

SELECTIONS

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THE MADRAS GOVERNMENT.

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N^o. XIII.

GENERAL REPORT

OF

THE ROAD DEPARTMENT.

FOR 1854-55.

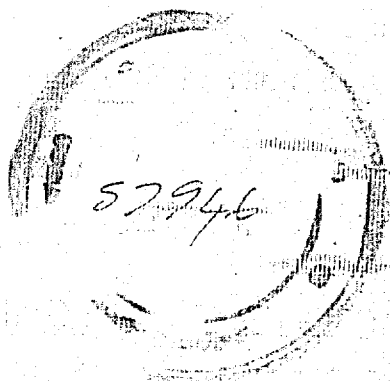
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GENERAL REPORT

OF THE

ROAD DEPARTMENT,

TO THE 1ST MAY 1855.

1. In preparing a General Report on the proceedings of the Road Department during the last year, it becomes necessary to recapitulate a great deal of the information which has already been submitted, and as references are troublesome, I propose to embody in it, such extracts from correspondence and my several monthly reports, as will bring before Government at one view, and as concisely as possible, the progress which has been made in the construction and completion of the several Trunk lines.

2. The Assistants who have been withdrawn from the department, for other duties, are Lieutenant Chauncey of the 39th, and Ensign Hay of the 50th N. I., and Captain Anderson of the 34th, obliged to leave on account of ill health. The newly appointed Assistants are Lieutenant Palmer of the 4th N. I. to the charge of the portion of Trunk Road No. 6, from Chicacole to the Bengal frontier; Lieutenant Johnson of the 39th, to that of No. 12 from Coodairy to Bellary; and Mr. Ricketts to that of No. 8 from Oolundcorpett, via Trichinopoly, to Valliaputty on the Salem boundary.

3. Among the Overseers, Selkirk, Keenan, and Thornber have been permitted to resign; Jolliffe, Harvey, McGuinness, Robertson, Cullis, and Cove to leave from ill health; Serjeant Bowers of the 2d European Regiment died on his march from Secunderabad, and Corporal Beveridge of the Sappers and Miners at Trichinopoly on the 2d March. The additional Overseers appointed are Cullis, Anderson, Campbell, Appasamy, one of the first apprentices entertained in the department; Howell, Roots, Penman, Shand, Sanderson, Williamson, Paterson, and Bowell.

4. The establishment for Superintendence as at present, consists of 1 Superintendent, 7 Assistants, 1 Assistant Supervisor, 2 Overseers, and 29 Assistant Overseers, in all 40; two Assistants being still required, one in lieu of Ensign Hay on No. 2 Road, and the other of Captain Anderson on No. 6.

NO. 1. TRUNK ROAD.

1. *Madras to Mysore Frontier beyond Oossour, 189½ Miles.*

5. In my Report for September, I brought to the notice of Government the extent to which the surface of this road had been destroyed, especially between the Presidency and Poonaallee, and in the vicinity of Wodecherry, and the metal actually worn off by the traffic and weather during the few previous months, and pronounced the annual repair allowance then in force to be insufficient.

6. I regretted not having been able at an earlier date to give the information then afforded; and explained, that having no data to guide me in ascertaining what the wear and tear amounted to, I had refrained from hazarding any speculative opinion, taking it for granted that the annual allowance in force on my first joining the department, would be found sufficient for repairs, on the road being once put in proper order, which I conceived it would be on the expenditure of the estimate (D) of rupees 1,16,548-8-0.

7. In my letter to Government No. 673, dated the 3d November, a further detailed report was given on the condition of this road from the Presidency limit to Vanienbaddy, showing from measurements carefully taken by Captain Barber, the actual result of wear and tear by traffic and weather during a period of 12 months.

8. In this Report the principal points were:—

1st. That the repair estimate then in force, provided annually per mile for each cart, 0.37 of a cubic yard of metal.

2d. That the loss of metal during the 12 months in the first division of the road as far as Arcot, 67½ miles, (from the Presidency limit) averaged 6 inches in thickness throughout, which was shown to be due to the wear and tear by traffic and weather. The number of carts being 900 daily, or half the number each way, the east and west traffic being about the same in numbers, as shown by the traffic returns for 1853-54.

3d. That of the 6 inches, 3.58 were due to the carts, and 1.42 to the weather, the latter being 0.29 in excess of that given by Captain Best as the result of his observations on the same line of road, and which was fairly accounted for by the extreme drought of the season.

4th. That the total quantity of metal worn away was 99,000 cubic yards, giving for each cart, including weather, 1.63 cubic yards per mile, instead of 0.37 as before shown, but which was stated to be, in all probability, considerably in excess of what will eventually be found to suffice, the quantity of metal hitherto at command having been insufficient to provide timely repairs, on the efficient execution of which the condition of the road mainly depends.

5th. That in average seasons I considered 1 cubic yard per mile, per cart, annually, the quantity stated by Captain Best, would probably suffice, and

that to provide this, an additional expenditure of rupees 43,856-6-0 would be required.

9. For this amount the sanction of Government was granted for one year in extract from Minutes of Consultation No. 104, dated 3d March 1855, and the increased estimate of rupees 83,035,1-0 will allow per mile rupees 661-10-2, instead of rupees 312-2-11, the expenditure during the last 5 years.

10. On this road the average annual expenditure for the last 9 years, between the Presidency limit and Vanienbaddy, for reform, maintenance, and repair, has been rupees 530-10* per mile, which divided by the average traffic, 650 carts daily, gives per cart rupees 0-13-1, proved to be insufficient. The expenditure now proposed will give per cart rupees 1-0-4, the result of which remains to be seen.

11. In my last General Report in para. 10, I expressed an opinion regarding the increased width of metalling it appeared advisable to give to Trunk roads on which there was a heavy traffic, and I am now, from the past year's experience, fully satisfied of the impracticability of keeping the surface smooth, or even in proper section with a width of only 5 yards, which is the present limit on embankments crossing wet cultivated lands, or even with 6 yards, as allowed through dry cultivation, and waste land.

12. When it becomes necessary to recast a portion of road, that the traffic may not be interrupted, the metal is placed on to half the regulated width, 2½ or 3 yards, as the case may be, and immediately it is formed into a moderately smooth surface, but before it has become properly consolidated, the whole of the traffic comes upon it, and by the time the other half is completed, the first half is so much cut up and worn, as to require extensive repairs to bring the whole surface into section.

13. With these repairs the first half again becoming rough is avoided by the traffic, and the second half suffers, and thus a perpetual system of re-forming is rendered necessary, as may be apparent to any traveller on the western road.

14. 10 yards of metalling would allow of a sufficient width being laid down at once to afford room for two lines of traffic, say 6 yards, and the remaining 4 yards might be completed before any great amount of damage was done; when, with trifling repairs, the whole surface may be brought into proper section, and maintained so, at the same rate of annual cost as now allowed, or possibly less, for the wear being spread over a larger surface, I doubt whether it would be so great as on the narrower road.

* For reform and maintenance.....	Rupees 263,397	2	8
For annual repairs.....	„ 330,946	13	0
	Rupees 599,333	15	8
which divided by 125½ Miles x 9 Years, gives per mile	„ „	530	10 0

15. These remarks are merely to point out the difficulty of keeping in good repair a narrow surface exposed to constant traffic, but of this the quick travelling forms so very small a proportion, that I am not prepared to say the present state of the country demands a superior class of Trunk roads.

16. With 10 yards of metalling, the surface of the road would require to be 12 yards, and the cost of bringing up to this width, say, 1 mile 8 yards wide, with an average raising of 1 yard, would be at least rupees 1,100,* so that the additional outlay required would be very considerable.

17. In the 2d division of the western road from Arcot to Vaniembaddy, the soil passed over is more favorable, and the metal used generally of a better description than in the 1st division. The quarries moreover being close to the road sides, repairs can be more immediately attended to at all seasons, and these advantages, with less than half the amount of traffic, are sufficient to account for the superior condition of that portion of the road.

18. From Vaniembaddy to the Mysore frontier beyond Oosoor, repairs have been carried on, on the annual estimate of rupees 6,655-8-6, and improvements continued on the estimate (A) of rupees 45,009-12-6, all the masonry works entered in which, some 50 in number, have been completed. The worst portions of the road have been so greatly improved, that, as stated in my report for October, were the two lines bridged throughout, I doubt whether preference would not be given to the Vaniembaddy over the Palmanair line.

19. In my report for the month of March 1852, was noticed an intention of trying as an experiment† a gravelled roadway across the Poinay river at its junction with the Palaur; the plan then proposed has been carried out and found to answer well. The roadway without any artificial foundation was laid 1½ foot below the deep bed of the river, and on the sand which covered it during the freshes being removed on their subsiding, the gravel surface was found to be but little disturbed. The cost of repairing it has not I believe been much, if at all in excess of that required for other portions of the road; but of this no separate account having been kept, I cannot speak confidently.

20. This crossing may however be avoided altogether eventually when the bridge across the Palaur, in connection with the anicut under construction by the Civil Engineer of the 4th division, below Arcot, has been completed. The Trunk road deviating from its present direction near Wallajahmugger in the 67th mile, and joining it again in the 76th mile, an arrangement proposed some years ago by Captain Best, when Lieutenant Forlong made a survey of the line, and prepared an estimate of some rupees 22,000, for its construction.

* Earthwork..... $1760 \times 4.0 \times 1.0 = 7040 =$ Rupees.....440
Metalling $1760 \times 4.0 \times 0.4 = 1760 =$ Rupees.....1660

1,100

† Proposed originally by Captain Best.

21. In addition to the Palaur (and Poinay river at present) the only others remaining unbridged on the whole line to Bangalore, are the Agrum in the 102d mile and the branch of the Palhur at Vaniembaddy, for both of which plans and estimates are in course of preparation.*

22. The repairs to the Choura river bank on the estimate (U) of rupees 424-9 have been completed, and a bill furnished by the Civil Engineer 4th division for rupees 477-4-0, the excess of rupees 52-11-0, being explained by the necessity of raising the data for stone work 2 annas per cubic yard owing to the distance (9½ miles) from which the stone was brought.

