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**MILITARY REPORT
ON THE
MADRAS DISTRICT.**

**GENERAL STAFF, INDIA
1924.**



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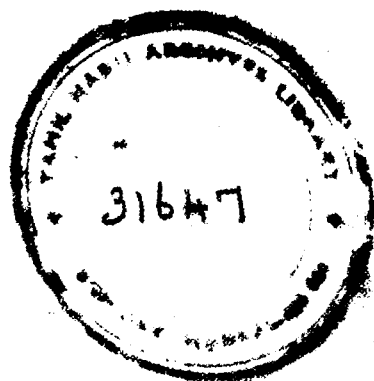
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NOTE.

This publication supersedes the Military Report on the 9th (Secunderabad) Divisional Area, 1912, all copies of which should be destroyed.



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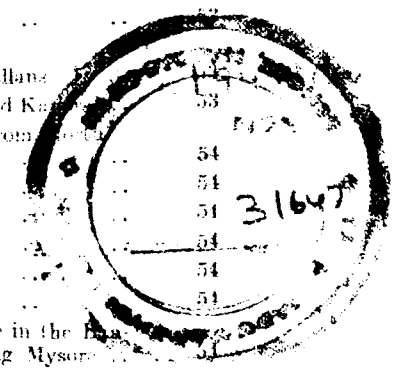
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Smith	Early History of India.
Wilson	History of the Madras Army.
Thurston	Tribes and Castes of Southern India.
Thurston	Madras Presidency.
Malleson	History of the French in India.
Wylly	Life of Sir Eyre Coote.
Abbe Dubois	Hindu Manners and Customs.
Administration Report Madras 1921-22.	
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MILITARY REPORT

ON THE

MADRAS DISTRICT.

CHAPTER I.

HISTORY.

The early history of the area dealt with in this report is so largely composed of fable and tradition that it merits no inclusion here, and it will fulfil the purposes of this chapter if a beginning is made at the first Muhammadan invasion of the Deccan at the beginning of the 14th century.

At this time the country now known as the Deccan was in the hands of the Hindu dynasty of Yadava, with their capital at Deogiri (Daulatabad), while the greatest dynasties in Southern India were the Hoysalas of Darosamudra (the modern Halebid in Mysore), the Cholas of Tanjore, the Ganpatis of Warangal and the Pandyas of Madura.

In 1303 the ruling king of the Khilji dynasty of Delhi sent his first expedition into the Deccan, and seven years later his general, Malik Kafur, led a second invading army down the peninsula, with the result that the Yadavas, Hoysalas, Ganpatis, Cholas, and Pandyas were all defeated in turn. When Tughlak ascended the throne of Delhi in 1325, the Muhammadans were masters of the Deccan from north to south, and Deogiri, was, for a time, made the capital of the empire, under the new name of Daulatabad. This latter move was, however, not successful, and Delhi again became the capital a few years later. Shortly after this the imperial governors of the Deccan revolted, and the Bahmini dynasty sprang up in their place. At the same time the whole of Southern India was plunged into anarchy, Musalman governors, the old ruling families, and local chiefs all struggling

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Vijayanagar
nasty.

for supremacy, until out of the confusion rose the kingdom of Vijayanagar, which, from its capital at Hampi in the Bellary district, checked the southward expansion of Muhammadan power for the next two centuries and a half.

The rise of the Vijayanagar dynasty was unusually rapid, and within 150 years of its foundation they governed the whole of the peninsula from the Kistna to Cape Comorin. The empire reached the height of its power under Krishna Deva, whose reign lasting from 1509 to 1530, was contemporaneous with that of King Henry VIII.

The chief opponents of Vijayanagar had been the Bahmini dynasty mentioned above, whose capital was at Gulbarga in what is now the Nizam's dominions. This line crumbled away at the end of the 15th century, and was followed by five separate Musalman kingdoms, the mutual jealousies of which rendered it easy for Vijayanagar to play them off against each other for several years. In 1565, however, the Musalmans at last combined, and at the battle of Talikota they dealt the Hindu empire a blow from which it never recovered. One by one its local governors threw off their allegiance and established themselves as independent rulers, and Southern India again passed into a period of anarchy and misrule. The only governors of the fallen empire who established themselves in any permanency were the Nairs of Madras, and the suzerainty of the rest of the country fell gradually into the hands of the Sultans of Golconda and Bijapur. By the middle of the seventeenth century the latter power had possessed themselves of most of the Carnatic* which lay above the Ghats, and of much territory below. It was under this dynasty that the Mahrattas first came into prominence. Serving first as military vassals, they eventually, in 1646, revolted openly against Bijapur, and under the famous Sivaji succeeded in establishing their independence.

In 1658 Aurangzeb, the Moghul emperor of Delhi, marched south to reduce Golconda and Bijapur, and to crush the growing power of the Mahrattas.

Aurangzeb's
invasion, 1686.

He took Bijapur in that year and Golconda in the next, and the territories which had been won by these kingdoms from the Hindus became a portion of the Moghul empire. But with the

*The term "Carnatic" is now applied only to the country between the Ghats and the sea, South of the Kistna River.

Mahrattas he was less successful, and largely owing to the above impolitic destruction of the minor Muhammadan kingdoms which might have kept them in check, their power increased rather than declined from that time. Aurangzeb had in fact weakened his empire by extending it, for the new southern provinces could not be effectively managed at a distance from the central authority, and the Hindus were not only provoked by his fanaticism but encouraged by his inability to control them. The disbanded soldiery, the plundered peasants, the disaffected landowners, all now rallied round the standard of the Mahrattas, whose influence does not disappear from Madras history until the beginning of the nineteenth century.

In 1707 Aurangzeb died, and from that time the Moghul empire rapidly began to crumble away. Unwieldy and overgrown as it now was, a strong hand was imperatively needed to hold together the ill-joined provinces of which it was composed and this time the usual struggle of claimants for the vacant throne brought forward no successor capable of the task. In 1724 Asaf-Jah, founder of the present Nizam's house, was appointed governor of the Moghul conquests in Southern India, with the title of Viceroy of the Dekkan (literally "South"), but in a few years he had shaken off the emperor's rule in all but name, and had consolidated the viceroyalty into a hereditary rulership, to which the Carnatic became a kind of subordinate principality. At the same time Bengal fell away from Delhi under an Afghan ruler, and the Mahrattas spread over Central India like a devastating flood: various usurpers set themselves up in other districts; wherever petty rulers had been crushed out of existence by the iron heel of Delhi the country was broken up into anarchy; and by the time of Nadir Shah's invasion in 1737 the whole Moghul empire was in a state of tumultuous disorder. The Indian people were becoming a masterless mob, swaying to and fro in the political storm, and were prepared to acquiesce in the assumption of authority by anyone who seemed able to maintain order and to protect them.

It was during this period of confusion that the French and British whose principal settlements in the south were at Pondicherry and Madras in the Carnatic, first appeared on the political arena in India, and it will now be convenient to give a short account of their earlier doings in the peninsula, and of the other

*Vide Lyall's "Rise of the British Dominion in India."

Collapse of
Moghul Empr
1707-1737.

European
settlements in
Southern Ind

Europeans who had preceded them in the occupation of settlements on the Madras coast.

The Portuguese.

As in other parts of the world, the Portuguese were the first European nation to form a settlement in Southern India. Vasco da Gama had visited the west coast as early as 1498, and by the beginning of the sixteenth century we find the Portuguese established at Calicut and Goa. For a century or more they prospered, but they were feebly supported from home, and again as in other parts of the world, they eventually fell before the progress of the Dutch.

The Dutch.

From the beginning of the seventeenth century the Dutch, who had long been powerful in the Eastern Archipelago, settled at Pulicat, Sadras, and other places along the east and west coasts. But the strength of Holland had been broken by France, who thus relieved England of her most formidable maritime rival, and from the beginning of the eighteenth century the grasp of the Dutch on Indian coast ports became relaxed.

The English.

The earliest English settlements within this area were at Masulipatam and Nizampatam, where factories were established in 1611. Other settlements followed, and in 1639 a grant of the land now occupied by Fort St. George was obtained. In 1653 Fort St. George was raised to the rank of a Presidency, and five years later the factories in Bengal were placed under its orders. In 1690 the Company purchased from the Mahrattas the land, near Cuddalore, where Fort St. David now stands, and at the end of the century there were factories at Porto Novo, Madapollam, Vizagapatam, Anjengo, Tellicherry, and Calicut.

The French.

The French East India Company had been started about 1664 and ten years later Francois Martin founded and fortified the town of Pondicherry, which has ever since been the French headquarters in India. In 1740 the French governor of the town succeeded in placing the Nawab of the Carnatic under an obligation to him by giving shelter to various Muhammadan princes at the time of the Mahratta invasion of the province; and in 1742, when Dupleix was appointed to the governorship, Pondicherry became the one European possession in the south which was capable of offering any real resistance to the English Company.

Thus it was that, on the crumbling of the Moghul empire France and England alone faced each other as serious competitors for the prize of Indian commerce, and from this time

forward the really potent element in Asiatic politics is the political rivalry and rapidly increasing ascendancy of these two powers.

Up to this time the two companies had managed to keep themselves clear of the wars between the various native governments, and free from serious trouble among themselves. But in 1744 the war of the Austrian succession started a conflict between them which lasted till the Peace of Paris in 1763.

Anglo-French War, 1744.

The first notable event in the contest was the capture of Madras by Labourdonnais, who, arriving with a squadron from Mauritius in 1746, landed 2,000 men and attacked the fort from inland as well as from the sea. But the French possessed no safe roadstead for their fleet on this coast, and after a large part of it had been shattered by a heavy storm, Labourdonnais sailed back with the remaining ships to the Mauritius. The next incident was important. The Nawab of the Carnatic, feeling indignation at this private war within his sovereignty, demanded that Madras should be surrendered to him. This Dupleix, who now had 3,000 French soldiers at his disposal, refused to do, and when the Nawab invested the town, his raw levies were so easily defeated by the disciplined European troops that the French at once established an immense military reputation in the south. Dupleix now marched against Fort St. David, but the arrival of a strong English fleet forced him to raise the siege and to retire on Pondicherry, which was in turn blockaded. In 1749 the news of the peace of Aix-la-Chapelle stopped the fighting in India, and Madras was restored to the English in exchange for the restitution of Louisburg in North America to the French. The chief outcome of the campaign had been an augmentation of French prestige, while its chief lesson was that the successful expansion of either company on land could only follow superiority at sea.

Peace being declared between the two countries in Europe, the rival companies could no longer make direct war on each other in India. But mutual jealousy prevented them from disbanding the forces which they had raised, and each conceived the plan of hiring their armies to rival native chiefs, partly in order to pay for their upkeep, partly on the chance of obtaining territorial concessions, and partly (in the case of Dupleix, at least) in the hope of indirectly damaging the progress and prestige of the rival company.

War in the
Carnatic,
1750-1754.

At this time Asaf Jah died, and a dispute for the succession arose between his son Nasir Jang and his grandson Muzaffar Jang. Thereupon the Carnatic, which had only been kept quiet by Asaf Jah's strong rule, at once became the scene of a conflict for the subordinate rulership. These two civil wars threw all Southern India into confusion and now followed the complicated series of battles and intrigues known as the "War in the Carnatic," a detailed account of which is given in Orme's "War of Coromandel." Dupleix at once saw his opportunity and threw himself boldly into the mêlée. His immediate object was to establish in the Carnatic a ruler who should be subservient to the French, while his ulterior aim was, by gaining preponderating influence in the Deccan, to attain for his nation a firm dominion in India. With these objects in view he threw all the weight of his power in support of Chanda Sahib, who was fighting for the Nawabship of the Carnatic, and of Muzaffar Jang who claimed the office of Nizam of the Deccan. Chanda Sahib now marched against the reigning Nawab and completely crushed him, the Nawab himself being killed, and it was at this period that the British, whose position had now become so serious that they had no other alternative, agreed to support Nasir Jang in the Deccan and his nominee, Muhammad Ali, for the Nawabship of the Carnatic.

At first fortune favoured the French. Nasir Jang was assassinated by his followers, thus leaving the French candidate in undisputed possession of the Deccan, and Chanda Sahib carried all before him in the Carnatic, where only the strong fortress of Trichinopoly held out against him. The English had thrown a detachment into Trichinopoly, where Muhammad Ali, assisted by the Raja of Tanjore, was making a stout resistance; but Chanda Sahib's force was in great superiority, and the fortress was only saved by a diversion now made by Robert Clive. Though at this time only commissary of the army, and without military experience, Clive recognised the necessity of a counter stroke, and having obtained a force of 500 men from the Madras Government, he boldly marched against and captured Arcot, the capital of the Carnatic. The tension at Trichinopoly was at once relieved, and from that moment the tide began to turn. A large force was detached from the siege at Trichinopoly to recapture the capital, but Clive's small garrison made such a stern resistance that the attempt was abandoned. Thereupon Clive and Lawrence seized the initiative, and after defeating the French in two

Rise of Robert
Clive, 1751.

engagements, succeeded in relieving Trichinopoly. Shortly afterwards Chanda Sahib was murdered by the Raja of Tanjore's men, and at about the same time Muzaffar Jang, the other French candidate, was killed in a skirmish on his way to Hyderabad.

Meanwhile the Marquis de Bussy, who had been sent by Dupleix to assist Muzaffar Jang, had established himself at Hyderabad, where he set up another Nizam (Salabat Jang) and organized a force under his own command, for the payment of which he received a grant of the Northern Circars. But the policy of Dupleix had broken down with the defeat of his forces in the Carnatic. Not only did his native allies turn against him, but the French at home began to lose confidence when they found that after some years of heavy expenditure, the results fell so short of the expectations he had raised. As a result, Dupleix was recalled to France in 1754, and on the arrival of his successor the two companies agreed to an immediate suspension of hostilities. ^{Supersession of Dupleix, 1754.}

Many French writers have stated that it was the supersession of Dupleix and the abandonment of his policy which prevented France instead of England from founding an empire in India; but great genius though Dupleix was, this belief would seem to come more from the heart than the head. At the conclusion of the irregular warfare in 1754 the French had no military officers in India of the calibre of Lawrence and Clive, to whose brilliant generalship their recent defeat in the Carnatic was due; and even if they had been successful, and had eventually defeated the English and begun to build for themselves an empire in the east, so long as their country had not command of the sea that empire could only have been built upon sand.

The rival companies in the Peninsula were not destined to remain at peace for long. In 1756 news reached India of the outbreak of war between England and France, and the forces of the two nations in Madras once more prepared to resume hostilities. This time the French Government, having decided to attack the British possessions in India, determined on a regular military campaign in that country, and Count Lally, a brave but hot-headed and tactless soldier, was despatched from France at the head of a strong expeditionary force. Unfortunately for the French, however, there was much delay in the despatch of this expedition, and the delay had such an important bearing on the course of the war that it calls for special mention here. ^{2nd Anglo-French War 1756.}

Instead of sailing in 1756, immediately on the outbreak of war, as originally arranged, Lally did not get away till the end of the following year, and this delay proved fatal to the French hope of success. Had he been able to arrive in the early part of 1757 it is probable that, with the help of Bussy from Hyderabad, he could have overrun all the Coromandel coast, for in June 1756 the English had been driven out of Calcutta by Siraj-ud-Daula, and in the following October Clive had been sent north with the British fleet and all the best Madras troops to redeem the situation in Bengal. The Madras Government had fully realised the danger they ran by sending Clive away, for they already knew of the outbreak of war and of the preparation of Lally's force. But, recognising that Bengal was for the moment the decisive point, they rightly decided that as many men should be massed there as possible, in the hope that a decisive victory would be gained in the north, and the troops safely back again in Madras before the French expedition had time to arrive. Their action met with the success it deserved, for the French did not reach the Coromandel coast till April 1758, and by that time Clive had won the battle of Plassey, and was able to lend material assistance in the subsequent defence of Madras, as well as to make a diversion by sending Colonel Forde to drive the French out of the recently acquired Northern Circars, a serious blow to Bussy's power in Hyderabad.

1758. Shortly after Lally reached Pondicherry, he captured Fort St. David from the English, and summoning Bussy to join him from Hyderabad, prepared to march against Madras. But things went badly with the French commander from the first. He was short of money, supplies, and transport, his want of tact put everyone against him; and he had just that impatient colonial warfare. The siege of Madras, though prosecuted with vigour eventually had to be abandoned, and the struggle in the south culminated in Coote's victory over the French at Wandiwash*. Several minor French posts now fell in quick succession, and Pondicherry surrendered in 1761. With the other French possessions the latter town was restored by the Peace of Paris in 1763: but the French power in the Peninsula was never again formidable, and from that time forward the English Company were supreme. It must be borne in mind, however, that this result was not brought about by the fighting in India alone, but

Decline of
French
Influence,
1768.

*For details of this, one of the most decisive battles in the history of the English in India, vide Life of Sir Eyre Coote by Col. Wylie, 1922.

was the direct outcome of England's successful struggle for command of the sea.

The struggle for the possession of Southern India now lay between the English, the Nizam, the Mahrattas, and Haidar Ali of Mysore, a soldier of fortune who, having usurped the throne of that Hindu State was now setting about with great energy to extend his dominions. Of these native states, the Mahrattas were by far the most powerful, and were a foe very different from the raw levies (generally a disloyal rabble of hired foreigners) against whom the English had won their first victories in the Carnatic and Bengal. They had conquered large territories in the north, and were supreme in Central India, and it is probable that but for the presence of the English at that time, the whole of the Deccan and Southern India would have fallen under their power. Haidar Ali's forces, too, were far more worthy antagonists than the English had previously met in the peninsula, for his natural genius for war, his personal daring, and above all his continued success had attracted all the best of the mercenaries then in Southern India to his flag. The Nizam was nominally an ally of the British, but he was wavering politically, and was far from worthy of implicit trust.

In 1761 Nizam Ali Khan was proclaimed ruler of the Deccan, and in 1766 the Northern Circars* were definitely ceded to the British by him on condition that he should be furnished with a subsidiary force in time of war, and should receive six lakhs of rupees annually when no troops were wanted, the Nizam on his part promising to assist the British with his troops when asked for. This was followed by the treaty of 1768, by which the East India Company and the Nawab of the Carnatic engaged to assist the Nizam with troops, on payment, whenever required by him.

Treaty with
Nizam, 1767.

About this time the Nizam and the Mahrattas invited the English to assist them in making war against Haidar Ali, who was encroaching on their territories. Haidar however, managed to buy off both Muhammadans and Mahrattas, and then made a descent on the British possessions in the Carnatic. Fighting ensued for some time, but the operations were indecisive, and peace was eventually declared in 1769.

Haidar's attack
on the Carnatic,
1769.

*The N. Circars include the districts of Ganjam, Vizagapatam, Godavari, Elstina and Guntur.

First Mysore War, 1780.

In 1780 the first Mysore War broke out, and Haidar was again befriended by both the Mahrattas and the Nizam. Sir Eyre Coote was sent to Madras with reinforcements, but it was not till after three years of strenuous fighting that peace was at length declared. Haidar Ali had died during the operations, and was succeeded by his son Tipu Sultan, a man in every way his inferior.

Six years later Tipu raided the Native State of Travancore, which was in alliance with the British, and war with Mysore was again declared. Lord Cornwallis, the Governor-General, was in personal command of the British field force, and this time he was assisted by the Mahrattas and the Nizam. After two years' fighting, Seringapatam, the capital of Mysore was besieged, and Tipu agreed to cede one-half of his territories to the allies and to pay a large indemnity. The British share of the territory thus ceded included the country round Dindigul and the districts of Salem and Malabar.

Third Mysore War, 1799.

In 1799, Tipu began an intrigue with the object of drawing the English Company's allies to his own side, and even sent an embassy to Mauritius to invoke the aid of the French. Lord Mornington, now Governor-General, recognising the danger to British supremacy which this action involved came south to deal personally with the situation, and for the third time war was declared against Mysore. The Nizam and the Mahrattas again joined the British, and Tipu, after a feeble resistance in the field, retired to Seringapatam. The fortress was stormed and captured on May 4th. 1799, and Tipu himself was amongst the killed.

It was now decided to create a central and separate government in Mysore proper, under British protection, and a descendant of the Hindu dynasty, which had been deposed by Haidar 41 years before, was placed on the throne. The rest of Tipu's territories were divided between the allies, and the Nizam's share was largely increased owing to the Mahrattas withdrawing from the treaty. The subsequent history of Mysore is comparatively uneventful, and it will suffice to note that, owing to a period of mismanagement the British government assumed direct control of the state in 1817, and maintained the management of affairs until 1881, when Maharaja Chamarajendra Wodeyar was granted ruling powers.

Death of Tipu. Subsequent history of Mysore.

In the same year as the third Mysore War, the Mahratta Raja of Tanjore resigned the administration of his kingdom to the Company in consideration of an annual payment, and in 1800 British territory was still further augmented by a new treaty with the Nizam. By this treaty the subsidiary troops were increased by two battalions of infantry and one regiment of cavalry, in return for which the Nizam ceded all the territories which had accrued to him in 1792 and 1799. These tracts included the present districts of Bellary, Anantapur, Cuddapah, and part of Kurnool, and are still known as the "ceded districts." The Nizam also agreed to use the whole force (with the exception of a body-guard of two battalions) on the side of the British in time of war. By the same treaty, the Nizam was prohibited from entering into political negotiations with other powers.

When Seringapatam fell in 1799, a treasonable correspondence was discovered between Tipu and the Nawab of the Carnatic, nominally an ally of the Company. As a result of this a treaty was concluded with the Nawab in 1801, under which he resigned the government of his country to the Company, but retained the titular dignity and received a large allowance. The present representative of the family bears the title of Prince of Arcot, and is the first Indian nobleman of Madras.

The extension of the kingdom of Mysore, and the complete control established over the Nizam, left the British Government without any antagonist but the Mahrattas, and the two rival powers now confronted each other.

The Mahratta War of 1803 which followed took place outside the Madras District and does not concern this publication but the lessons to be learnt from it are valuable and those interested are referred to Colonel Wilson's History of the Madras Army, Volume III.

The company were now undisputed masters of Southern India, and the territories thus rapidly acquired were in most cases reduced to order with but little trouble.

Military operations however have had to be undertaken on several occasions. An outbreak occurred at Dindigul in 1804, which was quickly suppressed by troops from Trichinopoly with few casualties. In the same year the Polygars of the Chittoor Pollams broke into revolt and it was not until

Events in the South from 1801 to present time.

Affairs in Tanjore, 1799.

Treaty with Nawab of Carnatic, 1801.

after numerous hill forts and stockades had been stormed by our troops that the disturbances were entirely suppressed in February 1805.

Frequent insurrections occurred in Malabar and the Wynaad from 1801 to 1805 which necessitated the employment of a considerable Field Force. Operations were greatly impeded by the climate and the nature of the country but were brought to a successful termination by the surprise and death of the Pychy Rajah on the 30th November 1805.

In 1808 the Rajah of Travancore broke into rebellion and the Garrison at Cochin and Quilon were heavily attacked. A Field Force entered Travancore from the South and after severe fighting the Rajah submitted on the 1st March 1809.

A further insurrection occurred in the Wynaad in 1812 which was quickly suppressed, but the troops suffered greatly from fever.

In 1813 Government decided to interfere in the succession to the Principality of Kurnool and a Field Force was sent from Bellary to ensure compliance. The Force was again assembled in 1816 for a similar purpose and had to lay siege to the Fort of Kurnool which however surrendered the next day.

In 1816 a numerous body of Pindaries—(Mahratta mounted freebooters) crossed the Kistna and plundered the district of Guntoor. The same year further bodies plundered Purlakinedy and Ganjam, but in spite of the celerity of their movements (being mounted and covering from 40 to 50 miles daily) the detachment at Kinedy were able to inflict severe defeat on them.

Further similar affairs with the Pindaries took place at Berhampore in 1817, with like results.

In the Northern Circars, the hill chiefs gave some trouble in 1810-12, and 1836; while small rebellions occurred in the Rampa hill tracts in 1879.

In 1922 a "situri" (as such disturbances are called) started in the Agency Division, and owing to the nature of the country it was two years before the Special police assembled for the purpose were able to hunt down the various rebel bands.

No disturbances occurred in the Area under review during the mutiny of 1857-8.

In the native state of Coorg, mis-rule ensued for some years, and in 1834 a British force was sent into the country, in 3 columns to depose the Rajah. The fighting, which principally consisted of capturing stockades, was in no way serious; the capital was seized and the inhabitants unanimously petitioned to be placed under British rule, the State was annexed on the 6th May 1834. With the exception of a small rising of a disaffected Guadas in 1837, which was put down with little trouble, no Military operations have taken place in Coorg since that date.

Troops were called out in aid of the civil power in 1882 at Salem during the Hindu-Mahomedan religious disturbances; and again in 1899 at Sikakasi to suppress the Marawar anti-shever riots.

