(1) Number of pages.

(2) Date of repair

(3) Initials of the Referencer

# MADRAS RECORD OFFICE

## Government of Madras

Public Works DEPARTMENT

G.O. No. 974 (2) Press
B.P.~~-No.~~ ~~Mis.~~

Dated 11-4- 1876.

**Not to be folded or roughly handled**

21

*Proceedings of the Madras Government, Public Works Department,*
*11th April* 1876.

No. 235. Read the following papers :—

From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Palamcottah, 11th February 1876, No. 135.

In his letters marginally noted, Mr. Rundall mentioned the necessity of adopting some means to prevent the destruction and loss of property that occurs in and around the town of Tinnevelly whenever there is a flood in the river and heavy local rain, and stated that a plan would be proposed to meet the requirements of the case. Before leaving the district, Mr. Rundall had levels taken and sketched out two possible schemes, and I have the honor now to report on these proposals as matured by Mr. Hughes. Levels have been taken sufficient to admit of the second scheme being worked up, but before doing so it is better that I should lay it before you and request instructions, as I do not think it likely that Government, with irrigation works in their present state, will undertake so costly and unremunerative a project.

1 Sketch.
Letter No. 187 of 6th March 1875, paragraphs 8 and 14.
Letter No. 135 of 9th December 1874, paragraphs 10 and 11.

2. In paragraph 3 of your endorsement on Mr. Rundall's letter, No. 135, of 9th December 1874, you suggest several means of disposing of the Cariselcolum Oday ; but the information before you was very incomplete, and I think it likely you did not appreciate the quantity of water to be got rid of.

3. The Cariselcolum Oday is a stream rising in the Tenkasi taluq near Maranthy and entering the Kodagan channel close to the village of Pettah, its drainage area being 40 square miles and discharge say 6,000 cubic feet per second.

4. To pass this water there was formerly in the Kodagan channel a weir of considerable length, but it has for some years been blocked up, its place being supplied by another weir three-fourths of a mile lower down the channel discharging, as the original one did, into the Kristnaperi tank.

5. The length, however, (about 100 feet) is insufficient, and the channel bank between it and the point where the Cariselcolum Oday enters is invariably breached after every heavy fall of rain, the water flowing directly into the Kristnaperi tank.

6. Opposite the existing weir above-mentioned the Kristnaperi tank is provided with a surplus weir between 300 or 400 feet in length, which discharges into the Tinnevelly channel within Tinnevelly town, and the Tinnevelly channel being unable to carry the enormous body of water thus poured into it, overflows through the town, causing much damage to house property, and endangers the Ninarcolum tank which commands the South Indian Railway line and station.

7. The banks of the Tinnevelly channel within the town cannot be raised without the removal of the numerous houses built along its course, but the safety of the Ninarcolum tank can be ensured, and for the security of the railway this must be done.

8. If the Cariselcolum Oday could be carried across the Kodagan and the two branches of the Tinnevelly channel and so to the river, or if it could be intercepted before entering the Kodagan channel and carried across the Tinnevelly channel below the village of Thachanullur, the other drainage could be easily disposed of especially when the head sluices are completed.

9. Were the Oday carried along its natural course to the river, it would be necessary to pass it through the Kodagan channel by a weir, and under the two branches of the Tinnevelly channel by under tunnels, thence through 2 miles of valuable nunjah land to the river.

10. The cost of this would be approximately :—

| | Rs. |
|---|---|
| Weir in Kodagan channel to discharge 6,000 cubic feet per second, say ... ... ... ... ... ... ... ... | 3,000 |
| Road dam on Shermadevi road ... ... ... ... ... | 5,000 |
| Under tunnels on do. ... ... ... ... ... ... | 25,000 |
| Do. do. ... ... ... ... | 25,000 |
| Compensation for 60 acres of nunjah at Rupees 1,000 ... ... | 60,000 |
| Channel 3,500 yards long × 1½ yards deep × 46 yards width ... | 30,000 |
| Two drops in the channel ... ... ... ... ... ... | 6,000 |
| | 1,54,000 |
| Add for Contingencies 10 per cent. ... ... ... ... ... | 16,000 |
| Making the total cost ... ... ... ... ... ... ... | 1,70,000 |

11. If the capitalized assessment of the 60 acres of land taken up is added, the estimate becomes Rupees 1,96,250, the land being assessed at 17½ Rupees per acre, which at twenty-five years' purchase gives 26,250 Rupees. The plan of diverting the Oday round the end of the Kodagan channel to the river at Aravancolum would be cheaper than the other, but would have the great disadvantage of passing through and round several tanks and across three roads and the railway. The soil too is bad, and unless the banks were always most carefully maintained and kept in perfect order, a great flood might, at any future time, produce as much damage as at present.

*Vide* G.O., No. 624, of 7th March 1872.

12. From the levels taken by order of Mr. Rundall, it appears that to intercept the Oday, the most convenient plan is at the ruined Cariselcolum tank 2 miles north of Pettah village, where the Oday drains 56 square miles and discharges 5,600 cubic feet per second. From this point the flood water should be carried along the line shown in the accompanying map, through Neduncolum tank and across the Tenkasi road up to the Oday which now supplies Magamudiarcolum tank.

13. From Magamudiarcolum tank the water would run down an Oday, across the Sunkerninarcovil road and in an artificial channel round Chuttrumpoothoocolum tank to Chetticolum tank.

14. Thence it would be taken across the Madura road and the South Indian Railway into the Tinnevelly channel, through which it would be discharged by a weir.

