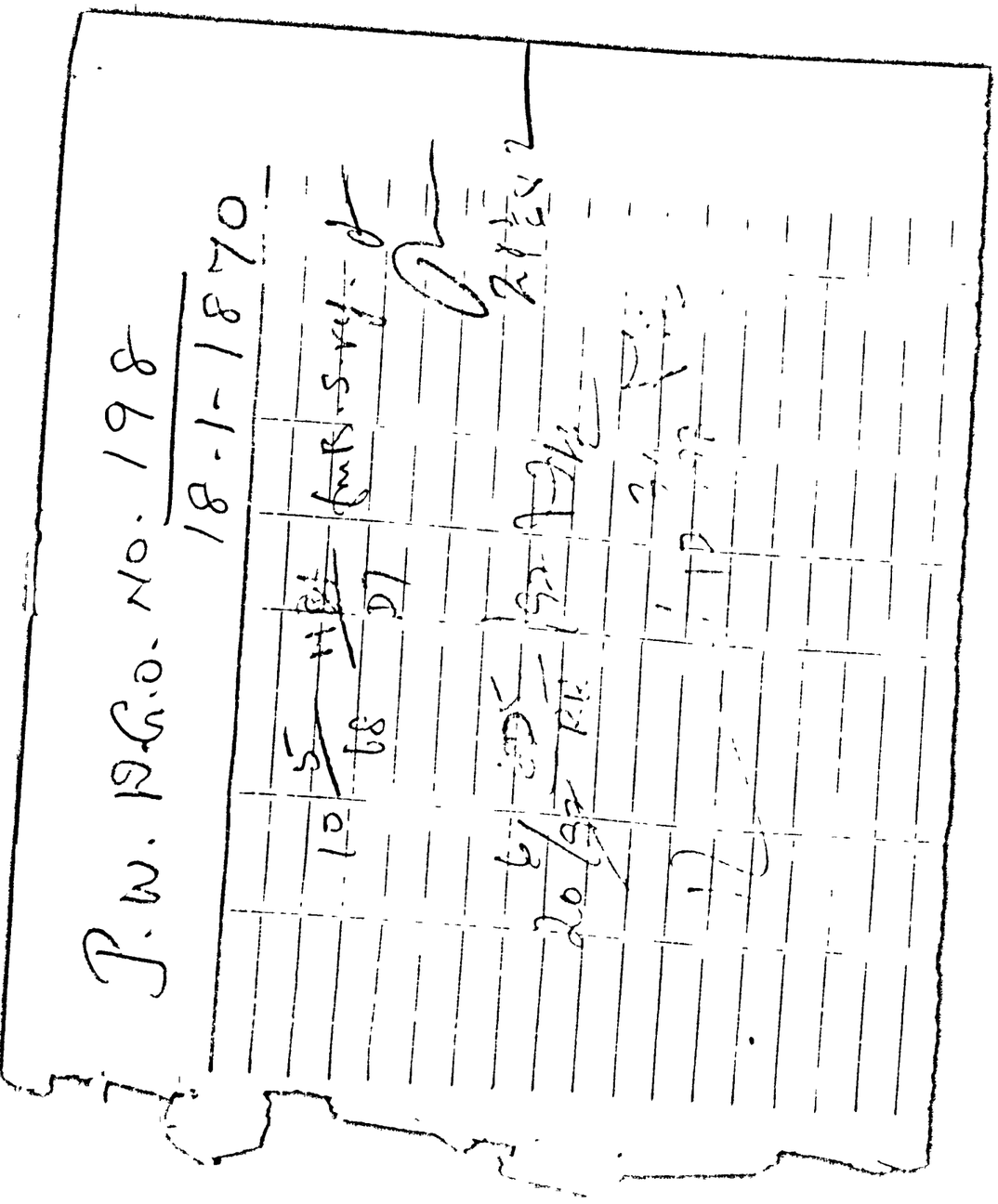


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No 380. Read the following —

No 311.

NOTE *by the Acting Chief Engineer for Irrigation on the Streeiiguntum Anicut Works.*

I VISITED these works at the beginning of November, and, on my arrival, the Tambrapoorney was very low, and I had, therefore, a favourable opportunity of inspecting the anicut. A day or two later there was a fresh, which rose to 17½ feet on the Palamcottah bridge gauge, and this unfortunately prevented my crossing to the north side after I had spent a couple of days on the southern channels

11 feet 3 inches on south head-sluice sill

2 The full height of the anicut will be 6 feet. On the south side, near the under-sluices, one or two of the coping stones have been fixed, and the rest of the weir wall, for a length of 750 feet, varied in height from 5 feet 3 inches near the wing, to 1 foot 3 inches at the outer end. The cut-stone apron had been completed for the same length, and of the rough-stone apron beyond about three-fourths had been done Only a few feet of the retaining wall to this latter apron had been put down, when the work was stopped by the freshes.