Troops have also been employed against the Moplahs of Malabar on several occasions since 1841. The Moplahs (Map-pillas) are supposed to be descendants of Arabs who landed in the country centuries ago and formed connections with the native women. They belong to the Sunni branch of Muhammada-nism, are strict in the observance of their religion, and regard their priests with peculiar reverence. From the earliest days they have been notoriously lawless, but the real fanatical outbreaks did not begin till 1841, after which date there were no fewer than eleven occasions on which the military had to be called out to restore order. After 1851 a British Infantry detachment was quartered at Malapuram, the most convenient centre of the menaced tract, and a special police force was organized about the same time for the suppression of the continued out-rages. Further occasions on which troops were engaged were in 1894 at Mannarakkat, when the gang numbered 35 and had to be driven from their position with a howitzer, and in 1896 when nearly 100 men were shot down in the Manjeri temple. Though agrarian grievances were the incentive to many of these disturbances, yet in the earlier outbreaks it was impossible to impute any definite motive to the majority who joined the gang. The one constant element was a desperate fanaticism, and surrender was unknown. With few exceptions the outbreaks originated within a radius of 15 miles of Pandalur, a hill in Ernad which was the home of one of the chief Moplah robbers of early days.

There were further minor outbreaks in 1898, 1915 and 1919 culminating in a serious rebellion in 1921. This rebellion differs from the previous risings in the following respects :—

- (1) The extent of the rising, which involved operations being undertaken against the rebels throughout the whole of South Malabar.
- (2) The tactics adopted by the rebels. The old spirit of fanatical attacks on troops were, except in a few isolated instances absent from the 1921 rebellion. In its place guerilla warfare was carried on by bands of rebels, consisting of ambushing columns, attacks on isolated posts, destruction of roads, railways, bridges and Government buildings. The rebellion was characterised by the indiscriminate murder of non-Muslims, both European and Indian, and forcible conversion of Hindus.
- (3) The cause of the rising. Unlike previous risings the causes of the 1921 rebellion were purely political. The fanatical Muhammeden Moplah of Malabar lent a ready ear to the anti-Government teachings of Khilafat and non-co-operation agitators.

When the rebellion broke out the only troops in Malabar were five platoons Leinster Regiment at Calicut and the 83rd W. L. I. at Cannanore (the latter had just returned from Persia and the men were nearly all on War Leave), and these were, after some delay caused by the interruption of the railway, reinforced by a moveable column from Bangalore, but it was not till the troops in the field had been further augmented by four Indian Infantry battalions and a pack battery that the back of the rebellion was broken. The rebellion started on the 21st August 1921 and Martial Law was withdrawn after six months but all the rebel bands were not hunted down till some time later.

The chief lessons to be learnt from the campaign were the effect of small, well organised mobile columns, boldly used for assertive action, and the necessity for obstacles round perimeter camps.

The principal actions occurred at Pukkottur, when a column of Leinsters proceeding to relieve Mapappuram was ambushed and had to fight for five hours before the rebels (who lost 353

killed), were driven off; and at Pandikkad, where 2,000 Moplahs surprised a Gurkha post at dawn, there was fierce hand to hand fighting for some minutes and the rebels fled with a loss of 234 killed. There were numerous other skirmishes in which the enemy lost 50 or more killed.

The total casualties of the campaign among the Troops and Police were 43 killed 122 wounded, while of the rebels in round numbers over 2,000 were killed, 1,800 wounded, 5,000 captured and 39,000 surrendered.

Upwards of 100,000 men from the Madras Presidency served with the forces of His Majesty The King Emperor in the Great War. The numbers enlisted from the 1st August 1914 to 30th November 1918 are as follows :—

Madrassi Mussulmans	..	6,452	Combatants 57,228.
Tamils	..	16,390	
Paraiyans	..	5,761	
Christians	..	5,905	
Moplahs	..	1,368	
Telegus	..	6,748	
Tiyyans	..	1,638	
Nayars	..	3,598	
Coorgs	..	853	
Unclassified	..	2,510	
Non-combatants all classes	..	41,117	
Grand total	..	92,340	

In its man power efforts the Presidency takes place in the whole of India next after the Punjab and the United Provinces.

During the War 9 new Madras Infantry Battalions were raised and 11 Labour and Porter Corps.

Madras men served with His Majesty the King Emperor's forces on the North-Western Frontier, in Iraq, in Persia, in Arabia, in Sinai, in Palestine, in Syria, in East Africa, in Gallipoli, in Macedonia, in France and in Flanders.

Madras itself is the only city in India which suffered from the weapons of our enemies. On the night of the 22nd September 1914 the German war-ship "Emden" arrived outside Madras Harbour and opened fire with her guns at the oil tanks on the

shore. She fired about 20 shells. Many of these missed the oil tanks and fell on the ships in the Harbour or in the Town. Three men were killed by her fire and about 16 persons were wounded.

Supply of Munitions.

The Madras Presidency supplied in great quantities the materials required by the Allies for carrying on the War. Six and a half crores worth of hides were purchased in Madras by the War Office for the production of the leather required by the Armies. Large stocks of cocoanut oil, hay and timber were supplied. The whole power of the Buckingham and Carnatic Mills was devoted to the manufacture of Khaki and other clothes required by the army. The Anglo-French and Coimbatore Spinning and Weaving Mills produced Puggree cloth and Dussoties. The Bangalore Woollen Mills supplied army blankets. The Chintadripet tape weavers supplied Khaki webbing. Leather waistcoats, shoes, tents, charcoal, coir-roping, minor fittings and articles of metal and wood, tattees and miscellaneous stores were also supplied in great quantities for the use of the armies in Iraq and elsewhere.

On the West Coast rice fields alternate with gardens and groves of coconut palms.

Boundaries. West and east the area is bounded by the Indian Ocean and the Bay of Bengal, with a sea-board of some 1,700 miles, while the northern boundary, from east to west, touches on Orissa, the Central Provinces, Hyderabad, Anantapur, Mysore, and the southernmost corner of the Presidency of Bombay.

Mountains. The two most important ranges of mountains are the Western and Eastern Ghats. The former average a height of 4,000 feet, and with but one gap of 16 miles in Malabar, known as 'Palghat Gap,' and another 3 miles broad leading from Tinnevely to Travancore and distant about 14 miles from Cape Comorin they traverse the whole length of the western coast at a distance from the sea varying from 50 to 100 miles. The Eastern Ghats averaging 2,000 feet begin in Orissa, and in Ganjam and Vizagapatam skirt the Bay of Bengal, but from the latter district southwards they gradually recede further from the coast, till they link up with the Western Ghats on the higher plateau of the Nilgiris. It is on this plateau that are situated the hill stations of Ootacamund, Coonoor, Wellington, and Kctagiri.

The Palghat Gap is immediately south of the plateau. Here the range suddenly dies away, leaving an open plain scarcely more than 1,000 feet above sea level, through which the main line of the South Indian Railway is led. South of the gap the mountains rise abruptly once more, and thereafter run between Travancore and the Madras Presidency to Cape Comorin, with the Gap above mentioned.

The Wynad table land, situated at an average height of 3,000 feet above the sea, stretches from the foot of the Nilgiris into Malabar and the Mysore plateau.

Other mountain ranges in the area are the Anaimalais, rising to over 8,000 feet and extending from the Coimbatore district southward into Travancore; the Nelliampathis (1,500 to 3,000 feet) in Cochin state, the Palni Hills (3,000 to 7,000 feet) in the Madura district on which is situated the hill station of Kcdairanal, the Shevaroy Hills in the Salem district with the hill station of Yercaud (4,500 feet,) and numerous minor ranges.

Rivers.
The Godavari.

The principal river in the area is the Godavari, which, after flowing across the Deccan, falls to the sea through the Cdavari district. At Rajahmundry this river is crossed by the main

line of the Madras and Southern Mahratta Railway (connecting Calcutta and Madras) by means of a bridge more than 1½ miles long. The Godavari is a sacred river, and the bathing festival (puskaram) is held every twelfth year at Rajahmundry. It is navigable for a considerable distance from its mouth.

Next in importance to the Godavari is the Kistna, which flows for about 100 miles through this area. At Bezvadia the Kistna runs through a gap, 1,300 yards wide, in a low range of hills, and here a great dam turns the waters into a network of irrigation canals. Immediately below the dam, the Madras and Southern Mahratta main line crosses the river on a girder bridge of 12 spans of 300 feet*.

The Palar river flows through North Arcot, and enters the Bay of Bengal at Sadras. It is crossed by branches of the South Indian Railway at Mailpati and near Chingleput.

The Ponnaiyar river flows through the Salem district, where it is crossed by the main line of the South Indian Railway, and the Coast line of the same system crosses it at Panruti, near Cuddalore.

The Cauvery enters the Madras Presidency from Coorg and forms the boundary between Coimbatore and Salem till it enters Trichinopoly. Close under the rock of Trichinopoly it breaks into two channels, crossed by masonry road bridges. The more northerly of these is called the Coleroon, while the other retains the name of Cauvery. At Erode the river is crossed by the South Indian Railway on an iron girder bridge of 22 spans with piers sunk into solid rock.

The only large natural fresh-water lake in the area is Colair lake, in the Kistna district. During the monsoon this sheet of water exceeds 100 square miles, but in the dry season it shrinks considerably, and sometimes dries up altogether.

Along the west coast the struggle between the rivers and the sea has resulted in the formation of a curious string of backwaters, which fringe the greater part of the shore of South Kanara, Malabar, and Travancore. These are much used for navigation

* For methods of crossing rivers vide Rivers in Mysore page 26.

and the largest of them, the Cochin backwater, is some 120 miles in length.

Climata.

The climate of this area generally is hot and equable and the whole period from March to October is characterised by high temperature, coupled in the central areas with great atmospheric dryness. The varied configuration of some districts results in their possessing several climates, but generally it may be said that it is moist and relaxing along the coast, hotter and drier inland, and wettest and coldest in the hills. In Madras itself there is no cold weather, and in the hot weather the temperature seldom rises above 110°. Ganjam is one of the few districts in the area which enjoys a really cool season, while Cuddapah is regarded as one of the hottest districts in the Presidency. The climate of the Upper Palnis in Madura is probably one of the finest in Southern India, but it is particularly unsuited to those who are liable to dysentery or sluggishness of liver. In Malabar the climate, though very damp, is on the whole healthy while South Kanara is relaxing and debilitating to Europeans.

Table A gives statistics of the temperature at various stations in the area in four representative months, i.e., January, the coolest; May, the hottest; June, when the south-west monsoon has broken; and November, during the north-east monsoon.

Seasons.

The agricultural year has four periods: that of the south-west monsoon (1st June to 30th September), of the north-east monsoon (October to December), of the dry season (January to March), and of the hot season (April to May). In the first, the sowings of the lighter classes of unirrigated land take place, each successive shower adding to the area; the crops sown vary in the several districts, where each crop has, generally speaking, its appropriate date; the heavier soils are not usually sown till late in this period or early in the next, the southern districts being usually later than the rest. For light soils a succession of showers is needed, for heavy black soils light showers alone are useless. The great deltas and other tracts irrigated by rivers fed by the south-west monsoon are cultivated from June onwards. The north-east monsoon period is important for the other irrigated lands, since the rain-fed tanks draw their best supplies from the heavy rains of October and November, those from the south-west monsoon being uncertain. Crops of an inferior or precarious character are also largely sown in most districts during

the end of this period. In the third period there are few sowings, but the scanty rains are useful for pasture and for refreshing standing crops. The rains in the fourth period or hot season are of great agricultural importance, for with them vast areas are ploughed ready for sowing: in some districts large areas of *gingelly* (sesamum) and other crops needing little rain are sown, pasture revives, and occasionally a second crop of lint is brought on.

In the plains generally the best season for military operations would be from the 15th October to the middle of March. In the hills the climate, etc., is suitable most of the year round.

Table B shows the average annual rainfall in typical stations of the Presidency.

The south-west and north-east monsoons bring practically the whole of the rain. The south-west carries far more moisture than the north-east; but the rain clouds are unable to pass over the Western Ghats, so that while in Malabar and South Kanara on the West Coast the rain due to this monsoon varies from 100 to as much as 150 inches, the fall in the neighbouring districts on the other side of the range (except in a tract corresponding to the agencies in the north) is everywhere under 25 inches, and in many places (e.g., the central plain of Coimbatore and the Tinnevely districts) even less than 5 inches.

The fall due to the north-east monsoon is heaviest along a strip of the coast running from Pulicat Lake to Point Calimere in Tanjore district, where it is over 25 inches, but as the clouds drift inland they give gradually less rain, dropping to less than 25 inches in the belt behind the strip mentioned above, and to less than 15 inches in the tract east of that again. Still further west the Eastern Ghats check the course of the clouds and in the areas west of this range, such as the Deccan, the fall is less than 10 inches.

The S. I. Ry. Coast line is often interrupted by washaways during the N. E. monsoon.

Cyclones may be said to be common all along the coast of Ceylon the Bay of Bengal. They are usually more severe at the changing of the monsoons. Perhaps the most disastrous on record was that which passed over Masulipatam in Kistna district in 1864. It was accompanied by a storm wave, which swept over 80

TABLE B.
Rainfall—Madras Area.

Station.	AVERAGE RAINFALL (INCHES) FOR 25 YEARS ENDING WITH 1924.											
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
Vijaypatnam (Wahrir)	0.32	0.41	0.36	0.50	2.89	3.09	4.45	5.05	7.90	9.85	5.87	1.60
Cotacanda	0.14	0.51	0.43	0.49	1.96	4.21	5.81	5.86	6.19	5.87	5.59	0.89
Nellore	0.38	0.09	0.17	0.32	1.83	1.31	2.31	3.01	3.83	9.01	11.71	2.82
Cuddapah	0.15	0.17	0.12	0.52	1.75	3.14	4.04	5.80	6.12	5.51	3.71	1.06
Madras	0.50	0.31	0.18	0.48	1.64	2.12	3.01	5.13	1.03	11.14	13.97	6.20
Madura	0.26	0.48	0.50	2.36	2.86	1.22	1.04	3.61	5.22	8.53	4.78	2.16
Coimbatore	0.38	0.43	0.46	1.76	2.21	1.75	1.15	1.12	1.53	6.29	3.44	1.77
Calicut	0.18	0.16	0.57	4.28	9.74	35.77	27.01	16.32	7.67	10.50	4.66	1.05
Trivandrum (Travancore)	0.43	1.01	1.48	4.08	5.59	12.58	6.48	3.64	2.78	11.02	6.02	2.47
Wellington (Nilgiris)	1.05	4.44	2.39	3.50	3.66	3.47	3.48	3.07	5.71	11.06	6.40	3.04

Note.—The figures here for January to August are for twelve years and for the other months for thirteen years.

(2) Bangalore Brigade Area. (Mysore, Coorg, Bellary and Anantapur and Sandur).

MYSORE.

Mysore State is of triangular form with the Eastern and Western Ghats for its two sides and the great mass of the Nilgiris for its apex on the south, where the Ghats meet. The surface, the western and southern tracts excepted, is gently undulating. The general elevation along the northern and southern frontier is about 2,000 feet above sea level, and the central water-parting ridge about 3,000 feet. The area of the State is 29,426 square miles, of which much is covered by forest in the Southern and Western districts.

Mysore is surrounded by British territory: north by the Frontiers, Bombay Collectorate of Dharwar and the Madras Collectorate of Bellary; south by the districts of Salem and Coimbatore, both in the Madras Presidency; east by the Madras Collectorate of Anantapur, Cuddapah, and North Arcot; and west by Coorg and the Ghats, beyond which again is Malabar and North and South Kanara.

The State is naturally divided into two regions of distinct character. The hill country, called the Malnad, on the west confined to the tracts bordering or resting on the Western Ghats in Shimoga Kadar and Hassan districts, and the more open country in the east known as the Maidan or Bayalshime comprising the greater part of the State, where the wide spreading valleys and plains are intersected by numerous valleys.

From the massive group of the Nil iris which command the south frontier, the Western and Eastern Ghats stretch out north-west and north-east respectively, and between these the plateau of Mysore lies like a wedge.

The best defined of the interior ranges is a belt from 10 to 20 miles wide running from the Biligiri-Rangans (4,185 feet) to Molakal Muru and the frontier. In the west a corresponding range not more than 10 miles in width runs north from Ballarayandurga beyond Shikarpur, having on its east the big loop of the Baba-Budans.

Of minor ranges the most important is that of Nandidroog (4,851 feet) commencing near the hill of that name, with several

peaks of nearly equal height and passing north by Gudibanda to the Anantapur country. In the west a similar chain but of lower elevation runs from east of the Baba-Budans through Sakunagiri (1,653 feet) by the Ubrani hills and Basava Patna along the right bank of the Tungabhadra to the frontier.

Most of these heights seem furnished by nature for secure retreats and usually have springs at the top which furnish an unfailing supply of water. There are few of the more prominent ones that have not been surrounded or capped with fortifications, often carried in long lines along all the spurs and projections of the range.

Rivers.

The drainage of the country with slight exceptions finds its way to the Bay of Bengal and is divisible into three great river systems, that of the Kistna on the North, the Cauvery on the South, the two Pennars and the Palari on the East.

The only streams flowing to the Arabian Sea are those of certain *talugs* in the North-West which uniting in the Sharavati hurl themselves down the Ghats in the tails of Gersoppa, and some minor streams of Nagar and Manjarabad which flow into the Garita and the Netravati.

Owing to either rocky or shallow beds none of the Mysore rivers are navigable, but timber floats are carried down the Tungri, the Bhavani, and the Kaibani at certain seasons. Most of the rivers are fordable in the dry months or can be crossed by rude bridges thrown across boulder. Throughout the rainy season they can be crossed at the appointed ferries by rafts, basket boats, canoes or ferry boats. The regular ferry boat (*janghly*) is formed of two canoes secured together with a platform or deck fastened upon them, with hinged sides which let down and form a gangway for loading and unloading. Rafts (*depet*) are formed of bamboos lashed together, which merely afford an unsteady footing. Coracles (*hazigaru*) are circular baskets of stout wicker work composed of interlaced bamboo lathes and covered with hides. They are 8 to 10 feet in diameter. Canoes (*bloni*) are merely dug-outs or logs hollowed out and pointed at both ends. All these craft are propelled by long bamboos and are dependent for their course on the currents. Paddles are sometimes used with the canoes. Most of the rafts are capable of carrying motor cars across a river.

The main streams, particularly the Cauvery and its tributaries support an extensive system of irrigation by means of channels drawn from immense dams called *anicut*s.

There are no natural lakes in Mysore, but the streams which gather from the hill-sides are embanked at every favourable point to form tanks. These tanks vary in size from small pools to extensive lakes and are numerous throughout the country. Spring heads, called *talpurgas*, form an important feature of the hydrography of the north-east; they extend throughout the border regions situated east of a line drawn from Kotadiri, Hiriya and Molkalmura. In the southern part of this line the springs may be tapped in the sandy soils at short intervals apart and the water rises close to the surface. Northwards the supply is not so plentiful.

In Pavagada a soft porous rock has to be cut through before reaching water and sometimes in the Chitaldroog district a hard strata of rock has to be perforated. When water is obtained it is either conducted by narrow channels to the fields or draw well (*kupili*) is constructed, and the water raised by bullocks.

The climate of Mysore is temperate, but there is a good deal of fever in many localities. The year may be divided into three seasons: the rainy, the cold, and the hot. The first commences with the bursting of the south-west monsoon, generally in June, and continues with some interval in August and September to early in November, closing with the heavy rains what is called the north-east monsoon.

The cold season, which comes next, is generally entire free from rain and lasts till the end of February. The hot season then sets in during March and increases in intensity to the end of May with occasional relief through heavy thunderstorms. The close of the rainy season in November is marked by the fogs which prevail all over the country during December and January; they are useful for maturing some crops like gram, but render that part of the year the least healthy.

The caprices of the seasons in Mysore are often very striking and often embarrassing. Frequently, abundant early pre-monsoon rains have stimulated early tillage and sowing, only to be followed by a grievous failure of the south-west monsoon.

extends from Subrahmanya in the north-west to the western point of the Brahmagiris in the south. From this backbone several long elevated ridges run from west to east.

Near Mercara the Bengunad range starts west to the Ghats. In the extreme south-west lies the Marenad range with the great lateral ridge of the Brahmagiris, which form the southern boundary of the country, separating it from the Wynad. Many spurs from the Brahmagiris branch off over the whole of the Kiggatnad.

The Bengunad range also extends eastwards in two ridges south of Mercara. From Kotebetta northwards run the Santhalli hills terminating in Mukribetta.

From the northern frontier a range runs south to the Cauvery in which are Malgudi (4,500') and Kanagalu hill; this latter range is named Velasavira.

Rivers.

The chief river of Coorg is the Cauvery which rises at Tale-Kaveri in Brahmagiri in the Western Ghats. It flows east by south to Siddapur, thence turns north by east and forms the eastern frontier as far as Sirangal where it diversifies into Mysore. Its important tributaries, the Hemavati and Lakshmantirtha, drain respectively the north and south of the country. The Hemavati forms the extreme northern boundary between Coorg and Mysore and runs east into the latter.

The Lakshmantirtha rises in the Brahmagiri hills on the southern frontier and runs north-east through Kiggatnad into Mysore.

The only important stream flowing to the west is the Barapole which descends to Malabar. In addition may be mentioned the Nujikal which drains the Sampaji valley and enters the sea near Kasergod under the name of the Basavari river, and the Kumaradhari river which rises near the Subrahmanya hills enters the sea near Mangalore receiving in its course the Netravati, and is navigable from its source as far as Bantwal.

During the monsoon months (June, July and August) the rivers can be crossed only with the aid of ferry boats. After the monsoon they fall rapidly, and during the hot season are fordable on foot. They are none of them navigable, with the exception of the Kumaradhari.

There are no lakes nor any tank, of important size in Coorg, ^{Lakes.} but some small tanks exist in the Nanjarapattina ^{oluk.} In Kiggatnad the streams in certain places form, during the rains, considerable sheets of water called *kotti* which dry up in the hot seasons, leaving only a few pools.

On the whole the Coorg climate, with its average temperature of 66° F. is salubrious. The nights are cool throughout the year and Europeans are able to take exercise in the open air at all hours.

The rarified, often cold and damp climate of Mercara with the usually prevailing high winds does not agree with diseases of the lungs, but Fraserpet, 1,000 feet lower, affords a salutary change in the rains.

Native troops, especially new arrivals from the low country, suffer much from the cold and damp.

The climate of the valleys, particularly during the hot months preceding the monsoon, is far from healthy. The climate is unfavourable to most domestic cattle.

From the end of December to the end of March rain is scarce, ^{Seasons.} but in the mornings and evenings the valleys are seldom free from fog or dew. Towards the end of March the clouds begin to collect in the south-west. In April and May the sun increases in power and occasional thunderstorms indicate the approach of the monsoon and cool the atmosphere. In July the monsoon reaches its greatest vehemence, the sun is often not seen for weeks. In September the sun breaks through the dense atmosphere. In October the north-east wind clears the sky, but occasionally brings up rain. The greater part of December is foggy, but towards the latter end the weather becomes clear and fresh.

The best season is from the end of the monsoon in October or ^{Best season} early November up to the end of April or early in May. ^{for military operations.} The heat in the hottest months is never such as to prevent operations.

The meteorological observations in Coorg are almost confined ^{Temperature} to Mercara. The thermometer indicates a moderate temperature owing not only to the latitude but also to the elevation of the country. During the cold months from October to January, inclusive, the daily average variation ranges over 24° F. Between the extremes giving a daily mean of 65°. During the hot weather months, February to May, the average extreme is

57° and 82°. During the monsoon from June to September the temperature is most equable, the extremes being merely between 60° and 75°.

Rainfall.

The average annual rainfall at Mercara is 133 inches. The wettest month is July with an average of 42 inches; next come June and August with 29 inches each; September and October have 12 and 9 inches, respectively, and May, April and November less than 6 inches, each. The other months have less than one inch. There is very rarely any shortage in the rainfall.

Diseases.

Foreigners to Coorg, during the first year of their settling, are subjected to fever and bowel complaints. During the hot months preceding the monsoon, fever, ague, and bowel complaints are frequent.

The dreaded Coorg fever appears in its worst form near Hattur in South-East Coorg, and near Sumpaji.

Small pox has laid a great hold on the inhabitants in spite of vaccination being in vogue. Cholera is almost unknown.

Clothing for troops.

No special clothing is required at any time of the year. See remarks under this heading for Mysore.

Geographical description.

BELLARY, AND SANDUR.

Bellary lies on the northern slope of the Deccan plateau and the trend of the country is towards the north-east ranging from an elevation of over 2,000 feet above the sea in the south to about 1,000 feet in the north-east corner. The district is divided east and west by the range of hills in the midst of which lies the native state of Sandur.

On the west the surface of the country is often well-wooded. To the east lies a vast expanse of level almost treeless, dreary black cotton soil, forming two-thirds of the district, broken by those granite masses springing abruptly from the surrounding country which form such a characteristic feature of the Deccan.

Frontiers.

