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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 872 Press / Mis.

363-364

Dated 16—8— 1866.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department,
16th March 1866.

No. 363. Read the following Proceedings of the Madras Government in the Judicial Department:—

Passing orders on certain correspondence relative to a project for reclaiming a tract of land adjacent to the town of Coimbatore. } (Here enter 7th March 1866, No. 344.)

No. 364. ORDER THEREON, 16th March 1866, No. 872.

CIVIL WORKS, No. 42.

Communicated to Mr. Fraser who will, with reference to paragraph 4 of the foregoing Proceedings, submit without delay the information as well as the papers which were called for in G. O. No. 597, dated 20th February 1866.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,
Secretary to Government.

To the Superintending Engineer of the 7th Division.
To W. Fraser, Esq.

xd. S. T. Augustin.

Proceedings of the Madras Government, Judicial Department,
7th March 1866.

Read the following papers :—

No. 32. From the Principal Inspector General Medical Department, to the Chief Secretary to Government, Fort Saint George ; dated 21st October 1865, No. 327.

Judicial Department, No. 1388 of 27th September 1865.
* From Surgeon Major R. W. Porteous, No. 37, dated 7th October 1865.
From Assistant Surgeon W. F. Davis, M. D., No. 91, dated 14th October 1865.
From Assistant Surgeon W. R. Cornish, dated 20th October 1865.

I have the honor to forward the reports* called for by Government in Proceedings as per margin.

2. The testimony of all the Medical Officers who have had experience of the locality goes to show that the public works contemplated in Mr. Fraser's plans would be calculated to improve the sanitary condition of portions of the Native town of Coimbatore.

From the Garrison Surgeon, to the Secretary, Principal Inspector General Medical Department, Fort Saint George ; dated Madras, 7th October 1865, No. 37.

With reference to Proceedings of Government, Judicial Department,* and paragraph 4 of Order thereon, I have the honor to inform you that during a residence of twelve years as Civil Surgeon of Coimbatore, I cannot call to re-

* Dated 12th September 1865.

collection a single instance, in which I could ascribe the cause of sickness in any member of the European community of the station, as being induced by the offensive state of the long tank, and whom, it would more particularly have affected, as there was no portion of the Native inhabitants *then* residing in its vicinity.

2. The large extent of low ground in advance of the bed of the tank, yearly becomes covered with water to a greater or less extent, according to the fall of rain during the south-west monsoon ; rank vegetation, and a large amount of green weed are produced ; these as the water subsides, and with high temperature conjoined, decompose, and the swamp becomes most offensive both to smell and sight, and to all appearance a focus of malaria.

3. The tank in the proximity of the Native town, though not having so great an extent of swamp, as the water decreases, the portion in the immediate vicinity of the entrance to it from the west becomes much more offensive, local causes being combined to aggravate it, and malarious and miasmatic emanations are evolved, which no doubt induce the excess of fever at such times among the Native population. When cholera prevailed, it generally presented itself among the poor class of Natives residing in the immediate vicinity of the portion of the tank referred to.

4. Having visited most of the stations in this Presidency, in none do I consider a more desirable improvement required, than in converting these unpleasant swamps into profitable ground.

From the Civil Surgeon, Coimbatore, to the Deputy Inspector General of Hospitals, Southern Division, dated Coimbatore, 14th October 1865, No. 91.

I have the honor to own receipt of your Memorandum No. 1479, and that of the Principal Inspector General Medical Department, No. 3455, superscribed upon a copy of Proceedings of the Madras Government in Judicial Department, 27th September 1865, calling for a report in obedience to paragraph No. 4 of the Order thereon, No. 1388.

2. In compliance with the above, I have to state that the condition of the tank referred to and known as the "Valan" has been for years the subject of many and strong representations on the part of my predecessors, who have always considered it a most unwholesome place, and none have held this opinion more strongly than Dr. Ogg, whom I immediately succeeded. He characterizes it as a foul and stagnant swamp, and I knew that his report upon the place had gone up for the consideration of the Principal Inspector General when I first came to this station.

3. I have now had an opportunity of knowing the state of the Valankolam for thirteen months, and, therefore, under all varying phases of the several seasons of the year. It may be

divided into two parts, viz., that from the kalingula on the eastern boundary to a line corresponding with a continuation of the old mud fort wall and nitre works; (2) the rest of the tank extending westwards to the Pothanoor road. These respective portions differ very considerably in their degree of hurtfulness. The second, which may be called the Native town portion, is as foul as it can well be; not only do the townsfolk in the vicinity make daily use of it when dry as an impromptu latrine, but a structure purporting to be a latrine properly so-called, which was erected by order of Mr. E. B. Thomas, has from its very primitive structure and the almost impossibility of cleansing it become a mere focus, where the already frequent deposits around become concentrated into a more or less extensive mass of liquid manure. During the process of filling, which this tank undergoes from the over-flowing of the upper one in the early part of July, no doubt much of this ordure is carried lower into the general tank surface below, and so far relieves the native portion of the swamp by a more general distribution of its unsavoury contents. The eastern part, a very large proportion of the Valankolam is most of the year a mere meadow, with a fringe of water skirting the southern bund. It, when full, washes the European cemetery as well as some deserted and scattered Mussulman graves in the western side of the latter; it is a question how much this affects the health of the neighbourhood, but that impregnation with animal matter takes place can scarcely be doubted.

