M.R.O. 1—77,005—8-6-37.

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MADRAS RECORD OFFICE.

Government of Madras.

Public works **DEPARTMENT.**

G.O. No. 460, 461, 3033 Press / Mis.

Dated 19-12- 1872.

Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 19th December 1872.

No. 460. Read the following letter from the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Public Works Department, dated Dowlaishweram, 19th November 1872, No. 2,971 :—

1 Letter from Executive Engineer, Vizianagram Range, No. 104, dated 29th October 1872.
*1 Mr. Assistant Engineer G. J. Turner's remarks on the Assistant Agent's letter, to the Agent, regarding the Jeypore Ghaut Works.
*1 Mr. Surveyor Fletcher's account of his experiences on the Ghaut Works.
1 Copy of Proceedings of the Board of Revenue, No. 1,572, dated 13th August 1872.
1 Sketch Map.

* Despatched in two separate covers.

On my late visit to Waltair I inquired very fully of Mr. G. J. Turner, the Assistant Engineer lately employed on the Jeypore Ghaut, all about the works, and was surprised to learn from him that the route ordered by Government had been entirely changed, and he was unable to inform me on what authority. I have the honour to forward all the correspondence sent to me on this subject, in original, for consideration and orders, as the Board of Revenue have, in their Proceedings, No. 1,572, dated the 13th August 1872, advocated the work being transferred to this department, and before this is done I beg to place on record a brief history of the matter.

2. In G. O. of the 16th April 1869, No. 1,250, I was called upon to furnish a sketch map and general report on a proposal of Mr. Minchin's to connect the Jeypore District with Vizagapatam by the Pachipenta Ghaut, and in paragraph 2 of G. O. of the 2nd July 1869, No. 2,416, this route was ordered to be adopted. In the sketch map herewith sent, I have marked in red the line of existing road from Ramabaddrapoorum *via* Bobbili to Setanagram ; in thick dotted black lines the new approaches made, or making, to the ghaut adopted by the Assistant Agent, re-crossing most of the drainages already intersected by the first mentioned road, and which might have been connected with the ghaut directly as shown in yellow; and in burnt siena I have marked the route of the Pachipenta Ghaut, which I had instructed the Surveyor, Mr. Fletcher, to try and adopt, avoiding all the drainages about the foot of the hills by working through the saddle-back of a low-lying range of hills and then working round the head of the Pachipenta valley and so gain the pass leading to Jeypore at Soonkey Cottah, the route proposed by Mr. Minchin.

3. When Mr. Fletcher left this, I ordered him to send me regular surveys of the line as he progressed with it; this was never done, and, until my late visit to Waltair, I was quite ignorant of the change of route; in fact, the work was considered to belong entirely to the Assistant Agent, and I must, therefore, deprecate the Government holding me at all responsible in the matter ; for, had I been consulted, I would have at once put a stop to the proceedings until a proper survey or prospecting had been made; for the Ordnance Map, small as the scale is, clearly shows the route adopted should not have been taken unless it was impossible to go in any other direction.

See paragraph 30 of Mr. Turner's Report.

4. Mr. Turner, I regret to say, is unable to return to this duty by ill-health, and Mr. Fletcher has resigned ; I have ordered Mr. Brickwell to the survey, but it will be necessary to provide him with a Surveyor, and I beg, therefore, to solicit that Major Beatty be permitted to do so.

No. 461. ORDER THEREON, 19th December 1872, No. 3,033.

CIVIL WORKS, No. 22.

HIS Excellency the Governor in Council is not of opinion that the change of route involved by the Assistant Agent's endeavour to open a Ghaut Road by way of Potinghy and Tadivalsa, to Salur and Ramabaddrapooram, instead of improving the Pachipenta Ghaut, amounts to such entire and unauthorized change of a route sanctioned by Government, as Lieutenant-Colonel Fischer would apparently impute to him. All that the Government sanction amounted to was approval of the selection of a central route between Jeypore and Vizagapatam, of which the direction was indicated by the Pachipenta Ghaut, in preference either to a northern route by Parvatipoor, or a southern route by Galikonda to Kassipoor. It was open to the person entrusted with the design and execution of the work to make such a selection from amongst several passes tending in the same general direction as the Pachipenta Ghaut, as should be preferable; and the Public Works Department having failed to take up the work, the Assistant Agent was left to the exercise of his own unaided judgment. That Lieutenant-Colonel Fischer was ignorant of the precise direction in which he was working till his own late visit to Waltair, is due to his not making reference to published reports in which Tadivalsa was distinctly mentioned as the junction between the Famine Road in the low country on which Assistant Engineer Turner was working, and the ghaut which his namesake the Assistant Agent was opening from the upper country. It is unsatisfactory that the Superintending Engineer should have remained uninformed for many months of the precise locality in which one of his Executive Officers was working.

2. His Excellency in Council does not, however, consider that it has been satisfactorily shown why the Pachipenta Ghaut line has been abandoned, and another by way of Tadivalsa taken up. No report on the subject by the Assistant Agent is extant; and Assistant Engineer Turner can throw no light on it. The question must evidently be taken up afresh, and on sounder principles. Special agency has been appointed for the work in G. O., No. 2,774 of 26th November; and it will be utilized, in the first instance, to ascertain by aneroid observations the height of all saddles commanding a possible descent into the low country, in the direction required; those at the head of the Pachipenta and Tadivalsa Ghauts being specially included. On the choice of a ghaut head, and its ruling gradient, the rest of its trace depends; the head of a ghaut is the only point about it that can be fixed in the first instance, and all trial traces should proceed downwards from it till the bottom is neared. The District Engineer will accompany his Assistant over the ground in the first instance, and see that he does not make a false start. And as already directed in the G. O. above noted, the Inspecting Engineer will take an early opportunity of visiting the locality, and satisfying himself and the Government that future operations shall henceforth be carried on in the right direction. No large outlay will be undertaken for months; the current season will be well utilized if it results in the opening of a trace of a yard in width, costing at the rate of two to four annas per running yard; for

Proceedings of the Madras Government, Public Works Department,
19th December 1872.

execution of which and enabling the Engineer to move about with facility, a small permanent gang of coolies should be entertained with the sum of Rupees 2,500 already allotted.

(True Extract.)
(Signed) G. W. WALKER, Colonel, R.E.,
Secretary to Government.

To Lieutenant-Colonel J. F. Fischer, R.E,.
To the Inspecting Engineer, for Ports and Communications.
,, District Engineer, Vizagapatam.

Exd. S. T. Austin.

No 2971

Superintending Engineer's Office
1st Division
Dowlaiswaram 19th November
Despd 20th D° 1872

From

Lieut-Col J. T. Fischer R.E.
Acting Supg Engineer
1st Division

To,

Colonel G. W. Walker R.E.
Secretary to Government
P.W.D.

Sir,

On my late visit to Waltair,
I enquired verbally of Mr G. J. Turner the
Assistant Engineer lately employed on the
Jeypore Ghat all about the works and was
surprized to learn from him that the route ordered
by Government had been entirely changed, and he
was unable to inform me on what authority he
have the honor to forward all the correspondence
sent to me on this subject in original for
consideration and orders, as the Board of
Revenue have, in their Proceedings No 1572
dated the 13th August 1872, advocated the work
being transferred to this Department, and before
this is done, I beg to place on record a brief
history of the matter.

2 In G.O. of the 16th April 1869 No 1250

I was called upon to furnish a Sketch map and General Report on a proposal of Mr. Minchins to connect the Jeypore District with Vizagapatam by the Pachipenta Ghat and in para 2 of G.O. of the 2nd July 1869 No 2416, this route was ordered to be adopted: in the Sketch map herewith sent, I have marked in red the line of existing Road from Rama-
-kaddrapooram via Bobbili to Sitanagrum, in thick dotted black lines the new approaches made or making to the Ghat adopted by the Assistant Agent recrossing most of the dramages already intersected by the first mentioned Road and which might have been connected with the Ghat directly as shewn in yellow; and in burnt Sienna I have marked the route of the Pachipenta Ghat which I had instructed the Surveyor Mr Fletcher to try and adopt avoiding all the dramages about the foot of the hills by working thro' the saddle back of a low lying range of hills and thence working round the head of the Pachipenta valley and so gain the pass leading to Jeypore at Doonkey. the latter route

route proposed by Mr Minchin. 72

3 When Mr Fletcher left this, I ordered him to send me regular surveys of the line as he progressed with it, this was never done, and until my late visit to Waltair, I was quite ignorant of the change of route; in fact the work was considered to belong entirely to the Assistant Agent, and I must therefore deprecate the Government holding me at all responsible in the matter; for, had I been consulted, I would have at once put a stop to the proceedings until a proper Survey or prospecting had been made; for, the Ordnance map, small as the scale is, clearly shews the route adopted should not have been taken unless it was impossible to go in any other direction.

In para 30 of Mr Turner's report.

4 Mr Turner, I regret to say, is unable to return to this duty by ill-health, and Mr Fletcher has resigned; I have ordered Mr Brickwell to the survey, but it will be necessary to provide him with a Surveyor, and I beg therefore to solicit

Solicit that Major Beatty be permitted
to do so.

I have the honor to be
Sir,
Your most Obt. Servant
Wm. Twiss Lieut. Col. RE
Acting Supt. Engineer 2d Div.

Wm. Melville did not give, but told him not to send
them

Rs 16 April 69 Nos 406-407
" 2nd July — — 36 & 38.

P. W. 1872 Despatches.
Dno. of Govt Jr. Desp.
From No 5876.

The Asst Supt. Engineer
1st Division

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

Dated 19th November 1872
Rec'd 27
4 E. Pkts No 2971
Enclosures five

Reports on the unauthorized alterations of the line of route ordered by Government in the Jeypore Ghat and forwards certain correspondence in connection with the same.

Executive Engineer
Vizagapatam
Dated 10-1-73
No 3033-19 Oct 72

No 465
Cl 11 Oct 72

28th Oct 72.