Bellary is bounded on the west and north by the river Tungabhadra which divides it from the Bombay Presidency and the Nizam's Dominions. On the east by Kurnool and Anantapur districts and on the south by the State of Mysore.

Mountains.

To the west the surface of the country is broken by various ranges of small hills, especially in the Kudligi and Harpana Halli taluk where the land rises to join the Mysore plateau. The

principal hills outside of Sandur are those round Kampli, Adoni, and Rayadrug, and the Copper Mountain Range. The Kampli group is an irregular semicircle of barren hills lying to the north of Sandur on the banks of the Tungabhadra.

The Copper Mountain is a small range, 7 miles west of Bellary town, height 3,285 feet. Adoni is 2,000 feet and Rayadrug 2,727 feet high. With the exception of the Sandur range there is very little vegetation on any of these elevations and no real forest.

The river system of the district consists of the Tungabhadra River and its tributaries; this river formed by the junction of the Tunga and Bhadra, both rising near the south-west frontier of Mysore skirts the district in its western and northern borders for about 195 miles and eventually falls into the Kistna near Kurnool. The Hagari or Yedavai the main tributary of the Tungabhadra in the district, rises in Mysore and after flowing through the Rayadrug and Bellary taluks falls into the Tungabhadra at Halekote; it is a broad shallow stream 280 miles long, of which 125 are in this district, and rarely has any flow of water for more than five months in the year.

The Chikka Hagari is a small stream rising in Mysore, and crossing the western taluks falls into the Tungabhadra at Kit-tanuru. It is dry for many months of the year.

There are no lakes in the district. The tanks are usually small, irrigating on an average less than 50 acres apiece. The two largest are the Kanekallu tank in Rayadrug and the Darogi tank in Hospet. The former which is supplied by a channel from the Hagari, waters 2,300 acres. The Darogi tank has an embankment 2½ miles long, and irrigates about 1,800 acres.

The climate of the district is exceedingly dry throughout and correspondingly healthy. The only parts which are at all malarious are the Kudligi taluks where there are numerous hills and tanks, and the irrigated cultivation along the Tungabhadra. The western taluks especially Harpanahalli where the temperature approximates to the Mysore plateau are considerably cooler than the eastern.

Seasons.

The seasons are similar to those of Mysore.

Avoiding the malarious parts it may almost be said that there is no season of the year during which troops may not operate.

throughout the district. The best may be said to commence with the finish of the monsoon in October and to end with the setting in of the hot weather in early March.

Temperature.

The average mean of the year at Bellary town is 82°; but this is considerably exceeded at Adoni. Ramandrug, the little military sanitarium on the Sandur hills, has an average temperature about 12° cooler than Bellary.

Rainfall.

Lying almost in the middle of the peninsula, the district gets rain from both monsoons, but only after their supply is almost exhausted. Though everywhere light, the fall varies considerably in different parts. It is heaviest at Ramandrug (39 inches) and the Adoni and Hospet *taluks* (27 inches) receive a good deal more than the western *taluks* of Bellary and Rayadurg. In these last two the average fall is only 19 inches, and they form one of the driest tracts in the Madras Presidency.

Rather more than half the year's supply is received during the south-west monsoon. The rainfall is not only small but also uncertain, and Bellary has suffered constantly from droughts and deficiencies in the monsoon.

Diseases.

The bulk of the diseases are fevers, chiefly malarial. Plague has visited the district.

Clothing for troops.

See remarks for Mysore. Nothing extra would be required at any period of the year. There being no mountains of any great elevation, no extra warm clothing would ever be necessary.

ANANTAPUR.

Geography.
General description.

Anantapur is the central of the four Ceded Districts in the Madras Presidency, with an area of 6,723 square miles. It is bordered on the north by Bellary and Kurnool districts, on the west by Bellary and the State of Mysore, on the south by the same State, and on the east by Cuddapah and Chittoor Districts.

Anantapur forms part of the northern extremity of the Mysore plateau and slopes from south to north. In the south the country has an elevation of about 2,200 feet, which gradually decreases to about 900 feet at Tadpatri in the north-east.

The north-eastern portion is, for the most part, an open plain of black cotton soil, surrounded by ridges of the Errakonda range and containing long valleys running up into it.

The general aspect of the district is a barren, treeless, undulating plain of red soil, broken by long ridges of equally barren and treeless hills.

Through the Tadpatri *taluk* runs the low Muchukota hills. ^{Mountains} In other parts of the district granite occurs in clustered and detached dome-shaped masses. The principal clusters are those at Palasamudram and Penukonda; the highest point in the latter is 3,091 feet above the sea.

The eastern side of the district towards Cuddapah is hilly, the Erramalas or Errakondas (red hills) flanking that frontier in the north.

In the south the Penukonda *taluk* is very hilly and much of it is consequently unfit for cultivation.

Nearly the whole of the district is drained by the Pennar, ^{Rivers.} which enters it from the south, and after a course of about 80 miles nearly due north turns suddenly eastwards near Pennahobilam, and about 50 miles farther on passes into Cuddapah.

The Chitravati river enters the district in its south-east corner and flows northwards; after feeding the great tanks at Bukkapatanam and Dharmavaram it turns to the north-east and leaves the district in the Tadpatri *taluk*, falling soon after into the Pennar.

There are no lakes; the largest tanks are those at Bukkapatanam and Dharmavaram, which are filled by the river Chitravati. The tanks are nearly all rain-fed and are precarious sources. There are no large irrigation channels.

The climate is one of the driest in all Madras and probably ^{Climate and seasons.} in consequence of this it is very healthy.

The hot season begins early in March and ends suddenly with the arrival of the monsoon, usually early in June. Thereafter the climate is more pleasant than in most districts. The southern *taluks* of Madakasira and Hindupur which slope gradually down from the Mysore plateau are considerably cooler than the northern part of the district.

Anantapur does not get the full force of either monsoon, and ^{Rainfall.} the rainfall in consequence is often deficient and irregular. The south-west monsoon generally gives showers in June, July, and August, and a good supply in September. The north-east rains

bring a good fall in October, but after that the rain is insignificant in quantity until June comes round again.

The average for the whole district is 23 inches, the two best months being September 5.3 inches and October 4.9 inches.

The centre of the district (Anantapur, Dharmavaram, and Kalyandurg) is the driest part, the fall there being less than 21 inches on an average. Gooty and Tadipatri get about 23 inches, and in the three southern taluks where the fall is less scanty than elsewhere over 24 inches is registered.

The district has suffered constantly from famine owing to the lightness of the rainfall.

Military Operations.

The best season for operations is from the end of the rains (towards the end of October) until the commencement of the hot weather (middle of March). But neither the heat of the hot weather nor the severity of the rains are such as to prevent military operations at any time, should the necessity for the same arise.

Disease.

Malaria appears to be the most common disease in the district.

Clothing for Troops.

No special clothing is necessary other than that noted under this head for Mysore.

CHAPTER III.

NATIVE STATES AND FOREIGN POSSESSIONS.

Details regarding armed forces are shewn in Chapter V.

(a) MYSORE.

The Maharaja of Mysore is the head of the State, having been invested with full powers in 1902. He is entitled to a salute of 21 guns. In his name, and subject to his sanction, the administration is carried on by the Diwan who is assisted by two Councillors. Advisory and Legislative Councils with restricted powers have lately been instituted.

Situated about 40 miles from Mysore City at Sivasamudrum on the river Cauvery are the power works which supply electricity to Mysore, Bangalore and The Kolar Gold Fields.

About 120 miles N.E. of Mysore City are The Kolar Gold Fields. There are four separate mines which are worked by private enterprise with capital raised in England. A royalty is paid to the Mysore State on the amount of gold extracted.

The policy of the State has been a progressive one, though of late years there has been a failure to balance the budget but with the present policy of retrenchment the future financial position appears more favourable.

There is a secretariat staff for the transaction of official business, and commissioners and other departmental officers at the head of the various branches of the administration, with a comptroller for finance and treasury.

The dynastic capital is at Mysore, but the administrative headquarters are at Bangalore. The Maharaja resides for part of the year at each of these places, but the higher officers of the State are located at Bangalore.

The Chief Court is the highest tribunal of justice and is composed of a bench of 3 judges.

In addition to the Chief Court there are *munsifs'* Courts, Judicial Sub-judges' Courts and the District Courts.

Munsifs exercise original jurisdiction in cases up to Rs. 2,500 in value. Subordinate judges have jurisdiction in cases from

above 2,500 to Rs. 10,000 and hear appeals from decisions of *munsifs* if referred to them by the district judge.

District judges have unlimited jurisdiction.

Land Tenures.

The land tenures in the State are *sarkar* or "State" and "*inam*" the former are held under the *ryatwari* or individual tenure on payment of a fixed money assessment settled for 30 years.

In the case of private estates such as *inam* the land is held on the following tenures:—*Varan*, equal division of produce between landlord and tenant, the former paying the assessment; *Mukhtupe*, 2-3rds of produce to the cultivator and 1-3rd to the landlord who pays the assessment; *Arakandaya*, or *Chaturbhaga*, under which the landlord gets 1-4th and the cultivator 3-4th of the produce, each paying half the assessment; *Wazakandaya*, in which the tenant pays a fixed money rate to the landlord which may either be equal to or more than the assessment.

In the hill country towards the Western Ghats the holding of the ryots are called *Varga*. A *Varg* consists of all the fields held by one *vargdar* or farmer. The term *Varg* is frequently spelt *Warg*.

Minor officials.

Each of the 8 districts is in charge of an officer termed the deputy commissioner who is assisted by a staff of assistant commissioners.

A district is sub-divided into *taluks* which are distributed among the assistants.

The officer in charge of a *taluk* is the *amaldar* assisted by a *sheristadar*, who has charge of the treasury and acts as his deputy. A *taluk* is again sub-divided into *kobalis* or *koblis* in each of which is a *shekdar* or revenue inspector.

The headman of a village is the *patel*, a Gauda or principal farmer who is assisted in revenue collection by the *Shambog*, a Brahman accountant. These offices are hereditary and form part of the village corporation of twelve, called *ayagar* in Kanarese and *bara baluti* in Maratha.

Police.

The Police are under an Inspector-General; the sanctioned strength is 882 officers and 5,054 men, or one policeman to every 5.83 sq. miles and 1,073 inhabitants.

There is a police training school.

The Kolar Gold Fields Police is a special body with 5 officers and 279 men, under a separate European Superintendent and is largely composed of Sikhs and Punjabis.

The local State troops aid the police detachments of the local service; cavalry patrol certain roads while the infantry act as treasury guards and escorts.

The railway police are under the Deputy Superintendent of Police of the Civil and Military Station, Bangalore, subject to the orders of the Resident.

In each district is a district board and in each *taluk* and sub-Municipal *taluk* a *taluk* board.

The district boards consist of 25 members, i.e., one non-official elected for each *taluk* of the district, by the members of the *taluk* board from their own body, and the rest *ex-officio* are appointed by the State, their functions are maintenance of roads and bridges, the water-supply, travellers' bungalows, dispensaries, and sanitation. *Taluk* boards consist of 15 members, i.e., 5 official, 5 selected, and 5 appointed by the State.

The Public Works Department is controlled by a chief engineer, a deputy chief engineer and 2 superintendent engineers. Public Works Department.

Owing to the number of principalities into which the Mysore country was broken up on the subversion of the Vijayanagar empire each of which arrogated to itself the sovereign right of coining its own money, and to the subsequent conquests by various powers, each of whom introduced a separate coinage, which passed into circulation along with the divers kinds previously current, nothing could be more confused or perplexing than the whole monetary and metric system down to the time of the British assumption. The value of the different coins was frequently changed by Tipu Sultan at pleasure. When he was about to pay his troops the nominal value of each coin was raised very high, and kept at that standard for about 10 days during which time the soldiers were allowed to pay off their debts at the high valuation; after this the standard was reduced to its proper value.

But a method of uniformity may now be said to prevail, though calculations continue to be made on the former system of each locality.

The coinage of British India is now in circulation throughout Mysore.

Weights and Measures.

In Mysore generally speaking the seer is the standard of weight and measure.

The *kachcha* seer is equal to the weight of Rs. 24 or 6067 lbs. avoirdupois.

40 seers = 1 *mana* (maund) and 20 maunds = 1 *candy*; by this weight are sold areca nut, sugar, drugs, cotton, silk, etc.

Oil and ghee are frequently sold by measure, a seer weight of oil being put into a cylindrical brass vessel that exactly contains it, which serves afterwards as a standard.

The *pakka* seer is formed by measuring equal quantities of the *Nam-Dhanya* or nine kinds of grain (rice, uddu, hesara, hurali, togari, avari, kadale, ellu, wheat), and then by taking of the mixture Rs. 84 weight, which is put into a vessel that will exactly contain it when heaped. This serves for a standard and measures 74.8125 cubic inches or 3592 gallons.

(b) Coorg.

Physical.

The area of Coorg is 1,582 sq. miles. The physical features of the province are varied. The Southern, Western and North Western portions of the country are intersected by a network of hills and forests subject to heavy rain fall. The North Eastern and most of the eastern portions are very different and resemble the adjoining Mysore tracts.

Administration Government.

The province of Coorg is directly under the Government of India and is controlled by the Chief Commissioner of Coorg who is the Resident in Mysore with headquarters at Bangalore. In him are combined all the functions of a local Government and High Court. The Secretariat is at Bangalore, where the First Assistant Resident is styled the Secretary to the Chief Commissioner of Coorg. A Coorg Legislative Assembly has lately been inaugurated.

In Coorg itself the chief authority is the Commissioner, whose Headquarters are at Mercara, and whose duties practically extend to every branch of the administration.

In the Revenue Department he has the help of two assistant commissioners and an assistant superintendent of land records.

Of the two assistant commissioners one is a European with headquarters at Mercara and the other is a Coorg who is personal assistant to the Commissioner in dealing with vernacular correspondence. The assistant superintendent of land records also attends to survey and revenue settlement matters; he is also assistant director of agriculture.

For administration the country is divided into five *taluks* Minor officials each under the control of a *subadar*; they are—

Nanjaraipatna	.. Mercara	Padinalkand.
Yedenalknad	.. Kiggatnad.	

Each *taluk* is sub-divided into *nads* (called in the north of Coorg a *hobli* as in Mysore) of which there are 19 averaging 43 square miles. Each *nad* is again divided into circle (*magazi*) and each circle into villages (*grama*).

The official in charge of a *nad* is called the *parpattigar*, whose chief duty is the collection of the revenue in which he is assisted by accountants called *shamhogs*.

The principal village official is the headman or *patel*. The registration officers of which there are nine are each under a sub-registrar and are supervised by the Subordinate Judge in his capacity as Registrar of Coorg, subjected to the orders of the Commissioner, who is the Inspector General of Registration.

The treasury administration is in charge of the sub-judge *Treasury* in his capacity as treasury officer at headquarters, under the general control of the Commissioner and in direct subordination to the Comptroller, India Treasuries.

The financial transactions all come under the head Imperial with the exception of those relating to municipal village service or local fund matters.

The Postal Department is under the control of the Post Gen. Master General of Madras. Since 1894 the foreign and out side mails have been carried by tonga d k from the railway at Mysore to Mercara.

M87CGS.

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M87CGS.

P.W.D.

At the head of the Public Works Department is the Executive Engineer, under the orders of the Commissioner. The chief branch is the maintenance of communications.

The Police are in charge of a European Assistant Superintendent from Madras. The force is composed of 4 inspectors, 28 head constables, and 191 constables of whom 40 are provided with fire-arms.

Of the officers 16 are Coorg and 3 Gaudas.

Of the constables 71 are Coorg, 31 Gaudas and 10 Heggads.

Jail.

The Jail Department is under the civil surgeon of Mercara who is also superintendent of the jail.

Judicial system.

In his civil capacity the commissioner exercises the original and appellate powers of a district court.

By the Coorg courts regulations which came into force in 1901, a subordinate judge was appointed on whom falls the greater part of the work which used to come before the district court. The five *subadars* were at the same time relieved of civil powers, while the jurisdiction of the two *munsifs* was extended by the addition of small cause powers. The subordinate judge thus tries original suits and hears appeals transferred to him by the commissioner.

The only other civil courts are those of the assistant commissioners and the *munsifs* of Mercara and Virarajendrapet, whose powers extend to original suits limited respectively to Rs. 3,000 and Rs. 1,000. The small cause powers of the *munsifs* are limited to Rs. 50.

Money weights and measures.

Coorg being part of British India the coinage is the same. The rate of wages is about Rs. 1 for skilled labour and 8 annas for unskilled. Weights and measures are the same as in Madras.

(c) TRAVANCORE.

The State of Travancore (7,625 sq. miles) is situated in the extreme South West of the Peninsula and extends Southward to Cape Comorin, being bounded on the North by the Cochin State and on the East by the Western Ghats.

Trivandrum the capital is now connected by rail with Quilon, and thence through the Western Ghats with the South Indian Railway main line at Maniyachi and Madras.

Communications generally are good—much trade is however done by backwater, and troops operating on the seaboard of the State must prepare to be amphibious. Communications.

The State which has political relations with the Madras Political Government is run on progressive lines, special attention being paid to education, but the administration is almost entirely in the hands of the Brahmins. By treaty the State pays an annual subsidy of Rs. 8 lakhs which was originally payment for Military protection.

The Maharaja of Travancore who is by caste a Kshatriya is entitled to a salute of 19 guns.

The State has its own currency, Anauthan cash and Anauthan varahas or pogodas, which are minted at Trivandrum; the State also has its own postal department for internal use.

The Agent to the Governor General, Madras States whose jurisdiction also includes Cochin State has an escort of Indian Infantry stationed at Trivandrum. There are residencies at Trivandrum and Bolghatty (Cochin).

He is kept informed of and invited to advise regarding all matters of importance.

The annual report on administration is submitted with his remarks and suggestions to H. E. The Governor of Madras, whose approval has to be obtained to any proposed legislation.

Officers wishing to call on the Maharaja should intimate their intentions to the Agent who will arrange an audience, generally at an early hour of the morning.

All communications for officials of the State should similarly be addressed through the Agent.

(d) COCHIN.

Cochin State (1,417 Sq. miles) is bounded on the North, East, and West by the District of Malabar and Coimbatore, and on the South by Travancore. The capital is at Ernakulam which is the terminus of the metre gauge State line connecting with the main broad gauge line of the South Indian Railway at Shoranur.

The occupation of the inhabitants is mostly agricultural, but the forests in the Nelliampathis have recently been opened up. The State which has political relations with the Madras Government pays an annual subsidy of Rs. 2 lakhs.

British Indian coins have been the sole currency since 1900 but the State maintains its own postal department.

The Maharaja who is by caste a Kahatriya is entitled to a salute of 17 guns.

The Agent to the Governor General has his residence at Bolghetty Island (near British Cochin) and all communications for officials in Cochin State should be addressed through him.

(e) PUDDUKKOTTAL

The State of Puddukkottai which has an area of 1,100 sq. Miles is surrounded by the districts of Tanjore, Madura and Trichinopoly, and was given to the ruling family as a reward for faithful service against the French, Hyder Ali and the Southern Poligars in the 18th century. The Raja of Puddukkottai is the head of the Kallar (robber) caste to which belong the majority of the inhabitants.

The country generally is sterile and the people but little advanced on Western lines. Currency and posts are those of British India. Communications are fair. The armed forces of the state consist of about 100 Infantry and the same number of armed police, of a potential military value.

The Raja is entitled to a salute of 11 guns.

The political agent for the State is the Collector of Trichinopoly, who, as in the case of the Agent to the Governor General in Travancore and Cochin, is kept informed of and invited to advise regarding all matters of importance.

(f) BANGANAPALLE

Banganapalle (255 sq. miles) is situated on the Deccan table-land in the Kurnool district.

The head of the state has the hereditary title of Nawab and is entitled to a salute of 9 guns.

There are 23 armed police in the state.

Currency and post are those of British India. Communications are poor.

The Political agent of the state is the Collector of Kurnool.

(g) SANDUR

Sandur State (167 sq. miles) is situated in the Bellary District, and includes the hill-fort sanitarium of Ramandrug (3256 feet) which was leased by the Raja to the East Indian Company. The ruling family is Mahratta.

There are 22 armed police in the state.

Currency and post are those of British India. Communications are good.

The Political agent for the State is the Collector of Bellary.

FOREIGN POSSESSIONS.

The French possessions consist of Pondicherry, Karikal, Yanam on the East coast, and Mahe on the West.

1. The settlement of Pondicherry (115 sq. miles) which includes the town of the same name, is surrounded by the S. Arcot District except of the East where it faces the Bay of Bengal, and is the chief of the French Possessions in the East Indies. It is connected with British India by the South Indian Railway branch line from Villapuram.

The Territory consists of 3 Districts, Pondicherry, Villianur and Bahur. The Town is divided into a European and a Native quarter separated from one another by a Canal. The French first settled in Pondicherry in 1674. The Town is healthy on the whole, the purity of its water supply is said to be unrivalled in Southern India.

In 1907 the French Corps of Indian Sepoys was abolished but in November 1921 it was decided to re-establish it and the Establishment now consists of the following personnel:—

European—

- 1 Captain Commandant.
- 1 Lieutenant.
- 1 Sergeant Major.
- 2 Sergeants.
- 1 Farrier Corporal.

Indian—

1 Adjutant (Warrant Officer).

4 Sergeants.

87 Sepoys.

3 Boys.

The Europeans are from the French Colonial Infantry.

2. Kárikál (63 sq. miles) is surrounded on two sides by the Tanjore district and bounded on the East by the Bay of Bengal.

It is connected with British India by the Southern Indian Railway branch line from Mayavarem.

3. Yanam (5 sq. miles) is situated on the banks of the Gantami Godavari and Coninga rivers in the Godavari district.

4. Mahé (26 sq. miles) is situated at the mouth of a river on the Malabar coast, about 4 miles South of Tellicherry, and is on the broad gauge main line of the South Indian Railway.

The river is crossed by the railway bridge of iron girders on stone piers, and by the road bridge of wood on piles.

CHAPTER IV.

POPULATION.

(1) *Madras Area with Bellary and Anantapur.*

The Census Reports for 1921 give the following figures for the Madras Presidency and the Native States of Travancore and Cochin:—

Religion.	Madras Presi- dency.	Travan- core.	Cochin.	T
Hindu ..	37,942,191	2,549,664	646,132	41,137,987
Muhammedan ..	2,865,285	270,478	68,717	3,204,480
Christians ..	1,380,672	1,172,934	262,595	2,816,201
Animist ..	578,398	12,637	368	591,343
Jain ..	25,493	33	101	25,627
Jew ..	45	274	1,167	1,486

The above table shows the great predominance of Hindus in the Area.

Orthodox Hinduism recognises the four following classes: (1) Brahmin (priestly), (2) Kshatriya (ruling or warrior), (3) Vaisya (trading), (4) Sudra (Labouring), but the Hindu population of Southern India being Dravidian in origin, it will be more correct to divide them into two classes only, viz: Brahmin and Non-Brahmins.

1. The Brahmins occupy the highest position socially and intellectually, and are divided into a series of linguistic groups (Tamil, Telugu, Oriya, etc.) which are split up as follows:

territorial, sectarian or occupational divisions. From Birth to death the life of a Brahmin is regulated by caste and religious ceremony, for details of which the curious are referred to Dubois's "Hindu Manners and Customs". Every Brahmin wears the sacred thread—he must cook apart from others even of the same caste unless of his house—the shadow of a stranger falling across a Brahmin's cooking pot causes pollution.

The Brahmins are spread all over Southern India—the majority being employed in the service of the numerous Saivite and Vishnarite temples, but this caste has also obtained a firm hold and in some districts a practical monopoly of the clerical posts of the Administration. The Nambutiri Brahmins form the socio-spiritual aristocracy of the West Coast where many are large land-owners.

The Census of 1921 shows the numbers of Brahmins as numbering nearly 1½ millions of which the chief divisions are —

Telegu	532,000
Tamil	505,000
Or ya	142,000
Kanarese	125,000
Malayalam	47,000

(2) The Non-Brahmin community is split up into a very large number of castes and sub-castes which usually decline to intermarry or even eat together. The community include both caste Hindus and the depressed classes or Audi-Dravidas—the latter being considered to cause pollution by their near approach to a caste Hindu, though it is only in Malabar that such prejudices are now carried to extremes.

The two great Tamil and Telegu cultivating classes, Vellala and Kapu, alone account for over 5 millions of the population. The following table of the most important sections of the

NOTE.—Those desiring further details of the Castes and Tribes of Southern India are referred to a work of that name by Thurston, which is available in the District Library at Bangalore.