4. My experience of the western part of the tank is, that it produces disease principally by the foul state in which its bottom and border is kept. Cholera has not been produced by the emanation during my residence at Coimbatore; but the only portion of the town in which that terrible malady has lingered has been in the immediate vicinity inhabited by Portuguese and East Indians; an outbreak of cholera took place in May and June 1865, and the deaths in the fort, which is close to the western boundary of the tank, were nine; whereas there were not so many casualties in all the other parts of the town put together. This mortality may have been accidental in some degree; but the deficiency in sanitation, and the well known previous unhealthiness of the locality, make me think otherwise.

5. The effects upon the health of the neighbourhood of the eastern part of the Valankolam have not, during my residence at Coimbatore, been very pernicious; some unusually favorable circumstances may have been the causes of this, but I am inclined to believe that this portion is not very unwholesome, some sore-throat and head-ache, produced by the stench emitted during its drying and after rain, being all that could be alleged against it.

6. Upon general principles of sanitation, and the state in which part of this tank habitually is, I should strongly recommend its being brought into smaller compass, so that the great surface, now alternately wet and dry, might be permanently cultivated as gardens, &c., and the Municipality might then exercise proper supervision over the cleanliness of the permanently dry portion.

No. 1530.

Submitted with reference to Memorandum No. 3455 of 3rd instant, from Secretary Principal Inspector General Medical Department, and Proceedings of Government, Judicial Department, No. 1388 of 27th ultimo, paragraph 4.

TRICHINOPOLY,
16*th October* 1865.

(Signed) J. A. REYNOLDS,
Dy. Inspector General, S. D.

From the Secretary, Principal Inspector General Medical Department, to the Principal Inspector General, Medical Department, Fort Saint George; dated Madras, 20th October 1865.

With reference to Order of Government as per margin, referred for my opinion, I have the
Judicial Department, No. 1388 of 27th September 1865. honor to state as follows:—

2. While Civil Surgeon at Coimbatore in 1857 and 1858, I had reason to think that the tanks alluded to were in some degree hurtful to the health of the people, for the following reasons:—

(*a*.) The inhabitants of the portion of the old fort near the margin of the long tank, suffered more severely during an epidemic of cholera than the residents in other quarters of the town.

(*b*.) The season of the year (January and February) in which the drying up of these shallow lakes went on most rapidly, was marked by an augmentation in the number and severity of the fever cases of a periodical type.

3. I have no doubt whatever that the reclamation and cultivation of the lands, now periodically submerged, would tend to the improvement of the public health of the town of Coimbatore.

No. 33. Proceedings of the Board of Revenue, dated 5th March 1866.

Read letter from the Collector of Coimbatore, to the Acting Secretary to the Board of Revenue; dated Coimbatore, 20th November 1865, No. 249.

I have received Proceedings of Government and their Order thereon, dated 27th September 1865, No. 1388, in paragraph 3 of which I am called on to state what will be the probable loss of revenue by the changes proposed in the Coimbatore tank, and on what data I base my estimate.

2. It is impossible to say what the probable loss of revenue will be, but as an area of about 250 cawnies of water ranging from 18 inches to nothing in depth is to be done away with in the execution of the proposed work (vide paragraph 6 of Mr. Fraser's letter embodied in the Proceedings under reply), I conclude that the land now irrigated by this water will become waste, and that consequently the revenue due on it will be lost. Mr. Fraser raised the kalingula of the tank by 12 inches, and I presume that he does not propose to raise it any higher; for even at its present height, there are at times fears as to the stability of the bund. I still adhere to my opinion as quoted by Mr. Fraser in paragraph 4 of his letter, regarding the evil effects of the tank in a sanitary point of view. I think they have been much exaggerated. If it is such a hot bed of disease as is represented, surely I ought to be one of the first persons to call out. Coimbatore is my head quarters, and few men like visitations of cholera. It would be well if the Government called on the Zillah Surgeon for a statement exhibiting the number of cholera cases treated by him within the last three years, excluding of course those cases brought from Pothanoor where the Railway Station is. I think that it will then be found that, considering the large population of Coimbatore, some 30,000 inhabitants, the number of cholera cases is small.

3. No one denies that the long grass which springs up in the shallow water, and which decays as the water recedes, gives out a strong smell far from pleasant; but the bed of the tank soon dries up and becomes as hard as a sun-dried brick, and a mass of verdure on which the pigs, horses, donkeys, cows, goats, and sheep graze for the rest of the year. The beds of two tanks, this one and another large one, are the only pieces of Poramboke land to which the animals belonging to the inhabitants of Coimbatore can go for pasture.