To

The Executive Engineer
Vizagapatam

Sir,

Jeypore Ghaut

1. As it appears from G.O. No 1868 of 7th August and also from Proceedings of the Board of Revenue of 13th August No 1572, that considerable misunderstanding exists in the minds of the Acting Agent and his Assistant, with reference to my connection with this work, as well as to Mr. Fletcher's, I think it is necessary that I give you an explanation of the matter.

And I can only do this by supplementing the Asst. Agent's history of the work, as to some points in which I am concerned, and in which his memory has failed him.

Asst. Agent's letter Para 3. 2. Up to the end of 1871 Mr. Fletcher's work was considered satisfactory; but on the Asst. Agent's next inspection, in March 1872, it was not considered so, owing to his want of tact with the coolies, so that he was not able to induce them to come to the work, and in consequence the work was falling behind, and besides he was accused of creating bad feeling among the neighbouring landholders.

Agent's letter No 265 Para 3.

Asst. Agent's letter Para 3.

In February of 1872 several charges of using force to make coolies come to the work were brought against Mr. Fletcher and his peons, with reference to which Mr. Melville told Mr. Fletcher if it happened again he would be severely fined;

At Salur on 20th February Mr. Fletcher requested the Agent to enquire into the case, and said that he could not, under these orders, continue sending peons to the villages, and requested orders to dismiss the peons; this however Mr. Melville did not give, but told him not to send them

them to the villages.

So that it appears Mr. Fletcher's want of tact consisted in his not being able to prevent coolies from complaining at being forced from their villages to the work, and without coolies it is natural to expect that he could not make much progress.

He had however, besides being employed on the trace, during the four months referred to, made a mile and a half of the ghaut and cleared jungle and made a track for bandies for four miles leading to the foot of it. Asst. Agent's letter Para 3.

So long as he was not allowed to give such rates as would induce the coolies to come of their own free will, it is clear that he could be of no further use on the actual work, but laying out the trace was not finished then, and is not quite completed yet, as I shall relate further on.

3 3. Before the date of the commencement of the second chapter of the history, Mr. Thornhill sent me to Salur in the end of February to estimate for and commence work on a road from that place to the foot of the proposed ghaut, and to give professional assistance to the Asst. Agent, though I was not informed of this second object until some time afterwards. Asst. Agent's letter Para 5.

The day after my arrival, the Asst. Agent came to my tent, and after some talk about the road and ghaut, asked me to go with him on the 5th of March to see the ghaut and tell him what I thought of the line and works. I had no orders at this time which would entitle me to leave the work I had in hand, but as I had marked out a sufficient quantity of land to commence on by the evening of the 4th but could not start work until the Tahsildar had settled about compensation, I went with the Asst. Agent, partly to get the benefit of his local knowledge on the upper part of my work, which I had not yet seen, and in return, as he requested, to give him the benefit of my professional knowledge, as far as I could, on his.

4 At Tadevalsa we found Mr. Fletcher, who was weak from fever and suffering from enlargement of the spleen, so that he was not able to come on the ghaut with us, but he showed me a great many sections of his traces from which however I could not form any clear notion of the work, as there was no sort of plan or sketch on which they were laid down, and the ghaut had been divided into three sections, each called a ghaut, and there was some difficulty in finding out which section of one ghaut led to the corresponding section of another. I could however see that a great deal of Mr. Fletcher's time had been expended in attempting to join with a good gradient two points which had been fixed by the Asst. Agent, one about a mile and a half from Tadevalsa, and the other about four miles from that place. The trace which seemed to be most approved of by the Asst. Agent was a series of Zig-Zags all on 1 in 16 except two, of which one was on 1 in 18 and the other on 1 in 14.

As the Asst. Agent told Mr. Fletcher where to try another trace, until this should be done, we did not spend any time over this, the lower third of the ghaut, but went on to the Asst. Agents tents in the middle. I took the sections with me, but though I crossed a great many traces on the ground, I was not able to identify them with the corresponding sections, and the Asst. Agent was not able to give me any assistance on this point.

I at this time pointed out the great want there was of any sort of sketch, and also that the method of working, viz: Mr. Fletcher being directed to join with a good gradient, different points selected by the Asst. Agent was likely to lead to a great deal of time being wasted in attempting impossibilities,

impossibilities, and was not likely to lead to the cheapest line being selected.

5 5 In the afternoon we went to see the line on the middle third of the ghaut. This seemed to be much flatter as to gradient than the lower part, and on the Asst. Agent asking for my opinion on it, I said I thought there were many places, which I pointed out, at which the longitudinal section could be slightly varied to points where a cheaper cross section could be had; but that, with the time then at my disposal, I could not be of much use as to this, without cross sections.

As however I failed to explain in such a way as he could understand the nature or use of cross sections, he declined to have them taken, on account of the expense.

6 6 Next morning as I was about to leave for Salur, he asked me to take charge of the whole work, and wished to know in what way he could remit money for the expenditure. But this I declined to do without orders from my superiors in the P.W. Department, but I said I did not think any change in his arrangements as to expenditure was necessary but that I should be glad to come, as often as I could spare time, and give him any assistance as to the line or work which he wanted. I requested him to obtain orders for me to do this through my departmental superiors, as otherwise I should be placed in a false position with them. Your reply to my note intimating my intention of going on the ghaut, which I afterwards got at Salur, showed me that you took this view of the case.

7 7 On my way down I again saw Mr. Fletcher and spent some time over his sections, and he asked me when I could come back to go over the lower part, on the ground, with him, and said he hoped it would be soon as he would not be able to stay much longer without Medical advice. He had already on the 1st before I had thought of going on the ghaut and afterwards on the 5th in my presence, applied for leave.

On my saying that I did not know when I should return, as I had no orders, he produced a note from the Supt. Engineer in which Col. Fischer told him that I was in his neighbourhood and that if he were in any difficulty as to his work, he should apply to me. As he did not leave until the 26th more than 3 weeks after he applied for the leave I do not see that he could be said to have left with uncalled for abruptness, or that his doing so was occasioned by my offer to superintend his work.

Asst. Agents letter para 3.

8 8 Sometime in the third week of March I received, at Salur, a letter from Mr. Thornhill saying that Mr. A.G. Turner had informed him that I had expressed my willingness to undertake the duty of superintending the re-trace of the ghaut, in addition to that of surveying and estimating for and carrying on work on the road from Salur to the foot of it, and asking me to proceed with that work also, as soon as possible. He also informed me that Mr. Johnson, Asst. Collector, had been sent to expedite the handing over of the land at Salur, as it was of importance that the relief work should be commenced as soon as possible.

Copy sent to you on receipt.

Mr. Johnson arrived soon afterwards and on the 20th pointed out the part of the line which would be handed over first, so that I had the various lines for channels and embankment marked out.

Late on that evening Mr. Johnson told me that compensation had been finally fixed and work was commenced next morning, the 21st. The same day we moved camp several miles on towards

wards the ghaut, but as the only maistrie whom could get had never done any new road work before, I returned to the work next day, so as to see him fairly started, before going to the ghaut. On the 23rd I made a further move of a few miles, carrying on my reconnaisance for the road to the foot of the ghaut.

9. On this day I had a note from the Asst Agent enclosing another application for leave from Mr. Fletcher, and I also received directly from him an urgent letter asking me to come as soon as possible to relieve him of his work. The Asst Agent in his note put the question of Mr Fletcher's leave being granted in my hands, so I went next day (the 24th) to Tadevalsa; I strongly advised Mr Fletcher to stay until arrangements could be made for carrying on his work in his absence, and until the question of his absentee allowance (about which there was some difficulty) should be settled, but I said that if he thought the state of his health such as to make it dangerous to stay any longer, I would carry on his work myself until the Asst Agent could send his Overseer to look after it. I requested him to prepare from memory, if he could, a sketch showing the position of his traces, and the various papers necessary for giving over charge, and gave him a day to consider whether he would leave or not, and went back to Dundegaum, at which place my camp had been moved on. Next morning, as he said he thought it would not be safer for him to stay, and even if it were, he was not able for the unusually severe exertion required in walking about the ghaut, I counted his tools and cash, gave the former to the charge of one of the peons, and took the latter to the Asst Agent the same evening, at Patingi. As the coolies had run away on Mr Fletcher's calling them in with the tools, I was spared the trouble of carrying on the work.

10. On my way up I found that work had been commenced under the Asst Agent's Road Overseer, about half way up as to length, but it seemed to me a great deal more than half way as to height.

11. I would now refer to para 11 of the Asst Agent's letter, where he says "If Mr Turner had come up when he received Mr Thornhill's letter in March, I would have considered his views on the upper part of the ghaut."

But in para 6 of the same letter, he says "Accordingly I met Mr G Turner on the 26th March at Patingi." (Patingi is at the top of the ghaut) And in a letter to me, dated Koraput 17th March he says "I should like to go over the upper part of the Ghaut with you from Sevara Village to Patingi. Would it be convenient to you to come to Patingi on Monday the 25th, as I shall go there on that day & I hope finally fix on the trace with you".

This will shew you that I did not give advice, when it was not asked for as stated in the end of para 9 of Asst Agent's letter.

12. On the 26th we went to see a pass over which the Asst Agent's Overseer[x] proposed to take the crest of the ghaut. On our way he showed us the line on which he proposed to lead the road up to the crest, but neither I nor the Asst Agent approved of this line as being too steep and leading to a great deal of rock cutting.

We found the pass to be about a mile from Patingi, and it seemed to be lower than the one over which Mr Fletcher had been directed to take his trace. We then went along the place where the

[x] Abdul Hatti Zemindar as to whom Asst Agent says: "He is quite unequalled in his knowledge of the management of Coolies, and of distributing their work, and of making them work to the best advantage; but he is ignorant of all engineering operations such as instrument working and so forth. He is quite capable of laying out a road to a trace and I think you will find him a good man."

for the Overseer proposed to continue his trace and I about two miles from Potingi we came to a be place where he had cut a trace but the gradients see had been laid out "by the eye" and in some places Or were much too steep though the average was good. ca From the pass for about three miles down- fo ward this line lies along the side of one of the 9 minor streams, which enters the main valley en (along which the rest of the ghaut below is ca carried) by tumbling over a steep rock face to a depth of about two hundred feet, to join ts the main stream.