Hindu community from the military point of view is compiled from the census of 1921:—

Palloor Vanniyam ..	2,810,000	Agricultural labourers, not to be confused with Pallan (low caste) or Vapiyan (oil pressers).
Vellala	2,716,000	The great farmer caste of the Tamil country. (Caste affix—Pillai).
Kapu or Reddi	2,631,000	The great caste of cultivators, farmers and squires of the Telegu Country.
Paraiyan	2,407,000	The largest of the "Depressed classes" in the Tamil Country.
Nayars	1,576,000	The former military class on the West Coast.
Bahja Kavara	1,041,000	A Telegu trading class found all over Southern India. (Caste affix Naidu).
Pallan	870,000	A "depressed class" chiefly employed in agricultural labour in the Tanjore, Trichinopoly, Madura and Tinnevely districts.
Shannas or Nader ..	866,000	The great toddy-drawing caste of the Tamil country. The Tinnevely riots of 1909 were caused by the Maravans refusing to admit the status of the shannas to be Kshatriyas and to enter Hindu temples.
Idaiyan	731,000	The great pastoral or shepherd class of the Tamil Country.
Kallan	625,000	The robber caste of the Tanjore, Trichinopoly and Madura districts, which furnished many good soldiers in the old days. The head of the caste is the Raja of Pudukkottai State.
Eoya or Bedai	480,000	Formerly a military caste chiefly found in Bedars, Kumbal, and Arantapur districts, now mostly engaged as cultivators or herdsmen known in the old days as the Northern Bedars, they formed the backbone of Hyder Ali's and Tipu Sultan's armies.
Maravan	460,000	A predatory caste chiefly found in Madura and Tinnevely, and generally considered to be one of the best fighting classes in Southern India, known in the old days as the Southern Poligars.
Agamudian	399,000	A cultivating class found in all the Tamil districts—caste affix Mudali.

The sacred animal of the Hindus is the bull (The vehicle of God Siva) and consequently no caste Hindu will eat or touch beef though the "depressed" classes are not so particular.

Europeans should be careful not to touch the food, water or cooking pots of a Hindu nor to approach too closely while cooking is going on.

The pig is not an "unclean" animal to the Hindu as it is to the Muhammadan.

Mohammedans

The Mussalmans of Southern India are nearly all Sunnis (not Shi'as) and may be divided into: (a) immigrants from other provinces or pure blooded descendants of such; (b) the off spring of emigrants who have married Hindu women; (c) full blooded natives of the South who have been converted to Islam.

What may be called "Original" Mussalmans (class "A") form but a small part of the Community—they are sub-divided into Saiyids, Shaikhs, Moguls and Pathans, and many of them are by no means so strict in their religious observances as their co-religionists in North India. They are found scattered throughout the Presidency, but Vellore in the North Arcot district is their chief stronghold.

The Mapillas (Moplahs) who live on the West Coast and whose fanatical outbreaks have been noted in Chapter I. are the descendants of Arab traders who married women of the Coast. An ignorant and bigotted race, they are much in the hands of their priests and religious teachers (Thangals and Masulians).

Labbias are a Muhammadan caste of partly Tamil origin, that is to say they are converted Dravidians or Hindus with a slight admixture of Arab blood. Their mother tongue is Tamil and they worship with a Koran written in Arab-Tamil. They are a wealthy trading community chiefly found in the Madras and North Arcot districts.

The subjoined table shows the principle divisions of the Mussalmans in the Presidency, Travancore and Cochin:—

Mapillas	..	..	..	1,320,000
Shaikhs	..	..	..	935,000
Labbias	..	..	..	461,000
Saiyyids	..	..	..	176,000
Pathans	..	..	..	127,000

A Mussulman can only eat the meat of an animal which has been "halaled" (i.e., Had its throat cut with the prescribed formula) in the orthodox way by another Mussulman.

They are forbidden to drink liquor though many Southern India do so, and the idea of eating or even touching that unclean animal the pig, is abhorrent to them.

Of the total of this religion more than half (1,606,000) are Roman Catholics while the Syrian Church numbers 388,000. There are 1,172,934 Christians in Travancore State or a 30 per cent. of the population, and in the neighbouring S. of Cochin, this religion is professed by 27 per cent.

There are numerous missions scattered all over South India the numbers by churches being given in the following table:—

Roman Catholic	..	..	1,606,000
(Including Romo-Syrian).			
Syrian Church	..	..	388,000
Anglican Communion	..	..	255,000
Baptist	..	..	172,000
Lutheran	..	..	132,000
Congregational	..	..	112,000
S. India, United Church	..	..	66,000
Salvation Army	..	..	41,000

The Pre-Dravidian aboriginal tribes of Southern India by religion Animists, that is to say worshippers of natural Phenomena and the propitiation of forest and river gods, though some are now beginning to worship Hindu ties.

As might be expected, these tribes are mostly in a primitive state, and many of them live in the heart of the jungle.

The most typical examples are given below:—

Kondh	..	330,000	Agency tracts, till recently tised human sacrifice.
Savara	..	211,000	An important hill tribe in Gt and Vizagapatam.
Kurumba	..	150,000	A jungle tribe living in the N Wynad and Mysore.
Yanadi	..	138,000	A primitive Telegu tribe.
Lambadi	..	54,000	Itinerant gypsies, much use supplying armies with in the old days.
Paniyan	..	36,000	The slave caste of Malabar t nominally free.

Jains.

Jains.—A sect of non-conformists to Brahmanism, chiefly found in Mysore, in the North and South Arcot districts and in South Canara. Their religion forbids them to take any life even that of the meanest insect.

Jews.

Jews.—There are colonies of White and Black Jews settled at Mattancheri, adjoining the British quarter of Cochin.

Occupations.

The people generally are agricultural and live in villages with an average population of 600 inhabitants. Except on the West Coast where the houses generally stand in their own fenced enclosures, the villages are compact collections of dwellings generally built of mud or sun-dried brick and thatched with country tiles or palm leaves.

The houses on the West Coast are more solidly constructed of laterite, with two stories and Mangalore tiled roofs. As Mappilla fanatics usually take refuge in a large house of this type, it is worth noting that a shell from a pack-gun with percussive force will pass through a laterite wall of average thickness before bursting.

Chief Towns.

The following table shows the population of the chief towns in the area:

Madras	527,000
Madura	130,000
Trichinopoly	120,000
Calicut	82,000
Trivandrum	73,000
Cumbalure	66,000
Conjeevaram	61,000
Kumbakonam	61,000
Tanjore	60,000
Negapatam	54,000
Mangalore	54,000
Rajahmundry	54,000
Tinnevely	54,000
Cocanada	53,000
Salem	52,000
Cuddalore	51,000
Vellore	50,000

Southern India is essentially the home of the Dravidian Languages, languages which are spoken by 92.4 per cent of the population.

(1) *Tamil* is the language of the Southern Districts of the Presidency from a few miles North of Madras as far West as the Nilgins, and Southward to Cape Comorin.

(2) *Telegu* is mainly spoken in the districts North of Madras except the Agencies and the Northern part of Ganjam where it gives place to Oriya.

(3) *Canarese* is essentially the language of the Western portions of Bellary and Anantapur, and Mysore State.

(4) *Malayalam* is practically confined to the West Coast from Cannanore to Comorin.

(5) *Tulu* is the prevalent language of South Canara but a dialect of Marathi called Konkani is also spoken there.

(6) *Kodagu* a dialect of old Canarese, is spoken in Coorg.

(7) *Hindustani* is the orthodox tongue of the Mussalmans, but only a third are returned as speaking it viz., those of true Northern descent.

There are other languages used by small communities in the Presidency which do not merit special mention.

No Army had a finer record or reputation a century ago than the Madras Army, and in the despatches of Sir Eyre Coote and the Duke of Wellington will be found no want of just appreciation of the Madras Sepoy. At one time the Coast Army comprised no less than 4 Battalions of artillery, 3 regiments of Cavalry and 52 Battalions of Infantry, and records show that of this force no less than 98 per cent. was recruited in the Presidency and Mysore. The enlistment of over 92,000 men during the Great War shows that there is still a considerable martial spirit among certain classes in the Area.

Madras Regiments at the present time are recruited from Tamils, Muhammedans, Christians, and Paraiyans. Pioneer Regiments also enlist Telegus.

For military purposes the best Tamil castes are the Maravans and Kallans of Madura and Tinnevely, the predatory tribes of Southern India and descendants of the old warlike Poligars. The Vellulas, Pallis and Kavals also provide good recruits.

MSTUGS

(1) the Muhammadans those from the North Arcot district are, generally speaking, the best.

The Telugus of the East Coast have never had a very good name as soldiers, though some distinguished themselves in the Great War; but the Boyas and Kapus of the "Ceded districts", the descendants of Hyder Ali's finest troops, afford first class material; the difficulty is to get them to enlist as they have not all connection with the Army.

Two Battalions of Mapillas were raised early in the century but were found lacking in discipline and, after a short trial, their enlistment was closed till the Great War, when some companies were raised with fair success.

Enlistment was thrown open to Nayers during the Great War and there is no doubt that the men of this caste from North Malabar, when carefully selected, make good soldiers.

A Battalion of Coorgs was raised early in the century but though there is excellent material in that province the best men were not taken and from other causes also the experiment failed. A Territorial Battalion of Coorgs has now been raised and promises to be a success.

The Paraiyans, one of the lowest castes, enlist most freely in the Q. V. O. Madras Sappers and Miners, than which no corps in the Indian Army has a finer reputation.

(2) *Bangalore Bde. Area (less Bellary and Anantapur).*

MYSORE.

Mysore.—The total population of Mysore at the decennial Census of 1911, inclusive of the Civil and Military Station, Bangalore, was 5,806,193, the corresponding figure for 1921 being 5,976,690.

Hindu Castes.—There are about 73 main castes or classes of Hindus in the State, those numerically strongest being:

(1) *Vokkaligas.*—1,331,020 as per Census of 1911; the great farmer class of Mysore, representing all occupations but chiefly agriculture;

(2) *Lingayets.*—(729,431), are known by the wearing of a Lingam on the person and a round white spot on the forehead. The Lingam is a small stone, the emblem of Siva, enshrined in a small silver casket and worn suspended from the neck or round

the arm. They are found engaged in all occupations—agriculture, commerce, public administration and other professions.

(3) *Holeyas.*—613,248. They are called in Tamil Paraiyas and recently Audi Dravida and in Marathi Dhed; are Panchamas occupying a separate quarter of their own called Holagari in every village. The traditional occupation is that of either a village watchman or an agricultural labourer.

(4) *Karubas.*—403,366; are shepherds and wool weavers by profession; and are subdivided into several sub-castes.

(5) *Madigas.*—308,083; are similar to Holeyas in that both form "the depressed classes" but are distinguished from them by being workers in leather; and many have taken to agricultural pursuits.

(6) *Bedas or Naiks.*—268,454; "Beda" is a corrupted form of Sanskrit "Vyadha" meaning a Hunter, and shows what the original occupation of the caste was. The chief occupations followed are agriculture, village service (as watchman), ordinary labour and service as peons in Government Departments. They inhabit the Chitaldrug, Kolar, and Tumkur Districts and from their hardy out-door life they were largely employed in former times as soldiers under Hyder Ali and Tipu Sultan.

(7) *Brahmans.*—194,570;

(8) *Besthas.*—156,863; are fishermen, boatmen, and palanquin bearers and many are agriculturists.

(9) *Gollas.*—150,842; are cowherds and dairymen, and many follow agriculture.

(10) *Waddas.*—142,482; are subdivided into Kalliwaddas (stone dressers) Mannuwaddas or earth workers, and Uppuwaddas.

(11) *Banajigas.*—132,955; are traders in profession.

(12) *Panchalas.*—128,098; they embrace the five guilds of artisans, goldsmiths, brass and copper smiths, blacksmiths, carpenters and sculptors. These artisans are all of the same race known under the general name of Panchala although there are shades of difference between them according to locality and mother tongue.

(13) *Upparas.*—108,131; are salt makers. They are subdivided into "Kannada" and "Telugu", the former making earth salt and the latter being tricklayers and builders.

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Jaimita.—Of the nomadic tribes more than one half are Lambadees and another fourth are Koracha, Korama or Korava. Other gipsy tribes are Iruligas and Sholigas.

Musalman.—The majority of Musalmans in the State are Sunnis, a few only being Shias. The most numerous subdivisions are Sheikh (176,482); Saiyid (57,671); Pathan (44,689); Mughal (8,151); Labbai (7,995); Pinjari (5,861). The first four are found in the army, police and other Government Service but many are merchants and traders. The Pinjaris are cotton ginner and cleaners, and the other Musalmans have little intercourse with them.

Christians number 59,844—namely Europeans and allied races 7,463, Eurasians (or Anglo-Indians) 5,827 and Indian Christians 46,554. The first two classes are mostly in Bangalore and the Kolar Gold Field.

Language.—Mysore is the home of the Kanarese language which is the speech of 71 per cent of the population of Mysore, and prevails every where. Telugu is confined to the Kolar and parts of Tumkur District. Tamil or Aravi predominates in the Kolar Gold Field and among certain classes of population in the Civil and Military Station, Bangalore. Hindustani, the language of the Musalmans, who form 5.4 per cent. of the population, is spoken by about 5.3 per cent. of them, the difference being probably due to a few tribes speaking languages other than Hindustani; such as the Labbais from the south, speaking Tamil and the local Pinjaris speaking Kanarese.

COORG.

The population of Coorg at the 1921 census was given at 102,838. The two distinctive classes special to this province are the Kodagaa or Coorgs proper, from time immemorial the lords of the soil, and the Eravaas or Yeravas their hereditary slaves, but now of course free.

The Kodagaa number 44,476 or 50.68 per cent. of the population. They form a distinct highland clan free from the trammels of caste and as a rule resent Brahman intervention. Their religion consists of ancestor and demon worship. A council of elders called Takkas are the moral censors and regulators of social affairs, and this institution is hereditary in certain families. An institution called Aruva (*lit.* one who knows) arranges the

great occasions of life such as matrimony. Ninety-eight per cent. of the Coorgs are engaged in agriculture and 1 per cent. in the administration, to which it is their great ambition to belong. Polygamy is so far allowed that a second wife may be married if the first has made no issue.

The Yeravas number 14,750 or 11.1 per cent. of the population, but associated with these and the Coorgs are certain other Coorg classes. The Yeravas are totally distinct from Coorgs in general appearance and in bodily measurement. Many of them still live in a very wild state in the jungle, while others have enlisted in coffee plantations as coolies.

The Yeravas live almost entirely in the Kiggatnad and Yodenalknad *taluk*s and speak a language of their own, a dialect of Malayalam. They are much sought after as labourers and are slaves in all but name. There are two sections called Panjiris and Paniyas, each of which has a headman who seems also to act as its priest. The Paniya headman is called the Muppa and the Panjiri headman the Kanaladi.

Of tribes not special to Coorg the most numerous are the Holeyas who do all the menial work for the Coorgs and were formerly their slaves. There are four sections; Badagas from Mysore, Kombattis and Maringis from Malabar, and Kukkas from Tuluva.

The most numerous Musalmans are Mappillas or Moplas *Musalmana*, and next to them Shaikhs. Both are chiefly traders.

There are 2,979 native Christians, 47 Eurasians, and 156 Christians. Europeans. Of these about 2,778 are Roman Catholics.

The Church of England is under the Bishop of Madras and has churches at Mercara and Pollibetta.

Religious and Political Societies in the Madras District.

The progress of political thought and religious reformation in the Madras District is accompanied by less manifestation of hostility between various races and creeds, and with less apparent anti-British animus. Nevertheless considerable activity exists, in this connection, varying from anarchy to loyal methods of constitutional reform. Anarchistic ideas do not appear to take root and such cases of political assassination and extremist activity as have occurred, have been inspired by external influences.

M87CGS

The Moderate Party are, to a great extent, satisfied by the Montagu Chelmsford reforms, regard the gradual Indianization of the Services with approval, and are prepared to support the Government during the transition stage to the ultimate goal of a self-governed India taking Dominion status within the Empire.

The wealth of the Kistna and Godavari river basins on the East Coast, appears to have somewhat turned the heads of the inhabitants of these localities where Non-Co-operation has made some headway. They have, however, but few fighting qualifications.

The political situation in Malabar has been touched upon in Chapter I.

Among religious societies, the Brahma Samaj and the Theosophical Society have assumed the greatest importance. The Arya Samaj and other politico-religious societies of Northern India have not commanded much popularity. Numerous societies exist in all parts of this area, designed to accelerate social and economical progress, and are open to the exploitation of agitators, but, while none of these societies can be held to be entirely free from political tendencies, they are on the whole free from any dangerous bias. The Servants of India Society has extended its branches in the Southern parts of India, and its influence varies according to the political convictions and character of the local office holders, but it does not seem to have taken much hold of public opinion.

The Dravidian races are of considerable intellectual capacity, but with the undoubted decline of martial spirit appear to dread the domination of the northern races of India to a greater extent than they deplore their subjection to European rule. While the new 'National' spirit has permeated all ranks of the population of the South and is manifested by a noticeable change in the attitude of the people towards Europeans, it is modified to some extent by the reflection that "India for the Indian" may mean after all only a change of masters. The southern portion having been subjected to European influence for a much longer period than other portions of India, and the incidence of Brahmanical tyranny having been more severe in the south than in the north, the population remain more inclined to submit the existing state of affairs even though they may consider south more oppressive, than the more independent races of Northern India.

The Reformed Councils have, on the whole, worked well. Two distinct parties have appeared in the Legislative Assembly, the Brahman party, and the non-Brahman Party.

The influence of the Mysore State is much felt, and the attitude adopted by this State towards the British Government determines to a great extent, the attitude of the neighbouring territory under British administration.

CHAPTER V. MILITARY.

1. *Organisation.*—The Madras District, which is classified as a 2nd Class Military District, is divided into two areas as follows :—

(a) *The Madras Area.*—Directly under the General Officer Commanding, Madras District, comprises the Madras Presidency, less the Civil districts of Bellary and Anantapur.

(b) *The Bangalore Brigade Area.*—Under a Colonel Commandant, comprises the Civil districts of Bellary and Anantapur, the Province of Coorg and the native states of Mysore and Sandur.

2. Headquarters, Madras Districts are located at Wellington, Nilgiris, all the year round.

Composition.

Commander..	.. A Major General
Personal Staff	.. A. D. C.
General Staff	.. G. S. O. II
	G. S. O. III.
	District Education Officer (attached).
Administrative staff	.. Services and Departments.
	D. A. Q. M. G.
	D. A. A. G.
	D. A. D. A. & T. F.
	C. R. E.
	A. D. S. & T.
	A. D. M. S.
	D. A. D. O. S.
	D. A. D. V. S. (at Bangalore).

In addition to the above, the C. M. A., Madras District, Bangalore and the C. O. O., Madras Arsenal, act as technical advisers to the General Officer Commanding on all matters appertaining to their respective departments.

3. Armed forces belonging to the undermentioned are located in the Madras District.

- (a) Regular Troops.
- (b) Auxiliary Forces, India.
- (c) Indian Territorial Forces.
- (d) University Training Corps.
- (e) State Forces.
- (f) Armed Police.

A description of the above forces is contained in the paragraphs.

(a) REGULAR FORCES.

Madras Area.

(1) Wellington.—

O. C. Station	G. O. C., Madras District.
	1 S. S. O., 3rd Class.
	1 Garrison Engineer.
	1 Station Supply Officer.
	1 Staff Surgeon.
Units	Hd. Qrs. Madras District
	British Infantry Battalion
	Coy(s).
	Hill Sanitarium.

(2) Madras.—

O. C. Station and staff	O. C., Madras.
	1 S. S. O., 1st Class (as Embarkation staff peace time).
	1 Garrison Engineer.
	1 Station Supply Office
	1 Staff Surgeon.

Units.—

The Governors' Body Guard.
1 British Infantry Battalion (less
2 Coys.).
Madras Arsenal.
Clothing Depot.

(3) St. Thomas' Mount.—

O. C., Station ..

O. C., Indian Infantry Battalion.
S. S. O. found by Indian Infantry
Battalion.

Units.—

3 Coys. British Infantry.
1 Indian Infantry Battalion (finds
The Resident's Guard at Tri-
vandrum) and Detachment of
one Coy. at Bellary.

(4) Trichinopoly.—

O. C., Station ..

O. C., Indian Infantry Battalion.
S. S. O. found by Indian Infantry
Battalion.

Units.—

1 Training Battalion Indian In-
fantry.

(5) Cannanore.—

O. C., Station ..

O. C., Indian Infantry Battalion.
S. S. O. found by Indian Infantry
Battalion.

Units.—

1 Indian Infantry Battalion (finds
detachment at Ootacamund
while the Governor is in resi-
dence).

(6) Calicut.—

O. C., Station ..

O. C., British Infantry.

Unit ..

1 Coy. (less 2 platoons) British In-
fantry (found from Wellington).

(7) Malappuram.—

O. C., Station .. O. C., British Infantry.

Units .. 1 Company British Infantry
(found from Wellington).

(8) Aruvankadu. Cordite Factory (the only one in India).

BANGALORE BRIGADE AREA.

(9) Bangalore.—

O. C., Station ..

Colonel Commandant, Bangalore
Brigade Area.

Brigade Major.

Staff Captain.

A. C. R. E.

Garrison Engineer.

Station Supply Officer.

Staff Surgeon.

Units ..

British Cavalry Regiment.

Brigade R. F. A.

British Infantry Battalion.

Q. V. O. Madras Sappers and
Miners.

Indian Pioneer Battalion.

Training Bn. Indian Pioneers.

Indian Infantry Bde. Transport
Company.

M. T. Company.

(10) Bellary.—

O. C., Station ..

O. C., Indian Infantry.

1 Coy. Indian Infantry (found
from St. Thomas' Mount).

(b) AUXILIARY FORCE (INDIA).

Corps.	Headquarters of Corps and Companies.	Details.	Authorized strength.	
			Officers.	O. R.
CHIEFS IN MADRAS AREA.				
1st Bn. Madras Mounted Rifles.	Port St. George, Madras M. G. Coy. (Includes Sect. of 3 Flat Armoured cars) Fort St. George. Columbore Group	L. M. P. Patrol (Q) Battery attached. L. M. P., Columbare. L. M. P., Anandisai (S. E.). L. M. P., Anandisai (N. E.). L. M. P., Nilgiri Wynad. L. M. P., Meppac Vayal. L. M. P., Manankadry. L. M. P., Trichinopoly. L. M. P., Madure. L. M. P., Kodakanol. L. M. P., Poornade. L. M. P., Mundakayam. 2 L. M. P., Quilon. L. M. P., Tuticorin. 1 Troop L. H., Nilgiris (S. E.). 1 Troop L. H., Nilgiris (W. E.).	31	535
	Wynad Group			
	Madura Group			
	S. Travancore Group			
	Quilon-Tuticorin Group			
	Munnar Group			

11 (Madras) Brigade B. V. A., "The Duke's Own."	Port St. George, Madras	Comprises Brigade Hd. Qrs. and 2 Batteries.	12	185
No. 5 (Madras) Signal Coy. R. E.	Port St. George, Madras	1 company (includes a searchlight and 2 wireless sets).	3	79
South Indian Railway Bn.	Trichinopoly "A" Coy., Nacopetam M. G. Sect. 2. 1st. "B" Coy., Trichinopoly "C" Coy., Villupuram "D" Coy., Madras "E" Coy., Pondich. "F" Coy., Calicut	Tanjore .. 1 Platoon. Madras .. 1 Platoon. Tuticorin .. 1 Platoon. Madras .. 1 Platoon. Salem .. 1 Platoon. Coimoor .. 1 Platoon. (Includes, M. G. Section). Royapuram Station, Madras. Ritragunt A. Berwada. Godey. Ratchur. Beniganta. Patala. Bowringpet.	62	1,474
1st Bn., Madras and Southern Maharatta Railway Rifles	Pondich., Madras .. A. & B. Coy., Pondich. C. Coy., Madras Central Station D. Coy., Rajahmundry .. E. Coy., Arkonam .. F. Coy., Jalapet (3 Platoons only).		53	11,247

(b) **AUXILIARY FORUM, INDIA—contd.**

Corps.	Headquarters of Corps and Companies.	Detachments.	Authorized strength.	
			Officers.	O. B.
Madras Guards	..	Vepery, Madras ..	24	608
Mitigiri Malabar Battalion	..	Wellingdon .. "A" Coy, Cotacamund, In- cludes 1 L. M. Patrol I. M. G. Section. "B" Company, Coonoor ..	26	700
		"C" Company, Calicut, includes 2 L. M. Patrols. "D" Company, Cochin Includes 1 Motor Boat Patrol ..		
East Coast Bn.	..	Visnampetam .. "A" Company, Visnampetam. "B" Company, Coconada .. Berhanpur Virapagarup. Bezavada. Mortulipetam. Guntur.	14	340

COMPTE IN BANGALORE BELGRADE
ARMA.

No. 14 Bangalore Battery, R.F. A	Bangalore	5	77
The Bangalore En.	Bangalore " A " Company, Bangalore	23	602
	" B " Company, Bangalore (includes M. G. Section). " C " Company Bangalore		
Kolar Gold Fields Battalion	Coorgum " A " Company, Mackaypam. " B " Company, Channarayana Road. " C " Company, Coorgum. " D " Company, Nundhydroog includes M. G. Section.	24	604
No. 1 (Coorg and Mysore) Coy. M. G. Corps.	Coorg Mysore Headquarters and S. L. M. Patrol	7	12
No. 13 (Yercaud) Co. M. G. Corps	Yercaud 2 Sections	2	76

(c) INDIAN TERRITORIAL FORCE.

