(1) பக்கங்களின் எண்ணிக்கை 66

(2) புதுக்கித் திருப்பிய நாள் -3-90

(3) ஆதாரங்குறிப்பவர் சுருக்கொப்பம்

தமிழ்நாடு ஆவணக் காப்பகம்.

தமிழ்நாடு அரசு

P.W துறை

அரசாணை எண். / மு. கோப்புத் தாள் எண். 86, 87 PW அச்சகம் / பலவகை

நாள் : 16-1-1893 198 .

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16th January 1893, No. 86 W., Public Works.

1/86

GOVERNMENT OF MADRAS.

PUBLIC WORKS DEPARTMENT.

Buildings and Roads.
Military Works.

Read—the following papers :—

From Brigadier-General E. H. EYRE, Quarter Master General, to the Secretary to Government, Military Department, dated Ootacamund, 14th December 1892, No. 2658 M.W.

As a measure involving reduction of expenditure, I am desired by the Commander-in-Chief, with reference to Proceedings of the Madras Government, No. 6943, of the 2nd ultimo, to forward, for the favorable consideration of the Madras Government and for submission to the Government of India, copies of the marginally-noted correspondence containing a recommendation, in which His Excellency generally concurs, for the taking over by the Military Works Department of the few remaining stations in the Madras Presidency which are still administered by the Public Works Department.

* Report by Lieutenant Stokes-Roberts, dated 22nd February 1892.
Minute No. 9494, dated 1st December 1892, from Chief Engineer, Military Works.

2. Although in March last the Government of India decided that the consideration of this question should be deferred, His Excellency is of opinion that the time has now arrived when the proposals should again be brought to the favorable notice of that Government, not only because, as pointed out by the Chief Engineer, Military Works, they will result in an annual saving to the State of about Rs. 1,100, but also for the reason that the adoption of the measure will do away with the inconvenience attaching to the present very undesirable system of a dual control over expenditure on Military works in this presidency.

3. His Excellency recommends therefore that the advantages to be gained by the proposed transfer may be brought prominently to the notice of the Supreme Government in view to its sanction being accorded to the proposals formulated by the Chief Engineer, Military Works.

4. With reference to para. 8 of the Chief Engineer, Military Works' Minute, it is understood that the question of the duty of supply and repair of barrack and hospital furniture by, and the transfer of the barrack establishment to, the Military Works Department is now under the consideration of the Government of India.

Enclosures.

From the Chief Engineer, Madras Command, Military Works, to the Quarter Master General, Madras Army, dated Ootacamund, 1st December 1892, No. 9494.

I enclose for your information a report (return requested) drawn up by Lieutenant E. R. B. Stokes-Roberts, R.E., regarding the military stations in the Southern district, Madras Presidency, drawn up in February last.

2. I concur generally in the suggestions put forward in the report and am of opinion that the procedure with regard to the maintenance of military works in the Native State of Travancore should not be interfered with at all events for the present; the stations of Quilon and Trichur in the Native State of Travancore are too remote to allow of efficient supervision by the Executive Engineer of the Southern division, a new Military Works Executive division whose head-quarters I would suggest should be at Wellington.

3. As regards the estimated cost of establishment given at page 9 of the report I concur generally except that I am of opinion that a lower subordinate at a monthly salary of Rs. 50 will be sufficient for the requirements of Trichinopoly.

4. The following table represents, therefore, the probable cost of establishment in the proposed new Southern division and of the extra establishment required in the Madras and Belgaum divisions in order to complete taking over charge of all the military stations within the limits of those commands now under the charge of the Public Works Department :—

Executive Division, Military Works Department.	Sub-division.	No.	Designation.	Pay per mensem.	Pay per annum.
				RS.	RS.
Madras	Berhampore	1	Upper subordinate	100	3,360
	Vizianagrum Vizagapatam	4	Temporary sub-overseers	140	
	Samulcottah	1	Clerk	40	
Belgaum	Mangalore *	1	Overseer	80	960
Southern Division.	Wellington	1	Executive Engineer, 4th grade	783	22,308
		1	Upper subordinate	143	
		1	Accountant, 4th grade	100	
		1	Draughtsman	70	
		1	Head clerk	60	
		1	Clerk	20	
		4	Peons at Rs. 7	28	
	West Coast	2	Upper subordinates	320	
		1	Lower subordinate	50	
		1	Clerk	25	
		3	Maistries at Rs. 20	60	
		..	Sub-divisional allowance	60	
	Trichinopoly	1	Lower subordinate	50	
		1	Clerk	25	
		1	Maistry	20	
		..	Sub-divisional allowance	45	
			Total	..	26,628

* This station might perhaps more suitably be placed under the charge of the Executive Engineer, Southern Division.

5. The total establishment charges necessary in order to give effect to the proposal that this department should take charge of all the military works in this Presidency with the exception of those in the Native State of Travancore will, therefore, amount to Rs. 26,628; meanwhile a saving of Rs. 11,712 as marginally noted will be made in the establishment charges of the existing Madras division, making the total extra establishment grant required Rs. 14,916 or Rs. 1,784 less than the amount now allotted by the Government of India to the Madras Public Works Department for establishment on military works now being carried out by them.

	RS.
One Executive Engineer	783
One upper subordinate	143
Two clerks at	50
Pay per mensem	976
" annum	11,712

6. The total expenditure on military works at Quilon and Trichur does not appear to have exceeded Rs. 3,000 in 1889-90; the charges for establishment at 22 per cent. would, therefore, not exceed Rs. 660 and the proposals formulated above accordingly show a saving of about Rs. 1,100 annually on the present establishment charges.

7. I would submit that the present is a most opportune time for action to be taken in this matter owing to the proposal shortly to hand over all the Burma stations to the Public Works Department; the arguments against the dual control of Military Works Department and Public Works Department over military buildings in Burma apply with equal force against the same system in India.

8. As regards barrack and hospital furniture we can work as cheaply as the commissariat and have the advantage of having experienced officers accustomed to the work of supply as carried out at other stations in Northern India. At Secunderabad, for instance, we have a workshop replete with all machines, tools, &c., required for wood-work and which stands idle from want of work.

I am of opinion the Barrack establishment might be utilized far more than they are at present; in fact I know from Barrack Masters who were formerly under the Military Works and have changed to stations under the Commissariat Department that they say they have nothing to do.

Now one of the great functions of the Barrack Master is the allotment and proper care and inspection of quarters.

This very duty now devolves on Executive Engineers to the detriment of more strictly professional work. The duties of the Barrack Master, as regards quarters, repairs, &c., being so intimately concerned with the duties of the Executive Engineer, and the supply and repair of furniture being of a character requiring a knowledge of workshop management, I am confident nothing but good would result from a speedy transfer of the control of the Barrack Department to the Executive Engineers.

SOME notes regarding the Military Stations in the Southern District, Madras Presidency.

Stations in the Command.—Exclusive of Wellington the following Military stations are under the command of the General Officer Commanding Southern District :—

Malapuram.
Calicut.
Cannanore.
Quilon.
Trichur.
Trichinopoly.

Notes concerning the military buildings, roads, &c., in each of the above stations, except Trichinopoly which has not been visited by *the writer, are attached.*

Stations in the Native State of Travancore.

Quilon and Trichur.—Of the above out-posts, Quilon and Trichur are situated in the Native State of Travancore and repairs to military buildings, &c., and all original works therein are carried out by the State.

State Public Works Department.—Public Works Department, the executive and subordinate officers of which department receive a percentage (in the case of original works this percentage is 22, disbursed in the proportion of 10 to the Chief Engineer, 7 to the Executive Engineer and 5 to the Overseer) on the estimates prepared by the Government Public Works Department as payment for the extra work performed by them.

As the system set out above seems to work well and economically on account of no Government establishment being required and as these two stations are remote from the railway, there would appear to be no necessity for them to be absolutely taken over by the Military Works Department, but on the formation of a Southern District, Military Works, the procedure might be somewhat as follows :—

Original Works.—Of the few original works likely to be required in connection with the Native Infantry lines, the estimates could be prepared in the office of the Executive Engineer, Military Works, in consultation as regards rates and materials with the local State executive and then approved and sanctioned in the ordinary manner by the Chief Engineer, Madras Command, Military Works, or other authority; the work could then be undertaken by the local Engineers, who would make all arrangements as to contractors, preparation of bills, &c., but it would at all times be open to inspection by Government Engineers. Under these circumstances, a lower percentage than before mentioned should suffice for supervision.

Repairs.—The repair estimates for roads and military buildings, such as hospitals, guard rooms, &c., could be prepared as above by the Executive Engineer, Military Works, and percentage paid to the State Engineer for carrying them out. A percentage to those who actually carry out and supervise the works seems only necessary.

Provision of funds.—All funds for expenditure in these two stations should be obtained from the Chief Engineer, Madras Command, Military Works, in order that he may be kept informed as to what works are required or are being carried out.