This point I shall refer to as the "waterfall" It is about four miles from Potingi.

From about two miles from Potingi to (P this point, the valley is very narrow but there to is a small belt of nearly flat ground running ca along the bank of the stream, sometimes on one p side and sometimes on the other; so that it is difficult to determine by inspection whether it would be cheapest to keep altogether on one side, or on the other, or to take the third ca alternative of crossing the stream more than pa once, though the cost of bridges would probably a throw out the last. In any case it must be an expensive line. On my remarking to the Asst. Agent that I thought the trace marked by his Overseer a bad line, he said he did not think it was beyond his capabilities to which I replied that I was not thinking of his capabilities but of the expense of cutting through the steep rocky spurs.

On an inspection on the same evening of the pass over which Mr. Fletcher's trace was taken, we determined that, as the same difficulty as to a good line descending into the Peypore

Peypore plateau existed as in the other, and as the other was much lower, it should be taken, but as this part of the work, being out of the thick jungle, was reserved for the rainy season, I did not trace the line, but went down next day (the 21st) at the Asst. Agents' request, to the camping place in the middle of the ghaut, on the understanding that, when I had more time, I was to trace the best line I could find from the crest of the ghaut to Potingi, and downwards from the same point to the Overseer's trace, and also to rectify the steep gradients on that trace down to the waterfall.

13 On the middle third of the ghaut, we found that a commencement had been made on the saddle of a spur, jutting out into the stream, and was being carried on up the ghaut on an ascending gradient of about 1 in 30; but in order to descend from this saddle, on either side of the spur, a zig-zag was necessary, and on one side Mr. Fletcher had marked out a trace, the zig-zag taking him through the saddle without going round the spur.

14 By taking a starting point at some distance up the work which had been done, I got a direct descending line on 1 in 20 and 1 in 18 which took me round the spur on not too steep ground, and finished on the top of Mr. Fletcher's next zig-zag. This point is on the saddle of another spur, smaller, but with an almost precipice face towards the stream, so that I did not at this time consider it advisable to, and it, but went downwards along Mr. Fletcher's trace, which was on line 16 as far as I remember.

On getting to the end of this, where there was a re-entering angle, the Asst. Agent told me that this was the point which he had told Mr. Fletcher to join with a direct line on a gradient of 1 in 16

the point below up to which the road had been made. I therefore continued tracing on the direct line (1 in 16) until the hill got so steep and rocky that I could not use the instrument ×. I went a little further looking for Mr. Fletcher's trace along a bare face of solid rock which I saw stretched along for about half a mile and so steep that I could not walk on it. On descending from 120 to 150 feet we found Mr. Fletcher's trace which led us up to the next lower re-entering angle. As almost the whole of this line was on a steeper gradient than was advisable for such a length, and on very steep rocky or solid rock cross section, and had zig-zags on it, we gave it up. After going over several of the other traces, we found there was little to choose from, the only variety being in the number of zig-zags and the gradients.

× Gunner's Quadrant on tripod, in very bad order.

On finding this I told the Asst: Agent that I was afraid I would have to ask him to give up a good deal more of the work which had been done, as the gradients of the lower third of the ghaut were being sacrificed to those of this part, which were unnecessarily flat. He said he would not mind giving up a good deal of the work to get better gradients.

15 There was however one part of the lower third which did not seem to have been fully explored. This was between where the traces had been taken, and the main stream, and was on a comparatively very flat cross section of considerable breadth though the section parallel to the stream was on an average too steep. As there were a great many most flat cross ridges and hollows, I thought that a serpentine line might be got on a fair gradient on the lower point upwards so as with a short de- vee of 1 in 12 or a zig-zag to gain the top of the spur.

The Asst: Agent agreed with this, but as he did not know much of this part, he said he would leave it entirely to me to do at any time when I could return.

In para: 6 of the Asst: Agent's letter, he says that we agreed that I should undertake the retracing of the lower half of the ghaut, which we certainly did, but he goes on to say: "I regret that no record was made of this agreement, but I then finally decided on the trace so far as regarded the upper portion of the ghaut, and I did not contemplate asking for the assistance of Mr. G. Turner on this part of the work."

From this it would appear that part of the agreement between us was that the upper part of the line was already fixed on.

I regret, with the Asst. Agent that no record was kept of this agreement, because I have already shown now that my assistance was asked for on the upper part of the line, and in a letter of the 16th April a fortnight afterwards, the Asst: Agent says "I think we had better leave the trace we have decided on, above the first zig-zag, alone," which would have been an unnecessary remark, had I not agreed in that decision.

30th March 16 I was at this time obliged to leave the ghaut to make payments at Salut and to arrange about tools, as I had heard from you and Mr. Baker that, owing to the large amount of work going on in your Ranges, you were not able to comply with any indents; and from Salut I had heard that a number of people had applied for work, for whom there were no tools available.

I gave such of the men as were willing women's work, upon women's pay, but, as there was still a great clamour for tools, I went to Trivanagram and not being able to get any there

for on to Waltair to arrange about this matter and
Ic other connected with the accounts and to finish
be other work which I had in hand when I got
see Mr. Thornhill's order.
Or I took this opportunity to see the Agent
ca Mr. Melville about the ghaut; I told him of my
fo difficulty about a surveyor, and a draughtsman
q that there were none procurable in the District.
an I also said that as I intended to do the ghaut
t tracing myself, if I could find time, a surveyor
u of less qualifications than Mr. Fletcher would be
to sufficient but that I could get no other.
en Mr. Melville said he would allow me to spend the
to amount of Mr. Fletcher's salary for two men one a
(th surveyor, and the other a draughtsman. I
fo said that as these were not procurable I would
ca undertake that one or other of us should do the
q draughtsman's work, if Mr. Fletcher were employed
th as a surveyor. On this point he referred me
ca to the Asst. Agent, and said he would write to
as him on the subject, and that I would probably
ca find him at Salut on my return. A few
co days afterwards on my return to Salut, I found
re that the Asst. Agent had gone on a tour to a
co distant part of his division, but I had a letter
an from him dated 16th April, in which he says:
ch "Since you left me at the end of last month, I
w have had 2 letters from Melville about the ghaut
fo works. He writes that he has seen you and
Q that you think that there should be a regular
de estimate and a survey made, and that to do
w this you will require a surveyor as well as a
re draughtsman, and that you think that Fletcher
h will do the work of both". Further on in the
f same letter he refers me back to Mr. Melville, and
c says he has no need for Mr. Fletcher's services.
th In reply I again urged upon him the
necessity,

Para 4 of Agent's letter No 265 in G.O. No 1818 of 7th August.

necessity, for economy's sake, of having cross sections taken, and that, as he must eventually have to apply to Government for funds, he should take the present opportunity of preparing the necessary information as to the cost. To this he objected because he thought it would cost Rs 15,000 to make the survey and estimate, and he was still of opinion that he could make an indifferent road for that sum. But he said "there is no likelihood of getting any money from Government; if Col: Fischer thinks there is, nothing would be more pleasing to me than to hand over the Rajah's money to the D.P.W. for the preliminary survey of the work."

1818 From this time until the beginning of June, I was, as you are aware, fully occupied with the relief work, the frequent large payments alone occupying the greater part of my time.

During this time I heard from the Asst. Agent and his Overseer, several times, that the coolies had gone off the work for various reasons, which information was given me to prevent me from going on the ghaut and finding no one there to clear jungle or mark the trace.

I did once, in the middle of May, manage to make arrangements to leave the famine work for a few days, but at Maripilley on my way to the ghaut, I met the Overseer who told me that all the coolies had gone away, and that he was on his way to Salut to appear before the Sub-magistrate, on some charge which had been brought against him, so I returned to the work near Salut.

When the relief work stopped, I was detained in collecting stores, and handing them over to Vizianagram Range, and other office work connected with the closing of the work, also by fever, and finally by two Rivet crossings (the rains had now fairly set in) so that I did not

reach

reach the middle of the ghaut until the last day in June.

19 I found that Mr. Fletchers work had stood the rains very well, except at one point where there was a culvert, the sides and top of which were made with large slabs of stone, backed with gravel. The additional quantity of water brought into the nullah by the catch water drains had breached the earthwork at the side of the culvert, which was left standing.

After my first visit to the ghaut, on my speaking to Mr. Fletcher of this part, he agreed with me in thinking that it would go, but said that he had been ordered to fix the waterway with reference to the size of slabes which he could get.

Nothing had been done to this part since he left, and in some places where the side drain had not been finished, the water had made a runnel along the centre of the road, where the embankment began, until it found a road dam over which to escape.

20 On the middle third of the ghaut, work had been done downwards along the direction of my trace, but not on the level of it. Where the work stopped, it was a bank of gravel about 30 feet high supported on one side by a precipice, and on the other by loose stone revetment. My trace had gone along the foot of this precipice.

Further up about two hundred people were working on an average gradient of 1 in 30 descending in going up the ghaut, though some gradients were as steep as 1 in 7 both ascending and descending, and besides there were several nullah crossings so steep that a loaded bandy could not take them.

There were several breaches in the work which had been done, caused by the side drain being too small to carry the water, which had crossed the road at places where it was not intended to.

The Asst: Agent afterwards told me of many more breaches which had been filled up as soon as they happened. On the most recently done part, there was a steep side slope, on which the bank was supported by felled trees and bamboo clamps, resting on their own stumps or on standing trees, wherever they happened to fall. The slope was as steep as the people could get the gravel to stand, about 1/4 to 1.

