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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

Com. 26-1-58

G.O. No. 108-107 Press Mis.

15-16

Dated 20—1—1858.

Not to be folded or roughly handled

Fort Saint George, Public Works Consultation of 26th January 1858.

No. 15. Extract from the Minutes of Consultation under date the 20th January 1858, No. 108.

In an Extract from the Minutes of Consultation dated the 7th of April 1857, No. 119, the District Engineer of Coimbatore, was authorized to expend, in preserving the trace of a new Ghaut from Ootacamund to the Western Coast in supersession of the old Carcoor line, the balance of the sum sanctioned for making the first trace on the 12th of July 1856, and whatever sum might remain unexpended from an estimate for the construction of three bridges on the old Carcoor line. Captain Francis was permitted to expend, after the 1st of May 1857, what further sum might be required to preserve the trace, and was directed to report his total expenditure to Government in order that it might be charged to the one lac fund.

2. The order having been passed about three and a half months before the restrictive order of the 17th of July could have reached the District Engineer, the Government hope to find that the work of preserving the trace has been successfully carried out, but as no report of the District Engineer's proceedings has been received, and no account of his expenditure has reached the Government, it is resolved to request the Chief Engineer to obtain and submit early information on the subject.

(Signed) H. FORBES,
Acting Secretary to Government.

3

No. 108

Encl, under date the
2 January 1858.

In case retaken from
Terminates of Conviction
dated the 7 October
1857 - No 119, the District
Registrar of Caernarfon
was authorized to re-
-land, in pursuance
thereof a case stated
from the Court of Sessions
of the Western Coast in
Connection of the
said Caernarfon,
the balance of the sum
sanctioned for
making the first case
the 12 of Sept 1856,
Sterling sum
remain at a
. needed from
estimate for
Carnarfon

bullocks on the road Cawnpore
line – Capt. Francis on
permitted to proceed, after
Ref: 7 May 1857.
that further steps might
be required to facilitate
the trace, and on di-
rected to report his
total expenditure to
Govt. in order that it
might be charged to the
one last found
The order having
been passed about
three & a half months
before the receipt of
the letter of the 19th of July
and have reached
Dir: Genl., the
Secretary to Govt

but the work of the
surveying the trace has
been successfully
carried out, but as
no report of the Dir.
Engineer has as yet
been received,
and no account of
his expenditure has
been rendered to Govt, I
is resolved to request
the Govt. to obtain
such & submit early
information on
the subject.

20th January 1858

G. S.

Copy to the Chief Engr. Disp. 23rd

Public Works 1858 Dep.

Dft to Mrs 26 Jany

No. 108.

Extract Minute of Council

Dft 20th January 1855.

No. 15.

From the Secy. to the Executive Council dated 31st October 1854 with Report of Committee of Council of 1852.

recommending to the
Honorable Court for
sanction, any of the
projects of public
improvement brought
forward in the Bud-
get of 1857/58.

2. Secondly, as
this Government
first, that it would
well not to frame
(really new Bud-
get for the ensu-
ing year, but to
amend the same by
the simply bringing
forward

forward the old items,
as independent of
the present financial
condition of the coun-
try, they were unwil-
ling to authorize any
fresh Estimates, leaving
projects included in
the Statements of 1857/58
remaining unexpende
and many above one
23,000 Rupees each in
cost, previously sub-
mitted, not having
even received the
consideration of the
Court of Directors. But they
were led to alter this
intention, on noticing
among the Estimates

received during the course of the year, many of such importance, as to render their rejection extremely undesirable, and many of greater consequence than others which had already found a place in former budgets, and having therefore a better claim to be proceeded with. I am desired to assure the Govt. of India that, in framing the present Budget, this Govt. have paid every consideration to the existing financial pressure, and to the heavy calls there must now be on the revenues of India; and it was with this fact prominently kept in view, that a careful selection was made from the large number of estimates submitted by the Chief Engineers, and which has resulted in several projects of important character but minor urgency

mere
~~being~~ rejected. &c.

It will thus be apparent that ~~estimates which have received conditional sanction after full and careful investigation, have been thrown out, in the annual revision made by Government of the projects submitted to their notice~~ the estimates entered in the present budget are those which have received the most consideration and attention at the hands of this Government.

3. Further, it will be observed that, in the case of some works brought forward from Budgets of former years, no expenditure has been proposed for the next official year, as they appeared of less consequence than other projects of later date, and as there was already a sufficiency of works for execution in the Districts to which they referred. Such works have however, as

was

was explained in the last Budget report, been brought forward in the present Budget, in order that they might not be lost sight of. I am also to state that, in the case of many works, the expenditure proposed by the Chief Engineer for the year has been considerably reduced, in order that the total annual expenditure may be confined to a sum small on account as it at all compatible with the well being of this Presidency.

4. With Colonel Dirkes letter of the 30th October last, a fresh classification of the projects brought forward in the Budget of 1857/58 was furnished to this office, as a guide in the arrangement of future Budget lists. I am directed to report that the present statements

have been drawn up agreeably to the classification thus prescribed, but with a slight alteration ~~only~~ in the form of statement, which this Government have found it convenient to introduce, and which they believe will be considered an improvement by the Government of India. The guide furnished contained three subsidiary columns under that of "Classification of Works," "1st Class," "Section," and "Sub Division." It has been found convenient to omit the two first subsidiary columns, and to enter the information intended to be contained in them, in the body of the statement, in type of a different size, under the column of "Description of work;" the advantage of the change being that, not only is the statement reduced by two columns which in many cases would have been blank over several pages, but by the sowing of spaces it has been practicable to frame the

the Statements on single pages instead of their being spread out so as to occupy two sides. The opening titles, "Classification of Works," and "Sub Division" have further been replaced by the single title of "Nature of the Item." The advantages of these improvements will be at once apparent on referring to the classified Statements appended to this report. As provided for in the new form of Statement furnished by the Government of India, the Expenditure up to 30th April 1858 is given at once in one column, all the details of the Expenditure have been furnished by the Chief Engineer in his statements, for the information of this Government.

5. Although the lists

as

as now prepared for submission to the Government of India, appear to this Government, as to arrangement, to be simple, unencumbered with unnecessary particulars, and occupying less space than heretofore, it must at the same time be observed that the classification itself is very minute, and involves considerable labor in its preparation, containing as it does, many subdivisions which would appear to be superfluous in a mere Estimate statement. The wishes of the Government of India have however been attended to; but as the documents thus prepared

will

will be of little use to the Government, the Chief Engineer, or the Local Officers, as papers of reference, inasmuch as they do not shew at one view the works of all kinds to be undertaken, and the expenditure to be incurred, in each District, the Government have had an Index Statement prepared containing all the works geographically classified, under the several divisions of Irrigation Works, communications, and Buildings, so that each District Engineer will be able at once to ascertain the cost and

description

description of works sanctioned for his District. This Index, both for statements No. 1 and 2, is prefixed to those documents, reference being made opposite to each work to the corresponding item in the Budget Statements, and I am desired to express the hope of this Government that the improvements introduced into the present Budget will have the approval of the Government of India.

6. Having thus premised I am now to draw attention to statements No. 1 and 2 of the several projects of public works, forming the Budget of this Presidency for the Official Year 1858/59.

7. Statement No. 1 comprising projects

projects estimated to cost upwards of 25,000 Rupees each, includg 21 fresh projects, and brings forward 15 from the Cost budget, making 36 in all, involving an aggregate estimated expenditure of Rupees 47,00,694; of which it is proposed to lay out only Rupees 8,92,820 in the next Official Year; and of this latter sum, it must be observed, R. 5,17,760, or more than half, is for State purposes, chiefly Military, the rest, Rupees 3,75,060 being for Public improvements.

8. Statement No 2 brings forward works above the estimated Cost of 25,000 Rupees each, which, having been already approved and sanctioned, remain unexecuted; and exhibits also all works under 25,000 Rupees each, which have been sanctioned by this Govern:ment. It contains altogether 643 projects of a total estimated cost of Rupees 1,38,01,693, of which the complete expenditure to the close of the current Official year is 51,37,037 Rupees. The outlay proposed for the ensuing year amounts only to 11,66,494 Rupees. For 34 works, no expenditure is proposed in 1858/59, as these works it is thought, may be held in abeyance under the present financial pressure.

9. Taking the two Statements together, the

the total estimated cost of the several projects to be executed in part or wholly in 1858/59, amounts. It will be observed to 185,02,387 Rupees. Of this estimated total, an outlay of 51,37,037 Rupees will, it is computed, have been made up to 30th April 1858, and a sum of 50,59,314 Rupees is proposed to be laid out in the ensuing official year, leaving 83,06,036 Rupees to be worked out in future years.

as shewn below

	Amount of Estimate	Actual Expenditure to Dec/57 and probable to 30th April 58	Amount required for expenditure in 1858/59	Remaining amount available for completion
Statement No 1	47,00,694	"	8,92,820	38,07,874
Statement No 2	138,01,693	51,37,037	41,66,494	44,98,162
Total	185,02,387	51,37,037	50,59,314	83,06,036

10. These particulars will be gathered at once from the Abstracts prepared under the ground heads enumerated in the new classification, and appended to Statements No 1 and 2. Statement No 3 shews, in a condensed form, the proposed expenditure, both under Statements No 1 and 2, and the probable outlay

outlay on repairs in each District, classified under the three main divisions of works. The following table is abstracted from it; and it will be seen from it, that the total outlay proposed in the Presidency in 1858/59 under all heads, inclusive of repairs, is 71,77,875 Rs.

	Irrigation Works	Communication	Building	Total
Budget Statement No 1	59,840	3,15,220	5,17,760	8,92,820
Budget Statement No 2	9,63,411	19,78,429	12,24,632	41,66,494
Total	10,23,251	22,93,649	17,42,414	50,59,314
Repairs	11,33,304	~~7,74,875~~	2,10,022	21,18,201
Grand Total	21,56,615	~~30,68,524~~	~~19,52,436~~	71,77,575

12 Statement No 3 being prepared as usual according to Districts, the Government think it that it will be convenient in this place to enbjoin a brief abstract, shewing at one view the proposed outlay divided according to the classification prescribed by the Govt of India.

Abstract

23

	Estimated Expenditure for 1858/59 in Statement No 1	Estimated Expenditure for 1858/59 in Statement No 2	Total
State			
Military	4,72,760	8,48,694	13,21,454
Naval	"	5,880	5,880
Judicial	15,000	84,854	99,854
Revenue	"	88,636	88,636
Ecclesiastical	"	22,276	22,276
Educational	"	1,000	1,000
General	30,000	79,258	1,09,258
Total State	5,17,760	11,25,596	16,43,356
Public			
Municipal	"	25,351	25,351
Marine	"	55,406	55,406
Industrial	"	"	"
Agricultural	59,840	9,77,683	10,37,523
Communications	2,75,320	19,82,460	22,57,780
Railways	40,000	"	40,000
Electric Telegraph	"	"	"
Total Public	3,75,060	30,40,898	34,15,958
Total of State and Public	8,92,820	41,66,494	50,59,314
Total of Repairs			21,18,261
Grand Total			71,77,575

13 Before proceeding to notice the new projects brought forward in the present budget, I am directed to report

respect the following circumstances per the information of the Govt of India, in order that the proceeding of the Govt, in the instances in question, may be confirmed.

~~In them~~. An Estimate of 90,820 Rs for two blocks of married men's quarters in the Dragoon Barracks at Bangalore, was submitted in the Budget of 1856/57, but having been objected to by the Govt of India with reference to recent instructions received from the Honorable Court, as to the accommodation to be provided for married Soldiers, the plan was revised, and the amount of the Estimate reduced to 83,400 Rs. The project, thus revised, was laid before the Government of India with my letter of the 29th March/57 No 660, but in common with the other projects submitted about the same time, no orders have been received either approving or rejecting the fresh Estimates.

On the 12th Nov last, a recommendation was received from His Excellency the Commander in Chief, that the married men's quarters should be commenced at once, and this Government were induced, on His Excellency's representation, to order the immediate execution of the work. It does not however form part of the Budget system, the estimate is brought forward in the present Budget, instead of having been submitted in a separate letter, and I am directed to solicit early sanction to the work.

4th. The circumstances under which the Govt have acted in this case are these. General Beresford, Commanding the Mysore Division of the Army, put it to the Commander in Chief, whether the present

not the most favorable time to commence the work on the Barracks intended hereafter for an Infantry Regiment, but at present occupied by the Kings Dragoon Guards. As this Regiment had come out, the said, without the usual encumbrance of the families of the men, the buildings might be proceeded with without any inconvenience, part being got ready for the reception of the families, whose arrival might be expected in five or six months. The advantage of such an arrangement, it was represented, would be, not only that the necessary accommodation would thus be ready for the Soldiers families, but that the hints lately received by the families of the 12th Royal Lancers, and paid for by Govt, might be dismissed, as they occupy ground required for other purposes

just now, and are besides unsightly and certain to fall into disrepair. General Beresford added that every day unemployed on their work was a manifest waste of ~~money~~ time; and the Commander in Chief strongly supported this view, agreeing with General Beresford that no favorable occasion, when neither the 1st Dragoon Guards and the 3rd Battalion of H. M. 60th Rifles had their families with them, might be lost. His Excellency further agreed with General Beresford that, altho' the formal consent of the Supreme Government had not been received, the principle had been conceded, that nothing more than alterations in the details of the plans had been ordered; that the instructions given had been strictly obeyed

charged in the annexed plans, and that the prepared construction and similar to that sanctioned for the future Gragoon Barracks, thus preventing the anticipation of formal sanction a perfectly safe proceeding - Under such strong recommendation the Government had no alternative, but to authorize the immediate prosecution of what was represented as a Military work of urgency.

15. There now to proceed to report upon the 21 projects newly proposed in the accompanying budget: There are five Military works, one Judicial, one General, thirteen communication, and one Railway project; all they will be treated of in the same order in which they are entered in the Budget.

No 1. Repairing the Fortifications of Fort St. George.
Rupees 14,37,210.