23. The construction of the quarry roads has been completed, and an estimate of rupees 2200 for their annual repair was sanctioned in extract from Minutes of Consultation No. 68 dated 13th February.

24. Abstract of Estimates.

Current estimates.....	Rupees...140,424	15	0
Adjusted.....	156,741	8	0
Total estimates to 1st May 1855.....	Rupees...297,168	7	0
do do do 1854.....	205,215	13	6
Additional estimates.....	91,950	9	6

Particulars of additional estimates.

H ^e —Annual estimate for 1854-55.....	Rupees...83,035	1	0
R ⁱ —do do.....	6,655	8	6
C—do do.....	2,200	0	0
Gratuities to the families of 3 coolies who lost their lives in a spue quarry.....	60	0	0

Total rupees...91,950 9 6

No. II. TRUNK ROAD.

From FRASERPETT and the SUMPAGEE GHAT, to MANGALORE, 105 Miles.

25. Beyond the repairs on the increased annual estimate of rupees 10,525, the only work on this road is the construction of the Huntiaur Nullah bridge, which has not been commenced, in consequence of the excavation of the new channel not having been completed. The owner of the land has now been informed; if the work is not finished, by the close of the approaching south west monsoon, that the bridge will be built across the old nullah, over which there is at present a temporary timber platform.

Since submitted to Government.

26. The reports of Overseer Graham and Assistant Overseer Campbell show that the condition of the Ghaut and road is generally good, the former having been much improved during the year by the construction of several rough stone under drains.

27. Abstract of Estimates.

Current estimate.....	Rupees	12,580	1	0
Adjusted.....	"	5,262	8	0

Total estimate to 1st May 1855.....	Rupees	17,842	9	0
do do 1854.....	"	7,117	9	0

Additional estimates...10,725 0 0

Particulars of additional estimates.

A—Annual estimate for 1854-55.....	Rupees	10,525	0	0
R—do do do.....	"	200	0	0

Total rupees...10,725 0 0

No. III. TRUNK ROAD.

From the NORTH WESTERN FRONTIER of MYSORE, *via* the MUNZERABAD GHAUT, to BUNTWALL, 46 Miles.

28. On the estimate (C) of rupees 3,305-11-10, for construction of the road from Mangalore to Buntwall between the 15th and 18th miles, Overseer Graham reports the completion of the work, with the building of the Couchiear Cootle bridge of one 24 feet arch, at a cost of rupees 3,294-4-11; the sum of rupees 3,579-13, sanctioned for the original bridge proposed, of one 49 feet arch, has been returned by the Collector of Canara, and the estimate cancelled.

29. On the estimate (D) of rupees 9,900, and (A*) of rupees 13,589-13-7, for construction of the road in part, from Oopinungady to Manny and of bridges in the Canara district, the works have been conducted under the directions of the Collector of Canara, and bills furnished to my office for an expenditure of rupees 2,022-1-1 on the former, and rupees 5,161-2-5 on the latter.

30. Abstract of estimates.

Current estimate.....	Rupees	29,095	9	5
Adjusted do.....	"	3,759	18	0

Total estimate to 1st May 1855.....	Rupees	32,855	6	5
do do 1854.....	"	31,705	6	5

B—Annual estimate for 1854-55...1,150 0 0

No. IV. TRUNK ROAD.

From the MYSORE FRONTIER, *via* the PERIAMBADY GHAUT, to CANNANORE, 63 Miles.

31. On the estimate (D) of rupees 14,529-12-10, Assistant Overseer Church reports the completion of the following works:—

32. In Malabar.

Reconstruction of a bridge of 3 arches, each of 10 feet span, at Codally.

Do. of one of 2 arches, each of 6 feet span, at Chavacherry.

Check drains, with raising and metalling of the road, and

Construction of a truss bridge over the Oovetteetodoo, near the foot of the ghaut.

33. In Coorg.

Construction of 37 road drains, and 54 stone under drains.

Side drains on the Ghaut and jungle cleared for a distance of 5 miles.

34. The construction of another bridge at Codally of 3 arches of 15 feet span, will be completed by the middle of May, and of 11 more drains before the rains set in; 8300 cubic yards of broken stone have been collected in heaps on the ghaut, ready for spreadage.

35. In para 34 of my last Report, mention was made of Captain Ludlow's proposal to build either a truss or lattice bridge over the large Oovettee river near the foot of the ghaut; but a further consideration of the importance of the road, both in a commercial and military point of view, induced that Officer to recommend the construction of a durable masonry work instead, and for which an estimate of rupees 29,923-5-9, to provide for one of 5 arches each of 56 feet span, received sanction in Extract from Minutes of Consultation No. 347, dated 19th August 1854. Rupees 10,000 have been advanced to the Collector of Malabar for the preparation of materials.

36. Abstract of Estimates.

On the Estimate D rupees 1,398-5-0 were omitted in the statement to the 1st May 1854.	Current Estimate to 1st			
	May 1855....	Rupees	58,557	12 9
	Do. 1854....	"	21,834	7 0

Additional estimates...36,723 5 9

Particulars of additional estimates.

B'—Annual estimate for 1854-55.....	Rupees	6,800	0	0
E—Vide para 35.....	"	29,923	5	9

Total rupees...36,723 5 9

No. V. TRUNK ROAD.

From near VANIEMBADDY ON TRUNK ROAD No. I, to PONANY on the WESTERN COAST, 279 Miles.

37. Estimates as follow, amounting in the aggregate to rupees 129,132-1-5, for the improvement of the road from Vaniembaddy to Bowany, were submitted to Government in September.

38. *For improving the Topoor pass.*—Constructing bridges, and metalling the road from Vaniembaddy to Woomaloor 87 miles, 1 furlong, 30 yards, rupees 73,552-0-6.

Constructing the road from Woomaloor, via Toramungalam, to Sunkerrydroog, 22 miles, 7 furlongs, 170 yards, rupees 32,220-12-11.

Improvements from Sunkerrydroog to Bowany, 13 miles, 4 furlongs, 90 yards, rupees 17,359-4-0.

39. To economize the expenditure as much as possible, the width of road was confined to 7 yards,—the bridges reduced to 6, and tunnels to 7 yards, the ordinary widths being 7 and 8 yards respectively. These estimates, in consequence of the large amounts previously sanctioned in advance, on the 4 lac fund for 1855-56—were ordered, in Extract from Minutes of Consultation No. 510, dated the 4th December, to be postponed. No work therefore has been done during the year between Vaniembaddy and Bowany.

40. Mr. Thomas on the 24th April reports that the road from Bowany to Coimbatore “is in a fair and trafficable state, and that an efficient estimate” “on it is now in course of fulfilment.”—Also, “That the road from Coimbatore to Waliaur needs no further estimate, but is now good, and the annual allowance is sufficient to keep it so.”

41. On the Estimate (P) of rupees 126-8-0 for repairs between Perindory and Bowany, work has been completed and a bill furnished for the full amount sanctioned.

42. On (P¹) of rupees 4,830-14 for do. between Coimbatore and Avanashy, a bill for rupees 290-15 has been received.

43. On (P²⁻³) of rupees 5,204-5, for additional metal and masonry works between Coimbatore and Avanashy, a bridge of 1 arch has been completed in the 6th mile, at a cost of rupees 1,137-7-7, being rupees 59-2-5 under the estimate, and a bridge estimated at rupees 1,196-10, is in progress in the 10th mile.

44. The Chinnienpolliem and Caroomuttum bridges, estimated at rupees 1,005-1, and 1,660-12 respectively, were considered unnecessary by the Civil Engineer of the district, and two good road dams were substituted for them, the balance of the estimates to be expended in placing additional metal on the road. The repairs of the Chennanowkurry bridge included in the Estimate (M)

of rupees 2,218-14-9, having been completed for rupees 1,405-5-11 less than the estimated amount, the balance was to be expended in constructing several stone road drains. These arrangements were reported to Government in my letter No. 513, dated 31st July, and received sanction in extract from Minutes of Consultation No. 346, dated 19th August 1854.

45. On the estimate (C) of rupees 1,566-3 for repairs from Coimbatore towards Caranthumputty, the work has been completed, and a bill furnished for the full amount sanctioned.

46. On (C) of rupees 252-11-6, for emergent repairs between Avanashy and Perindory, the work has also been completed, and a bill received for rupees 241-13-8, leaving an unexpended balance of rupees 10-14 on these five last estimates, and on (R) of rupees 1,370-12, for annual repairs between Coimbatore and Waliaur, the works have been conducted by the department of the Collector of Coimbatore, and on the three following estimates, with the annual repairs between Waliaur and Ponany, by that of the Collector of Malabar.

47. On (H) of rupees 12,328-13, the improvements between Waliaur and Ponany have been completed; bills to the amount of rupees 11-233-0-2 have been sanctioned, and others for the balance of the estimate will shortly be forwarded.

48. On (J¹) of rupees 12,990-1-6, the Parlakadow bridge has been built at a cost of rupees 11,670-1-4.

49. On (J²) of rupees 13,066-10-4, the construction of the road between Paulghaut and Mengara has been completed, and a bill furnished to the full amount of the estimates.

50. No accounts of the progress made in the works on the estimates noted in the margin, have as yet been furnished to my office. A plan and estimate for the Tertulla bridge are to be forwarded shortly by the Civil Engineer of the 7th division.

51. Abstract of Estimates.

Current estimate.....	Rupees..	90,689	0	10
Adjusted.....	„	48,789	11	0
Total estimate to 1st May 1855.....	Rupees..	139,478	11	10
Do do 1854.....	„	126,566	13	10
Additional estimates...		12,911	14	0

* (L) of rupees 2,200 0 0.

† (R²) of rupees 1,370 12 0.

Particulars of additional estimates.

G.—Annual estimate for 1854-55	Rupees	7,100	0	0
R.—do do		1,870	12	0
A.—Vide para 52		4,441	2	0
Total rupees		12,911	14	0

52. The estimate (A) of rupees 4,441-2, sanctioned in extract from Minutes of Consultation No. 533, dated the 15th December 1854, provided for building 2 bridges and a tunnel between Perindoray and Carunthumpury.

