara and in the most out-of-the-way spots the Konkani village shop is to be found. In the Kásaragód taluk, however, the Mápillas have to a great extent taken their place, and all over the southern part of the district roadside shops are found kept by Mápillas as frequently as by Konkanis. In the towns and important villages other castes secure a larger share of the shops and warehouses, and the Christian traders and shopkeepers are numerous and pushing, especially in Mangalore and the neighbourhood. Throughout the district the ordinary requisites of life are to be found in the village shops. Cloths are procured once a year, as a rule, from the town or at one of the large annual festivals or fairs, of which there are a good many at different places in the district. Cattle, except for the most northern parts of the district, are almost all obtained at the cattle market near Subramanya at the time of the annual festival at the temple of that place in November.

Salted or sun-dried fish is hawked throughout the whole district by women of the fisher caste who barter it for paddy with

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which they return to the coast. Betel-leaves are somewhat similarly distributed by the growers of that article of universal use.

In the year 1800 Sir Thomas Munro wrote as follows: "Canara "will probably never be a manufacturing country, because it "produced none of the raw materials necessary to render it such "and because the heavy rains which last so great a part of the "year are an insurmountable obstacle to all operations which "require to be carried on under a clear sky and the open air."

These words remain true to the present day as regards indigenous effort, but the Basel missionaries have recently shown what good use can be made of the clay with which Canara seems to be specially favoured. Factories for the manufacture of bricks and tiles have been started by the Mission and by other at Mangalore, Udipi and Coondapoor which meet not only a constant local demand, but export largely to Bombay and other places on the coast, and also by road inland to Mysore and even to Ootacamund. They are also experimenting with white clay in the hope of eventually being able to produce porcelain.

The native weaving is of the most ordinary kind. Blacksmith's work is exceptionally poor, pottery is fair, and the goldsmith's work is perhaps above the average, as might be expected in a community which is distinctly prosperous. Besides introducing tile factories which afford employment to considerable numbers, the Basel Missionaries have endeavoured to promote the material prosperity of the people amongst whom they work by starting printing presses, book-binding establishments, weaving factories and mechanical workshops, the last on so large a scale that they were able to undertake contracts for the erection of large iron bridges for the Local Fund Board. Many of the natives who received their training in the Mission establishments are now carrying on a business of their own independently. Another important industry, which has of late years been brought about by the introduction of foreign capital, is coffee curing, in which two European firms are now engaged besides one very large and some minor native houses of business. Coir rope of a very good quality is made in the Laccadive Islands and to a small extent throughout the coast.