The daily average number of animals grazing on the bed of the tank under reference is as follows:—

Bullocks.....	793
Buffaloes.....	104
Horses.....	32
Donkeys.....	75
Sheep.....	76
Pigs.....	60

The loss of this ground for the purposes of grazing would, it is evident, be a great deprivation and inconvenience to the inhabitants, and in this light they have always received the question when it has been mooted.

4. The sale of the land I certainly deprecate. When the tank is full, the prospect is pleasing, and the cool breezes which come across it are refreshing; in fact for ten months in the year at least there is nothing objectionable about the tank. The sale proceeds of the land, if sold, would have to be carried to general revenue, and as convict labor is in future, I believe, to be confined to the Jail, funds for the execution of the work would have to be supplied from Imperial sources in the Department Public Works; and surely whilst so many of our irrigation works, on which the existing revenue is dependant, are languishing and steadily deteriorating, it will be our wisdom to attend to them first.

Submitted for the information of Government, with reference to their Order quoted by the Collector.

2. The Board regret that, by an oversight in their office, the paper has been so long delayed.

(A true Copy and Extract.)

(Signed) W. HUDLESTON,
Secretary.

To the Chief Secretary to Government, Fort Saint George, Judicial Department.

No. 34. From the Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department; dated Coimbatore, 12th January 1866, No. 235.

In paragraph 2 of G. O., in the Judicial Department, No. 1388, of 27th September, I am desired to submit a full report on the subject of a certain project connected with the Coimbatore tanks, and to forward the plan and papers made over to Captain Goddard by Mr. Fraser. I have, however, a few preliminary remarks to make with reference to preceding orders on the same subject.

2. G. O. No. 1807, of 28th July 1862, was the unanswered reference on the file when I took up my present appointment, and its purport was that the project (on which two voluminous papers by Messrs. Fraser and Goddard had been sent in), was remitted for careful consideration and report by Mr. Grant. In his correspondence printed with G. O., No. 1190, of 29th August 1865, Mr. Grant three times alludes to the want of information from me, but finally dismisses the subject in few words, with which I agree, except as to the probability of any loss of assessment on wet land. In the G. O., now under reply, the onus of report is again shifted from the Revenue Department on to the Public Works Department.

3. I only recapitulate the above for the purpose of stating that although I have not corresponded with the Collector on a subject regarding which every information this Department could give was already before Government, and his opinion as a Revenue Officer and Magistrate of the town was what was wanted; yet I have conferred with him personally on the subject, and definitely, as I had imagined, in a walk we had together round the tank, upwards of a twelve month ago, when we both agreed as to the inability of the scheme compared to many others connected with the irrigation of the District, for which we did not see our way to obtaining funds.

4. It appears to me that the work projected by Mr. Fraser would only have the effect of wasting a considerable quantity of water at the time when the tanks are filled by their supplying channel from the Noyel. At all other seasons, at the present moment for instance, they would be perfectly inoperative. The "marshes" or "fœtid swamps" alluded to, if they exist at all, exist only when the tank is full or beginning to fall from its highest level; and by raising the kalingula one foot, as Mr. Fraser has done, he has only aggravated the evil he complains of, if evil it be, by swamping the shallow border of the tanks to a greater extent than before. No doubt an unpleasant smell exhales from the bed of the tank when dry, as much of it now is, but it is the same as exhales from every tank bed in the country. A worse smell by far is that experienced on the bank of the tank when it is full, and the floating weeds and scum are on the surface of the water. If it be an object to reclaim the upper bed of the tanks for cultivation, the kalingula had better be brought down to its former level (above which no temporary dams should be allowed), and if the land be divided into lots and put up to auction its actual value may soon be tested. I don't think any harm will be done to the tanks thereby, as they are little more than expansions of a channel from the Noyel, the state of which and of the anicut at its head is of more consequence than a little more or less storage capacity of the tanks.

5. I confess I do not see what good effect Mr. Fraser's proposed intercepting channel can have on the drainage of Coimbatore, as it will be quite dry most of the year, and a much quicker fall can be got through the tank bed itself. No doubt that portion of Coimbatore of which he speaks, commonly called the fort, is in a filthy state; but what he proposes will be no remedy, without detailed measures of conservancy which the Municipality should look to. A number of the suggestions he has made are of a nature to be dealt with solely by that body; if carried out they would doubtless add to the amenities of the town and station, but the inhabitants themselves would have to contribute the funds. As Mr. Fraser is at Madras, I suggest that he be personally examined on the subject of his proposals; with which view I send up copy of his own Memorandum relating to them, and of Captain Goddard's report on what has been and remains to be done. My search for the Surveys of the tanks has been ineffectual; but if not in one of the Government offices, Mr. Fraser can probably illustrate his paper by a rough sketch of sufficient accuracy.

