M.R.O. 1—77,005—8-6-[illegible].

(1) Number of pages

(2) Date of repair

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Public [illegible] DEPARTMENT.

G.O. No. 2980 Press
Mis.
625-87

Dated 25-[illegible]-1887.

Not to be folded or roughly handled

67

Read the following papers :—

No. 625. From the Superintending Engineer, 8th Division.
(Here enter No. 976, dated 15th August 1867.)

No. 626. Proceedings of the Madras Government in the Revenue Department, dated 11th September 1867, No. 2,143.

Read the following Proceedings of the Board of Revenue, dated 29th August 1867, No. 5,610.

Read the following letter from the Collector of Tinnevelly, to the Secretary to the Board of Revenue, dated 24th June 1867, No. 334.

1. Upwards of ten years ago Colonel Horsley proposed an anicut at Streevycuntam on the Tambrapurny and the project was pronounced well devised and feasible; the mutiny unfortunately stopped the work, and the Government have since remitted upwards of a lac of Rupees for withered crops on the very area that would have been so fertile and flourishing had the anicut been built. The Revenue lost to Government, and the profits foregone by the ryots of the villages that would have been irrigated, may, at a very low computation, be estimated at upwards of 11 lacs of Rupees; while the want of grain during the recent scarcity was more severely felt in this neighbourhood and along the sea-board to the south than anywhere else in the district.

Extract from Minutes of Consultation, No. 116, dated 25th January 1856, Public Works Department.

Calculating that 4,500 acres of irrigable waste and dry land might have been converted into single crop, that 3,000 acres of single crop might have been converted into double crop, and that each acre might have produced 20 Cullums of grain, this gives 15 lacs of Cullums of the gross produce. 15 lacs of Cullums at 12 Annas a Cullum, (or one Anna a measure for cleaned rice,) are worth 11¼ lacs of Rupees. Taking one-third as the Government share of the produce, the Government have lost 3¾ lacs, and the ryots 7½ lacs, by the non-execution of this work ten years ago.

2. There is no anicut lower than Marudur, nine miles above Streevyeuntam, and 27 miles from the sea, and during both the south-west and north-east monsoons, an enormous body of water flows over the Marudur anicut, and is entirely lost to the district.

3. Comparatively speaking the Tambrapurny is a better river than the Cauvery; the freshes are far more frequent, but instead of being utilized to the last drop, as is the case in the Cauvery, there is no anicut in the Tambrapurny for the last 27 miles of its course, and millions of cubic yards of water are allowed to flow out to the sea. The people are so impressed with the advantage of the work proposed, and are so anxious that it should be sanctioned before the revision of assessment, and the registry of lands at the settlement, that they have subscribed and paid into the Treasury 20,000 Rupees as a donation towards the work, and as an inducement to Government, to accord their sanction at once.

4. We are just now peculiarly well situated for commencing a work of this sort. The fort at Palamcottah has been recently dismantled, and allowing a large margin for works in the neighbourhood, there are 25,000 cut stones that I should be only too glad to see moved. The money subscribed is sufficient to cart these to Streevycuntam, and if the Government will advance a like sum now, and accord a general sanction for the work when it has been properly budgetted for, I might

-cut at Streevigoontum, together with
Sections

at once collect supplies and assist the Engineer greatly in getting the channels laid out. These channels will pass through a series of villages where the Pullers, a low class of laborers, enjoy "Puller Maniyam" for the performance of Maramut work; and if the channels are dug, as they must be at the dry season when the Pullers have nothing to do, each village will gladly contribute 200 or 300 men to work at much lower rates than those paid for labor during the cultivating season.

5. Cheap labor, the free gift of stone, and the free cartage of stone to the work, will save the Government at least half a lac of Rupees.

6. The Superintending Engineer is now revising the original estimate to suit the altered prices of to-day, and I am not aware of the aggregate cost proposed; but whatever the cost may be, the return will amount to about a lac of Rupees per annum, as explained in the following extract from my letter to the Engineer:—

24th April 1867, No. 95.

"I have been over most of the villages likely to be affected by the Streevy-
"cuntam anicut, and have seen the enormous benefits likely to be conferred by the
"work; between Streevycuntam and the sea, a distance of twenty miles, the crops
"are now on the ground (at the end of April), and are not reaped till May, instead
"of in February, as is the case higher up the stream. The tanks from which these
"lands are irrigated receive their supply from the overflow of other tanks supplied
"from the Maradur anicut, some ten miles above Streevycuntam, and many good
"freshes come and go before the lower tanks receive a drop of water; in fact, the
"cultivating season far down the river is three months later than it need be, and
"the remissions made for failure of crops below the proposed anicut during the
"last ten years amount to upwards of a lac of Rupees. The proposed anicut will
"bring under cultivation 1,500 acres of nunjei waste assessed at 7,500 Rupees,
"will convert 3,000 acres of single crop
"land into double crop, which at 2½
"Rs. an acre represents 7,500 Rupees,
"and will irrigate 3,000 acres of dry
"land, which at 5 Rupees an acre, represents 15,000 Rupees; total 30,000.

These are the rates that would probably be imposed at the settlement; the existing rates are very much higher.

"There is, moreover, a tract of marsh extending from Kulasegarapatnam to
"Vypar, almost entirely uncultivated, but capable of growing rice crops if supplied
"with fresh water to wash out the salt.

"I have lately ridden over the whole length of this with the Inspector General
"of Police, and we both agreed that this barren tract, some forty miles in length,
"by an average of one in breadth, might be irrigated apparently with the greatest
"ease. The level is low, almost the sea level, and if the flood water that collects
"there during the monsoon had but an exit through the sand hills, this alone would
"wash out the salt. An exit is easily provided, and here are 25,000 acres that the
"people would readily take up at 3 Rupees an acre, lying waste from want of the
"water that fills the river day after day and week after week during the several
"months of the year."

7. It is not by irrigating fresh land only that the Government and the ryots will profit; the lands now poorly irrigated from the surplus of the Marudur anicut will receive an abundant supply direct; the harvest will be some months earlier, and the annual settlement may be early in proportion; the kists will be paid with

greater promptitude, and should the irrigation extend as far as proposed and bring fresh water to Tuticorin, the aspect of the country will be changed, and the condition of the people in our most important sea-port town will be very greatly improved.

Fresh water is now sold in Tuticorin at 4 pies per chatty full.

8. The enclosed plan exhibits the general direction of the channels, and the area proposed to be irrigated; but I think this area may be greatly extended, particularly if the channel from the Marudur anicut on the northern bank of the river after having passed through the Streevycuntam and Perur tanks is relieved from supplying the Sevali, Perungulam, Arumugamangalam, Inuvapapuram, and Korkei tanks as it does at present, and is taken away from Perur on a high level to irrigate the whole of the sandy waste that stretches for miles round Tuticorin. The feasibility of this can, however, only be determined by levelling, and I would suggest that an Officer be at once deputed to take the requisite levels.

Enclosure No. 1.—Sketch.

---

1. The Board are much obliged to Mr. Puckle for bringing forward the very important work to which he refers in the foregoing letter, and they resolve to submit the matter to Government, with their recommendation that, if possible, a grant of funds for the early prosecution of the work be sanctioned, or that, at any rate, authority be given for the expenditure of the sum subscribed by the ryots likely to benefit by the project.

2. It is quite evident that the anicut with its subsidiary channels will be a remunerative work, but the Board request Mr. Puckle to forward a rough estimate of the probable cost as soon as possible, with a statement giving the area of the dry and wet land likely to be affected by the work.

3. The liberality of the ryots in raising so large a subscription for the prosecution of the work merits the commendation of Government, and evinces their confidence in the project.

Irrigation, No. 8.

Transferred to the Department Public Works, with the opinion of Government in this Department that as the project has been already approved, as well devised and feasible, and promises to be very beneficial to the people and sufficiently remunerative, the equivalent of the sum subscribed by the ryots towards its execution should be at once placed at the disposal of the Superintending Engineer to enable him to start the work, and no effort should be spared to expedite its completion.

(True Extract.)

(Signed) W. HUDLESTON,
Secretary to Government.

No. 627. Order thereon, 25th September 1867, No. 2,987.

IRRIGATION, No. 30.

1. A project, estimated to cost Rupees 3,85,000, for the construction of an anicut across the Tambrapoorney river in the Tinnevelly District with two main channels, designed both for irrigation and navigation, to be taken from either flank to the port of Tuticorin

-cut at Streevigoontum, together with
Sections

on the north and Colasagarapatnum on the south respectively, and with branch channels for the supply of numerous tanks, was matured by Colonel Horsley when Civil Engineer of the 8th Division, and received the approval of Government in Extract Minutes of Consultation No. 116 of the 25th January 1856.

2. An assignment of funds was made for the commencement of the work in the year 1862, but was subsequently withdrawn as it was represented that in consequence of the long interval which had elapsed since the preparation of the estimates and the great rise which had taken place in prices, some time would be occupied in a careful re-consideration and revision of them. The re-investigation of the scheme has at length been made by Captain Prendergast, and the result is now laid before Government in the papers read at the head of these Proceedings.

3. The project, as now submitted is identical with that prepared in 1855 by Colonel Horsley, except in so far as it excludes all provision for making the main channels navigable. Its cost, however, is now estimated at Rupees 7,50,000, or nearly three times the amount* which would have been required under the former estimate for carrying out the project as one of irrigation only.

* Rupees 2,85,000.

4. The returns likely to be derived are estimated by the Collector at 30,000 Rupees from 4,500 acres of new cultivation and 3,000 acres of second crop, the former assessed at 5 Rupees, and the latter at Rupees 2-8-0, to which is added Rupees 10,000 by savings on remissions, giving a total return on 7½ lacs of 5¼ per cent., not deducting anything for maintenance or repairs. If the channels be extended at an additional cost of a lac of Rupees, the Collector considers that the returns may be increased by Rupees 75,000 from the cultivation of some 25,000 acres of waste land situated in large tracts of salt swamp, which it is believed may be drained, and after thorough irrigation by fresh water, may be made capable of producing crops. In the latter case, taking the expenditure at 8½ lacs and supposing the salt swamps culturable and that the Maniachy Zemindar uses the water, the returns may be raised to Rupees 1,23,100 or nearly 14½ per cent. even from the low nunjah assessment proposed by the Collector.

5. The project is further stated to commend itself as one which will be the means of introducing into the town of Tuticorin a supply of fresh water, the want of which is now felt throughout the year; and the people are reported to be so impressed with the advantages of the undertaking that they have subscribed and paid into the Treasury 20,000 Rupees as a donation towards its cost.

6. On the grounds thus urged, the Government are satisfied that the scheme will be highly beneficial; but as it is incomplete in its present form, they resolve to return it to the Superintending Engineer for re-submission with the estimates framed to provide for the necessary extension of the channels and all requisite works to give the fullest possible development to irrigation from the Tambraporney. In the meanwhile, as there can be no doubt of the propriety of making a commencement of the work, the Governor in Council authorizes the appropriation of the amount subscribed towards carting the stone of the dismantled fort at Palamcottah to the site of the proposed anicut.

Proceedings of the Madras Government, Public Works Department,
25th September 1867.

7. The amended project now called for should be submitted through the Board of Revenue, who will, when forwarding it to Government, report whether the work in question is not one to which the principle* of charging a separate water-rate in addition to the land assessment, may with propriety be applied, and if so, to what extent the returns on the scheme will probably be affected.

* See orders of Secretary of State in G. O. 16th June 1863, No. 1,056, Revenue Department.

(True Extract.)

(Signed) J. H. M. SHAW STEWART, Major, R. E.,
Under Secretary to Government.

To the Superintending Engineer, 8th Division, with five plans.
„ Board of Revenue.
„ Revenue Department.
„ Controller of Public Works Accounts.
„ Accountant General.

Exd. S. T. Augustin.