State of anicut and head works

Beyond this work, in the centre of the river, for a length of 386 feet, the only work done is the lower 3 feet of the body wall and of the retaining wall for the lower edge of the cut-stone apron. So far as the Executive Engineer could judge, this part of the work had not suffered any damage, but the arrangement was certainly not a prudent one Between the two walls there will be a mass of brick-work to support the cut-stone apron, and it would have been much better had the southern end of the anicut been left low until this work had been completed to the same level as the present tops of the walls referred to. this masonry should likewise have been protected by rough stone at least half the full width of the outer apron, and a couple of feet deep. In constructing anicuts it is of much importance to keep the work throughout as nearly as possible at the same level, and the only exception in this case should have been the part from the outside of the under-sluices to the wings, which might have been raised to provide an abutment for a ring bund to turn the water, when small in quantity, through the under-sluices. The proper course, therefore, would have been to complete the work from bank to bank, by convenient lengths, to the level of the sill of the under-sluices, there-after to raise the piers and abutments of these and the body wall between them and the wings to the full height, so as to discharge water through the sluices; and next to raise the body wall throughout foot by foot, taking care at the same time that the outer rough-stone apron made proportionate progress It is very probable that, had this plan been followed, the anicut works would not have got on quite as fast as they have done; but the risk of damage would have been reduced, and no part would have been subjected to undue strain.

3. On the north side of the river the foundations of the body wall and of the retaining wall at end of cut-stone apron have been completed, as also this apron, with the exception of about 100 feet of the covering stones. The length of this portion is 250 feet.

4. The anicut plan does not provide any apron on the upper side of the under-sluices. There should generally be at least a few feet of cut-stone apron

with rough stone beyond, but, as masonry could not now be conveniently added, it will suffice to place a rough-stone apron 15 feet wide and 1 yard in depth Moreover, there is at present nothing to prevent injury from the current along the face of the body wall of the weir, which must inevitably be caused by the draught of the under-sluices. A rough stone groyne 50 feet long and 4 feet high at its junction with the anicut (*i e.*, with top 2 feet below crest) and with its nose level with the under-sluice sill should be run out from the third pier from either end, at equal intervals between these long groynes, three small groynes, 15 feet in length, and with their tops, at the junction with the anicut, 2 feet below its crest, will likewise be required

The rough-stone apron below that of cut stone should not be terminated as shown in the plan; but should be carried along the face of the rear wing returns, and the river bank here should be pitched. Such modifications of the estimate as may be required to carry out these alterations should be duly reported, and it should be stated if their cost can be met from savings elsewhere.

5. The south head-sluice is finished up to the string course. It has still to be raised 7 feet to carry the roadway for the bridge approaches; but this work will be chargeable to Local Funds, from which the bridge is to be built

6 The north wing and head sluice have not been commenced, and the latter can, therefore, be enlarged in accordance with the views expressed by the Govern-

G O, No 2,004, dated 21st June 1869.

ment of India in their letter, No. 160-I., dated 4th June 1869.

7. The masonry work at the anicut is very good. Much pains have been taken in obtaining good bricks, and the stone facings have been well and carefully executed.

8. *River Embankments and Bed*—These require attention. The level of the embankments varies much, and, whatever may be the proper height, should be given everywhere and maintained. The river is also requires regulation there is a cut against the south bank about a mile below the anicut, which has cut away all the padugay and nearly all the artificial embankment. Sand planting and temporary groynes will rectify this if the sand on the north side of the deep channel be rooted up. Nanal should not be allowed to spring up and propagate in the proper bed of the river: this grass is an admirable resistant when properly used, but it sometimes occasions much mischief if not confined to the places where its presence is advantageous. In the Cauvery it is considered necessary to watch this grass constantly and the same course should be followed in the Tambraparney The necessary work to river and embankments will be carried out from repair funds, but it may properly be executed by the Anicut Officers, who should make a survey of the whole of the river, from some miles above to the anicut to the sea, plotting on a large scale, show upon it the proposed arrangements, and afterwards the effect of the which may be carried out

9. *South Main Channel.*—The sand of the west at the head has to be picked the bed for a length of 300 feet should have a stoner, or the outer, protection all sand, and it would cut out and bring down the slopes were it not protected.