16. In a letter dated 21st November 1855 this Government forwarded to the Government of India a report from the Chief Engineer, on the condition of the Fortifications of Fort St. George and the necessity of placing them in a state of complete efficiency. The Report was accompanied, 1st by an Estimates of the probable expense of restoring each of the several delapidated works to a condition of effective repair; 2ndly by extracts from the records of the Chief Engineer's office and other papers giving the early history of the Fort; a description of the several works comprized in it, and the opinions periodically given by Committees of the condition of each in particular

Copy sent to India 21st November 1855. No 21 of 1855.

19. The estimate for the Tunnel having been already worked out on emergency, the amount of the remaining 21 Estimates, Rupees 14,37,210, has been entered in the Budget; and it is now proposed, with the Sanction of the Government of India, to commence with those repairs regarded as more immediately emergent, estimated to involve an expenditure of Rs 2,76,260; leaving the remaining estimates, amounting to Rupees 11,60,950, to await the pleasure of the Honorable Court of Directors. It is hoped that the Estimates of Rs 2,76,260 will receive the early sanction of the Government of India.

Construction of a Hospital and other buildings for the European Artillery at Secunderabad, and [illegible] the Quarters of the Staff Serjeants of the Horse Field Battery - Rupees 123,500.

20. This Aggregate comprizes several estimates providing for the wants of the European Artillery at Secunderabad. There are fourteen estimates altogether, ten of which provide for a hospital and subsidiary buildings at an aggregate cost of £92,130 Rupees; one for a range of family quarters for the non-commissioned officers, at a cost of £31,000 Rs; and the last for floors and windows to the Staff Serjeants Quarters of the Horse Field Battery, at an outlay of 370 Rupees; the whole aggregating 123,500 Rupees at

and windows, each room having but one door and no one window, with no upper ventilation, and as there is no verandah on the north side, the windows, which look on that side, have to be closed in rainy weather or in very high winds. These defects, Brigadier Coffin submitted, rendered the quarters unfit for occupation, whether the health, comfort, or decency, of the occupants were considered, and he accordingly recommended their being replaced by a fresh and suitable set of buildings. The Hospital he described to be a bomb proof building, not adapted for the purpose to which it is now applied, notwithstanding a great improvement that has been

effected by the introduction of glazed and venetian doors and windows, and by the reduction of the height of the surrounding wall. The Second room is represented to be unsuitable for the purposes required. It is confined, it is damp, ill ventilated, and ill lighted, its length being 15 feet, width 10 feet, height 6 ft. of front wall 8 feet, and of back wall 11 feet. Of a building for the Artillery School at Secunderabad will be required at no distant period, the present one being pronounced totally unfit for the purpose, Brigadier Coffin recommended that the Hospital be made over for the School, for which it would afford ample accommodation, and that a new hospital be built on

on a more advantageous site, near the Artillery Solitary Cells. The defect in the quarters of the Horse Battery Sergeants, consists in the bad condition of the doors and windows, apparently from having been made of unseasoned wood, besides being defective in construction. It was proposed that they should be replaced by new ones.

22. On these proposals were supported by His Excellency the Commander in Chief, the Chief Engineer was also called upon to have the necessary estimates prepared to give effect to Brigadier Coffin's suggestions; and the present estimates have been submitted by Colonel Fisher in compliance with the requisition of Government.

The cost of the Hospital itself will be 50000 Dr. The centre building for the Dispensary, operating room, Surgeon's room and office, is to be raised on a basement of 3 feet in height above the foundations; the principal and verandah walls are to be 25 feet, and the verandah columns 20 feet in height. This portion of the structure is to consist of four rooms and two verandahs; of the following dimensions, three rooms in the centre each 20×25 feet; two rooms, one at either end, each 10×20 feet; and two verandahs, the inner one being arcaded, each 88×10 feet. This centre structure is flanked by two buildings consisting of Wards for men and women, connected, not with each other, but with the centre structure;

by

by two arcaded curvilinear passages, and separated from each other by a large space of ground. These buildings also are to be raised on basement to three feet in height; the principal walls being 22 feet, the inner veranda walls 17 feet, and the outer verandah walls 13 feet in height. They are to contain twelve rooms in all, with inner and outer verandahs all round, 12 and 10 feet respectively in clear breadth. On the left is the accommodation for the men, consisting of two large rooms, 40 × 20 feet and 40 × 20, as wards, with three cold and warm bath rooms, 12 × 12 feet, the whole surrounded by inner and outer verandahs of the same dimensions

dimensions stated above, and connected by an arcaded passage with a privy 30 feet × 12. The accommodation for the women is on the right of the centre structure; it consists of one ward, 48 feet × 20, and of three rooms, viz. convalescent room 20 × 26 feet, clothing room 20 feet × 12, and nurses' room 20 × 20; with three cold and warm bath rooms, 12 feet × 12 each. These apartments also are surrounded by inner and outer verandahs of the dimensions stated above, and connected by an arcaded passage with a privy 30 feet × 12. The whole of the buildings are to have terraced roofs, the open verandahs to the men's and Women's wards only being tiled. The out offices

to

to be attached to the hospitals consist of guard and barrack: =killers store rooms, serjeants and Medical Officers quarters, a ward for small pox and other infectious diseases, a dissecting room, a furnish: =ment cell, wards for convalescents, a privy for the guard, another for the serjeants and medical subordinates, a cook room for the hospitals, and another for the guard and medical subordi: =nates. There is also to be a compound wall all round the Hospi: =tals and out offices, but for the design and dimensions of these structures,

structures, the Government by dore=fer to the accom=panying plans and re=port of the Chief Engi=neer.

23. The range of Family Quarters pro=posed for the non Com=missioned officers of the European Artillery, is estimated to cost 31,000 Rupees, and is to be raised likewise on a basement of three feet in height above the found=ations. The range will consist of 28 rooms, with an open verandah in front and at the ends,

10 feet clear in breadth.
The dimensions of the
rooms will be as follow.
Ten rooms 15 feet x 15, two
20 x 15, two 12 x 15, ten
15 x 10, two 20 x 10, and two
12 x 10. The main walls
are to be 20 feet, the veran-
dah walls 12 feet, and the veran-
dah pillars 9 feet in
height, supporting a
tiled roof. The out offices
to be attached to these
quarters, such as cook-
rooms, Washhouses, and
privies, will consist
of 3 Rooms raised on
basements, two feet
in height above the
foundations, each 8 x 6
feet

feet in dimensions.
These rooms are disposed
in sets of six, except at
the flanks, where each
set consists of only
three, as will be seen in
the plan; the sets being
divided from each other
by passages 9 ½ feet x 3. The
walls of these rooms
will vary in height from
9 to 14 ½ feet; the com-
pound walls are to be
four feet in height;
and the roofs will be
tiled, excepting those of
the Cookerooms, which it
is proposed to terrace and
provide with Chimnies.
The last estimate of 370
Rupees

Rupees, which simply provides for double doors and windows to the quarters of the Staff-Serjeants of the horse battery, does not need any explanation. All the plans, on which it is proposed to construct these several buildings, have been approved by the Commander in Chief, the estimates have been carefully examined in the Central Office, and are pronounced by the Chief Engineer to be prepared on moderate and sufficient data. The whole project has been considered by Govt in the Military Department and is recommended for execution during the ensuing official year.

114. Making certain alterations and additions to the present buildings of the Gun Carriage Manufactory. Rs 98,100.

---

244. This Estimate is for making certain alterations and additions to the present buildings of the Gun Carriage Manufactory in order to provide suitable accommodation for working the valuable steam machinery received from England for the Establishment. The object of the introduction of this machinery is to facilitate and expedite work and economize labor, and it

it
they has been procured
from England through
the Court of Directors.
The several parts of
the entire Machinery,
received and expected
hereafter, will be
found minutely
described in the Memo-
randum appended to
the Garrison Engineer's
letter to the Chief
Engineer, dated 27th
November 1857 No 501,
and the whole is be-
lieved to have cost
upwards of a Lac and
half of Rupees. It
~~the machinery~~ consists
of every variety of mechanical
appliances required for
the

the scientific develop-
ment of a large and
important factory. It
is to be worked by
three Steam Engines,
complete with separate
Boilers, Furnaces,
and Shafting, and with
all the modern appliances.

25. The accommodation
provided for in the
present estimate for the
machinery above described,
consists of

		Rs
No 1.	General Workshop	40,300
2	The erection of Steam Saw Mills	16,900
3	Alterations and additions to the present Smithy	15,600
4	The erection of Buildings for, and setting up two of Nasmyth's Hammers	13,900
5.	A tramway throughout the yard from one workshop to another	3,900
6	A platform for Lifting Wheels and the construction of two wells	1500
7	Additions to the Foundry	6,000
	Total Rupees	98,100

The General

workshop is 100 feet
in length and 36 feet wide,
and contains
an area of 3,600 Square
feet, exclusive of a
broad Verandah all
round. There is a
space sufficient for
30 benches in double
rows down the shop,
worked from a Central
shaft, which is driven
by a 24 Horse Power
double cylinder Engine.
The Chimney is to
be built on Walls
7 feet in depth, with
a foundation of 12 feet.
It is 60 feet high, the
vent 2-4" in diameter
containing 616 Square
inches

inches. The draught
is considered ample.
There is to be a
railway down the
centre of the building,
the rails for which,
have already been
received from England.

27. The fit for
the Steam Saw Mills
is 69 × 32 in the clear,
and will contain seven
Saw frames of different
gauges, to be worked
with a Sliding bench
by a 14 Horse Power valve
Engine supplied with
Steam from the Engine
in the General Work Shop.

28. The alterations
and additions to the present Smithy,
together with the dis-
position of the Engine,
Boiler

Boiler, Frame and Piping for the forges, of which there are to be 70, are shewn in the plan. The Engine is of 12 Horse Power. The Chimney is 47 feet high, with a area of 304 square inches. Sheet iron hoods over the forges have been provided to carry off the smoke. The only alteration to the present building is the construction of ridge and side Ventilators. The position of the present smithy is central, and the accommodation is considered sufficient for present requirements.

29. The site selected for the buildings required for the two Nasmyths hammers, is at the west end of the Smithy for the 15 Cwt Hammer; while the 7 Cwt smaller one is to be placed in the centre of the forges; both being fed with Steam from the same Improved cylinder boiler. The beds for the boilers are upon a platform of Strong piles, driven as deep as possible with the patent Pile Driver. This is considered the best description of foundation, and especially recommended by Mr Nasmyth. A detailed plan for setting up the Hammers accompanies, marked F.

30. The railway from the Timber yard to the saw mills, and from one workshop to

to another, the Superintendent represents, is indispensable to the economical transit of large logs of wood, and other heavy materials. In consequence of the great amount of the estimate, the railway has been limited to 300 yards, although Major Maitland is anxious for ~~more~~ a greater length

31. With regard to the Foundry, the round sum of Rupees 6000 has been allowed for the additions required, as until the machinery has arrived from England, it is impossible to know what accommodation will be wanted.

32. Deep foundations and great solidity have been given to the buildings proposed to be erected, because the soil is very bad, and the vibration of the shafting and Hammers will

will be an unusual strain upon the roof and bearings. The Estimates were prepared by the Garrison Engineer, in communication with the Superintendent, Major Maitland, as well as the Mechanical Engineers sent out by the Honorable Court, and have received the approval of the Chief Engineer.

33. I am directed to request the special and early attention of the Government of India to this project. Valuable Machinery has already been received and all the money laid out in its purchase must remain as dead capital till the Buildings are erected, and it is set up; and it is earnestly requested that

Mint in anticipation of the ordinary orders on the Budget, Separate intimation of sanction to this Project may at once be made to this Government in order that no time may be lost in undertaking the work, which is considered to be of urgent importance for the protection and use of very valuable Machinery.

№ 5, Buildings for the Manufacture of Minie Bullets &c at Madras, ~~Rs 27000~~ ~~&~~ ~~with~~ and with Loopholed wall, ~~with~~ banquette, in front of the ~~Minie Bullet~~ Factory; Rs ~~13000~~ 40,000.

34. In their letter in the Military Department, dated 16th April 1856 № 39, the Honorable Court intimated their intention to despatch to this Presidency, ~~certain~~ Machinery for making compressed bullets for the new Minie arm, and forwarded two tracings, with explanations, of the nature and description of buildings that would be required for the Steam Engine, Boiler, Ball compressing Machine, and Lead Squirting Apparatus, with a view to steps being taken for commencing the necessary buildings for the reception of the Engines on their arrival. The Chief Engineer

Engineer was accordingly directed, in communication with the late Military Board, to report the arrangements that should be made for providing the requisite buildings; and with a letter dated 24th March last Colonel Faber submitted a rough plan, prepared by the Officiating Garrison Engineer, of certain buildings proposed to be erected on the terre-plain of the bastion, immediately north of the Moneyar choultry Gate, consisting of a workshop 70 × 25 feet enclosing a reservoir for the Lead squirting apparatus 22 × 15 × 16', and an Engine and Furnace room 18 × 14', with a chimney 70 feet high. The probable cost of these buildings was roughly estimated at 7,500 Rupees; and the Government, in authorizing the immediate commencement of the work, desired that definite plans and estimates might be submitted for their approval, without delay.

35. In pursuance of this requisition, the Chief Engineer has submitted two estimates, with plans, amounting to Rupees 27,000 and 13,000 respectively: the first estimate provides for the buildings themselves; and it is stated, in explanation of the increased amount required, that the sum of Rupees 7,500 originally proposed, was for the erection of buildings for making musket bullets only; but that a quantity of other machinery for the manufacture of Friction Tubes, Plugs, Fuses, &c.

Yr having subsequently been received from England, it was necessary to provide additional accommodation for their reception, and that this has led to the increase in the cost originally contemplated. The plan has been approved by the Inspector General of Ordnance, and by Mr Broughton, the Mechanical Engineer, sent out from England to work the apparatus. The area of the proposed building contains 5637 superficial feet, which is considered sufficient for all purposes, and it is stated that there are already built 6700 — superficial feet of excellent Bombproofs and Godowns, which will be most suitable for store rooms. The plan and estimates are considered by the Chief Engineer to be in all respects suitable for the purpose; and the following is a detail of the buildings Yr proposed to be constructed.