No. VI. TRUNK ROAD.

From MADRAS to the BENGAL FRONTIER, 686½ Miles

53. This road as far as Nellore, or rather to the 113th mile, six miles further north, is now nearly completed*. The Panala Kalvah, Kaulingee Nuddee, and Mamade Kalvah bridges,† with some few of the smaller masonry works, are under construction, and will be finished in the course of 2 or 3 months, when all the channels and rivers will be crossed by either tunnels, road dams, or bridges, with the exception of the large Coortellaur, Soornamookee, and Pennaur rivers, for which first class ferry boats have been provided, and two branches of the Puningardee backwater, for which bridges are proposed.‡

54. The following extracts from my report for December, will show some of the improvements effected on this portion of the line during the last year, under the careful superintendence of Lieutenant Marshall.

55. Frequent mention has been made of the great obstruction offered by the Puningardee backwater, which spreading over a false soil for a distance of nearly 3 miles, was often impassable for carts, and difficult to be crossed by even foot passengers.

56. Advantage has now been taken generally, of some high land east of the old track, embankments§ having been raised at intervals across the hollows, and an excellent line|| of road formed along the entire extent of the swamp, from the 32d to the 35th mile, leaving two passages for the backwater, one near the

* On the estimates (F² & 3) of rupees 97,290-12-11, bills amounting to rupees 75,874-2-8 have been sanctioned.

† On the estimate (G R) of rupees 94,332-5-5, bills amounting to rupees 68,073-12-1 have been sanctioned.

‡ Plans and estimates since submitted to Government.

§ Not yet metalled.

|| On the estimate (H²) of rupees 68,812-13-9, bills amounting to rupees 7,908-1-8 have been sanctioned.

32d, and another near the 33d mile stones, both of which may be crossed by bridges of 5 arches of 5 yards span each*.

57. From the 65th mile, a new line of road for a distance of about 2 miles has been raised across the fields, to avoid the winding bazar street, through the town of Neidoopett, and again from Woojelly in the 73d mile, where the old road winds very much, a new line has been taken from the north end of the Woojelly tank direct to Writers chattrum, some 6 miles.

58. The embankments with side slopes firmly turfed, are nearly all completed, and no breaches having occurred during the last monsoon to interrupt the work, the metalling is fast progressing—a good metalled road will shortly be completed† over all the low sandy tracks between Sooloorpett and Nella-bullah, and by August or September next, the entire line to the 113th mile, will, I hope, be open for quick traffic.

59. On the new line‡ from the 113th mile to the Moodegunda river 3 miles, north of Ongole nearly all the earthwork is completed—next year, provided funds are available, the greater part of the metalling with the tunnels, road dams, barrel drains, and masonry work of the large bridges up to the springing lines of the arches will be finished, and by the end of 1857, I have very little doubt that the whole distance will be open for quick traffic.

60. In February I submitted to Government copy of a letter from Lieutenant Richerdon to Captain Boileau, Civil Engineer, 2d division, reporting favorably, after making the necessary survey of the ground, on Captain Best's project for forming a tank in the valley between the villages of Gowravaram and Moosanoor; the estimates for the same, when prepared, are to be forwarded to the Board of Revenue, and a portion of the cost to be charged to the road funds.

61. Between the Moodegunda river and the southern boundary of the Vizagapatam district, at Teonoe, no work has yet been proposed, as from the state of the 4 lac fund to the close of the year, there was no likelihood of any grants being sanctioned. The country however will shortly be examined, and preliminary surveys made, with reference to the irrigation projects consequent on the Godavery and Kistna anicuts, on the completion of which, the preparation of the estimates may be commenced at once.

62. A survey from Dowlaishweram through Suntpetnuggram, Ramachundrapooram, Toomalapilly and Madapaud, and from Saraulcottah to Taonee, through Bendapoody, in all 63 miles, was made by Assistant Supervisor Arnold in 1850, and an estimate prepared in part for its construction, but an alteration

* The cost will be considerable, as high embankments revetted on both sides with stone will be required to form the approaches.

† On the estimate H².

‡ On the estimate (W) of rupees 117,112-12-1.

in the line, to carry it direct to Peddapoorum, instead of to Samuleottah, having been subsequently suggested by Mr. Prendergast, at that time the Collector of Rajahmundry, nothing regarding it was definitely settled.

63. The estimates required to complete the road to the Bengal frontier are for :

1st. Bridges across the Coorteliaur river, the two branches of the Punin-gardas backwater, and the Soornamooke and Pennaur rivers.

2d. Tunnels between Coovoor and the Moodegunda river, for which the estimates are nearly completed.

3d. Bridges between Coovoor and the Moodegunda river; all the river sections have been taken, and the estimates are in course of preparation.

4th. Construction* from the Moodegunda river to Toonee, 243 miles.—Line of road to be surveyed.

5th. Masonry works between Soobarum and Chittervulsh, 22 miles.—Estimates to be prepared.

6th. Construction from Chittervulsh to Chicacole, 51½ miles.—Line of road to be surveyed.

7th. Masonry works between Chicacole and Sunthoshapoorum, 40 miles, for which an estimate† of rupees 114,405-15-6‡ has been received from Lieutenant Palmer.

8th. Masonry and earthwork between Sunthoshapoorum and Itchapoor, 45½ miles. Estimates to be prepared.

64. On the 13th April, Lieutenant Palmer reports that on the estimate (Q) of rupees 29,285-2 for constructing the bridge of 24 arches of 12 yards span across the Nangoolia river at Chicacole—the extent of work completed was as follows :

65. "Foundations to 4 wing walls, 2 abutments, and 19 piers; upper work to 4 wing walls, 2 abutments, and 13 piers; 8 arches completed and keyed, and the backing and face walls in progress," and states :

66. "During the season, and before the commencement of the monsoon, I expect to have 8 arches completed, forming one Bay on the Vizagapatam side of the river, and the backing and face walls for the same built up."

67. "I hope to complete the piers of the centre Bay, if the state of the water will permit, and to lay in the foundations for all the piers this season, and the upper work to the greater number of the piers. The foundations on the southern side of the river all rest on the solid rock; as those in the centre Bay, for four of which we had to excavate the sand to a depth of 4½ yards. The heavy and strong freshes in the river have greatly retarded the work, es-

* For this duty the services of an officer will shortly be required.

† Since submitted to Government.

‡ Including the earthwork already completed on a sanctioned advance.

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"pecially with respect to the centre foundations, which were excavated and subsequently twice filled in with sand by the freshes. Had these freshes not retarded the work, the whole of the piers would have been built before the monsoon."

Expenditure	Rupees	24,636	3	4
To amount in advances	"	2,047	0	0

Rupees 26,683 3 4

Leaving a balance of " 2,601 15 6*

68. On the estimate (Z) of rupees 75,203-14, for construction of road (in part) between Soobarum and Itchapoor, Lieutenant Palmer on the same date reports that :

69. "A new street has been formed through the town of Chicacole, and the earthwork thrown up for 40 miles from the 559th to the 599th mile, being from the town of Chicacole to Sunthoshapoorum."

70. "The masonry works from mile 559, or the town of Chicacole, to mile 575, at the village of Nursimpettah, are in course of construction; I hope to complete them before the monsoon, so that men and bullocks may make use of the road during that season. Hitherto this part of the country has been entirely impassable from the vast plains of paddy, and the immense broad and deep irrigation channels, which are even now full of water."

71. "When I am able to leave the works of the Chicacole bridge, I intend making the estimate for the completion of the road as far as the town of Itchapoor, to join this road from that place to the Bengal frontier, which is nearly completed."

72. "The breadth of the earthwork of the roadway is 8 yards; no portion of the road has been installed, but there will be no difficulty in procuring good material for it, as soon as the full estimate be sanctioned."

73. Twenty-two small bridges and tunnels varying in size from 1 vent of 1 yard, to 3 arches of 4 yards, have been completed.

74. The total expenditure, including money out in advances, amounts to Company's Rupees 28,000.†

75. Lieutenant Palmer speaks well of the services of Assistant Overseers Shand and Penman, but more especially so, of those of Assistant Overseer Lever.

76. The work on the estimate (Z) of rupees 15,709-9-6,‡ between Soobarum and Chittervulsh, and the construction of the Toonee bridge, have been delayed, from no officer having been appointed to succeed Captain Anderson, who left the department in October.

* Vide para 86 for additional sanction to complete the work.

† To be charged to estimate 6 U of rupees 114,405-15-6.

‡ The approximate estimate (Z) of rupees 75,263-14, having been cancelled by order of Government contained in extract from Minutes of Consultation No. 149 dated 13th April.

76. On (K) of rupees 1,456-13-3, the cross road to the Palwah Chuttrum bungalow has been constructed.

79. On (Q) of rupees 1,486-7, for repairs in the Rajahmundry district, rupees 1,070-10 were expended to the end of March.

80. On (P) of rupees 39,567-0-8, for repairs and masonry works between the Denda Gedz and Hoomah causeway, no accounts have yet been received.

81. Abstract of Estimates:

Current estimate.....	Rupees..	649,450	2	7
Adjusted.....	"	39,173	8	3

Total estimate to 1st May 1855.....	Rupees..	688,623	10	10
Do do 1854.....	"	516,563	5	8

Additional estimates 172,040 5 2

Particulars of additional estimates.

R ^a —	Vide para 52.....	Rupees..	3,210	0	0
D & G—	do do.....	"	3,600	0	0
A—	do do.....	"	23,149	0	0
H—	do 53.....	"	107,112	12	1
P—	do 54.....	"	6,450	4	0
C—	do do.....	"	7,115	10	0
B—	do 55.....	"	6,061	7	11
E—	do 56.....	"	5,292	10	11
Q ^a —	do do.....	"	10,018	8	3

Total rupees 172,040 5 2

82. Estimates R^a D G and A are for annual repairs from Toonee to Soobaram, Itchapoor to the Bengal frontier, and Yerkanjairy to the 113th mile, respectively.

83. On the estimate H^a an advance of rupees 10,000 was sanctioned in 1853-54, and the amount here shown is the balance of the outlay proposed for constructing, with the exception of the large masonry works, the road between the 113th mile and the Moodegunda river.