15. From the Tinnevelly channel it would be necessary to cut a channel through half a mile of nunjah, and to pass the Sivalaperi road where there is an old drainage channel, which would require to be enlarged and which would lead the water into the river at Aravancolum. To dispose of the water in the manner sketched above, the following works would be necessary :—

| | Rs. |
|---|---|
| 1. Restoration of the Cariselcolum tank and improvement of its calingulah, costing about ... ... ... ... ... | 3,000 |
| 2. Bund from Cariselcolum calingulah with masonry revetment 800 feet long × 9 feet high ... ... ... ... ... | 6,000 |
| Raising the bank of Neduncolum tank calingulah for same to pass 5,000 cubic feet per second, 3 feet depth and 1 foot afflux ... | |



| | Rs. |
|---|---|
| 3. Road dam 150 yards long, and road No. VII (Tenkasi road) and channel up to Shonon Oday ... ... ... ... | 2,500 |
| 4. Calingulah in Magamudiarcolum tank to discharge 6,000 cubic feet .. ... ... ... ... ... ... ... ... | 2,500 |
| 5. Road dam in road No. VIII (Sunkerninarcovil road) to discharge 6,400 cubic feet per second, costing about ... ... | 5,000 |
| 6. Bank and channel round Chuttrumpoothoocolum to Chetticolum tank including 3,000 lineal feet of revetment wall and repairs to Chetticolum tank ... ... ... ... ... ... | 10,000 |
| 7. New calingulah in Chetticolum tank ... ... ... ... | 2,000 |
| 8. Bridge on road No. I (Madura road) to pass 7,300 cubic feet per second ... ... ... ... ... .. ... | 3,000 |
| 9. Enlarging bridge under the South Indian Railway ... ... | 8,000 |
| 10. Bund to Kariemppu and drop with ... ... ... ... | 6,000 |
| 11. Sluice to supply tank ... ... ... ... ... ... | |
| 12. Weir in Tinnevelly channel ... ... ... ... ... | 12,000 |
| 13. Channel through nunjah to road No. X (Sivilaperi road) ... | 10,000 |
| Compensation for 19 acres of nunjah land at 700 Rupees per acre ... | 13,300 |
| Road dam or bridge on road No. X ... ... ... ... | 7,000 |
| Enlarging drainage channel up to the river ... ... ... ... | 1,500 |
| | 91,800 |
| Contingencies at 10 per cent ... | 9,200 |
| Total cost ... | 1,01,000 |
| And if capitalized assessment for 19 acres be added ... ... ... | 8,300 |
| Total cost becomes ... | 1,09,300 |

16. Either of the schemes I have described would effectually prevent danger to the Tinnevelly channels and town, but I think it very doubtful whether the result would justify the expenditure.

17. The breaches which this scheme would prevent cost on an average about 800 Rupees a-year to close, and were the old weir in the Kodagan channel restored, this sum would be reduced. The Ninarcolum tank must be made safe and the channel bank raised below Thachanullur, the Tinnevelly channel would then breach only between Kunnathur and the town of Tinnevelly and in the town. The damage to the town would of course continue, but 1½ lakhs of Rupees is a very large sum to pay for the preservation of the town from a flood once in five years.

18. I have the honor therefore to request that you will let me know whether it is necessary to proceed with the preparation of the detailed estimates for either of the above schemes.

---

No. 4 T.W.

## IRRIGATION MEMORANDUM.

In reply to the letter, No. 135, of the 11th ultimo, from the District Engineer, Tinnevelly, the undersigned has the honor to observe that he considers that the original line of outfall for the flood waters of the Cariselcolum Oday should be adhered to, and

that land-owners on this line would have no claim to compensation for any inconvenience which may be suffered in consequence of the water taking its natural line of outfall to the river.

2. The sketch does not enable the description of the former and present arrangements given in paragraph 4 of the District Engineer's letter to be clearly understood; but apparently the Kodagan channel in passing Pettah turns north, joins the Oday, and occupies the bed of the latter down to the Kristnaperi tank. The Kodagan channel supplies, it is supposed, this tank, and if so, it is not clear what good a surplus weir either in the Oday or in the channel surplusing into the tank can do, and it would seem that with any such arrangement the surplus would have to be disposed of twice, once into the tank and again out of it. The proper plan would seem to be to place a weir in the right bank of the Kodagan channel, so that the surplus may pass at once into the bed of the Oday below; and to place a similar weir in the Tinnevelly channel, which may possibly be rearranged so as to place the head of the branch channel below the surplus weir. The undersigned does not know the relative levels of the two channels, but it may be noticed that the surplus in heavy floods does practically take the direction suggested, and that the proposal is to regulate the discharge instead of allowing the water to breach the channels, and do mischief besides by pouring down them before the breaches occur or become large enough to get rid of the flood discharge.

3. Probably if the arrangement indicated be feasible, it would be desirable to place the crest of the surplus works on a level with the channel beds on the Cariselcolum Oday bed, and to furnish it with self-acting shutters which would open on the water rising to 6 inches above channel F.S.L. and close on the water falling. Such shutters are not always to be relied on; but as the horizontal axis of the shutters would be at $\frac{1}{2}$ (h—$\frac{1}{2}$) from the sill, the pressure on the extra 6 inches would exert considerable force for opening and the start from the horizontal position for closing would be made by a counterpoise weighting, while there would be no difficulty probably in this locality in getting the shutters closed should any of them happen to stick. The principal objection to self-acting shutters is the leakage which though not great at any one point would amount to a very considerable quantity at all the vents together.