Corps	Headquarters of Corps and Companies.	Detachments.	Authorized strength.	
			Officers.	O. R.
11-3rd Madras Regt. ..	Trichinopoly ..	....	23	715
12-3rd Madras Regt. (Malabar)	Cannanore ..	....	23	715
13-3rd Madras Regt. (Malabar)	Cannanore ..	....	23	715
14-3rd Madras Regt. (Coorg) ..	Mercara ..	....	23	715

(d) UNIVERSITY TRAINING CORPS.

No. 5 (Madras) Battalion, University Training Corps.	Fort St. George, Madras (Headquarters and 4 Cos.)	Trichinopoly 1 Company	28	643
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(e) IMPERIAL SERVICE TROOPS OF NATIVE STATES, 1ST JANUARY 1922.

Station.	Unit.	Cavalry.	TRANSPORT.			REMARKS.
			Men.	Ponies or Mules.	Carts.	
Bangalore ..	Mysore Lancers ..	482	..	..	..	(a) Also 589 bullocks.
Do. ..	Mysore Transport ..	..	398	(a) 150	(b) 310	(b) Includes 8 Ambulances

RETURN OF LOCAL FORCES OF NATIVE STATES.

State.	Cavalry.	Infantry.	Armed Police.	ARTILLERY GUNS.			Total No. of Men.	REMARKS.
				Men.	Serviceable.	Unserviceable.		
Mysore ..	414	1,729	188	26	10	..	2,357	Cavalry armed with sword, lance and M. H. Carbines, R. L. bore .478. Infantry (3 regiments of 630 men each) armed with pistols M. H. carbines R. L. bore .478 and bayonets. Well drilled. Quartered at Bangalore, Mysore and Shimoga. Armed Police equipped with short cavalry rifle carbines M. L. No. 61 577 rifle bore.
Travancore ..	90	1,442	269	30	..	6	1,801	Infantry are the 2 battalions of the Travancore brigade, commanded by British officers.
Cochin ..	16	265	112	16	4	..	409	
Puduchotai ..	19	110	102	..	5	21	231	
Saurur ..	..	..	22	..	2	..	23	
Banganapelle ..	..	..	23	..	1	..	23	

Statement showing the Armed Police in the Madras Presidency.

Districts.	Places at which stationed.	Numbers at Stations.	NO. AND DESCRIPTION OF ARMS.		REMARKS.
			M. H. Rifles.	B. L. Smooth bore.	
1	3	3 to 8	9	10	11
Presidency Division	Bussellkonda ..	..	63	..	Includes 125 muskets of the C. R. School, Annaspur, temporarily closed. Issued to the Punitive Police Force.
	Parvatipur ..	..	42	..	
	Koraput ..	..	83	..	
	Rajahmundry ..	..	146	..	
	71 other stations	..	..	1110	
Anantapur	Anantapur ..	..	..	205	Issued to the temporary camp fall guard, Bellary.
	Do. ..	..	20	..	
	38 other stations	..	..	163	
	Bellary ..	..	..	99	
	Do. ..	..	..	216	
Bellary	40 other stations	..	..	187	Includes 15 C. R. Rifles temporarily closed.
	Vellore ..	..	..	284	
	36 other stations	..	..	207	
Arcoot North	..	..	..	..	..

Arcoot South	Cuddalore ..	..	..	98	Includes 150 muskets of the C. R. School, Coimbatore, temporarily closed.
Kanara South	20 other stations	..	..	206	
	Mangalore ..	..	..	164	
	25 other stations	..	..	133	
Chingleput	St. Thomas Mount	..	..	123	
	33 other stations	..	..	140	These muskets will be issued soon.
	Chittoor ..	..	..	108	
Chittoor	36 other stations	..	..	206	
	Coimbatore ..	..	..	255	
	38 other stations	..	..	182	
Coimbatore	Cuddalore ..	..	..	118	These muskets will be issued soon.
	Do. ..	..	..	22	
	40 other stations	..	..	160	
Cuddalore	Chitrapur ..	..	..	..	
	29 other stations	..	..	171	
Chingleput	Oosana ..	..	119	..	..
	20 other stations	..	..	110	
	..	..	..	..	

Districts.	Places at which stationed.	Numbers at stations.	NUMBERS AND DESCRIPTION OF ARMS.		REMARKS.
			M. H. Rifles.	B. & smooth bore.	
1	2	3 to 8	9	10	11
Guntur	Guntur	..	..	81	These munticks will be issued soon.
	Do. ..	..	..	325	
	39 other stations	..	..	176	
Kadapa	Masilpeta	..	..	110	
	40 other stations	..	..	215	
Kurnool	Kurnool	..	..	110	
	59 other stations	..	..	229	
Madura	Madura	..	..	112	
	37 other stations	..	..	159	
Malabar North	Tellicherry	..	..	63	
	17 other stations	..	..	155	

Malabar South	Calicut	..	142	..	Magazine rifles with the Auxiliary police force. These magazine rifles will subsequently be transferred to other districts.
	Do. ..	..	700	..	
	Malappuram	..	97	..	
Nellore	Do. ..	..	99	..	Temporarily sanctioned for the Pandiabar Police force.
	31 other stations	..	..	227	
	Nellore	..	..	91	
Nilgiris	45 other stations	..	..	216	Temporarily sanctioned for the Pandiabar Police force.
	Gootacamund	..	55	..	
	7 various stations	..	..	104	
Rannad	Madura	..	..	92	Temporarily sanctioned for the Pandiabar Police force.
	Sivakasi	..	81	..	
	Kamudi	..	55	..	
Salem	81 other stations	..	..	150	Temporarily sanctioned for the Pandiabar Police force.
	Salem ..	..	..	114	
	45 other stations	..	..	233	
Tanjore	Tanjore	..	..	106	Temporarily sanctioned for the Pandiabar Police force.
	40 other stations	..	..	276	
	Palamcottah	..	..	210	
Tinnevely	Tuticorin	..	..	50	Temporarily sanctioned for the Pandiabar Police force.
	36 other stations	..	..	225	
	..	..	..	..	

District.	Places at which stationed.	Numbers at stations.	NUMBERS AND DESCRIPTIONS OF ARMS.		REMARKS.
			M. H. Rifles.	R. L. smooth bore.	
1	2	3 to 8	9	10	11
Trichinopoly ..	Trichinopoly ..	..	..	121	Includes 129 muzzles of the Central Reserve School, Vixianagram temporarily closed.
	35 other stations	..	..	107	
Vizagapatam ..	Vizagapatam ..	..	107	..	
	33 other stations	..	..	349	
Railway Police Madras ..	..	..	..	8	
Railway Police, Trichinopoly.	..	..	..	8	
Provincial Training School, Vellore.	..	..	..	111	
Madras city ..	..	..	..	121	

Note.—Columns 3 to 8 cannot be completed as Arms are not allotted to individuals but to Stations.

Statement showing the "Armed Police" in the Mysore State.

Civil Districts.	Place at which stationed.	NO. AT STATIONS.							NUMBERS AND DESCRIPTION OF ARMS AND AMMUNITION.		REMARKS.	
		Mubammadam.							Arms.	Ammunition.		
		3	4	5	6	7	8					
1	2	3	4	5	6	7	8	9	10	11		
1. Bangalore	Bangalore (City Provincial Reserve)	36	88	..	28	160	100	147	1987 Ball cartridges 4056 Buck shot cartridges 18 blank cartridges 1842 Percussion caps.	A detachment of 48 officers and men out of the Provincial Special Reserve at Bangalore had been ordered to be stationed at Mysore. The total strength of officers and men of the Provincial Special Reserve Force is 100. Of these 5 officers have not been supplied with carbines. There is no M. H. Rifle ammunition.		
2. Mysore ..	Mysore City (Provincial Reserve).	19	25	..	2	46	46	44	547 Ball cartridges 640 Blank cartridges.	There are only 74 breech loading smooth bore sniders and 8 revolver in A. G. R. and these are not given to particular individuals but are intended for the use of the men when occasion arise. The total strength of the force is given.		
3. Kolar ..	Kolar Gold Fields.	113	100	..	50	323	323	74 breech loading smooth bore sniders and 8 ball dog revolver etc.	4020 Snider Ball cartridges, 130 Snider cartridges, 700 Buck shot cartridges, 125 revolver cartridges.			

FORTRESSES.

Madras Area.

There is only one fort in the Madras Area in which troops are garrisoned, namely, Fort St. George, Madras.

Fort St. George.

The present area of Fort St. George, including outworks, covers about 102 acres, while the interior space measures about 42 acres; there are 5 entrances, one on the north, two on the west, one on the south, and one on the east. The fort contains the arsenal, barracks for a British regiment and a company of Royal Garrison Artillery (recently removed), officers' quarters, civil and military offices, the Government Secretariat, a military prison (Detention Barrack), magazines, schools, and the garrison church of St. Mary's the oldest English church in India.

Cannanore Fort
St. Angelo.

An old fashioned fort dating from 1503 built of laterite and standing on a rocky promontory running out into the sea. It has a deep ditch on the landward side which is flooded by the sea at high tide.

There is only one entrance to the fort by land, but access is possible with difficulty from the sea.

The drinking water supply is from a well with pump on the Glacis above the covered way, there are two wells inside the fort but the water is brackish. On the ramparts is situated a small lighthouse and a flagstaff for signalling to ships.

Inside the fort are barracks and other buildings, in a good state of repair; during the Great War they were used as quarters by Porter and Labour Corps. Across the glacis, which forms an extensive parade ground, are the ranges and barracks for a British Battalion, which are at present in occupation by an Indian Infantry Battalion.

Arcot Fort.

In the North Arcot district is one of the best preserved forts in Southern India. It is surrounded by a deep moat which is supplied with water by a subterranean drain connecting it with a large reservoir near the Railway station. The fortifications are in a good state of repair; entrance is obtained by the Main gate on the East side or by a sally port in the South wall; there are no other means of crossing the ditch.

The fort contains numerous buildings, which are now utilised as civil offices and by the Police Training School. On the hill above the town which commands the fort are located 3 hill forts, for its protection.

In the South Arcot district, 18 miles from the Railway Gunge station of Tindivanam. The fortress which is of mediæval type, is the largest in Southern India and comprises a group of three strongly fortified hills which, with their connecting walls, enclose an area of over 7 sq. miles. The citadel on the central hill is unapproachable except by a bridge on the North side spanning a deep chasm. There are 2 unfailing springs of water on the summit, numerous buildings in a fair state of repair afford accommodation. The three fortified hills were stormed at night by the French in 1750.

There are numerous other forts within the Area, of which the most important are Chandragiri in the Chittoor district; Arni and Carnaticguri in North Arcot, Krishnagiri, Rayakota and Samkaridrug in the Salem district; Fort St. David and Tiagur Durg in South Arcot; Palghat and Tellicherry; in Malabar; Chingleput, Tanjore, Trichinopoly and Dindigul (all on the metre gauge line of the South Indian Railway); and Vizianagram in Vizagapatam district.

All the hill forts possess an unfailing supply of water, and access to most is, by nature so difficult that a few resolute men well equipped and supplied, could offer a protracted resistance to troops unassisted by other arms. The deep caverns which nature supplies in such localities afford admirable bomb-proof cover which would resist the heaviest bombardment.

The action of troops attacking in such cases will be greatly facilitated by use of Stokes Mortars, rifles and hand grenades, and overhead covering fire from pack guns. Those forts whose approaches are defended by a series of gateways, though formidable in appearance, are not so in reality as the gates themselves are a source of weakness affording to an assailant an opportunity of advancing by successive bounds. Where however the approach is up the open hill side the assailants should be prepared for rock shoots, such were used at Krishnagiri against our troops in 1767 and 1791 when the storming party was swept away with heavy losses.

Besides the regular forts there are, throughout the Area, numerous large temples and pagodas, so strongly constructed as to afford opportunities for resistance almost as great as in the cases mentioned above.

The fortified pagodas of Conjeevaram, Srirangam (near Trichinopoly) and Tiruvannamalai figured largely in the Wars with the French and Haider Ali.

TRAINING AREAS.

Facilities for the practice of almost every variety of warfare are to be found in the Madras District. Owing to the great distances between Military stations and expense involved it is seldom possible to afford concentration of troops for training except in the vicinity of Bangalore.

MADRAS AREA.

Wellington.—The country in the vicinity of Wellington is well suited for practice in mountain warfare while the Ootacamund Downs, distant 12 miles are well adapted for normal training.

Podanur-Metripalayam.—Excellent training ground is available in this area.

Malabar.—The country is well adapted for the practice of bush warfare, in all its varieties.

Madras.—With the exception of the flat maidan on the island there is no training ground within easy reach of Fort St. George, an expanse of open flat ground 1 mile by $\frac{1}{2}$ lies 9 miles to the N.-E. on the Nellore Road near Red Hills Tank.

St. Thomas' Mount.—Suitable ground exists in the vicinity for the training of a Battalion. The ranges are well adapted for field firing.

BANGALORE BRIGADE AREA.

(a) *Bangalore.*—The country in the vicinity of this station is admirably adapted to the training of all arms of the service. Arrangements have to be made with the Mysore Durbar before any training is carried out, except on the Agram Plain.

The best season for manoeuvres is in January after the crops are in. In certain areas water is liable to be difficult to find, but this has been overcome by careful reconnaissances beforehand.

The Agram Plain, in close proximity to the Military Cantonment is reserved for training purposes, and is suitable for the training of all arms, it is some two miles long by 1 mile in breadth.

Suitable ground for company and squadron marches, moveable Column exercises or Brigade training is to be found practically in any direction beyond the five mile radius.

Cannanore.—Excellent Training Areas are to be found in the vicinity of.

The most suitable localities are:—

- (1) Mullagal Valley—well suited for field firing.
 - (2) The Tumkur Road, in the vicinity of the Arkavati River.
 - (3) The area between the Bangalore—Dodballapur and Bangalore—Chik-Ballapur Roads.
 - (4) The Area North and North West of Nundhydroog is well adapted for Mountain warfare.
 - (5) Artillery Practice Camps have been held from time to time in the vicinity of Visvanathpur and Rajankunti.
 - (6) The river Cauvery at Seringapatam is suitable for practice in bridging in rough water.
- (b) *Bellary.*—Suitable ground for elementary company training exists in the vicinity of the station. For more advanced work it is desirable to camp in the vicinity of Ramandrug.
- (c) *Kolar Gold Fields.*—Excellent ground exists in the immediate vicinity for Company or Battalion training.

LANDING PLACES FOR AEROPLANES.

Little information on this subject is available as no Royal Air Force units are stationed in the District.

During and after the Great War a detachment of the R. A. F. was stationed at Bangalore and a landing ground was prepared on Agram Plain at considerable expense.

The Island at Madras is a suitable landing ground.

In Malabar it would be difficult, if not impossible, for aeroplanes to land anywhere. The Maidan at Cannanore could however, be adapted for this purpose with little trouble.

CHAPTER VI.

RESOURCES.

(1) Madras Area.

Agriculture.

The Agriculture of this area naturally depends largely upon its climate, soil, and seasons, which differ to a great extent in the various districts. In practically every district, however, rice is the principal food-crop grown, followed by cholam, cumbu, and ragi. The principal industrial crops are oilseeds, sugar, cotton, coffee, and tobacco.

2. The only districts where the quantity of foodcrops grown is not sufficient for the needs of the population are Travancore and the Nilgiris. In the Nilgiris, more than half the area is covered with forest, and the cultivation consists chiefly of coffee and tea. In Travancore, though rice is grown, garden produce forms the staple cultivation, and large quantities of rice have to be imported for the needs of the population. In neither of these districts therefore, could any appreciable supplies of rice be procured for troops.

Animals.

3. Live stock are generally of poor quality, undersized, ill-fed and ill-cared for, though excellent breeds are available on demand, for heavy draught in the strong soils, for well-work and for road haulage. The universal system of common pasturing, in which cattle of all ages wander in promiscuous herds over the open arable lands and village wastes, ensure immature, mongrel breeding and the spread of disease; and since in general there is no system of fodder-growing, only the wide pasture of the unoccupied lands is available for ordinary cattle.

4. Latest figures would approximate in the area to upwards of 16 million cattle and 16 million sheep and goats.

5. The Chief breeds of cattle are the Nellore (from North Nellore and Guntur) which are big animals weighing up to 1,500 lbs. the best milkers in the Presidency; the Mysore breed of different names and types; the Punganam of Chittoor; the Dupad and Erramala breeds of Kurnool. These are all breeds of distinct types raised by large ryots or cattle-breeders, of good quality and commanding fairly high prices.

Horses and Ponies.

Horses and ponies are of little value. Sheep are numerous but not generally of good quality, though breeds, such as the big

Nellore sheep standing three feet high and weighing from 80 to 100 pounds each, the small Coimbatore woolly Kurumba breed, and the Mysore breed in parts of the Deccan, are fair. The Mutton averaging 20 to 25 pounds clean weight is generally inferior.

There are numerous annual fairs, especially in the Southern Cattle fairs, parts and many of the weekly markets are almost equally important; the annual fair at Madura in April will have 30,000 head displayed for sale, at prices from 100 rupees to 400 rupees per pair.

The bullock carts are of an unusually good pattern, having Cart. strong spoked wheels five feet in diameter fitted with iron tyres. The tread of these last is, however, so narrow that they quickly cut up a soft road. Carts are fairly numerous and would approximate in the area to over a million.

As far as the transport and supplies for any given area are concerned it is difficult to give accurate statistics, as the quantity and the nature of the supplies at any particular time depend upon crops, which are uncertain. Certain details in this respect are contained in the Madras District Route Book.

Bullock carts etc., for transport for a moveable column should be forthcoming at fairly short notice wherever required and also the ordinary supplies, i.e., atta, rice, salt, grain, fodder, flour, potatoes, onions, ghi, dhal, firewood, and oxen and sheep at few days' notice.

There is a large agricultural college at Coimbatore under Agricultural Government Management where some few hundred Indian College. students under European and Indian instructors can obtain an excellent Agricultural Training during a two years' course on the most up to date lines. The College is a fine building thoroughly equipped with all the most modern agricultural and scientific implements.

By far the most important mineral in this area is the salt Minerals. obtained by the evaporation of sea water in the numerous salt-pans along the coast of the Bay of Bengal. The other minerals at present produced in any appreciable quantity are manganese in Vizagapatam, mica in Salem and Nellore but mainly in the latter, magnesite in Salem, gold in Anantapur, barytes in Kuracool, monazite in Travancore, and building material in various parts of the Presidency.

FORESTS.

The most important forests of the area are in the south and west, on the Western Ghats and the connected ranges of the Anaimalais and the Nilgiri Hills, their distribution coinciding with the Zone of excessive rainfall. Next in importance are those which cover the northern portion of the Eastern Ghats, extending from the Kistna northwards through the western parts of Godavari, Vizagapatam and Ganjam, and on into Pongal. The rainfall in this area is heavier than anywhere else except the West Coast. These forests are chiefly noteworthy for the sal in Ganjam and the teak in the uplands of Godavari. Situated between these two chief blocks of forest are two other smaller wooded areas. The first of these lies in those portions of the Eastern Ghats which run through Coimbatore, Salem and North Arcot, and in the isolated ranges of the Shevaroyas and the Javad Hills. The rainfall here is much lighter and the forests contain no large timber, being chiefly remarkable for the occurrence of sandalwood.

INDUSTRIES AND FACTORIES.

Since the year 1912 there has been a steady industrial progress in Southern India and factories of various natures have been established.

The number of factories working in the Madras Presidency at the close of 1920 was 511, of which 332 were perennial and 179 seasonal. The average daily number of operatives was 101,655. Excellent clay for tiles and bricks is found on the West Coast and 51 factories employing over 7,000 hands are working there. Pottery clays also occur in several districts. Granite, laterite, limestone and sandstone are widely distributed and extensively worked. Laterite is the ordinary building material of the West Coast. Occurrences of coal have from time to time been reported in the Presidency but hitherto no field have systematically been worked. Prospecting is proceeding in a promising area in the Godavari valley. The industrial development of the Madras Presidency depends upon the discovery of cheaper fuel supplies within its borders.

Of the indigenous arts of the area the only one which now employs any considerable number of persons is the weaving of cotton. Hand spinning has practically disappeared and the requirements of the 300,000 hand-looms, which are estimated to be in operation, are now chiefly supplied by the spinning mills. Of power driven spinning and weaving mills the total

26, employing nearly 30,000 hands. The spinning mills contain over 400,000 spindles and consume annually about 1,07,600 bales of cotton.

Other important industries in Madras are hides and leather. The export of raw hides from Madras ports is insignificant but the export of partially finished leather known as "kips" and tanned skins is very large. There are three chrome tanneries in Madras, manufacturing finished leather goods, the largest of which finds employment for about 1,000 men.

There are fourteen factories engaged in curing and preparing coffee for export which employ a daily average of 3,462 hands. There is a cement factory in Madras producing about 4,000 tons of Portland cement a year and gives employment to 240 hands. The cigar making industry has made great strides in recent years. There are now 23 factories in which 2,461 hands are employed daily. Most of these are situated either at Trichinopoly or Dindigul.

Factories in which sugar and spirits are made from sugarcane and from the juice of various palms numbered 13 in 1921 and employ 3,500 hands daily. The largest is that belonging to a European firm at Nellikuppam in South Arcot District. There are a number of general Engineering workshops in Madras and a factory where, from imported sheets large quantities of aluminium hollow ware are turned out, also hammered brass vessels, copper stills and condensers. The capacity of these works is 15 tons of aluminium ware per month and 8 tons of brass and copper ware. Another firm manufactures a wide range of mathematical instruments and articles of a similar kind.

The manufacture of coir matting, ropes, etc., is a cottage industry which employs a considerable number of persons (chiefly females) in Malabar and the neighbouring States of Cochin and Travancore. Coir presses under European management give employment to over 1,400 persons.

There are chemical works at Ranipet producing sulphuric, hydrochloric and nitric acid, epsom salts, etc.

There are a number of factories scattered over the Presidency, for the most part of no great size, for the milling of rice and the ginning of cotton. On the Malabar coast there are several mills wherein coconut oil is extracted from copra and mills where groundnut, castor and gingelly are similarly treated.

chiefly Indian-owned) are found in districts where these crops are grown. Manure works have also been established in some parts of the area. There are two factories on the West Coast for the canning of fish and other products. Several soap factories are in existence, the largest being Government-owned and a factory for the manufacture of glue on a commercial scale has been established in Madras. Jute manufacture from *habiscus cannabinus* (Bimlipatam jute) is carried on in two factories in the Northern Circars.

Numerically perhaps a majority of the factories in the Madras Presidency is Indian-owned but the capital and management of practically all the large concerns is in European hands. Indian capital is, however, being attracted towards industrial development to a much greater extent than formerly.

The factories are too few and too scattered to exercise any appreciable effect on the labour market outside their immediate neighbourhood. The hands are drawn from the local labouring classes; and as the employment requires a certain degree of special knowledge or skill, the rate of wages is somewhat higher than that which ordinary unskilled labour can obtain. There is therefore no lack of labour but symptoms of industrial unrest are beginning to appear. 62 strikes occurred in 1920 affecting factories employing 43,126 labourers.

During the War, prices of foodstuffs gradually rose and a marked jump in 1918, aggravated by a bad season, led to much economic disturbances, strikes, and unrest in labour circles, which has since been, to a considerable extent, diverted into political channels. Wages have, generally speaking, now been adjusted to new conditions.

12. The daily wages for labour are as under:—

	In Madras Town.			In Rural Tracts.		
	Rs. A. P.			Rs. A. P.		
Skilled Labour (i.e., carpenter, fitter, blacksmith, etc).	1	2	2	1	0	3
Unskilled Labour	0	9	7	Average 4—8 annas according to season, tract, and nature of work.		

(2) BANGALORE BRIGADE AREA.

Mysore.

The prospects of agriculture are mostly dependant on the rains, if they are sufficient and seasonable, the harvest is abundant. "Wet" crops irrigated from river channels or perennial wells, and products of the self-sustaining black soil, are, however, least affected by vicissitudes of the season.

The total area cropped during the year 1919-20 was six million one hundred and ninety-three thousand one hundred and thirty-six acres. The staple foodgrains in Mysore are ragi, rice, cholam, and gram.

June and July are the months for sowing the principle crops and November is about the general harvest time.

Ragi is the staple food grain of the bulk of the people and is grown both as a dry crop and also under irrigation.

In most maldan parts, two crops of paddy are grown in a year, the first maturing in October or November and the second in April or May.

Cholam is consumed largely in the Chitaldrug, Shimoga, Kadur, and Mysore Districts; in Mysore it is sown usually before the second week of April and in Chitaldrug, the sowings are late, continuing into May and June.