1	Store room, Lower Story	Rs 1992
2	Do — Upper do	3660
3	Building for making wooden plugs, friction tubes and compressed bullets, including Engine room	14,654
4	Well & Hydraulic Press for the lead Squirting apparatus	1497
5	Boiler	529
6	Chimney	1931
7	Cistern	130
8	Fitting up the Machinery, Engines, Yr	1975
	Sundries and scaffolding	1632
		27,000

36. The second estimate

of Rupees 13,000, which has been prepared at the suggestion of the Inspector General of Ordnance, provides for the construction of a loopholed wall, with banquette, in front of the entrance to the Mine Bullet Factory, and the clearance of a considerable space inside, by the removal of certain buildings. The estimate consists of the following items:

Construction of wall, laying a road, and providing a pair of strong teakwood lined door shutters, &c &c	5,850.
Value of nine grounds of land, at Rs 350 a ground ...	3,150.
Value of three private buildings and twenty huts	4,000
	13,000

37. The wall is intended for the protection of the Mine Bullet Factory. The area enclosed amounts to 3,959 square yards, exclusive of the ground required for turning the road round the building. The plan has been approved by the Inspector General of Ordnance, and the Chief Engineer has expressed his concurrence in the construction

struction details of the work,
and in the sufficiency of
the rates entered in the estimate.

39. As the Honorable
Court, in their Military
Dispatch of the 16th April
1856 N° 39, desired to be
furnished with the plans
of the buildings here
referred to, I am directed
to request that the
Government of India
will be so good as to
cause the documents to
be forwarded to the Home
authorities, as early as
convenient.

38. In his Statement N° 1,
the Chief Engineer explained
that a sum of Rupees 8,500 had
been already spent under the
emergent sanction referred
to above and that a further
expenditure, it was expected,
would be incurred to the end of
April next. The Government
have therefore entered a sum
of Rupees 15,000 for expenditure
in 1858/59; assuming that only
this amount will be available
after the close of the current
official year, out of the two
estimates of Rs 27,000 and 13,000.
The work being one absolutely
required, it is hoped that the
sanction of the Government
of India will be granted at
an early date to the entire
estimated cost of the buildings,
Viz Rs 40,000.

N° 6 Building Stables for the Horses of the
Dragoons and European Horse
Artillery at Bangalore Rs 15,240.

40. The project here
brought forward was recog-
-gested by that experienced
Officer Lieutenant General
Beresford, Commanding
the Mysore Division
of the Madras Army;
it has the full concurrence
of His Excellency the
Commander in Chief,
and it has been consid-
-dered and approved
by Government in the
Military Department.
The subject was so ably
investigated

deviated by General Berez-ford, in advocating the construction of covered Stables for the European Cavalry Barracks about to be built at Bangalore, that the Government cannot do better than submit the proposal in the language of that Officer.

"The climate of Bangalore", he says, "is deservedly preferred to that of most others in the Madras Presidency; still, it has acknowledged disadvantages to man and horse, which result from exposure to the prevailing weather. At Bangalore

Bangalore, we experience part of both Monsoons, although the gross amount of rain, being only about 45 inches per annum on an average of the last five years, is less than at many other Stations; it is spread over six months of the year. Hireed little argument to prove that frequent wetting* and subsequent speedy drying of the skin under a hot sun, must be prejudicial to horses, having both one annoby; and that thin, hard, and scanty for clothing: The misery

*"In August last year, owing to continued wet weather, the horses in open lines in Bangalore and Ootacamund, did not see dry for 20 days."

misery of wet weather is, I consider, aggravated, when they are picketted under trees; the dripping from them, both after showers and after the foggy mornings, which so frequently occur, is manifestly hurtful; while the dirt of leaves and other droppings greatly add to Line labor. Trees also encourage the various winged insect tormentors of India. The misery these inflict upon horses, can only be fully estimated by those who watch the unceasing restlessness of the poor victims at their pickets, and the loss of flesh and condition resulting therefrom; and who have the real knowledge of the injuries caused to the legs and feet, by the constant stamping upon the pounded gravel floors of the Lines. I confidently assert that their best is the cause of so many horses being cast annually from diseases in those parts. There is however a worse foe than rain for eight months of the year, a hard and often fierce

fierce North East winds
sweeps over Bangalore.
This will be very se-
-verely felt on the elevat-
-ted and exposed sites
of the new Barracks.
Exposure to it brings
rheumatic affections to
men as well as horses.
There is at the same
time a hot sun over
head; and clouds of
dust are whirled through
the air. These combi-
-nations have a most
marked effect upon
horses not under cover.
Rheumatism, the Respiratory
diseases of the loins,
often occurs; the healthy
action of the Skin is
interfered

with, by the
pores being closed; and
catarrhs and cutaneous
diseases frequently
result. Few horses
standing out in Lines
escape coughs, when
these strong winds pre-
-vail; and many
contract mange, which
becomes a habit and
incurable. At this
very moment, there
are several obstinate
cases of this disease
in the Horse artillery
Lines at Bangalore; and
this corps has the
advantage of the
acknowledged veteri-
-nary skill and
unremitting attention
of

of Mr Western - Many horses are annually cast for incurable mange, and sold for a few pence at auction are totally useless. It is within my knowledge that several of these have been permanently cured, after being brought into private covered stables, in which this disease never originated."

"At a recent inspection made of a Cavalry Regiment, I found that a full fifth of the horses of the Corps had one or more broken knees. Had these

these accidents occurred when the animals were mounted, there would have been a record of each; as there were not, I am justified in concluding they occurred at their picketts; and such was the opinion of their Commanding Officer, an experienced Cavalry Officer. Horses, under the restrictions I have above described, pass up the gravel, which is composed of sharp pebbles. It is impossible to keep the large circle now occupied by each horse fully littered down

down, and there accidents naturally occur there".

41. Having thus treated of the disadvantages resulting from the present practice of picketting Horses of the Cavalry in open lines, General Beresford thus proceeds.

"Each Horse of the 30 of the European Cavalry Regiment gets a daily ration of 10 lbs, 11 oz of Grain, while standing in open lines. I am quite sure that no Officer allows for his charger kept in a covered Stable, but performing at least equal work

as work on the Troop Horse, more than 8 lbs. I know that 8 lbs keeps each of my four large Cape Horses in the best condition. I am quite sure that if these 703 were in stables, the saving upon each of 2 lbs per diem might be made; this would make a reduction in one year of 689,599 lbs of grain. The equivalent of this in money at the average of 10 annas for a rupee, would amount to Rupees 11,17,33. By the rough calculation of a competent Engineer, the cost of building

building covered Stables for the new Cavalry Barracks at Bangalore, in place of constructing open lines, would not exceed Rupees 60,000. If my financial calculation be correct, this outlay would be returned in a few years by the saving resulting from the prolonged service of the horse, and Reduction in the cost of his food. The Relieved animal will also be better qualified for service and marching. Supreme it to be generally admitted that

that the higher a horse's condition the better he stands hard work. It is merely a different mode of expressing the more power you bring the easier your perform severe labor. I feel justified also in making this assertion upon the experience I myself have had during my Indian service of eight years passed between the three Presidencies. I have indeed just now completed a march of four months during which the

more frequent changes of climate and temperature. I had a team horses of my own brought at once out of covered stables, and picketted in the open. Each horse this new Recruit daily work is by care and some extra grain, as that has suffered. I attribute this to the high quality of their previous condition and health; and I assume the same result, under the treatment, may fairly be anticipated for Cavalry horses, when required for marching

marching on services.

I have thus concluded my arguments upon the question, as to the advantage to the public in roofed stabling for the quadruped."

"There remains even a more important consideration, that which concerns the European rider. The more you can occupy the European soldier without exposure to the real risk, and I believe, the happier you make him; the less dependent he is upon the assistance of

of Natives, the more
useful and less costly
he becomes to the Govt.
(you cannot safely
put a European to
continual labor in
Mysore, unless under
shelter. The sun, wind,
and rain, are all
prejudicial to him,
especially when heated
by work; but if you
give the European
Dragoon the security
of covered stables,
he may groom his
horse at all times
with advantage to
his own health, and
the Government he
serves; whilst the
same

same protection
will, no doubt, induce to
hope I have shown,
prolong the service
and improve the
qualities of the horse.
I am happy to be
able to add that Major
Campbell, the Superin-
tendent of the
Government Establishment
at Bangalore, whose
superior knowledge
and management
of horses is universally
admitted, fully con-
curs in these views,
and is most anxious
for their adoption."

42. Agreeing
with the Lieutenant
General

General that the proposed construction of the new Dragoon Barracks at Bangalore, affords the most favorable and the least expensive opportunity of securing these advantages, the Government called upon the Chief Engineer for the necessary Estimate to give effect to General Beresford's views. The estimate herewith submitted, was forwarded to Government in pursuance of this call; and in sending it up, Colonel Faber reported that it was prepared by

Colonel

Colonel Green the Chief Engineer of Mysore, another estimate of lesser amount having been received by him from Major De Butts, which he would not recommend as the plan was decidedly inferior. A plan of the Stables now proposed accompanies the Budget, and shews the arrangement both for the Horse Artillery and the Dragoon Corps. The Stables are to be in three lines; the centre line, 10 feet in width; being

terraced

terraced and furnished with swing ventilators in the upper part of the walls. On either side there will be a row of stalls, 10 in each section for Dragoon horses, and 14 for horse artillery, with two rooms for saddlery and harness. There will be a passage between each two sections of stables with a door on each side. Each stall will be furnished with a swing glass window with a ventilator below, and each row of stalls will be provided with a drain running down the centre, which can be flushed daily. The stalls are to be 10 feet by 9 from centre to centre, that space being considered requisite to allow proper room for harnessing the large horses now in the Artillery. The cost is calculated at about 180 Rupees the stall, and for European Horse Artillery and Dragoons amounts to 15,6,240 Rupees, but as the mounted force at Bangalore comprises also a troop of Native Horse Artillery and a Corps

of

of Native Cavalry the further sums of 27,720 Rupees and 71,280 Rupees, the cost of providing Stables for them also, have been added, making a total of 255,240 Rupees, or the full amount of the estimate accompanying this report.—This.

~~For 8 troops of Eur. Dragoons of 88 horses each @ 15,840 Rs~~
the troop 126720

For 1 Troop Eur. Horse Artillery of 164 Horses —— 29520 — 156240

For 1 Troop Native Horse ~~Artillery~~ of 154 horses — 27720

For 6 Troops of Native Cavalry of 66 horses
each @ 11,880 Rs the troop 71280 — 99000

Rupees 255240

But it has been since submitted to Government that it would perhaps be advisable to postpone

the

the Stables for the Native Cavalry, and to commence by providing solely for the horses of the European ~~Artillery~~ and Dragoons. No doubt is entertained of the advantage of stabling all horses, or that Government would profit by providing cover for the whole Cavalry force; but independent of other considerations, the Native Soldier does not suffer from exposure to the sun, as the European does; and thus covered Stables for the Native Cavalry will not perhaps

the

the double advantage which they will secure for the European Corps. the sum therefore to which sanction is now requested is 156,240 Rs

43 The Commander in Chief in remarking on General Beresford's arguments, observed that his own experience abundantly satisfied him that, even as a measure of economy, the State would be a gainer by providing covered stalls for the public horses, and that he would strongly urge the advisability of giving the experiment a fair trial, reducing the allowance of gram as proposed, so soon as

as the horses are placed under shelter. Sir Patrick Grant feels that the condition and consequent powers of endurance of the horses will be materially improved; that they will last much longer, and be far more equal to hard work than under the present system; and what is of still greater consequence in every point of view, it cannot be doubted that, as convincingly shewn by General Beresford, the health of the European

European soldier will be essentially promoted". Alluding to his recent report on Burmah, drawing attention to the superior condition of the public cattle employed in that country, General Grant remarks that he admits the excellence of the forage there, but that it is neither better nor more abundant than at Bangalore, and that the climate is no better

better; so that it may be fairly assumed that the high condition of the horses in Burmah, arises, at all events in a great measure, from their being in stables. The only remains to be added that the project submitted above for the sanction of the Government of India has the entire

concurrence

concurrence of His Government; they feel it would be superfluous to add any thing to what has been already said in favor of the proposal to stable the Dragoon and Artillery Horses at Bangalore, when such High authorities as His Excellency the Commander in Chief and General Beresford have written so ably and strongly on the subject.

No 1, New Jail for Native Prisoners at Bangalore.

Rupees 30,000

44 No 1 provides for the construction of a jail for the native prisoners at Bangalore and the building at present used for the reception of prisoners at that place consists of the Godowns of the old Travellers Bungalow given up for the purposes of a Court House, and this is very fitly for a new building cannot be better appropriated than by giving a full description of the Godowns in question in the words of Mr Archdeacon Leay, the Principal Sudder Ameen of

of the Madeira Hue states,
in his letter to the Inspector
of Prisons of 15th January
1855, that "the Building
devoted to the purpose
of a Prison at Petacamund,
have now had a trial
of nearly six Months, and
the objections that exist
to them have become very
conspicuous. The first is
on the ground of their in-
security. The jail consists
of a range of 4 rooms, access
to which is only gained
from the outside. One of
these rooms (the only one
that has a fire place in it)
is used as a sick ward, the
next as a ward for
Prisoners,

Prisoners, the third limit-
-edly if required, but
ordinarily as a store (and
the only one) for tools,
&c., and the fourth,
from the dilapidated
state of its door and its
common "godown" char-
-acter, does not admit
of being licensed at pres-
-ent to any useful ac-
-count. At the back of
the wards run long
narrow rooms, into
which the wards do
not open, but which
have fixed gratings
in the intervening walls.
These allow of the prison-
-ers who occupy them as guard
rooms,

rooms, keeping a certain
number over what the
Prisoners employed doing
in their wards. By the use
of bars and chains and
patent Padlocks, I have
endeavoured to make
their wards as secure
as possible; but it
must be evident that,
where the pastening is
on the outside and
in the open air, it
will always be more
or less easy for a Pris-
oner to escape, by
industry connivance
from without. There
is nothing to do but
to wrench off a Padlock
and

and the ward is then
open for egress; while,
if on the general Doors
of the Rooms being
on the opposite side
the first act might
well occur without
their knowledge. In
the second place the
Lock is objectionable
because of the abso-
lute impossibility of carry-
ing out the first step
in a good Jail discip-
line, the classification
of Prisoners. In the
course of the last
year, there has been
in the Jail the usual
mixture of male and
female

female convicts, men committed, civil & debtors, and the sick; and the difficulty in effecting a separation amongst them has of course been very great. At one time, one of the guard rooms had to be given up to female convicts, a debtor was lodged in another guard room along with the prisoners, the guard for the sick (who were tolerably numerous)

had

had to take up their quarters every night in the sick ward itself, almost in close contact with disease, while classification as to crime has been and is, as I heard by mistake, altogether out of the question. The third point I will allude to, is the question of the adaptation of the Prison in the score of health. I am not disposed to say that the place is unhealthy; indeed in this climate, and with

with the free circulation of pure air on the top of a hill, it would be almost impossible for any place to be so abstractedly. There have been no deaths in the Jail; but at the same time the hospital has never been empty, (excepting in the three first days of the Jail being opened, and the proportion of sick has ranged from 22 to 10 per cent as a general rule, while at one time it amounted to 64 per cent."