-cut at Sravigoontum, together with
Sections

80 2987.
8 25th Sep. 67

Sorn

3

From Captain W. H. Horsley
Civil Engineer 8th Division

To Lieutenant Colonel C. E. Faber
Chief Engineer in the D. P. W.
Fort Saint George

Sir,

I have the honor to transmit for sanction an Estimate of Rupees 3,85,000 for constructing an anicut &c across the Tambraparney River at Sreevigoontum, in the District of Tinnevelly, with Channels proceeding from it to the Port of Tuticorin on the North, and to that of Colasagaram on the South, as also branch Channels for the supply of Corrookay and other tanks in the Punjaimahl Talook, of the same District.

5 Plans sent separately.

2 A Sketch of the County to the Eastward of the Murdoor Anicut, shewing the Extent of land irrigated by the two Channels proceeding from this work, as also the probable Extent of land (colored Yellow) which will be brought under Cultivation by means of the Channels from the proposed anicut at Sreevigoontum, together with

* now called 'Tenkarai'

Sections

sections of the ground W. through which the latter will pass, and plans of the annicut and other subsidiary works required on each line accompany the Estimates.

3 It is proposed to construct the annicut near the site of the present Coorumboo, or temporary dam, supplying the Kellpadagay Channel on the left bank of the River, and to make use of this Channel for a short distance, after widening it to the required section, and then (to avoid interfering with existing rights) to open a new one round the Southern border of the cultivation belonging to the above Village and to join the Aroomooga-mungalum supplying Channel opposite the Village of Yerul, at A in the Sketch where the surplus of Paroongolam tank falls in. At this point a division will be made, one share of the water being allotted to Aroomoogamungalum, Coorookay & tanks, and the other to Trovaspaperlum Paycolam, and other tanks situated between it and Tuticorin. The total distance from the Annicut to Tuticorin by this line is 26½ Miles.

4 The yellow line in the Sketch shows the course of the proposed Channel, and the parts to the Eastward of it, similarly colored, represent the extent of land which will be more or less under its influence. A portion of this land, bounded by a dotted line bordered with red, estimated at 1000 feed Cotays, lies within the boundary of the Manaachee Zemindary.

5 From the Aroomoogamungalum Channel at B in the Sketch, a branch will be taken along the line colored yellow to join the Coorookay Channel at C, for the better supply of that tank, its present Channel being on so low a level that the water flows back to the river before the tank is more than half filled. The Pullayacoil tank, which is dependent upon the surplus of Aroomooga-mungalum tank will likewise be benefitted, as it will receive a more regular, as well as increased supply from this source than is now the case.

6 On the right or Southern bank of the river, the proposed Channel will follow the line of the present Keelypoi-cal (a drainage Channel for the cultivation

cultivation under Vellore and Shenkarkoy tanks and entering the Cadumba tank at its western extremity will flow through this extensive reservoir, and thence by a new cut to Ammenpooram and Cannum tanks. From this point the Channel will be continued in the direction shewn in the sketch to an old ruined tank a short distance South of Trichendoor, branches being thrown off by the way to supply a breached tank, termed "Shonnaumtuvaly colam" situated a few hundred yards to the Eastward of the Village of Cannum, and another termed "Avvudayarcolum" close to Trichendoor. The surplus of Ellapanaiken tank will fall into the Swamp which extends along the Coast for 5 or 6 miles, and during the rains discharges into the Caramany River a little to the South of the Port Coolasagarapatnum. The total distance from the Amicut to Coolasagarapatnum by this line is 27 miles.

7 In framing the Estimate for the above work I have had in view not simply Channels of irrigation, for which a much less sum (about one tenth of the

would have sufficed; but deeming it probable that the Eastern Coast Canal will eventually be extended to Tinnevelly I have thought it advisable to enable them of such a section as would fit them for navigation as well as irrigation, and to allow for the necessary locks Bridges &c. that would be required in that case on each line. I have also taken advantage of the Amicut to throw a Bridge over the River at Streevygoontum, a work that is very much wanted to keep open the Communication between the populous towns on its banks, and which can in this way be accomplished for a comparatively trifling sum.

8 As the great object at present however is to improve and increase the cultivation to the Eastward of Streevigoontum I would suggest that Sanction should be solicited for so much only as will be sufficient to accomplish this End, leaving the remainder for future consideration in connection with the Eastern Coast Canal project. The Amount that will be required for irrigation purposes, inclusive of the Bridge over the Amicut at Streevigoontum is shewn in the accompanying Abstract

cultivation under Vellore and Shenkarkoy tanks and entering the Cadumba tank at its western extremity will flow through this extensive reservoir, and thence by a new cut to Ammenpooram and Cannum tanks. From this point the Channel will be continued in the direction shewn in the sketch to an old ruined tank a short distance South of Trichendoor, branches being thrown off by the way to supply a breached tank, termed "Shonnaumtuvaly colam" situated a few hundred yards to the Eastward of the Village of Cannum, and another termed "Avvudayarcolum" close to Trichendoor. The surplus of Ellapanaiken tank will fall into the Swamp which extends along the Coast for 5 or 6 miles, and during the rains discharges into the Caramany River a little to the South of the Port Coolasagarapatnum. The total distance from the Amicut to Coolasagarapatnum by this line is 27 miles.

7 In framing the Estimate for the above work I have had in view not simply Channels of irrigation, for which a much less sum (about one tenth of the

would have sufficed; but deeming it probable that the Eastern Coast Canal will eventually be extended to Tinnevelly I have thought it advisable to enable them of such a section as would fit them for navigation as well as irrigation, and to allow for the necessary locks Bridges &c. that would be required in that case on each line. I have also taken advantage of the Amicut to throw a Bridge over the River at Streevygoontum, a work that is very much wanted to keep open the Communication between the populous towns on its banks, and which can in this way be accomplished for a comparatively trifling sum.

8 As the great object at present however is to improve and increase the cultivation to the Eastward of Streevigoontum I would suggest that Sanction should be solicited for so much only as will be sufficient to accomplish this End, leaving the remainder for future consideration in connection with the Eastern Coast Canal project. The Amount that will be required for irrigation purposes, inclusive of the Bridge over the Amicut at Streevigoontum is shewn in the accompanying Abstract

Zemindary Lands, the Collector informs me that the Zemindar has been required to state whether he is willing to pay for the water which will be available for their irrigation, but that no reply has yet been received from him on the subject, supposing him to cultivate to the extent of 1000 Cotays, and to pay at the same rate per Cotay as the Government Ryots there would be a further return from the Northern Channel of about Rs. 7000.

13 But supposing this return to be only Rupees 16,316 per annum, the original outlay will be re-paid in little more than 6 Years.

14 To give some idea of the value of the Tambraparony as an irrigating River and of the probable Quantity of water available for the above Extent of Cultivation, I may mention that the area drained by it above the Murdoor Anicut is about 1870 Square Miles, of which 937 Square Miles form the basin of its principal tributary, the Chittaur and its several feeders. Including the Murdoor, it is crossed by 7 Anicuts and irrigates about 30,000 Cotays or 18,000 Acres of land yielding an Annual Revenue

Revenue to Government of 17 Lacs of Rupees, of this about 9,000 Cotays (or 11,400 Acres) assessed about 1,77,000 Rupees, are watered by the 2 Channels proceeding from the Murdoor Anicut, and the Tanks dependent thereon; the principal of which on the North of the River are the Streevigoontum Cuxbah Periacolam, Parroor Colam, Chevalay Mail and Keelcolum and Paroongolam; and on the South of the river the Vellor, Thenkurra and Cadumbah tanks. The Tambraparony River rises in the western Ghauts and is fed by both Monsoons. The total fall of Rain during the year at Vellum Mullay, near the Source of the Tambraparony, is often as much as 300 inches, while at Palamcottah in the plains the average fall per annum for the 9 years ending 1851 was only 22½ inches. After a course of 23 Miles through hills and forests receiving on its way a considerable tributary termed the Paumbaur, the Tambraparony breaks through the rocky barrier above Kauspanaysum and reaches the first Anicut about ½ Mile below the famous falls of that place. From this to the Murdoor Anicut the distance is 41 Miles and the fall about 141 feet. From the Murdoor Anicut to the Sea the distance is 29 Miles

and

and the fall 77½ feet. The proposed site for the new Anicut is 12 miles below the Mundoor, and the fall from thence to the Sea is 32 feet.

15 The Quantity of water flowing down the Tambraporny was ascertained by observation at Palamcottah during an ordinary high freshon the 6th December 1847 to be about 1760 Cubic Yards per second, the mean velocity being 6 feet per second and the average depth 12 feet. To this must be added about 350 Cubic Yards per second for the Chittaur, which falls into the Tambraporny 2 miles above the Mundoor Anicut, making in all 2110 Cubic Yards per second at the latter work. Of this large body of water about 70 Cubic Yards per second, are drawn off by the Marlacal and Teelacal, the two Channels proceeding from the above work, and the remainder, together with what is returned by Surplus Calingulahs and the drainage from the lands, passes on to Streevigoontum and thence to the Sea, with the exception of about 30 Cubic Yards drawn off by the Tendripairy and Cattoor Channels on the Right, and the Koolpadagay and Korookay Channels on the left bank. This is during ordinary high freshes, but when the River is comparatively low, there is

8

is still sufficient water flowing past Streevigoontum for the lands proposed to be irrigated by the Channels from the new anicut

16 From the Statements furnished monthly by the Collector to the Board of Revenue in the D. P. W. of the Quantity of water in the Tambraporny River, it appears that, taking the average of 5 years viz from 1850 to 1854 inclusive there was never less than 4 feet of water at Streevigoontum during the cultivating season, or from July to March, and even in the month of April the average is very little short of this. The breadth of the stream when the river is at its lowest is about 25 Yards, or Equal to the bottom breadth of the two Channels taken together. It may fairly be assumed therefore that there will be never less than 1½ foot depth of water in each Channel during the cultivating season, and with this as a minimum depth, the discharge would be $3\frac{2}{3}$ Cubic Yards per second. This may be shown as follows. The Northern Channel has a bottom breadth of 36 feet with side slopes of 2 to 1. and a fall of 10½ feet in the first 7 miles, or 1½ foot per mile, the area of section, therefore, would be $13 + \frac{1}{2} = 6\frac{1}{2}$ Square Yards, and the hydraulic mean depth $\frac{6\frac{1}{2}}{14\frac{1}{4}} = \frac{13}{28\frac{1}{2}}$ of a Yard, or about

16 inches. Table 1 of Captain Goddard's Hydraulic Rules &c. shews that with a fall of 1½ foot per mile and Hydraulic mean depth of 16 inches. the velocity will be about 20 inches per second. This velocity multiplied by the Area as above, or $6\frac{1}{2} \times \frac{20}{36} = \frac{130}{36} = 3\frac{1}{3}$ Cyds. per second nearly, or sufficient to cover 4361 Cotays of land with a third of an inch per diem, and to preserve the Crop from failure. With 3 feet of water in the Channel it may be shewn by the above table that the discharge would be 11 Cyds. per second, or 3 times the former and sufficient to cover the above extent of land with 1 inch per diem. This latter may be considered as the normal state of the Channels for at least 6 months of the cultivating season. During the North East Monsoon freshes the depth of water in the Channel will not be less than 4½ feet, at which time the delivery by each Channel will be about 21 Cyds per second, or 18,14,400 Cyds per diem.

17 The Southern Channel will have the same Sectional Area as the Northern and the same slope for its first 5½ miles, Consequently the delivery will be the same. It is thus seen that there is every probability of there being ample water in the River and that the proposed Channels are of sufficient capacity to conduct the requisite Quantity to the lands available for wet Cultivation North and South of it.