Establishments.—All the Military stations along the West Coast being small and in fact mere out-posts, the cost of their upkeep by the Military Works would be small. From actual observation the following appeared to be the establishment maintained by the Public Works Department for looking after the cantonments themselves :—

Stations.	Upper subordinate.	Lower subordinate.	Clerk.	Maistry.
Malapuram	..	1	..	1
Calicut	..	1	..	1
Cannanore	1	..	1	1
Total	1	2	1	3

One Barrack Sergeant is employed at Cannanore but has practically nothing to do, as he is a mere go-between the troops and the Commissariat Department.

Calicut.—Putting aside for the moment the probability of the Barrack Department being made subordinate to the Military Works, the establishment now maintained by the Public Works Department would suffice for the requirements of the Military Works except that an upper instead of a lower subordinate should be stationed at Calicut, for at present as the head-quarters of the Executive Engineer are in the station, the preparation of estimates and execution of repairs are carried out under his supervision. If, however, the furniture is handed over to the Military Works, it would be necessary to station one Barrack Sergeant and a clerk at Calicut, which is on the railway and altogether more central than Cannanore, though the latter has the advantage of a large number of empty buildings which could be used as workshops and stores. In this case a lower subordinate would be sufficient for the ordinary work at Calicut, as the Barrack Sergeant could carry out barrack inspections and give help to the Sub-Overseer in the event of any special estimate or information being required. It should be mentioned that owing to the great distances by rail and bullock cart and large risks of breakages by the latter, it would probably not pay to manufacture furniture at Calicut and send it up to Wellington, overlooking for the moment the disadvantages of having articles made up away from the direct supervision of the Executive Engineer.

Trichinopoly.—One upper subordinate, one clerk and one maistry would from all accounts be quite sufficient to keep pace with Military Works requirements at Trichinopoly.

Expenditure on Establishment.—The total expenditure on establishments in the Southern District excluding Wellington would thus be as follows:—

West Coast.

	RS.
Two upper subordinates (Sergeants) at Rs. 160 ...	320
One lower subordinate at Rs. 50 ...	50
One clerk at Rs. 25 ...	25
Three maistries at Rs. 20 ...	60
Travelling allowance ...	100
Sub-divisional allowance ...	60
Total ...	615

Trichinopoly.

	RS.
One lower subordinate at Rs. 50 ...	50
One clerk at Rs. 25 ...	25
One maistry at Rs. 20 ...	20
Sub-divisional allowance ...	45
Travelling do. ...	30
Total ...	170
Total cost per mensem ...	785

The taking over of the barrack furniture would only entail one additional clerk to the above.

Distances from Wellington.—Taking Wellington as the head-quarters of the proposed new division, the distances are as follows:—

—	Malapuram.	Calicut.	Cannanore.	Trichinopoly.	Wellington.	Railway.
	HOURS.	HOURS.	HOURS.	HOURS.	HOURS.	MILES.
Wellington	28	23	48	27	..	22
Malapuram	..	8	24	28	28	17
Calicut	8	..	8½	24½	23	*Nil.*
Cannanore	24	8½	..	48	48	59
Trichinopoly	28	24½	48	..	27	*Nil.*

N.B.—On arriving at Calicut on the afternoon of one day, it would be necessary to wait until the next morning before starting in the "transit" for the 59 miles journey by road. Malapuram is 17 miles from the Railway at Tirur. It took 4 days to reach Quilon from Cannanore in a coasting steamer.

Quilon is 48 hours by boat in the backwater from Trichur which in turn is 21 miles by a very bad road (bullock carts only available) from the railway to Shoranur.

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NOTES ON MALAPURAM.

Situation and surrounding country.—Malapuram is situated 17½ miles north-east of the Railway station of Tirur and 30 miles to the south-east of Calicut at a height of about 500 feet above sea level. The surrounding country consists of a series of small plateau intersected by paddy covered valleys, and the hill on which the cantonment is placed is surrounded on three sides by a bend of the river Nurady.

Subordinate in charge.—The subordinate in charge of the cantonment is Mr. S. B. Rebelo, Overseer, 1st grade, who has only been in the station for about two months; his residence is close to the hospital.

Cantonment.—The cantonment is approximately 800 yards × 300 yards in area and has a well-defined boundary consisting of laterite pillars numbered in succession.

Troops.—One hundred and fifty men from the Regiment stationed at Wellington are told off to garrison the place.

Buildings.—The buildings, which are all named and numbered and entered in a printed list, consist for the most part of three large barracks for 50 men each with subsidiary buildings and of two blocks of married quarters for 24 men in all.

Single men's barracks.—The single men's barracks (constructed in 1884) are lofty, well ventilated, and are protected on each side by a broad verandah.

Walls.—The walls are of laterite 1½ feet thick and are lime plastered inside and pointed outside.

Roofs.—The roofs are supported on king post trusses 10′ apart and consist of Mangalore tiles on ¾″ venteak planking.

Floors.—The floors are asphalted.

Married men's barracks.—The two blocks of married quarters were constructed in 1858-59 and have country tiled roofs and cement plastered floors; they are much in excess of requirements and two quarters have been misappropriated for the Telegraph Department.

Hospital.—The hospital is a fine, roomy building and will contain beds for eighteen men, two women and four children. One end of the building has a terraced roof surrounded by a low parapet wall defensible against musketry (the idea of Lord Roberts).

Officer's quarters.—In addition to the men's buildings there are two blocks of quarters each for two officers; ceilings and floors boarded.

Theatre.—There is also a small theatre which is never used.

Institute.—Institute buildings and arrrangements are very complete.

Subsidiary buildings.—Subsidiary buildings seem complete in every respect and are connected to the main buildings by means of covered passages.

Commissariat buildings.—With the exception of the mule and bullock shed referred to below, the Commissariat buildings (bakery, slaughter-house, granaries, elephant shed, sick cart shed, &c.) are complete.

Rifle range.—The rifle range only extends up to 900 yards, the firing platform for which is on the roof of the hospital and can therefore only be occasionally used. The range in its present position cannot be increased; a new range might possibly be found along the river bed.

Bathing.—The men can bathe in the river during the hot weather, but during the rains there is no place for them to use.

Gymnasium.—There is no gymnasium, but the theatre or one of the old married quarters might easily be misappropriated.

Rainfall.—The rains continue from about June to October and the average rainfall is 100 inches. The hot season extends from March to the end of May.

Water-supply.—There are five wells in cantonments, one of which is for drinking water and is carefully protected by means of a wall and a cover from all contamination, the latter well yields throughout the hot weather, but the others fail and washing water has to be brought up from the river.

Roads.—The roads are entirely of laterite and are about 1,000 yards in length. No permanent coolies are employed, repairs being carried out by contract when required.

Lightning-conductors.—Lightning-conductors were tested about 3 months ago. There are, however, no conductors at all to the magazine in which dynamite is stored.

Repairs.—The sums sanctioned for repairs this year are—

	RS.
British Infantry lines ...	2,220
Commissariat lines ...	500
Roads ...	190

The first sum seems a little high.

Contractors.—Messrs. Lewes and Brothers, who live in Malapuram, are said to be good contractors and seem to have all the work to themselves. A little outside competition would no doubt be wholesome.

Works in progress.—The only work in progress beyond repairs is the re-roofing of the Apothecary's (1st grade) quarters which are situated near the hospital; in the meantime according to the account of the Medical officer in charge, the Apothecary has *himself* to pay Rs. 20 per mensem for a private bungalow, which has been hired for him.

Sanctioned works.—An estimate has been sanctioned for Rs. 2,824 for the construction of sheds for 12 bullocks and 10 mules, but a site for the building has not yet been definitely decided upon.

Proposed works.—An officers' mess is badly required and it is believed that an estimate has been prepared.

Some local materials.—An unlimited supply of laterite can be obtained within a mile of barracks.

So-called granite (blue gums) comes from a distance of two miles.

Some rates (obtained from the Overseer).—Ironwork As. 2 lb. (obtained from Calicut) cheap. Laterite Rs. 18, 100 cubic feet. Teakwood work Rs. 3-8-0 to 4-4-0 cubic foot. Eroolwood Rs. 1-12-0 cubic foot. Average rate for a cooly As. 3 to As. 4. Average rate for a mason or blacksmith 10 annas to 1 rupee. Mangalore tiles on ¾" venteak boards Rs. 27, 100 square feet. Sectioning and ramming 4" laterite on roads Rs. 18, 100 square feet.

Furniture.—Furniture when required is obtained from Calicut.

Repairs to furniture are carried out by contract under the departmental supervision of the Commissariat.

NOTES ON CALICUT.

Calicut town.—The town of Calicut is situated on the West Coast and is the terminus of the Madras Railway.

Barracks.—The barracks are built on a small hill about three miles from the town.

Cantonment.—The cantonment includes only about 38 acres Government and 11 private land.

Boundaries.—The boundary is well defined by granite pillars marked P.W.

Subordinate in charge.—Mr. L. A. Barboza, a Temporary Overseer, 3rd grade, has been in charge of the station for the past two years; he lives three miles away from his work in Calicut town.

Troops.—One hundred men from the regiment at Wellington are stationed here.

Buildings.—The single men's barracks are old, but in fair order. One barrack is the old Collector's house, and some of the rooms are in consequence only big enough for four or five men.