4. As far as the undersigned can make any approximation to cost, it would seem that, if two weirs will suffice, an outlay of some 10,000 Rupees should secure a very radical improvement on the existing circumstances, while if three be required 15,000 Rupees may be required. As at present informed also the Carisel Oday being a natural drainage, of the works and items enumerated in paragraph 10 of the District Engineer's letter, only those belonging to the construction of surplus work in the Kodagan and Tinnevelly channels will require to be provided for from Imperial Funds. The road would have to provide for whatever work it might require, and the nunjah lands would be left as they are. If, as may possibly be the case, the lower part of the Oday has disappeared, and if there has been no reservation of the land which it formerly occupied, even then the water is entitled it would seem to follow the course it now takes, and it is not desirable to attempt to carry it by an artificial outfall.

*7th March* 1876. (Signed) JOHN MULLINS, Lt.-Col., R.E.,
*Chief Engineer for Irrigation.*





No. 235-A. From J. D. GRANT, Esq., Officiating District Engineer, Tinnevelly, to Lieutenant-Colonel J. MULLINS, R.E., Chief Engineer for Irrigation, dated Shermadevi, 20th March 1876, No. 158.

In reply to your memorandum, No. 4 T.W., of 7th instant, I have the honor to forward to you a sketch showing more clearly the former and present arrangements for disposing of the Cariselcolum Oday. From this sketch, it will I hope be apparent that the Cariselcolum Oday falls into the Kodagan channel above the Kristnaperi tank, and is discharged by the calingulah B which was built as a substitute for the disused calingulah A, and that the natural course of the Oday is through the Kristnaperi tank and Tinnevelly town into the Tinnevelly channel, and thence to the river.

2. It is probable that the Oday originally had several channels through what is now the bed of the Kristnaperi tank, but that the main channel was that down which the Kristnaperi surplus now flows.

3. It is impossible to find the other channels now, as they are levelled up and converted into nunjah; beyond the Tinnevelly channel it is also impossible to find any trace whatever of the Oday bed, the whole having been for many years valuable nunjah land.

4. I do not think it would be possible to alter the existing arrangements of the Tinnevelly channel by bringing the point of bifurcation lower down, or at least sufficiently so as to pass the Cariselcolum Oday round it.

5. In any case the Oday would be discharged over highly assessed land, and the people would, I have no doubt, most actively oppose any proposition of that nature, and would, if they held their land, demand a lower rate of assessment.

6. In paragraph 4 of your memorandum, it is remarked that, even if the Oday bed has disappeared, the water is "entitled to follow the course it now takes," but the Oday water cannot now be said to take any particular course below the Tinnevelly channel. The fall in the channel is small, and the bund breaches at the weakest point wherever it may be, and water overflows all through Tinnevelly town.

7. This being the case, each landholder trusts to his luck that the breach may occur opposite some other man's land, and should it occur above his own, he looks on it as an accident.

8. Were a calingulah built it would be a different matter, and I fear the land would be thrown up by the puttadars.

9. In considering the scheme I looked on it as one intended primarily to provide for the protection of the town of Tinnevelly from floods and made my report accordingly; but if it were desired only to secure the safety of the channels, the measures proposed in paragraph 4 of your memorandum, would, as remarked, produce a very radical improvement, at least in the case of the Kodagan channel.

10. A weir 500 feet long in the Kodagan channel could be cheaply built at the site A, and by rebuilding the calingulah in Kristnaperi tank and enlarging the surplus channel, the water would be safely got rid of into the Tinnevelly channel.

11. In the Kodagan channel at A, there is kunkur to found a calingulah on, and a long calingulah would be cheaper and, I think, as effective as one with

self-acting shutters, and would be preferable, as we cannot afford to waste water so far down the channel.

12. In Kristnaperi tank a calingulah could be cheaply built and, indeed, must be built very soon, as the present one is not safe.

13. In the Tinnevelly channel, self-acting shutters would be preferable, if the villagers could be prevented from interfering with them.

14. With these explanations it will, I hope, be possible for you to give me instructions as to the preparation of the estimate, but I would beg again to express my opinion that the construction of a calingulah discharging over the nunjah would be violently opposed and probably involve litigation.

No. 29 W.

No. 235-B. *Note by the Chief Engineer for Irrigation.*

The Cariselcolum Oday which drains about 40 square miles of country falls into the Kodagan channel and Kristnaperi tank, and the surplus water then is discharged by the waste channel of the latter, and falls into the western branch of the Tinnevelly channel.

2. After heavy rainfall the quantity of water coming down is so great that the Kodagan channel, the Kristnaperi tank, and the western branch of the Tinnevelly channel cannot dispose of it, and the latter channel gives way. The water then inundates the town of Tinnevelly, passes into the other branch of the Tinnevelly channel, breaches that, and ultimately reaches the Tambrapurney across the cultivated wet lands lying between the town and the river.

3. This state of things is the result of carrying irrigation channels across a considerable line of drainage without making adequate provision or any provision for the free discharge of surplus. Were this the only difficulty to be got rid of, the remedial arrangements would be comparatively easy, but the cutting off of the Cariselcolum Oday was followed by the obliteration of its natural outfall channel below Tinnevelly, and the conversion of the ground this once occupied into valuable paddy-fields. All this was done many years ago.