18 It only remains now for me to give a short description of the Annicut and its subsidiary works. The Annicut is to be 1382 feet in length between the wing walls, the foundations, both of the body of the work and of the apron in rear, the of brick in Chunam laid on wells, sunk 10½ feet in sand, and raised above the wells 4½ feet, including the thickness of the cut stone covering to the latter. The height of the Annicut above the average level of the River's bed is to be 6 feet, and the width of the Crown 7½ feet. It is to be faced throughout with Cut stone and furnished with 6 sets of under sluices to let off sand and surplus water when necessary. The breadth of the Cut stone apron in rear is to be 24 feet and the depth 4½ feet, and beyond it there is to be a rough stone apron 1½ feet in depth and 36 feet in breadth, including the retaining wall of stones in Chunam, which latter will rest on a line of wells

wells sunk to the same depth as abovementioned. 32 Piers, each 6 feet thick and 15 feet in height above the apron, are to be constructed at intervals of 12 feet from Centre to Centre, and on these and the 2 abutments at the extremities of the Anicut are to be turned 33 Arches of 36 feet Span and 9 feet Rise, to carry a road way 15 feet in width between the Parapets.

At the northern end of the Anicut a River lock is to be constructed to admit of boats passing to and fro, in the event of water communication being established between the interior of the District and the Sea Coast at Pinnacoil, as suggested in my Diary (General Observations) of the 16th September 1854

The Estimate provides for 75 feet length and 15 feet breadth of lock, with a fall of 3 feet to allow of the water acting on the sandy bed of the river and keeping open a Channel to that depth for the passage of boats.

The Estimate was framed some months previous to the Receipt of the Circular from the Chief Engineer's Office (No 703, dated 1st September 1855, directing that all plans for locks on navigable Canals should allow for 20 feet broad in the clear between the side walls, and 150 feet long between the Sluices. If necessary, the latter dimensions can

can be substituted for the former when the work is under construction, but for all ordinary traffic a length of 75 feet and breadth of 15 feet would probably be found sufficient. A small semicircular arch of 15 feet Span is to be turned over the lock Chamber to complete the communication with the north bank of the river.

19. At the head of each of the 2 Channels proceeding from the Anicut a lock of similar dimensions to the above will be required in the event of it being determined to make use of them for navigation as well as irrigation. For the present, however I would recommend that the Project should be considered as one of irrigation only, and in that case, the present Head Sluice of Keelpadagay will suffice for the northern Channel, a similar one being constructed on the right bank immediately above the Anicut for the supply of the Southern Channel.

20 The subsidiary works required on the northern Channel, supposing it to be for irrigation only, are as follows,

1 A dam across a sandy stream falling into the Channel 270 yards below the Head-Sluice.

A

2. A Bridge of 36 feet span across the Channel, in lieu of the present imperfect Stone-platform Bridge, to keep open the communication between the Villages to the North of the Channel and the river.

3. A division Sluice for the irrigation of the Kellpadagay lands at the point where the new Channel leaves the old one at **D** in the Sketch.

4. A Small supply Sluice at the Head of the branch Channel to the same land at **E**.

5. A Bridge of 30 feet span on the Cross Road leading from Parungolam to Mangalacoorchy on the river bank at **E**.

6. 10 Irrigating Sluices for new land to be brought under Cultivation between **E** and **D** in the Sketch.

7. Two Bridges of 30 feet span with Causeway between them and a Calingulah across the Arasinoogannungalum Channel at **F**.

8. A Dam with Surplus Sluices across a jungle Stream falling into Arasinoogannungalum Tank at **G** in the Sketch.

9. A Bridge of 30 feet span across the Pallayacoil Aalbaun Road at **H**.

10. A Dam 600 feet in length with under Sluices across the Goss-Oday a large jungle Stream which crosses the line at **I** in the Sketch.

11. A Sluice of supply to Korampullur tank.

12. A Head Sluice for the branch channel to Coorookay tank at **B** in the Sketch.

21 Supposing the Channel to be used for navigation, Locks will be required at the places marked **L.L.L.** The Channel to Tuticorin may be considered in the light of a branch only for the main Channel, which latter may be extended eventually to the northward for some miles and thereby bring more land under cultivation. There is no Reason indeed why the main Channel should not be carried on Northward through the Ettiapooram Zemindary till it meets the Vyaur river a distance of 20 miles from the point where the branch to Tuticorin separates from it.

22 The subsidiary works required on the Southern Channel, supposing it to be for irrigation only are as follows.

1. A Head Sluice in the right bank of the river in connection with the Anicut.

2. Two Syphon Sluices at Tricalore in lieu of the present Aqueduct which check the flow of water.

3. A Bridge of 30 feet span across the Channel head of Tricalore, at **A** in the Sketch in lieu of the present Stone platform Bridge.

4. A Calingulah and Bridge at the West End of Cadumba tank.

5. A Sluice at East End of the same tank for the supply of Ammenpoorum and Caunum tanks.

6. 10 Sluices for the irrigation of new land between Caunum and Trichendoor.

7. 2 do in Ellapanaiken tank and a Surplus Calingulah in the same.

8. Alterations to the eastern Calingulah in Cadumba tank to prevent waste of water.

9. Head Sluices for the branch Channels to Avoodayoor and Shonanseantoralay ruined tanks.

10. One Sluice of irrigation and a Calingulah of discharge in Avoodayoor tank.

11. 2 Sluices of irrigation and a Calingulah of discharge in Shonanseantoralay tank.

23. To render the Southern Channel navigable locks will be required at the Points marked L L L in the Sketch, and the Channel instead of being allowed to flow through the Ammenpoorum and Caunum tanks should be taken round them, and a Sluice of supply for these tanks constructed at B in the Sketch. To complete the Communication with the Port of Colaveganputnum, 8 Miles South of Trichendoor, a Canal must be excavated from the South End of Ellapanaiken tank for about a Mile, to connect it with the Swamp, which, as before mentioned Extends Southward as far as that place.

24 In addition to the several documents mentioned in the 1st and 2d and 8th paras of this letter, I beg to forward herewith the Statement of Cultivation and Revenue referred to in the 9th para together with an Abstract Estimate drawn out in the long form in the Collector's Office

Civil Engineer's Office 8th Div.
Madura 22d October 1855
Despatched 26th November 1855.

I have &c
Signed W. A. Bowley Captain
Civil Engineer 8th Division

True Copy

Asst Engr Office 8th Div.
Dindigul
15th August 1857.

New Henderson Captain R.E.
Offg Superintending Engineer 8th Divn

Enclosure No. 1 in a Letter from the Offg. Superintending Engineer S. Div. dated 15th August 1867 —

No. 976

Do. Rec. Sect. 1 Col.

Q. 771

Madras

(2)

34.5/67

Report of Col. Horsley on the Streviguntum Anicut Project.

Remarks on Colonel Horsley's report on the Streviguntum Anicut Project

In 1855, a project was submitted by Captain now Colonel Horsley, for the extension of irrigation to the Sea-Coast by means of an Anicut to be built over the Tambrapoorney river at Streviguntum, with main Channels, on the left bank to Tuticorin and on the right bank to Colasagarapatam near Tritchendoor. These Channels being intended to serve for navigation as well as for irrigation. The project was sanctioned by the Government in 1857. but under the financial restrictions consequent on the mutiny, this scheme shared the fate of other works of importance, and was necessarily laid aside — A grant of funds was made in 1862. but before work was put in hand the money was withdrawn; the prices of labor and materials have risen very considerably during the past twelve years the amount of the estimate now submitted

Re

Rupees 7,50,000 is nearly three times the amount of the original estimate Rupees 2,85,000: and there is every reason to fear that the Cost of work will go on increasing. So that should any obstacles retard the execution of the project, the sum now required for its Completion will hereafter prove inadequate. — If the works had been put in hand, when the Scheme was first matured the outlay would have been repaid some time since, and there would have been only the maintenance Charges to set off against the annual increase, which at a very low Computation would have been half a lakh of Rupees, and in all probability double that sum.

The project has been retained in its integrity, as designed by Colonel Horsley, with the exception only of the provisions for making the main Channels navigable. Colonel Horsley became during a long Period residence in the Madura and Tinnevelly Districts, thoroughly acquainted with the

Country

Country, and after having Considered the Subject for no less a Period than 12 years, presented his report, and designs in Novemb^{r} 1855. It was at that time Considered probable, that the Eastern Coast Canal, might be extended to Tinnevelly; and with this in view Colonel Horsley had intended to make the Channels navigable; for some time past however, the idea has been given up, and it is now proposed to divert the water of the Tambraporney solely for irrigation. —

2. The District of Tinnevelly, so far as Concerns the rain-fall, is subject only to the North East monsoon, during a Period of about 2 months from October to December: but as it is bounded all along by the Western Ghauts, the greater part of the Cultivated land, receives its water-supply from the rain which falls on the hills during the South West monsoon. The first fresh in the Tambraporney usually Comes down in the month of June; and the

Supply

supply of water is constantly renewed
insomuch that even during the hot months,
the river is never dry. Thus though the
rain fall on the plains is but small;
the Dambracoorey and the small streams
which flow into it, are under the influence
of both monsoons and while a great deal
has been done to utilize the water: there
is still a vast volume which year after
year, runs waste into the Sea.

A description of the proposed line
of Channels being given in Colonel
Horsley's report, it is unnecessary
to repeat it. The financial prospects
of the Scheme, in the year 1865, were
as follows. The probable annual
return to Government from an outlay
of Rupees 2,85,000 was estimated by the
Collector of Tinnevelly at Rs. 46,346 or
about 16¼ per Cent: the return being made
up of two principal items.—

viz: from new Cultivation	22.393
from Saving on remissions for drought & short produce	23.953
Total Rs.	46.346.

At the same time, Colonel Horsley
Considered the figures of return to be set
down as much too low; for while 598 Cotays
were shewn as likely to be Cultivated
out of 918 Cotays of Nunjah waste on
the Northern Channel, only 18 Cotays
out of 918 were entered for the Southern
Channel: and if a like proportion were
admitted, for the latter: there would be
530 Cotays more of new Cultivation, assessed
at present rates at Rupees 1.1.55. Again
in the Conversion of dry land to wet,
Colonel Horsley is of opinion, that an
additional area of 2018 Cotays should be
reckoned upon on the North, and 1226
Cotays on the South bank of the river;
which would yield an annual revenue of
Rupees 21.384: there being likewise 1000 Cotays
in the Muniachee Zamindary, not
taken into account, in case the Zamindar
might refuse to pay the same as the
Government ryots.

Hence if these 2 sums Rupees 1.1.55
and Rupees 21.384 are added to the Collector's

figure

figure of return Rupees 16.346. there is obtained a total return of Rs 42.105, or about 25 1/3 per Cent on an outlay of Rs 285,000. There has however been much Change in the past 12 years, in the manner of assessing the land: and more land has been brought into Cultivation. likewise the assessment being more settled, the amount of remissions has much decreased.—

Mr. Tuckle, the present Collector of Tinnevelly, gives the remissions at "upwards of a lakh of Rupees in the past 10 years"; hence the annual amount of remissions is assumed at only Rupees 10,000.—

Again with regard to the expected increase of Cultivation. Mr. Tuckle sets down the area to be brought under new Cultivation at 4.500 Acres assessed at 5 Rs.—Rs 22.500 and 3000 acres to be Converted

from 1 to 2, Crop land at 2½ Rs.—7.500

Total Rupees 30.000

to which adding for remissions—10,000

there is a grand total of Rs 40,000

or

* Vide the Letter No 95 of 24th April 1867.

or 5 1/3 per Cent on the estimated outlay of Rupees 750,000. At the same time the Collector considers that there are 25,000 acres of land lying along the Coast, that may be brought into Cultivation, and give a return of Rupees 75,000 per annum. while Colonel Horsley says there is no reason why the main Northern Channel should not be carried through the Ellapooram Zemindary till it meets the Vyppaur river, or about 20 miles beyond Tuticorin, and thereby bring more land under Cultivation.—

3. Much importance attaches to the question whether when large irrigation projects are taken up by the Government a water rate shall be paid by the ryots on the Consideration of their obtaining an unfailing supply for Cultivation. In a recent report on the extension of irrigation in Candeish Guzerat and the Deccan, Colonel Strachey mentions the opinion of the Settlement Officers of Bombay, that the land can well bear a rate of Rs 1 per

per acre, in addition to the fixed settlement rates. The Collector of Tinnevelly considers that the settlement in Southern India must be permanent, and that its principles do not admit of an additional rate for water. It appears however to be the duty of the Engineer to bring the subject prominently forward, for the consideration of Government, inasmuch as the imposition of a water rate, will at once double the figures of return given above. A water rate of Rs 1 per acre on 7500 acres, will produce a Rupees 30,000 per annum, and bring up the General annual return to Rupees 70,000 or 9⅓ per Cent on the Capital to be expended, ¾ lakhs

of 18th May 1867

4. The Collector observes that the expence of a bridge over the Ameer would be repaid by tolls, and certainly a toll on Carts passing over the Ameer, is a most legitimate source of revenue. There is at present no bridge over the river between that near Palamcottah, and the sea, and an ordinary fresh prevents bandies crossing the river. If the moderate toll of 1 anna suggested by the Collector, be levied from all bandies that go over the bridge, and their number be taken at 220 per diem; the toll tax will amount to Rupees 5000 per annum. A charge of 2 annas might well be made, considering the great Convenience of a bridge at Tiruvigoondum: that sum being often paid on ordinary roads: but if the receipts be taken at only 1 anna; the aggregate amount in a year represents the interest at 5 per Cent on 1 lakh of Rupees outlay, and of the estimate of ¾ lakhs.