The earth works on this side of the river have been pushed on vigorously, but the importance of finishing up work mile by mile had been overlooked The Executive Engineer's attention has been called to this point, and he has been instructed to allow no new work to be undertaken until the old shall have been properly and fully completed. The spoil banks require to be brought to the correct alignment, the berms must be cleared and sloped away from the channel, a bridle-path is required all along, either on the berm or on the spoil bank, all obstructions in the channel bed should be completely removed, the banks should be brought to at least the minimum height above full supply level everywhere, and changes of height due to superfluous soil from cuttings should be laid out with regularity Want of attention to these points had resulted in a breach in the left bank about the second mile, occasioned much guttering of the slopes and the washdown of soil into the channel, and rendered riding along the channel difficult at all times, and impracticable in wet weather The District Road to Trichendore is nowhere at any great distance from the channel, but, for purposes of inspection, it is quite useless All the channels require to be inspected periodically, and, in order that this may be done with facility and without occasioning loss of time, it is essential that a good bridle-path should be formed and maintained along one of the banks. I mention this particularly because the Government of India, in sanctioning the estimate, called attention to this point, and the reply of the Superintending Engineer was that the road close at hand was all that was required; and so it is as far as cart traffic is concerned, but not as regards the requirements of the department in charge of the channels.

10 At the west end of Alwar Tinnevelly there was a bridge over the old channel which is being demolished, and the estimate does not provide for a new bridge at this point, or for any bridge for this large town, which extends along the left bank of the channel for more than a mile. It will be necessary to give a bridge of nine or ten-feet roadway, either at the old site or at any place which may be generally more convenient, and the Executive Engineer has promised to consult the Tahsildar on this point At the east end of the town on the right bank there is a Mussulman settlement, and these people clamour loudly for a bridge for their special use On the left bank close to the canal a cross road runs to a bridge which has been nearly completed half a mile lower down It is a pity, I think, that the crossing was not made close to the town, where it would have been much more useful Apparently this was not done because a strip of paddy would have had to be taken up for the road. As it is, a path must be made on the right bank from the Mussulman village to the bridge, and with this the Mussulmen must now, I am afraid, be content. A mile lower down is the Trikalore Bridge of three arches, which is complete with the exception of the approaches. The cartage of materials to the bridge has cut several inches into the crown of a small tunnel, which had been left bare This should not have been allowed the tunnel is not connected with the anicut works, but it should none the less have been taken care of and protected, and its repair should now be carried out by the Executive Engineer.

11. The Ahtoor sluice for the supply of the northern branch has the masonry finished. the channel is well advanced, but is not ready for the admission of water.

12. A little lower down is the sluice for the supply of the Kadamba tank: it is complete, but not yet brought into use. Close alongside there is an old regulating calingulah which was to have been removed, and just south of this was to have been the head sluice of the south branch channel, for the supply of the Ammapuram tank and the south-eastern part of the cultivation. This channel was to have contoured the waterspread of the tank, and to have passed out of its basin at a small calingulah at the south-east corner. It has been found, however, that the soil, which closely approximates to that of the red sand hills close by, is so bad that it would be difficult, if not impracticable, to cut and maintain a channel on this line, and the only alternative is to carry the supply for this cultivation through the tank. To this the villagers interested in the Kadamba tank not unnaturally objected, particularly as they found that it was proposed to place the sill of the

* i.e., 9 feet below datum

arrangement would have been to interfere off take sluice at—9* or 8 feet below the of which are—9, 9, 13, 7, and 9 I insp full tank level, the effect of which channel would have had to be taken, and greatly with all the tank sluices, the levels the subject They admitted that the ct cted the ground over which the sanctioned efficient, and it was then decided that th heard all that the villagers had to say on should be placed at—6·50, which will nnel above the tank could not be made being supplied before any water is dra sill of the off take sluice from the tank that sluice also will get a supply with bu llow of all the tank sluices, except one, sluice will be but slight until the water n off for the Ammapuram Channel, and level tank sluice. With this arrangeme little delay, as the draught at the off take Should any inconvenience be experienc as risen sufficiently to command the high after one season's experience it may be l t the villagers appeared to be satisfied. of the off-take sluice have been settled a d by the cultivators under the—7 sluice, 6 feet; No 4, area of water-way, 108 s wered a couple of feet. The dimensions 128 square feet; head required for full follow: height of vents, 4½ feet; width, 12 inches. The alteration of arrangem ure feet; area of waterway of channel, of expense. The regulating calingulah t supply, 4½ inches; head with full tank, been referred to, should be retained and ents will result in a considerable saving new supply-sluice, to pass the quantity t the west of the tank, which has already east branch channel. mproved, so as, with the Kadamba tank equired for both the tank and the south-

13. The Kadamba tank bund appe rs to be capable of holding a full supply, but it is not by any means in proper or der. The nanel on the inner slope has been very much injured by cattle. Whe rever along this slope this grass can be got to grow, a belt of it, 30 feet wide sh uld be maintained. it will cost but little, and be even more efficient than a rev tment, which latter would also be very expensive. One of the sluices of this tank is in need of immediate attention, part of the tunnel having apparently given way.