84. Estimate P was for emergent repairs in the Rajahmundry district, between Yerlingoodun and Toonee, and estimate C for re-metalling the first 6 miles from Yerkanjairy to the Red Hills.

* Bills sanctioned to rupees 1,316-14-11.

85. Estimate (B) for re-building a bridge in the approach to the Binlipatam river bridge, (the cause of destruction of the original one, having been fully explained in Captain Rundell's letter No. 464, dated 7th November 1854, which was submitted to Government) and for building a bridge of 3 arches between Ankapilly and Soobaram.

86. Estimate (E) for repairs between Toonee and Soobaram, and (Q^a) for the completion of the bridge referred to in para 64 across the Naugoolia river at Chicacole, the difficulties experienced in laying the foundations of which, were brought to the notice of Government, in Major Birdwood's letter No. 149, dated 1st March 1855, and subsequently by Lieutenant Palmer, in a letter No. 20, dated 17th February 1855, and in his report for the same month.

No. VII. TRUNK ROAD.

From near ONGOLE on TRUNK ROAD, No. 6, to the HYDRABAD FRONTIER AT PONDIGUL on the South bank of the KISTNA, 91 Miles.

87. Between the Moodegunda river and the Kistna, Assistant Supervisor Arnold is using every exertion to forward the works on the estimate (A) of rupees 134,020-12, sanctioned in extract from Minutes of Consultation No. 247, dated 5th June 1854; but the progress is slow, owing to the extreme difficulty of procuring work people in any numbers, nearly all of them being drawn away to the Beizwarrah anicut and works connected with it.

88. From the nature of the country over which this line passes, there is fortunately no great extent of embankment required, the principal work being in draining and metalling; and though the progress at present promises to be slow, I shall hope to see the line generally open for traffic by the time the road to Ongole is completed.

No. VIII. TRUNK ROAD.

From MADRAS to TRICHINOPOLY and the SALEM BOUNDARY, 225 Miles.

89. On this line the metalling of the branch road through Palaveram on the estimate of rupees 804-15 has been completed, and kept in repair; a duty which will, I conclude, devolve in future upon the department of the Superintendent of Roads at the Presidency, the Cantonment of Palaveram being beyond the Trunk Road limit.

90. From Palaveram to Vickravandy the road during the last monsoon was very much cut up in parts, and though the expenditure on the annual allowance of rupees 11,693 was regulated to the best advantage by Captain Heathorn, it was evident, with the generally increasing traffic, more especially between Palaveram and Chingleput, that the allowance of rupees 145-4 per mile, was very insufficient; on this account a revised estimate of rupees 27,468-4, or

rupees 341-8-6 per mile, was submitted to Government in March, and received sanction in extract from Minutes of Consultation No. 133, dated, 27th March.

91. So much delay in the preparation of materials for the causeway across the Palaur near Chingleput, was occasioned from the difficulty of procuring wood for brick burning, that, as stated in my report for July, the work was postponed till this year, and the sinking of the wells was not commenced till late in February. The work however has since progressed most satisfactorily, and will, I anticipate, be completed by the end of June.

92. Between Vickravandy and Oolundoorpett* the road is now in excellent order, and also from the latter place to Semiaveram IN DRY WEATHER, (the large rivers on both portions remaining to be bridged, for which plans and estimates are in course of preparation) the metalling is fast progressing, but until finished, the road will not be available for quick traffic throughout the year. The portion between Semiaveram and Trichinopoly has been long finished, and is kept in very good order.

93. In my report for August, I stated that the greater portion of the country between Oolundoorpett and Semiaveram was a waste cotton soil, with rocky ground at intervals, and was consequently difficult to travel over at all seasons, the projecting rocks always offering great obstructions to the traffic, and the cotton soil, being soft mud in wet, and a continued line of deep ruts, and high ridges in dry weather, was almost impassable for any conveyance, but the narrow country carts.

94. In that month the embankments over the cotton ground had been covered with pit soil, an excellent binding material, and offering a good surface for the reception of metal, which, as before stated, is now being laid on.† The rocks have all been removed, and it now remains, when funds are available, to bridge the several rivers on the line, viz. the Palaur, Ponnyaur, Mullatanz Geddalem, Vellaur, and Oopaur,‡ to complete thoroughly the communication from the Presidency to Trichinopoly.

95. On the estimate (H) of rupees 25,000 for repairs between Mooseerree and the Salem boundary, a detailed report of the work done was submitted to Government in August, and the statement of expenditure to the close of the Official year has lately been received from the Collector of Trichinopoly,

* Captain Heathorn reports that the re-building of the Vickravandy bridge will be completed early in May, and Mr. Ricketts reports that the Erinjee and Chepaakum bridges will be finished by the end of the same month.

† On the estimate C of rupees 47,667-0-6, bills amounting to rupees 23,724-11-2 have been sanctioned, and others for rupees 2,574-3 have been received.

On the estimate H of rupees 57,263-10-4, bills for rupees 35,970-15-1 have been sanctioned, and others for rupees 9,248-8-10 received.

‡ A plan and estimate for bridging the Oopaur have since been submitted to Government.

amounting to rupees 24,373-7-6, leaving a balance of rupees 626-8-6 to be refunded.

96. Abstract of Estimates.

Current estimate.....	Rupees..	324,407	0	1
Adjusted.....	"	200,076	6	10

Total estimate to 1st May 1855.....	Rupees..	524,483	6	11
Do do 1854.....	"	465,586	12	7

Additional estimates .. 58,896 10 4

Particulars of additional estimates.

G ^e — Vello para. 97.....	Rupees..	27,468	4	0
X — do do	"	4,500	0	0
O — do do	"	7,400	0	0
A — do 98	"	804	15	0
H ^e — do do	"	10,031	0	3
L ^a — do do	"	2,348	14	0
Sale of unserviceable tools.....	"	343	9	1

Total rupees... 58,896 10 4

97. Estimates G, X, and O^e, are for annual repairs from Palaveram to Vickravandy, Vickravandy to Oolundoorpett, and Oolundoorpett to Trichinopoly,* respectively.

98. Estimate A was for the branch road through the cantonment of Palaveram; H^e for the extension and completion of the road from the Coleroon bridge to Valliapatty on the Salem boundary, on which work has lately been commenced under the Superintendence of Mr. Ricketts; and Estimate L^a for extending the causeway across the Palaur at Chinglepett.

No. IX. THIRUK ROAD.

From PAUMPUSETT on THIRUK ROAD No. 8, to COMBACONUM, 75½ Miles.

99. On this road the Civil Engineer of the 6th Division is engaged in building a bridge across the Coleroon river, in connection with the ancient, (at a cost of rupees 80,000 to the Road Department) and in re-building the Vellaur ancient bridge, to be charged to the Revenue Department. The Wallajah bridge is completed: the additional arches to the Vuddavayr bridge will be so early in May, and the only rivers then unprovided for will be the Pennaur and Geddalem, for which plans and estimates are in course of preparation; excepting

these rivers there only remain a few tunnels to be built, and the metalling of some portions, which is now being quickly carried on, to complete the line, and in its present state it is quite available for traffic during the dry weather.

100. The question of erecting Choultries on the line, to induce native merchants and travellers to frequent it, was referred to Government in December last, and sanction for building two, out of the Chuttrum funds of the South Arcot district, one at the 144th mile, half way between the Coleroon and Vellaur anicuts, and the other at the 121st mile, equidistant from the Vellaur anicut and the village of Punroottee, was granted in extract from Minutes of Consultation No. 145, dated 5th April.

101. I would now suggest the propriety of erecting Bungalows for European travellers at the same convenient distances; for though there is only one Government one on the whole line, at Punroottee, there are buildings at the two anicuts, which travellers can, I believe, take advantage of.

102. Captain Heathorn informs me that a few additional irrigation tunnels are required, and on some portions of the road over very bad soil more metal, for which works an estimate will shortly be prepared.

103. Abstract of Estimates.

Current estimate.....	Rupees...	209,316	14	9
Adjusted do	"	4,141	8	0

Total estimate to 1st May 1855.....	Rupees...	213,458	6	9
Do do 1854.....	"	199,421	7	9

Additional estimates... 14,036 15 0

Particulars of additional estimates.

X*—Annual estimate for 1854-55.....	Rupees...	300	8	0
R—Do do do	"	7,550	0	0
A—Vide para. 105.....	"	205	12	0
K—Do do	"	5,980	11	0

Total rupees... 14,036 15 0

104. Estimate X* is for annual repairs to the two ferry boats on the Coleroon river at the lower anicut, and R for repairs to the road from Pauprumpett to Combaconum.

105. Estimate A was for extra repairs to the same ferry boats, and K for two additional arches to the bridge at the head of the Vuddavaru channel.

No. X. TRUNK ROAD.

From ARCOT on TRUNK ROAD No. 11, to the MYSORE FRONTIER beyond PALMANAIR, 65 Miles.

106. The only work on this road during the year has been the annual repairs, which has been carefully superintended by Assistant Overseer Booth, but the traffic has increased so much that a larger outlay has become necessary, to provide which a revised estimate of rupees 16,576, or rupees 259 per mile, instead of rupees 104-12 as hitherto, was submitted to Government after my inspection in March, and received sanction in extract from Minutes of Consultation No. 189, dated 4th April.

107. Great progress has been made in the construction of the bridge across the Poinay river at Trivellum, by the Railway Company, and it is likely, I understand, to be completed in the early part of next year.

108. The Vellore branch of No. 10 road from near Pannatoor, 10½ miles, was made over to my department in April, by order of Government contained in extract from Minutes of Consultation No. 338, dated 9th September 1854,* and estimates for its completion, and annual repairs, will shortly be submitted for sanction.

No. XI. TRUNK ROAD.

From CHITTOOR on No. 10, to CUDDAPAH, 99 Miles.

109. To the 30th of April, Mr. Addis reports the following progress on this road."

110. On the estimate (A) of rupees 3,056-9-9, or rather on the balance of the original estimate made over by the Civil Engineer of the 4th division, for construction of a 2d class road between Chittoor and Poothulpett, all the earthwork has been finished; and on the estimate (J) of rupees 9,560-8, for completing the same as a Trunk Road, all the road dams have been built, and materials are being prepared for the tunnels and barrel drains.