Horse gram is sown in October or November and ripens in three months.

The daily wages for unskilled and skilled labour vary in wages, different districts from 4 annas to 14 annas and 8 annas to Rs. 2 respectively. Wages for the different classes of labour have risen from 50 to 75 per cent on account of the rise in the price of the food grains and all other necessities of life.

The total area of State Forests at the end of the year 1919-20 Forests, was 3,284 square miles. These forests may be divided into evergreen and deciduous; the evergreen forests are confined to the western ghats and the country below them to the east.

The most valuable source of forest revenue is sandalwood; the Ghat forests of the State contain considerable quantities of

woods suitable for Cabinet and furniture-making and railway sleepers and other industrial purposes.

Mines and Minerals

The Chief Mineral products in Mysore are the metallic ores of gold, iron, manganese and chromium, and the non-metallic minerals mica, asbestos, magnesite, corundum and garnets. Such of the minerals as are useful in the manufacture of pottery and mineral pigments, in the preparation of earth salt and soda, and in the preparation of lime and cement can also be obtained to a limited extent. Work was carried on during the year 1920-21 on 18 mining leases and 23 prospecting blocks; of these 5 were gold, 4 for manganese, 3 for chrome, 5 for magnesite, 5 for kaolin, 1 for limestone, 7 for asbestos, 6 for mica, 2 for soapstone and 3 for ochres.

Animals.

Mysore has enjoyed from a very early period a renown for her superior breed of cattle. The principle breeds of horned cattle in Mysore are, the Amrut Mahal, Madesvaram Betta, the Kankanahalli and the village cattle. The Amrut Mahal breed is characteristically different from every other Indian variety. These cattle are fire tempered and very active, enduring and hardy. The Amrut Mahal cattle are kept in grazing grounds called *kavals* under an establishment of graziers and other attendants.

There is a Stud Farm at Kunigal and the approximate value of livestock on the farm at the end of the year 1919-20 was Rs. 37,979.

Vehicles and Transport.

For general purposes, carts with spoked wheels and without springs, are common throughout the country. They are drawn by a pair of bullocks. Jutkas, bicycles and motor busses are also largely used.

In Bangalore, there is a bullock train of Imperial Service Transport Corps.

Coorg.

Agriculture.

Rice is the staple produce of Coorg, and is also the only cereal crop. The yield furnishes an unfailing supply for home consumption and for export to the Malabar Coast.

Dry crops, of which ragi is the chief, are cultivated only in the Nanjarajpetta taluk, along the west bank of the Cauvery, and are similar to those of the adjacent part of Mysore.

The price of food grains in seers per rupee is:—

Ragi	22.7
Grass	15.5
Rice	11
Salt	8.6

There are no mines in Coorg, and the only minerals produced are granite for road making and building; laterite for the same purposes; and clay for bricks and tiles.

Some prospecting for gold took place when the Wynad mines were being explored, but on the failure of these the matter dropped. In 1898 mica was discovered in the pegmatites in the south, but the commercial value is little. Graphite occurs in small quantities.

The Ghats forests in the west are known as Male-Kadut and lie in the evergreen belt. The dense undergrowth in these forests is so thorny and tangled that they can be penetrated only by beaten paths with an experienced guide.

The forests to the east are termed Kanave Kadu, and are composed mainly of deciduous trees and immense clumps of bamboo.

There are no manufactures in the larger sense of the word. Industries a manufacture

The climate is unfavourable to most domestic cattle, the only animals that thrive well are the buffalo and the pig, the latter the favourite animals for food except at festivals. Donkey and goat also do well, but not sheep except in the east.

The Coorgs procure their cattle partly from Mysore and partly from the annual fair at Subrahmanya in South Kanara.

The Commissioner of Coorg states the transport of any sort is very difficult to procure. Bullock carts are few. During the coffee season, i.e., December to May, carts in small numbers generally come up from outside the province, but cannot be depended on.

Supply small and most uncertain. Almost unprocureable in Transport the rains May—October, and unprocureable in the coffee season Labour. December—May. For military operations on a large scale should not be counted on.

BELLARY.

Agriculture.

Nearly three-fourths of the total population of Bellary are by occupation agriculturists or shepherds.

On the red soils "dry" crops are sown at the beginning of the south-west monsoon in June, but the black soil is held to require the thorough soaking obtainable only from the later rains of that monsoon, and *korra* and cotton are sown on it in August, and other crops in November. On "wet" lands rice is sown in May and January, and sugarcane in March.

The two principal foodgrains are *chulam* and *korra*, the area near the former amounted in 1904 to nearly one-third of the total area cropped.

Minerals.

Very little has been done to exploit the mineral resources in this district, though they are considerable.

Forests.

Though there is a considerable area in each *taluk* of so-called forest, the reserves mainly consist of patches of more or less scanty scrub jungle, in which it is hoped that careful preservation may, in time, induce a growth of large timber. At present the resources of the reserves are severely taxed to produce even the firewood required locally.

Timber and bamboos are largely imported, chiefly from the Annamalais. The Kudligi reserves contain the largest growth including a small amount of teak.

Animals.

Indigenous breed of cattle is small and weak. The best draught animals in use in the western taluks are brought from Nellore by travelling drivers.

In the west large numbers of cattle are imported from Mysore and sold at the two great annual fairs on the Tungabhadra at Mailar and Kuruvatti. A fine breed of pack bulls bred in the Nizam's Dominions is used in Kampli and the neighbouring vilages.

Ponies are not raised in the district in any number. There are two varieties of sheep, the black or long-fleeced and the white and reddish brown long-legged variety.

Vehicles.

The common cart of the country drawn by one or two bullocks is obtainable everywhere. During agricultural operations great difficulty would be experienced in collecting any large numbers; at other seasons, given time, they could be gathered with the assistance of the civil authorities. A rough estimate would

be fifty carts at seven days' notice and subsequently ten carts *per diem* additional.

It is not customary in this district for coolies to carry loads Transport as in hilly districts in India, and a cooly corps could not be instituted locally.

Sufficient drivers for pack bullocks can always be obtained calculating one driver to every five or six bullocks.

ANANTAPUR.

An unusual proportion of the people live by their flocks and herds, otherwise the occupations of the people of Anantapur differ little, from the normal.

Agriculture, as usual, predominates except in the northern part of the district, the soil is generally miserably poor and thin. Even the black cotton soil of the northern *taluks* is inferior to that of Bellary and Karnool, and wide areas are very alkaline and bear poor crops.

Agricultural practice varies with the character of the rainfall and with the soil. The sowings are generally later on the cotton soil in the two northern *taluks* than elsewhere, as this land requires a thorough soaking before the seed is put in.

In the district, as a whole, nearly two-thirds of the sowings have usually been effected by September.

The foodgrains most widely grown are *korra* (a kind of millet) and *chulam*.

Rice is raised on considerable areas in Dharmavaram and Penukonda. In the south (Hindupur and Madakasira) *ragi* is the staple food of the people, and is very extensively cultivated either with or without irrigation.

The forest of the district cover 747 square miles or 11 per cent. of the total area. In character they resemble those of Bellary, containing a poor and stunted growth.

There are no local breeds of cattle worthy of mention, as the grazing is too poor to raise good animals.

The best stock are imported from Nellore. Sheep are plentiful and are mainly bred for their wool which is woven into rough blankets.

Vehicles.

At Anantapur town 10 bullock carts (2 b obtained within 24 hours and 20 in 7 days. At the other large towns 4 and 6 carts could be obtained within 1 and 7 days respectively.

Transport labour.

As in all native States, cooly labour in the non-agricultural season can be obtained through the civil authorities. The inhabitants are not accustomed to carrying loads.

CHAPTER VII.

ADMINISTRATION.

Table showing Civil Districts comprised within the area of the Madras District.

Brigade Area.	Civil Districts.
Madras Area	Tanjore. Vizagapatam. Kistna. Guntur. Nellore. Cuddapah. Kurnool. Madras. Chinglepatam. North Arcot. Salem (less Horar taluk). Coimbatore. South Arcot. Tanjore. Trichinopoly. Madura. Tinnevely. Nilgiris. Malabar. South Kanara.
	Native States. Bangalore. Puduchottai. Travancore. Cochin.
Bangalore Brigade Area	Mysore State divided into eight districts as follows:— Bangalore. Kolar. Tumkur. Mysore. Hassan. Channarayana. Chitaldrug. Kodur. Bellary District. Coorg. Anantapur District. Nandur State.

Madras Area.

The various branches of the administration of the Madras Presidency are in the immediate charge of a number of departments. Each is usually under the control of the head of the department, to whom are entrusted considerable powers of administration. General method of administration.

independent action. Thus the head of the Police Department is the Inspector-General of Police. Heads of departments correspond with the Government through the Secretariat. This is divided into a number of branches, controlled by different secretaries, each of which deals with the work of certain specified departments. Finally, each branch of the Secretariat is under the control of one of the members of the Government, and submits for his orders all questions connected with the matters with which it deals. In this way executive control is greatly decentralised, while ultimate authority is exercised through a branch of the Secretariat and by a member of the Government, both possessing special knowledge of the needs and circumstances of each department.

The Government.

The Presidency is governed in relation to reserved subjects by a Governor in Council (the Council consisting of four members), and, in relation to transferred subject by the Governor, acting with three Ministers. The Members of Council are European or Indian members of the I.C.S., the Ministers are Indians.

The Secretariat.

The Secretariat is divided into the following branches:—

Chief Secretariat, Finance Secretariat, Revenue Secretariat, Development Secretariat, Local Self Government Secretariat, Land Secretariat, and Public Works Secretariat.

The Board of Revenue.

Matters connected with revenue administration are especially complex and heavy; the Government is relieved of detailed control over a large proportion of them by the Board of Revenue, a body which has the same authority over Collectors and other revenue officers as is possessed by Commissioners in other provinces. Letters on matters relating to revenue administration are usually addressed to the Board instead of to Government. It consists of four members, of whom two generally control matters connected directly with the land revenue (including forest and income), a third has charge of Revenue Settlement, Land Records and Agriculture and the fourth supervises the Salt, Abkari, and Separate (Customs, Stamps, Income-Tax, etc.) Revenue. The orders of such member issues as those of the whole Board, but matters of importance are decided by two, three or by all four of the members in consultation. The Board is further a Court of Wards with legal power to administer landed estates, the heirs

or proprietors of which are incapacitated from managing them themselves.

For almost all purposes the unit of provincial administration is the district or collectorate. The Presidency is divided into twenty-six such districts. Excluding the exceptional cases of Madras City, the Nilgiris, and Anjengo, a district contains on an average 7,000 square miles and 1,879,000 inhabitants. The chief executive and magisterial officer in each is called the Collector and Magistrate, while the chief judicial officer is the District and Sessions Judge. The powers and duties of the Collector-Magistrate embrace almost every subject which comes within the functions of a civilised government; and he is not only responsible, as his title implies, for the collection of revenue from the land, the customs, the salt and excise monopolies, etc., etc., and for the supervision of the magistrates within his charge, but he has also to control the working of the various departments which deal with forests, irrigation, and police, jails, education, sanitation, hospitals, vaccination, roads, and so forth.

Each district is arranged into three or four sub-divisions, Taluks, under the immediate charge, subject to the Collector's control, of divisional officers, the majority of whom are deputy Collectors recruited in India; and these again are divided into taluks in charge of native tahsildars, assisted, when the work is specially heavy, by deputy tahsildars. Taluks are the units of District administration, just as districts are those of provincial administration. They are divided into *firkas*, in each of which a revenue inspector is in immediate charge of the details of revenue work. The ultimate unit for all fiscal and administrative purposes is the village. Each of these has a headman, who is responsible for the due collection of the revenue and possesses petty judicial power; an accountant who maintains its records and a varying number of menial servants under the orders of these two officers. Succession to all village offices is usually hereditary, and the powers and the duties of their incumbents have undergone but little change since the earliest days of which history gives any account. There are 84 sub-divisions, 231 taluks, and 657 *firkas* in the Presidency. The average area and population of a sub-division are 1,687 square miles and 454,752 inhabitants, and of a taluk 613 square miles and 165,363 inhabitants. The total number of villages is about 55,000.

District officers

The staff of each district, with two or three exceptions, includes (in addition to the Collector, the Judge, and the divisional officers) an Executive Engineer, a District Forest Officer, a District Medical and Sanitary Officer, and a Superintendent of Police, all of whom are generally Europeans.

They are immediately subordinate to the heads of the various departments to which they belong, and assist the Collector in the administration of these departments. There is further a Local Fund Engineer, who is in immediate charge of the roads, bridges and smaller public buildings of the district.

The local Legislative Council.

The laws in force in the Presidency comprise such of the enactments of Parliament and of the Governor-General in Council as apply to it, those of the local regulations made prior to 1834 which are still unrepealed, and the measures passed from time to time by the local Legislative Council, consisting of—

- (1) the members of the Executive Council *ex-officio*;
- (2) ninety-eight elected members; and
- (3) such number of members nominated by the Governor as, with the addition of the Members of the Executive Council, shall amount to twenty-nine; of the Members so nominated—
 - (a) not more than nineteen may be officials, and
 - (b) six shall be persons nominated as follows, namely:—
 - (i) five to represent the following communities namely, the Paraiyans, Pallars, Valluvans, Malas, Madigas, Chakkiliyans, Tottiyans, Cherumans and Holiyans, and
 - (ii) one to represent the inhabitants of backward tracts

Civil courts in Madras.

Civil justice is administered in Madras City by three civil courts: namely, the Small Cause Court with jurisdiction in suits up to Rs. 2,000 in value, the City Civil Court with jurisdiction up to Rs. 2,500 in value in suits which are not cognisable by the Small Cause Court, and the High Court.

The High Court consisting of a Chief Justice and five puisne Judges appointed by the Crown, has original jurisdiction over all suits arising within Madras City except those that are less than Rs. 100 in value and are triable by the Small

Cause Court; powers of appeal and control over all courts within the Presidency; and under its letters patent insolvency, testamentary, admiralty, and matrimonial Jurisdiction.

Outside Madras City civil courts are of five classes: Civil courts in the districts, namely, Village, Revenue, District *Munsifs*, Subordinate Judge's, and District Court.

Village Courts are presided over either by village headman or by benches of village elders, and ordinarily have jurisdiction up to Rs. 20; their decrees are subject to revision by District *Munsifs*. Revenue Courts are held by divisional officers. District *Munsifs* hear the majority of the suits in the district. Subordinate judges are practically assistants to the district judges.

There is a District Court in every district in the area except the Nilgiris (which are subject to the District Court of Coimbatore) and in Malabar there are two.

The Police organisation consists of an Inspector-General of Police, Police, six Deputy Inspectors General, 34 Superintendents and 77 Assistant or Deputy Superintendents and 29,365 other ranks. Excluding the City of Madras the presidency is divided into four 'ranges' each under a Deputy Inspector General. Each range consists of from 6 to 7 districts, each under a Superintendent of Police assisted by one or more Assistant or Dy. Superintendents. A fifth Deputy Inspector-General is in charge of Rys. and Criminal Investigation Dept. The City of Madras is under a separate Deputy Inspector-General styled 'the Commissioner of Police' assisted by two Deputy and two Assistant Commissioners.

Each district is divided into sub-divisions consisting of two or more police circles. Each circle in turn contains a number of Police stations. The sub-divisions are in charge of Assistants or Deputy Superintendents, the Circles in charge of Inspectors and the stations in charge of Sub-Inspectors. Each Station has a fixed number of head constables and constables.

An armed reserve force is maintained at every district headquarters (except at present the Nilgiris).

Criminal justice is administered by courts of various Criminal courts, powers. Offences under the penal code are classified according to their gravity as sessions cases, or as triable by (a) a

first class, (b) a second class, or (c) any magistrate. Sessions cases include all the graver forms of crime. They are enquired into by a magistrate and then if a *prima facie* case is made out are committed for trial to a Court of Session.

Courts in Madras City.

In Madras City, the four Presidency magistrates have first class powers subject to appeal to the High Court, and the High Court is the Court of Sessions.

Magistrate Courts in the District.

Outside Madras City there are Village, Bench, Special, Subordinate, Sub-divisional, and District Magistrates, and Sessions Judges. Village Magistrates are the village headmen.

Foreign Consuls.

The following is a list of Consuls, Vice-Consuls and Consular Agents in the area :—

His Britannic Majesty's Consul for Pondicherry and Karikal.

Madras.—Consul for United States of America.

„ Vice-Consul for United States of America

„ Consular Agent for France.

Telicherry.—Consul or Agent for France.

Madras.—Consul for Belgium.

„ Consular Agent for Italy.

„ Vice-Consul for Portugal.

„ Vice-Consul for Brazil.

„ Consul for Netherlands.

„ Consul for Norway.

Toticochin } — Vice-Consul for Norway.

Cocanada. }

Madras.—Consul for Sweden.

„ Consul for Persia.

„ Consul for Denmark.

„ Consul for Chile.

Land Revenue.

By immemorial law and custom the ruling power is to a share (*melvaram* or superior share) in the produce of the land, the remainder being the ryot's share or *kudivaram*. Subject to the payment of a stated proportion of the produce, the

ryot's right of hereditary occupancy of the land for agriculture is complete, and ordinarily he has an unrestricted power of alienation.

The land revenue system has two main divisions: namely, the *ryotwari*, in which the state maintains its direct relations with the ryot; and *zamindari* (including *jagirs* and *inams*), or the system of intermediaries and transferees of interest between the State and the cultivator.

The original basis of the assessment is a share of the crop. By ancient Hindu law the sovereign was entitled to a portion (usually one-sixth to one-fourth) of the gross produce, but the practice of many centuries disregarded the theoretical share. Inscriptions of the eleventh century in Tanjore show that the Chola kings took half the produce, a share which was increased to 60 per cent. and upwards in later years.

When the British arrived one-half to three-fifths was found to be the generally accepted proportion from irrigated lands, and about two-fifths from unirrigated; on valuable crops the share was smaller, but the cash assessment greater. In 1864 it was finally settled that to avoid pressure on the poorer lands, the assessment should not be based upon a share of the gross, but should be half the net produce and should be fixed in cash for thirty years: since that date this has invariably been the rule.

The assessment is nominally one-half the net produce; but, since over vast areas both 'wet' and 'dry' land are subleased at a half or larger share of the crop or at from twice to five or more times the assessment, it is clear that the nominal proportion is often a fourth, and, on the richer lands a sixth or even less of the net produce. On the poorest lands, however, which just return expenses even in normal years with but a small or moderate profit on stock, the assessment is as high as the land can reasonably bear.

After Land Revenue the next most considerable item in the revenue of the Government is derived from Salt, Excise or Abkari (intoxicating liquors or drugs), and Customs. The department which deals with these three matters is administered by a small army of 11,000 men, controlled by the Separate Revenue Branch of the Board of Revenue. This branch also manages one other important item of miscellaneous revenue: namely, Stamps.

In Madras the receipts from opium do not occupy so important a position as in some other Provinces. The opium revenue is derived partly from an excise duty of Rs. 42 per seer, and partly from rents and fees for the right of retail sale.

The duty on all salt, Government or excise, Rs. 2-8-0 per maund of 82½ lbs., and is ordinarily payable before the salt is removed from the factory. In addition to the duty a small charge (usually 3 annas a maund) is made to cover the cost of the manufacture of Government salt.

The principal articles from which the excise (*ahkari*) revenue is derived are arrack, toddy, liquor, and intoxicating drugs prepared from the hemp plant (*cannabis sativa*). The revenue from arrack, or country spirit, consists partly of a fixed duty (now for the greater part of the Presidency Rs. 8-7-0) on every gallon of proof strength issued from the distilleries, and partly of fees for the privilege of sale.

The toddy revenue is derived partly from a tax on each tree tapped, and partly from fees for the right of retail sale.

The excise duty on foreign spirit is Rs. 18-12-0 per proof gallon, and on beer 0-6-6 per gallon.

Licensed vendors must obtain their drugs from holders of stocks at Government storehouses established by Government upon payment of duty at the rate of Rs. 20 per seer of ganja and 3 annas per seer of bhang. At present the revenue from Income-tax is administered by the Chief Commissioner of Income Tax who is also a Minister of the Board of Revenue.

The customs revenue is derived from duties on imports from outside British India brought in by land or by sea. The only land customs are those on goods imported from the French possessions. Of the sea customs collections, 80 per cent., is derived from import duties, the exports which are taxed being rice, paddy (unhusked rice), tea, jute, raw and manufactured and raw hides and skins.

The coins which are now legal tender to an unlimited amount are—

(1) All gold coin of current weight coined at any mint in the British Empire.

(2) Silver rupees and half-rupees.

Gold coin is legal tender at the rate of 10 rupees per £1. Rupees can no longer be coined on private account. The rupee and half are legal tender for all payments so long as the coin is not defaced or has not lost more than two per cent. of its weight. Copper and nickel coins and silver ¼d. ½d. rupee have legal tender up to one rupee. Nickel pieces of one anna, two annas and four annas have lately been coined, and bronze has taken the place of copper. 100,000 rupees (written 1,00,000, are called a lakh, and 10,000,000 rupees or 100 lakhs (written 1,00,00,000) are called a crore.

Notes are issued by a Government Department, no banks being allowed to issue them. The Department of Paper Currency issues currency notes payable to bearer on demand of the denominations of 5, 10, 50, 100, 500, 1,000, and 10,000 rupees.

The 5, 10, 50 and 100 rupee notes are legal tender everywhere in India but other notes only within their own circle. Ordinarily, any Government Treasury, or sub currency of which there are about 1,500 in India, will cash notes if it can conveniently do so.

The Travancore State has its own currency, the coins being minted in the State mint at Trivandrum. The silver coins of British India circulate freely throughout the State. Cochin has now no currency of its own, but all British Indian coins are current. In Pudukkottai the ordinary currency of the State is the British Indian coinage, but a small round copper coin, worth one-twentieth of an anna and called *annan-karu*, is also current. This is minted for the State, and bears on one side the word *vijaya* (victory) in Telugu, and on the other a representation of the Raja's tutelary goddess Brahadamba.

The principal bank is the Imperial Bank of India, Madras. Banks. The Imperial Bank has branches at Alleppey, Bangalore, Bellary, Berhampore (Ganjam), Bezwada (Kistra), Calicut, Cocanada, Cochin, Coimbatore Erode, Guntur, Madras (Mount Road) Madura, Mangalore, Masulipatam, Negapatam, Ootacamund, Rajahmundry, Salem, Tellicherry, Trichnopoly, Trivandrum, Tuticorin, Vizianagram.

Other Banks are:—

Chartered Bank of India, Australia and China, Ltd., Branch at Madras.

The Mercantile Bank of India, Ltd., Branch at Madras.

The National Bank of India, Ltd., Branches at Madras, Tuticorin, Cochin.

The Indian Bank Ltd. Madras, Branches at Madras and Cochin.

The Tata Industrial Bank, Ltd., Branch at Madras.

The P. and O. Banking Corporation, Ltd., Madras.

The Raikut Industrial Bank Ltd., Madras.

The Madras Central Urban Bank, Ltd., Madras.

Weight and
measures.

The weights actually in use vary considerably in different parts of India, even when the same name is adopted. That is to say the absolute weight of the seer varies a great deal, but as a rule the scale of 40 seers—1 maund holds good where these terms are used. Thus the maund is 82 and two-sevenths pounds Avoirdupois in Bengal, about 28 pounds in Bombay, and about 25 pounds in Madras. Moreover they often vary for different commodities. The weights adopted in Government transactions and by the railways are those which were established under a regulation of the Honourable East India Company in 1833. By this regulation the tola (a rupee weight one tola) or sicca weight was fixed at 180 grains Troy, and the other denominations of weight are derived from this unit as follows:—

8 ruttees=1 masha=15 grains Troy.

12 mashas=1 tola=180 grains Troy.

5 tolas=1 chittack=900 grains Troy.

16 chittacks=1 seer=2½ lb. (or 2 and one-seventeenth lb. Avoirdupois).

40 seers=1 imperial maund=82 and two-sevenths lb. Avoirdupois.

Dry and liquid goods are sold by weight in Calcutta, Bombay and Madras, as there are no standard measures of capacity.

Besides the above there is a factory weight, in which the maund is equivalent to about 74 and two-thirds pounds, and a bazar weight in which the maund is 82 and one-eighth pounds. In Madras the following weights are also used:—

5 seers=1 viss.

8 viss=1 maund (nearly 25 lb. Avoirdupois).

20 maunds=1 khandi (nearly 500 lb. Avoirdupois).

Special weights for particular articles include the following:—

Cotton	is weighed per bale of	382 lb.
Wool	ditto	336 lb.
Jute	ditto	400 lb.
Wheat	is weighed per bag of	2 cwts.
Oilseeds	ditto	1½ cwt. (usually)

An Indian Act of 1889 declared the imperial standard yard (with the foot and inch) to be the legal standard measure of British India. In Bengal the gaz is equivalent to 1 yard; but this measure of length varies in different localities from 24 to 36 inches.