14. At Tentaraparee there is a bridge over the Ahtoor Channel on the Trichendore road, and a similar one at the east end of the village. They have each two vents of 4 feet each, the bottom width of the channel being 12 feet and the mean width 21 feet These bridges should have had at least two vents of 9 feet each or the equivalent, and there was no reason for contracting the waterway except perhaps a slight saving in first cost of the bridges, which is likely to lead to much excess of cost in the long run. A little below the lower of these bridges there is an aqueduct over the old Ahtoor Channel, and this has three vents of 4 feet, three of 8 feet would have been none too much waterway the wings also are not long enough, and not sufficiently splayed to make a proper junction with the banks. Care should be taken not to construct any more works with contracted waterway unless special causes exist for such an arrangement

15. It was intended to close the old Ahtoor head-sluice, but it may with advantage be retained as proposed by the Superintending Engineer, as it appears to obtain an excellent supply from the river It would be better were its shutters worked under proper regulation.

16 The Tentaraparee sluice on the river bank is a fine work built in 1848 It will be superseded by the anicut channels, but it should be merely closed by a brick-in-chunam wall, so as to be made readily available at any future time if wanted. The lower river wing is standing quite out from the bank it should be filled in in rear and planted up with nanel, and the line of the river bank here may be improved.

17. The Brahmins of Tentaraparee are very anxious to have another bridge built across the Ahtoor Channel at the point where this intersects the path across the sand hills from the pagoda to the river bank There are already two bridges, neither of them more than a few minutes' walk from the pagoda, and that on the Trichendore road is also close to the river bank. I informed them, therefore, that, if the bridge were built at all, it would be at their expense, and in the end they said they would subscribe the money (about 1,000 rupees), and they were told that the amount should be forwarded to the Executive Engineer through the Collector This appeared to be necessary, as the Shanars on the opposite bank were as much opposed to the bridge as the Brahmins were desirous of having it, though, as the path is an old one across land covered with sand drift, and as it is, notwithstanding the channel, still in use, I could not see any valid ground of objection to the construction of a bridge at the cost of those wishing to have one.

18. The Executive Engineer should at an early date prepare and submit through the Superintending Engineer a revised estimate showing all the modifications and alterations of the works found necessary up to date. The saving on the main and south-east branch channels will probably more than cover excess on other items.

19. Major Payne's investigations are connected with the Tambrapoorney; and, as I had an opportunity of discussing the subject with him, a few remarks on the work to be done may properly be appended to this report. This officer has run levels along the Tambrapoorney from Streeviguntum to Papanassum, and it will be well to use mean sea-level as the datum for all the levels in the Tinnevelly District, as their connexion and relation will then be the more readily understood. He has also been engaged in compiling a general map of the Tambrapoorney irrigation, showing all the channels, nunjah lands, etc. The Revenue Survey maps have greatly facilitated this work, and it will shortly be completed At present the first thing to be done is to establish water registers, in order to ascertain both the

supply received by every existing channel and the quantity passed on at each anicut as surplus The circumstances to be dealt with in seeking to improve and extend the irrigation under this river will then be known It is necessary also to find out what will be the proper proportion of storage in connexion with each anicut This is an important point, as, upon the sufficiency of the tanks to supplement the supply in the channels when the river is low, will depend the security of the cultivation It will be found that the proportion of storage requisite will be comparatively small in connexion with the channels under the first anicut, and that further to the eastward a much larger storage will be necessary. It should be ascertained as early as may be practicable what facilities, if any, for the construction of reservoirs on the upper part of the Tambrapoorney and its feeders exist, as it may be more economical to store among the hills than in the plains. This point must be first settled, because upon it depends the general course of the work to be done in the low country. If water be stored in the hills the river will convey it to the anicuts, existing channels will for the most part suffice for its distribution, and the existing tanks will not need enlargement. If, on the other hand, no reservoir sites should be found in the hills, the anicut channels will have to be enlarged to draw off more of the flood waters, and the tanks must be re arranged to hold the additional supply. Major Payne is well acquainted with the Tinnevelly District, and it is his opinion that the pring or ordinary supply of the river is insufficient for the channels and cultivation as now existing, and that upon the utilization of more or less of the flood waters must depend the carrying out of either any radical improvements or extension of cultivation. The freshes are of very short duration, as might be expected from the short length and small area of the catchment basin of the river. Some of the existing channels are likewise very long; the tanks are many of them surrounded by valuable cultivation, so that altogether the conditions are not very favourable unless water can be stored in the hills, and then, indeed, the problem will be comparatively simple. Doubtless the old works may be improved. Head-sluices to the main channels are very necessary, and should certainly be provided. The extreme crookedness of some parts of the channels may be corrected; the cross section and fall may be adapted to the demands upon the several parts of the channels; the arrangements by which drainages are received and disposed of may be rendered more efficient Some of the tanks may be enlarged, and it may be possible to give them an improved supply by short new channels from the river to draw off flood waters, for at present many of these tanks are very inadequately supplied