The greater part of the bank had already begun to go; there was an opening between the cutting and embankment running the whole way along, sometimes large enough to admit an open hand.

21 I had heard from the Asst: Agent a few days before this that he had been obliged to order his Overseer away to look after a bridge on the Seypore road which was reported to have been washed away, but that he had since heard that this was not the case, and he asked me to countermand the order. The Overseer had already gone, and did not return until the Asst: Agent came. The only maistri on the ghaut was said to be away on a recruiting tour with 50 peons. So there only remained ten peons and the Overseers writer, none of whom could give me any information as to whether the trace they were working on had been approved of by the Asst: Agent or not.

22 Under these circumstances I told the peons to put the people to work at the uncompleted parts further back, until the Asst: Agent should come. I had no intention of assuming charge of the work, but I thought that as I could not believe that this work was being done by the Asst: Agents orders, I should be doing him a service by stopping it. Next morning the writer told me that the Asst: Agent had sent permission for the coolies to occupy themselves in repairing their huts.

23 I tried for a week to find a good trace from the top of the spur already mentioned between the

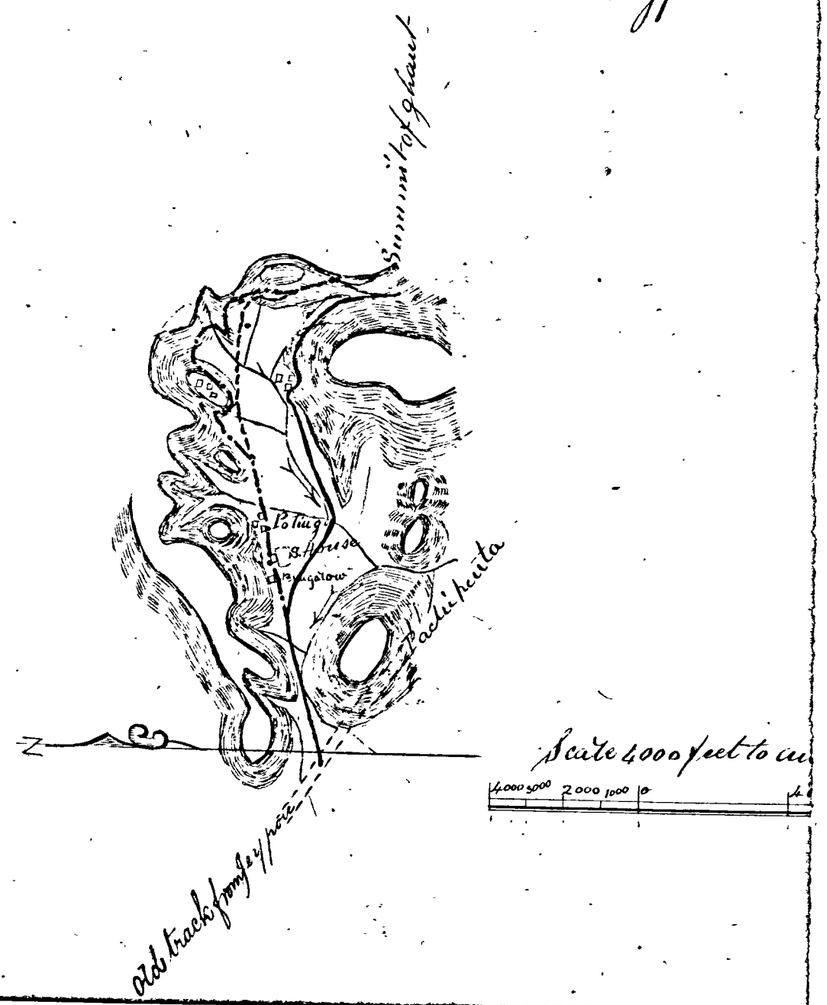
the middle and lower thirds of the ghaut) down to the flat ground leading to Mr. Fletcher's work, but could not do so. I then commenced on the top of the work which had already been done, and went down on a gradient of 1 in 15 round the spur abmt 5 feet below its top which is flat, but still I found that 1 in 12 would not take me to the flat ground without several Zig-Zags on a steep cross section of rock. I then became convinced that a cheaper as well as a better line could be got by going along the face of the spur at a considerable depth below its top, as the total quantity of rock cutting in the spur could not much, if any, exceed the quantity in the Zig-Zags below, and it would be much cheaper per cubic yard than the other, as the large blasts would produce a much greater proportionate effect than the same materials and labor expended in small ones.

24. By this time the 8th July had arrived, on which date the Asst: Agent had asked me to meet him at Potingi, where he would be on his way to Waltair. Had my services not been wanted on the upper part of the ghaut this would have been an entirely unnecessary journey.

I traced my way up, and found that, looking downwards from the waterfall a gradient of 1 in 19 would go along a steep rocky face for abmt half a mile, where the slope was uniform, so that any grade would give the same cross section, then it would enter on gravelly soil on a small belt of nearly flat cross section which slopes down stream on abmt that gradient, and would continue along this belt, - passing the place up to which work had been done, abmt ten feet below it, - continuing to descend on the same gradient (the work here ascending and leaving this line far below) at the foot of the hill it would go round on the

27. On the Asst: Agent's arrival, I mentioned all

Jeypore Ghaut
Sketch
Showing lines from summit
to End of Ghaut
On the side towards Jeypore



the edge of a broad flat, (the only halting place on the ghaut, where coolie lines &c have been built) until that flat was closed up by the spur already mentioned, where it would go round the spur so as nearly to emerge on the flat ground below.

Mr Fletcher's sketch plain dotted line

25. Above the waterfall nothing had been done up to the pass. From this point a trace had been cut towards Potingi, ascending for about 3 furlongs on 1 in 30 and then descending along a steep rocky cross section on 1 in 8, until it reached the soil which is nearly flat. Had two trial pits dug maximum depth 6 feet. Lying back to the pass next day (as the Asst: Agent had not arrived) I found that by cutting through the soil for a short length down to the rock, and descending on a gradient of 1 in 25, on the other side of the valley, the soil was reached much sooner, as it extends much higher up the hill face on this side than on the other, though the rock cutting was heavier per yard forward than on the other.

Hard line on sketch

26. The result of opening the ghaut would probably be the increase of the produce of Jeypore, and until this is fully developed, the value of the goods exported would exceed the value imported by the amount required for the development of the country. And even after this the weight of the raw produce would much exceed the weight of the same value of manufactured goods, so that for many years to come the bandies passing down the ghaut would be more heavily laden than the ascending ones.

It is therefore necessary to provide easier gradients on parts where there is an ascending going down the ghaut. Then taking 1 in 25 from the point where the Asst: Agent's line begins to descend, it would give a longer total length of road, and also a great deal more rock cutting, than on the other side.

Some where near Chain dotted line in sketch.

27. On the Asst: Agent's arrival, I mentioned all

all this to him and showed him the trace which I had marked out with pegs, but had not had it cut in deference to his wish for economy. He asked me to go over his line with him and tell him the gradients of the different parts on my doing this he said he would open the road on that side of the valley but not on the trace which he had had marked, and asked me to return after he had gone over the rest of the ghaut with me and trace a line on flatter gradients. This I consented to do; rather than have any part of the line on ins, but I at the same time said that he was going out of the way both in line and levels to avoid a difficulty which was less than he would meet with on the line he proposed. He then said he would make his line first, and if any powder remained after all the other work was finished he would make the road on my one. We agreed as to the line between Potingi and the junction with the old track which presents no difficulties; a few days afterwards he said, with reference to this part, that I had agreed with him as to the advisability of taking the road along the side of the valley which his Overseer had chosen.

28 I was by this time aware that I could be of little use to the Assistant Agent as to the trace as there was no use of my marking out traces which were not to be worked on. And this ~~remark~~ remark showed ~~me~~ me that I would not withstanding be ~~alternately~~ ultimately held responsible (as the only professional man on the spot) for the errors in the trace, unless I put on record officially (as I had already done verbally and demi-officially to Col. Fischer, to you, to the Agent and his Assistant) my protest against the line which was being worked on as well as other parts which were proposed to be worked on not affected by what was done.

29 With reference to the centre part of the ghaut, the Assistant Agent said that the trace his people were working on had been marked out by Mr Fletcher. But on my pointing out that his people were not capable of working to a trace, as I could see from the work they had done on a line which was intended to be on a trace marked out by me, but which was really a long way above it he agreed with me that it was not fair to lay the blame of the faulty execution on Mr Fletcher.

30 As to the lower part of the line, the Assistant Agent came with me to the top of the spur, at the upper end, and ordered me to find and mark out a line from there to Mr Fletcher's work at the foot. This I declined to spend any more time in attempting, as I was already convinced that it was, practically, impossible. He then said he would allow me to commence from the point down to which work had already been done, but I showed him the traces which I had already made from that point, and said the line should come some distance below that point. He then told me that he was Chief Civil Authority in Jeypore, and that I had no right to go tracing any where, except where he ordered me to, and he accused me of wasting time in tracing on the upper part of the line, when he had already decided on that part. I said I should certainly not trace any more if he ordered me not to, but that if I were to trace at all it must be left to me to decide where.

31 Sometime afterwards, as we could not agree as to the line at this part, I asked him either to stop work altogether, (besides the difficulty as to the line, it had been raining heavily for several days, with no appearance of stopping, so that the Coolies were either not working at all, or were doing so at a disadvantage, though in either case they got full pay) or to put them to work some where else until I should be able to decide whether it would not be cheaper to give up the greater part of the work done, which I hoped to do in a few days as I then expected Mr Fletcher with instruments daily.

32 He asked me to put my views in writing, and the letter embodied in proceedings of Board of Revenue already referred to was the result. If there is anything objectionable in the style of this letter, it was caused by my extreme

regret that I had not been able to prevent the waste of money which was going on, and had not sooner seen the necessity for at least freeing myself from the responsibility of it.