6. I hope that gentleman had no intention of insinuating in his letter printed with the G. O., under reply, that personal feeling has had anything to do with Mr. Grant's or my own inaction on the subject of his project. I must say that if worth anything, it has been kept back solely by his own neglect to work out its details, and estimate for its completion. If of the importance he attributes to it, he should have looked to these points himself while he had the power. And he appears to have left every project in the District with which he was connected in the same incomplete state, so that his successors have had to commence their investigations *de novo* when any of them has been taken up again. I believe he was connected both with the project of a new Karkoor Ghaut, and of a new Coonoor Ghaut; but those works, as actually carried out, will not have benefited from his labors. And it is in vain that at the present moment, when I am desirous of responding to G. O., No. 3208 of 25th October 1865, that I seek for any record of his researches into the question of Reservoirs; on which I understand that he was for years employed in

the Coimbatore District. I am informed that such papers as he may have drawn up on the subject have all been withdrawn by him from the Records of the District Engineer's Office; so that should his connection with the Government service cease at any time, they will be lost to the Government. I take this opportunity of recalling to mind the existence of such papers.

Memorandum on the works proposed to be done for the drainage of the Marshes around the two tanks at the town of Coimbatore.

With this Memorandum a Map of the two tanks is forwarded.

The proposed works are drawn in red. These red lines are not put forward as occupying the best ground for the several works; the Engineer, when laying out the works in detail will decide this point.

2. The two tanks known as the Periakolam, and the Valankolam, lie on the south side and close to the town of Coimbatore, the lower parts of which are but slightly elevated above the level of high water; so that when the tanks are full the drainage from such portions of the town is very imperfect, and the premises near the tanks are kept in a slippy and filthy state.

The two tanks are connected by a culvert under the Palghaut road, and when they are full, the water stands at the same level in both.

There are two kalingulas or waste weirs, one at the lower end at A. discharges the surplus water into another long tank lower down, the other at the upper end at B. discharges the surplus water directly into the Noyel river.

3. The area of the two tanks at high water, is about 600 acres; of which at least one half is, at all times, very shallow; probably not more than 1½ or 2 feet at the deepest parts.

When the water falls a foot or two this portion becomes a swamp, covered with stagnant pools, the stench from which is almost unbearable. It generally remains in this state for many months of the year.

4. The soil is, for the most part, singularly rich, and being close to a large and populous town, where land for gardens is in great demand, and brings a very high price, as high, I believe, as 400 Rupees a cawny, I considered that to drain this shallow portion of the tanks, and sell it in small lots for gardens would not only be a good pecuniary speculation, but be invaluable to the whole station as a sanitary measure.

5. The Collector being opposed to my proposition, it stood over until Sir C. E. Trevelyan visited Coimbatore, when I brought the matter to his notice, and he directed that the convicts should be employed upon this work and that it should be commenced immediately.

6. As a matter of history* I may mention that some years ago an attempt was made to drain these swamps, and the remains of the drain and banks† are still to be seen.

That the work was not successful may be readily imagined from the fact that the projector‡ made the simple mistake of attempting to drain from one part of the tank into another.

The drain was carried from some part of the upper tank and discharged into the lower, above the kalingula at A: but as the two tanks stand at the same level the works and lands were swamped at high water.

7. The drainage would be very simple if the backwater could be discharged into the tank below the kalingula at A: but the high water level of that tank being only a few inches below the level of the kalingula, renders drainage in this way impossible.

The land at C just below the tank bund is about 13 feet below the level of the kalingula, and here we obtain a sufficient outfall for the perfect drainage of the swamps; but this involved the passing of the backwater under the surplus water of the Valankolam.

* Where is this matter recorded?

† I do not think this was ever intended as a drain. It is a channel or voikal such as we have in all our tanks. J. G. J. G.

‡ Who was he? *name* him. J. G.

The following sketches will show how this was accomplished. The whole of this work was completed in October last.

(*Here enter Sketch.*)

The red lines show the new work.

The sketches probably require but little explanation. The culvert is made to perform the double duty of passing the surplus water from the Valankolam over, and the drainage water under. It has been very soundly built, and thoroughly protected from water percolating through by hydraulic concrete over the arch and by puddle at the sides.

Most distinctly not as regards its wing walls—Vide my Inspection Report of the 23rd March 1861. The arch has been blocked up with earth to the crown by my order as therein reported. J. G.

Its size is calculated to discharge the largest body of water likely to be brought to it. The dimensions will not appear to be too large when it is remembered that a considerable area must be drained through it, and that the safety from floods of the future gardens depends upon its capacity being adequate to discharge the very heavy rains that occasionally fall at Coimbatore.

The crown of the new Kalingul is one foot higher than the old one, and I believe 12 feet above the bottom of the culvert.

Besides the culvert a good many collateral works have been executed at this place, and the result has been to convert an offensive stagnant pool into perhaps the prettiest spot about Coimbatore.

8. The rest of the work is very simple, and I explained it fully to Captain Goddard on the ground.

It consists of cutting a back drain and forming an embankment in the red line marked upon the plan.

The following imaginary cross section will show what is proposed to be done.

(*Here enter Section*).

The water line, when the surface is say 2 feet below the Kalingul, will be a good guide to the Engineer in laying out the drain. The curves should be regular, and long straight lines should be avoided.

The fall in the bottom of the drain should be, if possible, uniform from end to end. At the upper end where the new channel is marked the drain need not be more than 3 feet deep.

Should the material got from the drain be insufficient to form the bank, the remainder can be got by excavating in the bed of the tank. These excavations should be made with some judgment, and not be made close to the bank, nor in pits which would become stagnant pools as the tank dried out.

