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Government of Madras.

Public Works DEPARTMENT.

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Not to be folded or roughly handled

Proceedings of the Madras Government, Public Works Department, 12th March 1864.

No. 303. Read the following letter from Lieutenant-Colonel G. W. WALKER, R. E., Superintending Engineer, 7th Division, to Colonel C. A. ORR, R. E., Secretary to Government, Department Public Works, dated Buntwall, 9th February 1864, No. 331:—

SIR,

1. Having lately had opportunities of examining portions of Lieutenant Law's traces of the new Coonoor Ghát, and of making myself acquainted with the general features of the ground which he has as yet worked over, I have the honor to submit a few remarks on his progress so far, and on the future prospects of the work.

2. Commencing from the old Ghát head at, but on the opposite side of Coonor bridge, Lieutenant Law has worked round into the Kartairy Valley, stopping short of crossing that nullah about a quarter of a mile from "Dawson's bridge." From a first zig-zag there, a long run crossing the Coonoor nullah at "Stanes' bridge" takes him across the old Ghát a little below the third mile stone. It is on the features of ground between the third and fourth mile stones that the great difficulties of the new trace are encountered. With astonishing perseverance and labor Lieutenant Law has multiplied his traces over this ground till he has ascertained for a certainty that he can get through it without more than four zig-zags. Another clear run of about a mile brings him on to the features of ground above the site of the intended Ghát Bungalow, to get below which entails four zig-zags more. Government will be pleased to learn that the Bungalow site originally selected will probably suit both the old and new Ghâts; and that nothing need prevent its construction next season, but the chance of its being damaged by rocks dislodged in the formation of the zig-zagged road above. At any rate, the sum of Rupees 4,300 entered on its account in the Coimbatore District Budget of 1864-65, Item No. 39 of Statement No. 1, may be sanctioned at once. Lower down Lieutenant Law is now prosecuting his work, and more cannot be reported than the expectation of getting to the bottom with not more than two zig-zags above and one below Burliar; making a maximum number of 12 instead of 40 zig-zags in the original trace, and about twenty zig-zags in Mr. Fraser's conjectural line. We have determined to keep the Burliar bridge crossing on the old Ghát and to lead its foot to the east side of the Kullaur bridge, to save new constructions of that nature.

3. The character of the ground encountered by the trace is very encouraging, considering how many and how great difficulties have beset it. For steepness of side slopes, and magnitude of rocky obstructions, I have worked on no Ghát to equal this. With judicious boldness Lieutenant Law has not allowed minor difficulties to turn him from his general line or to modify his working gradient, and he has been rewarded by long runs of favorable ground between his difficult points; and where, as between the third and fourth miles of the old Ghát, nothing but a choice of difficulties was left him, he has spared no trouble to make the very best choice.

4. It is when I attempt to realize the amount of labor required to open out the Ghát that I feel the necessity of supplementing the ordinary sources of supply. Hitherto not enough labor has been obtained to open up a bridle-path one yard out of the solid, as fast as desirable; and it is very doubtful whether the small allotment of the current year will be spent, although Major Farewell is prepared to raise the ordinary rate, and Lieutenant Law takes advantage of every offer of contract and gives easy terms. And the extension of Coffee cultivation on this side of the hills will be so great in 1864-65 as to absorb any amount of additional labor that it would be reasonable to hope for. Such labor also, whether of Hill Badaghurs or of Mysoreans, is of the worst kind, absolutely out of all proportion to the 4 Annas daily hire which it receives.

5. Under these circumstances it becomes a serious question how to raise the labor required, without entering into the local labor market to such an extent as to prejudice private proprietors; and it is a question which has to be determined by the Government, with reference to the efficient working of the Wynad communications as well as those of the Neilgherries. I take the liberty therefore of making such suggestions as occur to me on the subject.

