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MADRAS RECORD OFFICE.

Government of Madras.

Judicial **DEPARTMENT.**

G.O. No. 707 Press ~~Mis.~~

44-45

Dated 31—8—1938

Not to be folded or roughly handled

No. 44. Read the following Extract Minutes Consultation in the Military Department, dated 30th April 1858, No. 1494.

Communicating copy of a letter from the Adjutant General of the Army, forwarding a Minute by His Excellency the Commander-in-Chief, on the Military Defences of the Cantonments he has visited in course of his present tour, and a Memo. on the same signed by Colonl A. Cotton. } (Vide Military Consultation, 27th April 1858, Nos. 24 at 28.)

No. 45. ORDER THEREON, No. 707.; dated 31st May 1858.

Resolved that copies of those portions of the Minute of His Excellency the Commander-in-Chief, dated 11th March, which relate to the Jails at Bellary, Cannanore and Calicut, with paras. IV, XIX and XXVI of the foregoing Extract Minutes Consultation, be referred to the Inspector of Prisons for any remarks he may have to offer.

2. His Excellency's suggestion respecting the investment of the Commandant of the Convalescent Depôt proposed to be established at Ramandroog, with the powers of Joint Magistrate and with the authority, in Abkarry matters, now exercised by Ameens, will be considered on the formation of that Depôt.

3. Copy also of His Excellency's opinion of the Malabar Police Corps, will be furnished to the Acting Magistrate of Malabar, and by him to the Officer Commanding that Corps.

(Signed) T. PYCROFT,
Chief Secretary.

Exd. F, Cartledge.

No. 1494.

Extract from the Minutes of Consultation, 30th April 1858.

Read letter, from the Quarter Master General of the Army, Head Quarters, Ootacamund, 15th March 1858, No. $\frac{19}{116}$; to the Secretary to Government, Military Department.

I have the honor, by direction of the Commander-in-Chief to forward a Minute, in original, dated the 11th instant, by His Excellency, on the Military defences of the Cantonments he has visited in course of his present Tour, and to request that it may be submitted for the early consideration of the Right Honorable the Governor in Council.

A memorandum by Colonel A. Cotton, Commandant of Engineers, dated the 24th ultimo, on the Military defences of the Cantonments of Bangalore, Bellary, and Kurnool is likewise transmitted.

Minute by His Excellency the Commander-in-Chief, Ootacamund, 11th March 1858.

Bangalore.	*Mysore.*
Bellary.	*Mercara.*
Ramandroog.	*Cannanore.*
Kurnool.	*Calicut.*
French Rocks.	*Malliapooram.*

Having now completed my inspection of the Military Stations and Posts marginally noted, I beg to submit the following observations on each, for the serious consideration of the Right Honorable the Governor in Council.

The principle I would earnestly inculcate in providing for the defence of chief stations, is to place in security, under sure Military protection.

1st. All munitions of War and Military Stores and Materiel.

2nd. All large Treasuries.

3rd. All Central Jails.

4th. To dismantle and destroy all Native Forts, and defensible Posts which we do not garrison with Troops.

If these precautions are rigidly observed, we never shall have any serious out-break either amongst the Native Troops or the population of India. However ripe and disposed for Mutiny or Rebellion, men can make no effectual or protracted resistance without munitions of War and without the sinews of War—Money!

But these indispensable precautions for our perfect security in India require a large accession of European Troops, and I have specified on repeated previous occasions, the precise amount of British Force of all Arms, which in my opinion should be assigned for the Madras Presidency.

I now proceed to observe upon the several Stations and Posts, in the order in which I visited them.

Bangalore.—I entirely approve of the defences proposed for this station by Colonel Green, the Superintending Engineer in Mysore.

I suggested one alteration to Colonel Green and Colonel Arthur Cotton (Commandant of Engineers, who has been instructed by Government at my request, to accompany me on this Tour) both of whom concurred in it, viz. that the principal Magazine and all combustibles should be established within the line of entrenchment of the new Dragoon Barracks on the Race Course, instead of placing them within the Arsenal Defences. The new Dragoon Barracks are most eligibly situated, and peculiary defensible—there is an extensive open place all round, and the natural formation of that ground almost forms a perfect glacis.

Colonel Cotton entirely agrees in my condemnation of the situation of the present Arsenal in the Fort, and in the expediency of removing it to the old Infantry Barracks, as I suggested in September 1856. The Fort to be *then* dismantled but certainly not till then.

Bellary.—The Fort of Bellary consists of a Citadel on the top of a high base rock—the Citadel is of no strength, and any well drilled Rifle or Light Company of European Infantry knowing how to take advantage of cover, might reach it however strongly opposed, without sustaining a single casualty—It is in every respect a wretched place, and as a defensive work utterly useless.

At the base of the rock on which the Citadel stands—at one side or shoulder—there is a lower Fort or outwork, but it is of no strength and in a state of disrepair. But even if the lower Fort were in the best possible order, it would be of little use, for, as I have already observed, the Citadel is accessible, and easily so from any point.

Barracks for the Artillery should be built outside the Fort, close to the European Infantry Barracks.

There should be no working Arsenal at Bellary.

A Magazine of sufficient size to contain five hundred (500) Rounds per Piece, of Ordnance and firelock dependent on it—together with a spare Light Field Battery and a 3rd Class Siege Train—is quite enough for all practical purposes, and all that ought to be maintained at Bellary.

The buildings for these should be erected close to the European Infantry Barracks, where there is ample space for them.

The Public Treasury and the Jail, should also be on that ground, and a Work for the protection of the whole should be thrown up of the same description, but on a smaller scale, as that proposed for the new Dragoon Barracks at Bangalore.

The European Infantry Barracks at Bellary are most excellent—but separate Quarters for the married men are very desirable—at present the married and single are all under the same roof which I consider a very objectionable arrangement—moreover it interferes materially with free ventilation.

Ramandroog.—Ramandroog is 38 miles from Bellary; it stands at an elevation of 3,500 feet, above Sea level, and as a Sanatarium for Europeans, it has been eminently successful, so far as the very limited extent to which it has been tried, extends.

A Table given to me by Superintending Surgeon Eyre, shews the following results of the Sanatarium from 1848 to 1857, inclusive.

Per Cent of	recovered to	No. sent.	72	10
,, ,,	Partial benefit.	,,	6	0
,, ,,	No benefit.	,,	19	45
,, ,,	Died.	,,	2	74

I recommend that a Convalescent Depôt be established at Ramandroog for the European Troops at Bellary, Secunderabad, and any intermediate neighbouring stations or Posts.

Accommodation should be provided for 200 men and 25 Families.

A Commandant and station Staff, a Medical Officer, and Non-Commissioned Staff, on the scale sanctioned for similar Sanatariums in the Bengal Presidency, should be allowed.

I think it very desirable, and Mr. Pelly, the Collector, agrees with me, that the Commandant of the Depôt should be invested with the powers of a joint Magistrate—and the authority in Abkarry matters, now exercised by the Native Ameen.

At present there are Barracks for only eighty Soldiers—there is no Commandant or Staff of any description—and only a Medical Subordinate to afford professional aid to the Patients.

Kurnool.—As a Military Position, being directly on the frontier of the Nizam's Country, Commanding the junction of the Tomboodra and Hindra Rivers, Kurnool possesses superior advantages to Bellary. But Bellary is a far more healthy locality for Europeans, and the abandonment of the superb Barracks there, would be very inexpedient. The Fort of Kurnool is fast undergoing demolition at the hands of the Executive Engineer of the District for the sake of the material, which he is making use of in building a very fine Bridge across the Hindra River.

The Fort is at best a wretched place, and the sooner it is pulled down the better. The place of Arms and the Hospital, both good Buildings, are inside the Fort, and so also is the densely populated Native Town—while the Soldiers Lines are about a mile distant outside, the principal Gateway which is very narrow—so much so that a couple of Bandies upset in it would effectually bar an entrance. To obviate this inconvenience, and to allow of the Troops having access to their arms and ammunition in case of a disturbance arising in the Town, the ingenious expedient of throwing down some hundred feet of the wall of the Fort adjoining the Gateway, has been resorted to ! ! !

If Kurnool is to be continued as a station for Troops of the Line, a new Cantonment for one Regiment of N. I., two Companies of European Infantry and a Detail of European Artillery—half a Company should be formed about a mile in advance of the present Lines, with the Toomboodra and Hindra on either flank. The position is excellent and a small fortified work to contain the European portion of the Garrison, the Magazine, the Treasury and Commanding the Jail, would make it thoroughly secure. But I continue of opinion that Troops of the Line are not at present required here. I consider that the Kurnool Horse, upwards of 250 Sabres—and an efficient Police are sufficient.

The Bridges over the Toomboodra and the Hindra, and the Lines of Road securing communication at all seasons with Hyderabad on one side, and Gooty, Cuddapah, and Madras on the other, should be completed with every practicable expedition as Military Works of great importance—At present the Roads on these lines are in a very bad state—indeed almost impassable—and consequently all movements of Troops are attended with mischievous delay and difficulty—The necessary remedies should be at once applied.

French Rocks.—I must remark that the position of this Cantonment is most faulty, if it was formed with any reference to Mysore—It is fifteen miles distant from Mysore with the Fortress of Seringapatam and two branches of the River Cauvery intervening, on account of the bed of the River being rocky and of a very rugged description, wheeled Carriage and Guns can only cross these branches by the Bridges---and they are commanded, at very short range, by Batteries of such power as to render an approach to either Bridge almost, if not wholly impracticable, if Seringapatam were in the possession of an enemy. If therefore the Troops now at the French Rocks are intended either to protect or overawe the Town of Mysore or to affect it in any way, a Cantonment for a Regiment of N. I. and one Company of Europeans—and it might be well to add 3 Field Guns and half a Company of Artillery—should be formed on the elevated ridge either right or left of the high road. This ground looks very suitable for the purpose—water is at hand, the locality is said to be quite as healthy as the French Rocks—and the site is about midway between Seringapatam and Mysore, and there are no intervening obstacles of any description.

Mysore.—A Company of H. M.'s 60th Rifles is now quartered at Mysore, I am told at the special request of the Rajah, and they are very healthy and suitably accommodated.

Mercara.—The Fort of Mercara is one of a chain of Forts constructed by Hyder Ally, the Father of Tippoo Sultan, about 80 years ago. It is a small irregular work of no strength, but quite sufficient to overawe and hold in check while in our possession, even the brave and manly Coorg population. As a place of defence against any organized attack, it is of no value, being commanded from several different superior heights at close Cannon range, and easily accessible. There are good Barracks inside the Fort for half a Company of European Artillery—there is likewise a bomb-proof Magazine, but not in good repair, in the Fort. The place of Arms is also within the work and so are the Jail and Treasury.

The Hospital and Native Infantry Lines are outside, but close at hand.

The abandoned Sapper Barracks which at one time were thought of as a Sanatarium for Europeans are not, in my opinion, at all well adapted for that purpose. They are more than a mile distant from the Fort the buildings are indifferent—the site is much exposed to the prevailing monsoon—the facilities for obtaining Liquor are very great—and on that account, for there are no means (of keeping the men to their Barracks nor of excluding the introduction of Liquor) the men of the Detachment of European Artillery formerly stationed at Mercara were the worst conducted Soldiers of this Army.

Cannanore.—The Fort of Cannanore is washed by the Sea on one side, and with some necessary repairs which should be immediately executed it, would be an excellent place of Defence.

The Fort is extremely well situated with reference to the European Barracks, and thoroughly covers and protects them.

The Arsenal is inside the Fort, and the Buildings for it though not of a superior description, are sufficient.

There are abundance of heavy Pieces available for the works, but the only Field Guns in the Arsenal are six Pounders and 12 Pounder Howitzers.

A complete 9 Pounder and 24 Pounder Howitzer Field Battery (spare) should be lodged in the Arsenal and kept in readiness for instant service.

I see no occasion for maintaining a working Arsenal at Cannanore.

The Civil Jail which is placed inside, should be removed to an eligible site out-side the Fort, and within easy range of the Guns. The spot selected for a Burying Ground which has been perforce abandoned on account of its being a bed of laterite, in which graves could not be dug would be an excellent site for the Jail.

The Civil Treasury and the Paymaster's Treasury should be placed inside the Fort—both are now at a great distance, the Civil Treasury upwards of two miles in a direct line and considerably more by the road.

The Magazine, containing the entire stock of ammunition for the Troops, is in a most objectionable position outside the Fort, beyond the reach of protection from either the European or Native Infantry Barracks, and very indifferently covered on *one* side by the Guns of the Fort—about sufficiently so to admit of its being blown up, but certainly not enough to save it in the event of an attack on it!

The Magazine should be placed inside the Fort, if it is not too damp—if that is found to be the case, on a very eligible site between the Fort and the European Infantry Barracks, where it would be most thoroughly protected by both.

The Magazine should be sunk, and a bomb-proof, as Colonel Green suggests for the Bangalore Magazines. It should be of sufficient size to contain five hundred (500) Rounds per piece of Ordnance and small Arm of the Troops dependent on it.

The European Infantry Barracks are excellent, and in good repair. A School room is much needed. Separate quarters for married men are necessary, and of the prescribed description—the present married quarters are much too limited, and they are moreover very bad indeed—The Hospital is excellent, and being close upon the Sea Beach it is charmingly cool at all seasons. It is half a mile distant from the Barracks, which is to be regretted, but in every other respect it is wholly without objection.

There is only one Light Field Battery here—six Pounders—manned by a Golundauze Company—as soon as it can be arranged, a nine Pounder Battery manned by a European Company should be substituted—Barracks for this Artillery Company should be at once built on the outer flank of the European Infantry Barracks, where the ground is highly suitable, and the position excellent. The Gun shed should be close to the men's Barracks, and so placed as to be within reach of instant protection from the European Infantry Barracks likewise. The Battery, Horse Lines and Drivers Quarters, should be in like manner, erected close to the Artillery Barracks.

The present Gun shed is on the very edge of a deep ravine, in which fifty thousand men might be concealed from observation—it is on the outer verge of Cantonments, some considerable distance from the Golundauze Lines---(and they are quite isolated) and within a few hundred yards of the Mopla Town with its population of sixty thousand inhabitants. This insane arrangement should be forthwith remedied.

When it can be managed, a Reserve Company of European Artillery should be stationed at Cannanore—and in the meanwhile the Golundauze may be conveniently retained as a Reserve Company and for any detached duties on which it may be undesirable to employ Europeans.

Calicut and Malliapooram.—Calicut is occupied by one complete Company of European and two Companies of Native Infantry. The Town contains a Mopla and Nair Population of 35,000 inhabitants. The Civil Officials reside nearly three miles from the Town. The European Troops are quartered in a Bungalow within a stone's throw of the Town, and the Native Infantry lines are about half a mile distant from the European Quarters. The Jail is in the heart of the Town, and it contains at the present time, and usually, 300 Prisoners *desperadoes* who in the event of the disturbance might be released with perfect ease, before Military aid could reach the spot. All Prisoners should be removed from Calicut to Cannanore, where a large Central Jail should be built under the Guns of the Fort on the site I have indicated.

The European Detachment at Calicut should be quartered at the Civil Station. The house in which Mr. Conolly was murdered is now for sale for fifteen thousand Rupees (15,000) and I very strongly recommend that it may be purchased for the accommodation of the Troops. It will amply suffice for the purpose, but I apprehend that an Hospital will be required—and I suggest that double storied Barracks for four Subalterns should likewise be built by Government.

There is a separate Bungalow on the estate, which is well suited for accommodation of the Officer Commanding the Detachment. The estate is most eligibly situated in every respect, on an eminence close to the sea, and to the houses of all the Civil Residents. It also completely commands the high Roads to the Town of Calicut, to Cannanore, and to Malliapooram.

The immediate proximity to the Native Town of the Quarters now occupied by the European Detachment is a great objection. The Town is full of Grog shops and Houses of ill-fame, and thus our country men are but too often presented to the gaze of the Natives, despite every precaution, in a condition of helpless drunkenness and obscenity which cannot fail to be highly injurious to our prestige. The Detachment of Native Infantry is well placed in its present position and ought not to be disturbed.

At Malliapooram the Detachment of European Infantry is of greater strength than that at Calicut—the Malabar Police Corps is likewise stationed at Malliapooram, and there is also a Mountain Train of six Pieces, drawn by Ponies, at the Post.—The Public Buildings are quite suitable, but the Mountain Train Gun shed should be removed from the Police Corps lines to the European Barracks—and, when practicable, a detail of European Artillery men to man the Mountain Train, should be given.

From all I have been able to gather from my own observation, and in course of a long and deeply interesting interview with Mr. Robinson, the highly intelligent and sound judging Collector of Malabar and Canara, I am now convinced that it would be both unsafe and impolitic to withdraw or reduce the Detachments at Calicut and Malliapooram---at all events for some years to come. And as therefore these two points may be considered to be prominent Military Posts for Europeans, I think it very desirable that a small Racket Court, a Skittle Ally, and sheltered place for Quoits or other Games, should be provided at each. They will not cost much, and they would conduce materially to preserve health and be a solace and amusement to the men.

Above all, the Road between Calicut and Malliapooram should be at once completed *on emergency*—the distance is thirty miles. The Estimate for this Road was passed long since Mr. Robinson informs me—and some thirty miles of it at the further end, from Palghaut, were finished when a stop was put to all Public Works. I however consider the completing of this Road between the two posts, (which at present are wholly incapable of affording ready support to one another) to be of such grave Military importance as to induce me to press in the most urgent terms, that it may be instantly sanctioned and proceeded with.

Malliapooram is in the heart of the most excitable and bigotted portion of the Mopla population, and might at any moment stand in need of being strengthened from Calicut. Were the Road completed, this could be effected in a night, and any rising or disturbance crushed on the instant---whereas at present, communication between the posts is a work of days, besides being attended with numerous great difficulties, and very considerable expense; all Stores, Commissariat, and baggage being conveyed on Coolies, the track being impassable by wheeled Carriages of any description.

Scarcely less necessary is it, that the Bridges on the Road from Calicut to Cannanore should be immediately proceeded with, and easy and rapid communication established with District Head Quarters— I consider this also a very important Military work which should be executed on emergency and without delay the distance is fifty one (51) miles.

With these Lines of communication fully opened, the perfect tranquillity of Malabar and Canara, the most inflammable District in the Madras Presidency, will be effectually secured—while it is my duty to urge upon Government that continued neglect of these obvious precautions may be, and in all human probability will be attended by the most calamitous consequences.

Having had an apportunity of inspecting a strong Detachment of the Malabar Police---purely a Civil Corps--it may be satisfactory to Government that I should state my opinion of them.

I think them the finest body of men (Natives) I have ever seen except perhaps the Seiks, and though not superior, in all the physical qualities of fine Soldiers, they are fully equal to the Seiks. The Corps is also remarkably well trained and equipped---if there is a fault it is that the training and drilling have been carried to too high a pitch for Police—which it is not desirable, I think should be drilled and disciplined up to the standard of a Regiment of the Line. The

Corps is armed with the old two grooved Rifle, and the target practice with it is admirable. It may be well not to deprive the men of a fire arm in which they have such perfect confidence and to substitute the common Percussion Musket for it, but at least I would very strongly recommend if it should be proposed (as I have reason to think it will be) to arm the Corps with the Enfield Rifle, that that Queen of weapons may never be placed in the hands of any Native Regular, Irregular, or Police.