115. The necessity for a new Jail is very forcibly pointed out in the above remarks, and such a building it is now proposed to construct at an estimated cost of Rupees 30,000. It is to be raised on a basement of 2 feet above foundations, which are to be sunk 4 feet. The principal walls of the Cells of upper and lower stories are to be 10 feet high, those of the passage in lower story 10 feet, and in the upper story 15 feet high, and those of the front apartments are to be 15 feet. The Building

Building is to contain
36 cells in the Upper
and lower Stories, and
2 passages and galleries
for sentries, and also
nine rooms for Offices
and apartments. The
cells are ~~to be~~ each 12
feet long by 8 feet broad.
The passages and galleries
are to be each 84 feet
long by 14 feet broad.
The 9 rooms for Offices
and apartments are to
be as follows.

1 Room 24 feet long by 12 feet broad
2 — do each 20 — do — do by 16 - do — do
3 — do — do 14-3" do — do by 12 - do — do
1 — do — 20-3" do do by 14-3 do — do
1 — do — 10 — do — by — 6-9" do — do

With an enclosed
Verandah
only in front
which is to be 7 feet
broad. The compound
walls are to be 14 feet
high, enclosing an area
of 1,808 Square feet.
The out Houses is to
contain 1 Cook room
and a Godown, the
walls of which are
to be raised on a base-
-ment of one foot
above foundations
which are to be sunk
3 feet, and the walls are
to be 10 feet high. The
Cook room is to be 17
feet long by 14 broad
and the Godown is to
be 9 feet long by 14 feet
broad.

The

46. The Estimate has been prepared by the District Engineer and approved by the Inspector of Prisons. The Chief Engineer considers the plans to be well arranged, and the rates of the estimate to be moderate and sufficient. The accommodation is calculated for 36 prisoners, as the Inspector does not contemplate ordinarily, keeping natives sentenced to more than 2 months imprisonment at Octacamund.

I am directed to state that the above project is unconnected with the proposal for the construction on the Neilgherries of a Penitentiary for European Convicts from the several Presidencies.—

No. 9. Loopholed wall, with bastions, to enclose the Madras Mint. Rupees 60,000.

47. This estimate has been submitted in consequence of the defenceless state of the Mint, which is situated in a densely populated part of the Native Town. The wall of brick in mud by which it is enclosed, is stated to be in so dilapidated a condition, as to be in danger of falling with every shower of rain. The property in the Mint is very valuable, and the Treasury has contained, at one time, more than thirty lacs of Rupees. It is therefore considered of the greatest importance that the building should be placed

in

in a state of security by means of a loopholed wall, with bastions, which it is proposed to construct around it: At the same time, as much inconvenience is felt from the insufficiency of the space available for the purposes of the Mint, it is intended to secure an additional extent of ground, which, while it will subserve the immediate object, will also contribute to render the premises more defensible, by removing all buildings in the vicinity — which might be converted into attacking posts. On the north of the Mint is a cluster of native huts, about one hundred in number, built of mud and thatched, and screened from one another by palmyra-leaves and

and other combustible materials. Their liability to catch fire, renders the proximity of these huts dangerous to the mint; and it is proposed to buy up the whole of them, and add their site to the Mint premises. The total area intended to be enclosed is 16,226 square yards, or 61 grounds, of which 40 are on the north side. In addition to this, it is considered desirable to purchase a clear space of 100 grounds of land, outside and around the Mint, in order to prevent private individuals from erecting in its vicinity buildings that would command ~~the~~ ~~Mint~~. The proposed defence consists of a wall eighteen feet high, loopholed at

at every thirty feet, and defended by four bastions, with five intermediate small redans. "The bastions," says the Garrison Engineer, "are "to contain small guard "rooms, or places of arms, "terraced and ventilated "by sky-lights. It is in- "tended that these works "should be defended by "musketry only, but if necessary, "small howitzers or guns "could be most effectively used "at any of the bastions. One "hundred men would, I "think, be sufficient to suc- "cessfully defend the place, "thus fortified, against a "force thirty or forty times "their number."

48. The plan has been prepared by the Garrison Engineer, in communication with Lieut.t Colo. F. Cotton, the Acting Mint Master. The estimate submitted by the former Officer amounts to Rupees 55,000, to which Lieut.t Colo. Cotton has suggested an addition of Rupees 5000, for an extension of the plan in the north east angle of the enclosure. The following are the items for which the Estimate provides:

	Rs.
Construction of a wall, 4 ft. 9 in.	33,300.
Four bastions, @ 1425 Rs. each	5,700.
Value of 61 grounds of land, to be enclosed within the mint premises, at Rs. 100 a ground	6,100.
Do. of huts on the North of the Mint	3,800.
Do. of 100 grounds of land outside the Mint, @ 50 Rs. a ground	5,000.
Do. of 12 Theebunghis Shops and a small Pagoda	1100.
	55,000.
Extension of North east angle of the wall, as suggested by Lieut.t Colo. Cotton	5,000
	60,000.

49. The Chief Engineer expresses

expresses his entire approval of the plan and estimate, and the Right-Honorable the Governor in Council, fully recognizing the necessity of placing in a state of defence a Building situated as is the Mint, and containing valuable property to so large an amount, desires strongly to recommend the estimate for the sanction of the Government of India, and to express his entire concurrence in the remark of the Chief Engineer that, "independently of the mere financial view of the prudence of protecting so large an amount of property, the known impregnability of the Mint might not unreasonably be considered to have an important influence in the preservation of the public peace"

No. 12, Construction of Trunk Road No 6 from Perambakam to Vandalore in the Chingleput Division, Rupees 106,800.

50. This project, and the No 14 which follows have both the same object in view, viz. progress towards completion of the high Northern Trunk Road from Madras to the Bengal frontier. One is a continuation of the other; and on their adoption and execution a rapid stride will have been made towards accomplishing a work, the importance

importance of which is obvious. With the portions constructed in former years, and the projects which have been brought forward since the budget sys-tem came into opera-tion; the greater part of the Trunk Road has been put into efficient condition, or has been provided for under estimates remaining to be worked out, in all the Districts thro' which the line passes, with the exception of a small portion of Nellore and the whole

of

of Guntoor, Masulipatam and Rajahmundry. The two projects brought forward in the present budget will considerably reduce the extent of this hiatus, and will leave few difficulties to be encountered by traffic; and it is hoped that at no distant date, on the completion of the remaining gaps, all difficulty to easy transit will have been removed.

57. The above estimate of 132,800 Rupees takes up the line at Perzooreh on the north bank of the Kistnah, and continues it to Dendaloor on the confines of the Kistnah Division, a distance of 40 miles. A gap will then be left of 40 miles towards the north of about 85 or 90 miles, viz^t. from Dendaloor to Dendapoody, a little below Toonee on the frontier of Rajahmundry. This portion falls within the limits of the Godavery Division, and it will be for the Engineer entrusted

entrusted with that charge, to project an estimate for construct= =ing this intervening portion of road, in order to complete what will become an em= =broken line to the Bengal em= frontier, when provision is em= =made for the gap which occurs in the Nellore District, to the neces= =sity of which as mentioned em= hereafter, the attention of the Engr has been called. The Engineer of the Kistnah Division states that only about twelve miles from Jetcherah northwards were many years ago formed by the em= corps of Pioneers, but that the work has been allowed to fall into disrepair. The road, as now proposed, is to follow the old line for about eleven em= miles, to a point where it em= will be crossed by the Ellore high level channel em= near Cascrapulley, em= whence

project of the
whence, as in the Outlook and
Guntoor portion, which follows, it is to be con= =tinued for the remaining em= twenty nine miles on the em= eastern embankment of the channel. The advan= =tages offered by this embank= =ment, which is to be simply widened to a breadth of eight yards at top and em= metalled, are, as explained by Captain Orr, that heavier to be made very massive in order to retain the water above the level of the country the embankment requires little addition to render it wide enough for a first class road; while the neces= =sity that exists for carry= =ing it above all the em= drainage of the surrounding country.

country, obviates the
necessity of providing
additional bridges expressly
for the road; and that the
vicinity of a road thus laid
out to a navigable Canal,
places it in a situation
to be easily and economi-
cally metalled throughout,
both at the ~~out~~ set, and
hereafter in its mainte-
nance. It is added that
the masonry works for
conveying the Channel
across the beds of the
two branches of the Loamo-
-ir, have been expressly
planned with the view
of carrying the high road
along the Channel banks,
and that the road
cannot be in a more

suitable

suitable position than that
chosen for it; for passing
as it does over low country
the greater part of its course,
it must of necessity be
much raised, and in such
case, it can neither be con-
-structed, metalled nor main-
-tained any where else so cheaply
as it will be on the present
plan. The only masonry works
that will be required exclusively
for the road are thus confined
to the first eleven miles for which
the old line is to be followed,
they are a bridge of forty feet
span for the Roadcommon, and two
of twelve feet, and two tunnels
of nine and three feet span to
this, as well as the sister
project brought forward
below, the Collector gives
his

his full concurrence; and it is hardly necessary for this Government to submit their own approval and recommendation of them for early sanction, as the Government of India will, as readily as themselves, recognize the importance of works, which will go far towards completing the great Northern Road. The routes allowed in the estimates, ~~in the foregoing one~~, are moderate; the works provided for being.

Earthwork ——————— 20,884

Metalling, gravelling &c — 67,762.

2 Bridges ——————— 8,015

2 Tunnels ——————— 1,249

Superintendence & Contingencies 9,690.

Rupees 1,06,800

No 14. Construction of Trunk Road No 6, from Intole to Guntoor Guntoor portion of the Nellore Division.

Rupees 1,32,800

52. As already remarked, this project is a continuation of the foregoing one. It provides for the thorough construction of the Northern Road from Intole on the Southern boundary of the Guntoor District, to the town of Guntoor

Junction, a distance of 42 miles; the portion from Junction to Seetanagram on the southern bank of the Kishnah, having been provided for in an Estimate of 24,990 Rupees sanctioned in 1855, and exhibited in Statement No. 2 of the budgets both of 1856/57 and 1857/58. It appears also in the present budget, the work having been arrested in consequence

consequence of the restriction on expenditure. The road from Inkole to the South bank of the Kishnah, though one of much importance and bearing a great traffic, is described to be "in a most wretched state, notwithstanding that portions of it have, here and there, at one time or another, been partially made, and a few tunnels and bridges erected." In constructing this road, it is proposed, on

on the plan adopted in the foregoing project, to carry the line upon the Western embankment of the projected Southern high level channel for a distance of 25 miles from Sn. Role to Varaganí, and then to follow the old line for the remaining 17 miles from Varaganí to the town of Guntoor. On this portion of the road only, are any masonry works, consisting of fifteen tunnels, nine bridges, and two road dams, proposed to be built

as

between Guntoor and Vadlapoodi

as the District Engineer reports that similar works for the earlier ing distance, where the road is to be transferred to the bank of the Channel, are considered unnecessary, in consequence of the disposal of the drainage being provided for by numerous tunnels, and by aqueducts having bridges attached to them. On the adoption of this estimate, there will be a gap southwards of about 20 miles, unprovided for, viz. from the Moodegunda river

river, three miles North of Ongole, to Inkole on the Nellore frontier ~~on the duty of providing for the~~ ~~space falling within the province of the~~ District Engineer of Nellore, the attention of that ~~superior officer~~ Officer, has been directed by the Chief Engineer to the necessity of preparing an Estimate for the work at an early date. The Estimate now recommended provides for the following

Earthwork	23007
Rowel	67,638
Spreading, Curbing & Ramming	9,209
9 Bridges	17,453
15 Culverts	2987
2 Road dams	690
Superintendence & Sundries	11,816
Rupees	1,32,800

No 16, Construction of a First Class road from Conjeveram to Conjeveram in North Arcot. Rs 29,100.

53 This Estimate provides for a short line of road, 17½ miles long, from the town of Conjeveram to the Railway Station at Conjeveram, in North Arcot. Colonel Pearse, the Consulting Engineer for Railways, brought to notice the importance of such a road as a feeder, in a letter we received in 1856, and he also forwarded a petition in the same month from the Valuildar and seventy one other Residents of Conjeveram, representing the great want of a traffic line

line from that down to the Railway, as at present the merchants could not get access to the line, without the certain risk of having their Carts upset, and the valuable goods with which they were laden greatly damaged, to the heavy loss of the owners. The importance of this road as a feeder to the Railway is not limited however to the town of Conjeveram; for on its formation, it will complete the communication Southwards from Pondicherry and Trichinopoly in the one case by Vindevanam and Mundamash, and in the other by Trunk road No 8, thus

thus affording uninterrupted access to the Railway to those distant marts of traffic. On the north also, the communication would be open to Cuddapah by the Naggery and Kircambandy road, on the formation of the intervening spaces between Conjeveram pett and Trittany and Trittany and Naggery, of which, the space between Conjeveram pett and Trittany is provided for in the present Budget by an entry of an estimate of 13180 Rupees, leaving an estimate of 19040 Rs., providing for the remaining space between Trittany and Naggery to be considered hereafter.