The men are very crowded at present and a new barrack for 30 men is being constructed so as to relieve the pressure.

Commissariat buildings.—The Commissariat buildings (bakery, slaughter-house, mule, bullock and elephant sheds) have been built since 1887 and are in good order.

Officers' quarters.—There are three officers' quarters, one for the Commanding Officer, one for a Subaltern, and the other for the Doctor, but all are in a bad state of repair.

Hospital.—A good hospital exists and will accommodate 12 men, 1 woman and 1 child.

Walls of buildings.—Walls of buildings are of laterite, plastered with lime mortar.

Roofs.—All roofs are covered with country tiles except the Commissariat buildings which have Mangalore tiles (elephant shed is thatched).

The roof trusses are in most cases of a very elementary pattern, consisting merely of a very heavy tie-beam with one or three vertical uprights.

Floors.—Internal floors are boarded and verandahs are asphalted.

Married quarters.—There are fifteen married quarters, of which some are misappropriated as Prayer Room, Sergeants' Mess, Commissariat Sergeant's quarters and Commissariat store.

Subsidiary buildings.—The subsidiary buildings are sufficient in number and size, but none of the latrines have doors in front of the seats.

The latrine of No. 1 barrack almost adjoins the cook-house.

A dry-earth store exists.

The subsidiary buildings are connected to the main buildings by covered passages.

A very large shed, constructed of teak logs with a thatched roof and walls of bamboo matting, was built as a gymnasium, but is now in a dangerous condition and should be removed as it is quite close to the barracks.

Another shed, situated between the barracks and the hospital, is used as a church.

Numbering of buildings.—The buildings all have name boards, but are not numbered.

Repairs.—Repairs are carried out by Narain Nair, who is said to be a good contractor.

The repairs estimates amount to Rs. 2,800 which includes Rs. 630 for whitewashing and Rs. 378 for shifting tiles.

Some rates.—Ironwork As. 2 to As. 4 per lb. Laterite in lime Rs. 18 to Rs. 20, 100 cubic feet. Granite three lines dressed Rs. 3-8-0 cubic foot. Teakwood work from Rs. 3-12-0 to Rs. 4-4-0 cubic foot. Mangalore tiles on ¾" cedarwood planking Rs. 30, 100 square feet. 1¼" teak flooring Rs. 85, 100 square feet. 1½" panelled and glazed doors Rs. 1-4-0 square foot. Whitewashing As. 2-6, 100 square feet.

Wages.—Man cooly As. 3 to As. 4; mason, 1st class, As. 13; mason, 2nd class, As. 10; blacksmith, 1st class, *nil*; blacksmith, 2nd class, As. 8.

Timber used in construction.—Teak, venteak, cedar (white and red), irrumboguni, karamaradu and irool.

Roads.—The cantonment roads are only 2,660 feet in length and repairs are carried out when required. The sanctioned estimate for repairs amounts to Rs. 200.

Laterite metal is obtained from quarries within a mile of cantonments at a rate of Rupees 2-8-0 per 100 cubic feet.

Water-supply.—There are four wells, one at the top of the hill, 61 feet deep, giving a fair supply of good drinking water; a second near the barracks for washing water; a third near the slaughter-house, and a fourth in the transport lines.

Lightning-conductors.—The lightning-conductors to the magazine are said to be in bad order.

New works.—A barrack for 30 men is being constructed, and although the walls are some 10 feet high it is stated that the building will not be completed until April 1893. The barrack with one lavatory and one latrine will cost Rs. 31,560.

Furniture.—Furniture is made by contract and supplied to the troops by the Commissariat department.

Rifle range.—The range extends only to 600 yards with the sea as back ground, and a new one will probably have to be selected hereafter.

NOTES ON CANNANORE FORT.

Historical.—This fort was constructed in the year 1505 by the Portuguese and named Fort Saint Angelo.

About the year 1700 it was captured by the Dutch, and in 1771 it was sold by them to Ali Raja of Cannanore.

It was captured by General McLeod in 1783, but was given up to Tippu Sultan in the following year, and did not finally become a British possession until 1790 when it was surrendered to General Abercromby who had a force of about 3,000 men on land and a number of war ships close to the coast.

It is recorded in the Gazette of Malabar that improvements were carried out to the fort in 1797, since when it would appear to have been nearly untouched to judge from the state of the defences at the present time.

General description.—The promontory on which Cannanore fort stands is situated between the town and the cantonment, is surrounded on three sides by the sea and is in length about 450 feet and has an average breadth a little over 200 feet. The fort itself, excluding the ravelin, is about 200 feet by 200 feet. On the north or land-side the trace consists of a bastion on each flank with a curtain protected by a ruinous ravelin between the escape on this side is withdrawn 30 feet from the edge of the ditch, thus forming a large berm.

Ditches.—The dry ditch of the ravelin is 12 feet deep and the main ditch which is connected to the sea at its eastern end by means of a sluice (out of repair) is 15½ feet deep and 12 feet wide in front of the entrance gate and 24 feet deep and 60 feet wide in front of the curtain. On the east side the sea cliff is surmounted by workshops and sheds except at the north-east corner where there are one or two salient flanking angles for musketry fire, but which have a good piece of the southern promontory quite dead.

General description.—On the west side at the southern end there is a long gun-shed and at the centre there is a battery with wire embrasures, which were almost knocked to pieces by last year's practice and which have a command above the sea of about 20 feet. On the south side there are some store godowns once used as barracks, and to the south of these there is a dry ditch about 18 feet wide, crossed by a bridge sliding on iron girders. To the south of the fort there is a piece of open ground planted with a few casuarina trees and with an underground magazine or store (entered by a small trap-door at ground level) in the centre. Around this plot of ground there is a small parapet, which has a small dry ditch in front of it on the southern side.

The extreme end of the promontory is rocky barren ground, which, in fine weather, would not present many difficulties to a landing party who were well covered by fire from their ships.

Trace.—It is clear from an examination of the fort that the trace has been altered considerably from time to time, but no old plans appear to be available.

Surrounding country.—The ground to the north consists of a large open maidan, used as a parade ground, but to the north-west is occupied by the British Infantry barracks and to the north-east the cocoanut plantations are within rifle range, and would afford excellent cover to an enemy on land. The old Royal Artillery barracks and Commissariat office are also close to the fort in the same direction (north-east).

Main approach.—The main approach is across the maidan to the north, and the only road into the fort itself after passing through a short glacis crosses a sliding bridge over the main ditch, here narrowed to 12 feet, and thence passes through a 3-inch iron spiked wooden gateway to the south of the north-east battery into the interior of the fort.

There appears to have been another entrance through the centre of the curtain which is so cened by the ravelin.

Distances from Town and Barracks.—The British Infantry barracks are only 620 yards distant from the north-west corner of the fort and all the important buildings in the town and cantonment are within 2,000 yards.

Armament.—The armament which is placed in the east (9 embrasures) and west (8 embrasures) batteries on the north face consists of the following :—

East Battery.—One 10-inch mortar; One 8-inch mortar; Three 18 pr. S. B. guns.

West Battery.—Two 18 pr. S. B. guns.

Reserve.—In addition to the above a reserve mountain battery fully equipped and consisting of two 5½-inch mortars and two 4⅖-inch howitzers are kept in one of the stores.

Ammunition.—Ammunition is plentiful, and the needful apparatus for filling shells, &c., is kept in the fort laboratory.

Chief buildings.—The chief buildings are as follows:—Laboratory and guard-room armoury containing some thousands of vacant wooden arm-racks; tent and store godowns; workshops; saw-shed and pit; Store Sergeants' quarters; Staff Sergeants' quarters; three gun sheds.

3. Jail wards, consisting of long rooms with brick-arched roofs and iron-barred doors and windows, all very much out of repair

Light-house.—A light-house and signalling quarters are situated at the north-west corner of the fort.

Magazine.—The big gun magazine is a bomb-proof building with a second roof of Mangalore tiling over the brick arching to keep out damp.

The old police guard-room is used as a magazine for the storage of gun-cotton for the use of the troops.

Lightning-conductors.—The lightning-conductors are said to be in good order.

Water-supply.—There are two wells inside the fort, in one of which the water is brackish and in the other good, but as the latter is influenced by the tides, it is proposed to sink another well further from the sea.

General.—The only inhabitants of the fort are the Park Sergeant, the Light-house signallers and the British Infantry and Native Infantry guards.

The occupied buildings are in good order, but as in the case of the cantonment there is a large number of good buildings lying absolutely idle.

The fort would only be of use against a land attack, which it has principally been constructed to resist.

Notes on Cannanore.

Position.—Cannanore is situated on the coast 59 miles north of Calicut, with which it is only connected by road.

Size.—It is a large cantonment about 1⅓ miles by 2 miles, and in addition to a great number of private bungalows contains lines for one Native Infantry Regiment and for one battery of Royal Artillery.

The boundary is defined by granite stone pillars.

Subordinate in Charge.—Cannanore is a sub-division of the West Coast Division Public Works Department with head-quarters at Calicut, and has for the past three years been in the charge of Sub-Conductor T. B. Smith, who has in addition to look after the civil buildings in three taluks, or an area of about 50 by 30 miles.