6. The two alternatives seem to me to be either a considerable augmentation of the Corps of Sappers and Miners, or the formation of two bodies of Pioneers. I should be glad enough to

have even one Company of the former as a nucleus for good workmen, but I know that the Military objections to the detachment of any more of that small body from Head Quarters may be unanswerable ; and I prefer suggesting in what manner and to what extent Pioneers might be raised, how organized, and how paid.

7. Less than two Corps of 750 men each would not answer our purpose, and it is possible that in the process of re-organizing the Native Army which is said to be contemplated, a sufficient number of able bodied men might be eliminated to form at least skeleton Corps ; or if preferable, to double the present strength of the Sapper Corps. If not, the attempt must be made to raise Pioneer Corps from new hands enlisted in about equal proportions from the Telooguo, Tamil, and Western Coast Districts. The organization should be Military in nothing but a few names, and in punctuality and discipline ; the latter to be maintained by simple powers, such as those intrusted to Officers in charge of Convicts, invested in the Executive Engineer and his Assistant.

8. I would recommend 9 Companies of 80 men to each Corps; divided into three classes on 4, 5, and 6 Annas a day in the proportion of 40, 20, and 20. The first class to consist of men capable of the hardest work, such as blasting; the second of men of less physical power, but able to work at moving rock with crow bars, wedges and hammers ; the third class ordinary pickaxe men. To each Company there should be a Blacksmith, Carpenter and Bricklayer, on 8 Annas a day ; and a Jamadar or Maistry on Rupees 2 a day to every 3 Companies. Sunday pay to be the same as for week days, but to be earned in full only by having been at work every day in the previous week. Half pay to be given for absence caused by sickness. A Company of 20 boys at 2 Annas each, to be attached to each full grown Company of Pioneers, from which promotions into the latter might be made, and which should be recruited as far as possible from the men's families. A short Act to be passed giving the necessary powers to enlist men from year to year, and to punish to an extent sufficient to maintain discipline and punctuality. Longer enlistments dispensed with, to obviate necessity for leaves of absence and pensions ; and working hours from 7 to 5, except on task work.

9. Estimate of annual maximum cost of Pioneer Corps of 750 men and 180 boys :—

			Rs.	A.	P.
360 at 4 Annas for	365 days	...	32,850	0	0
180 at 5 „	365 „	...	20,531	4	0
180 at 6 „	365 „	...	24,637	8	0
180 at 2 „	365 „	...	8,212	8	0
27 at 8 „	365 „	...	4,927	8	0
3 at Rupees 2	365 „	...	2,190	0	0
	Total	...	93,348	12	0

Not that a separate sanction for such sum need be asked ; each man's labor would be simply debited to the actual sanction on which he was employed, and the fact of an organized gang of Pioneers being used instead of common Coolies would not appear from the accounts of the Department. All that is wanted to start the plan is the power to enlist, to enforce the conditions of enlistment, and to punish for disobedience or neglect of lawful orders corporeally or by fine, or both.

No. 309. ORDER THEREON, 12th March 1864, No. 760.

1. The Governor in Council is gratified to receive so promising a report of the result of Lieutenant Law's operations in opening a new Pass for the Coonoor Ghát, and he notices with much satisfaction the very favorable mention of that Officer's indefatigable exertions in overcoming the difficulties encountered in the prosecution of the duty, as also the interest taken by Colonel Walker himself in a work of so much importance.

2. In paragraphs 4 to 9 the Superintending Engineer dwells at some length on the present paucity of labor, and on the advantages of supplementing the ordinary sources of supply by organizing a body of Pioneers. The Government, however, very much questions the feasibility of maintaining and keeping together a body of men of the kind. Colonel Walker will observe on reference to the correspondence noted in the margin, that an attempt to form a Labor Corps in Malabar as a means of overcoming the difficulty of prosecuting works in the Wynad country, proved abortive ; and unless indeed the men of such a corps be placed under Military discipline like the former Pioneers, now the Sappers and Miners, and be made eligible to pensions, the expense of which measure is in itself a fatal objection to the proposition, it seems impracticable to resort to the proposed expedient for meeting the present increased demand for labor.