The

The proposed Conjeveram and Coimpany pett road will further cross the high western trunk road from Madras to Bangalore. Under these circumstances therefore, as general convenience and commercial advantage, this Government have selected the project for submission to the Government of India, and beg strongly to recommend it for sanction.

54. The estimate provides for a road six yards wide, to be gravelled however to the extent of four yards only, with several tunnels and road drains, and four Bridges of from 3 arches of 15 feet span to 6 arches of

of 30 feet span. The gravel is to be laid on to the thickness of nine inches, and the side slopes of the embankments will have a general slope of 3 to 1, being turfed where the road is raised more than nine inches. Of the four bridges, that across the Cavadoo surplus channel will have 3 segmental arches of 20 feet span. The foundations will be four feet in depth, and will rest on hard gravel. The heads of the piers and abutments will be three feet, and the waved rise of the Arches 2½ feet; and the clear width of roadway between the parapet

parapet walls will be
fifteen feet. The Bridge
across the Cundyaura also
will have three segmental
arches, but of only 15 feet
span. The foundations
will be five feet in depth
and will rest on clay;
and the dimensions of
the other parts of the
structure will be the same
as those of the Sagauadoo
Bridge. That over the
Coaticook will have six
segmental arches of 30
feet span.

The foundations
will be six feet in depth
resting on rock; the

height

height of piers and abut-
ments, seven feet, and the
curved sides of the arches
seven and a half feet; the
width of roadway being the
same as that of the other
two Bridges. The Bridge
over the Cyanidanady
over flow Channel will
have four segmental
arches of 15 feet span
with foundations
four and a half feet
in depth resting on
clay; height of piers
and abutments, the
curved

served nine of the Arches,
and width of roadway,
being the same as in the
case of the Vayavadoo
and Tandigan Bridges.
In all cases, the founda-
tion will be built of
rough stone, and the super-
structures of brick and
chunam. The Estimate,
the rates of which are con-
sidered by Colonel Faber
to be moderate & sufficient,
provides for the following.

Earthwork, gravelling turfing Avenue trees & milestones.	16598
Four bridges of from 3 to 5 arches.	7440
Other masonry works of minor character	3285
Superintendence & sundries	1777
Rs.	29100

No 18. Reformation and metalling of the Trichinopoly and Coimbatore road within the limits of the Trichinopoly District. Rupees 30,000.

55. The length of road here proposed to be improved is 60 miles in all, extending from Trichinopoly along the right bank of the Cauvery to the town of Carour, and gaining access to the latter place by a bridge across the Amaravady, which here joins its waters to those of the Cauvery. It is represented to be a very important road, indeed, in the opinion of the Chief Engineer, it is one of the most important lines in the South. It not only connects two such large towns as Coimbatore and Trichinopoly, but it in-

forms

forms the only means of
communication between the
former District and the
seaboard of Tanjore, while
it is the direct route from
Trichinopoly and Tanjore
to the Nilgherry Hills. The
District Engineer states
that the traffic returns taken
in one month, as furnished
by the Collector, gave an
average daily record of 120
bandies, the same number of
pack bullocks, and between
two and 300 foot passengers, of
whom more than half were
Cadan Coolies; on all, a daily
traffic of about 500 or 600 souls.
Lieut. Reynolds adds, that on
the occasion of great feasts at
Seringham, he has seen the
road thronged with bandies,
foot passengers, bullocks,
bullock coaches, and palkies,
all

all pouring into Trichinopoly. Altho' the road is bridged and tunnelled throughout, it is said that it has never been perfectly constructed, and that it is now in a wretched state. The object of the estimate is to reform the surface of the road, and to gravel it along the entire length of 55 miles, and when it is thus restored, it is said that a maintenance allowance of 4,250 Rupees per annum, at a rate of 105 Rs. per mile, will be required at the beginning to maintain it in order, the allowance being open to increase as the traffic increases. The project has the entire concurrence of the Collector, and the Chief Engineer recommends the estimate, considering the rates

rates to be moderate. Those for the gravel are high, but it is explained that the material has to be brought from a distance, as the road runs close to the Cauvery on one side, and paddy fields intervene between it and the quarries on the other. The Government approve this project. The annual maintenance Allowance of 4200 Rs. per annum required to keep the Road in order after its restoration, will of course be met out of the funds for repairs &c., entered in Statement No 3 of the Budget. The estimate provides for the following.

Earthworks & gravelling	27,743
Masonry works viz. 2 tunnels & 80 Barrel drains	830
Tools & sundries	1427
Rs	30000

No. 20. Improvement of Dindigul and Pulghaut Cherry Road within the limits of the Madura District. Rs. 27,000

36. The road, a portion of which it is here proposed to put into proper order, runs from Dindigul the Chief town of the Sub Division of the Madura District, to Pulghautcherry on Trunk line No. 5, in Malabar.

The distance falling within the limits of the Madura District, the improvement of which is covered by the above estimate, is about 48 miles to the District boundary at the Amaravatty river. On the completion of the proposed improvement, and of the bridges over two streams, the

the Amravatty and the Shunmoogum Rudda, both of which were provided for in the Budget of 1856/57, at an estimated Cost of Rs 21,500 and 15,125 respectively the road will become highly valuable. It is said that almost all the trade of the Madura District, flowing westwards, finds its way to the west coast along this route; and its importance will be greatly enhanced on the advancement of the Madras Railway to Paulghautcherry. From a traffic return furnished by the Collector, which was taken in the Systematically taken for the Month of November 1855, it is seen that 1596 laden bandies, and 922 laden Cattle, passed along the road during that month; the aggregate value of the articles transported being reckoned at £21,324 Rupees. The road has been partly kept in repair from time to time at trifling cost, the aggregate outlay of nine years from 1846 to 1854, as shewn

shewn in a Statement
supplied by the Collector,
being 17,645 Rupees, or
an average of 1,960 Rs
per annum; though in
1851 no outlay was
incurred at all, and in
1849 the expenditure
rose to as much as 4,834
Rupees. The estimate
provides for a bridge of
23 Arches of 26 feet span
and 6 feet rise over the
Manguri Nudda in the
Pollachy Taluck, for
4 plat form bridges of
from 3 to 6 vents, 50 side
dams of from 5 to 60
Yards in length, 3 pavements

of

of 15 Yards, and repair of nine
others, and the repair of one
side dam and sluice, besides
earthwork, Superintendence
and Contingencies; the total
Amount being 27,000 Rupees
the rate being about 565 Rs
per mile, as stated by
Lieutenant Scott, the District
Engineer - Of all the Masonry
works provided for, the only
one of importance is the bridge
of 3 arches over the Manguri
Nudda, which is represented
to be a deep and rapid
mountain torrent about 70
feet in breadth. This road
may be looked upon as a
feeder to the Railway, though
it will not fully be so un-
til the Railway is extended
to Palghautcherry. Both
the Coll.r and Chief Engineer are
strongly in favor of the
project

project. The latter considers the rates, which appear rather high, to be no more than requisite to ensure efficient execution of the work. The estimate has the approval of Govt. also, and is accordingly strongly recommended by them for sanction. It comprizes the following items.

Earthwork, including turfing, gravelling and blasting rock	11,955
One bridge of 3 arches	5,070
16 Plat-form bridges	1,093
5 New side dams, repairing one and bridling work to others	1,261
3 Pavements	51
Repairing Sluices	4
Superintendence	1,195
Tools and Contingencies	457
One Stone Roller	14
	Rs. 27,000

No. 22. Putting the road between Coonoor, Jackatalla and Dolacamund, into efficient order Rs. 32,000.

57. This work forms part of a general line of communication across the hills. It has already cost 37,596 Rs., the authorized expenditure sanctioned on three different occasions amounting to 31,477 Rs. It was originally estimated to cost only 15,000 Rs., which was sanctioned by the Government of India on the 2 September 1853. Subsequently a change was proposed in the line, and a further sum of 3,336 Rs. was granted by this Government in October following; and under circumstances represented by the Chief Engineer in October 1855, a further sum of 13,143 Rupees was granted by this Government, to complete the

the work. As in the case of the Elk Hill cut on the road from Coloconmond to Coonoor on the same line, the expense of the Rocky cut, immediately connected with the present work, was unfortunately greatly underestimated at first. The difficulties which afterwards presented themselves in the treacherous nature of the soil, the heavy landslips, many tons in weight, that occurred during the progress of the work, and the great cost of the blasting, were among the chief reasons assigned for the additional expenditure solicited in 1855. The estimate of 32,000 Rupees now brought forward is in

in substitution of a smaller one of 19,140 Rupees laid before Government on the 24th September last. The latter provided only for building parapet walls to the dangerous parts of the road from Jackatallah to Coloconmond, but as it was observed by Government in that the road was treacherous and slippery in the wet weather from not being metalled, and that the parapet walls would thus be but an imperfect protection against accidents, they concurred in Colonel Faber's opinion that the metalling of

of the road was as important as the construction of the parapets, and accordingly called for a complete estimate. The present one of 32,000 Rupees thus provides for both objects, viz metalling the road, and building parapet walls, and it is strongly recommended for sanction, as the protection is very much needed for the safety of passengers and traffic, the road running along these precipices, and it is of great importance to establish an easy communication between Coimbatore and the low country

The estimate provides for

Metalling	21,120
Parapet Walls	10,136
Contingencies	744
Rupees	32,000

No 23. Improvement of Trunk Road No 5 between Bhowany and Walliar in the Coimbatore District Rs 32,500

58. That portion of Trunk Road No 5 which lies between Bhowany and Walliar, a distance of 76 miles, extending through the Coimbatore District, is represented to be in so imperfect a state as to stand in need of immediate attention. In his diary written in November last, an Extract from which was laid before Government, Captain Francis the District Engineer says that

that "the state of the Trunk road is well known to Major Sawford," the Superintending Engineer of the Southern Circle, "it is in some places scarcely made; direct by the railroad is opened to Salem it will be doubly as much used, and will supersede the Mysore road for quick traffic to the Hills: it is a very important item for the Budget." Indeed so urgent was the work considered

considered by the Chief Engineer, that he was induced, in submitting the project, to recommend that sixteen thousand rupees might be immediately placed at the disposal of the District Engineer, in order to prevent the Trunk road falling into such a state of disrepair, as to render it impracticable hereafter to retrieve it from the condition to which it would be reduced, unless at the cost of a

a very largely augmented outlay; but the Government, though recognizing the urgency of the work, and feeling regret that it could not be undertaken immediately, felt that they would not be warranted in sanctioning any departure from rule, and have accordingly directed that the Amount Required be entered in the Column of expenditure for

for the next Official year, while no portion of the work will be undertaken until the project itself is sanctioned by the Government of India. Her sanction, if now requested to select, may be granted without delay. Besides its general importance as a trunk line, through roads of the country. It differs from the coast line between Madras and Bangalore, at a point immediately near Caniambady, and passes downwards in a south westerly direction, through the districts of Salem, Coimbatore, and Malabar, until it reaches

Canara

Pomany on the Western coast. In its route, it passes through the towns of Tripadoor, Darampoory, Haramungalum, Seviry droog, Avanasi, Coimbatore, and Palghundcherry, besides other places of lesser note. As the distance, which it is proposed to put into efficient condition, is 75 miles, the rate of expenditure is about 400 Rupees a mile. The largest item in the estimate is for metalling, as will be seen from the following particulars.

Metalling	25,321
Blasting & rough stone revetments	1,024
Clearing side channels and building drains	5223
Wear and tear of tools	927
Rs	32,500

N.

No. 24. Metalling and Gravelling Trunk Road No. 4, from the Mysore frontier to Cannanore, including the Perumbady Ghaut. Rs. 61000.

59. The above estimate of 61,000 Rupees provides for metalling and gravelling Trunk Road No. 4, including the important Perumbady pass. In consequence of a report from Major Sawford, the Superintending Enginner of the Southern Circle, of the condition in which he found the road in the course of his tour in the early part of last year, or during the prevalence of the South west monsoon, and of the imminent risk of great and continued scarcity to which the town of Cannanore was exposed, by being cut off from the Mysore Country, on which during the time that

that

the coast was closed, it was dependent for its Supplies, by the state of the only road leading into that territory, the Government were induced to call for an estimate of the outlay requisite to place the road in an efficient condition; and the present estimate has accordingly been prepared by Major Lawford himself, in Supersession of one for a smaller outlay drawn up by the District Officer, but which was wholly insufficient for the requirements of a road of such importance and bearing such traffic as Trunk line No 4. As the road, besides being of great importance to trade, is also a valuable Military route leading from Mysore to the Western Coast, the following history of the rise and progress of the pass, and the line generally, may not be out of place.

No 1. The Perumbady Ghaut lies between Mysore and Malabar being situated on Trunk road No 4 running from Cannanore to the Mysore frontier, a distance

of

of 68 miles. For the formation of this road, an estimate amounting to Rupees 200,376 was first sanctioned by the Honorable Court of Directors on the 3 November 1847; and the late Board of Public Works, in submitting that estimate, stated in their letter of the 23d Dec 1845, that it provided throughout for a road of the first class, and that all the Streams, except the Sweety Cudaroo, were to be bridged. From this report it might have been supposed that provision had been made for metalling the road, but by reference to the estimate it shews that that was not the case. The work appears to have been commenced in February 1848, and completed in April 1853. The amount expended was Rupees 200,385-6-4, which exceeds by only

Rs

Rupees 9-6-4 the authorized estimate for construction, and for annual repairs to the close of 1852/53. On 25th October 1853, the late Superintendent of Roads Captain Johnston, forwarded an Extract from the Diary of Captain Ludlow, the then acting Civil Engineer of the 4th Division, for June 1853, reporting on the then condition of the Permanbady Grant and road. The road was stated not to be in the good order it should have been, and certain defects were pointed out, the chief being the want of metalling. Captain Johnston accordingly submitted estimates for metalling and other works, amounting to Rupees 13,131-7-10 as follows:

For metalling and draining certain portions of the Grant and road	11,024-10-11.
For constructing a bridge of 3 arches of 10 feet span at Dodally	775-4-9.
Do do 3 of 15 do do	1334-3-2
Do truss bridge across the Corellee Soda	1395-10-"
Deduct amount sanctioned in Mines Cons: 27th January 1853 for a Masonry bridge over the Corellee Soda	14,529-12-10 1,398-5-"
Total	13,131-7-10

He also recommended that the annual maintenance allowance of 3,400 Rupees, formerly sanctioned, should be raised to 6,500, or from the rate of 50 to 100 Rupees a mile; After expressing their dissatisfaction at the state of the road and Grant, as reported by Captain Ludlow, Government sanctioned the sum applied for, and also raised the annual maintenance allowance to Rupees 6800. Subsequently, on the 19th August 1854, Government sanctioned, on the representation of Captain Johnston, an estimate for the construction of a bridge over the Swity river amounting to Rupees 29,923-5-9. They afterwards learnt that this bridge was not built, in consequence of some objection to the site originally proposed.