The top of the banks to be at the same level throughout, and about 4 feet above the highest water level. It should be 2 yards wide.

The side slopes to be 1½ to 1; the water slope to be faced with the grassy sods reserved for that purpose, and the toe of this slope is to be planted with cuttings of a wild plant which grows plentifully along the present bund.

The berme should be at least 15 feet in width.

9. The width of the back drain should be made sufficient to discharge the drainage water at each point. A good section for the drain would be thus—

(*Here enter Section.*)

The upper slopes to be very easy (about 2 to 1) with a secondary drain in the centre.

The advantages are:—The small drain in the centre makes a good fence against cattle, and being just large enough to carry off the ordinary drainage water it is kept clean. The easy slopes give ample spread to the flood water, which are thus prevented from rising to any considerable height, and the water being shallow at the sides destructive action there is prevented, whilst there is always a good current in the centre.

10. Where the drain crosses the Palghaut road at D a culvert will be required. No other culvert will be necessary, but a few foot and cattle bridges across the drain to give access to the tank here and there may be required. These may be of timber.

11. At present a considerable number of small streams or drains flow into the tanks. It is intended that the back drain shall receive them all, and discharge their contents at the outfall.

These drains or streams should be straightened and deepened through the reclaimed land; and small drains should be cut from them into all hollows and pools, so as to prevent the water lying stagnant anywhere. They should be arranged so as to suit as boundaries of future allotments.

Several cross drains should be cut straight up into the low parts of the town, and be connected with the drains there.

This part of the project is most important and will require special attention.

12 On a former occasion Mr. Thomas inquired how a small tank in his garden could be supplied with water from the tank, as it now is, if these projected improvements be carried out. I believe that this is the only case of water being drawn from the tank for any purpose. There will be no difficulty in supplying this garden with water, as the level at which it is now supplied, and which should not be altered, is probably 6 or 7 feet higher than the bottom of the proposed back drain at that point.

13. These tanks are supplied from the Noyel river, by the Coimbatore Rajah Voikal, which, as the map will shew, is a singularly crooked channel, and is divided into four or five branches which meander through the lands to be drained.

These numerous crooked branches, though considered essential, are quite useless, and I propose to abandon them all and open a new one in the line E, F, as shown upon the map. The line drawn may not occupy the best ground. The Engineer will decide this on the spot.

This new channel should not be terminated at the embankment, but be carried straight on to the deep part of the tank, where it may run out.

By opening this new channel at once, and making several bunds at intervals across the present crooked ones, the latter would be silted up nearly level with the lands by the time the whole works are completed.

14. The embankment and back drain must be continued up along the new channel to the high ground, leaving a berme of at least 10 feet between the toe of the bank and the edge of the channel.

This part of the back drain may be very shallow, and as there will be no wave action upon the bank it need not be so high as the rest.

15. The portion of land lying on the west of the new channel must also be embanked and drained. It may be drained directly into the Noyel by the line marked upon the map, or any other that may be found more suitable.

16. It is to be understood that the red lines marked upon the map are not put forward as occupying the best position for the several works, although they cannot be very far astray.

It is probable that the Engineer will find the dotted line J, K, L, the best for the embankment, as that part of the tank is very shallow, and all such parts should be reclaimed.

He may also have to depart from the line where it passes by the Collector's house, as there the solid rock comes very near the surface.

17. The foregoing are all the works that are necessary to convert these fœtid swamps into health-giving and productive land, and if the project is to stop here all that remains to be done is to fence in the land reclaimed, and mark it off in lots for sale.

I intended, however, to accomplish more than this, and make the works not only useful to both the Native and European population but ornamental to the whole station.

The additional works are :—

1*st*. A road, as marked in red, from the present main road, round the outside of the Fort, thence crossing the Palghaut road close to the town, thence along the margin of the reclaimed land, and close by the Rajah Voikal to the bridge at M, where it would join an existing road leading from Coimbatore to some villages in the Noyel valley. A short piece of new road from N to O would connect it with the present tank bund, the surface of which only requires to be slightly improved here and there, and gravelled, to make it a tolerable road.

This new road was intended to leave, for so far as it runs around the town, a certain space of Government land on the upper side sufficiently wide for Native houses and shops of a superior kind to be erected upon this portion of land to be divided into building sites and sold.

The portion of this road between the points marked P and Q is drawn, I believe, through land held on Puttah.

If the line should be considered the best, there will be no difficulty in arranging with the Puttahdars, as an equivalent can readily be given either in money or land.

The present bridge across the channel at M is very narrow, a new one should be built, and one also over the Kalingul at B.

The fence on the lower side of the road would be that of the reclaimed land, and no buildings should be allowed on that side.

The road should be at least 25 feet in width near the town; 18 feet will be sufficient for the remainder.

The bund of the Valankulam tank requires but little to make it a fair carriage road. The angle of the tanks between it and the Palghaut road is now almost silted up, and is nearly always in an offensive state. I propose to fill it in and plant it, and to construct a new piece of road across it as shewn in red.