111. On the estimate (D) of rupees 31,954-12-6, for construction between Poothulpett and Yerlumpilly, the earthwork has been completed. The foundations of the bridge of one 6 yard arch across the surplus channel from the Palcul tank commenced, the road dams finished, and materials for the remaining bridges are in course of preparation.

112. On the estimate (E) of rupees 11,881-7-10, for construction from Damulcherroo to Kulloor, all the earthwork with the larger road dams completed, and most of the rocks removed. The Damulcherroo ghaut is in very ex-

* The increased annual estimate has been the only sanction during the year.

order, and materials are being prepared for the tunnels, and the bridge of 5 yard arch across the Daravulcherroo, or Poinay river.

113. On the estimate (G) of rupees 20,698-2-6 from Kalloor to Colond, the earthwork has been completed for a distance of 22 miles, and materials being collected in anticipation of sanction for the several masonry works.

114. On the estimate (H) of rupees 56,697-7-10, for construction from uloudah to Goolcherroo, the earthwork has been completed, and the masonry works are in progress.

115. The road from Goorvulcherroo to Bankrapett including the ghant, has been long finished, and is in excellent order.

116. On the estimate (B) of rupees 16,903-1, for improvements between Bankrapett and the Ontakoor channel near Cuddapah, the work has been completed with the exception of the bridge of 3 arches, each of 13 yards span, across the Moakurankah, of which the abutments and piers have been built, and the turning of the arches commenced.*

117. Abstract of Estimates.

Current estimate to 1st May 1855.	Rupees	163,802	1	5
Do. do. do. 1854.	"	96,294	1	7

Additional estimates... 67,507 15 10

Particulars of additional estimates.

B*-Annual estimate for 1854-55	Rupees	600	0	0
C- do. do. do.	"	650	0	0
J- Vide para 110.	"	9,560	8	0
H- do. 114.	"	56,697	7	10

Total rupees... 67,507 15 10

NO. XII. TRUNK ROAD.

FROM MAHAL ON TRUNK ROAD NO. 11, TO BELLARY, 119½ MILES.

118. The only work done on this road during the year has been between Coodairy and Ooderpeedroog, 9½ miles, under the Superintendence of Lieutenant Johnson, on a portion (rupees 7,662-4-3) of the estimate of rupees 57,050-12 sanctioned in extract from Minutes of Consultation No. 209, dated 6th M for construction from Coodairy to Bellary.

119. The work was commenced in November, and Lieutenant Johnson the 14th April writes:—

* Since completed.

120. "Upwards of six miles of road has been levelled, cleared of obstructions, and the requisite channels dug.

121. "About 39,414 cubic yards of earth have been thrown up in embankments, and drain approaches, removed from the brows of hills, and tops of rises.

122. "Upwards of 750 rupees have been expended in unmeasured works, which have chiefly consisted in removing rocks, with which the whole country is covered, and which it has been impossible to avoid altogether.

123. "Ten drains have been completed consisting of three vents of 6 feet, and seven vents of 4½ feet; 3 others are now in course of construction, and bricks are being made for some small bridges.

124. "The new line from Ooderpeedroog to Jellipilly, (2 miles) has been open to traffic for some time, and is now used by all bandies, passengers, &c. The portion between Moodlapoor and Coodair, (3 miles), is likewise finished, with the exception of the covering in of one drain; as soon as this is completed, it will be thrown open. On the remaining portion of the line the chief part of the heavy work, such as embankments &c. has been finished, or is being proceeded with rapidly. The chief delay being caused in getting stone for the drains. The stone woodders being a most idle, dissolute set, and very difficult to manage."

125. Other causes of delay are mentioned by Lieutenant Johnson; one principal one being the prevalence of fever, from which at one time out of 20 individuals belonging to the road and his private establishment, 14 were sick, and Assistant Overseers McGuinness and Cullis were struck off the strength of the department from continued ill health. Lieutenant Johnson speaks highly of the services of Assistant Overseer Roots.

126. The country from Mahal on Trunk Road No. 11 to Anantapoor, 110 miles, and thence to Coodairy, 13½ miles, has been surveyed by Maistry Annasamy, as also from Ooderpeedroog to Bellary, 39½ miles, under the superintendence of Lieutenant Johnson; estimates for the latter portion were submitted to Government in April, and those for the road from Mahal to Coodairy are in course of preparation.

127. Sanction for building a bridge across the Pennaur near Ooderpeedroog, at a cost of rupees 35,230, on an estimate framed by Colonel Henderson, was given in extract from Minutes of Consultation No. 516, dated 9th December 1854; and though but little work has been actually done during the year in construction, the whole line from Mahal to Bellary has been surveyed, and estimates submitted to Government in part, are now being completed.

No. XIII. 2d CLASS TRUNK ROAD.

From MADRAS by NAGGERY and KIRCUMBADDY, to CUDDAPAH, 163 Miles.

128. Of the rupees 9,000 sanctioned for preliminary works in the 2d division, rupees 5,472-4-6 have been expended, and rupees 6,000 for the same purpose have been advanced to the Civil Engineer of the 4th division, but no bills of expenditure yet received.

129. On the estimates (A²) and (B¹) of rupees 6,102-2-10, and rupees 1,300 respectively, for constructing bridges and drains, and for annual repairs between Naggery and Kircumbaddy, no advances have been applied for.

130. In para 97 of my last report, the total length of the several Trunk lines, exclusive of the 2d class roads, from Oopinungaddy to Pootoor, 7½ miles, and Madras to Cuddapah, via Naggery, 163 miles, was given at 2,049 miles; this number is now increased to 2,074, the additional 25 miles being the difference of the length of No. 8 road, 41 miles, from the Coleroon river to Valiaputtu on the Salem boundary, and 16 miles, the decreased length of No. 3 road, now taken to Manny instead of Buntwall.

131. Seven hundred and two miles were stated to be completed, and 535½ as the number to be completed in the course of the year, making a total of 1,237½ miles. The following are the actual distances finished, with the exception of the large bridges enumerated, and some trifling works, and for which annual estimates are in force:—

No. 1	Madras to the entire length	189½ miles.
" 2	do.	105 "
" 3	Mysore frontier to Oopinungady	20 "
" 4	The entire length	68 "
" 5	Coimbatore to Ponany	83½ "
" 6	Yerlanjairy to the 113th mile	108 "
" "	Toonee to Soobaram	53½ "
" "	Itchapoor to the Bengal frontier	54 "
" 8	Palaveram to Trichinopoly	184 "
" 9	The entire length	75½ "
" 10	do.	65 "
" 11	Goovulcherroo to Cuddapah	13½ "

1019½

132. In addition to this, I had anticipated completing the greater part of No. 5 road from near Vaniembaddy to Coimbatore, 195½ miles, for which the estimates as far as Bowany, amounting to rupees 129,132-1-5, were ordered to be postponed, and on No. 6 road, 12 miles are to be deducted from the distance

given as completed, being the portion between the 113th mile, and Ulloor in the 125th mile, now given up in consequence of the alteration of the line.

133. These two, with the several distances completed at intervals on Trunk Roads Nos. 6 and 11, would, I have no doubt, have exceeded the progress I hoped to have seen made by the end of the year.

134. From the departments of the several Collectors and Civil Engineers mentioned in my last report, I have received, as usual, much assistance during the year, and I have great pleasure in bringing to the notice of Government the valuable services of my Assistants Captains Heathorn and Barber, Lieutenants Marshall, Palmer, and Johnson, and of Mr. Addis and Mr. Ricketts.

135. The services of Assistant Supervisor Arnold, Overseer Graham, and Assistant Overseer Church, in charge of Trunk Roads Nos. 7, 2, and 4, respectively, are deserving of special notice; as well as those of Assistant Overseers Goodchap, Booth, Ramanujooloo, King, and Lever; with the remaining Assistant Overseers in the department, I have also every reason to be satisfied.

136. In the general map of the roads, the finished portions, and for which annual estimates are provided, are shown in red; those on which the earthwork has been nearly completed, and masonry works commenced, in brown; and those on which but little progress has been made, in yellow.

137. Of the quarry roads between Madras and Cauveripauk, shown in map No. 2.

Nos. 1 and 2 may form lines of communication from Sydapett, the Mount, and Palaveram, to the Trunk Road between Madras and Poonamallee, and the former may be extended to the Railway station at Cooratoor; (the proposed extensions are colored green.)

No. 3. To communicate from Conatoor, crossing the road at Poonamallee, to the station at Avady.

No. 4 is too near the road to be of use.

No. 5. To communicate from the district road between Streepermatoor and Wallajabhad, crossing the Trunk Road in the 37th mile, to join the district road from Tripasore to Conjeeveram, and so to the station at Boodoor.

No. 6. From Conjeeveram &c., crossing the road in the 42d mile, to the station at Chinnamapettah.

No. 7. From the 45th mile to the same station.

No. 8. From the 49th to the station at Companypettah, and Nos. 9, 10, 11, 12, and 13, from between the 53d mile and Cauveripauk, to the station at Bannaveram.

138. These lines eventually can be improved and extended in proportion as their value becomes known from the extent of traffic frequenting them.

139. In concluding this, which is, I believe, likely to be the final report on the proceedings of the Road Department, I would suggest that the Executive

Officers, to whose future Superintendence the several lines are likely to be made over, should be strictly enjoined to furnish separate accounts of expenditure under the head of Trunk Roads, numbered as at present, in order that General Abstracts may be prepared periodically in the Office of Account, and that thus on their final completion, Government may be able to ascertain the precise cost of each line.

140. The statements now submitted give this information from the first organization of the Road Department in 1846, to the close of the official year 1854-55.

141. I would further suggest in order to insure a uniform system of making roads, that the General Rules at present in force in the department, as printed by order of Government, should be adhered to.