4. After the floods of 1874, the then District Engineer had investigations made to ascertain what arrangements were feasible for the disposal of the flood water of the Cariselcolum Oday, and for preventing the recurrence of the damage resulting from the absence of any proper outfall for the surplus. He sketched out two schemes which were afterwards matured and reported on by the Officiating District Engineer, Mr. Grant, in his letter of the 11th February ultimo; No. 135. The first scheme provided for resuming the original and natural outfall for the flood waters, and the approximate estimate for this amounted to Rupees 1,70,000, of which it will be seen that 60,000 Rupees are for land compensation, and 36,000 Rupees for a channel to replace the obliterated bed of the Oday, adding 10 per cent. for contingencies, this restoration of the natural arrangements comes to Rupees 1,05,600. The rest of the total, with the exception of Rupees 5,000 for a road dam, is for providing the surplus works which are necessary on the three lines of channel. It appears further that the 60 acres of land which would have to be taken up are assessed at Rupees 17½ an acre, and the capitalized assessment would amount to Rupees 26,250, and this would



be a part of the expense incurred in carrying out these arrangements; but, on the other hand, it is to be noticed that this revenue is derived from land which ought all along have been reserved for the Oday, and it would not be unfair to say that the 50 or 60 or 100 thousand Rupees of revenue which have been obtained from the improper diversion of this land from its legitimate function ought to be considered available for the remedy of the evils therefrom resulting.

5. The alternative scheme is for the diversion of the drainage to the northward, and for leading it past several tanks and across the railway and the Tinnevelly channel into the river at Aravancolum. The Officiating District Engineer points out the disadvantages or contingencies attached to this plan, and though the estimate, Rupees 1,09,300, is lower than that of the other scheme, the undersigned thinks that in the end the direct expenditure would be greater, and the risk arising from having to prevent the water seeking a natural, in lieu of an artificial, outfall, would be so considerable as to negative any scheme of this kind. The soil is reported to be bad, and besides the diversion channel would interfere with the supplies of several tanks, and those irrigating under these would be sure to think that the channel was the cause of any losses they might sustain, even were these the result of circumstances altogether unconnected with such a channel.

6. Such being the case, the question to be decided becomes tolerably simple. If improvements are to be carried out, they should be based upon the discharge across the Kodagan and Tinnevelly channels of the Oday flood waters, and upon the reopening to the river of a suitable line of outfall. Viewed merely as a financial question, it would appear that as the average cost of repairing damage caused by floods is only about Rupees 800, it is not worthwhile to spend more than 15 to 20 thousand Rupees in preventing damage, but it seems probable that although the local damage may not be greater than has been above stated, other works directly or indirectly connected with the channels suffer. In any case, however, the value of the improvements, however effective in preventing damage to Irrigation Works, would perhaps not exceed 30,000 Rupees. There remains the damage or danger or inconvenience to the town of Tinnevelly to be considered, and regarding these there is no definite information.

District Engineer's No. 135, paragraph 17.

7. The later correspondence as per margin will show that the circumstances have been fully inquired into, and that the Officiating District Engineer's opinion, that it is not feasible to localize the discharge from the lower Tinnevelly channel without taking upland over or through which the surplus to the river would be conveyed, appears to be correct. As that officer points out, so long as the normal condition of breaches at uncertain places is not interfered with, no claim for compensation is made by the land-owners. They take their chance of suffering damage from occurrences which were usual when the lands were acquired. If, however, by determining the position of the discharge of surplus from the Tinnevelly channel by the construction of surplus works, this surplus be directed over certain lands their owners would naturally claim to be recouped for losses sustained.

To District Engineer, No. 4 T.W., 7th March 1876.
From District Engineer, No. 158, 20th March 1876.

8. The modifications of the arrangements detailed in paragraph 10 of the District Engineer's letter No. 135, which have been suggested by the undersigned would probably reduce the cost of the surplus works on the channels from 53 to from 15 to 20 thousand Rupees; but there is no reason to suppose that the total cost would be less than from 135 to 140 thousand Rupees, unless it be possible to gradually increase the depth of water in the surplus channel and so diminish its width, and the area of land to be taken up.

FORT ST. GEORGE,
31*st March* 1876.

(Signed) JOHN MULLINS, Lt.-Col., R.E.,
*Chief Engineer for Irrigation.*

---

No. 236. ORDER THEREON, 11th April 1876, No. 974.

IRRIGATION, No. 14.

THE Irrigation Officers having described the means by which the flood waters of the Cariselcolum Oday, which after heavy rainfall successively enter the Kodagan channel and the Kristnaperi tank, and then by breaches in these find their way into the town of Tinnevelly and the Tinnevelly channels, which, in turn being breached, allow the water to pass across the fields into the Tambrapurney, and having approximately estimated the cost of the restoration of the natural line of outfall for these flood waters at from 135 to 170 thousand Rupees, the papers will be communicated to the Revenue Department, in order that it may be ascertained whether there are any sufficient considerations, apart from the prevention of damage to irrigation channels and tanks, to warrant the large expenditure which would have to be incurred, were the lands on the line of the former outfall of the Oday to be taken up, and this outfall restored. The cost of repairing breaches is reported to average Rupees 800 a-year, and even taking into account indirect damage occasioned to works at a distance, the Chief Engineer for Irrigation thinks that the outside value of the improvements would, as regards Irrigation Works, be 30,000 Rupees, or less than one-fourth of the lowest estimate of the cost of those improvements.