61. Thus, the aggregate sanction

sanction on the Perumbady Ghaut and road, inclusive of maintenance allowance, and exclusive of the sum sanctioned for the Sirly bridge, amounts to about Rupees 2,35,000, or Rupees 3,456 a mile.

62. In a Memorandum Letter addressed by Capt.n Rolston, Sub Assistant Commissary General, to Colonel McCally, Commissary General, Madras, under date 29th August 1856, the Government learnt that, notwithstanding the large outlay of Rupees 235[illegible]00, a portion of the road between Cannanore and the top of the Perambady pass was in a very bad state, and the injurious consequences to the bazars in Cannanore, and to the general well being of the inhabitants and the neighbourhood, owing to want of proper communication, were then prominently brought to notice. It was reported on

on that occasion that the depth of mud in some places was nearly two feet, and that it was of such a tenacious clayey description, as to render it utterly impossible for a country cart to pass through it. In a Letter dated 21st October 1856, the Chief Engineer stated that he had received intimation from the Quarter Master Genl's Department, that the 11th Regt N.I. would descend the Ghaut about the end of December, and that the 20th Regt N.I. would ascend it in January; and pending the preparation of an estimate in detail, he solicited sanction for an emergent expenditure of Rupees 8000, which was accordingly authorized in Govt Mins. Cons. dated 12th Novr 1856. On the 3rd November 1856, the Chief Engineer submitted a

a report from Captain Francis, under whom the Perumbady road was originally constructed. This officer expressed his surprize at the unfavorable report made by Captain Ludlow on the line, but nevertheless observed that it would be necessary eventually to metal the whole road lying under the influence of the western Monsoon, for which purpose a grant of 40,000 Rupees, it was stated, would be required, besides an additional sum for gravelling some parts. He also added that the maintenance allowance should be augmented from 100 to 200 Rupees a mile for the jungle stages, a distance of 24 miles. The Chief Engr. however reported that Captain Ouchterlony, then District Engineer of Malabar, would

E. M. C. 19th November 1856. 12177.

be requested to obtain and forward returns of the traffic on the ghaut and road, and to regulate the annual repair allowance, the Government determined to await the report called for from that Officer, as well as the estimate for putting the road in order: but this report was never received, and Captain Ouchterlony himself shortly after left the District. Major Lawford, however, in his report above alluded to, stated that the road was not metalled, and was impassable during the rainy season; and on the whole, he pronounced the state of the pass to be very unsatisfactory. He considered at the time that not less than 1500 Rupees a mile, or about one Lac of Rupees for the whole distance of 68 miles, should be laid out on the road in the next five years, and he also observed that, out of

of Rupees 8000 which was sanctioned by Government, on 12th November 1856, on emergency, for metalling and gravelling the ghaut, only a sum of Rupees 2047 had been expended. It has been since reported that a combination of unfortunate circumstances has resulted in the great deterioration of the road. Great damage was caused to the road by very heavy rain, and it was ill supplied with labor in a jungly tract, where provisions are scarce and the climate is most unhealthy. It is admitted also that much money has been misspent by the class of men who were placed in charge of the road. Owing to the scarcity of Superior officers in the Department of Public Works, the Superintendence of the roads was entirely

entirely in the hands of two Overseers, who followed each other in succession. One was dismissed for intemperance and subsequently died, and the other died also from the effects of intemperance; and their accounts too are not forthcoming.

63. His Government however propose to have this matter further investigated. In the meantime, as the Line is of the utmost importance in a commercial and Military point of view, they have obtained and now submit the present estimate for placing the road in a proper and useful condition. A sketch accompanies shewing the portion that has been gravelled, and the character of the soil in the rest of the line. As already observed, the present estimate has been prepared by Major Lawford in supersession of

an inferior one by the District Engineer, and it has been adopted by this Govt, as it appears from the Sketch that only a very small portion, from Cannanore to Coodally, is gravelled and in good condition, while all the remaining portion to the boundary between Coorg and Mysore, or nearly the whole of the road, consists of clay and sand, or stone and rotten soil. Keeping in view Major Campbell's representation of the continued scarcity to which Cannanore, a large Military Cantonment will be subjected, by this route being allowed to remain almost impassable, and that it affords the only route by which troops can enter Malabar from Mysore, this Govt consider it highly desirable, especially in a Military point of view, to put the communication into thorough order at an early date; and they accordingly recommend the project for execution during the next official year. The estimate is made up as follows.

Metalling	48,750.
Gravelling	23,625.
Contingencies	1,325.
	73,700.
Deduct amount sanctioned.	
Sanctioned out of funds allowed for repairs. 12th Nov: 1856 —	8000.
29th Aug: 1857 —	4700.
	12,700
	Rs 61,000

27. Construction of Second Class Road from Cudalapah to Pongaroor, in Cudalapah Rs 43,100

64. This road extends from Cudalapah, via Goramconda and Chudalenna to Pongaroor, near the southern frontier of the Cudalapah District. An estimate of 1853, by Captain Burke, was prepared by Major Bidcake, and originally brought forward for the information: the necessity of the improvement was admitted, but the amount of the estimate was considered to be disproportionately large with reference to the claims of the line, and it

it was desired that an estimate for a road of lower quality should be submitted in lieu. The present estimate of 18,100 Rupees was accordingly prepared by Lieutenant Homery, ~~the present~~ District Engineer of Candeish, being considerably less than one third of the former one in amount. It was at first ordered for entry in the budget of 1857/58; but on the annual review of the projects proposed for execution in that year, it was again thrown out with reference

to

the restriction placed upon expenditure, and the claims of other districts. The difference between the original and present estimate just noticed has been caused, partly by omitting metalling and reducing the width of the road from eight to seven yards, and partly by greater care in selecting the line. The line formerly recommended crossed the Mundaviar four times between Royachoky and Goorumcondaly;

whereas

whereas, by a judicious
deviation of a mile to
the eastward, that river
is altogether avoided
by the new line, Joint-
by with the saving thus
effected, the length of
the road has been
reduced from nearly
fifty eight miles and
a half to a fraction
more than fifty five,
or a reduction of three
and a half miles. The
estimate provides
for a second class road;
viz for earthwork, tunnels
and road dams, with
metalling power and
a half yards broad
and

and four and a half inches
thick at raised parts on
bad soil. The soil is generally
good however, being of fine
gravel. The rivers and streams
being crossed for the most
part near their sources, no
large bridges will be nec-
essary, but ample provis-
ion is made for the
drainage in several tun-
nels and road dams.

65. This road will form
part of the direct road from
Cuddapah to Bangalore;
but its object will be,
in opening fertile tracts
now almost closed by the
nature of the country.
A committee of Engineer
Officers

Officers assembled in 1857. in
words of the tract referred
to in the following terms.
"The western talooks of
Candeish carefully and
judiciously present a
truly curious assemblage
of the most fertile and
nearly level basins, com-
pletely hemmed in by walls
of rock. There is not the
semblance of any road,
except for men and cattle,
in such situations; and
yet it cannot be doubted
that it would be well
to make vigorous efforts
to establish cart roads,
notwithstanding the
physical difficulties."

The

The late Board of Public Works
also urged the necessity of
roads in this tract of country.
One of the talooks there de-
scribed, viz the very extreme
one of Soonnee condala, will
be crossed by the proposed
road. Under the circumstances
above detailed, it is of
course impossible to attempt
to throw any obstacle in the way
of the existing traffic as in
any measure of the neces-
sity for improvement, in
of the use of a road,
if made. But three re-
turns taken between
March and June 18[illegible]
at three different places on the
road, show that even under the
existing discouragements, there

is some traffic, for the average result per month would appear to be that 533 Carts and 2,807 Cattle pass along the road, while 1,507 Coolies and 3838 passengers likewise use the route. From Royachoty up to Cudalapauk, the road forms part of Trunk road No 11, which runs from Cudalapauk, via Cooleleroo and Dammalcherroo ~~and Pedalcherroo~~, to Chittoor and Madras. The distance to be formed being 55 miles and a furlong, the estimate is at the rate of about 870 Rupees per mile. The following works are provided for:

Earthwork & removing rock	22,806
Clearing Jungle	2,140
Roughstone Drains	475
6 Masonry tunnels	15,024
55 Mile Stones	165
Wells	200
Superintendence	5,805
Sundries	1,285
Rupees	48,100

§ 28 Construction Masonry works on Trunk road No 6, between Chittoor and Pedapedalu near Nellapen, Guntoor District Rupees 47,220-

66. In connected with Nos 12 and 14, ~~the projects~~ projects which have on view the completion of Trunk road No 6, there remain to be executed the estimates of 23,790 Rupees and 23,430 Rupees, for constructing masonry works on two portions of road, between Chittoor and Pedapedalu and Pedapedalu and Nellapen, 37 1/2 miles, and Pedapedalu and Bandargedda, 34 1/2 miles, the reformation of which, including earthworks, metalling, and minor masonry works, such as tunnels and roadside drains was provided for in the Budget of 1856/57, under the estimates of 37,200 Rupees and 46,550 Rupees respectively - In consequence of these

these and two other projects connected with Trunk Road No 6, the Honorable Court of Directors have so fully recognized* the importance of completing the line which connects Madras with Calcutta, that nothing is left to be urged by this Government in support of the present project — The Govt of India will observe, on referring to paras 59 and 60 of the Budget report of this Govt for 1856/57, that in bringing forward the two estimates of 37200 Rupees and 46,550 Rupees, for constructing the road between Chicacole and Ganthiasapooram and Ganthiasapooram and Pindagudda, it was expressly stated that they did not provide for bridges for the rivers and larger hill streams, for which estimates would be required and interdemic a future

* para 29 of their despatch to the Govt of India 17th July 1857, communicated in our letter from that Govt of 17th July 1857, No 3482.

future budget. The omission was unsupplied between Chicacole and Ganthiasapooram, the necessary works to be provided for are-

2 Bridges of 11 arches of 7 yards span each — 7980.

1 Bridge of 3 arches of 7 yards span — 3570.

1 Bridge of 2 arches of 7 yards span — 2940.

1 Bridges of 2 arches of 8 yards span - 2840

1 Bridges of 2 arches of 8 yards span 6580.

——— 23790

Between Ganthiasapooram and

and Dundagalola,

23790.

1 Bridge of 4 Arches
of 12 yards span 6,870
3 Bridges of 3 Arches
of 5 yards span 5,100
1 Bridge of 2 Arches
of 12 yards span 5,060.
2 Bridges of 2 Arches
of 5 yards span 2720.
2 Bridges of 2 Arches
of 4 yards span 1940.
2 Bridges of 1 Arch of
5 yards span 1740

23430

Rs 17220.

These works will thoroughly complete the above portions of road. The rates allowed in the estimates are considered moderate and sufficient by the Chief Engineer, and this Govt strongly recommends the project for early sanction.

No 31. Bridges over the Mallelawa, Ernut Road &c. together, Rupees 12,670.

67. On reference to para 11 of the last Budget Report, it will be observed that, as bridges had been provided for all the streams intersecting Ernut roads &c. with the exception of the Polwar and Mallelawa, two estimates to provide for them were brought forward originally in 1825 by Captain Johnstone then superintendent of Ernut roads, which Govt would have included in the Budget of 1826/27, but for the large amount of the estimates which remained to be worked out at the time in that part of the country. As the Undersigned

subsequent explanation however, that one set of works would not interfere with another, the project of a bridge over the Palaur at an estimated cost of £7,780. Engineer never admitted into the Budget of £1857/58 while that for a bridge over the Mullaitivu was reserved for a future occasion, and thus this important work has been already twice thrown out. As previously explained, Trunk road No 8 leads from Madras to Trichinopoly, forming an important communication, which it is desirable on every account to complete. The only

interruptions

interruptions to unbroken communication are the unbridged streams of the Palaur and Mullaitivu; and as the bridging of the former was recommended last year, it only remains now to submit the project for bridging the Mullaitivu among the works included in the present budget, and it seems unnecessary to support the project with any special arguments, as its expediency is obvious.

68. The estimate of £2,670 Rupees herewith submitted, provides for crossing the Mullaitivu by means of two bridges,

to be connected together by a raised Causeway. The larger bridge is of 22 arches of 10 yards span, and the smaller one of 6 arches of the same span. The details of the work are as follow.

22 Arch Bridge

Brickwork	6786.	
Arch work	4077	
Centering	1219	
Earthwork	1611	
Additional work in foundations	3408	
Wells	7800	
Centrings	2200	
Sundries	3879.	31180

6 Arch Bridge

Brickwork	3768	
Archwork	1113	
Centering	495	
Earthwork	533	
Additional work in foundations	930	
Wells	2880	
Centrings	600	
Sundries	1171	
		11490.
		Rupees 42670.

12.31, Constructing Calingulahs on the banks of Canal in Ming Swatt for which to the Adjt. and Pilot Council Rs. 25,330.