33 On reading this letter the Assistant Agent asked me what part I referred to as having been marked out by me and I told him it was the line from Polingi to the summit of the ghaut, which I had marked out with pegs, and I said that if he would work upon it I would return at once and have it cut, but to this he said he would never consent. I then said that there still remained the part between Polingi and the present track to Jeypore, but he said that the climate of this part would be too cold for the Coolies and that he would go on working where the people were at the time. And he has since told me that they are still working on this part.

I have the honor to be
Sir
Your most obedient Servant
G. I. Turner
Assistant Engineer

From
G. J. Turner Esq
asst. Engineer
To
The Executive Engr.
vizianagram Range
waltair
Dated. 28th Oct/72
Recd. P.W. 876/72.

Remarks on the Asst. Agent's letter to the Agent regarding the Seypore Ghaut works

Trans. 19th Dec/72 L. B. No 460

Letter No 1 from Temporary Supervisor

33

To

G. J. Turner Esquire CE
Asst. Engineer on
Special Duty

Sir

I beg to forward to you the following Memorandum this the 11th October 1871 above the Middle of the Ghaut the Asst. Agent engaged a Man named Ry Goroovoor or Puddal on a Salary of Rupees 12 per Mensem, as a Maistre for Selecting Coolies, and told me that whenever I required Coolies to send this Man with peons & that this Man knew all the Villages above the Ghaut and he would go and select the Coolies; (but how, and in what Manner he did not mention) After this meeting the Ghaut & several others on the 15th the Asst. Agent left for Peraput & I returned to Dumagamma, as I was unable to get Coolies at Pittiguy to Cut a path for the Asst. Agent & his Samans & horses &c to Come down the Ghaut. On the 16th October 71. I sent this Maistre with a Cuscar of mine to select Coolies, but did not tell him in what Manner as the Asst. Agent told me that he was only fit for that purpose, and of Course knew how they were to be selected and I wrote to the Asst. Agent on the 17th informing him of the same (Copy of letter enclosed) on the Evening of the 18th 120 Coolies where brought and on the 20th 30 & on the 21st 30 more, within 6 days I had 200 Coolies. I herewith send you a Copy of my Cash Account which will show you the number brought daily, and also of the Icecream.

This Continued till the middle of January when I received a letter from the Asst. Agent informing me that he is going on a tour to Mulkhangiry, and requested me that I must

Must

must have the Road Completed by June & if
possy, Tools &c. as have required, All that I
to do was to ask for them, but about the co
for to use the same he did not mention - I had
4 months more given to Complete the Road, that
about the average of 137 Coolies working at an
average of 12 Cubic yards per Rupee or 1½ Cubic
Yard per man daily. Taking the average
cutting per mile to be 3 feet depth and width
of Road 15 feet Equals 8800 Cubic Yards per mile & for
9½ miles of Road Equals 74200 Cubic yards and Labour
required to perform this in 4 months at 1½ Cubic
Yard per man daily will require 2084 Coolies or
521 Coolies per mensem daily, And for Clearing jungle
and digging up Tools &c. it will take 79 Coolies
daily & the Total No. of Coolies Required daily is 600
to Complete the Road in 4 months, And finding
that the present Labour was not sufficient,
I had to Engage some peons to send with the
Mais by to fetch Coolies and told the Mais by
the number I would require to enable me to
Complete the Road according to the Asst.
Agents Request. The Mais by with 500 6 peons
left for fetching Coolies, And in a letter to the
Asst. Agent I informed him that without Coolies
tools & Plant were of no use and that I had
Engaged more peons for the purpose of bring-
-ing Coolies.
The Mocasadar of Louanne made a Complaint
against me to the Ag Agent and his Asst.
The Complaint was that I was sending
peons to his Villages & forcing Labour, and that
his Villagers were deserting the Villages, I
Also wrote to the Asst. Agent that by Enquiries
Officer in reply I was informed, (that if the
Louanne Mocasadar is an obstructive man
to let him and his Villages alone,) On the

On the 20th February I left for Salur and on the
21st the acting Agent informed me that com-
-plaints had been brought Against me that I
was in the habit of sending my peons to
Villages & forcing Labour, I informed him
that it was the Asst. Agents verbal Order, he
said he did not Care who gave me the Orders
And that if Any more Complaints were brought
again, I would be severely fined, I then re-
-quested him to Enquire into the Case, & said
that the Villagers did not desert any Villages
In reply he said he had no time as he was
going away the next morning with Collector
Thornhill of the Board of Revenue, then on
Special duty, I then requested permission
to dismiss the peons Employed for fetching
Coolies, to which I received no reply. I had
then on an average 200 Coolies, I stopped dis-
-sending peons to the Villages from the 21st February
On the 1st March the Asst. Agent Came down
on his way to Vizianagram, I then in-
-formed him of the whole Circumstances that I Enco-
-untered And Also of what took place with the
Agent, to this he gave me no reply, I also
Reported that I was sick and he said he
hoped I would be better soon And went away
the same date to Salur, I made to Vizianagram
on the 4th or 5th & returned accompanied by
Jaw, And wanted me to come up the Ghaut,
I told him I was unable to walk up the Ghaut,
And Reported sick in your presence, to which
I received no reply - After you had returned
from the middle of the Ghaut, the same day
I received a letter dated 6th from Vallegedda
in which he expresses himself sorry that
I was unable to come up, And goes on to say
"The Louanne Mocasadar is so averse to

your

your pleas that he does not wish to send any of his Ryots to work under you, but he has agreed to send 40 men to the Coorsee who has been directed to send you 40 in their stead, this settles the whole of the matter."

Before the middle of January and after the 5th March no complaints were made, and I dismissed the peons employed for fetching Coolies on the 1st March, and informed the coolies that if any of them did not wish to remain, not to run away, but to inform me and that I would settle with them their wages, daily the Coolies may are to leave & about the 15th March I had only 75 Coolies and up to the 25th an average of 52 Coolies daily who came on their own accord, as the Coorsee was working above and he still continued to force labour & the men would sooner come on my work than his - As not only being forced from their homes but also ill treated and deprived of their wages I believe — About the third week in March I reported sick by letter to the Asst. Agent - in reply he referred me to you and states that he had no objection if you allowed me to go for Medical treatment, and goes on to say, that if my absence was long no pay would be allowed me & if my stay was short subsistance allowance at Rs50 per mensem would be allowed — I gave over charge to you on the 25th & on the 26th left for Bangalore on the 1st April Assistant Apothecary attached to the Agents Cutchery informed me that the Agent requested him to inform me when I came into Bgl to come & see him, I saw the Agent on the 1st who directed me to place myself under the Asst. Apothecary

Apothecary for Medical treatment & on the 5th April I received a letter dated 31st March which goes on to say. "As the work for which he was engaged that of tracing Ghaut has been completed Mr. Statham is informed that his services are dispensed with."

Before closing my explanation about my owing to want of tact to work with the Coolies & landholders whose tenants they are - they to inform you had the acting Agent and his Assistant in their letter to Government stated (that I proved myself owing to want of tact to force Coolies & being unable to prevent their homes - Caused me from making Complaints) they would have been quite justified.

The practice of forcing Coolies as been I believe ever since the construction of the Pachiyappa Road & works in my power, and this practice is from the foot of the Ghaut & upwards all in the Asst. Agents Jurisdiction, and I believe several Complaints were made against the Coorsee to the Asst. Agent and he after enquiring into the cases tells the Complainants that on the date they mention the Coorsee was with him. I believe when the Asst. Agent was on his way to Wallajah about the 2nd Week in July a Complaint was brought to him at Salem by the Gurrasandar of Sankeri Durgum & heads of his villages - and that the same result above mentioned to Mr Shaw already in a letter to the Superintending Engineer dated 21st September enclosed a petition given by the Gurrasandar above mentioned, and had I known that the acting Agents & his Assistant would have made such a Complaint against me in order to blast my prospects, and not to be

to be employed on the Ghaut works should have received all the Petitions presented to me in the Months of July & August, & would have proved the contrary — but that this explanation will be satisfactory.

2. With reference to the trace having been completed and that being the further case to the Asst: Agent Jury services were dispensed with —

I beg to inform you the only portion of the trace that could be said to have been completed is from the foot of the Ghaut to the stream a distance of 1½ miles and upon which I have made the Road. The portion is not all completed and the Asst: Agent put his pressers to work on the middle part of the Ghaut; & about 4 or 5 Miles of Earthwork is completed & which I believe has costed about 6 or 700 Rupees, and the work is done in embankment than cutting & the roots not being removed and the felled trees allowed to remain, upon which the embankment is raised the whole of the embankment is giving away and the felled trees decay & the roots springing up again, the whole of the line will have to be reconstructed with the exception of the 1½ mile which I made, which need not mention any thing about as you have inspected it — The retaining of the Ghaut will have to take place from the summit of the Ghaut at 8 Pgs to the waterfall & from thence on a gradient of 1 in 1901 in 20 along the middle part of the Ghaut will enable the trace to descend the lower part of the Ghaut down to the stream

stream were they line will have; but according to the present plan where the Road has been made on the middle part of the Ghaut, the trace will not be able to descend the third part of the Ghaut without three zig-zags at least, when there are still obstacles and the trace not being completed, how the trace could have been said to be completed, I am at a loss to explain. And if the trace has been completed why the Asst: Agent did not allow me to make a survey of the same to publish it in the Gazette, as he several times informed me that as soon as the trace is completed, to make a survey to publish it in the Gazette without which the said cannot be said to be legally acquired —

In conclusion I beg to state that the forcing of coolies is still continued and since the 26th March to the 19th July, several villages have been deserted entirely & some half. I annex a list of the villages —