142. Of the total estimates sanctioned from 1846 to 1855, amounting to rupees 36,24,636-4-4, (exclusive of the salaries of the fixed establishment and some contingent charges, together rupees 2,66,441-10-6) rupees 24,28,847-7-5 are for construction; rupees 4,36,815-0-6 for maintenance, and rupees 7,59,003-12-5 for annual repairs.

143. On No. 1 Road during the 9 years, the annual estimate from the Presidency to Vaniambady, has been increased from rupees 124-0-2 per mile, to rupees 661-10-2, and on No. 2 from Frazerpett to Mangalore, from rupees 50, to 100.

On Nos. 4 and 5, from the Mysore frontier to Cannanore, and Waliaur to Ponany, during 7 years, from rupees 50 to 100; and rupees 30 to 100, respectively.

On No. 6, from Itchapoor to the Bengal frontier, during 8 years, from rupees 18-3-7 to 66-10-9, and from Madras to Coovoor from rupees 27-7-3 to 214-5-6.

On No. 8, from Palaveram to Vickravandy, during 6 years, from rupees 118-8-2 to 341-3-6, and on No. 10, from Arcot to the Mysore frontier, during 3 years, from rupees 104-13-0 to 255-0-3.

144. For the construction of the Periambaddy ghaut and road, (No. 4) 68 miles, the average cost per mile was rupees 3,400 nearly.

145. On No. 8 road from Chingleput to Vickravandy, 53 miles, the cost was rupees 3,300, or with the bridge required for the Palaur river at Chingleput, rupees 4,000 nearly.

146. From Vickravandy to Oolundoorpett, 30 miles, rupees 2,900, but to complete this portion, rupees 1,50,000 would be required to bridge the Geddalem, Pennaur, and Malataur rivers, which would give an average of nearly rupees 8,000 per mile.

147. From Oolundoorpett to Trichinopoly, 76 miles, rupees 4,300, including rupees 42,099-5-9 for re-building in part, the Coleroon bridge. This aver-

age is however about correct, as a bridge across the Vellaar would cost some rupees 34,000, and one over the Oopaur Causeway rupees 6,000 nearly. The average for construction from Chinglepett to Trichinopoly may be taken at rupees 5,000 per mile.

148. On No. 9 road from Pauprumpett to Combacorum, 73½ miles, rupees 3,200, or allowing rupees 1,40,000 for the portion of the Coleroon bridge charged to the Revenue Department, and for bridges across the Pennaur and Geddalem rivers, would give rupees 5,000 per mile.

149. On No. 10 road from Arcot to the Mysore frontier, 65 miles, not including the 4 miles of ghaut, rupees 1,200, or with a bridge across the Poinay river at Trivellem, about rupees 2,000 per mile.

150. These are the only portions of road formed entirely by this Department, which are sufficiently advanced to show their actual cost; and from an average of them, rupees 4,500 may be considered as a fair rate per mile, for constructing trunk lines of the present width. The extent of annual repairs will be principally contingent on the amount of traffic, and supposing it to number 200 carts daily, the cost would be approximately as follows:—

200 Cubic yards of metal per mile say.....	Rupees	150	0	0
Earthwork..... do.	"	20	0	0
Superintendence.....	"	27	0	0
Repairs of bridges, tools, and sundries.....	"	12	0	0

Per mile, per annum, Rupees...209 0 0

151. It will be observed that the traffic returns are more complete than those hitherto furnished. On No. 1 road, at the 5th and 21st miles, so considerable an increase is shown, agreeing very nearly with the numbers of carts given in 1852-53, that I am of opinion the returns for last year are incorrect.

152. The heaviest amount of traffic is shown at the 11th and 5th miles of No. 6 road, the next at the 5th mile of No. 1, and the 23d mile of No. 8, then on No. 1, as far as the 71st mile, and then on No. 10, at the 121st and 75th miles.

153. On No. 2 road, the average number of carts registered daily at the foot of the Sumpagee Ghaut, is 44 in excess of the previous year.

154. On No. 4 road, in 1852-53, the daily number of carts on the Periambaddy Ghaut was 49, in the following year 249, and last year 391, showing an increase in 3 years of 342.

155. On No. 6 road, at Naidoopett, in the 66th mile, the increase over last year is 96, at Sooloorpett in the 49th mile, 423, at the Red Hills in the 11th mile, 503, and at Yerkanjaury in the 5th mile, 90 carts. The increase at the Red Hills shows that the greater part of the traffic registered at Sooloorpett

0917-200-454
455

57946

enters Madras by the road, notwithstanding the improvements to the Northern Canal. South of the Red Hills there are four entrances to Madras, which accounts for the comparatively small increase at Yerkanjairy.

156. On No. 8 road, at Oolundoorpett, in the 122d mile, the increase over last year is 41, and at Toramungalem in the 165th mile, 80 carts. These are the only returns which admit of a comparison with former years.

157. The estimates sanctioned during the year amount to rupees 7,10,801-10-6, the advances made, to rupees 7,00,280-10, the bills sanctioned, to rupees 5,95,450-3-6, and those ready, to rupees 1,02,979-13-5.

SUPERINTENDENT OF ROADS OFFICE;
CAMP MADRAS,
30th May 1855.

C. C. JOHNSTON, CAPTAIN,
Superintendent of Roads.

ABSTRACT OF CART TRAFFIC AC. IN MADRAS DISTRICT.

Road	Place or Mile from Madras.	Months.	Going East.		Going West.		Animals.		REMARKS.
			Spring conveyance.	Carts.	Spring conveyance.	Carts.	Going East.	Going West.	
1	Uninjikary Bridge.....	May 1854 to April 1855.....	40	638	45	648	243	228	
	Tundahum.....	21 do do.....	22	622	23	602	124	129	
	Arcot.....	71 do do.....	6	641	7	625	427	462	
	Vellore.....	84 August to October 1854.....	6	258	6	301	270	246	
	Pullicoudah.....	95 May to December 1854.....	2	302	2	309	489	431	
	Palaudypett.....	102 January to April 1855.....	3	544	3	400	571	465	
	Naicoandy.....	127 do to do.....	3	376	3	431	445	386	
	Nautrumpully.....	135 May to December 1854.....	2	118	2	125	222	232	
	Malapady.....	147 January to April 1855.....	5	256	3	231	106	190	
	Coovabarhully.....	165 May 1854 to April 1855.....	2	54	2	59	98	155	
	Foot of the Sumpangree								
	Ghaut.....	do to do.....	2	37	2	31	267	177	
	Perambaddy Ghaut.....	do to do.....	3	200	2	191	1185	1402	
5	Derumpoory.....	do to January 1855.....	0	13	0	7	0	0	

ABSTRACT OF CART TRAFFIC &c. MADRAS TRUNK ROADS—continued.

Place or Mile from Madras. Road.	Months.	Going North.		Going South.		Animals.		REMARKS.
		Spring convey- ance.	Carts.	Spring convey- ance.	Carts.	North.	South.	
6 Yerkaanjaiy.....	5 May 1854 to April 1855.....	0	583	13	1214	358	2155	
Med Hills.....	11 October to December 1854.....	5	407	5	1616	71	2196	
Sooloorpett.....	40 May 1854 to April 1855.....	1	256	2	291	160	226	
Naidoopett.....	65 do to do.....	1	191	1	129	122	261	
Vencatachelum Chut- trum.....	97 do to do.....	1	43	1	45	195	179	
Nellore.....	108 do to do.....	1	20	1	13	34	19	
Onigole.....	185 do to do.....	0	12	0	15	6	14	
Pincole.....	215 do to do.....	0	5	0	6	1	2	
Yatoocoor.....	255 do to do.....	0	21	0	19	0	7	
Choultry North of Gum- toor.....	256 do to do.....	0	28	0	30	11	24	
Yernagooten.....	344 do to do.....	0	22	0	13	72	48	
Pangheddy.....	355 do to do.....	0	27	0	16	72	43	

GENERAL REPORT OF THE ROAD DEPARTMENT.

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Dharmavaram.....	401	do	to	do	0	54	0	43	120	85
Toonee.....	435	do	to	do	0	42	0	47	357	568
Nuckapilly.....	442	do	to	September 1854.....	0	7	0	17	73	66
Cassimcothah.....	478	do	to	do	0	3	0	2	123	56
Ankapilly.....	477	do	to	do	0	257	0	245	463	422
Vizianagarum.....	517	do	to	do	0	40	0	78	0	0
Coopully.....	549	do	to	do	0	0	0	28	0	178
Coonarabagpully.....		do	to	April 1855.....	0	31	0	30	35	74
Akkiah Agraharum.....		do	to	do	0	20	0	15	52	91
Gaurah.....		do	to	do	0	45	0	15	56	43
Woodudaperum.....		do	to	September 1854.....	0	25	0	36	109	92
Ganjam.....		do	to	December 1854.....	0	187	0	196	55	50
Berhanpoor.....		do	to	do	0	192	0	283	40	30
Goorooanjaiy.....	23	do	to	April 1855.....	6	654	5	620	104	160
Conairy Coopum.....	69	do	to	do	2	83	2	78	78	73
Oolundoorpett.....	122	do	to	November 1854.....	0	58	0	58	36	32
Toramingalem.....	164	do	to	do	0	50	1	68	27	39
Coidoor.....		do	to	for April 1855.....	0	76	1	59	25	23
Toramingalem.....		do	to	do	8	125	2	105	36	31
Saniavaram.....		do	to	do	0	138	0	140	28	12
Seringham.....		do	to	do	0	124	1	124	7	16

ABSTRACT OF CART TRAFFIC &c. MADRAS TRUNK ROADS—continued.

Road.	Place or Mile from Madras.	Months.	Going East.		Going West.		Animals.		REMARKS.
			Spring conveyances.	Carts.	Spring conveyances.	Carts.	East.	West.	
10	Narasasingapoorum.....	May 1854 to April 1855..	7	313	6	273	232	130	
	Coopralagoooruvappah	November do to do	4	402	5	403	446	359	
11	Chitturum.....	May do to March 1855.	0	5	0	5	203	127	
	Goolcheroo Ghaut.....								

SUPERINTENDENT OF ROADS OFFICE; }
CAMP MADRAS, }
30th May 1855.

JOHNSTON, CAPTAIN.
Superintendent of Roads.