Garrison.—The present garrison consists of 100 British Infantry and a Native Regiment.

British Infantry Lines.—The barracks now occupied by the detachment were built in 1845 and the unoccupied buildings in 1839.

The unoccupied barracks are kept in a very fair state of repair.

Drainage very good.

Institute buildings naturally very complete.

Style of construction.—All the buildings are constructed by laterite and have boarded floors and tiled roofs supported on primitive trusses.

Royal Artillery buildings.—The Royal Artillery buildings are not occupied by troops, but one of the barracks has been misappropriated as a civil hospital and another as a police station. Style of construction similar to the British Infantry lines. The Royal Artillery plunge-bath is used by the British Infantry, as theirs is out of repair.

Commissariat buildings.—The commissariat buildings including warrant and non-commissioned officers' quarters are in a very good state of repair and are, of course, much in excess of requirements.

Native Infantry buildings.—The sepoy lines are neat in appearance and well kept up by the regiment which receive a grant from Government.

Magazines.—The magazines, places-of-arms, guard-room and hospital are complete and kept in good repair by the Public Works Department. Two very large magazines, one of which is fitted with a great number of stands for ammunition, are situated near the church, but are both in a bad state of repair.

Water-supply.—The water-supply throughout cantonment is good and ample though the wells have not been cleaned out for a long time.

Church.—There is a church much too large for present requirements, but kept in good repair.

Hospital.—The hospital for 80 or 90 beds consists of a very fine set of buildings close to the sea and is well kept up.

Old Women's Hospital.—It is proposed to use the old women's hospital (near the church) hereafter as a cantonment (lock) hospital.

Repairs.—Repairs are carried out by contract and bills are checked and cheques drawn by the Sub-divisional officer. This year's estimate for the British infantry lines amounts to Rs. 2,500 (including 800 for white and colour washing), for the commissariat buildings Rs. 800,

for the Native infantry lines Rs. 1,100, and for the fort Rs. 1,200. The average monthly expenditure on military repairs, &c., and salaries is Rs. 750.

Contractors.—The contractors are good and have been employed for more than 20 years. O. Oomar Cooty, of Old Town, Cannanore, carries out work to the Native infantry and commissariat lines and O. Poker repairs the British infantry lines, fort and roads.

Roads.—The roads, which have a total length of 9½ miles, are in good order and are repaired at an annual cost of Rs. 3,000 which, although it includes the pay of a maistry at Rs. 25 per mensem, seems very high.

Rifle ranges.—The range for British infantry extends to 900 yards and for Native infantry to 800 yards

Some rates.—Iron work As. 3 per lb.; laterite in lime, Rs. 18 per 100 cubic feet; laterite in clay, Rs. 14 per 100 cubic feet; laterite road metal, Rs. 4 per 100 cubic feet; teakwood work, Rs. 4 per cubic foot; erool, Rs. 1-10-0 per cubic foot; granite, Rs. 1-8-0 per cubic foot. Cooly, As. 4 per diem; mason or black smith, As. 10 to 12 per diem.

Furniture.—Jail rates having been found to be very high, furniture is now made up departmentally by the commissariat and is issued to Calicut and Malapuram, that for Cannanore itself being drawn from the commissariat by the Barrack Sergeant and then issued to the troops.

Most of the furniture is of very old patterns and is not in good repair.

Barrack Sergeant.—Sub-Conductor Drew, who has the somewhat anomalous title of Barrack Sergeant, has charge of barrack duties; and as his net pay is only Rs. 90 and he does not receive rations or other allowances, he appears to have a real grievance.

Notes on Quilon.

Cantonment.—Quilon cantonment is situated on the coast of Travancore about 160 miles south of Calicut with which the means of communication are either by sea in the coasting steamer or by backwater in boats.

A railway is under construction and will connect Quilon with the South Indian Railway at Tinnevelly.

Garrison.—The garrison consists of one regiment of Madras infantry, less small detachments at Trichur and Trivandrum.

Native Infantry lines.—The Native infantry lines are probably the worst in India and consist of a number of thatched roofed hovels with wattle and damp walls. Estimates have been prepared for the construction of permanent lines on the standard plan.

Regimental buildings.—The regimental buildings, Quartermaster's store, guard-room and places-of-arms, hospital and armourers' shop are substantially built and in good order.

Armourers' shop.—An estimate has been sent forward for providing a drying room and a forge and browning trough in the armourers' shop, which is otherwise complete.

Repairs.—All work is carried out by the Travancore State Public Works Department (see general report). The amount spent on petty and annual repairs is Rs. 3,000 which seems rather high.

Water-supply.—The water-supply is *good*, but there are no masonry platforms round the wells.

Rifle range.—The rifle range (sea back ground) is only 800 yards long, but could be extended if the road at the 800 yards platform were closed during practice; this, however, would receive much opposition and it may be necessary hereafter to select a new range

Commanding Officer's quarters.—The Commanding Officer is provided by the State with a very good house rent-free.

Notes on Trichur.

Position.—Trichur is a small out-post in Travancore State, distant 21 miles by road from the railway at Shoranur, 132 miles by backwater from Quilon and 6 miles in a direct line from the sea.

Garrison.—The garrison consists of 1½ companies from the regiment of Madras Infantry at Quilon.

Native Infantry lines.—The sepoys' huts are fairly substantial and are in good repair.

The orderly room, quarter guard, place-of-arms and hospital are in one block (159′ × 28½′) which is in poor repair.

The school and armourers' shop are in another separate block and a small magazine completes the list of public buildings.

Repairs.—As in the case of Quilon all repairs and works are carried out by the State Public Works Department (*vide* general report).

Rifle range.—There is no rifle range, one being hardly required for such a small body of troops.

Water-supply.—Water-supply good.

Roads.—All roads are purely civil.

(Signed) E. R. B. STOKES-ROBERTS, Lieut., R.E.,
Chief Engineer, Military Works.

22nd February 1892.

No. 8219, Military.

Transferred to the Public Works Department for consideration and disposal with reference to the undermentioned Proceedings of Government:—

No. 3178 W. (Public Works), dated 26th Nov. 1891.
" 2996 (Military), " 9th May 1892.

FORT ST. GEORGE,
22nd December 1892.

(Signed) H. R. HOPE, Brigdr.-Genl.,
Secretary to Government.

ORDER—dated 16th January 1893, No. 86 W., Public Works.

In G.O., No. 3178 W., dated 26th November 1891, His Excellency the Governor in Council stated that he had no objection to the proposal that all the military works in the Madras Presidency now in charge of the Public Works Department be transferred to the control of the Military Works Department. Since then nothing has occurred to alter the circumstances. The matter is one for the consideration and decision of the Government of India, to whom the correspondence will accordingly be forwarded for orders.

[Here enter No. 87 W., Public Works, dated 16th January 1893.]

(True Extract.)

(Signed) G. T. WALCH,
Ag. Secretary to Govt., P.W.D.

To the Military Department.

ENDORSEMENT—dated 16th January 1893, No. 87 W., Public Works.

Copy of the above, with a copy of Proceedings, No. 3178 W., dated 26th November 1891, forwarded to the Government of India.

(By Order.)

Ag. Secretary to Govt., P.W.D.

Exd. C. A. Munisawmy.
Spare Copies

BUILDINGS AND ROADS.
MILITARY WORKS.

Govt. of {1893} Madras.

PUBLIC WORKS.

Dated January, 16th.

Recd. Encl.

C.O., 16th Jan. 1893, Nos. 86 W., 87 W.

JANUARY.

Military Works

Forwarding copy of Proceedings on the subject of the proposed transfer to the control of the Military Works Department of all the — in the Madras Presidency now in charge of the Public Works Department.

7/86

It is an ordinary
form of Malabar
truss & I should
think that there
is the slightest
necessity to [illegible]
the trouble &
expense of altering
this

AMW
8/2/93

For orders whether the sketch of the style of construction of buildings at Cannanore is to be lithographed in 106 copies of G.O. No. 86 W dated 16th Jany 1893.

R.
2/2/93.

Form No. 7.

HEADING *Establishments*

QUARTER MASTER GENERAL'S OFFICE,
Ootacamund,
~~8/16~~ 14th December 1892.

It is requested that the heading, number, and date of this communication may be quoted in any subsequent correspondence on this subject.

No. 2658 M.W.

From

BRIGADIER-GENERAL E. H. EYRE,
QUARTER MASTER GENERAL,

To

THE SECRETARY TO GOVERNMENT,
MILITARY DEPARTMENT.

SIR,

As a measure involving reduction of expenditure, I am desired by the Commander-in-Chief, with reference to Q. M. G. No. 6943 of [illegible]nd ultimo, to forward for the favourable consideration of the Madras Government and for submission to the Government of India copies of the marginally noted correspondence*, containing a recommendation, in which His Excellency generally concurs, for the taking over by the Milit Works Department of the few remaining stations in the Madras Presidency which are still administered by the Public Works Department.

* Report by Lt Stokes Roberts dated 22nd February 1892.
Minute No. 9494 dated 1st December 1892 from Chief Engineer Military Works.