I beg to remain
Sir
Your most Obdt Servt

J. H. Fletcher
Surveyor

Camp
Kondakerla
30th September 1872

To

H. G. Turner Esquire
Assistant Agent
Trincomalee

Sir

I beg to report for your information that as I was unable to get any coolies to clear jungle from Bungalow last to Manjoe tree to Govindu - and as I would have to wait for coolies at least 3 or 4 days - I sent Basia by Gova - Nalu with a Lascar Peon to collect Coolies for the above work and I went straight to Dandy gamme Kent for the Kirrawandu of Corroty and told him to get the 50 Coolies which he promised to have by the 18th Instant - and in the meantime I am getting pegs and heads for Picaxes &c Made As soon as I get the coolies I will commence work

I beg to remain Sir
Your most obt Servt
J. W. H. Tuttler

Dandy gamme } (Copies)
17th October 1873 } (True Copy)
J. W. H. Tuttler

List of Villages entirely deserted & half of the Village deserted up to the 19th July 1872

Boragamulla	Entirely deserted
Turriala	
Imulgamua	
Gunjayabindra	

Tundivulsa	half of the Village deserted
Pidda Cunty Jaura	
Chinna Do	
Galle Gowdara	
Gowdara	
Roodra	
Cuppa Roodra	

Kondestura
30th September 1872

Thos. H. Thielen
Surveyor

Letter N° 2 from Temporary Surveyor. Fol. 45

To

G. J. Turner Esquire C.E.

Assist. Engineer

Sir

In my letter dated 30th September I forgot to mention the course adopted in fetching Coolies and I beg now to inform you of the same as far as I know of

From the 1st November to the middle of January the course adopted for getting Coolies is as follows I wrote to the Mocasadars of different Mocassa and requested them to send me so many Coolies and accordingly the Mocasadar of the following villages sent me Coolies

Koorookooty Coolies	20
Tonaum Mocasadar	40
Murrapilly	20
Larkee Mirhaseedar	20

And the Maistry & 2 Peons Employed for fetching Coolies were sent from the 1st Novemb to the villages higher up. with strict orders not to use any violence nor take any Batta but merely go to the heads of villages & fetch Coolies. and if he does not comply with your request, bring him to me, as I had been given to understand that the peons Employed for fetching Coolies were in the habit of taking Batta &c from the Villagers. After the head man was brought I would get some of his own caste people in the village I was to persuade him to Consent to give either a half or a third of his Ryots after he is persuaded he is brought

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brought to me and gives me a written agreement and he abides by the same, and I then ask him if any of my peons received any Batta &c. if he says yes I dismiss the peon at once and order him not to give them any Batta.

As the Asst. Agent wanted me to complete the Road in June, I had to insist on the Mocasadars for more coolies. I requested the Lonaum Mocasadar for 120 Men which he refused to give. and consequently I had to engage more peons for fetching Coolies and acquainted the Asst Agent of the same. The Chaistry & 6 peons were sent to the Lonaum Mocasadars Villages and they insisted upon the heads of villages for three times more coolies than they were at present sending and the heads of the villages complained to their Mocasadars and a complaint was made against me to the Acting Agent & his Asst which I have already mentioned in my letter of 30th September. One of my peons named Culinga Venkanah took a bribe of Rupees 6 & Rice &c which was brought to my notice the following day after he had received it and the man or Coolies who gave it to him being on the work. I made the Coolies or peon to return the man is 6 Rupees, and dismissed & fined him 6 Rupees the whole of the pay due to him and acquainted the Asst Agent Verbally of the same on the 1st March

The course adopted by the overseers 50 peons

peons employed for the purpose of fetching Coolies as far as I have heard from the Villagers & Mocasadars themselves on my return to the ghaut is as follows.

First 6 of them go to the villages and insist upon the head man for a number of Coolies which the village cannot produce and stay for 2 or 3 days at the expense of the villagers, then they leave & return 2 or 3 days after with double or treble the number of peons and use force and illtreat the heads of the village and live at the expense of the village, till they think it is time for them to go elsewhere if the heads of the Village with all the ill-treatment had given them good supplies, such as Rice, Ghee, Fowls &c during the time they are in the villages, and will then agree to take any number of men the head is willing to send but should their supplies be, of an inferior quality they will not go unless the head man gives them half or more of the Ryots in the village, and also take him with them to the overseer who will give him a warning or order them to be flogged & turned away. And should the coolies work on the Road run away to their villages, they are persued next morning by a dozen or two peons & not only being ill-treated & flogged double the number are brought back to the work. All this information and others have been given to me in July and August by Mocasadars and by several

Sir

Your most Obdt. Servt.
(Signed) Thos. H. Fletcher
Surveyor

Vadakirla
October 1872

Rec.d 19 Oct.r
& R.d & R.d

P.R. 8 Nov.r 72.

Mr. Fletcher's
account of his
experiences on
the Ghaut
near Ko- in for
Letters.

No. 1572

69

Proceedings of the Board of Revenue dated 13th August 1872

Read the following letters.

From

R. J. Melville Esqre Acting Agent to the Governor of Fort Saint George Vizagapatam

To the Secretary to Government Revenue Department

dated Cotacamund 6th July 1872 No. 265

Referring to Proceedings of Government No. 1447 dated 12th June 1872 I have the honor to point out an error which appears in the memorandum by the Chief Engineer

2 He states "Rupees 10,000 last years provincial grant for roads in Jeypore was spent in opening a trace laid out by the surveyor &c"

I have the honor to point out that the bulk of the provincial grant of rupees 10,000 which was allotted not only for "Jeypore roads" but also for "Jungle Clearing" was spent as shown in statements DEF which accompany my report on hill tracks, recorded in Government Proceedings, No. 36. dated 19th June 1872

The salary of the surveyor employed in the Vadivalsa Ghaut was paid out of the rupees 10,000 but the Maharaja's money was spent on the construction on laying out of the Ghaut.

3 Referring to paragraph 4 of the same memorandum.

randum I would point out that overseer Fletcher's services were merely required to layout the trace. When that was done, he was of no further use to the Assistant Agent, as he proved himself, owing to want of tact, to be unable to get on with the Coolies and the neighbouring land holders whose tenants they are.

4 I gather that from the superintending Engineers letter recorded in the above Proceedings that Mr. Turner of the Department Public Works, wishes to retain Mr. Fletcher's service From verbal communication with Mr. Turner I retained the impression that all he requires is a Gomastah, who is also a draughtsman, and I should imagine that a competent person for this work could be found at a far lower salary than that drawn by Mr. Fletcher whose pay was fixed at a higher rate in consideration of the temporary measure of his engagement.

(True Copy)

(Signed) R.J. Melville
Ag. Agent to the Governor.

2

57

To

The Secretary to the Board of Revenue with reference to Board's miscellaneous Proceedings No. 4565 of 25th Ultimo.

From

R. J. Melville Esqr.
Acting Collector of Vizagapatam

To

The Secretary to the Board of Revenue
dated 24th July 1872 No. 830

I have the honor to forward a letter from the Asst. Agent of Jeypore, which gives the explanation called for in G.O.* No. 1447, dated 12 June 1872. Other matters are touched on, some of which it is of great importance to have settled.

2 Mr. Turner remarks firstly that things have greatly changed since the first proposal, for the construction of a ghaut was approved of. The Rajah of Jeypore had then placed at Mr. Turner's disposal, a sum which if expended with great economy, might prove sufficient to construct a passable Cart Road from the plains to the Jeypore Plateau. Professional aid was asked and obtained for the purpose of laying out the trace of the proposed line. Subsequently when Mr. Turner of the D.P.W. was employed in laying out and constructing the road from Laloor to Padivalsa, it occurred to Mr. Thornhill on the Assistant Agent's suggestion, that Mr. Turner might; with advantage, give his name sake, the Assistant Agent, the benefit of his professional advice and assistance when required and after one came the G.O. on Mr. Thornhill's report, on this district, in which Government expressed themselves willing to supplement

*Board's miscellaneous Proceedings No. 4585 dated 25th June 1872.

the rajahs grant and their desire that the work should be prosecuted to compiletion. From this time the position of affairs was changed. Plans and estimates were called for by the Department of Public Works which Mr G. J. Turner was called on to prepare and for this time. Mr G. J. Turner has apparently* considered himself responsible for the work in every respect and has looked on Mr H. G. Turner as under his orders as far as regards the construction of the road. I quite agree with assistant agent in thinking that he can hardly be expected to work under the orders of Mr G. J. Turner, and I think that if the whole system and plan of the work is to be changed that it had better be transferred altogether to the Department of Public Works. I have no doubt that the Assistant Agent would afford them every assistance in his power in obtaining a supply of coolies, which is the main difficulty.

* Vide he enclo

Enclosure № I

From

G. J. Turner Esqr
Asst Engineer P.W.

To

The Assistant Agent in Jeypore
dated Rajayedda 12th July 1872

As I have been directed by the government thro' the Superintending Engineer 1st Division, to continue superintending the retracing of the line of Ghaut from Ladivalsa to Potingi and to give you what other professional assistance you may require, and as I have been at the same time informed that I shall be held responsible that the work shall not be such as to bring discredit on the Department to which I belong, I have the honor to inform you that I cannot accept the responcibility of giving you any assistance, unless I have your assurance that it will be taken in every particular.

2 The fact that any advice as to the line and works has been repeatedly rejected, makes it necessary that I should have thus, more especially that work that is now being done is such as would not be creditable to me, however much it may be so to you

3 I regret that I have not got the copy of the G.O. referred to as I sent it to Captain Beatty my immediate superior to account for my doings; but as you will probable receive a copy yourself soon I do not wish to have an answer to this until you have seen it.

4 But at the same time as I have been directed to proceed with the trace and estimate, and to furnish a report on the work, and I have been provided with means of doing so in a proper manner, such as I pointed out to you when I first came on the work, I would request that you will kindly have work carried on only on those parts, where I have fixed the trace or where we agree as to the proper line, untill you have given me an answer to this letter.

I must inform you that I am instructed that my duties on the Ghaut are to be only strictly professional so that I am exceeding my orders in making any request as to the disposal of your Coolies, but under the circumstances mentioned above, I think the necessity for this step is sufficiently obvious.