Since writing this Minute, I have received Colonel Cotton's memorandum, dated the 24th ultimo on Military Defences, in the Cantonments of Bangalore, Bellary, and Kurnool, and I do myself the honor to forward it with this paper.

Memorandum on Military Defences in the Cantonments of Bangalore, Bellary and Kurnool.

I. About the 20th of January I received orders to accompany His Excellency the Commander-in-Chief to the above Stations for the purpose of considering on the spot what might be the best plan of rendering them defensible. It is well known that hitherto the Cantonments have been formed without the least reference to Military principles excepting that in some cases an Arsenal or a Magazine has been placed in a Native Fort within one or more miles of the Cantonment of the Force, but even such Forts were generally from their extent, vitious construction, state of disrepair and from their being filled and surrounded with the Native Town, quite indefensible. And the quarters of the different Corps composing the Force were all mixed up with Bazars and private buildings of all kinds, the Magazines often quite isolated and far from the Troops, and the Cavalry and Artillery separated from the Infantry. The question of defending the existing Cantonments is thus complicated with that of the expense of abandoning present Public buildings, and of destroying private ones, and also with that of the repairs, abandonment or destruction of the old Native Forts.

II. As no official papers containing instructions as to the precise principles on which the defences were to be planned, were furnished to me, the whole question was left entirely open, and as the matter was in every respect new, I first wrote a short paper, stating what appeared to me points which would admit of little question and what, such as were rather for the Superior authorities to decide and which must be in some measure settled, before the proper Engineering points could be effectively considered. After having His Excellency's views upon the whole subject, I proceeded first to Bangalore, and accompained him in his inspection of the ground and buildings there. After this inspection I was favored by the General of the Division with an account of what had already been planned by him on this important subject.

III. Before however proceeding to consider the particular case of Bangalore, it will be perhaps better to give my views of the general principles on which it appears to me we ought to proceed. I do not give these conclusions as those which have been the fruit of my own thoughts merely, but as those to which I have come after hearing the views of those who were so much more capable of discussing the subject.

IV. My conclusions then are,

1*st.* That owing to the utter want of attention to the matter of defence in the laying out of the Cantonments, it is out of the question to attempt to make the whole of any large one, a defensible position.

2*nd.* That the great essential is, so to arrange for the protection, of the following viz: the arms and ammunition, the treasure, the prisoners and the European families, as to allow of the main body of the Force taking the Field, without any risk (if possible) of those things falling into the hands of an enemy.

3*rd.* That the rest of the Cantonment must of necessity be so far abandoned to an enemy, as that it should be without complete defences, tho' many parts of it, which either from the locality or the nature of the Buildings were capable of it, might be furnished with partial defences, sufficient to check any desultory attacks.

4*th.* That the position intended for the protection of the ammunition &c. should be in all respects thoroughly defensible, and that by a moderate garrison, not exceeding perhaps 500 European Infantry with Artillery.

5*th.* That for this purpose it should be a work constructed on correct principles and with a clear space round it, and thus separated by a small interval from the rest of the Cantonment.

6*th.* That no tenable post should be allowed to exist any where in the neighbourhood of the Cantonment, which an enemy could occupy, and hence that any old Native Fort should be entirely destroyed as being incompatible with the effective defence of the Cantonment—If allowed to exist they must either be occupied by a Force much too small to prevent such imperfect works being carried by a surprize from the quantity of cover that there always is without and within them, or they must be defended by so large a body as would cripple the remainder of the Force if required to take the Field—This of course involves the abandonment of any public Buildings that they may contain, but this I consider must be submitted to.

7*th.* That no large quantity of Military Stores of any kind or of treasure, to tempt an enemy, should ever be left out of the main post, but only such quantities as are required for use.

V. It appears to me that these are essential points which cannot be given up; they will not involve a great expense, but such an expense as they will require must I think be incurred—They involve very little destruction of existing Buildings.

The only serious expenses will be.

1*st.* The Cost of the Fort.

2*nd.* That of the Magazines.

3*rd.* That of Buildings for the shelter of the Artillery and Commissariat Stores.

VI. The Buildings forming the Barracks of the Garrison, constructed of such capacity as is now usual, will on emergency, provide shelter for a very large body of non-combatants and entire families, besides the Troops.

BANGALORE.

VII. On this particular Cantonment I have little more to say than that I beg to state my agreement with the plans that have been already proposed.

1*st.* That the Barracks now commenced should be completed as speedily as possible.

2*nd.* That the position they occupy is an admirable one, an almost isolated rising ground, with a sufficient space on it, and a clean space all round it.

3*rd.* That about the extent which is marked on the plan for the works should be enclosed with a rampart, ditch and glacis as proposed, taking advantage of the strong earth of Bangalore to allow steep faces to both Rampart and Ditch without Revetment.

4*th.* To the Buildings already ordered to be built within this, to add two Magazines for about 1,000 Barrels each, a Treasury, and Store Rooms for the Artillery and Commissariat.

5*th.* To provide extensive Reservoirs for water, capable of holding a three month's supply for the Garrison and families.

6*th.* To make the two extensive enclosures in the Cantonment occupied as Barracks partially defensible by small Bastions at the Angles, completing the walls where necessary as already proposed.

7*th.* Connecting these two by a Tunnel.

8*th.* Removing the Arsenal from the Fort to one of them.

The one to which it is proposed to move the Arsenal is divided by walls into three compartments, and the lower one of them is only divided from an extensive Bazars in which are many masonry buildings by a road—It was a subject of discussion whether it would be necessary to clear away a portion of this Bazar—But I am of opinion that this is unnecessary—It is not intended that this enclosure should be capable of a protracted defence against a systematic attack, and if its garrison were pressed the plan would be to abandon first the lower division, and if necessary the second also, arranging the defences of the upper portions so that those below would be untenable by an enemy.

VIII. All the rest of the Cantonment must I think be left exposed—It is impossible to cover even with partial works so great an extent of ground covered with unarranged buildings.

IX. The Fort I consider must be destroyed—It seems to me that such a work ought either to be occupied in force or destroyed—Imperfect as its defences are, and with a vast mess of buildings within a few yards of it on one side, a small garrison would always be liable to a

surprise; and while such places exist they will always be a source of temptation to an enemy to get possession of them—Nor do I see any object whatever to be gained by keeping it up.

The retention of the Arsenal in it, miles from the Troops and with the Pettah between appears altogether incompatible with the effective defence of the Cantonment.

X. With respect to the water supply of this Cantonment, I may mention, that there is nothing to prevent water being stored on the Nundidroog side, on a level sufficient to command the high parts of the Cantonment—The water shed along which the water must be led from such Reservoirs has, I believe, no hollow in it, so that the water can be led inte the Contonment without any heavy work and the project is therefore practicable at no excessive expense. It would be a very great improvement to the Cantonment. The levels have been taken by Lieutenant Puckle, and I am satisfied of their correctness.

BELLARY.

XI. The question is here complicated by the existence of a Hill Fort--These works quite suited to Native operations, are so directly contrary to true Military principles that instead of being objects of attraction they ought to be particularly avoided by us. What we especially require in this Country is a compact work, without the smallest cover for an enemy in the neighbourhood, so that a small garrison could occupy it without danger of surprize, whereas the sides of these Hills afford the most effective cover to an enemy, who may be in force close to the walls without encountering any loss of consequence, and the garrison must therefore be sufficient to protect all points of the works at once—While they are thus very accessible to an enemy, they are very inaccessible to the garrison, to bring in Guns, ammunitions, Stores, &c.

XII. In the case of Bellary, it is well that the new Barracks are so far from the Hill Fort as to be out of reach of musketry, and it would be easy to prevent an enemy from getting Guns up to it.

XIII. The site of the Barracks is quite clear of cover, and perfectly well suited for a defensible post, there is also plenty of open space adjoining for Artillery or other additional Troops.

XIV. The plan I would therefore propose for the Cantonment, is,

1st. To form a defensible post, similar to that proposed at Bangalore, but of much less extent, within which Magazines, Treasury, the Arsenal and Commissariat Stores, and Barracks sufficient for two Companies should be constructed. This post to be within a short distance of the present Barracks.

This Fort must I conclude be revetted, but the excellent masonry at this place, formed of granite blocks with strong Hydraulic Chunam, is perhaps the cheapest in the world costing only about 1¾ Rupees a cubic yard.

2nd. Any additional Troops should be quartered in the same neigbourhood only leaving a clear space round the Fort.

3rd. Both the lower and Hill Forts, I think, must be destroyed for the reasons before given.

It may be objected to this arrangement, that many of the Europeans houses are on the opposite of the Hill from the proposed site, the answer to this is that there is no help for it. The new Barracks have been built on that site, and there is no alternative but to abandon them, or leave the houses above mentioned unprotected. To divide the Troops is of course out of the question.

KURNOOL.

XV. The circumstances of this place are peculiar in asmuch as it is the seat of a former Mussulman Government and also on the frontier of Hyderabad, and therefore within reach of the unsubdued classes in that state.

XVI. In following out the general plan of concentrating troops in future, I understand it is proposed to abandon this place, so far as regular Troops are concerned, leaving it to the Police and Irregular horse—As respect its position, there seems little room for question that it ought to be rather the Head Quarters of the Force than Bellary, but there is one serious objection to this, that being 700 feet lower than Bellary, it is much hotter, and also in other respects much inferior in point of climate to that place for European Troops; and the construction of the New Barracks there seems to leave no room for question now on this point.

XVII. This point, whether it should be given up altogether as a post of regular troops, is a question for the superior authorities—But there is one thing which it isproper for me to notice, Kurnool is now a considerable place for trade, and my own opinion is that as the country is opened up by communications, it must necessarily become the great commercial centre of the basin of the Kistnah—This will especially be the case if the proposed system of Irrigation and Navigation works between the Toombudra W. of Bellary, and the Pennaur and E. Coast Canal is carried out—I apprehend that wherever wealth and treasure accumulate the place becomes unessentially as great a feature in the Military occupation of the country as if it contained Arms and Ammunition and it must be protected.—It is as necessary to prevent an enemy getting possession of a large amount of treasure as of munitions, and large commercial places unprotected are certainly great inducement to restless men to collect and form dangerous bodies.—We have had an instance of this in the case of Juggiahpet in Masulipatam, lately plundered by the Rohillas—such places I consider must be protected. I therefore am inclined to think that it will be found that Kurnool must be occupied by regular Troops--It seems also determined to extend the District of Kurnool, in which case the amount of Government treasure collected here will be increased.

XVIII. In case therefore of its being determined so to occupy it, I would propose the following.

1st. The present Fort must be abandoned and destroyed—It is now almost destroyed and as usual filled and surrounded with native houses, and quite indefensible, and in my opinion unimproveable—The only public building of consequence in it, I believe, is the new Hospital.

2nd. There is a perfectly suitable piece of ground, about ¾ mile from the Fort, between the Toombudra and Hindra rivers, for the Cantonment, and a fortified Post—I would there construct a Fort similar to that proposed for Bellary to contain as there the Magazine, Treasury, Barracks for two Companies of Europeans, &c.

3rd. Bridges over the two rivers should be constructed, I consider this essential to the place as a Military position—A force cooped in between two rivers without means of crossing them, and there liable to be exposed to witness the ravaging of the neighbouring country without affording aid cannot be thought of.

XIX. This place like Bellary possesses extraordinary advantages for masonry buildings—Building stone and lime are exceedingly cheap.

XX. I should perhaps mention more particularly the situation of this place as respects communications—It is on a level of 900 feet above the Sea—Below it the Kistnah has a great fall about 800 feet in 200 miles, giving no hope of its navigation being made effective—But above it the Kistnah and its feeders the Beemah, Seena &c. have a very moderate rise for a long distance, only an everage of 1½ feet a mile all the way to Poonah distant by water 600 miles—The upper part of the Toombudra also from the very Ghauts to the mouth of the Wurdah 230 miles, has the same fall, and the proposed Canal from the latter point must necessarily pass Kurnool. This place thus stands at the point where the whole trafic of the basin of the Kistnah would naturally concentrate, and from it, by the Valley of the Koondaur, due South to the Pennaur near Cuddapah and so along the line of the latter river to the E. Coast, is the natural line of connection of Madras and other ports on the E. Coast, with the whole country drained by the Kistnah—This project has been taken up by the Peninsula Irrigation Company, and seems in a fair way to be carried out by it—In this way there seems a fair probability of Kurnool becoming a place of great importance, in a Military point of view—such a place on the frontier could not be left unprotected.

XXI. As a main point of some importance in connection with the European Troops, I beg to notice the entire absence of shade at Bellary and Kurnool—The cause of this is the shallowness of the soil, which will not admit of the growth of trees.—This is a serious disadvantage to Barrack in these vast plains traversed by such withering winds. The only remedy for it, is to excavate pits and fill them with soil. A pit 10 yards in diameter and 3 yards deep would probably cost about 30 Rupees and provide for a tree growing to a large size. I think this expense ought to be incurred in the neighbourhood of the Barracks. Where several lacs have been spent on the buildings, an addition of 6,000 Rupees, for 300 Trees, might not be thought out of the way.

XXII. I have alluded to the Bridges over the Hindra and Toombodra at this place, as essentially connected with its effective Military occupation. The case of the Hindra bridge seems

to call for more particular remark—This work was commenced I understand nearly three years ago. The Piers are not all finished, nor is a single Arch yet turned. How so grievous a failure has occurred, I do not exactly know, but certainly it demands the attention of both the Civil and Military Departments of Government.—I have seen most districts of this Presidency and certainly no other has such extraordinary advantages for Masonry Works, from the naturally prepared state of the stone and the abundance of excellent lime, and yet a work which ought to have been finished in a single season, will take ten at the rate it has hitherto proceeded, for all that has yet been done is to build low piers on solid rock foundation for a bridge 1,000 feet long, and not all of them.—The delay at present is stated to be owing mainly to the use of cut stone and elliptical Arches, and to the unaccountable treatment that the contractor has received, his contract having been set aside when he had collected coolies, purchased bandies and bullocks, &c., being a direct breach of faith on our part, without any pretence of fault on his, but consequent on the stoppage of Public Works.—This man is a wealthy energetic and intelligent Gentleman and proposed to become an extensive contractor, that class which it is of such vital importance to raise up, as an essential element in the material improvement of the country.—Who can wonder that such are still wanting in the country when they cannot depend upon our keeping faith with them.—I beg to suggest that the only things which can secure the completion of this bridge without further disgrace and loss of time are 1st, to make the most ample compensation to the present contractor, such as he himself will judge ample, not only justice but policy requires this for the public report of faith having been broken with a contractor is one of the most injurious that could get abroad.

2nd. To give up the elliptical form of the Arches and substitute Circular Sigments. I beg to submit that the present state of things in the country with every thing to do, time and money are of too much value to be sacrificed to appearance—our ordinary superintendence can easily manage a simple uniform, curve in an Arch, but they cannot so well manage an ellipse.

3rd. That either the arches should be turned with the slaty stone found at hand uncut except at the edges, or else of brick, as the forming an Arch of large blocks of cut stone is quite unnecessary, excessively expensive, and with the stone cutters here procurable will be exceedingly slow.

4th. That an Officer, with an effective European Overseer should be left permanently in charge of the work, though the Officer would of course be available for the other work in the neighbourhood.

5th. The Bridge has been ordered to be widened beyond what was originally intended, to give wider roadway with the present piers, it will be necessary to make the Arches bellmouthed which would entail very great additional trouble and delay in a place where there are such poor workmen.—I would beg to suggest that the width first intended is sufficient, but if a greater width is insisted upon it might be gained by substituting cast Iron railing for parapet walls; and it would probably be as cheap as widening the Arches; but I consider the additional width quite unnecessary. In planning such works, it must never be lost sight of, that the heavy traffic of the Country will inevitably be soon taken off the common roads.

XXIII. Unless these points are conceded, it seems to me that great unnecessary expense must be incurred, and this important position be deprived for several years, of one essential part of its use as a Military Station.

XXIV. This Bridge is 1,000 feet long, and such works if executed as for use and not appearance can certainly be completed in those parts at 60 Rupees a foot of length, if of 20 feet broad, the breadth of which appears quite sufficient for the Trichinopoly Bridges with their enormous traffice of 20,000 passengers &c. per day.—That over the Toombodra would be 3,000 feet long and consequently cost 1,80,000 Rs. I must in connection with this refer to the question of the position of such a work—I am informed that a site has been talked of for it, where the bed is rocky, but which is not the suitable site for the work, as respect its use—I beg earnestly to protest against such a mode of choosing the site. There should, in my opinion, be only one point kept in view in choosing the site of a bridge, as of every other public work, and that is, that it should be built where it is wanted.—To save 20 per cent of the money by building a bridge where it wont be of a quarter the use it might be in another position is in my opinion a great mistake.—The Madras Railway is a striking instance of this fundamental mistake. By carrying it along the ridge of the Country from Madras to near Vellore, and quite clear of all the Towns and even of the rural population, it has certainly been constructed cheaper, but it has been at the loss of at least three fourths of the traffic it would have had if it had passed along the fertile tracts, and thro' the Towns of Conjeveram, Arcot, Vellore, Wallajahnugger &c.—I quote this as a striking instance of a great mistake into which professional men are continually liable to fall and of which there are so many other instances in the Peninsula. At the approach to a city and Military position like Kurnool, five sixths of the value of a bridge may easily be thrown away by putting it a mile or half distant from the most useful site.

XXV. An essential part of the new system of Military occupation is evidently the destruction not only of the posts near Cantonments, but of all throughout the country. The principle I would urge is, that every thing that makes the natives dream either of the old state of things under the native Governments, or of the late Hybrid system, half native and half European, as if we held the country only on sufference of the high castes, should now be swept away with the utmost care; that the natives should be reminded by every thing they do see and every thing they don't see, that we are now going to rule the country as Europeans and Christians, that our will and our ideas are to be the rule. While native places of strength and other things are allowed to remain, the poor people quite ignorant of the real state of the case, will always be fancying that there is a hope that the time will return, when they shall be able to get rid of those who will not permit, the rich, the high caste and the armed man, to ride roughshod over the mass of the people. The lesson they have lately received should I think be impressed in every possible way. I do trust that none of the old ideas of false economy will now be allowed to prevent the thorough carrying out of these two principles. 1st, That we should destroy every vestige of the old native supremacy; and 2nd. That we should appear in the position of standing in our own strength, and in a state of absolute independence of native help of every kind.

XXVI. I am certain that true economy absolutely requires this. If we can afford the wars and threatenings which will be the fruit of the least appearance of unpreparedness and of abject dependence upon native help or forbearance, we can certainly afford the much smaller expense of covering our ammunition, treasure, &c., with works suited to the true principles of Military science, and of destroying those places which to a native will, while they exist always, convey ideas of invincible strength even after the unmistakeable proofs they have had, of their essential weakness.

XXVII. I do not go into any detail in this paper both because I conclude it was not intended that I should, and also because it seems at all events better to keep such details separate from the principles. Being also under orders to proceed to Madras without delay; I should not have time to draw up such memo. with the necessary places &c. during the few days that remain.

XXVIII. I may recapitulate the principles which appear to me those on which the new arrangements for the Cantonments should be based.

1st. The establishment of a fortified post capable of being held for months against any Native force by 500 or 1,000 men, with a clear esplanade round it, and enclosing within it; 1st. Quarters for ½ or a whole Regiment and on emergency sufficient for a large number of families—2nd. Magazines containing most of the ammunition of the force, 3rd. All the Guns and Artillery and some Commissariat Stores—4th. The Treasure—5th. Water sufficient for 3 or 4 months.