5. The Collector Mr Tuckle takes a very lively interest in the Amicut project, and is most sanguine as to its results; while the residents in Tuticorin and the inhabitants of the different villages and expressing their appreciation of the expected benefits, by sending in

in Contributions towards the work.
The voluntary subscriptions up to this time amount to Rupees 25000. The Collector has further volunteered to aid the Engineer Department in supplying materials. He has set apart a large quantity of Cut stone from the demolished Fort at Palamcottah; and promises by means of money Contributed to deliver the stone at the building site. He will give every facility towards palmyrahs and Jungle wood being obtained, and in the provision of firewood for burning bricks and lime. The Collector is anxious to render his assistance as early as possible in the preparation of the large quantity of bricks required; and to relieve the Engineer Department both of the time and trouble of having the bricks made; as also to deliver them on the works free of Carriage Charge. This will much facilitate the execution of the masonry work.

and

and neglecting minor items the Cost of the works will be much reduced, if besides procuring Stone gratis, the Engineer can have bricks supplied to him at 4 Rs per thousand, according to the Collector's estimate, instead of at Rupees 7. as per the P.W. Estimate including Carriage.

The Cubical Content of Cut-Stone in Chunam entered in the estimate is 3684-7/8 yards; which at Rupees 12, Comes to Rs 44208. but the Stone being supplied on the Spot; the Cost of building will be at the rate of Rs 3. 12. or 13.990.

difference Saved Rupees 30218.

again the Cubical Content of brick work in Chunam, provided in the estimate; is in round numbers 26,190 yards which at differ. rates is Charged in the aggregate Rs 135,900: but by making a proportionate reduction in the rates on account of bricks being Supplied Cheap, the Cost will be only Rs 96.620.

difference Saved 39.280.

or in the 2 items of Cut Stone and brick in Chunam.

in Contributions towards the work.
The voluntary subscriptions up to this time amount to Rupees 25000. The Collector has further volunteered to aid the Engineer Department in supplying materials. He has set apart a large quantity of Cut stone from the demolished Fort at Palamcottah; and promises by means of money Contributed to deliver the stone at the building site. He will give every facility towards palmyrahs and Jungle wood being obtained, and in the provision of firewood for burning bricks and lime. The Collector is anxious to render his assistance as early as possible in the preparation of the large quantity of bricks required; and to relieve the Engineer Department both of the time and trouble of having the bricks made; as also to deliver them on the works free of Carriage Charge. This will much facilitate the execution of the masonry work.

and

and neglecting minor items the Cost of the works will be much reduced, if besides procuring Stone gratis, the Engineer can have bricks supplied to him at 4 Rs per thousand, according to the Collector's estimate, instead of at Rupees 7. as per the P.W. Estimate including Carriage.

The Cubical Content of Cut-Stone in Chunam entered in the estimate is 3684-7/8 yards; which at Rupees 12, Comes to Rs 44208. but the Stone being supplied on the Spot; the Cost of building will be at the rate of Rs 3. 12. or 13.990.

difference Saved Rupees 30218.

again the Cubical Content of brick work in Chunam, provided in the estimate; is in round numbers 26,190 yards which at differ. rates is Charged in the aggregate Rs 135,900: but by making a proportionate reduction in the rates on account of bricks being Supplied Cheap, the Cost will be only Rs 96.620.

difference Saved 39.280.

or in the 2 items of Cut Stone and brick in Chunam.

in Chinnam, there will be a saving of Rs 69.198. –

6. Returning to the Cultivable area, Colonel Horsley presumes there are 1000 Cotays of land in the Municachee Remundary which may be brought under Cultivation; and at 5 Rupees per acre will give a return of Rs 8.100. Mr Puckle considers that the present scheme requires 25.000 acres of land, that will bring in 6.000 Rs at 3 Rupees per acre: but the irrigation of this large tract of land will form an extension of the scheme, and is not a Component part of the surveyed project. Still if such an extension were to be hereafter made, the rate of return per acre Rupees 3, is so low, that it may be considered as representing the revenue after allowing say 1 Lakh for the extension of the Channel, and thus forms of itself a Contingent return of upwards of 8½ per Cent on the supposed Capital expenditure of 8½ Lakhs.

The

The table appended, shews the return that may be expected from the Collectors Statement of increased Cultivation, including value of remissions, and from the Consecutive additions of a water rate, of return from the Remundary, and from a toll on the Bridge. The least per centage shewn is the value of A 5⅓, while the value of A 3, or 6.62 may safely be taken, as the minimum return – while again Considering the water-rate as an admitted item; and taking credit for the Collectors assistance in providing materials, the value of B 3 or 11.03 per Cent may be fairly expected, if the project had been Carried out when first sanctioned, or rather if the Cost of building had remained the same, as at that period, the value of A would have been 13: and that of B 3, 26⅔ per Cent – hence though in a financial view, the prospect of remuneration is far less favorable than formerly, the benefit to be derived by the people, is by no means diminished and at the lowest

lowest computation, the return from the outlay offers a fair investment of Capital. —

7. The supply of fresh water to the town of Tuticorin will prove a great boon to the inhabitants: the water in most of the wells is brackish, and but a limited quantity is obtained from wells, and holes scooped out in the sand, a mile from the sea shore. The residents cannot obtain wholesome water for the house, stable or garden, from wells near their houses; but have to send to a distance for all the water required for domestic purposes: in fact, scarcity of water, such as is experienced in other stations, only in the hot season, or in years of unusual drought, is felt throughout the year at Tuticorin, and is a perpetual source of discomfort.

8. The annual rain-fall at Palamcottah is set down by Colonel Horsley, at 22½ inches for the 9 years ending 1851. During the 10 years from 1857 to 1866 the average rain-fall registered at Palamcottah has been 28½ inches. The greatest quantity that fell in one year was 42.88 inches, in 1862, and the minimum was 18.81 inches in 1865. During this period of

10 years, by far the greatest quantity of rain fell in the month of November, the average for that month being 9.5 inches, or just one third of the annual fall. The greatest fall in one week was in November 1866, 18.10 inches, and the maximum in one day 9 inches in the same month. But while the rain fall on the plains is thus shewn to be very moderate, the hills in which the Tambraparney rises, are under the influence of the heavy South West monsoon. The quantity of water arriving at the Murdúr Anicut in an ordinary high fresh was calculated by Colonel Horsley at 2110 Cubic yards per second: The drainage area above the Murdúr Anicut is 1870 square miles, and supposing the rain to extend over one half of this area, and also that one half of the water runs off the hills there must be a fall of 4½ inches in the 24 hours to produce a flood of 2110 Cubic yards per second. This volume is not taken as excessive; but as the usual discharge in high freshes, of which many come down the river during the year. —

9. Now as regards the area of land that may be cultivated by the Channels taken off.

off from the Amount. Colonel Horsley finds, down 5360 acres under new Cultivation, and Conversion of 1 Crop to 2; as producing the return of Rupees 16,346: And also estimates a further revenue of Rupees 21.304 (vide para 2 above) from 6227 acres more, or a total irrigable area of 11.587 acres.—

It is assumed that there will never be less than 1½ foot depth of water in each Channel during the Cultivating Season; the bottom breadth of the Channel is 36 feet, with side Slopes of 2 to 1, and fall of 1½ feet per mile: and the discharge is $\frac{136}{36}$ or $3\frac{2}{3}$ Cubic yards nearly per second: which is sufficient to cover 4361 Cotays, equivalent to 7065 acres of land with a third of an inch per day. But with 3 feet of water in the Channel, which is its normal state for at least 6 months of the Cultivating Season, the discharge is, about 11 Cubic yards per second, or sufficient to cover the same extent of land with 1 inch per day: or the North and South Channels together will sufficly that volume of water which will Cover 14,128 acres with 1 inch daily = 2 the area now given by the Collector. That will yield

1 Colly = 1.62 acres

21

yield a return of Rupees 30.000 is only 7500 acres so that the water available is nearly double that required allowing a depth of 1 inch.—

The actual quantity of water required for raising a Crop of paddy cannot be taken at any fixed rate; approximate Calculations have been made in different parts of the Country; and owing to various Causes such as the nature of the soil evaporation &c. the results are not very Similar.—

Major Sankey in reporting on the Maure project, assumes 7.500 Cubic yards to be required for the Cultivation of an acre with 2 Crops. This allows little more than $\frac{1}{3}$" of an inch daily throughout the whole period of 9 months: and taking the discharge of each of the Streengum Channels at 10.83 Cubic yards per second there is sufficient water at the above rate, to irrigate 33.685 acres of land, on both the North & South banks of the river.—

In the table annexed, the areas of land are Calculated, which can be Cultivated by the volume of water of 1083 Cubic yards

per

per second, allowing a distribution of from 1½
to 3 Cubic yards per hour per acre); or a depth
of water varying from .26 to .63 inch per
day. The least area, or that with the largest
allowance of water, viz^t 3 Cubic yards per acre
per hour, is nearly 26000 acres, dependent
on both of the Channels, and it is therefore
evident, that the water supply in the Channels
of the estimated section is sufficient to irrigate
very much more land than that Contemplated
in the project, or in other words that the
irrigable area may be Considerably extended
without enlarging the Capacity of the main
Channels.

Alex L Tenderfort Capt Corps Engrs
U.S. Engrs Office
Courtlandt St
August 1867. Off^g Superintending Engineer

Estimate

Return

		Annual subscription collected	Per cent. deducted for collection	Remainder on 30th June	From Manufactories during the year	Balance from establishments 31st Dec.	Total	Proportion on each	
Amount of estimate	£50,000	30,000	10,000				40,000	5.33.	A
				30,000			70,000	9.33	B.
					8,100		78,100	10.41	C.
Add to estimate 1 lakh for extending Channels	850,000					£5,000	153,100	18	
Deduct from Estimate for stone & brick provided by Collector	650,000	30,000	10,000				40,000	5.88	A.
				30,000			70,000	10.29	B.
					8,100		78,100	11.48	C.
						Balance from toll and Bridge			
Amount of estimate	£50,000	30,000	10,000			£5,000	45,000	6	A 2
				30,000		"	75,000	10	B 2
					8,100	"	83,100	11.08	C 2
Deduct for Materials provided by the Collector?	£5,000	30,000	10,000			"	45,000	6.62	A 3
				30,000		"	75,000	11.03	B 3
					8,100	"	83,100	12.22	C 3

25

Table showing the number of acres of land that can be irrigated from a given number of cubic feet of water per second

No. of Cubic yards for one second per hour	No. of acres irrigated from each Channel	Depth of water per day in inches	No. of acres irrigated from both Channels together
1½	25,992	26	51,984
2	19,494	35	38,988
2½	15,595	44	31,190
3	12,996	53	25,992

20

24

No. 953 Tinnevelly 24th April 1867.