From

H. G. Turner Esqr

To

The Agent to the Governor
of Fort Saint George in
Vizagapatam dated Walltair 22d July 1872

I have the honor to acknowledge receipt of G.O

12th June 1872 No 1447 in which you call my attention to the extravagant proportion of Superintendence to labor in my estimate for earth work. The Chief Engineer has I observe, assumed that the peons are employed in superintending Coolies at work. This is not the case their principal duty is to collect coolies from the surrounding country. The Villages are small and the Village heads are with great difficulty persuaded to let their laborers come to work. There is no such thing above the Ghauts as a floating Cooly population. In fact some part of the money which appears as "peons pay" in the estimate is in reality paid to the hereditary Curnam of the Panchisenta Estate, who has agreed to furnish a stated number of men. I trust that this explanation is satisfactory. I would point out that as I am in some degree pledged to get the work done as cheaply as possible, it is not likely that I would permit an unnecessary expenditure. As the Chief Engineer has sundry statements in his letter which are erroneous and which have nevertheless been passed over by Government, I think it will tend to a satisfactory settlement of the whole question if, I briefly recount the history of the work up to the present time.

2 In G.O. 28th February 1871 No 215 the offer of the Maharajah of Jeypore to Construct a road at a cost of rupees 15000, provided he were allowed to establish a toll thereon was accepted by Government, and the D.P.W. were directed to place a native subordinate of that department at my disposal. This native subordinate was to be employed for a short time, and his salary was to be paid out of the funds provided by the Maharajah.

The D.P.W. were unable to send a native subordinate, but on the 29th July 1871 Government passed an order No 1993 authorizing the Superintending Engineer to engage the services of Mr. Fletcher for employment under the Assistant Agent. The salary of this employ was to be paid by Government out of the usual annual allotment of rupees 10000 for roads and jungle clearing

clearing in Jeypore. It will be observed that Mr Fletcher did not belong to the D.P.W. 55

3 Mr Fletcher arrived in October 1871, and I set him to work to lay out a trace through the line of country that I had fixed on for the road.

I inspected Mr Fletcher's work on several occasions during the latter part of 1871 and considered it to be satisfactory.

In March 1872 I was again at Potingi and it then appeared to me that Mr Fletcher was not making such progress as I expected, and that much bad feeling has arisen between him and the neighbouring land owners. The work was falling behind and he experienced great difficulty in getting coolies. He had now been employed on the trace for four months at a considerable expense, and I was of opinion that he could be of no further assistance to me moreover he fell sick and left the works with uncalled for abruptness, occasioned as I believe, by the offer of Mr G. Turner of the D.P.W. to Superintend his work. I had, as the Chief Engineer remarks every right to dismiss him, and he is unwise in grumbling at the reason I placed on record for doing so, viz that the trace had been executed.

He has been liberally dealt with in the matter of his salary, as I allowed him subsistance allowance at Vallair for a month after his services had been dispensed with, because he had to stay there, pending receipt of his salary.

4 Up to this time the whole expense of the trace had been borne by the Maharajah, with the exception of a few months pay drawn by Mr Fletcher From the allotment for roads in this division: and since that time the work has been Continued, out of the Maharajahs funds, and Government have not paid any thing at all.

5 We now enter on the second Chapter of the history. This began by a letter from Mr Thornhill to me, asking for details about the ghaut road. I replied, pointing out that the trace was not altogether approved

approved of, and I mentioned that Mr G. Turner who was employed on neighbouring works had offered to re-trace the ghaut, recommending that the offer should be accepted. On this Mr Thornhill wrote on the 11th March 1872 to Mr G. Turner, requesting him to execute his offer as soon as possible.

6 Accordingly I met Mr G Turner on the 26th March at Potingi and I then agreed with him that he should undertake the re tracing of the lower half of the ghaut and should superintend the blasting operations, for which, on his recommendation, I applied for 5000 lbs of powder. I regret that no record was made of this agreement, but I then finally decided on the trace so far as regarded the upper portion of the ghaut and I did not contemplate asking for the assistance of Mr G Turner on this part of the work. I pushed on the work on the upper portion and I have completed two miles of earthwork.

7 Mr Turner was detained on duty elsewhere, and was unable to visit the ghaut until the first week in July, when I met him there again.

8 During this interval matters had changed considerably Mr Thornhill had written a report on the District, and Government, in their Order thereon, of the 17th April 1872, No 621 paragraphs 5 & 6, desired that the ghaut work should be prosecuted with vigour to Completion, and they stated that they were prepared to supplement the Jeypore Rajas grants by contributions from Provincial funds. Further, in the Government Order that has given use to this letter, Mr G Turner is directed to undertake the duty of retracing and to report on its height, gradients, and other details and estimate for its total cost.

9 Armed with this authority, Mr Turner proceeded to the ghaut in the beginning of July (when he arrived before I did) and assumed charge of the direction of the work. He, on his own responsibility stopped work, which was being carried on under my directions, and he insisted that all advice that he gave should be implicitly followed. I enclose you an official from him on the subject.

Not only does he require that his advice shall be followed in every particular, but he claims to decide whether his advice is or is not required; and the advice, which he says I have rejected, was given when I never asked for it.

10 I submit that if the Control of the work is left to me, I must be at liberty to determine when I do require help and when I do not, and I would further point out that the result of Mr G Turner's scheme will be to place me in the position of an Overseer under his orders, an occupation I am not prepared to enter on.

11 If Mr Turner had Come up when he received Mr Thornhill's letter in March, I would have considered his views on the subject of the upper part of the ghaut. Now that I have decided on this part, I have only need for his services on the lower part of the trace, and in blasting operations. In these things I shall be guided by his experience as much as possible, but I would remark that professional advice Can only be followed in every particular by a professional executive.

12 His request that I should have work Carried on only on those parts where he has fixed on the trace, sounds well; but as a matter of fact he had not definitely laid down a single yard of trace up to the time when I left the work a week ago. Moreover, I do not know when he will do so. He requires that the land shall be surveyed, and, to that end, has engaged the services of Mr Fletcher, a man whom I deem too expensive to be continued on the work.

13. There is another point that I would draw attention to, which is, that if Government give grants for the works, complications in the agreement we have made with Jeypore respecting tolls, are likely to arise. It appears to me that if some solution can be given to this question, the most satisfactory proceeding would be to hand the whole Conduct of the work over to the Department Public Works. We shall then have a good road, and I shall be relieved of a duty which is sufficiently onerous, and for which I am poorly qualified.

The Collector with his letter submits the explanation of the assistant Agent called for in G. O. 19th June 1872 No 78

2 Mr H. G. Turner's explanation of the manner in which the peons were employed and his reasons for dispensing with Mr Fletcher's services are satisfactory

3 The Government Order of the 12th June No 1447, did not justify Mr G. S. Turner C.E. in taking charge of the works on the Ghaut nor in addressing the Assistant Agent as he did.

4 There are no doubt difficulties attending the relative positions of the two officers and the Board agree with Mr Melville and Mr H G. Turner in their opinion that under the circumstances it will be better that the work should be undertaken entirely by the Department Public Works.

5 The history of the work is very clearly given by H. G Turner in his letter to the Agent dated 2d July 1872.

6 In February 1871, the Government accepted the

4 the offer of the Maharajah of Jeypore to construct a Ghaut through Mr Turner's Agency on the Condition that he should be permitted to levy a toll on it when completed.

7 It is not a little creditable to Mr H. G. Turner that he not only undertook the work but actually made very considerable progress in it.

8 In February 1872, it was determined with the concurrence of Mr Thornhill to open work on a road from Salur to Sadwalsa at the foot of Turners Ghaut as a means of relief to the population in the neighbourhood.

9 Mr G. Turner C.E. who had been appointed to the district specially to superintend relief works was placed in charge of it and at the suggestion of the Assistant Agent was requested to aid him in tracing the Ghaut

10 The matter was alluded to in Mr Thornhill's report on Vizagapatam and the G.O. quoted was the result.

11 It remains to be determined what is to be done in future.

12 In the first place the Board think it was very unfortunate that the financial necessities of Government obliged them to accept the offer of the Jeypore Raja to devote Rupees 15,000 to opening the ghaut Coupled as it was with the condition that he should be allowed to levy tolls on the ghaut when completed.

13 No restrictions as to the amount of the tolls nor as to the time that they should continue to be levied appears to have been made. The Board think advantage should be taken of the present review of the matter to refund the money and withdraw from the agreement.

14 It is not possible that the roughest permanent cart road can be constructed up the ghaut for Rupees 15,000. The rise is, the Board believe,

b

between 3,500 and 4000 feet; the length about 12 miles

But the importance of opening Jeypore to traffic can hardly be over-estimated, and is quite sufficient to warrant the outlay required for a good Cart Ghaut. During the early months of this year when scarcity prevailed in Vizagapatam Jeypore was overflowing with surplus grain.

Mr. Turner has already opened a road passable for Carts from Potiad to Koraput and Jeypore, 60 miles or so, but the country is destitute of Carts.

No Conveyance has ever yet entered Jeypore a (country equal in extent to a large district) on wheels.

If the money cannot be spared out of the ordinary grant it should be provided out of loan funds

The Board resolve to urge Government to place the work under the Department Public Works and press it forward as rapidly as possible. If the Condition of affairs which prevailed this year should be reversed in some future year and Jeypore should be the scene of scarcity and Vizagapatam of plenty, every bag of grain for the supply of the people must be carried up by bullock or Cooly.

It would only be just that Jeypore should pay for its own Ghaut but as this cannot be compelled at present this Cost must be met by the state.

True Copies and Extract

To the Chief Secretary to Government R.D.
- the Collector of Vizagapatam
with two original letters, returned

(Signed) J. Grose
Secretary

Received

69

P.W. 5876/72.
5/12/1872

Proceedings of the Board of Revenue regarding the Ghaut works

Proceedings Dec 7th 1872

Waltair. 28th November, 1872

My dear Col. Walker &c.