Approximate native measurements of length:—

4 angul (finger)=1 muth (fist)=3 inches.

21 angul=1 hath (hand)=18 inches.

15 girahs=1 gaz=1 yard.

1 kos=2 miles.

For square measure the native standard (with some considerable variations) is:—

1 bigha=20 biswas=1,600 square yards=one-third acre.

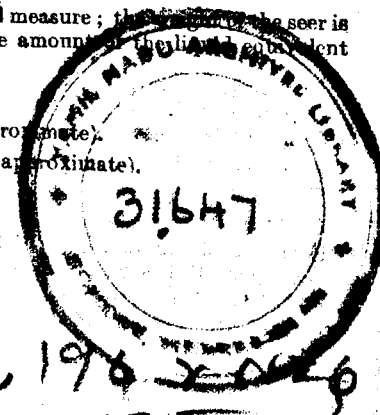
In the Customs returns particulars of weights and measurements are stated according to the English system, ounces, pounds, hundredweights; feet or yards; gallons, and, for timber, cubic feet.

There is no general liquid measure; the seer is the native standard, but the amount of the liquid equivalent varies according to locality.

4 pawa=1 seer.

1 seer=1½ pints (approximate).

1 maund=7 gallons (approximate).



Madras.

Madras.—The serious disadvantage of the absence of any natural harbour at this port, where the surf is continual, has been met by the construction of an artificial harbour of Masonry.

Old entrance.

The area of the enclosed harbour is 196 acres. A new entrance has recently been constructed on the north side, and the old entrance on the east side closed up. There is a sheltering arm east of the new entrance which gives a berth for vessels drawing 26 feet. Recent improvements include wharfs for vessels drawing 30 feet, a quay for lighters, boat-basin, timber pond, etc., etc. During the cyclone season (April to June, and October to November) steamers have occasionally to leave the harbour and proceed to sea for safety.

South Arcot District.
Cuddalore.

Cuddalore is 125 miles by rail south of Madras. Chief port of South Arcot. Coasting steamers call periodically, and foreign vessels also touch.

Tanjore District.
Negapatam.

Tanjore possesses fifteen ports, of which Negapatam is by far the most important. Negapatam, until 1845, was the chief port south of Madras. There is a lighthouse 80 feet high, fitted with a revolving light. It is an important centre of emigration to the Straits Settlements and Natal.

Ramanad District.

The sea-borne trade of the district passes through the ports of Devipatam, Kilakarai, Pamban, Dhanushkodi and Tondi.

Pamban the largest seaport in Ramanad District. The Ceylon Government has an immigration depot at Madanapam which has been connected with Pamban by a railway running over a swing bridge at the pass.

Tinnevely District.

The only important port in the Tinnevely District is Tuticorin though Kulasekarapatnam and Kayalpatnam are also recognised ports. Tuticorin, the second seaport of the Presidency, and southern terminus of the South Indian Railway, is well sheltered, but has only 12 feet of water at the entrance to the harbour. Vessels other than country craft have accordingly to anchor 4 to 5 miles from the land, and their cargo is brought ashore in boats ranging from 20 to 50 tons burden. About 60 large boats with a total capacity of nearly 1,500 tons ply in the port, and 500 boatmen are always available. The port has an iron screw-pile pier, besides a wooden jetty for light work and six private jetties owned by European firms.

Since the opening of the Dhanushkodi route to Ceylon the daily mail service from Tuticorin to Colombo has been abandoned.

A scheme involving an expenditure of Rs. 4 lakhs for making a deep water harbour at Tuticorin is now under the consideration of Government. When completed there will be a large open basin at the harbour end connected with the sea by a land lock canal about a mile long across Here Island.

The chief ports in Malabar are Cochin, Calicut, Tellicherry, Cannanore, Beypore, Badagara and Poonani. The sea-borne coasting traffic is mainly carried in native craft called *pattamars*. There are thirty-nine ports and sub-ports, but these afford little protection from bad weather except for the smaller boats that can enter the mouths of the river on which many of them are situated. Coasting steamers of the British India and Asiatic lines call at the chief ports frequently except during the monsoon, and both lines carry passengers.

Cochin.—Chief port of Malabar and third in importance in the Madras Presidency. The backwater forms a magnificent natural harbour several square miles in area, with a deep-water basin of 7 to 9 fathoms near the mouth, which is kept from silting up by the heavy scour of the tides. The bar is at a distance of about a mile from the shore, and carries a maximum of 18 feet of water and a minimum of 12 feet. At present steamers anchor about two miles off the shore in $5\frac{1}{2}$ to $6\frac{1}{2}$ fathoms.

The new scheme for Cochin Port has now passed the experimental stage, and designs have been prepared to enable ships to enter the harbour and moor in quiet water.

Calicut.—Second port of Malabar and fourth in the Presidency. The British India Steam Navigation Company's steamers call here weekly during the fine weather. There is a screw-pile pier 174 yards in length near the northern end of the town. Vessels should not anchor to the southward, the bottom being foul and rocky.

Tellicherry.—Third port in Malabar. Large vessels anchor well out in 6 or 7 fathoms when there is a possibility of unsettled weather, but in the fine season they anchor in 5 fathoms, soft mud, nearly $1\frac{1}{2}$ miles from the rocks.

Cannanore. Cannanore.—Fourth port in Malabar. The British India and Asiatic Steam Navigation Companies' steamers call regularly in fine weather (September to May). Anchorage in 5 fathoms can be found at about $1\frac{1}{2}$ miles from the fort point, off which rock ground extends for some $1\frac{1}{2}$ of a mile.

Mangalore. Mangalore.—Port and chief town of South Kanara District. Steamers and large vessels are obliged to anchor outside the back water, but the Arabian *bungaloes* and native craft, of which more than 2,000 enter annually, can cross the bar. Reclamations and improvements, including a pier and a tramway, have lately been completed at the wharves at a cost of Rs. 70,000.

Malpe. Malpe is the best natural port in the district, the roadstead being sheltered by the island of Darya Bahadurgarh.

PORTS IN NATIVE STATES.

The chief ports in Travancore are Kolachel, Quilon and Alleppey. About 15 to 20 steamers and 40 to 50 native craft touch at Kolachel annually during the shipping season, September to April.

Alleppey is the chief seaport and is 49 miles north of Quilon railway station, and 39 miles south of Erankulan station.

FRENCH PORTS.

Pondicherry. Pondicherry is a regular port of call for British India and other coasting steamers, also direct cargo steamers to Europe. The Messageries Maritimes call here monthly passing to and from Colombo.

Mahe. Mahe.—A small French settlement on the West Coast, is an open roadstead. The port is of no importance, and steamers do not call regularly.

Karikal.—On the Coromandel Coast, south of Pondicherry is a port of no particular interest.

Mercantile Marine. The British India Steam Navigation Company, the Asiatic Steam Navigation Company, the Clan Line and the Hansa Line call at all ports within the area. The Peninsular and Oriental Steam Navigation Company, the Australian and Indian Line, the Natal Direct Line and the North German Lloyd steamer call at Madras only, while the Ellerman Line calls at Madras and Pondicherry.

FACILITIES FOR THE EMBARKATION AND DISEMBARKATION OF TROOPS.

As far as the Madras harbour is concerned, steamers are now able to lie along side the South and West Quays of the Harbour and trains can be run alongside all steamers lying at these Quays at any time. All other ports are open roadsteads and troops would have to be embarked or disembarked in open boats, through the surf, an operation involving considerable risk. It is worth noting that during the French wars the rival fleets made Trincomalee (a land locked harbour on the North East Coast of Ceylon) a settling base and place of refuge from the North East monsoon, owing to the lack of harbours on the Coromandel Coast.

CHAPTER IX.

COMMUNICATIONS.

Madras Area.

Roads.

The roads in the area are almost all maintained by the District Boards. A few which traverse hills are in charge of the Department of Public Works.

A Road Board has been appointed by the Government of Madras to consider and advise on road policy throughout the Province. This Board includes a Military representative, usually the C.R.E., Madras District.

The chief lines of through communication are the northern trunk road from Madras to Calcutta: the southern to the Travancore frontier, and the western to Calicut.

These and many of the other main lines were originally aligned in accordance with military needs.

The construction of feeder roads to railways is a point which now receives much attention. The railways have, in some districts, changed the whole course of the old trade routes.

The chief roads made during the last twenty years by the Public Works Department have been the Pottangi-Koraput and Pottangi Ghat roads in Vizagapatam; the Vayittiri-Gudalur road in the Wynad; the Bodinayakkanur-Kottagari road in Madura; the Ghat road to Yercaud on the Shevaroy Hills. The Ghat Road to Kodai Kanal on the Palni Hills and the roads opening out the coffee plantations on the Anai-malai Hills.

Salem.

The only trunk road is that running from Vizagapatam to the Orissa frontier *via* Berhampur. Except in Goomsur Taluk the low country is well supplied with communications.

Vizagapatam.

The northern trunk road runs parallel to the coast. Another trunk branches from this to Vizianagram and hence to Bihar *via* Parvatipuram and to the Central Provinces *via* Jeypore. There is a trunk road from Ramabhadrapuram to Kamptee *via* Bobbili. Lateral communications in the low country are good.

Chodavaram.

The northern trunk road runs through the district from Rajahmundry to the Vizagapatam frontier. The district is well supplied with metalled roads except in the Agency tracts when

the only roads are those leading to Addatigala and Chodavaram and a few miles in Polavaram.

The northern trunk road runs through the District from Kristna Bezwada *via* Ellore to Rajahmundry. Another trunk road runs from Masulipatam *via* Bezwada to the Hyderabad frontier. These are connected by branch roads one of the most important running from Masulipatam to Nuswid *via* Gudivada.

The northern trunk road runs through the district from Guntur. Sitanagram *via* Guntur to Nellore. Branch roads run from Guntur to the Hyderabad frontier and to Kurnool.

The southern portion of the district is badly in need of metalled roads.

The northern trunk road runs from North to South through Nellore, the District parallel to the railway passing through Ongole Nellore and Gudur towards Madras. Another trunk road runs East and West from Ongole running West to Cumbum. Important branch roads run from the coast through Kandukur and Nanigiri, and from Nellore to Cuddapah. The road system of the District is by no means fully developed.

Trunk roads run from Kurnool to Cumbum with a branch Kurnool South to Cuddapah and from Kurnool to Bellary *via* Anantapur. The Nandikotkur and Nandyal Taluks are provided with good roads. The remaining four taluks are deficient in road communications. There are two ghat roads over the Erramalas. Neither of the roads across the Nallamalais is much used now.

Trunk roads run north from Chittoor to Cuddapah and Anantapur and south to Vellore and Madras. A road branches from the latter at Palmanor into Mysore Territory through Kolar to Bangalore. This is not at present classed as a trunk road but it is proposed to schedule it as such.

Well provided with roads. The southern trunk road runs Chinglepet from Madras into South Arcot parallel to the Railway through Chinglepet. There is a trunk road running west from Madras into North Arcot and the northern trunk road running from Madras into Nellore.

Well provided with roads. A trunk road runs east and west North Arcot through Wallajapet and Vellore and another north and south through Vellore to South Arcot.

South Arcot.

With the exception of northern half of Kallakurchi and the western half of Vriddhaachalam taluk the District is well provided with roads. The southern trunk road runs through the District *via* Villapuram and there is a trunk road from Cuddalore on the coast crossing the former and running into North Arcot.

Coimbatore.

Trunk roads run from Coimbatore as follows:—

North *via* Mettupalayam to Nilgiris.

To Mysore Frontier *via* Annur, Satyamangalam.

Chamrajanagar and Nanjangod.

East *via* Bavani to Salem and Madras. The ghat road to Vercaud in the Shevaroy's branches at Salem.

To Trichinopoly *via* Karur.

To Calicut *via* Palghat.

It is proposed to schedule as trunk roads the route from Coimbatore to the Annimalais *via* Pollachi and to the Cochin frontier *via* Kollengode.

The southern portion of the District is well supplied with communications.

Nilgiris.

Ootacamund is the centre of the road system. From thence an excellent road runs through Wellington and Coonoor to Mettupalayam.

A road runs west across the downs to Gudalur and thence branches to Mysore and to Malabar either by the Nadgani ghat and Nelambur or by Vaiytti.

Coonoor and Wellington are connected to Kotagiri by a good road as is Ootacamund, by an indifferent one.

Malabar and South Canara.

A good main road runs along the coast from Calicut to Cannanore and Mangalore to the Bombay frontier. There are several unbridged rivers which have to be crossed by ferry.

From Calicut a trunk road runs to Coimbatore *via* Malappuram branching to Manjeri and the Nilgiris. There is an alternative route to the Nilgiris *via* Vaiytti.

There are also roads to the Wynad and Nilgiris from Tellicherry and Cannanore and from Mangalore and Kasaragod to Mercara and Mysore.

The District is on the whole well supplied with roads but there are many unbridged rivers.

Stone for road making is scarce in the District. The most important main road is from Trichinopoly to Tanjore and thence to Negapatam.

The only trunk road is the great southern trunk road running from Trichinopoly through Dindigul, Madura, and Palamcottah. There are important branch roads from Palamcottah to Tuticorin and Quilon (Travancore). There is a road branching off from the Southern trunk road south of Dindigul to Kodaikanal in the Palni Hills and the Travancore frontier.

Travancore is well provided with roads. The most important Travancore roads are the trunk roads from Trivandrum to the northern frontier (153 miles) to the southern frontier 53 miles to the eastern frontier (65 miles) and to Quilon on the coast (45 miles).

All towns and important villages in the State except those Cochin on the seaboard are connected with good roads which meet all the metalled roads in Malabar and Travancore that touch the Cochin frontier.

The State is well provided with roads which are kept in good condition. Pudukottai town is connected with Trichinopoly and Tanjore by road.

The only roads are the Rampur Pass over the Erramalas Banganapalle running from East to West through the heart of the State and the Panien-Owk connecting Panien Railway Station with Banganapalle Town. The former is now little used; the latter which is 17 miles in length is in good condition.

Further detailed information of all roads will be found in the Madras District Route Book.

The railways of Madras are the—

Railways

Madras and Southern Mahratta Railway; and the South Indian Railway.

The Madras and Southern Mahratta comprises a number of sections, and is a Guaranteed State Railway.

Madras and
Southern
Mahratta
Railway.

The system is comprised of the following :—

	Broad gauge (5' 6") miles.
(1) Madras to Jalarpet	132
(2) Madras to Raichur	351
(3) Madras to Waltair	485
(4) Samalkot to Cocanada	10
(5) Wallajah Road to Ranipet	4
(6) Guntur to Tenali Rly.	16
(7) Tenali to Repalli	21
	Metre gauge (3' 6") miles.
(8) Dharmavaram to Pakala	141
(9) Guntakul to Masulipatam	328½
(10) Kattapadi to Gudur	123
(11) Dvonachalam-Kurnool	32

Except from Madras to Arkonam which is double, the system is a single track throughout. It connects with the Great Indian Peninsula Railway at Raichur, with the Bengal-Nagpur Railway at Waltair, the Nizam's Railway at Bezwada, and the South Indian Railway at Madras, Arkonam, Katpadi and Jalarpet.

From the section of the East Coast Line worked by the Bengal-Nagpur Railway (which is 213 miles in length) runs the Parlakimedi Light Railway (25 miles, 2' 6" gauge) belonging to the Raja of the Zamindari of that name.

The South Indian Railway is a Guaranteed State Railway, and is comprised of the following Sections :—

MAIN LINE.	Metre Gauge.	Miles.
<i>Branches.—</i>		
East of Gingee River to Madras Beach to Dharmashekodi	..	440.12
Pondicherry 7.55 miles Chidambur to Arkonam	..	30.25
French Govt. Villupuram to Pondicherry	..	24.32
Villupuram to Katpadi	..	38.03
Tanjore District Board Mayavaram to Arastangl	..	90.46
French Government Perambur to Karalkudi	..	14.66
Tanjore District Board Tiruturai to Agastiyampalli	..	22.80
Tanjore to Nagore	..	32.89
Tanjore District Board Nidamangalam to Munnargudi	..	8.58
Trichinopoly to Kallai	..	87.41
Madurai to Tuticorin	..	98.75
Maniyachi to Shencottah	..	67.75
Travancore State Shencottah to Trivandrum	..	96.25
MAIN LINE.	Broad Gauge.	
<i>Branches.—</i>		
Jalarpet to Mangalore	..	417.72
Salem District Board Suramangalam to Salem Town	..	3.86
Palanur to Mettupalaiyam	..	25.75
Olavakkot to Palghat	..	2.47
	Metre Gauge.	
Kallar to Coonoor Rack	..	28.96
Remainder Adhesion.	..	
Coimbatore Dist. Board	..	25.04
Cochin State	..	64.75
	Feeder Lines—3' 6" Gauge.	
Tirupattur to Krishnagiri	..	25.38
Morappur to Hosur	..	78.40
<i>Running Power over the line of E. and S. M. Railway.</i>		
Now exercising the power up to Jalarpet only. (132.00 miles).	Madras Central to Bangalore	.. 219.00
Steamer Service	Dharmashekodi to Talaimannar	.. 22.00

The whole of the South Indian Railway is constructed on the metre gauge (3' 6" inches) except the line from Jalarpet to Mangalore, Suramangalam to Salem Town, Palanur to Mettupalaiyam, and Olavakkot to Palghat which are constructed on the standard broad gauge 5 ft. 6 inches. The track is single track throughout. It connects with the Madras and Southern Mahratta Railway at Madras, Arkonam, Katpadi and Jalarpet.

The Tanjore District Board has constructed 99 miles of metre gauge line, worked by the South Indian Railway. Other Boards contemplate the construction of similar lines.

Among projected lines are that from Raipur in the Central Line projected Provinces to Vizagapatam (359 miles).

The extension of the railway across the tidal channel to the island of Rameswaram has been completed, and is included in the above statement. The Scheme to make a Port for ocean-going vessels at Panbani has been dropped.

A line has lately been completed for the Tinnevely District Road from Tinnevely to Tiruchendur a distance of 38.18 miles.

A line has been surveyed from Shoranur to Nilambur via Perintalmanna to open up the Moplah Country.

The Railway companies chief Workshops at Negapatam are now to be transferred to Trichinopoly, and work has been commenced on this.

Tramways.

The only public tramway at present running is the electric system in Madras City. This is nine miles in length, and works on the overhead trolley method.

Maritime Communications.

The following are the chief shipping companies:—The British India Steam Navigation Company has regular mail services along the coast and a fortnightly service from London via Marseilles and Colombo to Madras. There is communication between Calcutta and East Coast ports, Madras, and Malabar ports; between Madras and Rangoon; between Rangoon and Northern Coromandel ports, and the Malabar ports.

The Asiatic Steam Navigation Company steamers call occasionally at Madras.

The Bibby Line from Liverpool to Rangoon call at Colombo. The Clan Line have regular services fortnightly from Glasgow and Liverpool to Madras.

The Compagnie des Messageries Maritimes has a Branch line to Pondicherry (French) from Colombo.

Inland Waterways.

The chief navigable waterways in the area are the canals in the deltas of the Godavari (493 miles) and the Kistna (307 miles) and the Buckingham canal (262 miles). All these are connected and thus place Madras City in direct communication by water with the deltas. On the Godavari canals there are four Government steamers, and on those in the Kistna delta three.

The Godavari and Kistna canals, like most others, were primarily for irrigation only, but there were strong reasons for

applying these canals to navigation. During many months they carry off all, or nearly all, the river supply, and so cut off the upper waters of the river from the seaboard. They traverse fine and fully cultivated deltas in which there are no great falls to be overcome, and which are ill provided with roads and other means of communication, while the people on the coast are accustomed to the use of boats. The existing canals radiate from the head-works at Dowlaishwaram and Bezwa, towards the sea, which connects their lower ends, while the head of each system is connected with the other, with the upper waters of the Godavari and the Kistna, with the Buckingham canal, and with the railway and telegraph system of the country.

The Karnool-Cuddapah canal has also been adapted for navigation. It has no water connection with the sea, but is connected with two railways at Nandyal and Cuddapah. The Buckingham canal was constructed solely for purposes of navigation. The many miles of natural waterways that are formed by river backwaters, more especially on the west coast, are navigable to a very great extent without artificial aid.

The main lines of internal telegraphic communication that pass through the Madras area are:—

1. Calcutta to Madras via the East Coast, i.e., along the railways.
2. Bombay to Madras (along the Great Indian Peninsula and Madras Railways).
3. Bombay to Calicut (via Bangalore and Mysore).
4. Madras to Calicut (via Jalarpet and Pollanur).

There are two telephone exchanges in Madras, one for Government offices worked by the Telegraph Department, and one a civil exchange. There is also telephone communication between the Cordite Factory (Aravankadu) Wellington, and Ootacamund.

The Indian Telegraph Department transfers telegrams to the Eastern Extension, Australasia, and China Telegraph Company at Madras. It also interchanges traffic with the telegraph systems of Ceylon and Portuguese India.

Details regarding visual signalling will be found in Appendix A.

Telephones.
Cables communication with other countries.
Visual signalling.

Radio Telegraphy—

- (a) There is an installation at Fort St. George.
- (b) Range for commercial working to similar station with crystal detector is 600 miles.
- (c) Range for commercial working to similar station with amplifier is 2000 miles.
- (d) Station with which it is normally in communication, Port Blair, Secunderabad.
- (e) At present the number of operators is 3.
- (f) Hours of working are continuous.
- (g) No additional operators required to keep open day and night.

There is also a wireless installation at Saint Thomas Mount which is mainly used for communicating with ships at sea. Its range is two hundred miles.

Bangalore Brigade Area.

In Mysore trunk roads run through all the district headquarters to the frontiers of the State, connecting the east coast and adjoining British districts by way of the Mysore table land with the west coast. A good system of local roads radiates from each district headquarters to all parts of the district.

The principal main road communications are given in the following table :—
Main road communications in Mysore.

Reference to Route Book.	From	To	Miles.	Nature of road.	Water and supplies.	Railways.	Road touches Railway at
Main Route No. 1, page 37.	Bangalore	Hiriyar	98½	Fit for all transport.	Water good and plentiful except from mile 74½ onwards, during dry season.	Madras and Southern Mahratta Railway.	Tumkur .. 42·7
Route No. 26, page 549.	Hiriyar	Bellary	90·1	Ditto	Water and supplies good except at mile 109·4.	Ditto	Bellary.
Main Route No. 4, page 36.	Bangalore	Hosur ..	27	Ditto	..	..	..
Main Route No. 6, page 123 to Mysore.	Do.	Mysore	92½	Fit for all transport except during rain.	Good and sufficient for a large force.	Madras and Southern Mahratta Railway.	Hanslore and Mysore only.
Main Route No. 10, page 461.	Do.	Mercara	156½	Ditto	Plentiful and good except at mile 141·4 when it is very scanty during season, February to June.	Ditto.	Kempef .. 9·8 Biddadi .. 20·2 Chasepat .. 30 Maddur .. 49·2 Seringapatam 78

Main road communications at Mysore—contd.

Reference to Route Book.	From	To	Miles.	Nature of road.	Water and supplies.	Railway.	Road touches Railway at
Main Route No. 6, page 125.	Bangalore	Anantapur	133	Good as far as Mello 614, un- bridged river at mile 96, then cult. to cross. Tungabhadra R. river 100 m. mile before sable after heavy rain.	Good water and enough for large force.	Southern Maharatta Railway.	Yellandu 9.2 Ponkonda 98.4 Kottur .. 98.4 Gubana .. 103.4 Anantapur 132.7

From Perianpatam in Mysore trunk roads run west through Fraseerpet and Mercara by the Sampagi Ghat to Mangalore on the coast and through Siddapur and Virarajendrapet by the Periambadi Ghat to Tellicherry, with a branch from Siddapur to Mercara.

There is also a road from Hunsur in Mysore through Titimati to the Periambadi Ghat.

A main road runs longitudinally through Coorg from Mercara north through Semvarpet to Kodlipet and south through Virarajendrapet-Gonikoppal and Hudikeri to the Wynand frontier.

Local tracks or footpaths cross the country in all directions.

Further detailed information of all roads will be found in the Madras District Route Book.

The following sections of railways are included in the Bangalore Brigade area:—

Madras and S. M. Railway, standard gauge, 494 miles.

1. Bangalore to Jalarpet, 87 miles.*
2. Bowringpet to Kolar Gold Fields, 10 miles.
3. Gudiyatam to Erode, 147 miles (excluding Erode station).
4. Renigunta to Tungabhadra River (excluding Renigunta and Tungabhadra river stations), 250 miles.

Madras and Southern Mahratta Railway, metre gauge, 821 miles.

1. Bangalore to Harihar, 210 miles (excluding Harihar station and the bridge over the Tungabhadra).
2. Yeavantpur to Guntakal, 171 miles.
3. Guntakal to Cumbham, 164 miles (excluding Cumbham station).
4. Guntakal to Hospet, 70 miles (excluding Hospet station).
5. Bellary to Rayadurg, 33 miles.
6. Hospet to Kottur, 43 miles.
7. Dharmavaram to Pakala, 142 miles (excluding Pakala station).