From Deputy Chief Engineer, Southern Circle, 12th June 1862, No. 12.
Proceedings of Government, 6th August 1862, No. 1,862.

3. No provision has been made in the Budget of 1864-65 for the Burliar Bungalow ; but it will be determined in the Revenue Department, with reference to its Proceedings No. 2,001, dated 6th November 1863, and to paragraph 2 of Colonel Walker's present letter, whether there is any objection to a grant from the Reserve being made for the work after 1st May next.

(True Extract.)

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

To the Revenue Department.
„ Superintending Engineer, 7th Division.
„ Controller and Auditor of Public Works Accounts.

Exd. S. T. Augustin.

Supg. Engrs Office 7th Division
Buntwal 9th February 1864

From Lieut-Col. G. H. Walker R.E.
Superintending Engineer 7th Dn.
To Colonel C. A. Orr R.E.
Secretary to Government P.W.D.
Madras

Sir,

Having lately had opportunities of examining portions of Lieut. Law's Trace of the Coonoor Ghaut, and of making myself acquainted with the general features of the ground which he has as yet worked over, I have the honor to submit a few remarks on his progress so far, and on the future prospects of the work.

2 Commencing from the old Ghaut head at, and on the opposite side of Coonoor Bridge, Lieut. Law has worked round into the Hantain Valley stopping short of crossing that nullah about a quarter of a mile from "Dawsons Bridge" - from a zigzag there, a long semi crossing the Coonoor Nullah at "Stevens Bridge" takes him across the old Ghaut a little below the 3rd mile stone - All in on the features of ground between the 3rd & 4th mile stones, that the great difficulties of the new trace are encountered - With astonishing perseverance and labour Lieut. Law has multiplied his traces over this ground till he has succeeded for a certainty that he can get through it without more than 4 zigzags - two short cuts run of about a mile long him on to the features of ground about

the site of the intended Chord Bungalow to get below which entails Engage Super— Government will be pleased to learn that the Bungalow site originally selected will probably avoid both the old and new Channels, and that nothing need prevent its construction next season but the chance of its being damaged by the Floods during the progress of the Engagement above— At any rate the sum of Rupees 4,200 for Section 16 was taken in the Estimate for District Budget for 1864/65, Item No 39 of Statement No 1 may be expended as usual— Should Upper Scinde Law is unfavourable this work, and more cannot be reported than the expectation of getting to the bottom with ordinary Engagements, and I believe Government has determined to erect Permanent Bridges crossing over the old Channel and to be 25 feet in the Centre of the Sukkur Bridge, to save such reconstructions of that description.

3 The character of the ground traversed by the Canes is very encouraging considering how much and how often it has been disturbed by the operations of rich planters, and many of the Canes are found to equal this— With judicious and timely Supervision, there should be no difficulty in getting a sufficient supply of Canes— South Scinde has not attained sufficient stability to turn Engagements hastily or to undertake Engagements of great extent, and to be rendered secure by long pieces of favourable ground between the difficult points, and where, as between the 3rd and 4th miles of the old Channel, nothing but a series of

difficulties was to be shun, he has planted no trouble to make the new boat choice

4 Nowhere I attempted to ascertain the amount of labour required to open out the Channel that I feel the necessity of supplementing the ordinary Engagements— Hitherto not enough labour has been obtained to open up a bridle path one yard out of the solid, as past as desirable; and it is very doubtful whether the small allotment of the current year will be spent, although Major Farewell is prepared to have the ordinary rate and Scinde Law takes advantage of every offer of Contract and Engagement— And the extension of Cotton Cultivation on this side of the Hills will be so great in 1864/65 as to absorb any amount of additional labour that it would be reasonable to hope for— Such labour also whether of Hill Badaghuzzas or of Upper Scinde is of the worst kind, absolutely out of all proportion to the Handsome daily hire which it receives—