From R. K. Tuckle Esquire
Collector

To Captain H. L. Prendergast
Offg. Superintending Engineer
Sth Division
Madura

Sir,

In reply to your Letter No. 113 dated 16th instant, I have the honor to inform you that I have been over most of the villages likely to be affected by the Srivaigundam anicut and have seen the enormous benefits likely to be conferred by the work between Srivaigundam and the Sea, a distance of 20 Miles, the Crops are now on the ground (at the end of April) and are not reaped till May, instead of in February as is the case higher up the stream. The tanks from which these lands are irrigated receive their supply from the overflow of other tanks supplied from the Maviadur anicut, some 10 Miles above Srivaigundam and many good freshes come and go before the lower tanks receive a drop of water in fact the cultivating season

for

for down the river in three Months later than is
need be, and the remissions made for failure of
Crops below the proposed amount during the last
five years amount to upwards of one lac of Rs.
The proposed amicut will bring under Cultivation
1,500 acres of Nunjai waste, assessed at ₹ 1,500 Rs.
will convert 3000 acres of single Crop land into
double Crop, which at 2½ Rupees per acre represents
₹ 500 Rupees, and will irrigate 3000 acres of dry
land, which at 5 Rupees an acre represents 15,000
Rupees total 30,000 Rupees.

2. There is moreover a tract of marshy
extending from Kulandaiyarcadu to Pyyur,
almost entirely uncultivated, but capable of growing
rice Crops if supplied with fresh water to wash
out the salt.

3. I have had the ridge over the whole
length of this with the Inspector General
of Police, and we both agreed that this ridge
at present 10 miles in length by an average
of 1 in breadth might be irrigated successfully
with the greatest ease. The land is lower than
the sea level, and if the flood waters that
collects there during the monsoon, had but
an exit through the sand hills, they alone

would

would wash out the salt, an evil is easily
provided, and there are 25,000 acres that
the people would readily take up at 5 Rupees
an acre, lying under from want of the
water that fills the river day after day
and week after week during several months
of the year.

4. I calculate that the increase of
revenue that derived from an Amicut at
Tevinjeri Aanai would be at least a lac of
Rupees per annum, and the people are so
interested with the advantages of the
scheme that they have now subscribed and
will in a few days more pay into the Treasury
a very considerable sum, as a donation
towards the work, and as an earnest of
their anxiety that the Government should
Commence it at once. on receipt of this sum
I will address the Board, and beg that the
present favorable opportunity may be taken
advantage of, and that the money paid
by the Ryots may be spent at once in carrying
on the work, the enormous mass of stone
that now encumbers the Fort at Tulamcotta

these

No 119. Tirnavelly 18th May 1867.

From N. K. Lucke Esquire
Collector

To Captain H. L. Prendergast RE
Offg Superintending Engineer
8th Division
Madura

Sir,

I have the honor to acknowledge the receipt of your Letter No 282 dated 9th instant, in which you call for my opinion on the practicability of the proposal contained in the 2nd paragraph of your Letter No 1119 dated 25th March last, for the construction of a Dam across the Tambrapurny river at Palamcottah.

2. I have the honor to state in reply that I am of opinion that the proposed Dam would be a most valuable work, and that the site selected is a very favorable one. The river is a large one, and the Dam would command a large area of land, which would be benefited by irrigation from it. The Dam would be situated close to the town of Palamcottah, and the land to be irrigated by it would be in the immediate vicinity of the town, and would consist chiefly of garden cultivation, which would be highly remunerative to the Government.

3. The first proposal for this project was made nearly 10 years ago, and though circumstances have rendered a considerable portion of the land to be irrigated by it of less value than it was then, I think it may still be regarded as a very desirable work, and will add greatly to the prosperity of this District.

4. There stones are abundant, the mortars are excellently well suited for building, large masses of stone, disposed on one side of the bank and most of them averaging 4 feet in length. If the people subscribed on the proposed will from 30,000 to 40,000 Rupees, there would be stone alone to 80,000 Cubic yards of stone would be the most expensive item of all Charges to Government, and this considerably diminish the cost of the work. Excellent bricks for arches are procurable on either side of the river, and fuel for brick and Chunam burning, can be got in any quantity close by.

5. The first proposals for this project were made nearly 10 years ago, and though circumstances have rendered a portion of the land less valuable than it was then, I think it may still be regarded as a very desirable work, and will add greatly to the prosperity of this District.

6. The assessment of 5 Rupees an acre alluded to in your Letter No 282 dated 9th instant is about the average assessment on lands in the Settlement I propose for wet lands in the Southern India must be permanent, as it is practically impossible to revise the rents of Millions of tenants every few years, and the fluctuating Charges of the Olungoo system has only lately been abolished.

7. In your Calculation of the revenue to be derived from the proposed future assessment of the enormous tract of waste land along the East Coast from Kulsegarapatnam to Tuticorin, which may

may be brought under Cultivation - you mention. 8 lacs as the probable Cost of the work but the expense of a bridge over the anicut would be repaid by tolls, and I Conclude the idea of a navigable Canal has been abandoned. —

3. A water Cess was declared inapplicable to Trichinopoly a district similarly situated to this, and the water Cess Scheme has hitherto been Confined to the Kristna and Godavery Anicuts.

4. The ryots have paid Rupees 6,000 towards the Expenses of the work, and much more will be Collected Shortly. —

Excavating a Channel 10 yards broad at bottom for a length of 10½ Miles, Side slopes 2 to 1 average depth 2 yards			2000	-	..	Mile	21,000	..	660	..	..	Mile	6,1,680	..
Sundries - Damping Paykulam bank							2,1,3	12					376	2
Masonry Works														
Brick in Chunam, Cubic yards		357,0 1/8	2	..	..	Cubic yd.	7080	1,	5	..	..	Cubic yd.	1,1,700	10
Rough Stone in Chunam, Cubic yds		185 5 27/32	2	..	..	D:	3711	11	3	8	..	D:	6495	7
Brick in Chunam Arch work D:		256 1/4	2	8	..	D:	640	10	6	..	..	D:	1537	8
Cut Stone in Chunam D:		765 5/8	7	..	..	D:	5359	6	12	..	..	D:	9187	8
Brick in Chunam D:		2709 13/16	2	4	..	D:	6097	1	5	8	..	D:	14,904	..
Plastering - Square feet		17,051 9/16	2	..	..	Sq.ft 100	341	..	3	..	..	100 Sq.feet	511	9
Jungle wood Cubic feet		217 5/8	1	4	..	Cubic foot	272	..	3	8		Cubic foot	761	11
Removing Old Work Cubic yds		11 1/4	..	4	..	Cubic yds.	2	13	..	8	..	Cubic yd	5	10
Rough Stone Cubic yards		2617 9/32	1	4	..	D:	3271	10	2	8	..	D:	6543	3
Flooring D:		1114 1/4	..	2	..	D:	139	5	..	6	..	D:	417	14
Earth D:		4576 5/8	..	..	8	D:	1906	15	..	2	..	D:	5720	12
Contingencies to Bridges							570	..	..	..	..		1140	..
Scaffolding and Sundries							1942	1					3884	4
Total for North Channel.							85493	12					232600	14710

3

1.Br.3475/67

Abstract Estimate or Statement showing the probable amount required, in excess of the sanctioned Estimate, for the Irivugundum Anicut &c. in the District of Tinnevelly.

Particulars	As per sanctioned Estimate: Quantity	Price	Rate per	Amount	As per revised Estimate: Price	Rate per	Amount	Excess
		Rs. A. P.		Rs. A.	Rs. A. P.		Rs. A.	Rs. A.
Anicut Bridge and River Lock.								
Brick in Chunam Cubic yards	13,662 5/8	2 . .	Cubic yd.	27,325 4	5 . .	Cubic yard	68,313 2	
Rough Stone in Chunam Do.	1840 1/4	2 . .	Do.	3680 8	3 8 .	Do.	9,440 14	
Arch Work Brick in Chunam Do.	3142 1/16	2 8 .	Do.	7,855 2	6 . .	Do.	19,852 6	
Cut Stone in Chunam Do.	2767 3/8	7 . .	Do.	19,371 10	12 . .	Do.	33,205 8	
Rough Stone and Boulders Do.	7592 3/4	1 8 .	Do.	11389 2	2 8 .	Do.	18,981 14	
Constructing Wells Brick in Chu. Do.	6848 1/2	2 4 .	Do.	6859 2	5 8 .	Do.	16,766 12	
Brick in Clay Do.	3012 1/2	1 8 .	Do.	4518 12	3 . .	Do.	9037 8	
Plastering Square feet	88,982 1/2	2 . .	100 sq. ft.	1779 10	2 . .	100 sq. ft.	2669	
Jungle Wood Cubic feet	3635 3/4	1 4 .	Cubic feet	4544 11	3 8 .	Cubic feet	12,725 2	
Tanning Square feet	48807	. 3 .	100 sq. ft.	213 8	1 1 .	100 sq. ft.	610 1	
11 Anicuts 25 feet long	223 1/2	2 . .	Each	446 11	4 . .	Each	893 6	
Do. half 10 Do.	115	. 6 .	Do.	43 2	. 12 .	Do.	86 4	
Removing Sand Cubic yards	5084 1/2	. . 6	Cubic yd.	1589 .	. 1 .	Cubic yard	3178 .	
Do. Earth Do.	17821	. . 9	Do.	831 .	. 2 .	Do.	2227 10	
Do. Gravel Do.	1957 1/4	. 6 .	Do.	734 2	1 . .	Do.	1957 4	
Cutting up & removing 33 large Cuttings		30 . .	Each	990 .	60 . .	Each	1980 .	
Do. Do. 33 Small Do.		5 . .	Do.	165 .	10 . .	Do.	330 .	
Sinking & filling 871 Wells		3 1 .	Do.	2667 7	6 . .	Do.	5226 .	
Removing Old Masonry Cubic yards	584 1/2	. 4 .	Cubic yd.	146 2	. 8 .	Cubic yd.	292 4	
1 Lock Gate 17'x23'		650 . .		650 .	. . .	"	1300 .	
1 Do. 17'x20'		575 . .		575 .	. . .		1150 .	
Embankment				3000 .			6000 .	
Baling				2000 .			4000 .	
Scaffolding and Sundries				4692 14			13773 10	
Total for Anicut Bridge & River Lock				1,06667 11			2,30,000 0	1,23,932 5
North Channel from Irivugundum to Vaticorin.								
Earth Cubic yards	74,1227 7/8	. . 8	Cubic yd.	30883 7	. 2 .	Cubic yd.	92650 5	
Repairs to Paykulam tank Do.	18,747 7/8	. . 8	Do.	2031 3	. 2 .	Do.	6093 9	

Circular No. 8 Series 1889.

From the Chief Engineer Public Works Department

Engineers Office Colombo 1st August 1889.

No. 1889.

To

The Assistant Government Agent

Divisional

Matale.

Sir,

I have the honor to request that you will cause the undermentioned Estimate for the Repairs of the Tanks of Illukkumbura and Ellapamaikan to be carefully examined, and reported on, with the least practicable delay.

I am, Sir, Your obedient Servant,

Divisional Engineer.

South Channel from Illukkumbura to Illukkumbura and Ellapamaikan

Earth	Cubic yards	17,698 8/16	"	"	8	Cubic yds	44,246	6	"	2	"	Cubic yds 1,33,636 2
Rock	Do	34,165 3/4	"	12	"	Do	25,624	1	1	8		51,248 1
Excavating a Channel 10 yards broad at bottom for a length of one mile. Side Slopes 2 to 1, Average depth 2 yards.							2,000	"				6160 "
Repairs to bund of Ellapamaikan Tank - Earth	Cubic yards	21,896 5/16	"	"	8	Cubic yds	912	6	"	2	"	Cubic yds 2737 2
Tamping and Sundries							109	8				136 "
Repairs to Avudyaur ruined tank and Cutting a branch Channel for its												
Supply - Earth	Cubic yards	17,392 2/32	"	"	8	Do	724	11	"	2	"	Do 2174 1
Tamping and Sundries							23	13				23 13
Repairs to Thonankativalei ruined tank and Cutting a branch Channel for its												
Supply - Earth	Cubic yards	43,640 6/16	"	"	8	Do	1818	5	"	2	"	Do 5455 15
Tamping and Sundries							193	3				193 3

32

Masonry works in the main and branch Channels.