The embankment and the berme were intended to be open to the public; the top of the former to be gravelled to make it suitable for a walk or ride.

It is to be connected with the present and proposed roads by narrow cross-paths or rides, at intervals more or less apart according to the necessity for providing ready access to the tank.

The sides of the roads and cross-paths, the sides of the new channel, and the berme and inner slope of the embankment, are proposed to be planted with useful and ornamental trees and

These roads, cross-paths, and embankments, would give to the community of Coimbatore that which is so much felt to be wanted now, a means of enjoying a walk, ride, or drive, without being confined to the course, which is the only place at present available.

A portion of the reclaimed land, lying at the rear and western side of the Christian and Mahomedan burial grounds, was intended to be retained for public purposes.

A swimming bath was proposed to be constructed here, and the whole laid out in walks and to be planted, &c.

The Mahomedan population were quite willing to enclose their own burial ground with a wall similar to that around the Christian cemetery.

Another portion of the reclaimed land near the town was intended to be reserved for the recreation of the Native population, and to be laid out suitably for that purpose.

Besides these, other spots should be reserved for public topes and other purposes, and planted ornamentally. There is no reason why the back drain should not occasionally depart from the embankment, and leave a space for ornamental planting, walks, &c., thus—

(*Here enter Sketch.*)

Of course, all this will be dependent upon the good taste of the person who lays out the works. Those who understand such things know how inexpensive it is to make pleasing and ornamental a work whose primary object may be mere pecuniary advantage, provided a little good taste and skill be exercised in its projection and construction.

I believe the only questions that remain to be considered, are, the means or labor by which these works are to be executed, and the probable pecuniary return.

With regard to the first, my original intention was to include those works in the Budget, and execute them rapidly, so far as they were required as a pecuniary speculation.

The employment of the convicts upon them, as directed by Sir Charles Trevelyan, is perhaps a better arrangement, although it will involve a longer time in their construction, unless a system of working the convicts, very different from that which has hitherto prevailed, be adopted and steadily carried out. When the convicts were handed over to me, they worked just as they pleased. Every one, peons and convicts, gave orders to every one else, and the utmost clamour

and confusion prevailed. I had then, for the first time, an opportunity of testing the correctness of an opinion I had long previously formed, that Indian laborers could be taught to work properly if pains were taken to teach them.

I had the convicts divided into gangs of twelve, with a leader to each. Implements proper for their work were given to each gang, and to each a certain piece of work to perform. Strict silence was enforced, and no one allowed to give or receive an order except the leader.

Circumstances, which are fully discussed in a letter to the Judge of Coimbatore, prevented me carrying out the gang system fully; but so far as it was carried out the result was much gratifying. Emulation was created amongst the leaders, and the convicts themselves were beginning to take some interest in their work; when they again passed from our hands, and, I regret to say, that the last time I saw them at work, the old confusion and clamour had become re-established.

I have made the foregoing remarks, because I believe that success in carrying out the works under consideration will very much depend on how the convicts are handled.

It is proper, I should add, that in establishing the improved system of working, I was *generally* aided by the new Police subordinates, *always* by Captain Tennant.

In the brick and stone work already done, a large amount of free labour was employed than will be necessary hereafter, as we were pressed for time on account of the approaching monsoon. It was understood that a gang or two of convicts were to be employed in making bricks to re-place those that were used, also in collecting and burning lime for a similar purpose.

I believe that close on 300 acres (or 230 cawnies) will be available for sale. I brought the Tahsildar over the ground, and he stated that it would sell for not less than 200 Rupees a cawny. This would show a probable return of 46,000 Rupees; but if I have been rightly informed, portions of land about Coimbatore not superior to this have brought as much as 400 Rupees a cawny; and from what I have heard some wealthy Natives say, I believe that if the ground be properly divided, and fairly put up to auction, it will bring much more than the Tahsildar's valuation.

22nd March 1861.

(Signed) W. FRASER,
Chief Engineer.

(A true Copy.)

(Signed) J. GODDARD, Captain,
District Engineer, Coimbatore.

From the District Engineer of Coimbatore, to the Deputy Chief Engineer, Southern Circle, Madras; dated Ootacamund, 28th February 1862, No. 592.

In Extract Proceedings Chief Engineer, No. 456, dated 13th May 1861, returning to this office plan and specification connected with the drainage of two tanks at Coimbatore, the Chief Engineer calls for a complete plan and report for submission to Government. The Chief Engineer's call is a reminder upon Proceedings Madras Government, Nos. 1177 and 1548, dated 6th June and 19th July 1860, communicated with Extract Proceedings Chief Engineer, Nos. 1418 and 2968, dated 9th June and 25th July, respectively.

2. In Proceedings Madras Government first quoted above, it appears that Government approved a project.

I. For reclaiming 150 to 200 acres of the bed of Valankolam tank at Coimbatore by drainage.

II. For selling a portion of the land for sites for residencies in convenient lots, and appropriating a convenient portion for purposes of public recreation—the sites to be selected by the Judge, Collector, and District Engineer. A plan of ground and of proposed sites to be submitted to Government before putting land up to sale.