2.

2. Although in March last the Government of India decided that the consideration of this question should be deferred, His Excellency is of opinion that the time has now arrived when the proposals should again be brought to the favourable notice of that Government, not only because, as pointed out by the Chief Engineer, Military Works, they will result in an annual saving to the State of about Rs 1100 but also for the reason that the adoption of the measure will do away with the inconvenience attaching to the present very undesirable system of a dual control over expenditure on Military Works in this Presidency.

Vide 1473 W.D.

3. His Excellency recommends therefore, that the advantages to be gained by the proposed transfer, may be brought prominently to the notice of the Supreme Government, in view to its sanction being accorded to the proposals formulated by the Chief Engineer Military Works.

9/86

2 One

4. With reference to para 8 of the Chief Engineer Military Works minute, it is understood that the question of the duty of supply and repair of Barrack and Hospital furniture by, and the transfer of the Barrack Establishment to, the Military Works Department, is now under the consideration of the Government of India.

I have the honor to be
Sir,
Your obedient Servant
P H Hutchins Colonel
For Quarter Master General

HD

No 3645-6w d/ 21-12-89 ✓
" 216-7w - 23-1-90 ✓
" 945 w - 24-3-90 ✓
" 1340 w - 12-5-90 ✓
" 3178 w - 26-11-91 ✓
" 1473 w - 12-[illegible]
" 2033 w - 22-7-92 ✓

P. W. CURRENT No. 12720

Military (1892) Department.

No.

From

The Quarter Master General,

To

The Secretary to Government,
Military Department.

No. 2658 Mid.

Dated 14th }
Received 16th } December 1892.

ENCLOSURE.

Forwarding certain correspondence for the favourable consideration of the Madras Govt as taking over by the M. W. Dept of the few remaining Stations in the Madras Presy which are still administered by the P. W. Dept.

P.G. 2-11-92. No. 6943
— 9-5-92 — 2996
— 9-12-91 — 7041R
10-1-90 — 198R
11-6-90 — 3856

No. 8219.

Transferred to the Public Works Department for consideration and disposal with reference to the undermentioned Proceedings of Government.

No. 8184 (Public Works) dated 26th November 1891.
" 2996 (Military) dated 9th May 1892.

x 1473 W.D. 12-5-92

Brig. Gl.
Secretary to Government,
Military Department.

Fort Saint George
22d December/92

To
The Public Works Department.

22/12

10/8

318

Some notes regarding the Military Stations in the Southern District Madras Presidency

Stations in the Command

1. Exclusive of Wellington the following Military Stations are under the Command of the General Officer Commanding Southern District

Malapuram
Calicut
Cannanore
Quilon
Trichoor
Trichinopoly

Notes concerning the Military buildings, roads &ca in each of the above stations, except Trichinopoly which has not been visited by the writer, are attached.

Stations in the Native State of Travancore

Quilon and Trichur

2. Of the above outposts, Quilon and Trichur are situated in the Native State of Travancore and repairs to Military buildings &ca and all original works therein are carried out by the State P. W. D. the Executive and Subordinate Officers of which Department receive a percentage (in the case of original

W.D. 8076/92

original works this percentage is 22, disbursed in the proportion of 10 to the Chief Engineer, 7 to the Executive Engineer and 5 to the Overseer) on the estimates prepared by the Government P.W.D. as payment for the extra work performed by them.

State P.W.D.

As the system set out above seems to work well and economically on account of no Government establishment being required and as these two Stations are remote from the railway there would appear to be no necessity for them to be absolutely taken over by the Military Works Department, but on the formation of a Southern District Military Works, the procedure might be somewhat as follows:-

Original works

Original works

Of the few original works likely to be required in connection with the Native Infantry lines, the estimate could be prepared in the office of the Executive Engineer, Military Works in consultation as regards rates and materials with the local State Executive and then approved

and

H/80

and sanctioned in the ordinary manner by the Chief Engineer Madras Command, Military Works or other authority; the work could then be undertaken by the local Engineers, who would make all arrangements as to contractors, preparation of bills &c., but it would at all times be open to inspection by Government Engineers. Under these circumstances a lower percentage than before mentioned should suffice for supervision.

Repairs.

Repairs

The repair estimates for roads and Military buildings, such as hospitals, guard rooms &c. could be prepared as above by the Executive Engineer M.W. and percentage paid to the State Engineer for carrying them out. A percentage to those who actually carry out and supervise the works seems only necessary.

Provision of funds.

All funds for expenditure in these two Stations, should be obtained from the Chief Engineer, Madras Command, My. W. in order that he may be kept informed as to what works are required or are being carried out.

Establishment

All the Military Stations along the West Coast being small and in fact mere outposts, the cost of their upkeep by the Military works would be small. From actual observation the following appeared to be the establishment maintained by the P. W. D. for looking after the Cantonments themselves.

Establishment

Stations	Upper Subordinate	Lower -do-	Clerk	Maistry
Malapuram	–	1	–	1
Calicut	–	1	–	1
Cannanore	1	–	1	1
Total	1	2	1	3

One Barrack Sergeant is employed at Cannanore but has practically nothing to do as he is a mere go between the troops and the Commissariat Department

Putting aside for the moment the probability of the Barrack Department

Department being made Subordinate to the Military works the establishment now maintained by the P. W. D. would suffice for the requirements of the Military works except that an upper instead of a lower Subordinate should be stationed at Calicut, for, at present as the Head Quarters of the Executive Engineer are in the Station, the preparation of estimates and execution of repairs are carried out under his Supervision. If, however, the furniture is handed over to the Military works it would be necessary to station one Barrack Sergeant and a Clerk at Calicut, which is on the railway and altogether more central than Cannanore though the latter has the advantage of a large number of empty buildings which could be used as workshops and Stores. In this case a lower Subordinate would be sufficient for the Ordinary

Calicut

work at Calicut as the Barrack Sergeant could carry out Barrack Inspections and give help to the Sub-overseer in the event of any special estimate or information being required. It should be mentioned that owing to the great distances by rail and bullock carts and large rates of breakages by the latter, it would probably not pay to manufacture furniture at Calicut and send it up to Wellington, overlooking for the moment the disadvantages of having articles made up away from the direct supervision of the Executive Engineer.

Trichinopoly

One upper Subordinate one clerk and one maistry would from all accounts be quite sufficient to keep pace with military works requirements at Trichinopoly.

Expenditure on Establishm

The total expenditure on establishments in the Southern District excluding Wellington would

b #18

would thus be as follows:—

B/80

West Coast

2 Upper Subordinates (Sergts) at Rs 160 ——— Rs 320
1 Lower — do — @ 50/ — ,, 50
1 Clerk @ 25/ ——— ,, 25
3 Maistries @ 20/ ——— ,, 60
Travelling allowance ——— ,, 100
Sub Do — do ——— ,, 60
615

Trichinopoly

1 Lower Subordinate @ 50/ — Rs 50
1 Clerk @ 25/ — ,, 25
1 Maistry @ 20/ — ,, 20
Sub Divisional allowance — ,, 45
Travelling — do — ,, 30
Total 170

Total cost per mensem Rs 785

The taking over of the Barrack furniture would only entail one additional clerk to the above.

Taking Wellington as the Head Quarters of the proposed new Division, the distances are as follows:—

Distances from Wellington

	Malapuram	Calicut	Cannanore	Trichy	Wellington	Railway
Wellington	28 hours	23 hours	[illegible] hours	27 hours	—	22 miles
Malapuram	—	8 hours	24 hours	28 hours	28 hours	17 miles
Calicut	8 hours	—	5½ hours	24½ hours	23 hours	nil
Cannanore	24 hours	8½ hours	—	48 hours	48 hours	[illegible] miles
Trichinopoly	28 hours	24½ hours	48 hours	—	27 hours	nil

N. B. On arriving at Calicut on the afternoon of one day it would be necessary to wait until the next morning before starting in the "Transit" for the 57 miles journey by road. Malapuram is 17 miles from the Railway at Tirur. It took 4 days to reach Quilon from Cannanore in a coasting steamer.

Quilon is 48 hours by boat in the back waters from Trichur which in turn is 21 miles by a very bad road (bullock carts only available) from the railway at Shoranur.

Notes

Notes on Malapuram

(Situation and Surrounding Country)

insert in margin

Malapuram is situated 17½ miles N. E. of the Railway Station of Tirur, and 30 miles to the S. E. of Calicut, at a height of about 575 feet above sea level. The surrounding country consists of a series of small plateau intersected by paddy covered valleys, and the hill on which the Cantonment is placed is surrounded on three sides by a bend of the river Kurady.

insert in margin

Subordinate in charge

The Subordinate in charge of the Cantonment is Mr. S. B. Rebelo, Overseer 1st grade, who has only been in the Station for about two months; his residence is close to the Hospital.

insert in margin

Cantonment

The cantonment is approximately 800 yards × 300 yards in area and has a well defined boundary consisting of laterite pillars numbered in succession.

insert in margin

Troops

One hundred and fifty men from the Regiment stationed at Wellington are told off to garrison the place.