2. It would seem that the objections which exist to the control and direction of surplus after it reaches the western branch of the Tinnevelly channel do not apply to the construction of a surplus weir in the right bank of the Kodagan channel, and to the improvement of the means of disposing of surplus from the Kristnaperi tank, and the works referred to in paragraphs 11 and 12 of the District Engineer's letter No. 158 may therefore be estimated for. The proposal to construct an effective weir in the Kodagan channel at A would be in effect a return to arrangements which seem to have been unadvisedly abandoned.

(True Extract.)

*Offg. Under Secy. to Govt.*, Colonel,
*P.W.D.*

To the District Engineer, Tinnevelly.
" Chief Engineer for Irrigation.
" Revenue Department.

Exd. E. C. Shunker.
Spare Copies

---

CHIEF ENGINEER FOR IRRIGATION 15 FEB 1876

Enclosure one 1. Sketch.

Letter No 187 of 6th March 1875 paras. 8 & 14.
Letter No 135 of 9th December 1875 paras 10 & 11.

No 135 District Engr's Office. Tinnevelly
Palamcottah. 11th February 1876

From,

L. D. Grant Esquire
Offg District Engineer Tinnevelly

To,

Lieut: Colonel J. Mullins R. E.
Chief Engineer for Irrigation.

Sir,

In his letters marginally noted Mr Rundall mentioned the necessity of adopting some means to prevent the destruction and loss of property that occurs in and around the town of Tinnevelly when-ever there is a flood in the River & heavy local Rain, and stated that a plan would be proposed to meet the requirements of the case. Before leaving the District, Mr Rundall had levels taken & sketched out 2 possible schemes, and I have the honor now to report on these proposals as matured by Mr Hughes. Levels have been taken sufficient to admit of the second scheme being worked up, but before doing so, it is better that I should lay it before you and request instructions, as I do not think it likely that Government, with Irri-gation works in their present state, will

undertake so costly and unremunerative a project.

2. In para 3 of your Endorsement on Mr Rundall's letter No 135 of 9th December 1874, you suggest several means of disposing of the Kariselcolum Odei, but the information before you was very incomplete and I think it likely you did not appreciate the quantity of water to be got rid of.

3. The Kariselcolum Odei is a stream rising in the Tenkasy Taluq near Mayuranthy and entering the Kodagan Channel close to the village of Pettah, its drainage area being 100 square miles and discharge say 6000 cubic feet per second.

4. To pass this water there was formerly in the Kodagan channel a weir of considerable length, but it has for some years been blocked up, its place being supplied by another weir $\frac{3}{4}$ mile lower down the channel discharging, as the original one did, into the Kristnaperi Tank.

5. The length however (about 100') is insufficient and the channel banks between it and the point where the Kariselcolum Odei enters, is invariably breached after every heavy fall of rain, the water flowing directly into the Kristnaperi Tank.

6. Opposite the existing weir above mentioned the Kristnaperi Tank is provided with a surplus weir between 300 or 400 feet in length, which discharges into the Tinnevelly channel within Tinnevelly Town, and the Tinnevelly channel being unable to carry the enormous body of water thus poured into it, overflows through the Town, causing much damage to House property; and endangers the Nanacolum Tank which commands the S. I. Railway line and Station.

7. The banks of the Tinnevelly channel within the town cannot be raised without the removal of the numerous houses built along its course, but the safety of the Nanacolum Tank can be ensured, and for the security of the Railway this must be done.

8. If the Kariselkulam Odei could be carried across the Kodagan and the two branches of the Tinnevelly channel and so to the river; or if it could be intercepted before entering the Kodagan channel, and carried across the Tinnevelly channel below the village of Thachanallur, the other drainage could be easily

disposed of, especially when the Head Sluices are completed.

9. Were the O'dei carried along its natural course to the River, it would be necessary to pass it through the Kodagam channel, by a weir, and under the 2 Branches of the Tinnevelly channel by Under Tunnels, thence through 2 miles of valuable Nunjah Land to the River.

10. The cost of this would be approximately—

| | |
|---|---|
| Weir in Kodagam channel to discharge 6,000 cft per second. | Say Rs. 30,000 |
| Road dam on Thennadevi Road | 5000 |
| Under Tunnels. Do | 25,000 |
| Do | 25,000 |
| Compensation for 60 acres of Nunjah at Rs 1,000 | 60,000 |
| Channel 3,500 yds long × 1½ yds deep × 146 yds width | 30,000 |
| 2 Drops in the channel. | 6,000 |
| | 151,000 |
| Add for Contingencies 10 per cent | 16,000 |
| making the total cost Rupees | 170,000 |

11. If the Capitalized assessment of the 60 acres of land taken up is added, the Estimate becomes Rs 196,250, the land being assessed at 17½ Rs per acre which at 25 yrs purchase gives 26,250 Rs. The plan of diverting

Vide G.O. dated 6th of 7th March 1871.



the O'dei round the end of the Kodagam. Channels to the River at Aravancolum would be cheaper than the other, but would have the great disadvantage of passing through and round several Tanks and across 3 Roads and the Railway. The soil too is bad, and unless the banks were always most carefully maintained and kept in perfect order, a great flood might, at any future time, produce as much damage as at present.

12. From the levels taken by order of Mr Rundall, it appears that to intercept the O'dei, the most convenient plan is at the ruined Vaniselcolum Tank 2 miles north of Settah village, where the O'dei drains 56 square miles and discharges 5600 cubic feet per second. From this point the flood water should be carried along the line shewn in the accompanying map, through Nedumcolum Tank and across the Tenkasy Road up to the O'dei which now supplies Maganmediancolum Tank.