III. The funds derived from the sale of land to be devoted to local improvements. Estimated sale proceeds Rupees 40,000.

IV. All present outlay to be defrayed from Local Funds; but as far as possible the work was to be executed by convicts.

3. In Proceedings Madras Government, the second quoted, it appears that a letter from Collector to Chief Engineer, and a letter from Dr. Porteous to Secretary to Government, Department Public Works, were read. The Collector protested against this drainage project. Dr. Porteous dissented from Collector. Mr. Thomas reports that the capacity of the tanks will be lessened. Mr. Fraser denies this. Government see no reason to modify their former order, and it is to be at once acted on. Government expect to receive, at an early date, a plan and report as directed already.

4. The requisite plan, with sites marked upon it, and numbered, duly signed by each Member of the Committee named by Government, has this day been despatched by Banghy to the Central Office.

5. I will now proceed to state, as far as I am able, what has been done up to date, and what remains to be done. The cost of work done and remaining to be done will also be exhibited.

6. The Bricklayers' and Masons' work done is the full amount contemplated by Mr. Fraser immediately at the site of the old Kalingula and no more, with the exception of a "*rough stone in mud*" wall, mentioned in paragraph 7 hereof in his sketch and specification, which the Chief Engineer remarks, in the reminder now under reply, is very full, and describes clearly the plan to be followed out. Agreeably to order a copy of this specification is appended.

7. In reference to the quantity of the masonry work done, I have no plan to enable me to compute it. The plan and section facing paragraph 5 of Mr. Fraser's specifications are not provided with a scale and the dimensions are not entered. A plan and section, drawn to scale, were forwarded to Central Office with my letter No. 552, dated 25th March 1861, and from this the amount and value of work done may be computed. No copy of the above exists in this office. The work was never exhibited in any Progress Reports. Furthermore, I cannot measure the work with a tape, as I had to block it all up, as partially reported in my Inspection Report of the 23rd March 1861, to prevent its breaching. No estimate or bill was ever prepared for this work. From a consideration of the above, you will observe I know not the contents of the masonry work. The earth-work done is that represented as filled in, levelled, and planted on one side of the Kalingula, and as planted on the other side in the sketch facing paragraph 5 of Mr. Fraser's specification. The back drain, tinted red, has also been excavated. This is all the earth-work done. A loose stone wall has been built, which is not represented in the sketch facing paragraph 5 of Mr. Fraser's specification, as originally submitted. I have exhibited this by a light line of burnt sienna.

	Rs.	A.	P.
* Cost of free labour..... ...	2,265	11	8
" of materials used..... ...	754	5	6
Total...	3,020	1	2
Cost of Convict labor.....	2,667	4	0
Total of cost...	5,687	5	2

J. G.

The only records I can refer to are the enclosed (in a wrapper docketted Vouchers) by which, and the Statement appended to it, you will observe that Rupees 3020-1-2 was expended for works done by Mr. Fraser, and Rupees 2097-3-0 is the computed value of convict labour employed. The total of these two items is Rupees 5687-5-2.*

8. The contents and values of earth-work I cannot give, as I have no sections of the stagnant pool, marked in sketch as filled in, nor have I any pits to measure. I should not consider it right or just for me to hazard a statement of amount of earth-work done. No estimate or bill has ever been prepared for earth-work. I have no records whatever to refer myself to, for earth work done, beyond those appended (duly docketted, Vouchers for earth-work.)

† The expenditure was defrayed from Imperial Funds, not from Local, as ordered by Government in P. M. G. No. 1177, dated 6th June 1860.

9. The work remaining to be done is—

I. Excavation of drain from the new Kalingula to debouchure of supply channel.

II. Forming embankment.

III. A culvert at D.

IV. Foot and cattle timber bridges across the drain.

V. All drains or streams now flowing into tank to be straightened and deepened through the reclaimed land, and small drains to be cut from them into all hollows and pools.

VI. Several cross drains to be cut straight up into the low parts of the town, and to be connected with the drains there.

VII. A new channel to be opened on the line E, F, to supply the tanks instead of the numerous crooked branch channels which are to be abandoned.

VIII. The portion of land lying on the west of the new channel to be embanked and drained directly into the Noyel or otherwise.

IX. The land reclaimed to be fenced in and marked off in lots for sale.

X. A road to be formed, as marked in red, from the present main road round the outside of the Fort, thence crossing the Palghaut road close to the town, thence along the margin of the reclaimed land and close by the Rajah Voykal to the bridge at M.

XI. A short piece of new road from N to O to connect the above with the present tank-bund, the surface of which to be slightly improved here and there and gravelled to make it a tolerable road.

XII. A bridge to be re-built at M.

XIII. A bridge to be built over the Kalingula at B.

XIV. The angle between the two tanks at the junction of the bund of the Valankolam tank and Palghaut road to be filled in and planted, and a new piece of road to be constructed across it as shewn in red.