Brick in Chunam	Cubic yards	26	10	32	2	"	"	Cubic yd	53	40	1	5	"	"	Cubic yd	13,350	2
Rough Stone in Chunam	D°	10	13	16	2	"	"	D°	21		10	3	8	"	D°	37	11
Arch work Brick in Chunam	D°	20	5	32	2	8	"	D°	54		4	6	"	"	D°	124	2
Cut Stone in Chunam	D°	14			7	"	"	D°	102		"	12	"	"	D°	176	"
D°	D°	4	7	8	6	"	"	D°	29		4	10	"	"	D°	48	12
Jungle wood	Cubic feet	30	43	64	1	4	"	Cubic feet	38		6	3	8	"		107	6
Plastering	Square feet	11,062	1	4	2	"	"	100 Sq feet	221		4	3	"	"		331	4
Removing Old work	Cubic yds	18	3	4	"	4	"		4		11	"	8	"		9	6
Earth	D°	1800			"	"	9	Cubic yd	84		6	"	2	"	Cubic yd	225	"
Gravel	D°	45	5	32	"	6	"	D°	16		15	1	"	"	D°	45	3
Earth	D°	941	1	16	"	"	8	D°	39		4	"	2	"	D°	117	11
Centrings to bridges									415		"					830	"
Rough Stone	Cubic yards	70	1	2	2	4	"		158		10	3	8	"		246	12
A new Calingulah West end of Kadambakulam tank																5,000	"
Sundries									654	12						879	12
Total for South Channels									84,122	5						2.26,000	0	1,41,577	11

Superintendence &c.

1 Assistant Engineers pay for 3 years		191	5	4	Mensem	6888	"	200	"	"	Mensem	7,200	"				
1 Writers pay for 3 years		36	"	"	D°	1260	"	40	"	"	D°	1440	"				
3 Overseers	D°	43	15	1	Each Mensem	9491	10	60	"	"	Each Mensem	6480	"				
1 Head Maistrys	D°	35	"	"	Mensem	1260	"	35	"	"	Mensem	1260	"				
6 Ists	D° D°	14	"	"	Each Mensem	3024	"	20	"	"	Each Mensem	4320	"				
6 Coomaslahs	D°	10	8	"	D°	2268	"	14	"	"	D°	3024	"				
Contingencies and Hand						22,299	1					37,676	"				
Total for Superintendence &c						62,970	11					61,400	"	8429	5		
Grand Total of Estimate Rs						3.28,954	7					7.50,000	"	4,21,045	9		

Supt Engineer's Office S. D.
Courtallum 15th August
1864.

Alex Swinderyat Captain R.E.
Offg Superintending Engineer 8th Division

Specification to accompany the Estimate for the Streevigundum Anicut Project.

Estimate of Rs. 50,000 for Constructing an Anicut and bridge across the Tambraparney River at Streevigundum, in the District of Tinnevelly, with Channels proceeding from it to the Port of Tuticorin on the North, and that of Colasagaramputnum on the South.

The Anicut is to be 1382 feet in length, between the wing walls, the foundations, both of the body of the work, and of the apron in pear, to be of brick in Chunam, laid on 823 wells to be of brick in Chunam, laid on 823 wells 10 feet diameter and 6 feet deep, sunk 10½ feet in the sand, and raised above the wells 4½ feet, including the thickness of the Cut stone Covering to the latter. The height of the Anicut above the average level of the Riverbed, is to be 6 feet, and the width at the Apex 7½ feet. It is to be faced throughout with Cut stone, and furnished with five sets of under Sluices to let off the sand and Surplus water, where necessary. The breadth of the Cut stone apron in pear, is to be 24 feet, and

the

the depth 4½ feet; and beyond it, there is to be a rough Stone apron 4½ feet in depth, and 36 feet in breadth, including the returning wall of Stone in Chunam, which latter will rest on piles of wells sunk to the same depth, as above mentioned. 32 Piers, each 6 feet thick, and 15 feet in height, above the apron, are to be Constructed at intervals of 42 feet from Centre to Centre, and on these and the 2 abutments, at the extremities of the aqueduct, are to be turned 33 arches of 36 feet span, and 9 feet rise, to Carry a road way 15 feet in width between the parapets. —

The Northern Channel has a bottom breadth of 36 feet, with side slopes of 2 to 1, and a fall of 10½ feet in the first 5⅔ Miles or 1½ foot per Mile, the area of section, therefore, would be 13 × ½ = 6½ Square Yards and the hydraulic mean depth $\frac{6½}{14⅓} = \frac{13}{28½}$ of a yard, or about 16 inches. —

The Southern Channel will have the same Sectional area, as the Northern, and the same slope for the 1st 5⅔ Miles. —

The subsidiary works required on the Northern Channel, for irrigation are as follows. —

1. Constructing a Dam across a sandy

Stream falling into the 3rd Channel, 270 yards be
the Veeliadagay Head Sluice. The body
is to be built of brick in Chunam, 30 feet long
and raised 2½ feet above the foundations, whi
are to be sunk 4½ feet. The apron is to be
feet broad, and 2½ feet in depth, built of rough
stone in Chunam. —

2. Constructing a Bridge of 36 feet span
across the Channel, in lieu of the present inc
for foot Path on Bridge, to keep open
the Communication between the Villages to
the north of the Channel, and the River. The
foundations of the Bridge are to be of brick
in Chunam, 6 feet deep, resting on clay: a
flooring of brick in Chunam is provided 1½
feet deep, with returning walls both in front
and rear, 1½ feet thick, and 5¼ feet in depth, of
the same material. The abutments are to be
12½ feet thick, and raised to a uniform height
of 5 feet, the versed line of the arch to be 9
feet, giving a total height of 14 feet to the
top. The roadway will have a clear width
of 15 feet. The roadway will have a clear width
of 15 feet between parapets, and between
the wing walls, 12 feet. —

3. Constructing a division sluice with 2 Pas
of 2 feet width, and 4 feet height — to
each

each, with an apron 7½ feet broad, of rough stone in Chunam, and rear retaining wall for the irrigation of the Keelpadagay lands, at the point where the new Channel leaves the Old one at D in the Sketch map. —

4. Constructing a small supply sluice of one vent 1½ foot square with Cut stone facing, at the head of the breach Channel to the same land. —

5. Constructing a Bridge of 30 feet span on the Cross Road leading from Karungalum to Mungalacoorchy, on the River bank. The foundations of the Bridge are to be of brick in Chunam 6 feet deep, resting on Clay, and the abutments are to be 9 feet thick, raised to a uniform height of 3 feet: the versed Line of the Arch to be 7½ feet, giving a total height of 10½ feet to its Soffit. Over the arch the Clear width of roadway between parapets will be 15 feet and between the wing walls 21 feet. —

6. Constructing 10 small irrigating Sluices each of 1 vent nine inches Square, for new land to be brought under Cultivation, between

the points marked E and D on the Sketch map. —

7. Constructing a bridge of 30 feet span, with Causeway 471 feet in length and a Calingulah across the Aroomoogamungalum Channel at D. The foundations of the Bridge are to be of brick in Chunam 6 feet deep, resting on Clay: the abutments are to be 7½ feet thick, raised to a height of 6 3/4 feet, the versed line of the arch to be 7½ feet, giving a total height of 14¼ feet to its Soffit. The roadway over the Bridge is to be horizontal, as well as the approaches to it. Over the arch, the clear width between parapets will be 16½ feet. The Calingulah will have a body 30 feet long, 5 feet broad, and 6 feet deep in foundation, and containing 3 Sluice vents, each 4 x 4½ feet. —

8. Constructing a double dam of 150 feet, with 10 Surplus Sluices, and flooring between, across a jungle stream falling into Aroomoogamungalum tank, at G in the Sketch. On the left bank the body of

the

the dam is 12 feet thick, resting on foundations 4½ feet deep on the right bank, the body is 2¼ feet thick on foundations 4½ feet deep all of brick in Chunam: in the body of the latter there are provided 10 sluice vents of 4½ feet, to let off water to the Sroomoogamungalam tank: below the right dam there is an apron 6 feet wide of rough stone in Chunam with rear retaining wall: the flooring between the 2 dams is of rough stone in Chunam with retaining walls at both ends. —

9. Constructing a bridge of 30 feet span for the Pullayacoil Salt pan road, and similar to that on the Mungalacoorchy Road No. 5.

10. Constructing a dam 600 feet in length, 3¾ feet high, and resting on foundations 9 feet deep, with 20 under sluices, and a double apron across the Oop Oday, a large jungle stream which crosses the line at I, in the sketch map. The sluice vents are each 4 feet in width; the apron below has a retaining wall of rough stone in Chunam, and is protected by a second apron in rear, also with retaining wall. —

11. Constructing a sluice with 1 vent 2 feet square for supplying the Korumpullum tank on

the right bank. —

12. Constructing a head sluice 350 yards below the proposed Bridge, Calingulah, at Ayral for the Supply of Coorakay tank, and of the same dimensions as that provided for the Pullapagay lands No. 3.

The Subsidiary works required on the Southern Channel for irrigation, are as follows.

1. Constructing 2 Syphon sluices, one above and another below the small bridge to the west of Tricaloor, in lieu of the present Aqueduct. The body of the sluice to be 8 feet long, 6 feet broad and 6½ feet deep, with front and rear cisterns, built of brick in Chunam, the vent and basins being faced with stone. —

2. Constructing a bridge of 36 feet span on the west of Tricaloor, in lieu of the present Stone Platform Bridge. The foundations of the Bridge are to be of brick in Chunam, 6 feet deep, resting on clay. The abutments are to be 9 feet thick, raised to a uniform height of 5 feet, the crowned sine of the arch to be 9 feet, giving a total height of 14 feet to the Soffit. The road way over the Bridge is to be made horizontal as well as the approaches. Over the arch the clear width of roadway between parapets will be 6 feet, and between

the

the wing walls 13 feet. —

3. Constructing the Bridge of 3 arches at Spreabor. The foundations of the Bridge, are to be of brick in Chunam 6 feet deep, resting on clay. The piers are to be 6 feet thick, and the abutments 4½ feet, raised to a uniform height of 5 feet, the versed sine of the Centre Arch to be 9 feet, and of the side arches to be 7½ feet, giving a total height of 16 feet for the former, and 12½ feet for the latter, to their respective. The road way over the Bridge and approaches is to be Horizontal. Over the arches, the clear width of roadway between parapets, will be 15 feet, and between wing walls, 24 feet. —

4. Constructing 2 sluices in the left bank of the Channel, to supply the Summersoom and Canem Tee tanks. Particulars the same as those given for the sluices for supplying the Keelpadagar plands, on the Northern Channel No. 3.