MEMORANDUM TO SHEW THE MARCHES MADE BY THE SUPERINTENDENT OF ROADS, FROM MAY 1854 TO APRIL 1855.

Years.	Months.	Roads.	MARCHES.		Miles.
1854	May ..	11 10	Chittoor to Cuddapah, Palmanair, and Madras		335
	June ..	8 0	Madras to Oolundoorpett		122
	July ..	8 0	Oolundoorpett to Trichinopoly—Arakistnary—Combacorum and Chinoor		202
	August ..	8 1	Chinoor to Madras, Arcot, Chittoor, Mysore frontier, and Palmanair		231
	September ..	10 0	Palmanair, Bangalore, Onsscor, and Poonamallee		286
	October ..	1 0	Poonamallee to Madras		12
	November ..	6 0	Madras to Nellore, and Ongole		185
	December ..	6 0	Ongole to Addanky, Nellore, and Madras		231
	January ..	8 0	Madras to Vickravandy, and back		181
	February ..	1 0	Do to Arcot, Chittoor, Mysore frontier, and back		270
	March ..				
	April ..				
					2,155

SUPERINTENDENT OF ROADS OFFICE; }
CAMP MADRAS, }
30th May 1855.

C. C. JOHNSTON, CAPTAIN.
Superintendent of Roads.

STATEMENT SHEWING THE TRANSACTIONS OF THE ROAD DEPARTMENT FOR THE YEAR ENDING 30TH APRIL 1855.

Road.	Amount of Estimates.	Amount un-drawn.	Amount advanced to Executive Officers.	Bills sanctioned.	Bills submitted, or ready for submission.	Amount to be accounted for.
Trunk Road No. 1....	Rs. 1,40,424	Rs.	Rs. 1,40,424	Rs. 59,942	Rs. 477	Rs. 80,005
Nos. 1 & 5.	9,000	...	9,000	7,568	...	1,412
" 2	12,580	711	11,869	3,715	5,032	3,122
" 3	29,096	6,590	22,506	2,899	7,265	12,342
" 4	58,558	21,322	37,236	9,454	4,128	23,354
" 5	90,689	4,441	86,248	11,233	12,642	62,373
" 6	6,49,430	1,49,635	4,99,745	1,61,521	27,606	3,10,618
" 7	1,34,021	97,021	37,000	2,651	1,366	32,783
" 8	3,24,407	26,448	2,97,959	1,32,035	28,164	1,37,740
" 9	2,09,317	73,000	1,31,317	61,886	851	68,580
" 10	93,262	9,763	83,499	72,460	...	4,039
" 11	1,63,802	69,527	94,275	16,478	...	77,797
" 12	1,00,760	76,460	24,300	...	8,527	15,773
" 13	22,402	10,930	11,472	...	5,472	6,000
Marking out Roads.....	7,366	...	7,366	5,466	929	971
Total.....	20,45,114	5,50,893	14,94,216	5,54,328	1,02,979	8,36,909

STATEMENT SHEWING THE AMOUNT OF THE ESTIMATES SANCTIONED FOR THE SEVERAL TRUNK ROADS FROM THE FORMATION OF THE ROAD DEPARTMENT TO 30TH APRIL 1855.

Roads.	Estimates for						Total Estimates.		
	Construction.		Maintenance.		Annual repairs.				
1	49,067	1 5	2,78,173	2 8	3,69,660	4 5	6,96,900	8 6	
2	9,099	14 6	2,432	1 6	53,225	0 0	64,757	0 0	
3	36,622	9 5	0 0 0		5,750	0 0	42,372	9 5	
4	2,28,343	3 1	0 0 0		30,600	0 0	2,58,943	3 1	
5	1,19,105	12 6	43,162	1 3	45,183	0 0	2,07,450	13 9	
6	5,81,992	5 11	1,00,791	9 3	1,02,031	0 0	7,84,814	15 2	
7	1,34,020	12 0	0 0 0		0 0 0		1,34,020	12 0	
8	6,43,015	4 1	7,826	0 0	1,05,035	8 0	7,55,876	12 1	
9	2,39,089	9 2	2,887	0 9	11,992	0 0	2,53,968	9 11	
10	79,533	5 11	1,543	1 1	30,202	0 0	1,11,278	7 0	
11	1,86,570	10 7	0 0 0		3,050	0 0	1,89,620	10 7	
12	1,01,284	12 0	0 0 0		975	0 0	1,02,259	12 0	
13	21,102	2 10	0 0 0		1,300	0 0	22,402	2 10	
	2,428,847	7 5	4,36,815	0 6	7,59,003	12 5	3,624,666	4 4	

Salaries of the Superintendent, his two permanent Assistants, and Office Establishment, from 1846 to April 1855.....

2,64,044 10 7

Contingent Bills.....

2,396 15 11

Total Rupees.....

3,891,107 14 10

PROSPECTIVE LIST OF EXPENDITURE ON TRUNK ROADS PROPOSED
FOR THE YEAR 1855-56

Roads.	PARTICULARS	PROPOSED EXPENDITURE.
1	Annual repairs.....	45,834
1	Do to Quarry roads.....	2,200
2	Annual repairs.....	10,725
2	Bridge over the Hantier Nullah.....	655
3	Annual repairs.....	1,150
3	Bridges in the Canara District.....	6,590
4	Annual repairs.....	6,800
4	Completing Perumbady Ghaut and road.....	1,398
4	Bridge over the Irtetty river.....	10,000
5	Annual repairs.....	8,471
5	Masonry works between Melindoray and Karumthampatty.....	4,441
6	Annual repairs.....	29,959
6	Construction between Hengadgedda and Hoomacaseway.....	10,567
6	Construction between Uyoore and Ongole.....	47,000
6	Do. between Sookaram Bimlipatam river and Itchapeer.....	32,000
6	Completing between Gopalpoondy and Coveor.....	18,813
6	Repairs between Yervagoodum and Toonag.....	6,450
6	Rebuilding bridge on the South approach to the Bimlipatam river bridge, &c.....	6,062
6	Repairing damages between Tenes and Soobaram.....	6,292
6	Do. do. between the Moodegunda river and the Kistnah.....	50,000
8	Annual repairs.....	39,368
8	Completing between Trichinopoly and Salem boundary.....	8,324
9	Repair of the two Ferry boats at the Lower Coleroon Anicut.....	801
9	Annual repairs.....	7,550
9	Bridge across the Lower Coleroon Anicut.....	50,000
10	Annual repairs.....	16,576
11	Do. do.....	1,250
11	Construction between Bankrapett and Cuddapah.....	908
11	Do. between Poothulpett and Yerlampully.....	16,955
11	Do. between Wulloor and Kulcudda.....	4,698
11	Completing as a first class road between Chittoor and Poothulpett.....	9,561
11	Construction between Kulcudda and foot of the Goolcheroo Ghaut.....	30,000
12	Removing chief obstacles between Pelnir and Coodairy.....	3,154
12	Construction of 1st class road between Bellary and Coodairy.....	20,000
12	Bridge across the Pennar river.....	20,000
12	Annual repairs.....	2,275
13	Preliminary work on the direct road to Cuddapah.....	3,527
13	Bridges and drains on do.....	6,102
		5,44,951
	Salaries of the Superintendent, his two permanent Assistants, and Office Establishment, &c.....	35,916
	Total Rupees.....	5,80,867

No. 338.

Extract from the Minutes of Consultation, under date the 13th July 1855.

Read the following report from the Superintendent of Roads.

(Here enter 30th May 1855.)

Para. 1. This is the General Report of the Road Department for the Official year 1854-55 terminating on the 30th April 1855. It contains a useful connected record of the transactions of the year, but does not present any matters calling for special notice, beyond a few which will be briefly remarked upon.

2. The insufficiency of the former annual allowances of Rupees 39,178-11 for maintaining in repair, No. 1 Trunk Road from the Presidency limit to Vaniembaddy, as well as No. 1 Trunk Road as far as Vaniembaddy, paras 5 to 10. the necessity of the revised estimate of Rupees 83,035-1 sanctioned on the 3d March last, is adverted to in these paragraphs. The former sanction allowed only about one-third (0.37) cubic yard of metal for each cart a year; but it has been found by careful trial, that in the first division of 67½ miles the actual wear and tear during twelve months, by weather and traffic united was not less than 1.63 cubic yard per cart. As a consequence a large part of the metalling laid down on the special sanction of 1,16,543 Rupees had been worn away. The allowance now sanctioned allows one cubic yard annually for each cart; and the Superintendent believes that this will be sufficient as it will be possible to lay down the material immediately it is required. It is to be observed, also, that this road will be materially relieved when the Railway is opened to Trivellum, and still more when it is open to Vaniembaddy.

3. In his report for the year ending April 30th 1854, the Superintendent of roads expressed himself in favour of an increased width of metalling, viz. ten yards instead of the six now allowed, on a line whereon the traffic is so heavy as on this. He thought that by this means a good surface might be always preserved with but little if any additional outlay. He forbore however to recommend the measure, on the ground that the Railway, when completed, would greatly relieve this road. In his present report the Superintendent states his full conviction, after another year of careful observation, of the impracticability of keeping the surface of a road good or even in proper section, with the present width of metalling where the traffic is heavy. The Right Honorable the Governor in Council observes

that the late Superintendent Captain Best was of the same opinion; and the reasons stated by him as well as now by Captain Johnston appear sound and convincing. From para 12 to 14.

15 however, it seems uncertain whether, after all, the Superintendent advocates the increased width; being led to hesitate, as it seems from para 16, by the heavy cost of widening the road, to receive the broader metalling. This cost he estimates at 440 Rupees a mile besides 660 Rupees for the additional width of metalling, which latter however he had said before would ultimately be saved. It is to be observed however, that if it is deemed inexpedient to increase the width to ten yards, it may be advisable to restore it to its original width, (eight yards it is believed,) on the most heavily worked part of the road at least, and the opinion of the Superintendent is requested on this point.

4. The general question of the proper width for metalling need not now be considered. The width should vary with the traffic; and one of the subjects to engage the early attention of the Chief Engineer of the new Department of Public Works in connection with the subject of roads generally, will be to determine rules for a proper classification of roads, both as to width and quality of construction, according to the amount of traffic.