20 The restoration of the ruined tank of Siviliperi, one of the works allocated by Mr. Puckle, and its supply from the Chittaur, may be taken up at any time when the season for work near the hills is at an end Its importance is secondary to that of the Tambrapoorney irrigation, and, moreover, as the Chittaur water falls into the Tambrapoorney, it will be necessary to ascertain very fully what effect the construction of a dam across this tributary would have upon the large area of irrigation to be supplied by the Streeviguntum Anicut Flood waters are extremely abundant in this part of the district, but so the ordinary supply; and much caution will be needed in carrying out

Paragraph 2 of Collector's letter, printed with G O, No 305, dated 4th February 1869

projects which will make the demand on this limited supply still greater than it now is

FORT ST. GEORGE,
27th November 1869

(Signed) J. MULLINS, Major, R. E.,
Acting Chief Engineer for Irrigation.

To the Secretary to Government, Public Works Department

No. 381. ORDER THEREON, 18th January 1870, No. 198.

IRRIGATION, No 17.

COMMUNICATED to the Superintending Engineer of the 8th Division, for the information and guidance of the officers employed on the Streeviguntum Project and on the general investigations connected with the proposed improvement of irrigation under the Tambrapoorney.

(True Extract)

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

To the Superintending Engineer, 8th DIVISION.

Exd. A. S. Rodgers.

Note by the Acting Chief Engineer for Irrigation on the Struvegunnum Anicut works

I visited these works at the beginning of November and, on my arrival, the Tamprapoorney was very low, and I had therefore a favorable opportunity of inspecting the Anicut. A day or two later there was a freshet, which rose to 17½ feet on the Palamcotta bridge gauge, and this unfortunately prevented my crossing to the North side, after I had spent a couple of days in the Southern Channels.

11.3" on South Head sluice sill

State of Anicut and Head works

2. The full height of the Anicut will be 6 feet. On the South side, near the under sluices, six or ten of the coping stones have been fixed, & the rest of the weir wall, for a length of 750 feet, varied in height from 5.3 near the bund, to 1.3" at the outer end. The cutstone apron had been completed for the same length, & of the rough stone apron beyond about ¾ths had been done

done. Only a few feet of the retaining wall to the
latter apron had been put down before the work
was stopped by the floods

Beyond this work, in the centre of the river, for a
length of 386 feet, the only work done is the lower
3 feet of the body wall and of the retaining wall for
the lower edge of the cut stone apron. So far as the
Executive Engineer could judge, this part of the
work had not suffered any damage, but the
arrangement was certainly not a prudent one.
Between the two walls there will be a mass of
brickwork to support the cut stone apron, which
would have been much better had the Southern
end of the ancient breastwork been left, until this work
had been completed to the same levels as the
present tops of the walls reserved for this masonry
should likewise have been protected by rough stone
at least half the full width of the cut apron,
and a couple of feet deep. In constructing Anic-
cuts it is of much importance to keep the work

throughout

throughout as nearly as possible at the same level,
& the only exception in this case should have been
the part from the outside of the undersluices to
the wings which might have been raised to
provide an abutment for a puig bund to turn
the water, when small in quantity, through the
undersluices. The proper course therefore would
have been to complete the work from bank to
bank, by convenient lengths, to the level of the
sill of the undersluices; thereafter to raise the
piers and abutments of these and the body wall,
between them & the wings, to the full height, so
as to discharge water through the sluices, and next
to raise the body wall throughout foot by foot,
taking care at the same time that the outer rough
stone apron made proportionate progress. It is
very probable that had this plan been followed
the ancient works would not have got on quite
as fast as they have done, but the risk of da-
mage would have been reduced, & no part would

have

c. have been subjected to undue strain.

13. On the North side of the river the foundations of the body wall, and of the retaining wall at end of cut stone apron, have been completed, as also this apron with the exception of about 100 feet of the covering stones. The length of this portion is 250 feet.