2nd. That the rest of the Cantonment must be left unprotected, as from their vast extent and disorderly arrangement, the old Cantonments are quite incapable of being placed in any sort of defencible state. Excepting however that any particular set of Barracks &c. which offers facilities to be placed in a partial state of defence independently of the rest, may be strengthened by small works, as has in my humble opinion been so judiciously planned at Bangalore.

3rd. That Magazines containing only small quantities of ammunition for current use should be allowed in the undefended part of the Cantonment.

4th. That all Native works near the Cantonments or in them, and in the country universally should be destroyed effectually.

5th. That approaches to the Cantonment should be made perfectly effective at all seasons.

6th. That places where from natural or artificial commercial &c. advantages wealth accumulates, must be included in the Military arrangements, and permanently occupied in force, as such places will otherwise invite attack, and also because it is as necessary to prevent an enemy getting possession of private treasure, as of public money or of munitions of War.

XXIX. I conclude by observing that if the proposed Irrigation Company carry out their project of a current from the mouth of the Wurdah by Bellary and Kurnool to the Eastern Coast Canal, and improve the navigation of the various feeders of the Kistnah, so as to connect all parts of the basin of that river with the Hyderabad, Bellary, Kurnool, Cuddapah and Madras, it will incalculably increase the Military strength of the Government in all that tract, though there will certainly be the same objection (in a measure) to the Canals that there is to the Railways, viz., that the communication may easily be cut off.—The Canals however would still have the advantage, inasmuch as that Steamers could be kept at any points with Troops on board constantly ready to move to any part of them, which could not be done with Railways—It will also be quite easy to carry a Canal from Bangalore to Bellary at a very moderate expense.—There is not a single serious Engineering difficulty either in making the Canal or supplying it with water.—It would not cost more than one fourth that of a high speed Railway, would carry at $\frac{1}{8}$ the cost and could be worked by steam at 15 or 20 miles an hour if necessary.

XXX. But whether these water communications were executed or not, the common roads certainly should be put into a practicable state.—It will perhaps be scarcely believed that in the midst of the dry season I was 13 hours going 24 miles on the great high road between Cuddapah and Kurnool and Hyderabad, in a transit carriage with very little luggage, drawn by two powerful Bullocks assisted by 3 men besides the driver.—It is now 31 years since, as Civil Engineer of that Division I pointed out, how a few hundred Rupees would remove the worst difficulties in these high roads of Cuddapah.—But here is still one of the great highways of this Presidency, on which not one Rupee has been spent; the banks of the Nullahs and rivers have not even been sloped off; in one place the only road way was along the water course of a patch of paddy Cultivation; in many places the road is ploughed over, and water channels cut across it 2 or 3 feet deep.

XXXI. A Regiment of Native Infantry with their baggage would I suppose take 10 days to get over that 24 miles, and a much greater length is in its natural state, not having had a Rupee spent on it, nor even is it marked out and protected from the agricultural operations of the Ryots.—Nothing can be more evident than that such a state of things is incompatible with the effective Military occupation of the country.

FORT SAINT GEORGE,
24th February 1858.

(Signed) A. COTTON, Colonel,
Commandant of Engineers.

From the Quarter Master General of the Army, Head Quarters, Ootacamund, 19th March 1858, *No.* $\frac{24}{150}$; *to the Secretary to Government, Military Department.*

In continuation of the Commander-in-Chief's memo. of 11th instant, on stations visited by him during his late Tour, I am directed by His Excellency to forward for submission, the enclosed from Mr. Robinson, Collector of Malabar, received subsequently to the former being despatched, the subject was touched on in the original memo., and Sir Patrick Grant would beg to call especial notice to it.

Memo. by J. Robinson Esqr., Barragherry, 12th March 1858.

The Mundoor and Calicut road was devised to form a great trunk line, through the troublesome and inaccessible Moplah Talooks of Walloowanaad Ernaad, and Shernaad, and to bring the Cantonment of Mallapooram into direct and easy communication with Calicut and the Military Head Quarters of the Province. The line is well devised in every respect and when it is completed with few branch roads from different points* on it, we should have the most thorough Command of the Country. A few hours would suffice to bring a formidable body of Europeans from Malliapooram to bear on any point at which the peace might be menaced.

Angady prone	to Pandikat and Tovoor.
,,	to Munjerry and Areacode.
,,	to Kolatoor and Betul Pudiangady.
Mallapooram	to Terowangady.
,,	to Munjerry and Wundoor.
Goondotty	to Teroowangady.
,,	to Mopperaam.

* N. B.—Several of these Branches are in a fair order and they are being improved, and all might be made excellent cross Roads at 300 Rupees per mile.

Three or four years ago, a liberal estimate of nearly half a lac of Rupees was sanctioned for the line and its execution was earnestly pressed; but now mismanagement occurred, a large sum of money has been spent and when the order to stop all expenditure on Public Works arrived, it found us fully aware of our previous errors, and on the point of sitting with energy to retrieve them—but the stoppage overtook the works in such a condition that, it may be stated with safety, that at no part of the line could 2 or 3 miles of continuous road be pointed out, which is available for wheel carriage, and ready passage of Troops, while that portion of the line which, in a Military point of view, was of the first importance, and is wholly indispensable viz. the point between Calicut and Malliapooram has unaccountably remained almost untouched.

The communication between Calicut and Malliapooram is nearly as difficult this day, as it was 10 years ago, and it is still necessary to send the Troops round by Parpangaddy, and Tirvoongaddy, by a road impracticable for wheel carriage, and so close and difficult that, were the Country in a disturbed state, Troops could only move by very slow marches. This road passes through Teroowangaddy,* the seat of all the disaffection, and excitement that prevailed for years among our Moplah Population. The new line will pass through Coondotty and is much more direct one. Coondotty is the seat of a very influential Moplah Tungul of good disposition.

**The dwelling place of the banished High Priest.*

A large portion of the population of the District between Malliapooram and Calicut is Moplah, and the scene of several of our out-breaks intervenes between Malliapooram and the Head Quarters of the Division. A Military road through such a Country should be accessible, and easy at all seasons. The hedges and enclosures, (which in Malabar are breastworks of earth or stone of 4 to 10 feet high) being thrown well back.

I am anxious to have the road looked upon in the true light as *the* Military line of importance in the Province. It never ought to have been treated as a Civil communication, and is at this moment of far greater importance to the Malliapooram Cantonment and Detachment than any of the Masonry Works which are now being pushed forward there, as Military ones.

The restriction should be removed and the work be at once proceeded with.

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1. The Governor in Council fully concurs with the principles laid down in His Excellency the Commander-in-Chief's Minute for providing for the security and defence of chief Stations in this Presidency.

II. His Excellency's Minute and the Memorandum by the Commandant of Engineers, Colonel A. Cotton, will be referred to the Department Public Works in order that the measures hereinafter detailed may be taken in that Department.

III. Estimates and plans for the defences at Bangalore, allusion to which is made in the foregoing papers, have already been called for. The Governor in Council refers for the observations of the Inspector General of Ordnance, the proposal that the Principal Magazine and all combustibles should be established within the line of entrenchment of the new Barrack. Provision for their accommodation on the scale suggested in Clause 4, para. 7, of Colonel Cotton's memo. will be made in the plan and estimates already ordered—plans and estimates will be called for, for the works specified in Clauses 6 and 7 of the same para. of the memorandum.

On these works being completed and the Arsenal removed into them, it appears to the Governor in Council that the Fort at Bangalore should be destroyed. The necessary communications on the subject will be addressed to the Commissioner of Mysore and to the Government of India hereafter.

IV. In the Cantonment of Bellary the following plans and Estimates will be called for in the Department Public Works.

1st. Barracks for the Artillery.

2 Companies.

2nd. A Magazine and Store room capable of containing the munitions of War specified in the Commander-in-Chief's Minute, (head Bellary) with reference to which proposition the Inspector General's observations are requested.

3rd. A Treasury. } The Judicial Department will be referred to for observations and
4th. A Jail. } for information as to the requisite dimensions of these buildings.

5th. Field works as suggested in Clauses 1, 2, para. XIV, Colonel Cotton's memo. to be erected in the vicinity of the European Barracks and to contain the buildings above enumerated.

V. It is observed that estimates for converting the old European Hospital into married men's quarters have been already called for.

VI. His Excellency's proposal that a permanent Sanatarium be established at Ramandroog for European Troops meets with the full approval of the Governor in Council.

Estimates and plans for accommodation of 200 men and 25 families will be called for by the Department Public Works.

VII. The Governor in Council is of opinion that the Commandant, Commissioned and Non-Commissioned Staff, and Medical Officer should be allowed on the scale sanctioned to similar Stations in the Bengal Presidency.

VIII. The question of investing such Commandant with the powers of a Magistrate &c. will be hereafter considered in the Judicial Department.

IX. The Governor in Council is of opinion that on the completion of these works the Hill Fort at Bellary should be destroyed.

X. The Governor in Council is strongly of opinion that Kurnool ought to be maintained as a Military Post, Plans and Estimates therefore for forming a new Cantonment on the site and a fortified post contiguous to it on the scale mentioned by the Commander-in-Chief, and in 2nd Clause para. XVIII, Colonel Cotton's memorandum will be prepared—the question bearing on the Magazine is referred for the remarks of the Inspector General.

XI. The Governor in Council concurs with the Commander-in-Chief and Commandant of Engineers in considering bridges over the rivers essential to the new Cantonment, the requisite estimates are therefore to be called for.

XII. The Governor in Council considers that the sum estimated by Colonel Cotton for excavating and filling with soil pits for facilitating the growth of trees to be planted in them will be well expended.

XIII. The questions raised by Colonel Cotton regarding the Hindra Bridge in para. XXII, of his memorandum will be considered in the Department Public Works, as also his remarks on roads as set forth in the latter paras. of the same memorandum, together with the suggestions of His Excellency the Commander-in-Chief on the same subject.

XIV. The destruction of the Fort at Kurnool appears to the Governor in Council to be advisable on the above measures being carried into full effect.

XV. The Commissioner Mysore will be addressed on the subject of the new Cantonment proposed to be substituted for the French Rocks.

XVI. The Governor in Council sanctions a complete 9 Pounder and a 24 Pounder Howitzer Field Battery (spare) being lodged in the Arsenal at Cannanore.

XVII. The repairs to the Fort at Cannanore have, the Governor in Council observes, been already sanctioned for immediate execution.

XVIII. The expressed opinion of the Commander-in-Chief that there is no necessity for a working Arsenal at Cannanore is referred to the Inspector General of Ordnance for his observations

XIX. His Excellency's suggestions relative to removing the Civil jail from the inside to an eligible situation outside, but within range of the guns of the Fort at Cannanore, is referred to the Judicial Department for notice.

XX. The Civil Treasury and Paymaster's Treasury, the Commander-in-Chief considers, should be placed within the Fort of Cannanore—this proposal is referred for the observations of the Revenue Department and Accountant General.

XXI. The suggestions offered by His Excellency in regard to the Magazine at Cannanore are referred for the remarks of the Inspector General of Ordnance.

XXII. Estimate will be called for in the Public Works Department for a School room to the Barracks at Cannanore—The Governor in Council observes that married men's quarters have already been sanctioned for Cannanore, but the execution of the works post-poned under instructions from the Government of India.

XXIII. The Governor in Council sanctions the substitution of a nine Pounder Battery manned by Europeans in place of the Light Field Battery of six Pounder manned by Golundauze, as soon as the change can be arranged for; the Golundauze Company remaining as a reserve Company until a 2nd European Artillery Company can be sent there as a reserve.

XXIV. Plans and Estimates for Barracks for this i. e. a European Artillery Company to be built on the outer flank of the European Barracks and for a Gun shed to be erected close to the men's Barracks will be called for in the Department Public Works.

XXV. The Commander-in-Chief is requested to offer his suggestions as to the best mode of immediately remedying the present unsafe arrangement as regards the site of the Gun shed at Cannanore.

XXVI. The Commander-in-Chief recommends that all Prisoners should be removed from the Jail at Calicut which is most insecurely situated, to a large Central Jail at Cannanore, the Judicial Department will consider His Excellency's recommendation.

XXVII. The Commander-in-Chief's proposition for the appropriation to the European Detachment at Calicut of the House belonging to the late Mr. Conolly will be considered in the Department of Public Works.

XXVIII. The Governor in Council observes that the Mountain Train at Calicut has already been ordered to be attached to the European Detachment. Mulla pooram

XXIX. Orders relative to the Skittle ally, Racket Court and sheltered place for Quoit playing at the posts of Calicut and Malliapooram will be issued in a separate Minute of Consultation.

XXX. His Excellency's remarks on the subject of the roads and Bridges in the neighbourhood of Cannanore, Calicut and Malliapooram will be considered in the Department of Public Works.

XXXI. The expression of the Commander-in-Chief's opinion of the Malabar Police formed on his inspection of a strong Detachment of that body is communicated to the Judicial Department.

To the Commissioner of Mysore. | Here enter 30th April 1858, No. 1495.

(True Extract and Copies.)

Ag. Dy. Secretary to Government.

To the Quarter Master General.
,, Adjutant General.
,, Department Public Works.
,, Inspector General of Ordnance.
,, Judicial Department.
,, Director General Medl. Department.
,, Revenue Department.
,, Accountant General.
,, Military Auditor General.
,, Commandant of Engineers.
,, Revenue Board.

Exd. J. E, Cushart.

J. 1858 D.
Nos. 857.

No. 1494.

Extract from the Minutes of Consultation, 30th April 1858.

Read letter, from the Quarter Master General of the Army, Head Quarters, Ootacamund, 15th March 1858, No. $\frac{19}{116}$; to the Secretary to Government, Military Department.

I have the honor, by direction of the Commander-in-Chief to forward a Minute, in original, dated the 11th instant, by His Excellency, on the Military defences of the Cantonments he has visited in course of his present Tour, and to request that it may be submitted for the early consideration of the Right Honorable the Governor in Council.

A memorandum by Colonel A. Cotton, Commandant of Engineers, dated the 24th ultimo, on the Military defences of the Cantonments of Bangalore, Bellary, and Kurnool is likewise transmitted.

Minute by His Excellency the Commander-in-Chief, Ootacamund, 11th March 1858.

Bangalore.	*Mysore.*
Bellary.	*Mercara.*
Ramandroog.	*Cannanore.*
Kurnool.	*Calicut.*
French Rocks.	*Malliapooram.*

Having now completed my inspection of the Military Stations and Posts marginally noted, I beg to submit the following observations on each, for the serious consideration of the Right Honorable the Governor in Council.

The principle I would earnestly inculcate in providing for the defence of chief stations, is to place in security, under sure Military protection.

1st. All munitions of War and Military Stores and Materiel.

2nd. All large Treasuries.

3rd. All Central Jails.

4th. To dismantle and destroy all Native Forts, and defensible Posts which we do not garrison with Troops.

If these precautions are rigidly observed, we never shall have any serious out-break either amongst the Native Troops or the population of India. However ripe and disposed for Mutiny or Rebellion, men can make no effectual or protracted resistance without munitions of War and without the sinews of War—Money!

But these indispensable precautions for our perfect security in India require a large accession of European Troops, and I have specified on repeated previous occasions, the precise amount of British Force of all Arms, which in my opinion should be assigned for the Madras Presidency.

I now proceed to observe upon the several Stations and Posts, in the order in which I visited them.

Bangalore.—I entirely approve of the defences proposed for this station by Colonel Green, the Superintending Engineer in Mysore.

I suggested one alteration to Colonel Green and Colonel Arthur Cotton (Commandant of Engineers, who has been instructed by Government at my request, to accompany me on this Tour) both of whom concurred in it, viz. that the principal Magazine and all combustibles should be established within the line of entrenchment of the new Dragoon Barracks on the Race Course, instead of placing them within the Arsenal Defences. The new Dragoon Barracks are most eligibly situated, and peculiary defensible—there is an extensive open place all round, and the natural formation of that ground almost forms a perfect glacis.

Colonel Cotton entirely agrees in my condemnation of the situation of the present Arsenal in the Fort, and in the expediency of removing it to the old Infantry Barracks, as I suggested in September 1856. The Fort to be *then* dismantled but certainly not till then.

Bellary.—The Fort of Bellary consists of a Citadel on the top of a high base rock—the Citadel is of no strength, and any well drilled Rifle or Light Company of European Infantry knowing how to take advantage of cover, might reach it however strongly opposed, without sustaining a single casualty—It is in every respect a wretched place, and as a defensive work utterly useless.

At the base of the rock on which the Citadel stands—at one side or shoulder—there is a lower Fort or outwork, but it is of no strength and in a state of disrepair. But even if the lower Fort were in the best possible order, it would be of little use, for, as I have already observed, the Citadel is accessible, and easily so from any point.

Barracks for the Artillery should be built outside the Fort, close to the European Infantry Barracks.

There should be no working Arsenal at Bellary.

A Magazine of sufficient size to contain five hundred (500) Rounds per Piece, of Ordnance and firelock dependent on it—together with a spare Light Field Battery and a 3rd Class Siege Train—is quite enough for all practical purposes, and all that ought to be maintained at Bellary.

The buildings for these should be erected close to the European Infantry Barracks, where there is ample space for them.

The Public Treasury and the Jail, should also be on that ground, and a Work for the protection of the whole should be thrown up of the same description, but on a smaller scale, as that proposed for the new Dragoon Barracks at Bangalore.

The European Infantry Barracks at Bellary are most excellent—but separate Quarters for the married men are very desirable—at present the married and single are all under the same roof which I consider a very objectionable arrangement—moreover it interferes materially with free ventilation.

Ramandroog.—Ramandroog is 38 miles from Bellary; it stands at an elevation of 3,500 feet, above Sea level, and as a Sanatarium for Europeans, it has been eminently successful, so far as the very limited extent to which it has been tried, extends.

A Table given to me by Superintending Surgeon Eyre, shews the following results of the Sanatarium from 1848 to 1857, inclusive.

Per Cent of	recovered to	No. sent.	72	10
,, ,,	Partial benefit.	,,	6	0
,, ,,	No benefit.	,,	19	45
,, ,,	Died.	,,	2	74

I recommend that a Convalescent Depôt be established at Ramandroog for the European Troops at Bellary, Secunderabad, and any intermediate neighbouring stations or Posts.

Accommodation should be provided for 200 men and 25 Families.

A Commandant and station Staff, a Medical Officer, and Non-Commissioned Staff, on the scale sanctioned for similar Sanatariums in the Bengal Presidency, should be allowed.

I think it very desirable, and Mr. Pelly, the Collector, agrees with me, that the Commandant of the Depôt should be invested with the powers of a joint Magistrate—and the authority in Abkarry matters, now exercised by the Native Ameen.

At present there are Barracks for only eighty Soldiers—there is no Commandant or Staff of any description—and only a Medical Subordinate to afford professional aid to the Patients.

Kurnool.—As a Military Position, being directly on the frontier of the Nizam's Country, Commanding the junction of the Tomboodra and Hindra Rivers, Kurnool possesses superior advantages to Bellary. But Bellary is a far more healthy locality for Europeans, and the abandonment of the superb Barracks there, would be very inexpedient. The Fort of Kurnool is fast undergoing demolition at the hands of the Executive Engineer of the District for the sake of the material, which he is making use of in building a very fine Bridge across the Hindra River.