69. This project embraces 2 estimates, one of 16,500 and the other of 8,780 Rupees, together Rupees 25,330, designed for the improvement of the recently excavated Canal between the Adjoin and the town of Chatrey, which Board resolved to be submitted in the Budget of 1838-39, an estimate of 37,000 Rupees and submitted to Government this Canal to the Boundaries of the Nizam's settlement of Boundaries, but this estimate is still pending before the Honorable Court of Directors. Works proposed for execution

operations under the pre-
sent estimate are how-
ever independent of
the extensions above
referred to, and are re-
quired to give effect
to that part of the Canal
which has been already
opened. The larger estimate
of 16,570 Rupees provides
for the construction of
Cabingedahs on the banks
of the Canal, to discharge
the accumulated drain-
age of the country, and
for minor improvements
to the Canal and its tow-
ing paths. The smaller
estimate of 8,760 Rupees
is for cutting small
feeders to the Canal,
across the backwaters,
partly for the general
traffic

traffic of the Villagers, and
partly for the conveyance
of Salt. Lieutenant Moberly,
the superintendent of the
East Coast Canal, reports
that "the Canal is cut in
a straight shallow backish
water or shallow sea water
lies from eight inches
to two or three feet, ac-
cording to the season;
generally the former, and
enough to float about
one ton weight of
merchandize, for a Salt Canal
and mud, most difficult
for a boundy to traverse.
The cuts to the Salt pans,"
he adds, "will be of great
service to the Government
works

works. The others are for the most important villages on the Southern branch of the Canal, work of such value that I trust the Government will sanction their early execution. The Government have nothing to add to what has been submitted above, beyond expressing their entire concurrence in the recommendation both of Colonel Baber and Lieutenant Moberly, that the project here brought forward should receive early sanction.

No 35. Improving the Navigation of the Upper Godavery at the Sinteral barrier. Rs. 8,35,000.*

70. The estimate entered in this Budget, for improving the navigation of the Godavery, is a portion of the great Scheme which formed the subject of correspondence with the Government of India, in the letters of the dates noted in the margin. This Scheme comprised the opening for Monsoon Navigation of 473 miles of the Godavery, and Wurdah rivers, at a cost averaging Rupees 6,180 per Mile, and involving, an aggregate expenditure of 29¼ Lacs of rupees; Viz:

	Rs.
Works at the Sinteral barrier	8,45,000
Do. at Inchampully	3,38,000
Do. at Devalmurry	11,34,000
Do. at Roongaie and other places	6,08,000
	Rupees 29,25,000

71. The works at the Sinteral Barrier

* The estimates, plans &c. of this project are already before the Govt. of India, with the letters of this Govt. dated 29th May, 27th August, 14th Sept., and 10th May 1857.

Govt. of India 29th January 1857 No 1022
Do. do. 27th August " " 1647
Do. do. 14th Sept. " " 1444
Bom. do. 10th Nov. " " 5432.

Barrier, which form the subject
of the present report, include
the Anicut and wing walls — 2,69,000 Rs.
Canal to Devarapilly — 1,90,000
Drainage works — 95,000
Small Salinglakes — 20,000
Locks, Salinglakes &c — 2,71,000
Total Rupees 8,45,000

74. The Canal and drain-
age works having been roughly
estimated in Lieutenant Haig's
report of the 2d of May 1856, with-
out a Survey having been
made, that Officer was direct-
ed to return to Dowlaisheweram,
to and make a complete Survey
of the proposed Canal from
Doomgoodium to Devarapilly
to as well as prepare a more
detailed estimate for that
part of the project, and the
drainage works connected
with it. The result is
given in Lieutenant Haig's
letter

letter of the 21st March 1857 No 16,
which was forwarded to the
Government of India with
the letter of the 14th September
following, together with the
estimate, plans, Sketches, and
other papers appertaining to
the subject, which accompanies
Lieutenant Haig's estimate
amounted to Rupees 2,96,117, but
was reduced by the Chief Engr
to Rupees 2,92,600, or Rupees 9,400
below that previously prepared
on account of the same works,
as shewn below

73. Lieutenant Haig's original
estimate of the cost of the Canal
to Devarapilly was without Locks.

	Rs.
Earth work 19 miles at 10,000	1,90,000
Drainage works at 5,000	95,000
Salinglakes	20,000
Total Rupees	3,05,000

74. The revised estimate in-
cludes for carrying the Canal
parallel

parallel, and near, to the river bank, as being the most favorable line, (though 6 miles longer than the one originally selected), and as passing on Pudrachellum, the principal town in that part of the Country, and one of importance as a commercial point of view, as an entrepôt for the trade between the interior and the coast.

	Rs.
Earth work in 25 Miles of Canal	193751.
Drainage works	76460.
Culverts	4482.
Embankments about Cuddalore	2525.
Head Sluice and embankments	18382.
Total Rupees	295600.

75. The revised estimate, it will thus be seen, is only a part of the larger one of 845000 Rupees for the works at the Sinteral Barrier, including

76 In submitting to the Government of India the scheme of opening up the navigation of the Godavery to the full extent comprized in Lieutenant Haig's reports, the Governor in Council expressed himself "entirely in favor of the scheme and desirous of giving it his full support, but stated that the Officer was then about to proceed to Europe and suggested that he should visit the principal lines of river navigation, and obtain information on various points connected with the subject of rivers generally, it would not be advisable to undertake any of the greater works comprized in Lieutenant Haig's reports, until

until he were able to bring "
the result of western experience "
and skill, in this Department "
of Engineering, to bear upon "
them." In the mean time, the
Government strongly recom-
=mended the Scheme to the
favorable Consideration of
the Government of India,
in the hope that it might
be early submitted to their
notice of the Honorable Court,
in order that a general expres-
=sion of approval might be
obtained, so that, on the return
of the Officer deputed to Europe
and America, the Government
of India might be free to
sanction the project, and no
time might be lost in Com-
=mencing operations on the river.
It was at the same time
intimated that a recommenda-
=tion had been made by the
Chief

Title
Copy of letter and Extract Minutes
Consn thereon dated 1st December 1857.
No 2226 accompanying

Chief Engineer for the outlay
of the Estimate of Rupees 295,600
in the Budget of 1858/59, but that
this Government did not to
Consider it expedient to com-
=ply with it.

77 In reference to this latter
resolution, Colonel A.T. Cotton
addressed a letter to the Govern-
=ment on the 26th September
last, in which he expressed
regret that any thing should
occur to delay the execution of
so important a measure; he
looked upon the rivers of
India as the first things that
should have been attended to
to not only as the natural
great highways for Commercial
purposes, but also for the
Security of India as respects
Military ~~matters~~ arrangements, and said
that were the Godawery now
available throughout the year
for

for Steam Navigation, and were there a flotilla upon it, with Military Stations at the most important points, nothing could be easier than to overcome the whole of its Russian Colonial Cotton Lands "no advantage in delaying these works while informa- "tion was being collected "in Europe, as nothing that "could be learnt about the "modes of making the most "of the river in its present "state, could affect the ques- "tion of its improvement "by such works as these".

He adverted to the views expressed by the Honorable Court of Directors upon this subject, and inferred from them that the ~~Honorable~~ Court desired that the Estimates for

for this great work should be sent in at the earliest date, and that they were prepared immediately to sanction them; he therefore suggested that the estimates might be placed before the Honorable Court, to enable them to decide on their adoption or rejection.

78. The views of the Honble Court referred to by Colonel Cotton are those expressed in their letter to the Government of India dated 18th February 1857 in which, ~~the Honorable Court~~ alluding to Lieutenant Yule's proposed visit to Europe and America, and the probable period of his return to ~~this~~ they Presidency, observe as follows, "we trust that the Estimate for "these works (the Godavery) "will be sufficiently matured "to be entered in the Budget

for

"of 1857/58, yet, it is certain
"that another year is the
"shortest interval, that, in the
"event of their being sanctioned,
"can elapse before they are
"commenced." Adverting
to this expression of the Hon^ble
Court's sentiments, and to
the importance of opening
the river, so fully stated
by Colonel Cotton, this Govt
have ~~been disposed to~~ adopted
that Officer's view of the
case, and have ~~ordered~~ been
accordingly entered ~~that~~ the project,
for overcoming the first of
the barriers on the Godavery,
~~should for the present find~~
~~in the~~ accompanying
~~a place not to~~ ~~encumber your~~
Budget. They have already,
in their final letter of the
14th September last, strongly
recommended the whole

Scheme

Scheme to the Government of India; and alth^o they have been informed in reply in ~~Your~~ ~~Your~~ letter of the 10th November, that the present was not a fit time for examining and passing a final decision upon it, and that it must be reserved for a more propitious season, they ~~have~~ have not omitted to notice that the Government of India have expressed their opinion that the advantages to be derived from the work have not been over-estimated here, and that the Governor General in Council does not consider that the work itself presents any extraordinary difficulties.

The considerations which induced the Government of India to decline an immediate consideration of the whole project may not apply with equal force to the proposition now submitted, which has reference to the execution of ~~only~~ only a part of the great Scheme; and

and involves but a limited amount of expenditure. The passage of the Sinterah barrier will open the navigation of the river as high up as the Second or Cochrampully barrier, which is just below Mulnadesporam, whence Cotton can be easily transmitted to the Coast; the cost of the works proposed for this object amounts, according to the revised Estimate, to Rs. 8,35,600; and in entering this amount in the Budget this Government feel that they are only carrying out the expressed wishes of the Honorable Court of Directors

Particulars of Estimate.

	Rs.
Excavating Channel from Doom=gooriam to Dowarapully	2,95,600
Constructing Abutment and wing walls	2,69,000
Do. Locks	2,16,000
Sundries and Superintendence	55,000
Total Rupees	8,35,600

1836 Construction of a branch Railway from the Canal at Vellore to the Railway Rs. 78,000

19. This project is for laying down a double set of light rails from the Salt golah at Madras to the Railway, in order to facilitate the carriage of salt from the places of storage to the Railway Godowns. The working Agreement for working that Railway by Contract having declined and expired, and in consequence proceedings of that description of the Salt trade which the Railway is calculated to affect. The question has been the subject of much discussion, on the part of the Government and their Officers, and of the Railway Authorities

authorities, and has been in agitation since January 1855; various modes of meeting the rapidly extending wants of the salt trade, and of still further developing it, having in the meantime been discussed and considered. The question originated in an application to enlarge the platforms, on which the salt, both for local consumption and for export, is stored at Stadrys. It occurred to Government that the area of the platforms was sufficient to yield the full quantity required for local consumption, and that instead of extending it, it would

would be preferable for the inland and export trade, to establish a depôt in immediate connection with the Railway, at the point where it intersects the Canal, so that the salt might either be carried down by the Railway into the interior, or removed down to the beach for exportation. This plan however of a new platform near the Railway, at which the salt boats might discharge, included also the construction of buildings and a beach depôt, and was ~~[illegible]~~ mixed up with other questions, such as the establishment of inland

inland depots and the excavation of a branch Canal to the beach; it was finally, condemned, and the present proposal was allowed to supersede it on many grounds. It would be inconvenient to recapitulate in this place the lengthened correspondence which the question involved, or follow the discussion in all its stages; but before noticing the leading plans proposed and rejected, it may not be amiss to glance at the present practice of the Department, and the existing means of transporting salt to the interior.

89. The salt is manufactured

at Sumore and the adjoining villages a few miles to the north of Madras, and is brought down by Cochrane's Canal to the Central depot near the Elephant Gate of Madras. Here it is stored in heaps open Sheds, and sold by the Government Officers to merchants; no sales being permitted either at the places of manufacture, or at any other point on the line of canal. Of late the salt trade has considerably increased; and it is admitted on all hands that the wants of the community are still inadequately supplied, and that increased facility of

of transport would greatly enlarge the sales. Reduction in the price of salt to the inland Consumer would naturally be followed by increased sales, and the most obvious way of effecting this reduction is to get the salt to the railway, vehicles passes over the Canal at a point about three quarters of a mile distant from the depôt. At present but little salt finds its way to the railway, as the cartage in the first instance to the terminal station at Rayaveram, 2½ miles distant, is expensive, and enhances the cost from the

the expence of double loading and unloading, and the damage the salt receives in the process. Merchants have however used the railway; and an increase in the sales has followed. Messrs Cammiade Martin & Co a trading firm of Madras who have several times addressed Government on the necessity of affording merchants better facilities than exist at present for engaging in the salt trade, reported on January 1857 that at the commencement of 1855, the sales for investment consumption averaged about 50 tons daily: that after

after the opening of the railway, they increased to 60 tons daily; and that towards the end of the year they averaged 90 tons daily, or more than 50 per cent increase, caused by very small reduction in price; and they added their belief that the traffic would soon amount to 150 tons daily, and would continue to progress, if the Government and the Railway authorities afforded facilities to the merchants. But at present the general business remains in the hands of Cartmen, who carry back salt into the country at even half time rather

rather than part with their carts entirely.

81. Four plans were suggested to effect the object in view; one was to construct a line of rails to the place of manufacture, where the salt is weather stored or sold at present; another was to convey the salt to the Railway by the Canal, having a siding at the bridge where the line crosses the Canal, and to lift the salt by a crane out of the boat into the railway trucks; a third was to construct a new platform or depôt close to the point where the railway passes over the Canal, with a siding from the rails;

rail, and 4th, which has been finally approved, was to connect the present platform with the rail by a short branch line. The first and second plans were negatived by the Chief Engineer, for reasons concurred in both by the Board of Revenue and the Government. Were a railway to be laid to the place of manufacture one mile distant, a very large outlay would be required, whereas the salt is now cheaply brought down by the Canal, and moreover a platform would be necessary at the place of manufacture on which to

to store the salt. To convey the salt to the railway bridge, and to hoist it out of the boat by a crane into the railway trucks, would be open to the objection that it would either be necessary to convey the salt back from the Golaun to the railway bridge, or to arrest it at the bridge on its passage to the Golaun, and to deliver it contrary to the orders of Government before it was measured and brought to store, if again it were to be stored and sold at the place of manufacture and brought by the Canal to the railway bridge, when wanted for transport into

into the interior, the Canal might not be navigable just at the time required. The advantage of the last plan over the third, it was represented, was that in addition to its lesser cost, the branch could be completed in four or five months, whereas it would require nearly two years to raise a new platform according to the third method. The third plan being therefore rejected, and preference given to the fourth, which was advocated both by the Chief Engineer and the Board of Revenue, the only points remaining to be

determined, were, How far the Railway Company should bear in the expense of constructing the branch line, and the manner in which the line was to be laid. As to the former, it was reported that the Company would undertake only the expenditure of that portion of the work which lies within the limits of their grant, stated to be little more than the length marked A B shown in the accompanying plan; but on the understanding that this includes also the expense of constructing the portion of the said A B, which will pass through those lands the Government have not objected to the arrangement. In regard to the latter,

latter, the Chief Engineer estimated for three modes of constructing the branch from the limits of the ground belonging to the Railway Company to the Madras Salt Cotaurs, and extending it afterwards thro' the Cotaurs to a point on the main road, leading from the Elephant gate, viz.