5 Under these circumstances it becomes a serious question how to raise the labour required, without entering into the local labour Market to such an extent as to prejudice private proprietors; and it is a question which has to be determined by the Government with reference to the efficient working of the Proposed Communications as well as those of the Scinde Rivers— I take the liberty therefore of making such suggestions as occur to me on the subject—

6 The two alternatives seem to me to be either a considerable augmentation of the Corps of Sappers &

Miners, as the formation of two bodies of Pioneers should be glad enough to have much use Cowdray of the former as a nucleus for the latter; but I know that the Military objections to the detachment of any nature of that would be of a most serious nature, and I suggesting in what manner and to what extent Pioneers might be trained to habits of discipline and organized, would be as follows:-

1st. — Not less than two Corps of 250 men each would not answer any purpose, and it is possible that in the process of re-organizing the native Army which is said to be contemplated, a sufficient number of able bodied men might be eliminated to form at least three Corps; or if preferable, to double the present strength of the Sappers Corps. If not the attempt should be made to raise Pioneer Corps from new hands entitled in about equal proportions from the Teloogoo Canarese, and Western Coast Districts. The organization should be Military like nothing but a low manner and in punctuality and discipline; the latter to be maintained by simple powers, such as those intrusted to Officers in charge of Convicts, invested in the Executive Engineer and his Assistants.

2d. I would recommend 3 Companies of 80 men to each Corps, divided into 6 Classes on 1, 3, and 6 Annas a day in the proportion of 40, 20 and 20. The first class to consist of men capable of the best workmen such as Blacksmiths, the 2nd of men of less physical powers and able to work at moving earth with Scrapers and Pickaxes; the 3rd Class ordinary Pickaye men. To each Company there should be a

Blacksmith, Carpenter and Bricklayer, on 8 Annas a day, and a Jemadar on Maistry on Rupees 2 a day to every 3 Companies. Sunday pay to be the same as for Week days but to be earned in full only by having been at work every day in the previous week. Half pay to be given for absence caused by sickness. A Company of 20 boys at 4 Annas each to be attached to each full grown Company of Pioneers, from which promotions into the latter might be made, and which should be resorted as far as possible from the sons of Pioneers. A relief Act to the passing the necessary powers to retain men from year to year, and to punish to the extent sufficient to maintain discipline and punctuality. Longer enlistments dispensed with, to obviate necessity for leaves of absence and Pensions; 9 working hours, from 7 to 5, except on task work.

9 Estimate of Annual Maximum cost of Pioneer Corps of 250 men and 180 Boys

360 at 4 Annas for 365 days	= Rs	32,850	"	"
180 — 5 — " — 365 — "	= "	20,531	4	"
180 — 6 — " — 365 — "	= "	24,637	8	"
180 — 2 — " — 365 — "	= "	8,212	8	"
117 — 8 — " — 365 — "	= "	4,927	8	"
3 — Rupees 2 — 365 — "	= "	2,190	"	"
Total Rupees	=	93,348	12	"

Not that a separate calculation for each nationality would be simply delusive to the actual calculation on which is was employed,

Public Works Departt.

Proceedings of the Madras Government 13
Under date the 12th March
Read the following letter
from the Superintg Engr

Reporting on the progress
made by Lieutt Law in
forcing the new Coonoor Ghaut
and on the inconvenience ex-
perienced in procuring labor

} dated 9th Feby 1864 No 331

The Governor in
Council is gratified
to receive so promising
a report of the result of
Lieutenant Law's opera
tions in opening a new
trace for the Coonoor
Ghaut, and he notices
with much satisfaction
the very favorable men-
tion of that Officers
indefatigable exertions

Lieut Law's operations to
extract Cabbages & Coffee
Pioneer Corps Ootacamund
Dear Sir. The one Pioneer
Company & Sapper promised
me officially for the Coonoor
road effectively has not
yet been sent