The Fort is at best a wretched place, and the sooner it is pulled down the better. The place of Arms and the Hospital, both good Buildings, are inside the Fort, and so also is the densely populated Native Town—while the Soldiers Lines are about a mile distant outside, the principal Gateway which is very narrow—so much so that a couple of Bandies upset in it would effectually bar an entrance. To obviate this inconvenience, and to allow of the Troops having access to their arms and ammunition in case of a disturbance arising in the Town, the ingenious expedient of throwing down some hundred feet of the wall of the Fort adjoining the Gateway, has been resorted to ! ! !

If Kurnool is to be continued as a station for Troops of the Line, a new Cantonment for one Regiment of N. I., two Companies of European Infantry and a Detail of European Artillery—half a Company should be formed about a mile in advance of the present Lines, with the Toomboodra and Hindra on either flank. The position is excellent and a small fortified work to contain the European portion of the Garrison, the Magazine, the Treasury and Commanding the Jail, would make it thoroughly secure. But I continue of opinion that Troops of the Line are not at present required here. I consider that the Kurnool Horse, upwards of 250 Sabres—and an efficient Police are sufficient.

The Bridges over the Toomboodra and the Hindra, and the Lines of Road securing communication at all seasons with Hyderabad on one side, and Gooty, Cuddapah, and Madras on the other, should be completed with every practicable expedition as Military Works of great importance—At present the Roads on these lines are in a very bad state—indeed almost impassable—and consequently all movements of Troops are attended with mischievous delay and difficulty—The necessary remedies should be at once applied.

French Rocks.—I must remark that the position of this Cantonment is most faulty, if it was formed with any reference to Mysore—It is fifteen miles distant from Mysore with the Fortress of Seringapatam and two branches of the River Cauvery intervening, on account of the bed of the River being rocky and of a very rugged description, wheeled Carriage and Guns can only cross these branches by the Bridges---and they are commanded, at very short range, by Batteries of such power as to render an approach to either Bridge almost, if not wholly impracticable, if Seringapatam were in the possession of an enemy. If therefore the Troops now at the French Rocks are intended either to protect or overawe the Town of Mysore or to affect it in any way, a Cantonment for a Regiment of N. I. and one Company of Europeans—and it might be well to add 3 Field Guns and half a Company of Artillery—should be formed on the elevated ridge either right or left of the high road. This ground looks very suitable for the purpose—water is at hand, the locality is said to be quite as healthy as the French Rocks—and the site is about midway between Seringapatam and Mysore, and there are no intervening obstacles of any description.

Mysore.—A Company of H. M.'s 60th Rifles is now quartered at Mysore, I am told at the special request of the Rajah, and they are very healthy and suitably accommodated.

Mercara.—The Fort of Mercara is one of a chain of Forts constructed by Hyder Aliy, the Father of Tippoo Sultan, about 80 years ago. It is a small irregular work of no strength, but quite sufficient to overawe and hold in check while in our possession, even the brave and manly Coorg population. As a place of defence against any organized attack, it is of no value, being commanded from several different superior heights at close Cannon range, and easily accessible. There are good Barracks inside the Fort for half a Company of European Artillery—there is likewise a bomb-proof Magazine, but not in good repair, in the Fort. The place of Arms is also within the work and so are the Jail and Treasury.

The Hospital and Native Infantry Lines are outside, but close at hand.

The abandoned Sapper Barracks which at one time were thought of as a Sanatarium for Europeans are not, in my opinion, at all well adapted for that purpose. They are more than a mile distant from the Fort the buildings are indifferent—the site is much exposed to the prevailing monsoon—the facilities for obtaining Liquor are very great—and on that account, for there are no means (of keeping the men to their Barracks nor of excluding the introduction of Liquor) the men of the Detachment of European Artillery formerly stationed at Mercara were the worst conducted Soldiers of this Army.

Cannanore.—The Fort of Cannanore is washed by the Sea on one side, and with some necessary repairs which should be immediately executed it, would be an excellent place of Defence.

The Fort is extremely well situated with reference to the European Barracks, and thoroughly covers and protects them.

The Arsenal is inside the Fort, and the Buildings for it though not of a superior description, are sufficient.

There are abundance of heavy Pieces available for the works, but the only Field Guns in the Arsenal are six Pounders and 12 Pounder Howitzers.

A complete 9 Pounder and 24 Pounder Howitzer Field Battery (spare) should be lodged in the Arsenal and kept in readiness for instant service.

I see no occasion for maintaining a working Arsenal at Cannanore.

The Civil Jail which is placed inside, should be removed to an eligible site out-side the Fort, and within easy range of the Guns. The spot selected for a Burying Ground which has been perforce abandoned on account of its being a bed of laterite, in which graves could not be dug would be an excellent site for the Jail.

The Civil Treasury and the Paymaster's Treasury should be placed inside the Fort—both are now at a great distance, the Civil Treasury upwards of two miles in a direct line and considerably more by the road.

The Magazine, containing the entire stock of ammunition for the Troops, is in a most objectionable position outside the Fort, beyond the reach of protection from either the European or Native Infantry Barracks, and very indifferently covered on *one* side by the Guns of the Fort—about sufficiently so to admit of its being blown up, but certainly not enough to save it in the event of an attack on it!

The Magazine should be placed inside the Fort, if it is not too damp—if that is found to be the case, on a very eligible site between the Fort and the European Infantry Barracks, where it would be most thoroughly protected by both.

The Magazine should be sunk, and a bomb-proof, as Colonel Green suggests for the Bangalore Magazines. It should be of sufficient size to contain five hundred (500) Rounds per piece of Ordnance and small Arm of the Troops dependent on it.

The European Infantry Barracks are excellent, and in good repair. A School room is much needed. Separate quarters for married men are necessary, and of the prescribed description—the present married quarters are much too limited, and they are moreover very bad indeed—The Hospital is excellent, and being close upon the Sea Beach it is charmingly cool at all seasons. It is half a mile distant from the Barracks, which is to be regretted, but in every other respect it is wholly without objection.

There is only one Light Field Battery here—six Pounders—manned by a Golundauze Company—as soon as it can be arranged, a nine Pounder Battery manned by a European Company should be substituted—Barracks for this Artillery Company should be at once built on the outer flank of the European Infantry Barracks, where the ground is highly suitable, and the position excellent. The Gun shed should be close to the men's Barracks, and so placed as to be within reach of instant protection from the European Infantry Barracks likewise. The Battery, Horse Lines and Drivers Quarters, should be in like manner, erected close to the Artillery Barracks.

The present Gun shed is on the very edge of a deep ravine, in which fifty thousand men might be concealed from observation—it is on the outer verge of Cantonments, some considerable distance from the Golundauze Lines---(and they are quite isolated) and within a few hundred yards of the Mopla Town with its population of sixty thousand inhabitants. This insane arrangement should be forthwith remedied.

When it can be managed, a Reserve Company of European Artillery should be stationed at Cannanore—and in the meanwhile the Golundauze may be conveniently retained as a Reserve Company and for any detached duties on which it may be undesirable to employ Europeans.

Calicut and Malliapooram.—Calicut is occupied by one complete Company of European and two Companies of Native Infantry. The Town contains a Mopla and Nair Population of 35,000 inhabitants. The Civil Officials reside nearly three miles from the Town. The European Troops are quartered in a Bungalow within a stone's throw of the Town, and the Native Infantry lines are about half a mile distant from the European Quarters. The Jail is in the heart of the Town, and it contains at the present time, and usually, 300 Prisoners *desperadoes* who in the event of the disturbance might be released with perfect ease, before Military aid could reach the spot. All Prisoners should be removed from Calicut to Cannanore, where a large Central Jail should be built under the Guns of the Fort on the site I have indicated.

The European Detachment at Calicut should be quartered at the Civil Station. The house in which Mr. Conolly was murdered is now for sale for fifteen thousand Rupees (15,000) and I very strongly recommend that it may be purchased for the accommodation of the Troops. It

will amply suffice for the purpose, but I apprehend that an Hospital will be required—and I suggest that double storied Barracks for four Subalterns should likewise be built by Government.

There is a separate Bungalow on the estate, which is well suited for accommodation of the Officer Commanding the Detachment. The estate is most eligibly situated in every respect, on an eminence close to the sea, and to the houses of all the Civil Residents. It also completely commands the high Roads to the Town of Calicut, to Cannanore, and to Malliapooram.

The immediate proximity to the Native Town of the Quarters now occupied by the European Detachment is a great objection. The Town is full of Grog shops and Houses of ill-fame, and thus our country men are but too often presented to the gaze of the Natives, despite every precaution, in a condition of helpless drunkenness and obscenity which cannot fail to be highly injurious to our prestige. The Detachment of Native Infantry is well placed in its present position and ought not to be disturbed.

At Malliapooram the Detachment of European Infantry is of greater strength than that at Calicut—the Malabar Police Corps is likewise stationed at Malliapooram, and there is also a Mountain Train of six Pieces, drawn by Ponies, at the Post.—The Public Buildings are quite suitable, but the Mountain Train Gun shed should be removed from the Police Corps lines to the European Barracks—and, when practicable, a detail of European Artillery men to man the Mountain Train, should be given.

From all I have been able to gather from my own observation, and in course of a long and deeply interesting interview with Mr. Robinson, the highly intelligent and sound judging Collector of Malabar and Canara, I am now convinced that it would be both unsafe and impolitic to withdraw or reduce the Detachments at Calicut and Malliapooram---at all events for some years to come. And as therefore these two points may be considered to be prominent Military Posts for Europeans, I think it very desirable that a small Racket Court, a Skittle Ally, and sheltered place for Quoits or other Games, should be provided at each. They will not cost much, and they would conduce materially to preserve health and be a solace and amusement to the men.

Above all, the Road between Calicut and Malliapooram should be at once completed *on emergency*—the distance is thirty miles. The Estimate for this Road was passed long since Mr. Robinson informs me—and some thirty miles of it at the further end, from Palghaut, were finished when a stop was put to all Public Works. I however consider the completing of this Road between the two posts, (which at present are wholly incapable of affording ready support to one another) to be of such grave Military importance as to induce me to press in the most urgent terms, that it may be instantly sanctioned and proceeded with.

Malliapooram is in the heart of the most excitable and bigotted portion of the Mopla population, and might at any moment stand in need of being strengthened from Calicut. Were the Road completed, this could be effected in a night, and any rising or disturbance crushed on the instant—whereas at present, communication between the posts is a work of days, besides being attended with numerous great difficulties, and very considerable expense ; all Stores, Commissariat, and baggage being conveyed on Coolies, the track being impassable by wheeled Carriages of any description.

Scarcely less necessary is it, that the Bridges on the Road from Calicut to Cannanore should be immediately proceeded with, and easy and rapid communication established with District Head Quarters— I consider this also a very important Military work which should be executed on emergency and without delay the distance is fifty one (51) miles.

With these Lines of communication fully opened, the perfect tranquillity of Malabar and Canara, the most inflammable District in the Madras Presidency, will be effectually secured—while it is my duty to urge upon Government that continued neglect of these obvious precautions may be, and in all human probability will be attended by the most calamitous consequences.

Having had an apportunity of inspecting a strong Detachment,of the Malabar Police---purely a Civil Corps--it may be satisfactory to Government that I should state my opinion of them.

I think them the finest body of men (Natives) I have ever seen except perhaps the Seiks, and though not superior, in all the physical qualities of fine Soldiers, they are fully equal to the Seiks. The Corps is also remarkably well trained and equipped---if there is a fault it is that the training and drilling have been carried to too ligh a pitch for Police—which it is not desirable, I think should be drilled and disciplined up to the standard of a Regiment of the Line. The

Corps is armed with the old two grooved Rifle, and the target practice with it is admirable. It may be well not to deprive the men of a fire arm in which they have such perfect confidence and to substitute the common Percussion Musket for it, but at least I would very strongly recommend if it should be proposed (as I have reason to think it will be) to arm the Corps with the Enfield Rifle, that that Queen of weapons may never be placed in the hands of any Native Regular, Irregular, or Police.

Since writing this Minute, I have received Colonel Cotton's memorandum, dated the 24th ultimo on Military Defences, in the Cantonments of Bangalore, Bellary, and Kurnool, and I do myself the honor to forward it with this paper.

Memorandum on Military Defences in the Cantonments of Bangalore, Bellary and Kurnool.

I. About the 20th of January I received orders to accompany His Excellency the Commander-in-Chief to the above Stations for the purpose of considering on the spot what might be the best plan of rendering them defensible. It is well known that hitherto the Cantonments have been formed without the least reference to Military principles excepting that in some cases an Arsenal or a Magazine has been placed in a Native Fort within one or more miles of the Cantonment of the Force, but even such Forts were generally from their extent, vitious construction, state of disrepair and from their being filled and surrounded with the Native Town, quite indefensible. And the quarters of the different Corps composing the Force were all mixed up with Bazars and private buildings of all kinds, the Magazines often quite isolated and far from the Troops, and the Cavalry and Artillery separated from the Infantry. The question of defending the existing Cantonments is thus complicated with that of the expense of abandoning present Public buildings, and of destroying private ones, and also with that of the repairs, abandonment or destruction of the old Native Forts.

II. As no official papers containing instructions as to the precise principles on which the defences were to be planned, were furnished to me, the whole question was left entirely open, and as the matter was in every respect new, I first wrote a short paper, stating what appeared to me points which would admit of little question and what, such as were rather for the Superior authorities to decide and which must be in some measure settled, before the proper Engineering points could be effectively considered. After having His Excellency's views upon the whole subject, I proceeded first to Bangalore, and accompained him in his inspection of the ground and buildings there. After this inspection I was favored by the General of the Division with an account of what had already been planned by him on this important subject.

III. Before however proceeding to consider the particular case of Bangalore, it will be perhaps better to give my views of the general principles on which it appears to me we ought to proceed. I do not give these conclusions as those which have been the fruit of my own thoughts merely, but as those to which I have come after hearing the views of those who were so much more capable of discussing the subject.

IV. My conclusions then are,

1*st*. That owing to the utter want of attention to the matter of defence in the laying out of the Cantonments, it is out of the question to attempt to make the whole of any large one, a defensible position.

2*nd*. That the great essential is, so to arrange for the protection, of the following viz: the arms and ammunition, the treasure, the prisoners and the European families, as to allow of the main body of the Force taking the Field, without any risk (if possible) of those things falling into the hands of an enemy.

3*rd*. That the rest of the Cantonment must of necessity be so far abandoned to an enemy, as that it should be without complete defences, tho' many parts of it, which either from the locality or the nature of the Buildings were capable of it, might be furnished with partial defences, sufficient to check any desultory attacks.

4*th*. That the position intended for the protection of the ammunition &c. should be in all respects thoroughly defensible, and that by a moderate garrison, not exceeding perhaps 500 European Infantry with Artillery.

5*th*. That for this purpose it should be a work constructed on correct principles and with a clear space round it, and thus separated by a small interval from the rest of the Cantonment.

6*th*. That no tenable post should be allowed to exist any where in the neighbourhood of the Cantonment, which an enemy could occupy, and hence that any old Native Fort should be entirely destroyed as being incompatible with the effective defence of the Cantonment—If allowed to exist they must either be occupied by a Force much too small to prevent such imperfect works being carried by a surprize from the quantity of cover that there always is without and within them, or they must be defended by so large a body as would cripple the remainder of the Force if required to take the Field—This of course involves the abandonment of any public Buildings that they may contain, but this I consider must be submitted to.

7*th*. That no large quantity of Military Stores of any kind or of treasure, to tempt an enemy, should ever be left out of the main post, but only such quantities as are required for use.

V. It appears to me that these are essential points which cannot be given up; they will not involve a great expense, but such an expense as they will require must I think be incurred—They involve very little destruction of existing Buildings.

The only serious expenses will be.

1*st*. The Cost of the Fort.

2*nd*. That of the Magazines.

3*rd*. That of Buildings for the shelter of the Artillery and Commissariat Stores.

VI. The Buildings forming the Barracks of the Garrison, constructed of such capacity as is now usual, will on emergency, provide shelter for a very large body of non-combatants and entire families, besides the Troops.

BANGALORE.

VII. On this particular Cantonment I have little more to say than that I beg to state my agreement with the plans that have been already proposed.

1*st*. That the Barracks now commenced should be completed as speedily as possible.

2*nd*. That the position they occupy is an admirable one, an almost isolated rising ground, with a sufficient space on it, and a clean space all round it.

3*rd*. That about the extent which is marked on the plan for the works should be enclosed with a rampart, ditch and glacis as proposed, taking advantage of the strong earth of Bangalore to allow steep faces to both Rampart and Ditch without Revetment.

4*th*. To the Buildings already ordered to be built within this, to add two Magazines for about 1,000 Barrels each, a Treasury, and Store Rooms for the Artillery and Commissariat.

5*th*. To provide extensive Reservoirs for water, capable of holding a three month's supply for the Garrison and families.

6*th*. To make the two extensive enclosures in the Cantonment occupied as Barracks partially defensible by small Bastions at the Angles, completing the walls where necessary as already proposed.

7*th*. Connecting these two by a Tunnel.

8*th*. Removing the Arsenal from the Fort to one of them.

The one to which it is proposed to move the Arsenal is divided by walls into three compartments, and the lower one of them is only divided from an extensive Bazars in which are many masonry buildings by a road—It was a subject of discussion whether it would be necessary to clear away a portion of this Bazar—But I am of opinion that this is unnecessary—It is not intended that this enclosure should be capable of a protracted defence against a systematic attack, and if its garrison were pressed the plan would be to abandon first the lower division, and if necessary the second also, arranging the defences of the upper portions so that those below would be untenable by an enemy.

VIII. All the rest of the Cantonment must I think be left exposed—It is impossible to cover even with partial works so great an extent of ground covered with unarranged buildings.

IX. The Fort I consider must be destroyed—It seems to me that such a work ought either to be occupied in force or destroyed—Imperfect as its defences are, and with a vast mess of buildings within a few yards of it on one side, a small garrison would always be liable to a

surprise; and while such places exist they will always be a source of temptation to an enemy to get possession of them—Nor do I see any object whatever to be gained by keeping it up.

The retention of the Arsenal in it, miles from the Troops and with the Pettah between appears altogether incompatible with the effective defence of the Cantonment.

X. With respect to the water supply of this Cantonment, I may mention, that there is nothing to prevent water being stored on the Nundidroog side, on a level sufficient to command the high parts of the Cantonment—The water shed along which the water must be led from such Reservoirs has, I believe, no hollow in it, so that the water can be led inte the Contonment without any heavy work and the project is therefore practicable at no excessive expense. It would be a very great improvement to the Cantonment. The levels have been taken by Lieutenant Puckle, and I am satisfied of their correctness.

BELLARY.

XI. The question is here complicated by the existence of a Hill Fort—These works quite suited to Native operations, are so directly contrary to true Military principles that instead of being objects of attraction they ought to be particularly avoided by us. What we especially require in this Country is a compact work, without the smallest cover for an enemy in the neighbourhood, so that a small garrison could occupy it without danger of surprize, whereas the sides of these Hills afford the most effective cover to an enemy, who may be in force close to the walls without encountering any loss of consequence, and the garrison must therefore be sufficient to protect all points of the works at once—While they are thus very accessible to an enemy, they are very inaccessible to the garrison, to bring in Guns, ammunitions, Stores, &c.

XII. In the case of Bellary, it is well that the new Barracks are so far from the Hill Fort as to be out of reach of musketry, and it would be easy to prevent an enemy from getting Guns up to it.

XIII. The site of the Barracks is quite clear of cover, and perfectly well suited for a defensible post, there is also plenty of open space adjoining for Artillery or other additional Troops.