The

Buildings

The buildings which are all named and numbered and entered in a printed list consist for the most part of three large Barracks for 54 men each, with subsidiary buildings and of two blocks of married quarters for 24 men in all.

Single mens Barracks

The Single mens Barracks (constructed in 1884) are lofty, well ventilated and are protected on each side by a broad verandah.

Walls

The walls are of laterite 1½ feet thick and are lime plastered inside and pointed outside.

Roofs

The roofs are supported on kingpost trusses 10' apart and consist of Mangalore tiles on ¾" teak planking.

Floors

The floors are asphalted.

Married Mens Barracks

The two blocks of married quarters were constructed in 1858-59 and have country tiled roofs and cement plastered floors, they are much in excess of requirements and two quarters have been misappropriated for the Telegraph Department.

The

8 #88

Hospital

The Hospital is a fine roomy building and will contain beds for eighteen men, two women and four children. One end of the building has a terraced roof surrounded by a low parapet wall defensible against musketry (the idea of Lord Roberts).

8/86

Officers' quarters

In addition to the mens buildings there are two blocks of quarters each for two Officers Ceilings and floors boarded.

Theatre

There is also a small theatre which is never used.

Institute

Institute buildings and arrangements are very complete.

Subsidiary buildings

Subsidiary buildings seem complete in every respect and are connected to the main buildings by means of covered passages.

Commissariat Buildings

With the exception of the Mule and bullock shed referred to below, the Commissariat buildings (Bakery, Slaughter House, Granaries, Elephant Shed, Sick Cart Shed &c) are complete.

Rifle Range

The Rifle Range only extends up to 900 yards the firing platform for which is on the roof of the Hospital and can therefore only be occasionally used. The Range in its present position cannot be increased, a new Range might possibly be found along the river bed.

Bathing

The men can bathe in the river during the hot weather but during the rains there is no place for them to use.

Gymnasium

There is no Gymnasium but the theatre or one of the old married quarters might easily be misappropriated.

Rainfall

The rains continue from about June to October and the average rainfall is 100 inches. The hot season extends from March to the end of May.

Water Supply

There are five wells in Cantonment, one of which is for drinking water, and is carefully

protected

protected by means of a wall and a cover from all contamination. The latter well yields throughout the hot weather, but the others fail and washing water has to be brought up from the river.

16/86

Roads

The roads are entirely of laterite and are about 1000 yards in length. No permanent Coolies are employed, repairs being carried out by contract when required.

Lightning Conductors

Lightning conductors were tested about 3 months ago. There are however no conductors at all to the Magazine in which dynamite is stored.

Repairs

The sums sanctioned for repairs this year are:-

B. I lines Rs 2220
Commissariat lines Rs 500
Roads ——— 190

The first sum seems a little high. X

Minors

Contractors

Messrs Lewis and Brothers, who live in Malappuram are said to be good Contractors and seem to have all the work to themselves, A little outside competition would no doubt be wholesome.

Works in progress

The only work in progress beyond repairs is the reroofing of the Apothecary's (1st grade) quarters which are situated near the Hospital; in the meantime according to the account of the medical officer in charge, the Apothecary has *himself* to pay Rs 20/- per mensem for a private bungalow, which has been hired for him.

Sanctioned works

An estimate has been sanctioned for Rs 2824/- for the construction of sheds for 12 Bullocks and 10 mules, but a site for the building has not yet been definitely decided upon.

Proposed works

An officers mess is badly required and it is believed that an estimate has been prepared.

An

Some local materials

An unlimited supply of laterite can be obtained within a mile of Barracks.

So called Granite (blue gneiss) comes from a distance of two miles.

+

Some rates (obtained from the overseer)

7/80

Ironwork -/2/- 4 (obtained from Calicut) cheap

Laterite 18/- 100 C. ft

Teakwood work 3/8/- to 4/4/- C. ft

Irulwood 1/12/- C. ft

Average rate for a cooly -/3/- to -/4/-

— do — mason or blacksmith -/8/- to 1/-/-

Mangalore tiles on 3/4" [illegible] boards Rs 27/-/- 100 S. ft

Sectioning and ramming 4" Laterite on roads – Rs 18/- 100 S. ft

Furniture

Furniture when required is obtained from Calicut.

Repairs to furniture are carried out by contract under the departmental supervision of the Commissariat.

Notes on Calicut.–

Calicut town

The town of Calicut is situated on the west Coast and is the terminus of the Madras Railway.

The

Barracks

The Barracks are built on a small hill about three miles from the town.

Cantonment

The Cantonment includes only about 38 acres Government and 11 private land.

Boundaries

The boundary is well defined by granite pillars marked P.W.

Subordinate in Charge

Mr L. A. Barboza a temporary Overseer, 3rd grade has been in charge of the Station for the past two years; he lives three miles away from his work in Calicut town.

Troops

One hundred men from the Regiment at Wellington are stationed here.

Buildings

The single mens Barracks are old but in fair order. One Barrack is the old Collector's house, and some of the rooms are in consequence only big enough for four or five men.

The men are very crowded at present and a new Barrack for 80 men is being constructed

So

so as to relieve the pressure.

Commissariat Buildings

The Commissariat buildings (Bakery, Slaughter house, mule, bullock and elephant sheds) have been built since 1887 and are in good order.

18/86

Officers' quarters

There are three Officers' quarters, one for the Commanding Officer, one for a Subaltern, and the other for the Doctor, but all are in a bad state of repair.

Hospital

A good Hospital exists and will accommodate 12 men, 1 woman and 1 child.

Walls of buildings

Walls of buildings are of laterite plastered with lime mortar.

Roofs

All roofs are covered with country tiles except the Commissariat buildings which have Mangalore tiles (Elephant shed is thatched)

The roof trusses are in most cases of a very elementary pattern consisting merely of a very heavy tie beam with one or three vertical uprights.

Internal

Floors

Internal floors are boarded and verandahs are asphalted

Married quarters

There are fifteen married quarters of which some are misappropriated as Prayer Room, Sergeants' mess, Commissariat Sergeants' quarters and Commissariat Store

Subsidiary buildings

The Subsidiary buildings are sufficient in number and size, but none of the latrines have doors in front of the Seats.

The latrine of No 1 Barrack almost adjoins the Cook house.

A dry earth store exists

The subsidiary buildings are connected to the main buildings by covered passages

A very large shed constructed of teak logs with a thatched roof and walls of bamboo matting was built as a Gymnasium but is now in a dangerous condition and should be removed as it is quite close to the Barracks.

Another shed situated between the Barracks and the Hospital is used as a Church.

Numbering of buildings

The buildings all have name boards but are not numbered.

Repairs

15. 10. 12

Repairs

Repairs are carried out by Narain Nair, who is said to be a good Contractor.

The repairs estimates amount to Rs 2600/- which includes 630/- for whitewashing and 378/- for shifting tiles.

19/26

Some rates

Iron work -/2/- to -/4/- per lb

Laterite in lime 18/- to 20/- 100 C. ft.

Granite three lines dressed 3/10/0 C.ft.

Teakwood work from 3/12/- to 4/4/- C.ft.

Mangalore tiles on 3/4" cedarwood planking Rs 30/- 100 S. ft.

1¼" Teak flooring 85/- 100 S. ft.

1½" Panelled and glazed doors 1/4/- S.ft.

Whitewashing -/2/6 100 S.ft.

Wages

Man Cooly -/3/- to -/4/-

Mason 1st Class -/13/- 2nd Class -/10/-

Blacksmith -do- -/10/- 2 do -/8/-

Timber used in construction

Teak, Venteak, Cedar (white and red) Irrumbaguin, Karamaradu and Irool.

Roads

The Cantonment roads are only 2660 feet in length and repairs are carried out when required. The sanctioned estimate for repairs amounts to Rs 200/-

Laterite metal is obtained from quarries within a mile of Cantonments at a rate of Rs 2/8/- per 100 C.ft.

There

Water Supply

There are four wells, one at the top of the hill, 61 feet deep giving a fair supply of good drinking water, a Second near the Barracks for washing water, a third near the Slaughter house and a fourth in the Transport lines.

Lightning Conductors

The lightning Conductors to the Magazine are said to be in bad order.

New works

A barrack for 30 men is being constructed and although the walls are some 10 feet high it is stated that the building will not be completed until April 1873. The Barrack with one Lavatory and one Latrine will cost Rs 81,550.

Furniture

Furniture is made by contract and supplied to the troops by the Commissariat Department.

Rifle Range

The range extends only to 600 yards with the Sea as back ground and a new one will probably have to be selected hereafter

Notes

Notes on Cannanore Fort.

Historical

90/86

This Fort was constructed in the year 1505 by the Portuguese and named Fort Saint Angelo

About the year 1700, it was Captured by the Dutch and in 1771 it was Sold by them to Ali Raja of Cannanore.

It was Captured by General MacLeod in 1783, but was given up to Tippoo Sultan in the following year and did not finally become a British possession until 1790 when it was surrendered to General Abercromby who had a force of about 5,000 men on land and a number of war Ships close to the coast.