14. The Annual plan does not provide any apron on the upper side of the undersluices. There should generally be at least a few feet of rock apron with rough stone beyond, but as unsound rock could not now be conveniently added, it will suffice to place a rough stone apron 15 feet wide and 1 yard in depth. Wherever there is at present protecting from the current along the face of the body wall of the weir, which must inevitably be caused by the draught of the undersluices. A rough stone groyne 50 feet long, 6 feet high at its junction with the Annual Apron (or with the 2 feet below crest) and with its nose level with the underwater sill, should be run out from the 3rd weir from either end; at equal intervals between these long groynes, 3 small groynes, 15 feet in length and with their tops, at the junction with the Annual, 2 feet below its crest, will likewise be required.

The rough stone apron below that of cut stone should not be terminated as shown in the plan, but should be carried along the face of the rear wing returns, & the river bank here should be pitched. Such modifications of the estimate as may be required to carry out these alterations should be duly reported and it should be stated if their cost can be met from savings elsewhere.

15. The South Head Sluice is finished up to the string course. It has still to be raised 7 feet to carry the roadway for the bridge approaches, but this work will be chargeable to Local Funds, from which the Bridge is to be built.

6

16. The North wing and Head sluice have not been commenced, and the latter can never be enlarged in accordance with the views expressed by the Government of India in their letter № 1601 G.O. № 2004 of 21st June 1869 dated 11th June 1869.

17. The masonry work at the Anicut is very good. Much pains have been taken in obtaining good bricks, and the stone facings have been well & carefully executed.

18. There require attention. The bed of the embankments varies much, & no hard line may be the proper Height should be given everywhere and maintained. The river bed also requires regulation; - there is a pet against the South bank about a mile below the Anicut, which has cut away all the padugay and nearly all the artificial embankment. Named planting and temporary groynes will rectify this, if the Nanel on the North side of the deep channel be rooted up. Nanel should not be allowed to spring up and propagate in

River embankments & bed.

the proper bed of the river. This grass is an admirable assistant when properly used, but it sometimes occasions much mischief if not confined to the places where its presence is advantageous. In the Cauvery it is considered necessary to watch this grass continually, and the same course should be followed in the Tambraparney. The necessary work to river embankments will be carried out from repair funds, but it may properly be executed by the Anicut officers, who should make a Survey of the whole of the river, from some miles above the Anicut to the sea, plot this on a large scale, show upon it the proposed arrangements, and afterwards the effect of those which may be carried out.

South Main Channel

19. The sides of this, near the head sluice, are pitched; the bed for a length of 300 feet should have a similar, or thinner, pitching. It is all sand, and it would be cut out and hung down the slopes where it not protected.

The earthworks on this side of the river have been finished in rigorous, but the importance of finishing

smoothing up work mile by mile had been overlooked; the Executive Engineer's attention has been called to this point, & he has been instructed to allow no new work to be undertaken until the old shall have been properly and fully completed. The spoil banks require to be brought to the correct alignment; the berms must be cleared & sloped away from the channel; a bridle path is required all along, either on the berm or on the spoil bank; all obstructions in the channel bed should be completely removed; the banks should be brought to at least the minimum height above full supply level everywhere, & changes of height due to superfluous soil from cuttings should be dealt with regularly. Want of attention to these points had resulted in a breach in the left bank about the 2nd mile; occasioned much guttering of the slopes & the wash down of soil into the channel; and rendered riding along the channel difficult at all times, & impracticable in wet weather.

The District road to Trichendore is ~~never~~ nowhere at any great distance from the channel line, for purposes of inspection, it is quite useless; all the channels require to be inspected periodically, & in order that this may be done with facility, and without occasioning loss of time, it is essential that a good bridle path should be formed & maintained along one of the banks. I mention this particularly, because the Government of India, in sanctioning the estimate, called attention to this point, & the reply of the Superintending Engineer that the road close at hand was ... was all that was required; & so it is as far as ... cart traffic is concerned, but not as regards the requirements of the Department in charge of the channels.