XIV. The plan I would therefore propose for the Cantonment, is,

1st. To form a defensible post, similar to that proposed at Bangalore, but of much less extent, within which Magazines, Treasury, the Arsenal and Commissariat Stores, and Barracks sufficient for two Companies should be constructed. This post to be within a short distance of the present Barracks.

This Fort must I conclude be revetted, but the excellent masonry at this place, formed of granite blocks with strong Hydraulic Chunam, is perhaps the cheapest in the world costing only about 1¾ Rupees a cubic yard.

2nd. Any additional Troops should be quartered in the same neigbourhood only leaving a clear space round the Fort.

3rd. Both the lower and Hill Forts, I think, must be destroyed for the reasons before given.

It may be objected to this arrangement, that many of the Europeans houses are on the opposite of the Hill from the proposed site, the answer to this is that there is no help for it. The new Barracks have been built on that site, and there is no alternative but to abandon them, or leave the houses above mentioned unprotected. To divide the Troops is of course out of the question.

KURNOOL.

XV. The circumstances of this place are peculiar in asmuch as it is the seat of a former Mussulman Government and also on the frontier of Hyderabad, and therefore within reach of the unsubdued classes in that state.

XVI. In following out the general plan of concentrating troops in future, I understand it is proposed to abandon this place, so far as regular Troops are concerned, leaving it to the Police and Irregular horse—As respect its position, there seems little room for question that it ought to be rather the Head Quarters of the Force than Bellary, but there is one serious objection to this, that being 700 feet lower than Bellary, it is much hotter, and also in other respects much inferior in point of climate to that place for European Troops; and the construction of the New Barracks there seems to leave no room for question now on this point.

XVII. This point, whether it should be given up altogether as a post of regular troops, is a question for the superior authorities—But there is one thing which it isproper for me to notice, Kurnool is now a considerable place for trade, and my own opinion is that as the country is opened up by communications, it must necessarily become the great commercial centre of the basin of the Kistnah—This will especially be the case if the proposed system of Irrigation and Navigation works between the Toombudra W. of Bellary, and the Pennaur and E. Coast Canal is carried out—I apprehend that wherever wealth and treasure accumulate the place becomes unessentially as great a feature in the Military occupation of the country as if it contained Arms and Ammunition and it must be protected.—It is as necessary to prevent an enemy getting possession of a large amount of treasure as of munitions, and large commercial places unprotected are certainly great inducement to restless men to collect and form dangerous bodies.—We have had an instance of this in the case of Juggiahpet in Masulipatam, lately plundered by the Rohillas—such places I consider must be protected. I therefore am inclined to think that it will be found that Kurnool must be occupied by regular Troops—It seems also determined to extend the District of Kurnool, in which case the amount of Government treasure collected here will be increased.

XVIII. In case therefore of its being determined so to occupy it, I would propose the following.

1st. The present Fort must be abandoned and destroyed—It is now almost destroyed and as usual filled and surrounded with native houses, and quite indefensible, and in my opinion unimproveable—The only public building of consequence in it, I believe, is the new Hospital.

2nd. There is a perfectly suitable piece of ground, about ¾ mile from the Fort, between the Toombudra and Hindra rivers, for the Cantonment, and a fortified Post—I would there construct a Fort similar to that proposed for Bellary to contain as there the Magazine, Treasury, Barracks for two Companies of Europeans, &c.

3rd. Bridges over the two rivers should be constructed, I consider this essential to the place as a Military position—A force cooped in between two rivers without means of crossing them, and there liable to be exposed to witness the ravaging of the neighbouring country without affording aid cannot be thought of.

XIX. This place like Bellary possesses extraordinary advantages for masonry buildings—Building stone and lime are exceedingly cheap.

XX. I should perhaps mention more particularly the situation of this place as respects communications—It is on a level of 900 feet above the Sea—Below it the Kistnah has a great fall about 800 feet in 200 miles, giving no hope of its navigation being made effective—But above it the Kistnah and its feeders the Beemah, Seena &c. have a very moderate rise for a long distance, only an everage of 1½ feet a mile all the way to Poonah distant by water 600 miles—The upper part of the Toombudra also from the very Ghauts to the mouth of the Wurdah 230 miles, has the same fall, and the proposed Canal from the latter point must necessarily pass Kurnool. This place thus stands at the point where the whole trafic of the basin of the Kistnah would naturally concentrate, and from it, by the Valley of the Koondaur, due South to the Pennaur near Cuddapah and so along the line of the latter river to the E. Coast, is the natural line of connection of Madras and other ports on the E. Coast, with the whole country drained by the Kistnah—This project has been taken up by the Peninsula Irrigation Company, and seems in a fair way to be carried out by it—In this way there seems a fair probability of Kurnool becoming a place of great importance, in a Military point of view—such a place on the frontier could not be left unprotected.

XXI. As a main point of some importance in connection with the European Troops, I beg to notice the entire absence of shade at Bellary and Kurnool—The cause of this is the shallowness of the soil, which will not admit of the growth of trees.—This is a serious disadvantage to Barrack in these vast plains traversed by such withering winds. The only remedy for it, is to excavate pits and fill them with soil. A pit 10 yards in diameter and 3 yards deep would probably cost about 30 Rupees and provide for a tree growing to a large size. I think this expense ought to be incurred in the neighbourhood of the Barracks. Where several lacs have been spent on the buildings, an addition of 6,000 Rupees, for 300 Trees, might not be thought out of the way.

XXII. I have alluded to the Bridges over the Hindra and Toombodra at this place, as essentially connected with its effective Military occupation. The case of the Hindra bridge seems

to call for more particular remark—This work was commenced I understand nearly three years ago. The Piers are not all finished, nor is a single Arch yet turned. How so grievous a failure has occurred, I do not exactly know, but certainly it demands the attention of both the Civil and Military Departments of Government.—I have seen most districts of this Presidency and certainly no other has such extraordinary advantages for Masonry Works, from the naturally prepared state of the stone and the abundance of excellent lime, and yet a work which ought to have been finished in a single season, will take ten at the rate it has hitherto proceeded, for all that has yet been done is to build low piers on solid rock foundation for a bridge 1,000 feet long, and not all of them.—The delay at present is stated to be owing mainly to the use of cut stone and elliptical Arches, and to the unaccountable treatment that the contractor has received, his contract having been set aside when he had collected coolies, purchased bandies and bullocks, &c., being a direct breach of faith on our part, without any pretence of fault on his, but consequent on the stoppage of Public Works.—This man is a wealthy energetic and intelligent Gentleman and proposed to become an extensive contractor, that class which it is of such vital importance to raise up, as an essential element in the material improvement of the country.—Who can wonder that such are still wanting in the country when they cannot depend upon our keeping faith with them.—I beg to suggest that the only things which can secure the completion of this bridge without further disgrace and loss of time are 1st, to make the most ample compensation to the present contractor, such as he himself will judge ample, not only justice but policy requires this for the public report of faith having been broken with a contractor is one of the most injurious that could get abroad.

2nd. To give up the elliptical form of the Arches and substitute Circular Sigments. I beg to submit that the present state of things in the country with every thing to do, time and money are of too much value to be sacrificed to appearance—our ordinary superintendence can easily manage a simple uniform, curve in an Arch, but they cannot so well manage an ellipse.

3rd. That either the arches should be turned with the slaty stone found at hand uncut except at the edges, or else of brick, as the forming an Arch of large blocks of cut stone is quite unnecessary, excessively expensive, and with the stone cutters here procurable will be exceedingly slow.

4th. That an Officer, with an effective European Overseer should be left permanently in charge of the work, though the Officer would of course be available for the other work in the neighbourhood.

5th. The Bridge has been ordered to be widened beyond what was originally intended, to give wider roadway with the present piers, it will be necessary to make the Arches bellmouthed which would entail very great additional trouble and delay in a place where there are such poor workmen.—I would beg to suggest that the width first intended is sufficient, but if a greater width is insisted upon it might be gained by substituting cast Iron railing for parapet walls; and it would probably be as cheap as widening the Arches; but I consider the additional width quite unnecessary. In planning such works, it must never be lost sight of, that the heavy traffic of the Country will inevitably be soon taken off the common roads.

XXIII. Unless these points are conceded, it seems to me that great unnecessary expense must be incurred, and this important position be deprived for several years, of one essential part of its use as a Military Station.

XXIV. This Bridge is 1,000 feet long, and such works if executed as for use and not appearance can certainly be completed in those parts at 60 Rupees a foot of length, if of 20 feet broad, the breadth of which appears quite sufficient for the Trichinopoly Bridges with their enormous traffice of 20,000 passengers &c. per day.—That over the Toombodra would be 3,000 feet long and consequently cost 1,80,000 Rs. I must in connection with this refer to the question of the position of such a work—I am informed that a site has been talked of for it, where the bed is rocky, but which is not the suitable site for the work, as respect its use—I beg earnestly to protest against such a mode of choosing the site. There should, in my opinion, be only one point kept in view in choosing the site of a bridge, as of every other public work, and that is, that it should be built where it is wanted.—To save 20 per cent of the money by building a bridge where it wont be of a quarter the use it might be in another position is in my opinion a great mistake.—The Madras Railway is a striking instance of this fundamental mistake. By carrying it along the ridge of the Country from Madras to near Vellore, and quite clear of all the Towns and even of the rural population, it has certainly been constructed cheaper, but it has been at the loss of at least three fourths of the traffic it would have had if it had passed along the fertile tracts, and thro' the Towns of Conjeveram, Arcot, Vellore, Wallajahnugger &c.—I quote this as a striking instance of a great mistake into which professional men are continually liable to fall and of which there are so many other instances in the Peninsula. At the approach to a city and Military position like Kurnool, five sixths of the value of a bridge may easily be thrown away by putting it a mile or half distant from the most useful site.

XXV. An essential part of the new system of Military occupation is evidently the destruction not only of the posts near Cantonments, but of all throughout the country. The principle I would urge is, that every thing that makes the natives dream either of the old state of things under the native Governments, or of the late Hybrid system, half native and half European, as if we held the country only on sufference of the high castes, should now be swept away with the utmost care; that the natives should be reminded by every thing they do see and every thing they don't see, that we are now going to rule the country as Europeans and Christians, that our will and our ideas are to be the rule. While native places of strength and other things are allowed to remain, the poor people quite ignorant of the real state of the case, will always be fancying that there is a hope that the time will return, when they shall be able to get rid of those who will not permit, the rich, the high caste and the armed man, to ride roughshod over the mass of the people. The lesson they have lately received should I think be impressed in every possible way. I do trust that none of the old ideas of false economy will now be allowed to prevent the thorough carrying out of these two principles. 1st, That we should destroy every vestige of the old native supremacy; and 2nd. That we should appear in the position of standing in our own strength, and in a state of absolute independence of native help of every kind.

XXVI. I am certain that true economy absolutely requires this. If we can afford the wars and threatenings which will be the fruit of the least appearance of unpreparedness and of abject dependence upon native help or forbearance, we can certainly afford the much smaller expense of covering our ammunition, treasure, &c., with works suited to the true principles of Military science, and of destroying those places which to a native will, while they exist always, convey ideas of invincible strength even after the unmistakeable proofs they have had, of their essential weakness.

XXVII. I do not go into any detail in this paper both because I conclude it was not intended that I should, and also because it seems at all events better to keep such details separate from the principles. Being also under orders to proceed to Madras without delay; I should not have time to draw up such memo. with the necessary places &c. during the few days that remain.

XXVIII. I may recapitulate the principles which appear to me those on which the new arrangements for the Cantonments should be based.

1st. The establishment of a fortified post capable of being held for months against any Native force by 500 or 1,000 men, with a clear esplanade round it, and enclosing within it; 1st. Quarters for ½ or a whole Regiment and on emergency sufficient for a large number of families—2nd. Magazines containing most of the ammunition of the force, 3rd. All the Guns and Artillery and some Commissariat Stores—4th. The Treasure—5th. Water sufficient for 3 or 4 months.

2nd. That the rest of the Cantonment must be left unprotected, as from their vast extent and disorderly arrangement, the old Cantonments are quite incapable of being placed in any sort of defencible state. Excepting however that any particular set of Barracks &c. which offers facilities to be placed in a partial state of defence independently of the rest, may be strengthened by small works, as has in my humble opinion been so judiciously planned at Bangalore.

3rd. That Magazines containing only small quantities of ammunition for current use should be allowed in the undefended part of the Cantonment.

4th. That all Native works near the Cantonments or in them, and in the country universally should be destroyed effectually.

5th. That approaches to the Cantonment should be made perfectly effective at all seasons.

6th. That places where from natural or artificial commercial &c. advantages wealth accumulates, must be included in the Military arrangements, and permanently occupied in force, as such places will otherwise invite attack, and also because it is as necessary to prevent an enemy getting possession of private treasure, as of public money or of munitions of War.

XXIX. I conclude by observing that if the proposed Irrigation Company carry out their project of a current from the mouth of the Wurdah by Bellary and Kurnool to the Eastern Coast Canal, and improve the navigation of the various feeders of the Kistnah, so as to connect all parts of the basin of that river with the Hyderabad, Bellary, Kurnool, Cuddapah and Madras, it will incalculably increase the Military strength of the Government in all that tract, though there will certainly be the same objection (in a measure) to the Canals that there is to the Railways, viz., that the communication may easily be cut off.—The Canals however would still have the advantage, inasmuch as that Steamers could be kept at any points with Troops on board constantly ready to move to any part of them, which could not be done with Railways—It will also be quite easy to carry a Canal from Bangalore to Bellary at a very moderate expense.—There is not a single serious Engineering difficulty either in making the Canal or supplying it with water.—It would not cost more than one fourth that of a high speed Railway, would carry at $\frac{1}{8}$ the cost and could be worked by steam at 15 or 20 miles an hour if necessary.

XXX. But whether these water communications were executed or not, the common roads certainly should be put into a practicable state.—It will perhaps be scarcely believed that in the midst of the dry season I was 13 hours going 24 miles on the great high road between Cuddapah and Kurnool and Hyderabad, in a transit carriage with very little luggage, drawn by two powerful Bullocks assisted by 3 men besides the driver.—It is now 31 years since, as Civil Engineer of that Division I pointed out, how a few hundred Rupees would remove the worst difficulties in these high roads of Cuddapah.—But here is still one of the great highways of this Presidency, on which not one Rupee has been spent; the banks of the Nullahs and rivers have not even been sloped off; in one place the only road way was along the water course of a patch of paddy Cultivation; in many places the road is ploughed over, and water channels cut across it 2 or 3 feet deep.

XXXI. A Regiment of Native Infantry with their baggage would I suppose take 10 days to get over that 24 miles, and a much greater length is in its natural state, not having had a Rupee spent on it, nor even is it marked out and protected from the agricultural operations of the Ryots.—Nothing can be more evident than that such a state of things is incompatible with the effective Military occupation of the country.

FORT SAINT GEORGE,
24th February 1858.

(Signed) A. COTTON, Colonel,
Commandant of Engineers.

From the Quarter Master General of the Army, Head Quarters, Ootacamund, 19th March 1858,
No. $\frac{24}{156}$; *to the Secretary to Government, Military Department.*

In continuation of the Commander-in-Chief's memo. of 11th instant, on stations visited by him during his late Tour, I am directed by His Excellency to forward for submission, the enclosed from Mr. Robinson, Collector of Malabar, received subsequently to the former being despatched, the subject was touched on in the original memo., and Sir Patrick Grant would beg to call especial notice to it.

Memo. by J. Robinson Esqr., Barragherry, 12th March 1858.

The Mundoor and Calicut road was devised to form a great trunk line, through the troublesome and inaccessible Moplah Talooks of Walloowanaad Ernaad, and Shernaad, and to bring the Cantonment of Mallapooram into direct and easy communication with Calicut and the Military Head Quarters of the Province. The line is well devised in every respect and when it is completed with few branch roads from different points* on it, we should have the most thorough Command of the Country. A few hours would suffice to bring a formidable body of Europeans from Malliapooram to bear on any point at which the peace might be menaced.

Angady prone	to Pandikat and Tovoor.
,,	to Munjerry and Areacode.
,,	to Kolatoor and Betul Pudiangady.
Mallapooram	to Terowangady.
,,	to Munjerry and Wundoor.
Goondotty	to Teroowangady.
,,	to Mopperaam.

* N. B.—Several of these Branches are in a fair order and they are being improved, and all might be made excellent cross Roads at 300 Rupees per mile.

Three or four years ago, a liberal estimate of nearly half a lac of Rupees was sanctioned for the line and its execution was earnestly pressed; but now mismanagement occurred, a large sum of money has been spent and when the order to stop all expenditure on Public Works arrived, it found us fully aware of our previous errors, and on the point of sitting with energy to retrieve them—but the stoppage overtook the works in such a condition that, it may be stated with safety, that at no part of the line could 2 or 3 miles of continuous road be pointed out, which is available for wheel carriage, and ready passage of Troops, while that portion of the line which, in a Military point of view, was of the first importance, and is wholly indispensable viz. the point between Calicut and Malliapooram has unaccountably remained almost untouched.

The communication between Calicut and Malliapooram is nearly as difficult this day, as it was 10 years ago, and it is still necessary to send the Troops round by Parpangaddy, and Tirvoongaddy, by a road impracticable for wheel carriage, and so close and difficult that, were the Country in a disturbed state, Troops could only move by very slow marches. This road passes through Teroowangaddy,* the seat of all the disaffection, and excitement that prevailed for years among our Moplah Population. The new line will pass through Coondotty and is much more direct one. Coondotty is the seat of a very influential Moplah Tungul of good disposition.

**The dwelling place of the banished High Priest.*

A large portion of the population of the District between Malliapooram and Calicut is Moplah, and the scene of several of our out-breaks intervenes between Malliapooram and the Head Quarters of the Division. A Military road through such a Country should be accessible, and easy at all seasons. The hedges and enclosures, (which in Malabar are breastworks of earth or stone of 4 to 10 feet high) being thrown well back.

I am anxious to have the road looked upon in the true light as *the* Military line of importance in the Province. It never ought to have been treated as a Civil communication, and is at this moment of far greater importance to the Malliapooram Cantonment and Detachment than any of the Masonry Works which are now being pushed forward there, as Military ones.

The restriction should be removed and the work be at once proceeded with.

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1. The Governor in Council fully concurs with the principles laid down in His Excellency the Commander-in-Chief's Minute for providing for the security and defence of chief Stations in this Presidency.

II. His Excellency's Minute and the Memorandum by the Commandant of Engineers, Colonel A. Cotton, will be referred to the Department Public Works in order that the measures hereinafter detailed may be taken in that Department.

III. Estimates and plans for the defences at Bangalore, allusion to which is made in the foregoing papers, have already been called for. The Governor in Council refers for the observations of the Inspector General of Ordnance, the proposal that the Principal Magazine and all combustibles should be established within the line of entrenchment of the new Barrack. Provision for their accommodation on the scale suggested in Clause 4, para. 7, of Colonel Cotton's memo. will be made in the plan and estimates already ordered—plans and estimates will be called for, for the works specified in Clauses 6 and 7 of the same para. of the memorandum.

On these works being completed and the Arsenal removed into them, it appears to the Governor in Council that the Fort at Bangalore should be destroyed. The necessary communications on the subject will be addressed to the Commissioner of Mysore and to the Government of India hereafter.

IV. In the Cantonment of Bellary the following plans and Estimates will be called for in the Department Public Works.

1st. Barracks for the Artillery.