XV. The top of the embankment to be gravelled to make it suitable for a walk or ride.

XVI. The embankment to be connected with the present and proposed roads by narrow cross-paths or rides.

XVII. To plant the sides of the roads and cross-paths and of the new channel, and the berme and inner slope of the embankment, with useful and ornamental trees and shrubs.

XVIII. Ornamental planting of topes.

10. A consideration of the list of works remaining to be done, as proposed by Mr. Fraser, and of the information furnished in the shape of plans and sections, every one of which you now have in Central Office, will convince you that unless I have an experienced Officer to devote his sole attention to the preparation of this project, for, say two months at least, and perhaps longer, I cannot by any possibility attempt to state an approximate amount for completion. My Officers time is fully occupied at present, and I dare not detach an Officer for the preparation of the project; nor can I devote my own sole personal attention to it. It will require great care and attention to treat this project properly. I would recommend the work to be executed from the Reserve Fund. A refund to be made upon sale proceeds of land being realized.

	Cubic Feet.
Quantity of water on the inside of the back drain, gained by raising Kalingula one foot, supposing the water to be in each case (*i. e.*, before and after Kalingula is raised one foot) exactly on a level with the top of the Kalingula.....	14,194,120
Total quantity of water lost to tanks on the outside of the back drain, supposing the water to be exactly on a level with the top of the Kalingula raised one foot.....	8,720,813
Difference—water gained as foreseen by Mr. Fraser.....	5,473,307

11. In July 1861, the Chief Engineer personally required me to report, after measurement, whether Mr. Fraser's statement, viz., that measures which are to be included in this project will increase the capacity of the tanks, notwithstanding that a portion of the bed is reclaimed (this measure was the raising of the Kalingula one foot) is correct. This statement is correct, you will observe, by casting your eye over the marginal table.

12. Though this statement be correct, yet I object most strongly against any land being reclaimed from the tank bed (I object to the expression "*land bordering* upon *tank*" quoted in Proceedings under reply), because the two tanks now under report contain insufficient water to cultivate up to the Ayacut estimate. These tanks have each silted up six feet, more or less, since they were first constructed.

13. We have had perhaps a better supply of water this year into the tanks than there has been for some time, and yet we require more. I certainly protest against diminishing in the slighest *the present* area of the tanks. Their area is the increased one, the increase being due

15-C

to the raising of the Kalingula one foot, as projected and carried out, without estimate, by Mr. Fraser. I should be glad to raise the Kalingula one or two feet more if the banks would stand it, but they will not. The land to be taken up is not land bordering upon the tanks, but is a portion of the bed of the tanks.

Referred to the Judicial Department, with reference to the Order in that Department, No. 1388, dated 27th September 1865.

FORT SAINT GEORGE, 18*th January* 1866.

(Signed) C. A. ORR, Colonel, R. E., *Secy. to Govt., P. W. Dept.*

No. 35. ORDER THEREON, 7th March 1866, No. 344.

The letters above recorded are replies to the Government Order dated 27th September last, No. 1388, relative to a project for reclaiming a tract of land adjacent to the town of Coimbatore, which is overflowed for a short time when the adjoining tank is full, and is at other times a nuisance.

2. Looking to the opinion held by the Collector and Superintending Engineer, and to the insufficiency of funds for the execution of works of more unquestionable and pressing emergency, the Governor in Council does not think that the project in question should be carried out by Government from public money.

3. At the same time, the swamp proposed to be drained is doubtless a nuisance, and probably prejudicial to the health of the town. Its reclamation may therefore fitly engage the attention of the Municipality, when one is formed at Coimbatore under the Towns Improvement Act X of 1865.

4. Referring to the 6th paragraph of the Superintending Engineer's letter of the 12th January last, No. 235, in which he brings to notice that certain official papers have been withdrawn from the records of the District Engineer's office by the late Special Executive Engineer Mr. Fraser, the necessary orders will be issued in the Public Works Department.

(True Extract).

G. Cumberland

Chief Secretary.

To the Public Works Department—with the Enclosures returned.

" Collector of Coimbatore.

Exd. J. Tulloch.

Ch. S. Inl. Rd

No. 872

Communicated to Mr. Fraser with a letter, with reference to Paras 6 of the foregoing Proceedings, submitted without delay the information as well as the papers which were called for in H.C. No. 597 dated 20th February 1866.

Court St George
15th March 1866

To
The Supg. Engineer
of the 7th Sub. Distt. & Cudeer.
R. Fraser Esqre.

18th Lieut. Hyde R.E.

Dept. 19th March

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Jud. Bd. Issued to No 78-79
" " 19 " Letter " 321-323
" " 28 " do " 562 " 585-586
" " 4 " Letter " 565 " 46-47
" " 21 " Telegram " 143-144
" " 25 " do " " 632-635

P W 1866 Deptt
Proc. of Govt for March
Nos 1992 17C
Proc. of the Madras Govt
in the Jud Deptt

Dt 7th March 66
Rec 10th March 66

A 3 4 4

Encl 2

Passing orders
on certain correspon-
dence relative to a
project for reclaiming
a tract of land adjacent
to the town of
Coimbatore

A 863-364

With an Order
No 872. 16th March 1866.