10. At the West end of Alwar Timmerelle there was a bridge over the old channel which is being demolished, and the estimate does not provide for a new bridge at this point, or for any

bridge

bridge for this large town, which extends along the left bank of the channel for more than a mile. It will be necessary to give a bridge of 9 or 10 feet roadway, either at the old site or at any place which may be generally more convenient & the Executive Engineer has promised to Consult the Tahsildar on this point. At the East end of the town on the right bank there is a Mussulman settlement & these people clamour loudly for a bridge for their special use. On the left bank close to the canal a cross road runs to a bridge which has been nearly completed half a mile lower down. It is a pity, I think, that the crossing was not made close to the town, where it would have been much more useful. Apparently this was not done because a slip of paddy would have had to be taken up for the road. Also it is a path must be made on the right bank from the Mussulman village to the bridge, & with this the Mussulmen must now

Dam afraid, be content. A mile lower down, is the Trichalore Bridge of 3 arches which is complete with the exception of the approaches. The cartage of materials to the bridge has cut the several inches into the crown of a small tunnel, which had been left bare. This should not have been allowed: the tunnel is not connected with the ancient works, but it should now & the less have been taken care of, and protected, & its repair should now be carried out by the Executive Engineer.

11. The outlet sluice for the supply of the Northern branch has the masonry finished, the channel is well advanced, but is not ready for the admission of water.

12. A little lower down is the sluice for the supply of the Madamba Tank: it is complete, but not yet brought into use. Close along side there is an old regulating Calingulah, which was to have been removed, & just South of this was the

Area of waterway of Channel 128 Square feet.
Head required for full supply 1 1/4 inches, Head
with Gull Tank 12 inches. The alteration of
arrangements will result in a considerable sav-
ing of expense: The regulating Caluguilah
at the West of the Tank, which has already
been refused to, should be retained & improved,
so as, with the Kadamba Tank new supply
sluice, to pass the quantity required for both the
Tank & the South East branch Channel.

13. The Kadamba Tank bund appears to
be capable of holding a full supply, but it is
not by any means in proper order. The bund
on the inner slope has been very much injured
by cattle. Wherever along this slope this grass
can be got to grow, a belt of it 30 feet wide
should be maintained: it will cost but little
& be even more efficient than a pavement, which
latter would also be very expensive. One of
the sluices of this Tank is in need of immediate
attention, part of the tunnel having apparently
given away.

14. At Tantaraparee there is a bridge
over the Aatoor channel on the Trichendore road,
& a similar one at the East end of the village.
They have each 2 vents of 4 feet each, the bottom
width of the channel being 12 feet & the mean
width 21 feet. These bridges should have had
at least 2 vents of 9 feet each, or the equivalent,
& there was no reason for contracting the water-
way except perhaps a slight saving in first
cost of the bridges, which is likely to lead to much
greater cost in the long run. A little below
the lower of these bridges there is an aqueduct
over the old Aatoor channel, & this has 3 vents of 6
4 feet, 3 of 8 feet would have been none too much
waterway. The wings also are not long enough, &
and not sufficiently splayed to make a proper
junction with the banks. Care should be taken
not to construct any more works with contracted
waterway

waterway, unless special causes exist for such an arrangement.

15. It was intended to close the old Clutterbuck-Head sluice, but it may with advantage be retained, as proposed by the Superintending Engineer, as it appears to obtain an excellent supply from the river. It would be better were its shutters worked under proper regulation

16. The Tentaripanee sluice on the river bank is a fine work built in 1848. It will be superseded by the finest channels, but it should be secured & closed by a brick masonry wall, so as to be made readily available at any future time if wanted. The lower river prong is silting quite up from the bank: it should be filled in, planted up with Babool, & the line of the river bank-here may be improved.

17. The Brahmins of Tentaripanee are very anxious to have another bridge built across the Outer channel at the point where the intersects the path across the sand hills from the Pagoda to the river bank. There are already two bridges, neither of them more than a few minutes walk from the Pagoda, & that on the Trichendore road is also close to the river bank. I informed them therefore, that, if the bridge were built at all, it would be at their expence, and in the end they said they would subscribe the money (about 1000 Rupees) and they were told that the amount should be forwarded to the Executive Engineer through the Collector: this appeared to be necessary as the Shanars on the opposite bank were as much opposed to the bridge as the Brahmins were desirous of having it, though, as the path is an old one across land covered with sand drift, and as it is, notwithstanding the channel, still in use, I could not see any valid ground of objection to the construction of a bridge at the cost of those wishing to have one

18.

18. The Executive Engineer should at an early date prepare & submit through the Superintending Engineer a revised estimate showing all the modifications & alterations of the works found necessary up to date. The saving on the Irani & South East branch channels will probably more than cover excess on other items.