It is recorded in the Gazette of Malabar, that improvements were carried out to the Fort in 1797, Since when it would appear to have been nearly untouched to judge from the State of the defences at the present time.

The

General description

The promontory on which Cannanore Fort stands is situated between the town and the Cantonment is surrounded on three sides by the sea and is in length about 450 feet and has an average breadth a little over 200 feet. The Fort itself excluding the ravelin is about 205 feet by 200 feet. On the North or land side the trace consists of a bastion on each flank with a curtain protected by a curious ravelin between the escarp on these side is withdrawn 30 feet from the edge of the ditch, thus forming a large berm.

Ditches

The dry ditch of the ravelin is 12 feet deep and the main ditch which is connected to the sea at its eastern end by means of a sluice (out of repairs) is 15½ feet deep and 12 feet wide in front of the entrance gate, and 24 feet deep, and 60 feet wide, in front of the curtain. On the east side the sea cliff is surmounted by workshops and sheds except at the N. E. corner where there are one or two salient flanking angles for musketry fire, but which leave a good piece of the Southern promontory quite dead.

4/86

General description

On the west side at the Southern end there is a long gun shed and at the centre there is a battery with wire embrasures, which were almost knocked to pieces by last year's practice and which have a command above the sea of about 20 feet. On the South side there are some store godowns once used as Barracks and to the South of these there is a dry ditch about 18 feet wide, crossed by a bridge sliding on iron girders. To the South of the Fort there is a piece of open ground planted with a few casuarina trees and with an underground magazine or store (entered by a small trap door at ground level) in the centre. Around this plot of ground there is a small parapet which has a small dry ditch in front of it on the Southern side

The extreme end of the promontory is rocky barren ground which in fine weather would not present many difficulties to a landing party who were well covered by fire from their Ships.

Trace

It is clear from an examination of the Fort that the trace has been altered considerably from time to time but no old plans appear to be available.

Surrounding Country

The Ground to the North consists of a large open maidan, used as a parade ground, but to the N.W. is occupied by the B. I. Barracks and to the N.E. the cocoanut plantations are within rifle range, and would afford excellent cover to an enemy on land. The old R. A. Barracks and Commissariat Office are also close to the Fort in the same direction (N E).

Main approach

The main approach is across the maidan to the north and the only road into the Fort itself after passing through a short glacis crosses a sliding bridge over the main ditch, here narrowed to 12 feet, and thence passes

through

through a 3 inch iron spiked wooden gateway to the South of the N.E. battery into the interior of the Fort.

27/80

There appears to have been another entrance through the centre of the curtain which is screened by the Ravelin.

Distances from town and Barracks

The B. I. Barracks are only 620 yards distant from the north west corner of the Fort and all the important buildings in the town and cantonment are within 2000 yards.

Armament

The armament which is placed in the East (9 embrasures) and West (8 embrasures) Batteries on the north face consists of the following:-

East Battery

1. 10" mortar
1. 8" — do —
8. 18 Pr S. B. guns

West Battery

2 18 Pr S. B. guns

Reserve

In addition to the above a reserve mountain battery fully equipped and consisting of 2. 5½" mortars and two 4$\frac{2}{3}$" howitzers are kept in one of the Stores.

Ammunition

Ammunition is plentiful and the needful apparatus for filling Shells &c is kept in the Fort Laboratory.

Chief build

The chief buildings are as follows:-

Laboratory and guard room
Armoury containing some thousands of vacant wooden arm racks.
Tent and store godowns
Workshops.
Saw shed and pit
Store Sergeants' quarters
Staff Sergeants' quarters
3. gun sheds.
6 Jail wards consisting of long rooms with brick arched roofs and iron barred doors and windows all very much out of repair.

Light house

A light house and signalling quarters are situated at the N. W. corner of the Fort.

Magazine

The big gun magazine is a bombproof building with a second roof of mangalore tiling over the brick arching to keep out damp.

The

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The old police guard room used as a magazine for the storag of gun cotton for the use of the troops.

Lightning Conductors

The lightning conductors are sa to be in good order.

Water Supply

There are two wells inside th Fort in one of which the water is brackish and in the other good, but as the latter is influen by the tides, it is proposed to a another well further from the Sa

23/86

General

The only inhabitants of the Fort are the Park Sergeant, the Light house signallers and the B. I. and N. I. guards.

The occupied buildings are in good order, but as in the cas of the Cantonment there is a large number of good building lying absolutely idle.

The Fort would only be of use against a land attack, which it has principally been constructed to resist.

Note

Notes on Cannanore

Position

Cannanore is situated on the coast 57 miles north of Calicut, with which it is only connected by road

Size

It is a large Cantonment about 1½ miles by 2 miles and in addition to a great number of private bungalows contains lines for one Native Infantry Regiment and for one Battery of R. A.

The boundary is defined by Granite Stone pillars.

Subordinate in charge

Cannanore is a Sub-division of the West Coast Division P. W. D. with head quarters at Calicut and has for the past three years been in the charge of Sub-conductor J. B. Smith who has in addition to look after the Civil buildings in three talugs or an area of about 50 by 30 miles.

Garrison

The present garrison consists of 100 B. I. and a Native Regiment.

B. I. Lines

The Barracks now occupied by the Detachment were built in 1845 and the unoccupied buildings in 1839.

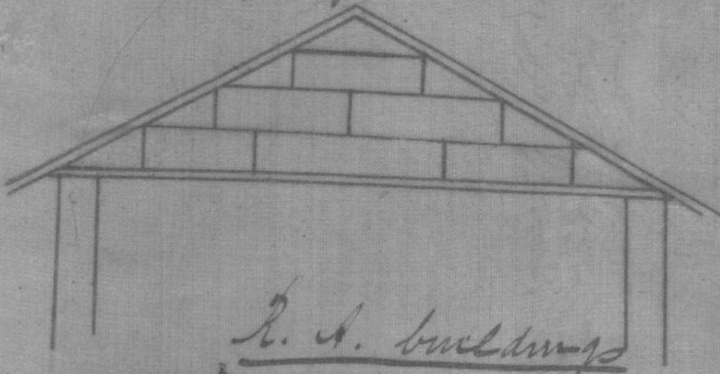
The unoccupied Barracks are kept in a very fair state of repair.

Drainage very good

Institute buildings naturally very complete.

24/86

Style of construction



All the buildings are constructed by Laterite and have boarded floors and tiled roofs supported on primitive trusses.

R. A. buildings

The R. A. Buildings are not occupied by troops, but one of the Barracks has been misappropriated as a Civil Hospital and another as a Police Station. Style of construction similar to the B. I. lines. The R. A. plunge bath is used by the B. I. as theirs is out of repair.

Commissariat Buildings

The Commissariat buildings including warrant and non commissioned Officers' quarters are in a very good state of repair and are of course much in excess of requirements

Native Infantry Buildings

The Sepoy lines are neat in appearance and well kept up by the Regiment who receive a grant from Government

The

Magazines

The Magazines, places of arms, Guard room and hospital are complete and kept in good repair by the P.W.D. Two very large magazines one of which is fitted with a great number of stands for ammunition are situated near the church but are both in a bad state of repair.

Water Supply

The water supply throughout Cantonment is good and ample though the wells have not been cleaned out for a long time.

Church

There is a church much too large for present requirements but kept in good repair

Hospital

The Hospital for 80 or 90 beds consists of a very fine set of buildings close to the Sea and is well kept up.

Old Women's Hospital

It is proposed to use the old Women's Hospital (near the church) hereafter as a Cantonment (Lock) Hospital.

Repairs

Repairs are carried out by contract and bills are checked and cheques drawn by the Ext Divisional Officer. This years estimate for the B. I. lines amounts to Rs 2500 (including 800/- for white and Colorwashing), for the Commissariat buildings Rs 800/- for the N. I. lines Rs 1100 and for the Fort Rs 1200. The average monthly expenditure on Military repairs &ca and Salaries is Rs 75/-

V/86

Contractors

The Contractors are good and have been employed for more than 20 years.

O. Oomar Cooty of old Town Cannanore, carries out work to the N. I. and Commissariat lines and O. Poker repairs the B. I. lines, Fort and Roads.

Roads

The roads which have a total length of 9½ miles are in good order and are repaired at an annual cost of Rs 3000/- which although it includes the pay of a maistry at Rs 25 per mensem seems very high.

Rifle Range

The Range for B. I. extends to 900 yards and for N. I. to 800 yards.

[illegible]

Some rates

Ironwork — /3/- per lb
Laterite in lime 18/- 100 cft
— do — in clay 14/- — do —
Laterite road metal 4/- — do —
Teakwoodwork 7/- cft
Brool — 1/0/- — do —
Granite — 1/8/- — do —
Cooly -/4/- per diem
Mason or blacksmith -/10/- to -/12/-

Furniture

Jail rates having been found to be very high furniture is now made up Departmentally by the Commissariat and is issued to Calicut and Malapuram, that for Cannanore itself being drawn from the Commissariat by the Barrack Sergeant and then issued to the troops.

Most of the furniture is of very old patterns and is not in good repair.