1 For a branch with heavy rails throughout.

2 For a branch with light rails throughout.

3 For a branch with heavy rails to the Commencement of the Cotaurs, on which locomotives might be run, and lighter rails throughout the Cotaurs, on which trucks might be moved by men.

The

82. The Chief Engineer, after discussing the cost of working the traffic by means of heavy rails and a locomotive compared with that by means of a light road, the waggons being propelled by manual labor, expressed a preference in favor of the heavy rail, as being the most convenient and best suited upon a consideration of all circumstances; and the Government, considering the question of the weight of rails to depend on the view taken by the Railway Company respecting the use of locomotive engines, requested Colonel Pears the consulting Engineer, after communicating with the Railway authorities, to advise Government on the whole matter. Colonel Pears reported that the result of the Traffic Manager's proposal

proposal was that, while the Railway waggons were certainly to be made use of, neither the Railway Company nor the Government were to have anything to do with hauling them from the Salterns to the main line. This, it appears, was to be left wholly to the traders, on whom was to devolve the expense of moving waggons carrying from 6 to 7 tons, and in themselves weighing at least 5½ tons each. Colonel Pears then stated that if the Railway Company, who alone could do so, would not work the branch line with locomotive engines, the permanent way ought not to be constructed with reference to that mode of working, and to the use of the large heavy waggons, the whole employment of which can only be

be economical or advantageous, when associated with steam power and comparatively high speed. He was of opinion that, if Salt Depôts were established by Government along the line of Railway, in which case none but large loads would be despatched from the Salterns, the branch should be made a first class rail; but as the Government had already decided against such a measure, he proceeded to show that the effect of laying a heavy broad gauge line on the proposed branch, in the present state of the Salt traffic, would be to establish a monopoly in the hands of a few capitalists, which would prove highly injurious both to the people and to the Government

revenue

revenue. On these considera-
tions, Colonel Sears recom-
mended that the locomo-
tives should be furnished with
lines of light trails of four
feet guage, and that a double
line of the same should be
laid on the branch to the
Railway siding, whence the
transfer from the light en-
trucks, or waggons, to the
Railway waggons would
be made. He further re-
recommended that the
branch line up to the
formation level should be
proceeded with, as proposed
by the Chief Engineer in the
Department of Public Works,
at once, and suggested
that it be carried to a point
some what further west
on the main line, thus
reducing

reducing the height of bank
at the station, decreasing the
curve, and improving the
gradient at the same time.
He also recommended that,
in the event of Government
approving the light rail
and narrow guage, ~~to be~~
~~the only traffic is carried on~~
~~as at present~~, the portion
of the work which belongs
to Government should be
done by the Public Works
Department, and not by
the Railway Officers.

83 Colonel Sears next
remarked that, even if
circumstances should induce
the Railway authorities to
place their engines on the
branch line, the traffic being
thought that 45 tons should
be the minimum load for
which

which they should send an engine. The Government were of opinion that any arrangement which fixed the minimum quantity of salt to be moved from the Colours to the main line, would in effect decide the class of people to be admitted to the trade. If the minimum be so high that cattle, or a number of coolies, can alone move the load, those only can trade who have capital sufficient to purchase a large quantity of salt; whereas if it be fixed so low that coolies men can wheel away his own purchase, all men trading may continue to trade, and competition will keep down price. It may probably be urged as an argument against this policy by those who are interested in keeping out the petty traders, and retaining the monopoly in their own hands, that the use of the smaller sized waggon would involve the removal of the salt from it to the Railway waggon when the main line is reached. But this objection is not real; for even supposing that heavy rails, with a broad gauge, were laid from the main line to the Colours, it is impossible that the system should be carried out in and through the Colours, the turn tables and the rails themselves, must occupy for too much space, and would destroy a great part of the salt platform. These minor works must

must therefore be on a small scale; and it will signify nothing to the trader, whether the removal of his salt from the smaller to the larger waggon, is made at the Colonie, or at the Railway: there must be a removal in both cases, and there will be but one in either. It has been understood from Colonial Secrs that, in his opinion, a waggon measuring 9 x 5 x 2 feet, will be the most convenient maximum size. It will hold half a gross of salt, or 2¼ tons, and by raising the sides with planks made to fit, may be made to contain more. An ordinary cart load is half a ton, and the proposed waggon would therefore

contain 4 cart loads. It was given to Lieut Col Bloomfield the Inspector, to consider the Colonies made to contain these waggons, would not suit any of a larger size, they would perfectly suit those of a smaller size, and waggons might be made of a size to hold the smaller quantity of salt sold at the Colonies, and of a size intermediate between them and the two which is above given as the maximum so that all classes might be served.

84 This Government are decidedly of opinion that it is of great importance to the people that the trade in salt should be in many hands, and that no plan should be adopted which may have the effect of confining

the trade to capitalists for
although more than one of
this class may hereafter
engage in the trade, they will
combine to keep up prices,
and the community must
suffer in consequence. This
Government have very carefully
considered the question as
to the weight of rails to be
laid down, and have arrived at
the opinion that, in the
existing state of the salt trade,
and to guard against its
becoming a monopoly in the
hands of one or two capitalists,
the best plan to be pursued
would be that advocated
by the Consulting Engineer
for Railways. They accordingly
approve of the recommenda-
tion of Colonel Pears that
for the present the sub-Collectors
should

35 be furnished with
a double line of light rails
of four feet gauge, to be laid
on the branch to the Railway
siding.
Colonel Pears referred
in his report to another point,
connected with the communi-
cation between the salt stores
and the Railway, which
appeared to this Government to
be of considerable importance
viz: the establishment of a
goods station at the junction
of the branch and the main
line. This measure seems
very necessary, to ensure
the petty trader from loss
by delays and absolutely
to prevent the Railway
officer from serving the
interests of any particular
party and throwing such
obstacles in the way of others
as shall virtually exclude

them

them from the trade. If there is a station and a booking office, every man will be able to bring up his salt, whether the quantity be large or small, to book it, and ensure its despatch by the next goods train; all will be on the same footing, and no favor can be shown. But if a station be not established, the Railway officers may refuse to halt the train at the junction, and may at all times decline to receive at that place the salt of any one but such as they please to oblige; and may insist on all others taking their salt to Koyapoorum; and thus entail on them the loss of the whole advantage of

of the branch line to the Colonel. For these reasons, the Government, being of opinion that a goods station should be erected at the point indicated by Colonel Pears, have in the Financial Railway Department, issued orders on the subject.

86. Under the views above expressed the accompanying estimate of 78,000 Rupees for a double line of light rails, has been prepared and sent up by the Chief Engineer, the order having been obtained from the Railway officers by Colonel Atkinson, the Civil Architect. This officer reports the ground both in soil and level, to

to be generally favorable to the construction of the railway; and in forwarding the estimates and plans, he submits to notice the fact that since October 1856 to the end of last year, the Government had on realized 70,000 £ Rupees by the extra sale of salt, so that a year of such increase only would nearly pay for the expense of the whole branch.

87. Having thus closed the report of the work proposed in statement No 1, I am directed to express the strong conviction of this Govt that the works of this Presidency, so moderately and almost inadequately provided for in the accompanying budget, will receive from the Govt of India the consideration they so unquestionably deserve. The Right Hon able the Governor in Council is not without apprehension that his desire to meet the wishes of the Govt of India for a reduction of Establishment and general restriction of expenditure has acted injuriously on the interests of the Presidency, and by consequence

on the general welfare of India. The public works in Madras, as the Govt of India are well aware, are very generally directly remunerative works; and they will readily understand how much the improvement of the General Provinces must have been retarded by the cessation of expenditure throughout a whole year. But independent of this, the reduced Establishments have been in some cases unable effectually to perform even the repairs necessary to the efficiency of existing works; and in Canara, Cuddapah, & particularly in Nellore where a terrible Cyclone breached 300 tanks, very valuable works have been considerably damaged, & have been left unrepaired, to the injury of trade, & the certain decrease of the revenue of the ensuing year, from the impossibility of

of the necessary work being done by the reduced Establishments of the Public Works Department. The strictest economy has been practised in the existing official year in expenditure on public works. Many projects have been annulled, and those few works only, having reference to public improvements, have been allowed to proceed, which could not, under any circumstances compatible with the public weal, be indefinitely postponed. The works thus proceed upon the operation of the retrenchment orders, have been only twenty in number, and an expenditure of rather more than 93,600 Rs was allowed for completing them. Further, this Govt proposed in the last Budget a limit of three lacs for emergent works, which one lac added to the one lac set aside for isolated works would have placed a

limited fund of four lacs at their disposal, but out of this limited amount even, an expenditure of only 1,59,062 Rs has been ordered in the year, as may be seen from the following abstract.

Emergent works above 1000 Rs
Sanctioned from May to Dec/57
Irrigation Works — 5,170
Communications — 17,060
Buildings — 66,795 — 89,025

Under 1000 Rupees
Irrigation Works — 12
Communications — 1,600
Buildings — 5,074 — 6,674.

Out of the one Lac fund
Irrigation works — 212
Communications — 41,098
Buildings — 22,263 — 63,363

1,59,062.

88. Owing to a misapprehension in the part of some Officers that the restrictive orders of the Govt of India included even emergent works, the outlay on the works above referred to has hitherto been small, & some of them have been brought forward in the budget for expenditure in the next official year.

It is also to be observed that after all the total number of works sanctioned in both departments, Civil and 2 of the Budget, is only 182 for the whole Presidency of Madras, including even the Military divisions of Mysore and Hyderabad, of which numbers are less than ½ are for State purposes, leaving only 110 for public improvements, and of these nearly many are communications postponed to be put into orders, which have been admitted

admitted chiefly on the consideration that every facility should be afforded for the march of troops; so that the public convenience has been but sparingly committed, altho' the Chief Engineer has frequently addressed the Government on the necessity of opening new Communications.

89. I am directed to take this opportunity of acknowledging the receipt of your letter of the 11. December last, No. 5926, furnishing instructions for bringing forward an Statement No 2 of the prospective Budget, all

all works which will be expected to be completed before the close of the current year, shall not have been completed at the close of closing the new budget in the Genl Office. The budget for 1858/59 having been closed prior to the receipt of your letter, it was not practicable to comply with the suggestion at the present occasion, or to state of works omitted on the expectation of their being completed within the official year, were before the Govt; on this would have taken considerable time to procure such data from the Local Officers.

It is to be observed moreover that the several District Engineers are required to send in their Budget lists six months before Re-termination of the Official year; with so long an interval before them, it seems not unreasonable that there should be many works which they may confidently expect to complete, and which they may actually complete within the official year; so that the budgets will be very greatly & very unnecessarily burthened, if it is to include all works not completed when the ~~December~~ District budgets are sent in. For the few works that after all may remain incompleted, it cannot be said that there is no provision; for it will be seen from the budget of 1857/58 that a provision to the extent of 4 lacs of rupees was made for expenditure, not only on emergent and isolated works, but for such works as are now under notice; and no fresh sanction is necessary to complete them, as the local officers are empowered to prosecute them from the funds placed at their disposal for expenditure in the year. I would suggest therefore that the instructions furnished in your letter under acknowledgement be acted upon, and that all works, of the completion of which, within the year there is every reasonable expectation, be omitted as heretofore from the lists.

90. I am to state that the classified Synopsis which it was ordered should be appended to the budget has been omitted on this occasion, under the belief that the necessity for adding such a Statement is suspended by the fresh arrangements which the Forms of Estimate have since directed in the preparation of the Budget Statements. These Statements themselves are now prepared under classified heads; in addition to which, there is a classified abstract attached to the Statements, Nos 1 and 2, besides an Index exhibiting the works according to Districts, but divided under the great heads, "Irrigation" "Communication" and "Buildings".

The usual annual review on which the budget is based, accompanies this report; and

and, as formerly, a sum of four lacs has been provided for the year 1858/59, to cover the cost of emergent and isolated works and the extra outlay involved by supplemental estimates, and for the completion of the works noticed in the previous para. Thus, the whole sum proposed to be spent in the next official year will be Rs 75,77,575.

71. The projects now submitted are accompanied by the usual papers of reference. In some instances these are no separate plans or sketches; but as these omissions have occurred in only a few cases of well known roads, a reference to the general budget-map will serve the purposes of a separate sketch in each case. Instructions have been issued to the Chief Engineer, however, that every project shall in future be accompanied by a separate illustrative sketch, to obviate reference to a general map encumbered with other details. With reference to the 1st para of Colonel Baker's letter of the 30th October last, No 5213, intimating the return of the original annexures to my letters of the 12th and 27th March, forwarding the Budget of this Presidency for 1857/58, I am directed to submit that it will be very inconvenient that these papers should be returned, without orders being passed on the projects to which they refer. It will be better that these papers be retained with the Government of India, until they are prepared to pass orders on the projects, one way or the other. I am directed in conclusion to submit the request

request of this Government, that
~~the present project may not~~
~~be disapproved without com-~~
~~-ment, but the~~ sanction
to the project now submitted
may be accorded, in every case
which may meet with approval;
on the understanding, however,
that should financial diffi-
-culties still unfortunately
require it, no projects shall
be proceeded with, until the
circumstances of the country
change.

Public Works 1858 Dep.
Dy. to Cons. 26th Jan

No. 109.

To the Offg. Secretary
to the Govt. of India
dt. 20th January 58.

Rec. 28th Sept. 58 No 24
Cons. 29th Oct. 58 No. 29

Saying before the Government
of India &c. Budget of works proposed
for 58 59 and explaining the
reasons which have induced the
Government to propose a fresh
Budget, notwithstanding the
recent financial necessity
with observations as to the subse-
quent necessity of such works as
have been allowed to proceed whose
... Now only twenty in number
... being that sanction may
... to the projects now
... &c.

No 16

C. & S. Sanct. R. 25