19. Major Payne's investigations are connected with the Tambraparrany, & as I had an opportunity of discussing the subject with him, a few remarks on the work to be done may properly be appended to this report. This officer has run levels along the Tambraparrany from Shivigunnum to Papanassum; and it will be well to use mean sea level as the datum for all the levels in the Tinnevelly District, as their connection & relation will then be the more readily understood. He has also been engaged in compiling a general map of the Tambraparrany irrigation, showing all the channels, tunjah lands &c. The Revenue Survey maps have greatly facilitated this work, & it will shortly be completed. At present the first thing to be done is to establish gauges in order to ascertain both the supply received by every existing channel, & the quantity required on at each adjacent as surplus. The circumstances to be dealt with in seeking to improve & extend the irrigation under this river will then be known. It is necessary also to find out what will be the proper proportion of storage in connection with each channel. This is an important point as upon the sufficiency of the Tanks to supplement the supply in the channels when the river is low will depend the security of the cultivation. It will be found that the proportion of storage required will be comparatively small in connection with the channels under the first annicut, & that further to the Eastward a much larger storage will be necessary. It should be ascertained, as early as may be practicable, what facilities, if any—

many. For the construction of reservoirs on the upper part of the Vaniviasserry and it feeders exist as it may be more economical to store among the hills than in the plains. This point must be first settled, because upon it depends the general course of the work to be done in the low country. If water be stored in the hills the river will convey it to the Anicuts, and existing channels will for the most part suffice for its distribution, & the existing Tanks will not need enlargement. If on the other hand no reservoir sites should be found in the hills, the anicut channels will have to be enlarged to draw off more of the flood waters; & the Tanks must be rearranged, to hold the additional supply. Major Payne is well acquainted with the Tinnevelly District, and it is his opinion that the spring & ordinary supply of the river is insufficient for the channels & cultivation as now existing, & that upon the utilization of more or less of the flood waters must depend the

the carrying out either of any radical improvements or extension of cultivation. The breaks are of very short duration, as might be expected from the short length & small area of the catchment basin of the river. Some of the existing channels are likewise very long; the Tanks are many of them surrounded by valuable cultivation, so that altogether the conditions are not very favorable, unless water can be stored in the hills, and then indeed the problem will be comparatively simple. Doubtless the old works may be improved; Head sluices to the main channels are very necessary and should certainly be provided; the extreme crookedness of some parts of the channels may be corrected; the cross section & fall may be adapted to the demands upon the several parts of the channels; the arrangements by which drainages are received and disposed of may be rendered more efficient. Some of the Tanks may be enlarged, and it may be

lie possible to give them an improved supply by what new channels from the river to draw the flood waters, for at present many of these Tanks are very inadequately supplied.

2. The restoration of the ruined tank of Sivilipevi, one of the works advocated by Mr Pickle, and its supply from the Shillaur may be taken up at any time when the season for work near the hills is at an end. Its importance is secondary to that of the Cambraporney irigation, & moreover, as the Shillaur water falls into the Cambraporney, it will be necessary to ascertain very fully what effect the construction of a dam across this tributary would have upon the large area of irigation to be supplied by the Shivigunduma Anicut. Flood waters are extremely abundant in this part of the District, not so the ordinary supply, and much caution will be needed in carrying

Para 2 of Collector's letter printed with G.O. of 365 of 15th Feb 69.

carrying out projects which will make the demand on the limited supply still greater than it now is.

Lt Col. S.t George
27th November 1869

Lt Col. Cumberlege Major R.E.
Acting Chief Engineer for Irigation

To

The Secretary to Government
P.W. Department

P.W. Dept.

No 198

Proceedings of the Madras Government.
Under date the 18th January 1870
Read the following:-

From the Ag: Chief Engr for Irrigation, No. 311 of 27th Nov 69

Communicated to the Superintg Engr of the 8th Circle for the information and guidance of the Officers employed on the Streevagoor, Cheyair Project and on the general investigations connected with the proposed improvement of irrigation under the Sanitary Commission

Ag S.

I should like to have a general map of these projects

Revd Dec 20

Revd Dec 21

Chief Engr for Irrigation

Dec 22/1/70. Two Copies furnished to the Hon: Mr. J. Arbuthnot.

Copy of Letter from Chief Engr for Irrigation
dated 27th November 1869
No 311

Submitting the Draft Enquiry for Irrigation
Sketch of the Chief Secretary to Govt
Dr. P.W.D.

Dated 23rd January 1870
Received 25th Idem
No 311

Note on the Streevagoor Project
Report dated 17th November 1869
No 198 - 18th January 1870

Copy 18th January 1870

Cue 5053

Govt. of (1869) Madras.

PUBLIC WORKS.

To

The Superintending Engineer
S.th Division

Dated

Rec.d

18th January 1870 No 198

Nos 350 - 381

Three volumes Annual Books.

Ltr Sey to the Chief Engr for Irrigation
on the Three Annual
Books in the Tinnevelly Dist.
& the Offrs concerned notes in
abstract.

2. November 1869 R 3101