Thave the honor to be,
Sir
Your most obedt. Servt

G.H. Crewe Lieut & Supt
Nilgiris

Ootacamund 9th Feby 1864

I am glad to hear such a promising account of the new trace
but nothing has been said of the steepness of the gradients -
I question very much the Economy of the present "Pioneer"
System pay is high and unless they could be kept a constant
work the expense would be great - of course the men could
not be changed by the Army Estimate, they must therefore
appear in the P.W. Estimates & Ben Labour charged eventually
to particular works - an attempt was made to organize a
Sapper Corps for Wynaad but it failed - their payment &
establishment another mode of getting along seem to many parts
of under work unprovided for Grant - for if we do not do
it Government work cannot be met pay for them will be

338-300

C. 214 Feby 1864 Chief Engr Madras

Pioneer Corps Ootacamund
9th Feby 1864
Lieut Law's operations to
extract Cabbages & Coffee

Sir
I have the honor to be
Your most obedt Servt

G.H. Crewe Lieut & Supt
Nilgiris

Ootacamund 9th Feby 1864

I am glad to hear such a promising account of the new trace
but nothing has been said of the steepness of the gradients -
I question very much the Economy of the present "Pioneer"
System pay is high and unless they could be kept a constant
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of under work unprovided for Grant - for if we do not do
it Government work cannot be met pay for them will be

338-300

C. 214 Feby 1864 Chief Engr Madras

For the orders
of Government
Pro. 809.

Nilgiris
Ootacamund
Dated 9th Feby 1864

Lieut Law's operations to
extract Cabbages & Coffee
Pioneer Corps Ootacamund
9th Feby 1864
Lieut Law's operations to
extract Cabbages & Coffee

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G.H. Crewe Lieut & Supt
Nilgiris

Ootacamund 9th Feby 1864

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but nothing has been said of the steepness of the gradients -
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establishment another mode of getting along seem to many parts
of under work unprovided for Grant - for if we do not do
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338-300

C. 214 Feby 1864 Chief Engr Madras

For the orders
of Government
Pro. 809.

Nilgiris
Ootacamund
Dated 9th Feby 1864

Rd 9/66 - 12th March 1864

in overcoming the
difficulties encountered
in the prosecution of the
duty, as also the interest
taken by Lt. Walker
himself in a work
of so much importance

In paras 4 to 9
the Superintending Engineer
dwells at some length
on the present paucity
of labor and on the
advantages of ~~supplementing~~
~~corroborating~~ supplementing the ordinary
sources of supply by
organizing a body
of pioneers - The Govt.
however very much
questions the feasibility of maintaining
and keeping together
a body of these men
of the kind - Lt.
Walker will observe in
reference to the conse-
quences noted in the
margin that an attempt
to form a labor corps
in Malabar as
a means of overcom-
ing the difficulty
of prosecuting works
the Wynaad Counte
road abortive; and
unless

From by Chief S. C.
12th June 62 No 12
Pro Govt. 6th June 62
No 1862.

unless indeed the
men of such a corps
be placed under Military
discipline like the
former Pioneers, now
the Sappers and
Miners, and be made
eligible to pensions,
the expense of which
measure is in itself
a fatal objection to the
proposition, it seems
impracticable to
resort to the proposed
expedient for
meeting the present
increased

increased demand
for labor.

No provision has
been made in the
Budget of 1864/65
for the Burlia Bun-
galow, but it will be
determined in the Re-
venue Department
with reference to its
Pro: No. 2001 dated
6th Nov/63, and to para
2 of Colonel Walker's
present letter, whether
there is any objection
to a grant from the
Revenue.

Reserve being made
for the rent after
1st May next.

W.B.

To
The Rev. Dean &
Sup.g Engr. & Surv.
Contr. & Archt. of Pr. Ass.

Banff. 14th March

Ap. V. 1864 Depth
Rec: of Govt. for March
No. 760.
Rec: of the Atty Genl
Dy 12. March 64

Further Ch. No 1575/64

Letter from the Superintending
Engineer 7th Dn relative to the possible
Lieut. Law's operations in opening a
new trace for the Canoon Ghaut,
Coimbatore District. With orders
thereon.

No. 808. 809

9th