5. Constructing 10 sluices for irrigation in the portion of Channel between Canem and Ellapanaicken tanks; the length of body of each to be 30 feet, breadth 3 3/4 feet and depth 3-3/4 feet. The front and rear walls are 21 feet long; 1½ feet thick, and 7½ feet high

high, all of brick in Chunam. —

6. Constructing 2 irrigating sluices in Ellapanaicken Column, length of body to be 72 feet and depth 3¾ feet, with water ways of 9 inches square. The front and rear walls to be 24 feet long, 2 feet thick, and 7½ feet deep, to be built of brick in Chunam. A Surplus Caliguelah is provided for the same tank. Length of body 30 feet, breadth 6½ feet and height 10 feet, to be built of bricks Chunam, with an apron in rear of rough stone in Chunam, 7½ feet broad, and 3 feet deep, protected by a retaining wall 1½ feet thick, and 6 feet deep. —

7. Erection of the Caliguelah in Cadambah bank, to prevent waste of water. The flooring of the Caliguelah is to be paved, and 10 vents to be opened out in the body, each 1½ feet. —

8. Constructing a Head Sluice for the Lower Channel to Suwadagar ruined tank; length of body 15 feet, breadth 6½ feet, and depth of foundation 6 feet, to be built of brick in Chunam, with an apron in rear, of rough stone in Chunam, 7½ feet broad, and 3 feet deep, protected by a retaining wall 1½ feet broad

and

and 6 feet deep. —

9. Constructing an irrigating sluice, and a Calingulah of discharge in Auvoodayaur Colum tank, the dimensions of the sluice to be similar to those given for the Ellapanaicken tank No. 6. The Calingulah will have a body 18 feet long 4½ feet broad, and 6 feet deep in foundation, to be built of brick in Chunam, with a rear apron 21 feet long, 6 feet broad, and 3 feet deep, of rough Stone in Chunam, supported by a retaining wall 24 feet in length 1½ feet in breadth, and 6 feet deep. —

10 Constructing Tirrigating Sluices, and a Calingulah of discharge in Shonamcauvaray tank. the dimensions of the sluice being the same as those given for the Ellapanaiken tank, and the Calingulah to be similar to that provided for the same Tank. —

Alex Swinderyart Captain R.E.,
Offg Superintending Engineer 8th Division
Supt Engrs Office &c
Courtallum 15th
August 1869.

Enclosure No. 4 to a Letter from the Offg. Superintending Engineer 8th Division dated 15th August 1867. —

No. 976.

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

P.W.34/35/67

Specifications to accompany the Estimate for the Sreeregunteum Anicut project.

Enclosures.
1 Copy of Report of Colonel Orr.
1 Remarks on the above.
1 Abstract Estimate
1 Specification
1 Sketch Map
1 Plan of Ancient Anicut works.
2 Plans of masonry works.
Sections of Channels.

* G.O. No. 1630 dated 11th July 1866.
do — 1000 — 4th August 1866.
do — 3961 — 6th August 1866.
do — 210 — 10th January 1867.
do — 1183 — 5th January 1867.
do — 588 — 18th March 1867.

Sorted

4

No. 976

Superintending Engineers Office 8 Div.
Courtallum 15th August 1867.

From
Captain H.L. Prendergast R.E.
Offg. Superintending Engineer
8th Division

To
Colonel C.A. Orr R.E.
Secretary to Government P.W.D.
Madras

Sir,

I have the honor to submit documents as per margin, connected with the Sreeregunteum Anicut project in the Tinnevelly District.

2 In taking up this project, two Courses were open to me; the one to write an entirely complete report of my own, gathered from the records; the other to submit Colonel Horsley's report as originally drawn up, and to add a paper of remarks on such points as appeared to require notice. I have followed the latter Course, for the reason that in drawing up a new report, I must have

have borrowed nearly the whole substance of it from the original report. The first estimate was revised for the then prevalent rates of work by Captain Payne as District Engineer of Tinnevelly in 1862; and sanction was accorded on the original report: again in the present year the same Officer Captain Payne was deputed to revise the estimate for second time, and this has been done on the same original scheme. It would therefore have been hardly necessary for me to do more than submit the original papers: had not the area of land to be brought newly under cultivation, and the financial return been different, as given by the present Collector from those given by the Revenue Department in 1855. The project is thus essentially that of Colonel Horsley's: and I have confined myself to a few general remarks, and observations on the expected return of revenue, and available supply of water in the river? —

3 The plans have been copied, on thin tracing cloth, in accordance with the Orders of the Government of India: and the provisions for making the Channels navigable have been taken out. —

4 Under the item of superintendence I have set down an Officer's pay at 200 Rs per mensem: this is not intended to represent the pay of the Executive Officer in charge of the works: but to be approximately the difference of pay between an Officer of some standing who might be deputed to Tinnevelly, and that of a Departmental Officer of lower position who would take the place of the former for ordinary duty. The other alterations in the estimate generally, are in the rates, not in quantities, and therefore call for no remarks. The Collector of Tinnevelly has had the opportunity of perusing these papers before their despatch. —

I have &c

New Lieutenant. Captain R.E.

Offg Superintending Engineer 3rd Division

MEMORANDUM

The Secretary

Requested for reference the under-

Public Works Department

Dated 8th Sept 1867

REVENUE BOARD OFFICE,

Received 10th September 1867

To

The Secretary to Govt

Public Works Dept

Fort St George

Proc. of Govt for Sept 1867

No 3495

The Superintending Engr

S. Division

Secretary to Govt

Dated 15th August 1867

Received 18th Do

Submits Estimate

Plans &c of the Sluices

proposed across the

Project in the Tinnevelly

District, amounting

to Rupees 1,50,000

No 2587 - 25 - Sept 67

No. 625

Rec'd 1867 Oct 2

Proc: of Court for Sept 1867

From Chief Engr

Supt

Dimensions

Secretary of State

Dated 15th

Rec'd 18th August 1867

Encl

Submits Estimate

Plans &c of the Sluices

Foundations Arrangements

Projected in the Tunnel

Distribution accounting

to Response $30,000

No 2587 - 25 Sept 1867

No 625

Ans 4th Sept 1867 P. 165

MEMORANDUM.

Requested for reference the under

Chief Engineer

Register

REVENUE BOARD OFFICE,

20th Sept 1867

To

The Registrar

Port Colborne

Proceedings of the Madras Government, Revenue Department, 11th September 1867.

No. 199. Read the following Proceedings of the Board of Revenue, dated 29th August 1867, No. 5,610.

Read the following letter from the Collector of Tinnevelly, to the Secretary to the Board of Revenue, dated 24th June 1867, No. 334 :—

1. Upwards of ten years ago Colonel Horsley proposed an anicut at Streevycuntam on the Tambrapurny, and the project was pronounced well devised and feasible; the mutiny unfortunately stopped the work, and the Government have since remitted upwards of a lac of Rupees for withered crops on the very area that would have been so fertile and flourishing had the anicut been built. The Revenue lost to Government, and the profits foregone by the ryots of the villages that would have been irrigated, may, at a very low computation, be estimated at upwards of 11 lacs of Rupees; while the want of grain during the recent scarcity was more severely felt in this neighbourhood and along the sea-board to the south than anywhere else in the district.

Extract from Minutes of Consultation, No. 116, dated 25th January 1856, Public Works Department.

Calculating that 4,500 acres of irrigable waste and dry land might have been converted into single crop, that 3,000 acres of single crop might have been converted into double crop, and that each acre might have produced 20 Cullums of grain, this gives 15 lacs of Cullums of the gross produce. 15 lacs of Cullums at 12 Annas a Cullum, (or one Anna a measure for cleaned rice,) are worth 11¼ lacs of Rupees. Taking one-third as the Government share of the produce, the Government have lost 3¾ lacs, and the royts 7½ lacs, by the non-execution of this work ten years ago.

2. There is no anicut lower than Marudur, nine miles above Streevycuntam, and 27 miles from the sea, and during both the south-west and north-east monsoons, an enormous body of water flows over the Marudur anicut, and is entirely lost to the district.

3. Comparatively speaking the Tambrapurny is a better river than the Cauvery; the freshes are far more frequent, but instead of being utilized to the last drop, as is the case in the Cauvery, there is no anicut in the Tambrapurny for the last 27 miles of its course, and millions of cubic yards of water are allowed to flow out to the sea. The people are so impressed with the advantage of the work proposed, and are so anxious that it should be sanctioned before the revision of assessment, and the registry of lands at the settlement, that they have subscribed and paid into the Treasury 20,000 Rupees as a donation towards the work, and as an inducement to Government, to accord their sanction at once.

4. We are just now peculiarly well situated for commencing a work of this sort. The fort at Palamcottah has been recently dismantled, and allowing a large margin for works in the neighbourhood, there are 25,000 cut stones that I should be only too glad to see moved. The money subscribed is sufficient to cart these to Streevycuntam, and if the Government will advance a like sum now, and accord a general sanction for the work when it has been properly budgetted for, I might at once collect supplies and assist the Engineer greatly in getting the channels laid out. These channels will pass through a series of villages where the Pullers, a low class of labourers, enjoy "Puller Maniyam" for the performance of Maramut work; and if the channels are dug, as they must be at the dry season when the Pullers have nothing to do, each village will gladly contribute 200 or 300 men to work at much lower rates than those paid for labour during the cultivating season.

5. Cheap labour, the free gift of stone, and the free cartage of stone to the work, will save the Government at least half a lac of Rupees.

6. The Superintending Engineer is now revising the original estimate to suit the altered prices of to-day, and I am not aware of the aggregate cost proposed; but whatever the cost may be, the return will amount to about a lac of Rupees per annum, as explained in the following extract from my letter to the Engineer:—

24th April 1867, No. 95.

"I have been over most of the villages likely to be affected by the Streevy-
"cuntam anicut, and have seen the enormous benefits likely to be conferred by the
"work; between Streevycuntam and the sea, a distance of twenty miles, the crops
"are now on the ground (at the end of April), and are not reaped till May, instead
"of in February, as is the case higher up the stream. The tanks from which these
"lands are irrigated receive their supply from the overflow of other tanks supplied
"from the Maradur anicut, some ten miles above Streevycuntam, and many good
"freshes come and go before the lower tanks receive a drop of water; in fact, the
"cultivating season far down the river is three months later than it need be, and
"the remissions made for failure of crops below the proposed anicut during the
"last ten years amount to upwards of a lac of Rupees. The proposed anicut will
"bring under cultivation 1,500 acres of nunjei waste, assessed at 7,500 Rupees,
"will convert 3,000 acres of single crop
"land into double crop, which at 2½
"Rs. an acre represents 7,500 Rupees,
"and will irrigate 3,000 acres of dry
"land, which at 5 Rupees an acre, represents 15,000 Rupees; total 30,000.

These are the rates that would probably be imposed at the settlement; the existing rates are very much higher.

"There is moreover a tract of marsh extending from Kulasegarapatnam to
"Vypar almost entirely uncultivated, but capable of growing rice crops if supplied
"with fresh water to wash out the salt.

"I have lately ridden over the whole length of this with the Inspector General
"of Police, and we both agreed that this barren tract, some forty miles in length,
"by an average of one in breadth, might be irrigated apparently with the greatest
"ease. The level is low, almost the sea level, and if the flood water that collects
"there during the monsoon had but an exit through the sand hills, this alone would
"wash out the salt. An exit is easily provided, and here are 25,000 acres that the
"people would readily take up at 3 Rupees an acre, lying waste from want of the
"water that fills the river day after day and week after week during the several
"months of the year."

7. It is not by irrigating fresh land only that the Government and the ryots will profit; the lands now poorly irrigated from the surplus of the Marudur anicut will receive an bundant supply direct; the harvest will be some months earlier, and the annual settlement may be early in proportion; the kists will be paid with greater promptitude, and should the irrigation extend as far as proposed and bring fresh water to Tuticorin, the aspect of the country will be changed, and the condition of the people in our most important sea-port town will be very greatly improved.

Fresh water is now sold in Tuticorin at 4 pies per chatty full.

8. The enclosed plan exhibits the general direction of the channels, and the area proposed to be irrigated; but I think this area may be greatly extended,

particularly if the channel from the Marudur anicut on the northern bank of the river after having passed through the Streevycuntam and Perur tanks is relieved from supplying the Sevali, Perungulam, Arumugamangalam, Iruvapapuram and Korkei tanks as it does at present, and is taken away from Perur on a high level to irrigate the whole of the sandy waste that stretches for miles round Tuticorin. The feasibility of this can, however, only be determined by levelling, and I would suggest that an Officer be at once deputed to take the requisite levels.

Enclosure No. 1.—Sketch.

1. The Board are much obliged to Mr. Puckle for bringing forward the very important work to which he refers in the foregoing letter, and they resolve to submit the matter to Government, with their recommendation that, if possible, a grant of funds for the early prosecution of the work be sanctioned, or that, at any rate, authority be given for the expenditure of the sum subscribed by the ryots likely to benefit by the project.