Barrack Sergeant

Sub Conductor Dixon who has the somewhat anomalous title of Barrack Sergeant has charge of Barrack duties and as his net pay is only Rs 50/- and he does not receive rations or other allowances he appears to have a real grievance.

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Jails

Notes on Quilon

Cantonment

26/86

Quilon Cantonment is situated on the coast of Travancore about 160 miles South of Calicut with which the means of Communication are either by Sea in the coasting Steamer or by backwaters in boats.

A railway is under construction and will connect Quilon with the South Indian Railway at Tinnevelly.

Garrison

The garrison consists of one Regiment of Madras Infantry less small detachments at Trichur and Trivandrum.

Native Infantry lines

The Native Infantry lines are probably the worst in India and consist of a number of thatched roofed hovels with wattle and daub walls. Estimates have been prepared for the construction of permanent lines on the Standard plan.

Regimental buildings

The regimental buildings Quartermaster's Store, Guard room and places of arms, Hospital and Armourers Shop are substantially built and in good order.

Armourers' Shop

An estimate has been sent forward for providing a drying room, and a forge and browning trough in the Armourers' Shop, which is otherwise complete.

Repairs

All work is carried out by the Travancore State P.W.D. (See general report). The amount spent on petty and annual repairs is Rs 3000/- which seems rather high.

Water Supply

The water supply is good, but there are no masonry platforms round the wells.

Rifle Range

The Rifle Range (sea back ground) is only 800 yards long, but could be extended if the road at the 800 yards platform were closed during practice, this however would receive much opposition and it may be necessary hereafter to select a new range.

Commanding Officers quarters

The Commanding Officer is provided by the State with a very good house rent free.

Notes on Trichur.

Position

Trichur is a small outpost in Travancore State distant 21 miles by road from the Railway at Shoranur, 132 miles by backwater from Quilon and 6 miles in a direct line from the Sea.

Garrison

The garrison consists of 1½ companies from the Regiment of N. I. at Quilon.

N. I. Lines

V/86

The Sepoys' Huts are fairly substantial and are in good repair.

The orderly room, Quarter guard, Place of arms and Hospital are in one block (159' x 28½') which is in poor repair.

The School and Armourers' Shop are in another separate block, and a small magazine completes the list of Public buildings.

Repairs

As in the case of Quilon all repairs and works are carried out by the State P.W.D. (vide general report)

Rifle Range

There is no rifle range, one being hardly required for such a small body of troops

Water Supply

Water supply good.

Roads

All roads are purely civil.

(Signed) E. Stokes Roberts.
Lt. Col.
Chief Engineer. M.W.
22-2-92.

"True copy"

Colonel.
Dy. Quarter master General

ND

No. 9494

Office of the Chief Engr M.C. M.W.
Ootacamund 1st December 1892

Quarter Master General 98/86

21
38P

1. I enclose for your information a report (return requested) drawn up by Lieut: E. R. B. Stokes Roberts R. E. regarding the Military stations in the Southern District Madras Presidency drawn up in February last.

2. I concur generally in the suggestions put forward in the Report and am of opinion that the procedure with regard to the Maintenance of Military Works in the Native State of Travancore should not be interfered with at all events for the present; the stations of Quilon and Trichur in the Native State of Travancore, are too remote to allow of efficient supervision by the Executive Engineer of the Southern Division - a new military works Executive Division whose head Quarters I would suggest should be at Wellington.

3. As regards the estimated cost of Establishment given at page 9 of the Report I concur generally except that I am of opinion that a Lower Subordinate

2/D.807/92

at a monthly salary of Rs 50 will be sufficient for the requirements of Trichinopoly.

4. The following table represents therefore the probable cost of Establishment in the proposed new Southern Division and of the extra Establishment required in the Madras and Belgaum Divisions, in order to complete taking over charge of all the military stations within the limits of those Commands now under the charge of the Public Works Department.

Executive Division M. W. D.	Sub Division	No.	Designation	Pay per mensem	Pay per annum
Madras	Berhampore	1	Upper Subordinate	100	3360
	Vizianagaram Vizagapatam	4	Temporary Sub overseers	140	
	Samalcotta	1	Clerk	40	
Belgaum	Mangalore*	1	Overseer	80	960
Southern Division	Wellington	1	Executive Engineer 4th grade	783	22308
		1	Upper Subordinate	143	
		1	Accountant 4th grade	100	
		1	Draughtsman	70	
		1	Head Clerk	60	
		1	Clerk	20	
		4	Peons @ Rs 7	28	
	West Coast	2	Upper Subordinates	320	
		1	Lower Subordinate	50	
		1	Clerk	25	
		3	Maistries @ Rs 20/-	60	
			Sub Divisional allowance	60	
	Trichinopoly	1	Lower Subordinate	50	
		1	Clerk	25	
		1	Maistry	20	
			Sub Divisional allowance	45	
				Total Rupees	26628

* This station might perhaps more suitably be placed under the charge of the Executive Engineer Southern Division.

5. The total Establishment charges necessary in order to give effect to the proposal that this Department should take

they

charge of all the Military Works in this Presidency with the exception of those in the Native state of Travancore will therefore amount to Rs 26628; meanwhile a saving of Rs 11712 (as marginally noted* will be made in the Establishment charges of the existing Madras Division, making the total extra Establishment grant required Rs 14916 or Rs 1784 less than the amount now allotted by the Government of India to the Madras Public Works Department for Establishment on Military Works now being carried out by them.

* 1 Ex: Engineer at Rs 783/-
1 Upper Subordinate 143/-
2 Clerks @ Rs 50
Pay per mensem Rs 976
- per annum 11712

6. The total Expenditure on Military Works at Quilon and Trichur does not appear to have exceeded Rs 3000 in 1889-90; the charges for Establishment at 22 per cent would therefore not exceed Rs 660 and the proposals formulated above accordingly show a saving of about Rs 1100 annually on the present Establishment charges.

7. I would submit that the present is a most opportune time for action to be taken in this matter, owing to the proposal shortly to hand over all the Burma stations to the Public Works Department; the arguments against the dual control of Military Works Department and Public Works Department over Military Buildings in Burma, apply with equal force against the same system in India.

30/86

8. As regards Barrack and Hospital furniture we can work as cheaply as the Commissariat and have the advantage of having experienced officers accustomed to the work of supply as carried out at other stations in Northern India. At Secunderabad for instance we have a workshop replete with all machinery tools etc required for wood work and which stands idle from want of work.

I am of opinion the barrack Establishment might be utilized far more than they are at present; in fact I know from Barrack Masters who were formerly under the Military Works and have and have changed to stations under the Commissariat Department that they charge of all the Military Works in this they say they have nothing to do.

Now one of the great functions of the Barrack-Master is the allotment and proper care and inspection of Quarters. This very duty now devolves on Executive Engineers to the detriment of more strictly professional work. The duties of the Barrack Master as regards quarters repairs &c being so intimately concerned with the duties of the Executive Engineer and the supply and repair of furniture being of a character requiring a knowledge of workshop management, I am confident nothing but good would result from a speedy transfer of the control of the Barrack Department to the Executive Engineers.

(sd) B.R. Ward R.E.
Capt.
for Chief Engineer N.C.N.W.

(True Copy)

A.H. Hutchins
Colonel
Dy Quarter Master General

HD

31/86

PW C.1 / 12720/92

B & R Genl
Mily Works Acct

PUBLIC WORKS DEPARTMENT.

No. 86-W dt 16th January/93

PROCEEDINGS OF THE MADRAS GOVERNMENT.

32/86 25 Pr

READ the following

From the Military Department H. E. No: 8219 d/22nd Decr/92

Her 14th

In G. O. 3178 W dated 26th November 1891, H. E. the Governor-in-Council stated that he had no objection to the proposal that all the Military works in the Madras Presidency now in charge of the P. W. Department be transferred to the control of the Military Works Department. Since then nothing has occurred to alter the circumstances. The matter is one for the consideration and decision of the Govt of India to whom the correspondence will accordingly be forwarded for orders.

H. E. No: 87 W d/ 16th Jany/93

To

The Military Department 21/15/36

Copy of the above with a copy of Proceedings No: 3178 W d/ 26th Novr/91 forwarded to the Govt of India.

To

The Secy: to the Govt of India
Military Deptt.

(The Secretary to Govt Military Dept. for inform. of Combatant Estabts)

C. Fr. 31/12/92

OVB 29/12/92

NH 10/1/93

P.A. 21/11/36/54

P 9/1/93

P 9/2/93

16/1/93

Recd. from the [illegible]

C No 12720

Govt. of (1893) Madras.
PUBLIC WORKS.

17/4/93

Indd

Recd 14673 W Entd

G.O., 16th January 1893 No. 86. W / 87

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Military Works

Ordered that the correspondn
regarding the proposed trans:
to the control of the Military
Works Dept of all the ——
in the Madras Presidency
now in charge of the P.W.D
be forwarded to the G of I
for orders

Military Works

Forwarding copy of Procg:
on the subject of the propose
transfer to the control of
the Military Works Dept
of all the —— in the Madras
Presidency now in charge of
P.W.D

F C 174