13. From Maganmediancolum Tank, the water would run down an O'dei, across the Sankenmarcoil Road and in an artificial channel round Chuttrampoothoor Tank to Chetticolum Tanks

14. Thence it would be taken across

the Madura Road and the S.I. Railway into the Iruivelly channel through which it would be discharged by a weir.

15. From the Iruivelly channel it would be necessary to cut a channel through ½ a mile of Nunjah, and to pass the Sivalaperi Road where there is an old drainage channel, which would require to be enlarged and which would lead the water into the River at Aravancolum. To dispose of the water in the manner sketched above the following works would be necessary:-

1. Restoration of the Vaniselkulam Tank and improvement of its Valuguluh — costing about Rs 3,000
2. Bund from Vaniselkulam Valuguluh with masonry revetment 800' long x 9' high. — Raising the bank of Nedunedam Tank Valuguluh for same to pass 5000 cubic ft. per second. 3' depth and 1' afflux. — 6,000
3. Road Dam 150 yards long on Road No. VII (Tenkasy Road) and channel up to Thonow Odai. — 2,500
4. Valuguluh in Mazammudiaivalum Tank to discharge 6,000 cubic feet. — 2,500
5. Road Dam in Road No. VIII (Unikeninnarcoil Road) to discharge 6,400 cft. per second — costing about Rs 5,000
6. Bank and channel round Thuttumpoothoocolum to Chettikulam Tank including 3000 lineal feet of Revetment wall & repairs to Chettikulam Tank — 10,000
7. New Valuguluh in Chettikulam Tank — 2,000
8. Bridge on Road No 1 (Madura Road) to pass 7,300 cft per second — 3,000
9. Enlarging Bridge under the S.I. Railway — 8,000
10. Bund to Kariemppa & drop with — 6,000
11. Sluice to supply Tank. — 12,000
12. Weir in Iruivelly Channel. — 10,000
13. Channel through Nunjah to Road No X. (Sivilapeni Road) — 13,300
Compensation for 19 acres of Nunjah land at 700 Rs per acre. — 1,500
Road Dam or Bridge on Road No X — 1,500
Enlarging Drainage channel up to the River — 91,800
Contingencies at 10 per cent — 9,200
Total cost Rupees. — 1,01,000
And if capitalized assessment for 19 acres be added. — 8,300
Total cost becomes. — 1,09,300

16. Either of the schemes I have described would effectually prevent danger to the Dimmerly channels and Dams, but I think it very doubtful whether the result would justify the expenditure.

17. The Breaches which this scheme would prevent, cost on an average about 8,000 Rs a year to close, and were the old weir with the Kodagam channel restored, this annual cost would be reduced. The Dimmerly Dam must be made safe and the channel bank raised below the channellini; the Dimmerly channel would then branch only between Kunnithur and the Dam of Dimmerly and in the Dam. The damage to the Dam would of course continue but 1½ lacs of Rupees is a very large sum to pay for the preservation of the Dam from a flood once in five years.

18. I have the honor therefore to request that you will let me know whether it is necessary to proceed with the preparation of the detailed Estimates for either of the above schemes.

I have the honor to be
Sir
Your most obt Servt
J. D. Grant
Offg Dist Engineer

Rec'd 15 Feb 1876
No 314
Ans. 24 Feb 1876

CHIEF ENGINEER * 15 FEB 1876 * FOR IRRIGATION

2 Dft Timevelly 2 Reports
Rec'd 4 Feb 1876

No 235

No 11 Despatch
Fort St George April 1876

From.

The Offg Dist Engr
Timevelly

To.

The Chief Engineer
for Irrigation.

Dated 11th January 1876
Received.

No 235.

Enclosures.

Reporting on the Cauvery-Vellaur drainage scheme and requesting instructions –

Offg Dist Engr

Enclosure 1.

No 158. District Engr's Office, Timevelly
Shermadevi 20th March 1876.

From. J. D. Grant Esquire
Offg Dist Engineer, Timevelly

To. Lieut: Colonel J. Mullins, R. E.
Chief Engineer for Irrigation.

Sir,

In reply to your Memorandum No 11 dated 11th of 7th inst ant, I have the honor to forward to you a sketch shewing more clearly the former and present arrangements for disposing of the Vaniyakkal Odai. From this sketch, it will I hope be apparent that the Vaniyakkal Odai falls into the Kodavanar channel above the Kulandipatti Anicut, and is discharged by the Valaigulam which was built as a substitute for the Anicut Valaigulam Ay and that the natural course of the Odai is through the Kulandipatti Anicut and Timevelly down into the Timevelly channel and thence to the River.

2. It is probable that the Odai originally had several channels, through what is now the bed of the Kulandipatti Anicut, but that the main channel was that down which the Kulandipatti surplus now flows.

3. It is impossible to find the other channels

ik
w
I
it
j
v
f
a
s
u
r
b
d
b
a
w
f
th
o
18
th
~
of
s

view as they are levelled up and converted into Arrigalı; beyond the Innerelly channel it is also impossible to find any trace whatever of the Odaygbed, the whole having been for many years valuable Arrigalı land.

4. I do not think it would be possible to alter the existing arrangements of the Innerelly channel by bringing the point of bifurcation lower down, or at least sufficiently so as to pass the Balmiel-colum Odaygrounds it.