2. It is quite evident that the anicut with its subsidiary channels will be a remunerative work, but the Board request Mr. Puckle to forward a rough estimate of the probable cost as soon as possible, with a statement giving the area of the dry and wet land likely to be affected by the work.

3. The liberality of the ryots in raising so large a subscription for the prosecution of the work merits the commendation of Government, and evinces their confidence in the project.

No. 200.

Order thereon, 11th September 1867, No. 2,143.

Irrigation, No. 8.

Transferred to the Department Public Works, with the opinion of Government in this Department that as the project has been already approved, as well devised and feasible, and promises to be very beneficial to the people and sufficiently remunerative, the equivalent of the sum subscribed by the ryots towards its execution should be at once placed at the disposal of the Superintending Engineer to enable him to start the work, and no effort should be spared to expedite its completion.

(True Extract.)

Secretary to Government.

To the Public Works Department.
" the Board of Revenue.

Ed. S. T. Augustin.

C. 16th Septr 1867 Ar.

Pay 1867 Depts
Pay: of Govts for Septr
A 34/6

Pay: of the Assistant Govt
Revenue Depts

Dy 11 "
Ens 13 - 3 Sept 67
No 2143

Encl Mem: giving
Returns Statistics &c

Transferring, with
remarks, Pay: of the Board
& Rev: giving Cover to a
letter from the Collector
of Jaunpoorly on the Sub-
"ject of the Slavery question
ancient Project.

No 2987-25 Septr 1867

Qr 626
Jan 1864 to 16

Memorandum.

~~For orders~~

A project, estimated to cost Rs: 3,85,000, for the construction of an Anicut across the Tambraparney river in the Tinnevelly District with two main channels, designed both for irrigation and navigation, to be taken from either flank to the port of Tuticorin on the north and Colasagarapatnum on the South respectively, and with branch channels for the supply of numerous Tanks, was matured by Colonel Kosley when Civil Engineer of the 8th Division, and received the approval of Government in Extract Minutes of Consultation No 116 of the 25th January 1856.

An assignment of funds was made for the commencement of the work in the year 1862, but was subsequently withdrawn as it was represented that in consequence of the long interval which had elapsed since the preparation of the estimates, and

the

the great rise which had taken place in prices, some time would be occupied in a careful reconsideration and revision of them. The re-investigation of the scheme has at length been made by Captain Prendergast, and the result is now laid before Government in the accompanying papers.

The project, as now submitted, is identical with that prepared in 1855 by Col: Horsley, except in so far as it excludes all provision for making the main Channels navigable. Its cost, however, is now estimated at Rupees 7,50,000, or nearly three times the amount which would have been required under the former estimate for carrying out the project as one of irrigation only. + Rs: 2,85,000

The Sambrapoorney, rising in the mountains dividing Tinnevelly and Travancore, is fed by both monsoons, and is stated to receive near its source an annual rainfall of nearly 300 inches, while at Palamcottah in the plains the average rainfall during the 10 years from 1857 to 1866 has been registered as 28½ inches. After a course of 23 miles through hills and forests, the Sambrapoorney is crossed by the first of seven anicuts, and the last of these is at Murdoor. The area drained by the Sambrapoorney above the Murdoor Anicut is given at 870 Square miles. The distance of that anicut from the sea is 29 miles and the fall 99¼ feet. and the site of the proposed Anicut is 12 miles below Murdoor, and the fall thence to the sea is 32 feet. As, with so many Anicuts across the Sambrapoorney, and the last of these at Murdoor only 12 miles above the site of the proposed new dam, it might be supposed that little water would reach the latter site for the supply of Channels to irrigate any considerable extent of land, the Supg: Engineer has been at some pains to show that the quantity of water flowing down the river has been ascertained to be 2110 Cubic Yards per

Second

second at the Boardoor Anicut, and that as only 120 cubic yards per second are drawn off there by the channels right and left, —·—·— no less than 1990 cubic yards per second are available.

This work, carefully designed by Col: Horsley after many years acquaintance with the District, is of a thoroughly practicable and useful character, and had it been carried out when first projected, it would unquestionably have been remunerative to the State, but prices having so much changed since that date as necessarily to raise the probable cost of the work from 2,85,000 Rs which it would have been ten years ago to 7,50,000 Rs which it will be now, and, meanwhile, a change in the system of assessment which precludes the imposition of a water rate, having been determined upon, it appears to the undersigned more than doubtful whether the undertaking, however advantageous it may be to the people, is one which it will be to the interest of the Government to take in hand.

The Statement of returns likely to be derived shows that all that can be certainly reckoned upon from the scheme as now sent up, is 30,000 Rupees, from 4500 acres of new cultivation and 3000 acres of second crop, the former assessed at 5 Rupees; and the latter at Rs: 2-8, to which may be added 10,000 Rs: by savings on remissions, giving a total return on 7½ lacs of only 5⅓ per cent, not deducting anything for maintenance or repairs. If the channels be extended at an additional cost of a lac of Rupees, it is possible that the returns may be increased by Rs: 75,000 from the cultivation of some 25,000 acres of waste land situated in large tracts of salt swamp, which it is believed may be drained, and after thorough irrigation by fresh water, may be made capable of producing crops. In the latter case, taking the expenditure at 8½ lacs and supposing the salt swamps cultivable and that the Maniachy Zemindar uses the water, the returns may be raised to Rs: 1,23,100 or nearly 14½ per cent, even from the low Punjah assessment proposed by the Collector.

The

2. 16th Sept 1867 Ch. 10

The circumstances of this work are not similar to those in Trichinopoly where it was ruled that the imposition of a water rate was not expedient. This, as an entirely new work, appears to be one which should be treated exceptionally in accordance with the orders of the Secretary of State noted in the margin, ruling that the plan of a separate water rate district from the land assessment should be adopted in all cases in which it might be found practicable. If this were done, the returns on the scheme estimated to cost Rs: 7.50,000 would be about 6 per cent, as follows:— 30th March 1863. No 19

1500 acres of waste kunjah, which being brought into cultivation solely by the Anicut might have its whole assessment (that is its assessment as dry and a water rate) fixed at Rs: 8 per acre credited to the Anicut	12,000
3000 acres of Dry @ a water rate of Rs: 4 per acre	12,000
3000 Do. second crop @ a water rate of 3 Rupees	9,000
Remissions land &c. averaging	10,000
Rs: 43,000	

If by extending the channels, 25,000 acres of waste might be brought into cultivation, and the work be credited with the total amount of assessment upon these

@ 5 Rupees per acre inclusive of a water rate, an additional Rs: 1,25,000 may be calculated upon making the total returns Rs: 1,68,000 or nearly 20 per cent on an expenditure of 8½ lacs.

Under these circumstances, it appears that the scheme can only be considered as likely to be remunerative if the channels be extended and a water rate imposed. In fact, the scheme, as submitted without estimates for the extension of the channel, is not complete, and the undersigned is of opinion that it should be returned to the Superintending Engineer for recistribmission with the estimates framed to provide for the necessary extension of the channels and all requisite works to give the fullest possible development to irrigation from the Tambraparney.

The money which has been subscribed towards the work by the people, and the assistance which they are prepared to afford to it, clearly indicate its advantages, but will not materially affect its unfavorable character as a reproductive work to the State.

Fort St George
Sept 16 73

Col: R.
Secretary to Govt.

P.S.

2. 16th Sept 1867 A: 10

P. S. Since the above was written the accompanying order in the Revenue Department No. 2143 dated 11th Instant has been received.

There can be no doubt of the propriety of making a beginning of the work even though the complete project be only 5/5 o/o. and a commencement might be authorized by limiting the sluices now available at Palamcotta to the size of the anicut proper when built. For then the 20000 Rs subscribed can have only to be used.

I would therefore request the Govt: Engineer to complete the Estimates in the manner suggested in the penultimate para of the Secy's Memo: and meanwhile would procure the opinion of the Board of Revenue on the point whether the present cost work under this plan of charging a separate water rate in lieu of the present land assessment may be applied.

W.D.L

e 16th Septr 1786 } Pd. 16th

47

2987

Public Works Department.

No 2987

PROCEEDINGS of the MADRAS GOVERNMENT.

Under date the 25th Sept: /67

Read the following

From The Supt Engineer 8th Dn / A.E. No 976 Dated 16th Augt /67

Pro. Mt. Govt Revenue Dept (Here enter No. 2143 dated 11th Sept: /67

A project, estimated to cost Rs 385,000, for the Construction of an Anicut across the Tambraparny River in the Tinnevelly District with two main channels designed both for irrigation and navigation, to be taken from either flank to the head of Intervening Island on the north and Calavaga-pathiriven on the south respectively, and with branch channels for the supply of numerous tanks, was matured by Col: Stanley when Civil Engineer of the 8th Dn, and received the approval of Govt in Con: No 116 of

the 25th January 56.

An assignment of funds was made for the Commencement of the work in the year 1852, but was subsequently withdrawn as it was represented that in Consequence of the long interval which had elapsed since the preparation of the estimates and the great rise which had taken place in prices, some time would be occupied in a careful reconsideration & revision of them. The investigation of the scheme has at length been made by Capt.n Prendergast, and the result is now laid before Government in the papers read at the head of these Proceedings.

The project, as now submitted is identical with that prepared in 1855 by Col. Dorsey, except in so far as it excludes all provision for making the main channels

navigable. Its Cost, however, is now estimated at Rs. 7,50,000 nearly three times the amount which would have been required under the former estimate for Carrying out the project as one of irrigation only.

× Rs 2,85,300

The returns likely to be derived are estimated by the Collector at 30,000 Rs. from 4500 acres of new cultivation and 300 acres of second crop, the former rated at 5 Rs, and the latter at Rs. 2. 8. To which is added Rs 10,000 by savings on temporary giving a total return on 7½ lacs of 5½ per Cent., not deducting anything for management or repairs. If the channels be extended at an additional Cost of a lac of Rupees the Collector considers that the returns may be increased by Rs 75,000 from the cultivation of 2500 acres of waste land

situated in large tracts of salt swamps, which ah is believed may be drained, and after thorough irrigation by fresh water, may be made capable of producing crops. In the latter case, taking the expenditure at 8/2 lacs and supposing the salt swamps cultivable, and that the Maniachy Zemindar owns the waters, the Returns may be viewed to be Rs 123,100 or nearly 14/2 per Cent exclusive from the low municipal assessment proposed by the Collector.

The project is further stated to commend itself as one which will be the means of introducing into the town of Pulicatt a supply of fresh water, the want of which is now felt throughout the year; and the people are reported to be so impressed with the advantages of the undertaking that the

P. W. 186 . Department.

No.

PROCEEDINGS OF GOVERNMENT.

Dated

had subscribed and paid into the Treasury 20,000 Rs as a donation towards its estimated Cost.

On the grounds thus urged, the Government are satisfied that the scheme will be highly beneficial; but as in its present form it is incomplete, they resolve to return it to the Superintending Engineer for resubmission with the estimates framed to provide for the necessary extension of the channels and all requisite works to give the fullest possible development to irrigation from the Tambraparney.

In the meantime, while, as there can be no doubt of the propriety of making a Commencement of the work, the Governor in Council authorizes the appropriation of the amount subscribed towards Casting the stone of the dismantled Fort at Palamcottah to the site of the proposed Anicut.

The amended project

now called for should be sub-
mitted through the Board of
Revenue, who will, when forward-
ing it to Govt, report whether
the work in question is not one
to which the principle of charging
a separate water rate in addition
to the ~~present~~ land assessment,
may with propriety be applied,
and if so, to what extent the
returns on the scheme will probably
be affected.—

P. W. 186 . Department.

No.

PROCEEDINGS OF GOVERNMENT.

Dated

* See orders of Secretary of State in G.O. 10 Jan 1863. No 1056 Rev dept.

Ans Map & Plan with Fine plans
" G of Revenue
" Board
Collector " Coll 26/11/63

Ryotwar for September
Coll 2987
Public Works Dept
Sept September 1863

* Passing orders on certain papers relative to the proposed construction of a Tank across the Tambraparny River in the Tinnevelly District