2 Companies.

2nd. A Magazine and Store room capable of containing the munitions of War specified in the Commander-in-Chief's Minute, (head Bellary) with reference to which proposition the Inspector General's observations are requested.

3rd. A Treasury. } The Judicial Department will be referred to for observations and
4th. A Jail. } for information as to the requisite dimensions of these buildings.

5th. Field work as suggested in Clauses 1, 2, para. XIV, Colonel Cotton's memo. to be erected in the vicinity of the European Barracks and to contain the buildings above enumerated.

V. It is observed that estimates for converting the old European Hospital into married men's quarters have been already called for.

VI. His Excellency's proposal that a permanent Sanatarium be established at Ramandroog for European Troops meets with the full approval of the Governor in Council.

Estimates and plans for accommodation of 200 men and 25 families will be called for by the Department Public Works.

VII. The Governor in Council is of opinion that the Commandant, Commissioned and Non-Commissioned Staff, and Medical Officer should be allowed on the scale sanctioned to similar Stations in the Bengal Presidency.

VIII. The question of investing such Commandant with the powers of a Magistrate &c. will be hereafter considered in the Judicial Department.

IX. The Governor in Council is of opinion that on the completion of these works the Hill Fort at Bellary should be destroyed.

X. The Governor in Council is strongly of opinion that Kurnool ought to be maintained as a Military Post, Plans and Estimates therefore for forming a new Cantonment on the site and a fortified post contiguous to it on the scale mentioned by the Commander-in-Chief, and in 2nd Clause para. XVIII, Colonel Cotton's memorandum will be prepared—the question bearing on the Magazine is referred for the remarks of the Inspector General.

XI. The Governor in Council concurs with the Commander-in-Chief and Commandant of Engineers in considering bridges over the rivers essential to the new Cantonment, the requisite estimates are therefore to be called for.

XII. The Governor in Council considers that the sum estimated by Colonel Cotton for excavating and filling with soil pits for facilitating the growth of trees to be planted in them will be well expended.

XIII. The questions raised by Colonel Cotton regarding the Hindra Bridge in para. XXII, of his memorandum will be considered in the Department Public Works, as also his remarks on roads as set forth in the latter paras. of the same memorandum, together with the suggestions of His Excellency the Commander-in-Chief on the same subject.

XIV. The destruction of the Fort at Kurnool appears to the Governor in Council to be advisable on the above measures being carried into full effect.

XV. The Commissioner Mysore will be addressed on the subject of the new Cantonment proposed to be substituted for the French Rocks.

XVI. The Governor in Council sanctions a complete 9 Pounder and a 24 Pounder Howitzer Field Battery (spare) being lodged in the Arsenal at Cannanore.

XVII. The repairs to the Fort at Cannanore have, the Governor in Council observes, been already sanctioned for immediate execution.

XVIII. The expressed opinion of the Commander-in-Chief that there is no necessity for a working Arsenal at Cannanore is referred to the Inspector General of Ordnance for his observations

XIX. His Excellency's suggestions relative to removing the Civil jail from the inside to an eligible situation outside, but within range of the guns of the Fort at Cannanore, is referred to the Judicial Department for notice.

XX. The Civil Treasury and Paymaster's Treasury, the Commander-in-Chief considers, should be placed within the Fort of Cannanore—this proposal is referred for the observations of the Revenue Department and Accountant General.

XXI. The suggestions offered by His Excellency in regard to the Magazine at Cannanore are referred for the remarks of the Inspector General of Ordnance.

XXII. Estimate will be called for in the Public Works Department for a School room to the Barracks at Cannanore—The Governor in Council observes that married men's quarters have already been sanctioned for Cannanore, but the execution of the works post-poned under instructions from the Government of India.

XXIII. The Governor in Council sanctions the substitution of a nine Pounder Battery manned by Europeans in place of the Light Field Battery of six Pounder manned by Golundauze, as soon as the change can be arranged for; the Golundauze Company remaining as a reserve Company until a 2nd European Artillery Company can be sent there as a reserve.

XXIV. Plans and Estimates for Barracks for this i. e. a European Artillery Company to be built on the outer flank of the European Barracks and for a Gun shed to be erected close to the men's Barracks will be called for in the Department Public Works.

XXV. The Commander-in-Chief is requested to offer his suggestions as to the best mode of immediately remedying the present unsafe arrangement as regards the site of the Gun shed at Cannanore.

XXVI. The Commander-in-Chief recommends that all Prisoners should be removed from the Jail at Calicut which is most insecurely situated, to a large Central Jail at Cannanore, the Judicial Department will consider His Excellency's recommendation.

XXVII. The Commander-in-Chief's proposition for the appropriation to the European Detachment at Calicut of the House belonging to the late Mr. Conolly will be considered in the Department of Public Works.

XXVIII. The Governor in Council observes that the Mountain Train at Calicut has already been ordered to be attached to the European Detachment.

XXIX. Orders relative to the Skittle ally, Racket Court and sheltered place for Quoit playing at the posts of Calicut and Malliapooram will be issued in a separate Minute of Consultation.

XXX. His Excellency's remarks on the subject of the roads and Bridges in the neighbourhood of Cannanore, Calicut and Malliapooram will be considered in the Department of Public Works.

XXXI. The expression of the Commander-in-Chief's opinion of the Malabar Police formed on his inspection of a strong Detachment of that body is communicated to the Judicial Department.

To the Commissioner of Mysore. | Here enter 30th April 1858, No. 1495.

(True Extract and Copies.)

Ag. Dy. Secretary to Government.

To the Quarter Master General.
,, Adjutant General.
,, Department Public Works.
,, Inspector General of Ordnance.
,, Judicial Department.
,, Director General Medl. Department.
,, Revenue Department.
,, Accountant General.
,, Military Auditor General.
,, Commandant of Engineers.
,, Revenue Board.

Exd. J. E, Cashart.

J. 1858. A.
No 285/.

No. 1494.

Extract from the Minutes of Consultation, 30th April 1858.

Read letter, from the Quarter Master General of the Army, Head Quarters, Ootacamund, 15th March 1858, No. $\frac{19}{116}$; to the Secretary to Government, Military Department.

I have the honor, by direction of the Commander-in-Chief to forward a Minute, in original, dated the 11th instant, by His Excellency, on the Military defences of the Cantonments he has visited in course of his present Tour, and to request that it may be submitted for the early consideration of the Right Honorable the Governor in Council.

A memorandum by Colonel A. Cotton, Commandant of Engineers, dated the 24th ultimo, on the Military defences of the Cantonments of Bangalore, Bellary, and Kurnool is likewise transmitted.

Minute by His Excellency the Commander-in-Chief, Ootacamund, 11th March 1858.

Bangalore.	*Mysore.*
Bellary.	*Mercara.*
Ramandroog.	*Cannanore.*
Kurnool.	*Calicut.*
French Rocks.	*Malliapooram.*

Having now completed my inspection of the Military Stations and Posts marginally noted, I beg to submit the following observations on each, for the serious consideration of the Right Honorable the Governor in Council.

The principle I would earnestly inculcate in providing for the defence of chief stations, is to place in security, under sure Military protection.

1st. All munitions of War and Military Stores and Materiel.

2nd. All large Treasuries.

3rd. All Central Jails.

4th. To dismantle and destroy all Native Forts, and defensible Posts which we do not garrison with Troops.

If these precautions are rigidly observed, we never shall have any serious out-break either amongst the Native Troops or the population of India. However ripe and disposed for Mutiny or Rebellion, men can make no effectual or protracted resistance without munitions of War and without the sinews of War—Money!

But these indispensable precautions for our perfect security in India require a large accession of European Troops, and I have specified on repeated previous occasions, the precise amount of British Force of all Arms, which in my opinion should be assigned for the Madras Presidency.

I now proceed to observe upon the several Stations and Posts, in the order in which I visited them.

Bangalore.—I entirely approve of the defences proposed for this station by Colonel Green, the Superintending Engineer in Mysore.

I suggested one alteration to Colonel Green and Colonel Arthur Cotton (Commandant of Engineers, who has been instructed by Government at my request, to accompany me on this Tour) both of whom concurred in it, viz. that the principal Magazine and all combustibles should be established within the line of entrenchment of the new Dragoon Barracks on the Race Course, instead of placing them within the Arsenal Defences. The new Dragoon Barracks are most eligibly situated, and peculiary defensible—there is an extensive open place all round, and the natural formation of that ground almost forms a perfect glacis.

Colonel Cotton entirely agrees in my condemnation of the situation of the present Arsenal in the Fort, and in the expediency of removing it to the old Infantry Barracks, as I suggested in September 1856. The Fort to be *then* dismantled but certainly not till then.

Bellary.—The Fort of Bellary consists of a Citadel on the top of a high base rock—the Citadel is of no strength, and any well drilled Rifle or Light Company of European Infantry knowing how to take advantage of cover, might reach it however strongly opposed, without sustaining a single casualty—It is in every respect a wretched place, and as a defensive work utterly useless.

At the base of the rock on which the Citadel stands—at one side or shoulder—there is a lower Fort or outwork, but it is of no strength and in a state of disrepair. But even if the lower Fort were in the best possible order, it would be of little use, for, as I have already observed, the Citadel is accessible, and easily so from any point.

Barracks for the Artillery should be built outside the Fort, close to the European Infantry Barracks.

There should be no working Arsenal at Bellary.

A Magazine of sufficient size to contain five hundred (500) Rounds per Piece, of Ordnance and firelock dependent on it—together with a spare Light Field Battery and a 3rd Class Siege Train—is quite enough for all practical purposes, and all that ought to be maintained at Bellary.

The buildings for these should be erected close to the European Infantry Barracks, where there is ample space for them.

The Public Treasury and the Jail, should also be on that ground, and a Work for the protection of the whole should be thrown up of the same description, but on a smaller scale, as that proposed for the new Dragoon Barracks at Bangalore.

The European Infantry Barracks at Bellary are most excellent—but separate Quarters for the married men are very desirable—at present the married and single are all under the same roof which I consider a very objectionable arrangement—moreover it interferes materially with free ventilation.

Ramandroog.—Ramandroog is 38 miles from Bellary; it stands at an elevation of 3,500 feet, above Sea level, and as a Sanatarium for Europeans, it has been eminently successful, so far as the very limited extent to which it has been tried, extends.

A Table given to me by Superintending Surgeon Eyre, shews the following results of the Sanatarium from 1848 to 1857, inclusive.

Per Cent of recovered to No. sent.			72	10
,,	,,	Partial benefit.	,,	6 0
,,	,,	No benefit.	,,	19 45
,,	,,	Died.	,,	2 74

I recommend that a Convalescent Depôt be established at Ramandroog for the European Troops at Bellary, Secunderabad, and any intermediate neighbouring stations or Posts.

Accommodation should be provided for 200 men and 25 Families.

A Commandant and station Staff, a Medical Officer, and Non-Commissioned Staff, on the scale sanctioned for similar Sanatariums in the Bengal Presidency, should be allowed.

I think it very desirable, and Mr. Pelly, the Collector, agrees with me, that the Commandant of the Depôt should be invested with the powers of a joint Magistrate—and the authority in Abkarry matters, now exercised by the Native Ameen.

At present there are Barracks for only eighty Soldiers—there is no Commandant or Staff of any description—and only a Medical Subordinate to afford professional aid to the Patients.

Kurnool.—As a Military Position, being directly on the frontier of the Nizam's Country, Commanding the junction of the Tomboodra and Hindra Rivers, Kurnool possesses superior advantages to Bellary. But Bellary is a far more healthy locality for Europeans, and the abandonment of the superb Barracks there, would be very inexpedient. The Fort of Kurnool is fast undergoing demolition at the hands of the Executive Engineer of the District for the sake of the material, which he is making use of in building a very fine Bridge across the Hindra River.

The Fort is at best a wretched place, and the sooner it is pulled down the better. The place of Arms and the Hospital, both good Buildings, are inside the Fort, and so also is the densely populated Native Town—while the Soldiers Lines are about a mile distant outside, the principal Gateway which is very narrow—so much so that a couple of Bandies upset in it would effectually bar an entrance. To obviate this inconvenience, and to allow of the Troops having access to their arms and ammunition in case of a disturbance arising in the Town, the ingenious expedient of throwing down some hundred feet of the wall of the Fort adjoining the Gateway, has been resorted to ! ! !

If Kurnool is to be continued as a station for Troops of the Line, a new Cantonment for one Regiment of N. I., two Companies of European Infantry and a Detail of European Artillery—half a Company should be formed about a mile in advance of the present Lines, with the Toomboodra and Hindra on either flank. The position is excellent and a small fortified work to contain the European portion of the Garrison, the Magazine, the Treasury and Commanding the Jail, would make it thoroughly secure. But I continue of opinion that Troops of the Line are not at present required here. I consider that the Kurnool Horse, upwards of 250 Sabres—and an efficient Police are sufficient.

The Bridges over the Toomboodra and the Hindra, and the Lines of Road securing communication at all seasons with Hyderabad on one side, and Gooty, Cuddapah, and Madras on the other, should be completed with every practicable expedition as Military Works of great importance—At present the Roads on these lines are in a very bad state—indeed almost impassable—and consequently all movements of Troops are attended with mischievous delay and difficulty—The necessary remedies should be at once applied.

French Rocks.—I must remark that the position of this Cantonment is most faulty, if it was formed with any reference to Mysore—It is fifteen miles distant from Mysore with the Fortress of Seringapatam and two branches of the River Cauvery intervening, on account of the bed of the River being rocky and of a very rugged description, wheeled Carriage and Guns can only cross these branches by the Bridges---and they are commanded, at very short range, by Batteries of such power as to render an approach to either Bridge almost, if not wholly impracticable, if Seringapatam were in the possession of an enemy. If therefore the Troops now at the French Rocks are intended either to protect or overawe the Town of Mysore or to affect it in any way, a Cantonment for a Regiment of N. I. and one Company of Europeans—and it might be well to add 3 Field Guns and half a Company of Artillery—should be formed on the elevated ridge either right or left of the high road. This ground looks very suitable for the purpose—water is at hand, the locality is said to be quite as healthy as the French Rocks—and the site is about midway between Seringapatam and Mysore, and there are no intervening obstacles of any description.

Mysore.—A Company of H. M.'s 60th Rifles is now quartered at Mysore, I am told at the special request of the Rajah, and they are very healthy and suitably accommodated.

Mercara.—The Fort of Mercara is one of a chain of Forts constructed by Hyder Ally, the Father of Tippoo Sultan, about 80 years ago. It is a small irregular work of no strength, but quite sufficient to overawe and hold in check while in our possession, even the brave and manly Coorg population. As a place of defence against any organized attack, it is of no value, being commanded from several different superior heights at close Cannon range, and easily accessible. There are good Barracks inside the Fort for half a Company of European Artillery—there is likewise a bomb-proof Magazine, but not in good repair, in the Fort. The place of Arms is also within the work and so are the Jail and Treasury.

The Hospital and Native Infantry Lines are outside, but close at hand.

The abandoned Sapper Barracks which at one time were thought of as a Sanatarium for Europeans are not, in my opinion, at all well adapted for that purpose. They are more than a mile distant from the Fort the buildings are indifferent—the site is much exposed to the prevailing monsoon—the facilities for obtaining Liquor are very great—and on that account, for there are no means (of keeping the men to their Barracks nor of excluding the introduction of Liquor) the men of the Detachment of European Artillery formerly stationed at Mercara were the worst conducted Soldiers of this Army.

Cannanore.—The Fort of Cannanore is washed by the Sea on one side, and with some necessary repairs which should be immediately executed it, would be an excellent place of Defence.

The Fort is extremely well situated with reference to the European Barracks, and thoroughly covers and protects them.

The Arsenal is inside the Fort, and the Buildings for it though not of a superior description, are sufficient.

There are abundance of heavy Pieces available for the works, but the only Field Guns in the Arsenal are six Pounders and 12 Pounder Howitzers.

A complete 9 Pounder and 24 Pounder Howitzer Field Battery (spare) should be lodged in the Arsenal and kept in readiness for instant service.

I see no occasion for maintaining a working Arsenal at Cannanore.

The Civil Jail which is placed inside, should be removed to an eligible site out-side the Fort, and within easy range of the Guns. The spot selected for a Burying Ground which has been perforce abandoned on account of its being a bed of laterite, in which graves could not be dug would be an excellent site for the Jail.

The Civil Treasury and the Paymaster's Treasury should be placed inside the Fort—both are now at a great distance, the Civil Treasury upwards of two miles in a direct line and considerably more by the road.

The Magazine, containing the entire stock of ammunition for the Troops, is in a most objectionable position outside the Fort, beyond the reach of protection from either the European or Native Infantry Barracks, and very indifferently covered on *one* side by the Guns of the Fort—about sufficiently so to admit of its being blown up, but certainly not enough to save it in the event of an attack on it!

The Magazine should be placed inside the Fort, if it is not too damp—if that is found to be the case, on a very eligible site between the Fort and the European Infantry Barracks, where it would be most thoroughly protected by both.

The Magazine should be sunk, and a bomb-proof, as Colonel Green suggests for the Bangalore Magazines. It should be of sufficient size to contain five hundred (500) Rounds per piece of Ordnance and small Arm of the Troops dependent on it.

The European Infantry Barracks are excellent, and in good repair. A School room is much needed. Separate quarters for married men are necessary, and of the prescribed description—the present married quarters are much too limited, and they are moreover very bad indeed—The Hospital is excellent, and being close upon the Sea Beach it is charmingly cool at all seasons. It is half a mile distant from the Barracks, which is to be regretted, but in every other respect it is wholly without objection.

There is only one Light Field Battery here—six Pounders—manned by a Golundauze Company—as soon as it can be arranged, a nine Pounder Battery manned by a European Company should be substituted—Barracks for this Artillery Company should be at once built on the outer flank of the European Infantry Barracks, where the ground is highly suitable, and the position excellent. The Gun shed should be close to the men's Barracks, and so placed as to be within reach of instant protection from the European Infantry Barracks likewise. The Battery, Horse Lines and Drivers Quarters, should be in like manner, erected close to the Artillery Barracks.

The present Gun shed is on the very edge of a deep ravine, in which fifty thousand men might be concealed from observation—it is on the outer verge of Cantonments, some considerable distance from the Golundauze Lines---(and they are quite isolated) and within a few hundred yards of the Mopla Town with its population of sixty thousand inhabitants. This insane arrangement should be forthwith remedied.

When it can be managed, a Reserve Company of European Artillery should be stationed at Cannanore—and in the meanwhile the Golundauze may be conveniently retained as a Reserve Company and for any detached duties on which it may be undesirable to employ Europeans.

Calicut and Malliapooram.—Calicut is occupied by one complete Company of European and two Companies of Native Infantry. The Town contains a Mopla and Nair Population of 35,000 inhabitants. The Civil Officials reside nearly three miles from the Town. The European Troops are quartered in a Bungalow within a stone's throw of the Town, and the Native Infantry lines are about half a mile distant from the European Quarters. The Jail is in the heart of the Town, and it contains at the present time, and usually, 300 Prisoners *desperadoes* who in the event of the disturbance might be released with perfect ease, before Military aid could reach the spot. All Prisoners should be removed from Calicut to Cannanore, where a large Central Jail should be built under the Guns of the Fort on the site I have indicated.

The European Detachment at Calicut should be quartered at the Civil Station. The house in which Mr. Conolly was murdered is now for sale for fifteen thousand Rupees (15,000) and I very strongly recommend that it may be purchased for the accommodation of the Troops. It will amply suffice for the purpose, but I apprehend that an Hospital will be required—and I suggest that double storied Barracks for four Subalterns should likewise be built by Government.