5. In any case, the Odaygwould be discharged over highly affected land, and the people would I have no doubt most actively oppose any proposition of that nature, and would if they held their land, demand a higher rate of assessment.

6. In para 8 of your Memorandum, it is remarked that even if the Odaygbed has disappeared the water is entitled to follow the course it now takes, but the Odaygwater cannot now be said to take any particular course below the Innerelly channel. The fall in the channel is small, and the land breaches at the weakest point wherever it may be, and water overflows all through Innerelly Down.

7. This being the case each landholder trusts to his luck that the breach may occur opposite some other man's land, and should it occur above his own, he looks on it as an accident.

8. Were a Balmiglah built it would be a different matter and I fear the land would be thrown up by the puttadars.

9. In considering the scheme I looked on it as one intended primarily to provide for the protection of the Down of Innerelly from floods and made my report accordingly, but if it were desired only to secure the safety of the channels, the measures proposed in para 8 of your Memorandum, would as remarked produce a very radical improvement, at least in the case of the Kodagan channel.

10. A weir 500 feet long in the Kodagan channel could be cheaply built at the site A, and by rebuilding the Balmiglah in Kristnaperi Dank and enlarging the surplus channel, the water would be safely got rid of into the Innerelly channel

11. In the Kodagan channel at A, there

It is known to found a Kalingulah on,
and a long Kalingulah would be cheaper,
and I think as effective as one with self
acting shutters, and would be preferable
as we cannot afford to waste water so
far down the channel.

12. In Krishnaperi Tank, a Kalingulah
could be cheaply built and indeed must
be built very soon, as the present one is
not safe.

13. In the Tinnevelly Kalingulah self
acting shutters would be preferable, if
the villagers could be prevented from
interfering with them.

14. With these explanations it will I
hope be possible for you to give me
instructions as to the preparation of the
estimate, but I would beg again to re-
press my opinion that the construction
of a Kalingulah discharging over the
Kalingulah would be violently opposed &
probably involve litigation

I have the honor to be
Sir
your most obt. servt

J. D. Grant
Offg Dist Engineer

No 29 W.

Note by the Chief Engineer for Irrigation

Encls. 4.

The Cairsalcolum Oday which drains about 40 square miles of country falls into the Kodagan Channel and Kristnaperi Tank, and the surplus water then is discharged by the waste channel of the latter, and falls into the western branch of the Tinnevelly Channel.

2. After heavy rainfall the quantity of water coming down is so great that the Kodagan Channel, the Kristnaperi Tank and the western branch of the Tinnevelly Channel cannot dispose of it, and the latter channel gives way. The water then inundates the town of Tinnevelly, passes into the other branch of the Tinnevelly channel, breaches that, and ultimately reaches the Tambra- -parney across the cultivated

From Lt Col Dyas
Chief Engineer
Cairsalcolum

To The Chief Engineer for Irrigation

Dated 28th March
Despd. 22nd
Recd.

No 138.

Forwarding a sketch shewing the formation proposed as a temporary for disposing of the Cairsalcolum Oday & requesting instructions as to the operation of and extension of waste water for the same

CHIEF ENGINEER FOR IRRIGATION 25 JUN 1876

No 2489/1

Recd 25th June 1876

No 235

wet lands lying between the town and the river.

3. This state of things is the result of carrying irrigation channels across a considerable line of drainage without making adignate provision or any provision for the free discharge of surplus. Were this the only difficulty to be got rid of, the remedial arrangements would be comparatively easy; but the cutting off of the Carisalcolum Oday was followed by the obliteration of its natural out fall channel below Tinnevelly, and the conversion of the ground this once occupied into valuable paddy fields. All this was done many years ago.

4. After the floods of 1874, the then District Engineer had investigations made to ascertain what arrangements were feasible for the disposal of the flood waters of the Carisalcolum Oday, and for preventing the recurrence of the damage resulting from the absence of any proper outfall for the surplus. He sketched out two schemes which were afterwards matured and reported on by the officiating District Engineer, Mr. Grant, in his letter of the 11th February ultimo. No 135. The first scheme provided for resuming the original and natural outfall for the flood waters, and the approximate estimate for this amounted to Rupees 1,70,000 of which it will be seen that 60,000 Rupees are for land compensation, and 36,000 Rupees for a channel to replace the obliterated bed of the Oday, adding 10 per cent for contingencies, this restoration of the natural arrangements comes to Rupees 1,05,600. The rest of the total, with the exception of Rupees 5,000 for a road dam, is for providing the surplus works which are necessary on the 3 lines of channel. It appears further

that the 60 acres of land which would have to be taken up are assessed at Rupees 17½ an acre, and the capitalized assessment would amount to Rupees 26,250 and this would be a part of the expense incurred in carrying out these arrangements, but, on the other hand, it is to be noticed that this revenue is derived from land which ought all along have been reserved for the object, and it would not be unfair to say that the 50 or 60 or 100 thousand Rupees of revenue which have been obtained from the improper diversion of this land from its legitimate function ought to be considered available for the remedy of the evils therefrom resulting.

5. The alternative scheme is for the diversion of the drainage to the northward and for leading it past several tanks and across the Railway and the Tinnevelly

channel into the rivers at Aiyarcoilum. The Officiating District Engineer points out the disadvantages & contingencies attached to this plan, and though the estimate Rs 1,89,300, is lower than that of the other scheme, the undersigned thinks that in the end the direct expenditure would be greater, and the risk arising from having to provide the water sucking a natural, in lieu of an artificial, outfall, would be so considerable as to negative any scheme of this kind. The soil is reported to be bad, and besides the diversion channel would interfere with the supplies of several tanks and those irrigating under these would be sure to think that the channel was the cause of any losses they might sustain, even were these the result of circumstances altogether unconnected

with such a channel.