Fischer advises me to make my wants known to you direct, and I trust you will excuse my doing so at once, as I shall in a few days become responsible for the state of the Department in this District.

Owing to Mr. Laskey's mismanagement in the matter of the Yellamunchelly Cutcherry, which I understand has been fully reported to you, Mr. L. had been directed by the Supg. Engineer to hand over charge of his Range to Mr. Turner. I had however already communicated to Mr. T. the orders contained in your telegram of 14th, and he left the District by steamer for Salemon the 25th.

For years past the Supg. Engineers have been dissatisfied with Mr. Laskey as a Range officer. In 1868, when the Rice

the lower subordinates. The Range
officer of this No II Range must be
be aided by a competent and trusty
worthy assistant at Vizianagram
or it will be quite impossible for him
to exercise a proper check on the work
& therefore ask you to leave Mr Cormac
at Vizianagram.

My second request is in regard
to Mr Brickwell and Mr Lasker.
You have directed me to employ
Mr Brickwell on the Ghaut. I
have not yet either heard from him
or heard when he may be expected
at Vizianagram where he has
been ordered to join. I understood
that he has been employed for some
years on Irrigation projects, but
has no experience on Ghauts.
Mr Lasker on the other hand
was formerly, if I am not much mistaken
an Asst Revenue Surveyor, and

had experience on Ghaut
works in Canara. He seems
to have executed a survey of the
old and new Colloor Ghauts in the
southern part of North Canara. He
had afterwards experience of Ghaut
work in the Nilgiri tracts of Sanjam

If therefore you have not already
made other arrangements for
Mr Lasker, I would ask you
to allow me to send Mr Brickwell
to Yellamunchelly for charge of
No I Range, and to employ Mr
Lasker on the Ghaut.

Believe me
sincerely yours
L Beatty.

P.S. If you approve of this change
please telegraph.

67

Notes on Teypore Ghaut.

Lines and Gradients.

The summit of the Ghaut is marked by a mound of stones, near the stockade above the old village of Sheverah. The soil is six feet deep at this point and if it were removed, a gradient of 1 in 20 would lead to the bank of the stream in about a furlong. When this is reached, the belt of soil, between the rock and the stream, would give good gradients for about two miles, with only two or three small spurs to be cut away. If in leaving the summit, the higher ground above the spurs is taken, the gradient would at first be better, and the work less expensive, but the bank of the stream could not then be reached without a zig-zag.

The stream has to be crossed somewhere between where the present trace crosses and the waterfall at the foot of the valley, the site depending on the question as to which side of the stream gives least cutting for the road.

From the waterfall, downwards, a gradient between 1 in 18 and 1 in 20 would lead to the flat belt of ground on which the Palagedda cooly-huts and store-shed are built. The cross section for about two miles from the waterfall is very steep and on rocky ground, but for some distance both above and below the proposed line, the slope is uniform, so that there is no choice.

At Ralageddda the gradient would be flatter than is necessary, but the line cannot be taken lower than the bank of the main stream, which is reached here. The cross section is almost flat here.

After crossing the small stream below the store shed, where the flat belt ceases, the gradient should be as steep as is admissable, in order to reach the flat ground below the spur. The lower down in the face of the spur, the line is carried, the heavier will the work be at this point, but it will save more in proportion of rock cutting, further down, and will cut off one Zig-Zag. If a service track is to be made first, the trace round the top of the spur would lead down to the flat ground on 1 in 12, with two short Zig-Zags. This trace is the nearest to the stream of any that have been made; all the ground above it has been thoroughly explored both by Mr. Fletcher and by me independently, and no satisfactory line could be got.

Below this point the slope hill face recedes from the stream, for about half a mile, leaving a space of slightly undulating ground, on which the longitudinal section parallel to the stream is about 1 in 80, so that, even with the lower starting point, several Zig-Zags would be required to reach, with 1 in 16, the crossing of the river at the top of the work which has been done. These could be diminished in number by running into the hill face, but nothing would be gained in ground to be got over, and the work would be much more expensive, especially at the angles.

If Zig-Zags are not considered satisfactory, the work which has been done, (about two miles from Tadevulsa upwards,) would require to be abandoned, and the line could not cross the river, but would be more direct, and would avoid a bridge of 35 feet span in the ghaut, and either another of about 200 feet water-way on sand 10 feet deep, at Maripillay, or a ford which would be impassable in the rains, and always difficult, owing to the steepness of the banks.

I did not go over this line opposite Tadevulsa; from the crossing of the Coorcooky river, past Nuvolacoyumulsa, and joining the line which has been marked out, opposite Maripillay, an easy and cheap line could be got on the high ground between the hills and the river, with only two large nullahs to be crossed.

Rate for Estimate.

For Earthwork. If the hill men can be induced to work at all, they will do it for 1a. 6p. a-day, & will do 1½ cubic yard in that time, if it has not to be carried far. Low country people would require to be paid 3½ or 4 annas, and would do little over 1 cubic yard a-day.

Skilled laborers of all kinds require to be brought from Ganjam; a few of these are at present occupied on the Assistant Agent's house at Koraput.

Limestone is to be had at the foot of the hills near Coorcooky.

Godavery teakwood, in roughly squared logs, about 30 feet long and one foot square, unseasoned,

is to be had from Mudcaugiri, but arrangements have to be made there for felling it. At Koraput it costs 8 annas a cubic foot, so that it would cost about 10 annas at Potinghie.

Madras.
4th Decr/72.

G. J. Turner,
Assistant Engineer.

Public Works Department

No. 5033

Proceedings of the Madras Government

Read the following

From The Ag Supt Engr. P.W. No. 2971 / 19th Nov. 72

1st Do.

To His Excellency the Governor in Council

I am not of opinion that the change of route involved by the Assistant Agent's endeavour to open a Bridle Road by way of Potinghy and Vadavalasa to Salur and Ramabaddrapooram instead of improving the Pachipenta Ghaut amounts to such culture

and unauthorized
change of a route sanc-
-tioned by Government
as Lieutenant Colonel
Fischer would appa-
-rently impute to him.
All that the Government
sanction amounted to
was approval of the selec-
-tion of a central route
between Jeypore and
Vizagapatam of which
the direction was
indicated by the
Rachipentah Ghaut
in preference either
to a Northern Route
by Parvatipoor or a
Southern Route by
Balliguda to Rasi-
-poor. It was open

to the person entru-
with the design a
execution of the wo
to waste such a
-tion from among
several passes tra
in the same gene
direction as the
-cipentah Ghaut
should be preferab
and the Public Wor
Department having
failed to take up the
work the Assistant
Agent was left to the
exercise of his own
unaided judgement
That Lieutenant Colonel
Fischer was ignorant
of the precise direction

and unauthorized
change of a route sanc-
-tioned by Government
as Lieutenant Colonel
Fischer would appa-
-rently impute to him.
All that the Government
sanction amounted to
was approval of the selec-
-tion of a central route
between Jeypore and
Vizagapatam of which
the direction was
indicated by the
Rachipentah Ghaut
in preference either
to a Northern Route
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Balliguda to Rasi-
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to waste such a
-tion from among
several passes tra
in the same gene
direction as the
-cipentah Ghaut
should be preferab
and the Public Wor
Department having
failed to take up the
work the Assistant
Agent was left to the
exercise of his own
unaided judgement
That Lieutenant Colonel
Fischer was ignorant
of the precise direction

in which he was working
till his own late visit
to Wallaroo in which he was not making reference
was in attention to
published reports in
which Sadiwala
was distinctly men-
tioned as the junction
between the Famine
Road in the low country
on which Assistant
Engineer Sumner was
working and the
Ghaut which he named
after the Assistant
Agent was opening
from the upper country.
It is inconceivable that unsatisfactory that
the Supt Engineer
should have remained

uninformed 77
contentedly ignorant
for many months of the
precise locality in which
one of his Executive
officers was working.
His Excellency in
Council does not how-
ever consider that it
has been satisfactorily
shown why the Pachi-
penta Ghaut line has
been abandoned and
another by way of Sadi-
wala taken up. No
report on the subject
by the Assistant Agent
is extant: and Assistant
Engineer Sumner can
throw no light on it.
The question must
evidently be taken

up a fresh and are
so under principles -
Special Agency has been
appointed for the work
vii G. O. dec 2774 of 26
November, and it will
be utilized vii the first
instance, to ascertain
by aneroid observations
the height of all saddles
commanding a possible
descent into the low
country, vii the direction
required: those at the
head of the Pachipenta
and Sadivalcot Ghauts
being specially included -
Vii the choice of a Ghaut
head, and its ruling
gradient - the rest of

of its trace depends:
the head of a Ghaut
is the only point about
it that can be fixed
vii the first instance,
and all trial traces
should proceed down-
-wards from it till the
bottom is neared. The
District Engineer will
accompany his Assistant
over the ground vii the
first instance, and see
that he does not make
a false start - and as
already directed vii the
G. O. above noted, the
Inspecting Engineer will
take an early opportu-
-nity of visiting the

locality, and satisfying himself and the Govt that future operations shall henceforth be carried on in the right direction. Its large outlay will be recuperated for months, the current season will be well utilized if it results in the opening of a trace of a yard in width, costing at the rate of two to four annas per running yard; for execution of which and enabling the Engineer to move about with facility, a small permanent

g of Coolies should
entertained with
e sum of Rs 2,500
already allotted.

Govt

28
5

To
6 Dist Coll. J. & S. Fisheries
3 Inspecting Engineer
Chief Engr & Secy to Govt
Revenue Dept.

No. 5876

Govt. of 1872 Madras.

PUBLIC WORKS.

To Lieut.-Col. J. H. Fisher R.E.

Dated

Recd. Encl. 5

G. O. 19 Dece 1872, No. 3033.

Nos. 460 & 461

Report from Capt. Sanders on letter from the Collector of Tanjore relative to the Cauvery Anicut.