There is a separate Bungalow on the estate, which is well suited for accommodation of the Officer Commanding the Detachment. The estate is most eligibly situated in every respect, on an eminence close to the sea, and to the houses of all the Civil Residents. It also completely commands the high Roads to the Town of Calicut, to Cannanore, and to Malliapooram.

The immediate proximity to the Native Town of the Quarters now occupied by the European Detachment is a great objection. The Town is full of Grog shops and Houses of ill-fame, and thus our country men are but too often presented to the gaze of the Natives, despite every precaution, in a condition of helpless drunkenness and obscenity which cannot fail to be highly injurious to our prestige. The Detachment of Native Infantry is well placed in its present position and ought not to be disturbed.

At Malliapooram the Detachment of European Infantry is of greater strength than that at Calicut—the Malabar Police Corps is likewise stationed at Malliapooram, and there is also a Mountain Train of six Pieces, drawn by Ponies, at the Post.—The Public Buildings are quite suitable, but the Mountain Train Gun shed should be removed from the Police Corps lines to the European Barracks—and, when practicable, a detail of European Artillery men to man the Mountain Train, should be given.

From all I have been able to gather from my own observation, and in course of a long and deeply interesting interview with Mr. Robinson, the highly intelligent and sound judging Collector of Malabar and Canara, I am now convinced that it would be both unsafe and impolitic to withdraw or reduce the Detachments at Calicut and Malliapooram---at all events for some years to come. And as therefore these two points may be considered to be prominent Military Posts for Europeans, I think it very desirable that a small Racket Court, a Skittle Ally, and sheltered place for Quoits or other Games, should be provided at each. They will not cost much, and they would conduce materially to preserve health and be a solace and amusement to the men.

Above all, the Road between Calicut and Malliapooram should be at once completed *on emergency*—the distance is thirty miles. The Estimate for this Road was passed long since Mr. Robinson informs me—and some thirty miles of it at the further end, from Palghaut, were finished when a stop was put to all Public Works. I however consider the completing of this Road between the two posts, (which at present are wholly incapable of affording ready support to one another) to be of such grave Military importance as to induce me to press in the most urgent terms, that it may be instantly sanctioned and proceeded with.

Malliapooram is in the heart of the most excitable and bigotted portion of the Mopla population, and might at any moment stand in need of being strengthened from Calicut. Were the Road completed, this could be effected in a night, and any rising or disturbance crushed on the instant—whereas at present, communication between the posts is a work of days, besides being attended with numerous great difficulties, and very considerable expense; all Stores, Commissariat, and baggage being conveyed on Coolies, the track being impassable by wheeled Carriages of any description.

Scarcely less necessary is it, that the Bridges on the Road from Calicut to Cannanore should be immediately proceeded with, and easy and rapid communication established with District Head Quarters— I consider this also a very important Military work which should be executed on emergency and without delay the distance is fifty one (51) miles.

With these Lines of communication fully opened, the perfect tranquillity of Malabar and Canara, the most inflammable District in the Madras Presidency, will be effectually secured—while it is my duty to urge upon Government that continued neglect of these obvious precautions may be, and in all human probability will be attended by the most calamitous consequences.

Having had an apportunity of inspecting a strong Detachment,of the Malabar Police---purely a Civil Corps--it may be satisfactory to Government that I should state my opinion of them.

I think them the finest body of men (Natives) I have ever seen except perhaps the Seiks, and though not superior, in all the physical qualities of fine Soldiers, they are fully equal to the Seiks. The Corps is also remarkably well trained and equipped---if there is a fault it is that the training and drilling have been carried to too high a pitch for Police—which it is not desirable, I think should be drilled and disciplined up to the standard of a Regiment of the Line. The

Corps is armed with the old two grooved Rifle, and the target practice with it is admirable. It may be well not to deprive the men of a fire arm in which they have such perfect confidence and to substitute the common Percussion Musket for it, but at least I would very strongly recommend if it should be proposed (as I have reason to think it will be) to arm the Corps with the Enfield Rifle, that that Queen of weapons may never be placed in the hands of any Native Regular, Irregular, or Police.

Since writing this Minute, I have received Colonel Cotton's memorandum, dated the 24th ultimo on Military Defences, in the Cantonments of Bangalore, Bellary, and Kurnool, and I do myself the honor to forward it with this paper.

Memorandum on Military Defences in the Cantonments of Bangalore, Bellary and Kurnool.

I. About the 20th of January I received orders to accompany His Excellency the Commander-in-Chief to the above Stations for the purpose of considering on the spot what might be the best plan of rendering them defensible. It is well known that hitherto the Cantonments have been formed without the least reference to Military principles excepting that in some cases an Arsenal or a Magazine has been placed in a Native Fort within one or more miles of the Cantonment of the Force, but even such Forts were generally from their extent, vitious construction, state of disrepair and from their being filled and surrounded with the Native Town, quite indefensible. And the quarters of the different Corps composing the Force were all mixed up with Bazars and private buildings of all kinds, the Magazines often quite isolated and far from the Troops, and the Cavalry and Artillery separated from the Infantry. The question of defending the existing Cantonments is thus complicated with that of the expense of abandoning present Public buildings, and of destroying private ones, and also with that of the repairs, abandonment or destruction of the old Native Forts.

II. As no official papers containing instructions as to the precise principles on which the defences were to be planned, were furnished to me, the whole question was left entirely open, and as the matter was in every respect new, I first wrote a short paper, stating what appeared to me points which would admit of little question and what, such as were rather for the Superior authorities to decide and which must be in some measure settled, before the proper Engineering points could be effectively considered. After having His Excellency's views upon the whole subject, I proceeded first to Bangalore, and accompained him in his inspection of the ground and buildings there. After this inspection I was favored by the General of the Division with an account of what had already been planned by him on this important subject.

III. Before however proceeding to consider the particular case of Bangalore, it will be perhaps better to give my views of the general principles on which it appears to me we ought to proceed. I do not give these conclusions as those which have been the fruit of my own thoughts merely, but as those to which I have come after hearing the views of those who were so much more capable of discussing the subject.

IV. My conclusions then are,

1*st.* That owing to the utter want of attention to the matter of defence in the laying out of the Cantonments, it is out of the question to attempt to make the whole of any large one, a defensible position.

2*nd.* That the great essential is, so to arrange for the protection, of the following viz: the arms and ammunition, the treasure, the prisoners and the European families, as to allow of the main body of the Force taking the Field, without any risk (if possible) of those things falling into the hands of an enemy.

3*rd.* That the rest of the Cantonment must of necessity be so far abandoned to an enemy, as that it should be without complete defences, tho' many parts of it, which either from the locality or the nature of the Buildings were capable of it, might be furnished with partial defences, sufficient to check any desultory attacks.

4*th.* That the position intended for the protection of the ammunition &c. should be in all respects thoroughly defensible, and that by a moderate garrison, not exceeding perhaps 500 European Infantry with Artillery.

5*th.* That for this purpose it should be a work constructed on correct principles and with a clear space round it, and thus separated by a small interval from the rest of the Cantonment.

6*th.* That no tenable post should be allowed to exist any where in the neighbourhood of the Cantonment, which an enemy could occupy, and hence that any old Native Fort should be entirely destroyed as being incompatible with the effective defence of the Cantonment—If allowed to exist they must either be occupied by a Force much too small to prevent such imperfect works being carried by a surprize from the quantity of cover that there always is without and within them, or they must be defended by so large a body as would cripple the remainder of the Force if required to take the Field—This of course involves the abandonment of any public Buildings that they may contain, but this I consider must be submitted to.

7*th.* That no large quantity of Military Stores of any kind or of treasure, to tempt an enemy, should ever be left out of the main post, but only such quantities as are required for use.

V. It appears to me that these are essential points which cannot be given up; they will not involve a great expense, but such an expense as they will require must I think be incurred—They involve very little destruction of existing Buildings.

The only serious expenses will be.

1*st.* The Cost of the Fort.

2*nd.* That of the Magazines.

3*rd.* That of Buildings for the shelter of the Artillery and Commissariat Stores.

VI. The Buildings forming the Barracks of the Garrison, constructed of such capacity as is now usual, will on emergency, provide shelter for a very large body of non-combatants and entire families, besides the Troops.

BANGALORE.

VII. On this particular Cantonment I have little more to say than that I beg to state my agreement with the plans that have been already proposed.

1*st.* That the Barracks now commenced should be completed as speedily as possible.

2*nd.* That the position they occupy is an admirable one, an almost isolated rising ground, with a sufficient space on it, and a clean space all round it.

3*rd.* That about the extent which is marked on the plan for the works should be enclosed with a rampart, ditch and glacis as proposed, taking advantage of the strong earth of Bangalore to allow steep faces to both Rampart and Ditch without Revetment.

4*th.* To the Buildings already ordered to be built within this, to add two Magazines for about 1,000 Barrels each, a Treasury, and Store Rooms for the Artillery and Commissariat.

5*th.* To provide extensive Reservoirs for water, capable of holding a three month's supply for the Garrison and families.

6*th.* To make the two extensive enclosures in the Cantonment occupied as Barracks partially defensible by small Bastions at the Angles, completing the walls where necessary as already proposed.

7*th.* Connecting these two by a Tunnel.

8*th.* Removing the Arsenal from the Fort to one of them.

The one to which it is proposed to move the Arsenal is divided by walls into three compartments, and the lower one of them is only divided from an extensive Bazars in which are many masonry buildings by a road—It was a subject of discussion whether it would be necessary to clear away a portion of this Bazar—But I am of opinion that this is unnecessary—It is not intended that this enclosure should be capable of a protracted defence against a systematic attack, and if its garrison were pressed the plan would be to abandon first the lower division, and if necessary the second also, arranging the defences of the upper portions so that those below would be untenable by an enemy.

VIII. All the rest of the Cantonment must I think be left exposed—It is impossible to cover even with partial works so great an extent of ground covered with unarranged buildings.

IX. The Fort I consider must be destroyed—It seems to me that such a work ought either to be occupied in force or destroyed—Imperfect as its defences are, and with a vast mess of buildings within a few yards of it on one side, a small garrison would always be liable to a

surprise; and while such places exist they will always be a source of temptation to an enemy to get possession of them—Nor do I see any object whatever to be gained by keeping it up.

The retention of the Arsenal in it, miles from the Troops and with the Pettah between appears altogether incompatible with the effective defence of the Cantonment.

X. With respect to the water supply of this Cantonment, I may mention, that there is nothing to prevent water being stored on the Nundidroog side, on a level sufficient to command the high parts of the Cantonment—The water shed along which the water must be led from such Reservoirs has, I believe, no hollow in it, so that the water can be led inte the Contonment without any heavy work and the project is therefore practicable at no excessive expense. It would be a very great improvement to the Cantonment. The levels have been taken by Lieutenant Puckle, and I am satisfied of their correctness.

BELLARY.

XI. The question is here complicated by the existence of a Hill Fort—These works quite suited to Native operations, are so directly contrary to true Military principles that instead of being objects of attraction they ought to be particularly avoided by us. What we especially require in this Country is a compact work, without the smallest cover for an enemy in the neighbourhood, so that a small garrison could occupy it without danger of surprize, whereas the sides of these Hills afford the most effective cover to an enemy, who may be in force close to the walls without encountering any loss of consequence, and the garrison must therefore be sufficient to protect all points of the works at once—While they are thus very accessible to an enemy, they are very inaccessible to the garrison, to bring in Guns, ammunitions, Stores, &c.

XII. In the case of Bellary, it is well that the new Barracks are so far from the Hill Fort as to be out of reach of musketry, and it would be easy to prevent an enemy from getting Guns up to it.

XIII. The site of the Barracks is quite clear of cover, and perfectly well suited for a defensible post, there is also plenty of open space adjoining for Artillery or other additional Troops.

XIV. The plan I would therefore propose for the Cantonment, is,

1st. To form a defensible post, similar to that proposed at Bangalore, but of much less extent, within which Magazines, Treasury, the Arsenal and Commissariat Stores, and Barracks sufficient for two Companies should be constructed. This post to be within a short distance of the present Barracks.

This Fort must I conclude be revetted, but the excellent masonry at this place, formed of granite blocks with strong Hydraulic Chunam, is perhaps the cheapest in the world costing only about $1\frac{3}{4}$ Rupees a cubic yard.

2nd. Any additional Troops should be quartered in the same neigbourhood only leaving a clear space round the Fort.

3rd. Both the lower and Hill Forts, I think, must be destroyed for the reasons before given.

It may be objected to this arrangement, that many of the Europeans houses are on the opposite of the Hill from the proposed site, the answer to this is that there is no help for it. The new Barracks have been built on that site, and there is no alternative but to abandon them, or leave the houses above mentioned unprotected. To divide the Troops is of course out of the question.

KURNOOL.

XV. The circumstances of this place are peculiar in asmuch as it is the seat of a former Mussulman Government and also on the frontier of Hyderabad, and therefore within reach of the unsubdued classes in that state.

XVI. In following out the general plan of concentrating troops in future, I understand it is proposed to abandon this place, so far as regular Troops are concerned, leaving it to the Police and Irregular horse—As respect its position, there seems little room for question that it ought to be rather the Head Quarters of the Force than Bellary, but there is one serious objection to this, that being 700 feet lower than Bellary, it is much hotter, and also in other respects much inferior in point of climate to that place for European Troops; and the construction of the New Barracks there seems to leave no room for question now on this point.

XVII. This point, whether it should be given up altogether as a post of regular troops, is a question for the superior authorities—But there is one thing which it isproper for me to notice, Kurnool is now a considerable place for trade, and my own opinion is that as the country is opened up by communications, it must necessarily become the great commercial centre of the basin of the Kistnah—This will especially be the case if the proposed system of Irrigation and Navigation works between the Toombudra W. of Bellary, and the Pennaur and E. Coast Canal is carried out—I apprehend that wherever wealth and treasure accumulate the place becomes unessentially as great a feature in the Military occupation of the country as if it contained Arms and Ammunition and it must be protected.—It is as necessary to prevent an enemy getting possession of a large amount of treasure as of munitions, and large commercial places unprotected are certainly great inducement to restless men to collect and form dangerous bodies.—We have had an instance of this in the case of Juggiahpet in Masulipatam, lately plundered by the Rohillas—such places I consider must be protected. I therefore am inclined to think that it will be found that Kurnool must be occupied by regular Troops—It seems also determined to extend the District of Kurnool, in which case the amount of Government treasure collected here will be increased.

XVIII. In case therefore of its being determined so to occupy it, I would propose the following.

1st. The present Fort must be abandoned and destroyed—It is now almost destroyed and as usual filled and surrounded with native houses, and quite indefensible, and in my opinion unimproveable—The only public building of consequence in it, I believe, is the new Hospital.

2nd. There is a perfectly suitable piece of ground, about $\frac{3}{4}$ mile from the Fort, between the Toombudra and Hindra rivers, for the Cantonment, and a fortified Post—I would there construct a Fort similar to that proposed for Bellary to contain as there the Magazine, Treasury, Barracks for two Companies of Europeans, &c.

3rd. Bridges over the two rivers should be constructed, I consider this essential to the place as a Military position—A force cooped in between two rivers without means of crossing them, and there liable to be exposed to witness the ravaging of the neighbouring country without affording aid cannot be thought of.

XIX. This place like Bellary possesses extraordinary advantages for masonry buildings—Building stone and lime are exceedingly cheap.

XX. I should perhaps mention more particularly the situation of this place as respects communications—It is on a level of 900 feet above the Sea—Below it the Kistnah has a great fall about 800 feet in 200 miles, giving no hope of its navigation being made effective—But above it the Kistnah and its feeders the Beemah, Seena &c. have a very moderate rise for a long distance, only an everage of $1\frac{1}{2}$ feet a mile all the way to Poonah distant by water 600 miles—The upper part of the Toombudra also from the very Ghauts to the mouth of the Wurdah 230 miles, has the same fall, and the proposed Canal from the latter point must necessarily pass Kurnool. This place thus stands at the point where the whole trafic of the basin of the Kistnah would naturally concentrate, and from it, by the Valley of the Koondaur, due South to the Pennaur near Cuddapah and so along the line of the latter river to the E. Coast, is the natural line of connection of Madras and other ports on the E. Coast, with the whole country drained by the Kistnah—This project has been taken up by the Peninsula Irrigation Company, and seems in a fair way to be carried out by it—In this way there seems a fair probability of Kurnool becoming a place of great importance, in a Military point of view—such a place on the frontier could not be left unprotected.

XXI. As a main point of some importance in connection with the European Troops, I beg to notice the entire absence of shade at Bellary and Kurnool—The cause of this is the shallowness of the soil, which will not admit of the growth of trees.—This is a serious disadvantage to Barrack in these vast plains traversed by such withering winds. The only remedy for it, is to excavate pits and fill them with soil. A pit 10 yards in diameter and 3 yards deep would probably cost about 30 Rupees and provide for a tree growing to a large size. I think this expense ought to be incurred in the neighbourhood of the Barracks. Where several lacs have been spent on the buildings, an addition of 6,000 Rupees, for 300 Trees, might not be thought out of the way.

XXII. I have alluded to the Bridges over the Hindra and Toombodra at this place, as essentially connected with its effective Military occupation. The case of the Hindra bridge seems

to call for more particular remark—This work was commenced I understand nearly three years ago. The Piers are not all finished, nor is a single Arch yet turned. How so grievous a failure has occurred, I do not exactly know, but certainly it demands the attention of both the Civil and Military Departments of Government.—I have seen most districts of this Presidency and certainly no other has such extraordinary advantages for Masonry Works, from the naturally prepared state of the stone and the abundance of excellent lime, and yet a work which ought to have been finished in a single season, will take ten at the rate it has hitherto proceeded, for all that has yet been done is to build low piers on solid rock foundation for a bridge 1,000 feet long, and not all of them.—The delay at present is stated to be owing mainly to the use of cut stone and elliptical Arches, and to the unaccountable treatment that the contractor has received, his contract having been set aside when he had collected coolies, purchased bandies and bullocks, &c., being a direct breach of faith on our part, without any pretence of fault on his, but consequent on the stoppage of Public Works.—This man is a wealthy energetic and intelligent Gentleman and proposed to become an extensive contractor, that class which it is of such vital importance to raise up, as an essential element in the material improvement of the country.—Who can wonder that such are still wanting in the country when they cannot depend upon our keeping faith with them.—I beg to suggest that the only things which can secure the completion of this bridge without further disgrace and loss of time are 1st, to make the most ample compensation to the present contractor, such as he himself will judge ample, not only justice but policy requires this for the public report of faith having been broken with a contractor is one of the most injurious that could get abroad.

2nd. To give up the elliptical form of the Arches and substitute Circular Sigments. I beg to submit that the present state of things in the country with every thing to do, time and money are of too much value to be sacrificed to appearance—our ordinary superintendence can easily manage a simple uniform, curve in an Arch, but they cannot so well manage an ellipse.

3rd. That either the arches should be turned with the slaty stone found at hand uncut except at the edges, or else of brick, as the forming an Arch of large blocks of cut stone is quite unnecessary, excessively expensive, and with the stone cutters here procurable will be exceedingly slow.

4th. That an Officer, with an effective European Overseer should be left permanently in charge of the work, though the Officer would of course be available for the other work in the neighbourhood.