* The portion from Gudiyatam to Jalarpet only (miles 38) worked by Madras and S. M. Railway, the remaining portion being worked by the S. I. Railway.

South Indian Railway, 2' 6" gauge, 43 miles.

1. Tiraputtur to Krishanagiri, 25 miles.

2. Morappur to Dharmapuri, 18 miles.

Telegraphs.

Telegraphs in the area follow the railway lines.

Telephones.

There is a Telephone system in Bangalore worked by the Telegraph Department to which are connected the Military and Civil Offices.

The Exchange is situated close to the Brigade Office and is linked up with the Mysore Government system Exchange in Bangalore City.

There is a small Exchange at Mercara to which the Government offices are connected. It is worked locally under the orders of the Commissioner of Coorg.

There is a civil Telephone Exchange connecting the civil and commercial element in the native city of Bangalore.

The Police and the Resident's communications between the two systems has to go through the central exchange and that to the Resident from the General Officer Commanding has to go through the police exchange as well.

Rivers.

None of the rivers in the area are navigable.

Visual signalling.

The various hills throughout the area facilitate signalling communication and are fully made use of for this purpose during manoeuvres, Staff Rides, etc. A scheme exists for visual communication between Wellington and Bangalore *via* Cloispet and Mysore, and also between Wellington, Malabar and the West Coast, *vide* Appendix "A."

APPENDIX "A."

VISUAL SIGNALLING IN THE MADRAS DISTRICT.

Notes.

In this report the information given under numbers (1), (2), (3), (4), (5) and (6) of the pages shewing Signal Stations with which direct communication is possible is as follows:—

1. Name of Visual Signalling Station.
 2. Exact description to shew the points where the instruments should be set up and any information that would help to identify it.
 3. Description of the best way of reaching the point.
 4. *Supplies.*—
 5. *Forage.*—
 6. *Water.*—
- } Available at the station in as exact terms as possible.

INDEX TO SIGNALLING STATIONS.

Map references refer to "India and Adjacent Countries" series I;
1,000,000 inches.

Station.	Code name.	Map reference.
West Hill (Calicut)	WHC ..	49-D.-1.
Calicut Roads	CLR ..	49-D.-1.
Kondotti	KDI ..	49-D.-1.
Muttayur	MYR ..	49-D.-1.
Tirurangadi	TGI ..	49-D.-1.
Kottakal	KTL ..	58-A.-1.
Malappuram Barracks	MPB ..	58-A.-1.
Otapara	OTP ..	58-A.-1.
Arikod	AKD ..	58-A.-1.
Melatur	MTR ..	58-A.-1.
Feroke	FKE ..	49-D.-1.
Perintalmanna	PTM ..	58-A.-1.
Hill 351	CEA ..	58-A.-1.
Nilambur	NBR ..	58-A.-1.
Edavanna	EDV ..	58-A.-1.
Nadghani	NGI ..	58-A.-1.
Urakuth Mala	UMA ..	58-A.-1.
Malappuram Police Barracks	MPS ..	58-A.-1.
Mukurti Peak	MKP ..	58-A.-1.
Karuvarkundu	KVK ..	58-A.-1.
Pandikhad	PKD ..	58-A.-1.
Manjeri	MJI ..	58-A.-1.
Wandur	WDR ..	58-A.-1.
Kalikavu	KLU ..	58-A.-1.
Dodabetta	DDA ..	58-A.-1.
Malappuram	MPM ..	58-A.-1.
Wellington	WLN ..	58-A.-1.
Mysore	MSR ..	57-A.-4.
Podanur	PDR ..	58-A.-2.
Coimbatore	CMR ..	58-A.-1.
Closeppe	KSP ..	57-B.-4.
Makalidrug	MKG ..	Not Shown.
Nandidrug	NGD ..	57-B.-3.
St. Andrews Church (Bangalore)	SAC ..	57-B.-4.
Rama Dev	RDV ..	Not Shown.
Whitefield	WTD ..	57-B.-4.

1. WEST HILL.

2. The Station may be placed anywhere within the keep.

3. Supplies.

S. and T. supply Depôt.

4. Forage.

5. Water.—A well. Good Supply of water.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuth Mala ..	310	21½	Flat Country, nothing to influence atmosphere and visual conditions.	Communication possible day and night June and July communication possible only at intervals.
Chiluv Road ..	285	5	Sea	Communication best at night by lamp.

1. URAKUTH MALA.

2. Signalling can be carried out from the top. All surrounding country is visible. Hill is 1,569 feet above sea level. Central Station for whole of country round about.

3. A track leads 1 furlong past the sixth milestone on the Malappuram Vengara road across paddy fields and up the hill. All supplies and kit must be carried by coolie.

4. No supplies of any kind available.

5. Forage.—Grass.

6. Water.—A small spring half way up the hill. Water brackish and rises up about February.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
West Hill ..	130	21½	Flat Country. Nothing to influence atmosphere and visual conditions.	Hello communication possible except during the monsoon, June—August.
Kondotti ..	321	6½	Clear line of vision ..	Ditto.
Mulayur ..	315	8½	Ditto ..	Ditto.
Thirurangudi ..	243	6	Ditto ..	Ditto.
Kottakkal ..	180	6	Ditto ..	Ditto.
Malappuram Barrocks ..	128	6	Ditto ..	Ditto.
Omper ..	99	10½	Ditto ..	Ditto.
Arikod ..	18	10½	Ditto ..	Ditto.
Melattur ..	92	18	Clear line of vision. Difficult to pick up.	Ditto.
Feroke ..	296	14	Undulating country. Ferroke itself is very thickly wooded country. Clear line of vision.	Ditto.
Hill 551 ..	68	18½	Undulating country. Clear line of vision.	Ditto.
Perintalmanna ..	115	18	Undulating country. Paddy fields and coconut plantations.	Ditto.
Nhambar ..	48	19	Undulating country. Clear line of vision.	Ditto.
Edavanna ..	47	12	Ditto ..	Ditto.
Kadghani ..	45	38	Difficult to see in the early morning owing to mist. Usually becomes covered in clouds after 14-00 hours.	Ditto.

1. FEROKÉ.

2. Station at S. E. corner of Railway Rest House, close to Railway Station.
3. It stands about 100 yds. on East side of Feroke-Manjeri road, approached by narrow lane and then a paved pathway leading up to it.
4. *Supplies.*—Eggs, milk, fowls and meat are available in the village.
5. *Forage.*—Forage and grain in plenty from local merchant. Very little available round Station.
6. *Water.*—A well about 50 yds. West of the Rest House. Water for animals from the Beypore River.

Signal stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Unkuth Mala ..	116	14	Undulating country. Very thickly wooded.	Helio and Lamp. Nothing likely to interfere with communication except during moonsoon, June-July.

1. MUTAYUR.

2. Signalling can be carried on from anywhere on the hill. Was held as a post by Government Troops during Moplah Rebellion of 1921-22.
3. Post is a hill some 200 yards on North-East side of the Manjeri-Feroke road at the 14th milestone.
4. *Supplies.*—Eggs, fowls and meat available in Mutayur Village in small quantities.
5. *Forage.*—Little grass. Grain available at Kondotti, about 4 miles distant.
6. *Water.*—Water from well in Mutayur. Water for animals in stream running under road at the 14th milestone—does not entirely dry up during the dry season.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Unkuth Mala ..	136	8½	Easily recognisable. Intervening ground—paddy field and coconut plantations.	Communication possible all the year except during the moonsoon—June-July.

1. KONDOTTI.

2. Signalling can be carried on from South-East of post. The Rest House where post is was used as a post by Government Troops during Malabar Rebellion, 1921-22.

3. A road leads up to the Rest House off Manjeri-Feroke road about 200 yards south of 16th mile stone on North East side.

4. *Supplies*.—Eggs, milk and meat available in Kondotti about 1½ miles away.

5. *Forage*.—Forage and grass available at Kondotti.

6. *Water*.—Large well where the road leads from the main road.

Signal station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuth Mala ..	141	6½	Paddy fields and coconut plantations. Nothing likely to interfere with visual signalling.	Communication by helio and lamp except during monsoon June—July.
Ongun ..	114	10	Paddy fields and coconut plantations. Nothing likely to interfere with visual signalling.	Communication by helio except during monsoon—June-July.

1. KOTTAKKAL.

2. Signalling with Urakuth Mala can be carried on anywhere on north side of the village. High open ground here where defensive post could be made.

3.

4. *Supplies*.—Eggs, milk, fowls and meat available in village.

5. *Forage*.—Grass in small quantities round post. Grain and Grass could be obtained in the village.

6. *Water*.—Plenty of wells in village, full of water all the year.

Signal Station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuth Mala ..	1	6	Open country. Nothing likely to interfere with visual conditions.	Communication with lamp and helio except during monsoon June-July.

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1. PERINTALMANA.

2. No visual communication possible from Perintalmana itself. A Signal Station could be established on hill 631. There is flat open ground at the top. It could be made a strong defensive post.

3. A path leads up the hill from about the 45th milestone on the Perintalmana-Manarakkat road. The hill is about 200 yards from the road.

4. *Supplies.*—
5. *Forage.*— } Supplies of any kind can be obtained in Perintalmana.

6. *Water.*—A well where road and path meet.

Signal Station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuth Mala ..	295	18	Hilly. Can be easily seen. Line of sight passing over flat topped hill.	Helio communication always possible except during monsoon June-July.

Note.—This would make an excellent Central station.

1. MELATTUR.

2. No signal station possible in Melattur itself. A good station could be established on hill 451 at the second milestone on Melattur-Karuvar-kundu road. Instruments could be set up anywhere on the hill.

3. Hill is easily recognisable. Animals could easily be taken up.

4. *Supplies.*—Very few supplies available in Melattur. Grass, but no grain.

5. *Forage.*—

6. *Water.*—Water can be obtained from wells at houses about the 1st milestone.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuth Mala ..	272	18	Easily recognisable	Helio and lamp communication except during the monsoon June-July.
Otapera ..	260	8½	Ditto	Ditto.
Karuvar-kundu ..	51	4	Ditto	Flag, helio and lamp.

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1. KARUVARKUNDU.

2. A signal station could be established on hill north of 7th milestone on Karuvarkundu-Kalikavu road. Instruments could be set up anywhere on the hill. It would make strong defensive position.

3. No track leading to hill, but leave the road about the 7th milestone. Possible to take animals to the top.

4. *Supplies.*—Very few supplies obtainable in village. Little grass, no grain.

5. *Forage.*—

6. *Water.*—Water available from wells on the road. Good stream for watering animals. West of road.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Undukoth Male ..	202	22	Easily recognizable. Nothing likely to interfere with visual signalling.	Helio communication.
Otapara ..	250	12	Ditto ..	Lamp communication.
Melattur ..	232	4	Ditto. ..	Flag, helio and lamp.

1. PANDIKKAD.

2. Signal Station about 30 yards west of Rest House.

3. Rest House easily recognisable, only large building close to Police Post.

4. *Supplies.*— } Eggs, fowls and meat can be obtained in moderate quantities in the village.

5. *Forage.*— }

6. *Water.*—A well in Rest House Compound. Water for animals at stream about 8th milestone on Pandikkad-Manjeri road.

Signal Station with which direct communication can be obtained from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Otapara	240	5	Easily recognizable on lower slopes of large hill.	Helio and lamp communication except during June-July.] monsoon

1. MANJERI.

2. Instruments should be set up outside most southerly building within police post. A special platform has been constructed on which instruments should be placed.

3. Can easily be recognised entering Manjeri from Malappuram, Police post and Court House are on the right hand side of the road, the whole being surrounded by a wall.

4. *Supplies.*—Meat, fowls and eggs can all be obtained in Manjeri.

5. *Forage.*—Grass and grain can be obtained in Manjeri.

6. *Water.*—Water from well within the post. For animals outside the post just below the signal station.

Signal Station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Chapara ..	140	5	Trees about 200 yards from Manjeri may interfere with communication. Station at present easily seen through these trees.	Flag, helio and lamp communication except during monsoon June-July.

1. OTAPARA.

2. Instruments should be set up on large platform of rock on the north side of post. Post is a strong defensive position.

3. Post hill 860 is easily recognisable on the westerly slopes of Pandalur Mala. A track some 2 miles long leads from Mankada Anakkyam road at about the 7th milestone. All supplies, etc., would have to be carried by coolies from the road.

4. *Supplies.*—No supplies obtainable on the spot. The Rajah of Mankada can supply eggs, fowls, meat, grain forage and coolies.

5.

6. *Water.*—Water can be obtained in small quantities from a spring about 800 yards south west of the post on the path leading to the post.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Malappuram Police Barracks.	251	5	Paddy fields and coconut plantations.	Flag, helio and lamp communication can be used except during the monsoon June-July.
Muharti Peak ..	51	31	A conspicuous peak ..	Helio communication. Best hour of day from 09-00—11-00 when peak usually becomes covered in clouds. In the early morning haze always over it.
Urangth Male ..	270	10	Easily recognisable. Signal Station on the highest point.	Helio communication except during the monsoon June-July.
Metattur ..	70	84	Paddy fields and coconut plantations.	Helio and lamp communication except during the monsoon June-July.
Poodikud ..	60	5	Paddy fields, the station appears to be in thick jungle.	.. Ditto.
Karuvarkundu ..	70	12	Nothing to interfere with visual communication.	Ditto.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Mandur	325	12	Nothing to interfere with visual communication. Station appears to be in midst of trees.	Flag, helio and lamp communication except during the monsoon June-July.
Kandott	304	14	Nothing likely to interfere with visual signalling.	Helio communication except during monsoon June-July.
Ashted	326	14	Ditto	Helio and lamp communication except monsoon June-July.
Edwanna	337	11	Ditto	Ditto.
RM 351	35	11½	Undulating country ..	Helio and lamp communication. Nothing likely to interfere with visual signalling except during the monsoon June-July.
Mandur	18	15	Undulating country ..	Helio communication. Nothing likely to interfere with visual signalling except during the monsoon June-July.

1. WANDUR.
 2. Instruments should be set up on east side of Rest House. Wandur itself lies in very low ground.
 3. Rest House is about 300 yards east of cross roads in Wandur on main road.
 4. Supplies.—Supplies of all kinds can be obtained in Wandur.
 - 5.
 6. Water.—A well in Rest House Compound.
- Signal Station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
RM 351	78	1½	Nothing likely to interfere with visual communication.	Flag, helio and lamp can all be used.

1. HILL 351.

2. Instruments should be set up on top of the hill. Flat top.

3. The hill is easily recognisable by a bare black rock on north side of Wandur-Kalikavu road. Approached from 8 miles 6 furlongs post on road, across paddy fields and up the southerly spur. Animals could be taken up. Would make strong defensive post.

4. *Supplies.*— } Supplies could be obtained in Wandur, about 2 miles

5. *Forage.*— } away. No grass available close to post.

6. *Water.*—From wells on the road.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Wandur	250	1½	Rest House can easily be seen with the naked eye.	Flag, helio and lamp communication.
Odappur	210	11½	On westerly slopes of Pandalur Mals easily recognisable.	Helio and lamp communication except during monsoon June-July.
Venkat Mals ..	244	10½	Top can be distinctly seen. Nothing likely to interfere with visual communication.	Ditto.
Kalikavu	112	6	Station on low wooded hill.	Flag helio and camp communication except during monsoon.

Note.—This hill would make an excellent central station.

1. KALIKAVU.

2. Instruments should be set up on the west of hill. The station is the hill about 300 yards N. W. of cross roads in Kalikavu.

2. No path leads to top of hill.

4. } Supplies in small quantities can be had in the village.

6. *Water.*—From wells in the village or from the river, for animals.

Signal Station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
HILL 351	292	5	Easily recognisable quite bare hill.	Flag, helio's, lamp communication.

1. ARIKKOD.

2. Instruments should be set up on south side of the Rest House.
 3. Rest House is approached by road with stiff gradient leaving the main road.

4 } Supplies in small quantities could be obtained in village.
 5 }

6. Water.—Well in Rest House compound.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuthamala ..	194	10½	Clear line of vision. Jungle undulating ground.	Helio and lamp communication except during the monsoon June-July.
Otopara ..	147	14	Ditto ..	Ditto.

TIRURNAGADI.

2. Instruments should be set up on open space north of Mosque. Bad defensive position.

3 } Mosque is easily recognisable.
 4 }
 5 } Supplies of all kinds can be obtained in the village.

6. Water.—From wells or for animals from the river.

Signal Station with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Urakuthamala ..	63	6	Easily recognisable ..	Helio and lamp communication except during the monsoon.

Note.—Urakuthamala can be seen from the 5th to 11th milestone on Malappuram-Thirunagadi road.

1. EDV ANNA.

2. The best signal station is on the top of hill 650. Thick wooded hill and difficult to approach. Axes should be taken to cut down trees interfering with the line of sight.

3. Best approach is straight up the hill on the opposite side of the road to the Rest House.

4. } Supplies, forage, and grain can be obtained in the village.
5. }

6. Water.—From wells in the village, also from the river.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Otapasa ..	178	11	Undulating country. Nothing at present to interfere with line of sight.	Helio and lamp communication except during the monsoon June-July.
Orakuthamala ..	227	12	Ditto ..	Ditto.

1. NILAMBUR.

2. Hill 290 Aruvakod Mala is the only possible signal station in this area. The hill is very thickly wooded and would make bad defensive post. Instruments should be set up on the south side of the top of the hill.

3. It is approached by a path leading from the 44th mile 4 fur., post on the Nilambur-Edavanna road.

4. } Supplies, grass, grain could be obtained in small quantities in
5. } Nilambur about 1 mile away.

6. Water.—The nearest well is in the Wireless station compound a hill on the north east side of the road if approaching Nilambur from the south.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Otapasa ..	198	15	Nothing likely to interfere with visual signalling.	Helio Communication except during the monsoon June-July.
Orakuthamala ..	228	19	Ditto ..	Ditto.
Kadghani ..	47	19	The station is often covered in clouds towards the afternoon.	Ditto.

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1. NADGHANI.

2. Instruments should be set up on hill about 400 yards north east of Rest House (which is unfit to live in).

3. Hill should be approached from road about 300 yards north of Rest House.

4. No supplies of any kind.

5. No grain.—Grass can be cut at all seasons from the hill side.

6. Water.—Can be obtained from the stream just south of the Rest House but not good.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Kishanpur ..	327	19	Nothing likely to interfere with visual signalling when the early morning mist has cleared about 09-00 hours.	Radio communication except during the monsoon June-July.
Urakthamunda ..	325	26	Do. ..	Do. ..

1. MURKURTI PEAK.

2. Instruments can be set up on top. The peak is easily recognisable as looking at it from Ootacamund it appears to lean to the right.

3. It can best be reached from Wellington by a three days' march over very difficult country.

4. Supplies.—Nil.

5. Forage.—Grazing in vicinity of camp.

6. Water.—Running stream.

Signalling stations to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening in country between stations.	REMARKS.
Udabetta ..	82	15	Undulating country. Grazing land with few copse. Station can be easily recognised by large white building on top.	Except during short intervals impossible to communicate during rainy season.
Malappuram ..	236	26	Ground falls steeply to plains then quite flat. Paddy crops and rivers easily seen. Malappuram lies directly over the right of what appears to be two small hills.	Practically impossible to communicate during the wet season. Best time of year is Jan. to April.
Urakthamunda ..	342	40	Can be easily seen. A long white shapely hill. The station is situated on the highest point in the centre of the hill.	Do. ..

1. NADGHANI.

2. Instruments should be set up on hill about 400 yards north east of Rest House (which is unfit to live in).

3. Hill should be approached from road about 300 yards north of Rest House.

4. No supplies of any kind.

5. No grain.—Grass can be cut at all seasons from the hill side.

6. Water.—Can be obtained from the stream just south of the Rest House but not good.

Signal Stations with which direct communication is possible from 2 above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Kithamur ..	227	19	Nothing likely to interfere with visual signalling when the early morning mist has cleared about 00-00 hours.	Hello communication except during the monsoon June-July.
Urakthamur ..	225	28	Ditto.	Ditto.

1. MURKURTI PEAK.

2. Instruments can be set up on top. The peak is easily recognisable as looking at it from Ootacamund it appears to lean to the right.

3. It can best be reached from Wellington by a three days' march over very difficult country.

4. Supplies.—Nil.

5. Forage.—Grazing in vicinity of camp.

6. Water.—Running stream.

Signalling stations to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening in country between stations.	REMARKS.
Madichetty ..	82	15	Undulating country. Grazing land with few copse. Station can be easily recognised by large white building on top.	Except during short intervals impossible to communicate during rainy season.
Malappuram ..	236	36	Ground falls steeply to plains then quite flat. Paddy crops and rivers easily seen. Malappuram lies directly over the right of what appears to be two small hills.	Practically impossible to communicate during the wet season. Best time of year is Jan. to April.
Urakth Mah ..	242	40	Can be easily seen. A long whale shaped hill. The station is situated on the highest point in the centre of the hill.	Ditto.

1. DODABETTA.

2. Instruments should be set up on the highest point on the N. side of the building on the top.

3. May be reached by small track branching off the Ootacamund main road.

4. Supplies.—From Ootacamund.

5. Forage.—Grazing can be obtained on lower slopes of hill.

6. Water.—From Stream.

Note.—It is possible to communicate with nearly any place in the Nilgiris from Dodabetta.

Signalling stations to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Wellington	184	4½	Hilly ground sloping towards Wellington.	Early mornings Wellington is usually in a haze. During monsoon Dodabetta is usually in clouds.
Mysore (Chamund)	250	63	Gradually falling into bottom of Nilgiri Hills, then continues quite flat. Signal Station at Mysore appears to be on top of whale shaped hill the only one in the vicinity.	Impossible to communicate during the rainy season. January and April are the best months.
Podanur	143	31	Undulating to bottom of Nilgiri Hills. Then quite flat.	Impossible to communicate during rainy season except at short intervals.
Chinnai	137	25	Ditto	Ditto.
Marburi Peak	282	16	Undulating country. Grazing lands with few copse.	Except during short intervals impossible to communicate during rainy season.

BANGALORE.

2. Tower St. Andrew's Church.

3. }
4. } Baird Barracks or Supply Depot.
5. }

Signalling stations to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Chinnai	225	27	Hilly	In dull weather communication likely to be difficult, but intermediate stations could be established.
Maddur	10	28	Plain.	....
Maddur	248	33	Plain for about 20 miles and then hilly.	....
Kannur	190	12	Plain	....
Whitefield	90	13	Plain.	....

1. CLOSPET.

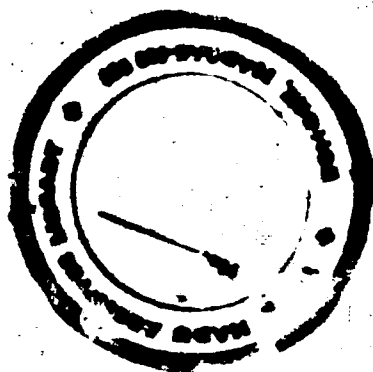
2.

2. By Rail from Bangalore.

4. }
 5. } Available locally.
 6. }

Signalling stations to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Bangalore ..	45	27	Hilly.	....
Chamundi (Mysore) ..	285	52	Do.	....



1. CHAMUNDI (Mysore).

2. About midway of west wall of the Maharajah Bungalow Compound.

2. By steps leading up hill. Transport by road.

4. }
 5. } Town of Mysore.

6. Water.—In Compound (well).

Signalling station to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Bangalore	55	52	Hilly	Communication only possible when the weather is very clear.
Chamundi	177	68	Undulating .. ..	....

1. RAMA DEV.
 2. North Edge Temple.
 3. Path.
 4. *Supplies.*—
 5. *Forage.*—
 6. *Water.*—
- } From Bangalore by road.
- } From Bangalore by road.
- } From Bangalore by road.

Signalling Stations to which direct communication is possible from (1) above.

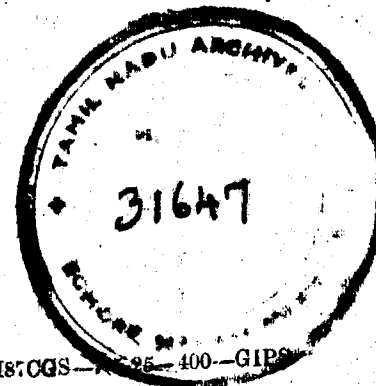
1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Bangalore	10	12	Plain	An intermediate station necessary when cloudy.

1. WHITEFIELD.
2. High ground in centre of Race Course.
3. By road or Rail from Bangalore.
4. } From Bangalore.
5. }
6. *Water.*—Race Course.

Signalling Station to which direct communication is possible from (1) above.

1	2	3	4	5
Station.	True bearing.	Distance in straight line in miles.	Description of intervening country between stations.	REMARKS.
Bangalore	270	13	Plain.	

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