6. Such being the case the question to be decided becomes tolerably simple. If improvements are to be carried out, they should be based upon the discharge across the Kodagan and Pimmerelly channels of the 0day flood waters, and upon the re-opening to the river of a suitable line of outfall. Viewed merely as a financial question it would appear that as the average cost of repairing damage caused by floods is only about Rupees 800, it is not worth while to spend more than 15 to 20 thousand Rupees in preventing damage; but it seems probable that although the local damage may not be greater than has been above stated, other works directly or indirectly connected with the channels suffer. In any case however the value of the improvements however effective in preventing damage to irrigation works would perhaps not exceed 30,000 Rupees. There remains the damage or danger or inconvenience to the town of Pimmerelly to be considered, and regarding these there is no definite information.

To D.E. No. 4 XXX 7/3/16
From " 158 - 20/3/16

7. The later correspondence as per margin will show that the circumstances have been fully enquired into, and that the officiating District Engineer's opinion, that it is not feasible to localize the discharge from the lower Pimmerelly channel without taking up land over or through which the surplus to the river would be conveyed, appears to be correct. As that officer points out, so long as the normal condition of breaches at uncertain places is not interfered with, no claim for compensation is made by the land owners. They take their chance of suffering damage

A.E.'s No. 135 Pwm/

from occurrences which were
usual when the lands were
acquired. If, however, by deter-
-mining the position of the
discharge of surplus from the
Tinnevelly Channel by the
construction of surplus works,
this surplus be directed over
certain lands their owners
would naturally claim to be
recouped for losses sustained.
8. The modifications of the
arrangements detailed in
para 10 of the District Engineer's
letter, No 135, which have been
suggested by the undersigned
would probably reduce
the cost of the surplus
works on the channels from
53 to from 15 to 20 thousand
Rupees; but there is no
reason to suppose that
the total cost would be
less than from 135 to 140
thousand Rupees, unless it
be possible to gradually
increase the depth of water

83.

in the surplus channels and
does diminish its width, and the
area of land to be taken
up.-

Chief Engineer for
Irrigation.

To The Secretary to Govt. P.W.D.

607 - March 72 No 624.
29 - Jany 75 - 256.
29 - Septr - 2780.

P W. 1876 Depth

No. 2487

Pros 11th April 176.

From

The Chief Engr.
for Irrigation

Dated 31 Mar.
Recd. 5 April 1876.

2 Encl

E. 4 No. 29 W.

Note on letter of the
Dt. Engr. Timevelly for-
warding a Sketch
shewing the former &
present arrangements
for disposing of the
Vaniacolum Dowry &c

No 235 B.

Cir 7-4-76

E. I. Form No. 22.

35 17

No 974

Public Works Department.

PROCEEDINGS of the MADRAS GOVERNMENT.

UNDER date the 11th April 1876.

READ the following:—

From
The Chief Engr. for Irrigation } No E 29 W dy 31st March 1876

The Irrigation officers having described the means by which the flood waters of the Vaniacolum dowry, which after heavy rainfall successively enter the Kodagan Channel and the Kristnaperi Tank, and then by breaches in these find their way into the Town of Timevelly and the Timevelly Channels which, in turn being

breached, allow the water to pass across the fields into the Tambraparney, and having approximately estimated the cost of the restoration of the natural line of outfall for these flood waters at from 135 to 170 thousand Rupees, the papers will be communicated to the Revenue Department in order that it may be ascertained whether there are any sufficient considerations, apart from the prevention of damage to irrigation channels and tanks, to warrant the large expenditure which would have to be incurred, were the



lands on the line of the former outfall of the Vday to be taken up, and the outfall restored. The cost of repairing breaches is reported to average Rupees 800 a year, and even taking into account indirect damage occasioned to works at a distance, the Chief Engineer for Irrigation thinks that the outside value of the improvements would, as regards irrigation works, be 30,000 Rupees or less than one fourth of the lowest estimate of the cost of those improvements.

2. It would seem that the objections which exist to the

control and direction
of surplus after
it reaches the western
branch of the Gin-
-nively channel
do not apply to
the construction of
a surplus weir
in the right bank
of the Kodagan
Channel and to
the improvement
of the means of
disposing of sur-
-plus from the
Kaitnaperi Tank
and the works
referred to in
paras 11 and 12
of the Cretuck
Engineer's letter
No 158, may therefore
be estimated for.
The proposal to
construct an effective
weir in the Kodagan
channel at A would
be in effect a return
to arrangements
which seem to have
been madvisedly
abandoned.--

Ag. 5/4

68

S.D.E. Tenkasi
S.C.E. for J.
2/Rev. Dept.
Comp. Dte.
} Deptd 3/5/16

2487

Govt. of India.

PUBLIC WORKS.

To

The Bp. of Limerick

Dated

Issued

Rec'd

Rec'd

G. O., 11th April 1876, No. 974

Nos. 235-236

Carisle Column Abeyr &c

Forwarding Order or letter from the Bishop Limerick forwarding a Sketch showing the former & present arrangements for disposing of the

Ent. in Bk

3 — 5 — 76

No. 235/36

Ci 7-4-76. 110-