5th. The Bridge has been ordered to be widened beyond what was originally intended, to give wider roadway with the present piers, it will be necessary to make the Arches bellmouthed which would entail very great additional trouble and delay in a place where there are such poor workmen.—I would beg to suggest that the width first intended is sufficient, but if a greater width is insisted upon it might be gained by substituting cast Iron railing for parapet walls; and it would probably be as cheap as widening the Arches; but I consider the additional width quite unnecessary. In planning such works, it must never be lost sight of, that the heavy traffic of the Country will inevitably be soon taken off the common roads.

XXIII. Unless these points are conceded, it seems to me that great unnecessary expense must be incurred, and this important position be deprived for several years, of one essential part of its use as a Military Station.

XXIV. This Bridge is 1,000 feet long, and such works if executed as for use and not appearance can certainly be completed in those parts at 60 Rupees a foot of length, if of 20 feet broad, the breadth of which appears quite sufficient for the Trichinopoly Bridges with their enormous traffice of 20,000 passengers &c. per day.—That over the Toombodra would be 3,000 feet long and consequently cost 1,80,000 Rs. I must in connection with this refer to the question of the position of such a work—I am informed that a site has been talked of for it, where the bed is rocky, but which is not the suitable site for the work, as respect its use—I beg earnestly to protest against such a mode of choosing the site. There should, in my opinion, be only one point kept in view in choosing the site of a bridge, as of every other public work, and that is, that it should be built where it is wanted.—To save 20 per cent of the money by building a bridge where it wont be of a quarter the use it might be in another position is in my opinion a great mistake.—The Madras Railway is a striking instance of this fundamental mistake. By carrying it along the ridge of the Country from Madras to near Vellore, and quite clear of all the Towns and even of the rural population, it has certainly been constructed cheaper, but it has been at the loss of at least three fourths of the traffic it would have had if it had passed along the fertile tracts, and thro' the Towns of Conjeveram, Arcot, Vellore, Wallajahnugger &c.—I quote this as a striking instance of a great mistake into which professional men are continually liable to fall and of which there are so many other instances in the Peninsula. At the approach to a city and Military position like Kurnool, five sixths of the value of a bridge may easily be thrown away by putting it a mile or half distant from the most useful site.

XXV. An essential part of the new system of Military occupation is evidently the destruction not only of the posts near Cantonments, but of all throughout the country. The principle I would urge is, that every thing that makes the natives dream either of the old state of things under the native Governments, or of the late Hybrid system, half native and half European, as if we held the country only on sufference of the high castes, should now be swept away with the utmost care; that the natives should be reminded by every thing they do see and every thing they don't see, that we are now going to rule the country as Europeans and Christians, that our will and our ideas are to be the rule. While native places of strength and other things are allowed to remain, the poor people quite ignorant of the real state of the case, will always be fancying that there is a hope that the time will return, when they shall be able to get rid of those who will not permit, the rich, the high caste and the armed man, to ride roughshod over the mass of the people. The lesson they have lately received should I think be impressed in every possible way. I do trust that none of the old ideas of false economy will now be allowed to prevent the thorough carrying out of these two principles. 1st, That we should destroy every vestige of the old native supremacy; and 2nd. That we should appear in the position of standing in our own strength, and in a state of absolute independence of native help of every kind.

XXVI. I am certain that true economy absolutely requires this. If we can afford the wars and threatenings which will be the fruit of the least appearance of unpreparedness and of abject dependence upon native help or forbearance, we can certainly afford the much smaller expense of covering our ammunition, treasure, &c., with works suited to the true principles of Military science, and of destroying those places which to a native will, while they exist always, convey ideas of invincible strength, even after the unmistakeable proofs they have had of their essential weakness.

XXVII. I do not go into any detail in this paper both because I conclude it was not intended that I should, and also because it seems at all events better to keep such details separate from the principles. Being also under orders to proceed to Madras without delay; I should not have time to draw up such memo. with the necessary places &c. during the few days that remain.

XXVIII. I may recapitulate the principles which appear to me those on which the new arrangements for the Cantonments should be based.

1st. The establishment of a fortified post capable of being held for months against any Native force by 500 or 1,000 men, with a clear esplanade round it, and enclosing within it; 1st. Quarters for ½ or a whole Regiment and on emergency sufficient for a large number of families—2nd. Magazines containing most of the ammunition of the force, 3rd. All the Guns and Artillery and some Commissariat Stores—4th. The Treasure—5th. Water sufficient for 3 or 4 months.

2nd. That the rest of the Cantonment must be left unprotected, as from their vast extent and disorderly arrangement, the old Cantonments are quite incapable of being placed in any sort of defencible state. Excepting however that any particular set of Barracks &c. which offers facilities to be placed in a partial state of defence independently of the rest, may be strengthened by small works, as has in my humble opinion been so judiciously planned at Bangalore.

3rd. That Magazines containing only small quantities of ammunition for current use should be allowed in the undefended part of the Cantonment.

4th. That all Native works near the Cantonments or in them, and in the country universally should be destroyed effectually.

5th. That approaches to the Cantonment should be made perfectly effective at all seasons.

6th. That places where from natural or artificial commercial &c. advantages wealth accumulates, must be included in the Military arrangements, and permanently occupied in force, as such places will otherwise invite attack, and also because it is as necessary to prevent an enemy getting possession of private treasure, as of public money or of munitions of War.

XXIX. I conclude by observing that if the proposed Irrigation Company carry out their project of a current from the mouth of the Wurdah by Bellary and Kurnool to the Eastern Coast Canal, and improve the navigation of the various feeders of the Kistnah, so as to connect all parts of the basin of that river with the Hyderabad, Bellary, Kurnool, Cuddapah and Madras, it will incalculably increase the Military strength of the Government in all that tract, though there will certainly be the same objection (in a measure) to the Canals that there is to the Railways, viz., that the communication may easily be cut off.—The Canals however would still have the advantage, inasmuch as that Steamers could be kept at any points with Troops on board constantly ready to move to any part of them, which could not be done with Railways—It will also be quite easy to carry a Canal from Bangalore to Bellary at a very moderate expense.—There is not a single serious Engineering difficulty either in making the Canal or supplying it with water.—It would not cost more than one fourth that of a high speed Railway, would carry at $\frac{1}{8}$ the cost and could be worked by steam at 15 or 20 miles an hour if necessary.

XXX. But whether these water communications were executed or not, the common roads certainly should be put into a practicable state.—It will perhaps be scarcely believed that in the midst of the dry season I was 13 hours going 24 miles on the great high road between Cuddapah and Kurnool and Hyderabad, in a transit carriage with very little luggage, drawn by two powerful Bullocks assisted by 3 men besides the driver.—It is now 31 years since, as Civil Engineer of that Division I pointed out, how a few hundred Rupees would remove the worst difficulties in these high roads of Cuddapah.—But here is still one of the great highways of this Presidency, on which not one Rupee has been spent; the banks of the Nullahs and rivers have not even been sloped off; in one place the only road way was along the water course of a patch of paddy Cultivation; in many places the road is ploughed over, and water channels cut across it 2 or 3 feet deep.

XXXI. A Regiment of Native Infantry with their baggage would I suppose take 10 days to get over that 24 miles, and a much greater length is in its natural state, not having had a Rupee spent on it, nor even is it marked out and protected from the agricultural operations of the Ryots.—Nothing can be more evident than that such a state of things is incompatible with the effective Military occupation of the country.

FORT SAINT GEORGE,
24th February 1858.

(Signed) A. COTTON, Colonel,
Commandant of Engineers.

From the Quarter Master General of the Army, Head Quarters, Ootacamund, 19th March 1858, *No.* $\frac{94}{1356}$; *to the Secretary to Government, Military Department.*

In continuation of the Commander-in-Chief's memo. of 11th instant, on stations visited by him during his late Tour, I am directed by His Excellency to forward for submission, the enclosed from Mr. Robinson, Collector of Malabar, received subsequently to the former being despatched, the subject was touched on in the original memo., and Sir Patrick Grant would beg to call especial notice to it.

Memo. by J. Robinson Esqr., Barragherry, 12th March 1858.

The Mundoor and Calicut road was devised to form a great trunk line, through the troublesome and inaccessible Moplah Talooks of Walloowanaad Ernaad, and Shernaad, and to bring the Cantonment of Mallapooram into direct and easy communication with Calicut and the Military Head Quarters of the Province. The line is well devised in every respect and when it is completed with few branch roads from different points* on it, we should have the most thorough Command of the Country. A few hours would suffice to bring a formidable body of Europeans from Malliapooram to bear on any point at which the peace might be menaced.

Angady prone	to Pandikat and Tovoor.
,,	to Munjerry and Areacode.
,,	to Kolatoor and Betul Pudiangady.
Mallapooram	to Terowangady.
,,	to Munjerry and Wundoor.
Goondotty	to Teroowangady.
,,	to Mopperaam.

* N. B.—Several of these Branches are in a fair order and they are being improved, and all might be made excellent cross Roads at 300 Rupees per mile.

Three or four years ago, a liberal estimate of nearly half a lac of Rupees was sanctioned for the line and its execution was earnestly pressed; but now mismanagement occurred, a large sum of money has been spent and when the order to stop all expenditure on Public Works arrived, it found us fully aware of our previous errors, and on the point of sitting with energy to retrieve them—but the stoppage overtook the works in such a condition that, it may be stated with safety, that at no part of the line could 2 or 3 miles of continuous road be pointed out, which is available for wheel carriage, and ready passage of Troops, while that portion of the line which, in a Military point of view, was of the first importance, and is wholly indispensable viz. the point between Calicut and Malliapooram has unaccountably remained almost untouched.

The communication between Calicut and Malliapooram is nearly as difficult this day, as it was 10 years ago, and it is still necessary to send the Troops round by Parpangaddy, and Tirvoongaddy, by a road impracticable for wheel carriage, and so close and difficult that, were the Country in a disturbed state, Troops could only move by very slow marches. This road passes through Teroowangaddy,* the seat of all the disaffection, and excitement that prevailed for years among our Moplah Population. The new line will pass through Coondotty and is much more direct one. Coondotty is the seat of a very influential Moplah Tungul of good disposition.

* *The dwelling place of the banished High Priest.*

A large portion of the population of the District between Malliapooram and Calicut is Moplah, and the scene of several of our out-breaks intervenes between Malliapooram and the Head Quarters of the Division. A Military road through such a Country should be accessible, and easy at all seasons. The hedges and enclosures, (which in Malabar are breastworks of earth or stone of 4 to 10 feet high) being thrown well back.

I am anxious to have the road looked upon in the true light as *the* Military line of importance in the Province. It never ought to have been treated as a Civil communication, and is at this moment of far greater importance to the Malliapooram Cantonment and Detachment than any of the Masonry Works which are now being pushed forward there, as Military ones.

The restriction should be removed and the work be at once proceeded with.

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1. The Governor in Council fully concurs with the principles laid down in His Excellency the Commander-in-Chief's Minute for providing for the security and defence of chief Stations in this Presidency.

II. His Excellency's Minute and the Memorandum by the Commandant of Engineers, Colonel A. Cotton, will be referred to the Department Public Works in order that the measures hereinafter detailed may be taken in that Department.

III. Estimates and plans for the defences at Bangalore, allusion to which is made in the foregoing papers, have already been called for. The Governor in Council refers for the observations of the Inspector General of Ordnance, the proposal that the Principal Magazine and all combustibles should be established within the line of entrenchment of the new Barrack. Provision for their accommodation on the scale suggested in Clause 4, para. 7, of Colonel Cotton's memo. will be made in the plan and estimates already ordered—plans and estimates will be called for, for the works specified in Clauses 6 and 7 of the same para. of the memorandum.

On these works being completed and the Arsenal removed into them, it appears to the Governor in Council that the Fort at Bangalore should be destroyed. The necessary communications on the subject will be addressed to the Commissioner of Mysore and to the Government of India hereafter.

IV. In the Cantonment of Bellary the following plans and Estimates will be called for in the Department Public Works.

1st. Barracks for the Artillery.

2 Companies.

2nd. A Magazine and Store room capable of containing the munitions of War specified in the Commander-in-Chief's Minute, (head Bellary) with reference to which proposition the Inspector General's observations are requested.

3rd. A Treasury. } The Judicial Department will be referred to for observations and
4th. A Jail. } for information as to the requisite dimensions of these buildings.

5th. Field work as suggested in Clauses 1, 2, para. XIV, Colonel Cotton's memo. to be erected in the vicinity of the European Barracks and to contain the buildings above enumerated.

V. It is observed that estimates for converting the old European Hospital into married men's quarters have been already called for.

VI. His Excellency's proposal that a permanent Sanatarium be established at Ramandroog for European Troops meets with the full approval of the Governor in Council.

Estimates and plans for accommodation of 200 men and 25 families will be called for by the Department Public Works.

VII. The Governor in Council is of opinion that the Commandant, Commissioned and Non-Commissioned Staff, and Medical Officer should be allowed on the scale sanctioned to similar Stations in the Bengal Presidency.

VIII. The question of investing such Commandant with the powers of a Magistrate &c. will be hereafter considered in the Judicial Department.

IX. The Governor in Council is of opinion that on the completion of these works the Hill Fort at Bellary should be destroyed.

X. The Governor in Council is strongly of opinion that Kurnool ought to be maintained as a Military Post, Plans and Estimates therefore for forming a new Cantonment on the site and a fortified post contiguous to it on the scale mentioned by the Commander-in-Chief, and in 2nd Clause para. XVIII, Colonel Cotton's memorandum will be prepared—the question bearing on the Magazine is referred for the remarks of the Inspector General.

XI. The Governor in Council concurs with the Commander-in-Chief and Commandant of Engineers in considering bridges over the rivers essential to the new Cantonment, the requisite estimates are therefore to be called for.

XII. The Governor in Council considers that the sum estimated by Colonel Cotton for excavating and filling with soil pits for facilitating the growth of trees to be planted in them will be well expended.

XIII. The questions raised by Colonel Cotton regarding the Hindra Bridge in para. XXII of his memorandum will be considered in the Department Public Works, as also his remarks on roads as set forth in the latter paras. of the same memorandum, together with the suggestions of His Excellency the Commander-in-Chief on the same subject.

XIV. The destruction of the Fort at Kurnool appears to the Governor in Council to be advisable on the above measures being carried into full effect.

XV. The Commissioner Mysore will be addressed on the subject of the new Cantonment proposed to be substituted for the French Rocks.

XVI. The Governor in Council sanctions a complete 9 Pounder and a 24 Pounder Howitzer Field Battery (spare) being lodged in the Arsenal at Cannanore.

XVII. The repairs to the Fort at Cannanore have, the Governor in Council observes, been already sanctioned for immediate execution.

XVIII. The expressed opinion of the Commander-in-Chief that there is no necessity for a working Arsenal at Cannanore is referred to the Inspector General of Ordnance for his observations

XIX. His Excellency's suggestions relative to removing the Civil jail from the inside to an eligible situation outside, but within range of the guns of the Fort at Cannanore, is referred to the Judicial Department for notice.

XX. The Civil Treasury and Paymaster's Treasury, the Commander-in-Chief considers, should be placed within the Fort of Cannanore—this proposal is referred for the observations of the Revenue Department and Accountant General.

XXI. The suggestions offered by His Excellency in regard to the Magazine at Cannanore are referred for the remarks of the Inspector General of Ordnance.

XXII. Estimate will be called for in the Public Works Department for a School room to the Barracks at Cannanore—The Governor in Council observes that married men's quarters have already been sanctioned for Cannanore, but the execution of the works post-poned under instructions from the Government of India.

XXIII. The Governor in Council sanctions the substitution of a nine Pounder Battery manned by Europeans in place of the Light Field Battery of six Pounder manned by Golundauze, as soon as the change can be arranged for; the Golundauze Company remaining as a reserve Company until a 2nd European Artillery Company can be sent there as a reserve.

XXIV. Plans and Estimates for Barracks for this i. e. a European Artillery Company to be built on the outer flank of the European Barracks and for a Gun shed to be erected close to the men's Barracks will be called for in the Department Public Works.

XXV. The Commander-in-Chief is requested to offer his suggestions as to the best mode of immediately remedying the present unsafe arrangement as regards the site of the Gun shed at Cannanore.

XXVI. The Commander-in-Chief recommends that all Prisoners should be removed from the Jail at Calicut which is most insecurely situated, to a large Central Jail at Cannanore, the Judicial Department will consider His Excellency's recommendation.

XXVII. The Commander-in-Chief's proposition for the appropriation to the European Detachment at Calicut of the House belonging to the late Mr. Conolly will be considered in the Department of Public Works.

XXVIII. The Governor in Council observes that the Mountain Train at Calicut has already been ordered to be attached to the European Detachment.

XXIX. Orders relative to the Skittle ally, Racket Court and sheltered place for Quoit playing at the posts of Calicut and Malliapooram will be issued in a separate Minute of Consultation.

XXX. His Excellency's remarks on the subject of the roads and Bridges in the neighbourhood of Cannanore, Calicut and Malliapooram will be considered in the Department of Public Works.

XXXI. The expression of the Commander-in-Chief's opinion of the Malabar Police formed on his inspection of a strong Detachment of that body is communicated to the Judicial Department.

To the Commissioner of Mysore. | Here enter 30th April 1858, No. 1495.

(True Extract and Copies.)

F. B. Wallace Esqr
Ag. Dy. Secretary to Government.

To the Quarter Master General.
,, Adjutant General.
,, Department Public Works.
,, Inspector General of Ordnance.
,, Judicial Department. With 3 Spare Copies
,, Director General Medl. Department.
,, Revenue Department.
,, Accountant General.
,, Military Auditor General.
,, Commandant of Engineers.
,, Revenue Board.

Rec'd 11th May 1858 FP

Exd. J. E, Cashart.

Entered in Let 8/6/58

In the Secretary's Office

Judicial — 1858 Dept.

Secret Minutes Consulta-
- tion on the Military
Departt. ——— 1494

2/30 April
R/11 May 1858

No 851.
3 spare copies.

Communicating copy
of a letter from the Adjtt Genl
of the Army forwarding a
Minute by H.E. the Comm-
-in Chief on the Military
Defences of the Countries
-ment he has visited in
course of his present
tour, and a Memo on the
same signed by Col.
A. Cotton.-

2 May. Lett.

Judicial Department.

No. 707

Extract from the Minutes of Consultatoin

Dated 31st May 1858.

Read the following Encl. Mins Dns
in the Military Department.
(Here enter 30th April 58 No 1494)

Resolved that copies of the two
portions of the Minute of His Excel-
lency the Commander-in-Chief
dated 11th March, which relate to
the Forts at Bellary, Cannanore
and Calicut, with Memos IV, XIX and
XXVI of the foregoing Encl. Mins
Dns: be referred to the Inspector
of Prisons for any remarks he
may have to offer.

2. His Excellency's suggestion
respecting the investment of the
Commandant of the convales-
-cent Depot hitherto to be estab-
-lished at Ramandroog, with

-2-

26

the powers of a Joint Magistrate and with the authority, in obkarry matters, now exercised by Ameers will be considered on the formation of that Depot.

3. Copy also of his Excellency's opinion of the Malabar Police Corps, will be furnished to the A.G. Magistrate of Malabar, and by him to the officer Commanding that corps.

Copy to Military Dept.
" to A.G. Magistrate of Malabar with form of Memorial
" Inspector of Prisons - (with the paras referred to)

Dept'd

Entered in List 8/6/58.

Judicial 1858. Extd. Cons 14 June Department.

No. 707

Extract Mins. Cons.

Dated 31st May 1858

Judl 1079

64045.

Madras:—Printed at the Government Press.