5. It is gratifying to learn that the portions of the western road from Arcot to Vaniembady, and thence to the Mysore frontier, are in such improved condition. The result of the experiment of a gravelled road-way across the Poonay river, reported in para 19, is also satisfactory, as affording a means of avoiding heavy pull over a broad expanse of sand; but the completion of the Palaur ancient bridge will be a far greater improvement to this road. The Superintendent's attention should be early given to the formation of a good road, both to reach the bridge from the eastward, and from the south end of the bridge through the town of Arcot to rejoin the western Trunk road on the way to Vellore. If the estimate prepared by Lieutenant Forlong some years since for this portion is deemed sufficient, it should be forwarded at an early date for sanction. The opportunity should be taken to straighten and widen the road through the town of Arcot.

6. The account given in p. 53 of the improvement effected in Trunk road No. 6 between Madras and Nellore is very satisfactory. For the Poongiardec backwater, the Government lately received an estimate to the amount of Rupees 33,022-11-4; and, approving of the work, ordered* it to be included in the budget for 1856-57.

Trunk Road, No. 6.

Para 55 to 58.

* Ex. M. C. 6th June 1855. No. 252.

for the sanction of the Government of India. With this exception the is stated to be in good order to Nellore, and likely to be soon opened for traffic. From near Nellore (the 113th mile) to the Moodigunda river 11 miles north of Ongola, being 53 miles, the formation of the road is stated to be in a state of forwardness; but from the latter point to Tooty, a distance of 243 miles, the road is hitherto quite untouched. North of Tooty, again, work is in course of execution on some parts of the road, while surveys are in progress on others. The progress of the Chinnacote bridge, and of the works on the road between that place and Itchapoor, and under Lieutenant Palmer, is highly creditable to that officer.

7. The early attention of the Board of Revenue in the Department of Public Works will be requested to the plan of a Tank, referred to in para 60 of the Superintendent's report.

8. As regards the future charge of the small piece of road referred to in para 59 of the Superintendent's report, the Government observe that this road, like all the other roads under this Presidency, whether Trunk lines, or Branch roads, will devolve on the new Department of Public Works, the organization of which is now proceeding. It will then properly come under consideration, whether the line of road styled Trunk Road No. 8 should not commence from the Presidency limits instead of from Palaveram.

9. The Southern Trunk Road No. 8, appears now to be very nearly completed from Palaveram to Trichinopoly 184 miles, with the exception of bridges over some of the larger rivers. Between Palaveram and Viraavandy (50 miles) the road is stated to have been much cut up by the heavy traffic; but an increased allowance for repair, amounting to Rupees 343-2-6 a mile has recently* been granted. From Viraavandy to Oolundoorpett (30 miles) and from Samiavaram to Trichinopoly (10 miles) the road is stated to be in excellent order; but between Oolundoorpett and Samiavaram (53½ miles) some metalling still remains to be done, and is in progress, to make the road good in wet weather. For the bridges still required on this line estimates have been lately laid before Government; and they will be recommended to the Government of India in the next budget. This road was commenced by the road Department in 1847; but it had already been made as far as Chingleput, by carrier labour†.

10. With the exception of a few portions, Trunk Road No. 9, from Panprampett (branching off from No. 8) to Combaconum, is stated to be completed and quite available for traffic during the dry weather. The Superin-

P. 59 to 102.

Trunk Road, No. 9.

* 27th March 1855.

† General Report for May 1st 1848, p. 54.

tendent suggests the construction of some bungalows on this line for the accommodation of European Travellers, but before entertaining the proposition, the Government desire to be supplied with information as to the number of travellers using the road, of the class permitted to occupy bungalows, and he requests the Superintendent will obtain and submit this information.

11. The report of progress on the important line of road from Chittoor by the Golcherroo pass to Cuddapah is gratifying, and very creditable to the exertions of Mr. Addis, Assistant Superintendent, and to the Overseers and others placed under his orders. The total of the estimates sanctioned for this line amounted to the 1st May 1855 to Rupees 1,63,802, of which Rupees 69,526 remained undrawn on that date; the balance Rupees 94,276 must therefore be regarded as the expenditure on this line to the close of the past year.

12. The total distance on the several trunk lines which has been completed to the close of April 1855, excepting some large bridges and some trifling works, amounted as shown below to 1,019½ miles, being 317½ miles in excess of the work reported as complete at the close

of the preceding official year.

No. 1 Road. The entire length	189½ Miles.
" 2 " do	105 "
" 3 " Mysore frontier to Oopouungady	20 "
" 4 " The entire length	68 "
" 5 " Coimbatore to Ponany	83½ "
" 6 " Yerkmungady to the 113th mile	108 "
" " Toonee to Soobarum	53½ "
" " Itchapoor to the Bengal frontier	54 "
" 8 " Palaveram to Trichinopoly	184 "
" 9 " The entire length	75½ "
" 10 " do	65 "
" 11 " Goolcherroo to Cuddapah	18½ "

1,019½

13. The quarry roads for bringing metal to the Western Trunk Road, (No. 1) from the places where it is quarried, have been completed; and an estimate of Rupees 2,200 per annum has been sanctioned for maintaining them in repair. Between Madras and Cauveripauk there

are thirteen such roads to the aggregate length of 44 miles constructed at a total cost of 3,100 Rupees. Captain Johnston notices

20

that some of these roads may be lengthened and so be made of use as feeders to the Railway.

14. The suggestion in para. 139 that the accounts of the expenditure on the several Trunk roads, should as heretofore be kept distinct until the roads are respectively completed, is well worthy of observation, and will be commended to the attention of the Chief Engineer.

Rules on the subject of making roads, tried and approved in the Road Department, must be held to be entitled to much consideration, and they should be duly regarded in drawing up the new rules for the Department generally.

15. The estimates sanctioned in connection with the Road Department, from the time of its first formation in January 1846 to April 30th 1855, being a little more than nine years, amounted in the aggregate to Rupees 36,24,666, and the fixed establishment, contingent charges, &c. to Rupees 2,66,441, making a total of Rs. 38,91,107. Of the total amount of the estimates, Rs. 24,28,847 was for construction

Rs. 4,36,815 for maintenance and
Rs. 7,59,004 for annual repairs.

Rs. 36,24,666

16. In para. 149 the Superintendent notes the several lines for which it has been found necessary to increase the annual estimates for repair from time to time, viz.

No. 1 Trunk road. From the Presidency to Vaniem-	bady increased from Rs. 124 to 661 per mile.
" 2 " do From Fraserpett to Mangalore	50 to 100 "
" 4 " do From Mysore frontier to Cannanore	50 to 100 "
" 5 " do From Wallaur to Ponany	90 to 100 "
" 6 " do From Itchapoor to the Bengal frontier	18 to 66 "
" " do From Madras to Coonoor	27 to 214 "
" 8 " do From Palaveram to Viceravandy	145 to 341 "
" 10 " do From Arcot to the Mysore frontier	104 to 255 "

17. In paras. 144 to 150 the mileage cost of construction of the several lines made exclusively by the Road Department, is given as follows:—

No. 4 Perumbaddy Ghat and Road 68 miles average nearly,	Rs. 3,400 per mile.
" 8 From Chingleput to Viceravandy 53 do. do.	Rs. 3,300,
or including the bridge over the Palar nearly	4,000 "

No. 8 From Vieravandy to Oolundoorpett 30 miles, Rupees 2,900, or completed with bridges over 3 rivers nearly.....	Rs. 8,000 per mile.
From Oolundoorpett to Trichinopoly 76 miles.....	" 4,300 "
Total average of the whole line from Chingleput to Trichinopoly.....	" 5,000 "
No. 9 Trunk Road from Pauprumpett to Combaconum 75½ miles, Rupees 3,200 or allowing for bridges across rivers.....	" 5,000 "
" 8 do. From Arcot to the Mysore frontier 65 miles.....	" 2,000 "

On the whole the Superintendent of Roads regards 4,500 Rupees per mile as a fair average for the construction of roads of the present width; and with respect to annual repairs, which, he observes, will be contingent on the amount of traffic, he assumes Rupees 200 per mile as sufficient for roads traversed by 200 carts daily.

18. The Superintendent acknowledges the valuable assistance he has received during the year under report, from the departments of the several Collectors and Civil Engineers; and the Government are much pleased to receive the favorable testimony borne by him to the services of the Officers and Overseers employed in his own department as named in the margin; especially of Assistant Supervisor Arnold, Overseer Graham, and Assistant Overseer Church, who are in charge of Trunk Roads Nos. 7, 2 and 4 respectively.

Captain Heathorn.	
" Barber.	
Lieutenant Marshall.	
" Palmer.	
" Johnson.	
Mr. Addis.	
" Ricketts.	
Assistant Supervisor Arnold.	
Overseer Graham.	
Assistant Overseer Church.	
" Goodchap.	
" Booth.	
" Ramanjeeloo.	
" King and	
" Lever.	

19. As the present is the last General Report on the Trunk Roads as a separate Department, the Right Honorable the Governor in Council takes this opportunity of bearing testimony to the good service rendered by that Department to the cause of improvement during the nine and a half years that it has been in existence, both under its late head Captain Samuel Best, and its present head Captain C. C. Johnston. With respect to the policy of constituting a separate Department for the care of a few main roads, and, admitting that course to be wise, of constituting it on the particular footing on which the Road Department was placed, there have been different opinions; but one thing is clear, that the measure must not be judged by the circumstances of the present time, but by those of the very different time at which it originated. But whatever the variety of opinions on these points, there can be none as to the singular ef-

iciency with which the operations of the Department have been conducted. Its work has been economically done; and its accounts have been simple, clear, and promptly closed. Above all, it was the Road Department which first showed practically that labour can be procured in this country without compulsion, when fair and honest treatment are secured; and so cleared the way to the entire abolition of the system of forced labour.

Ordered that copies of the above extract be furnished to the Superintendent of Roads and to the Chief Engineer in the Department Public Works for their information and guidance respectively; and that para 7 be communicated to the Board of Revenue in the Department of Public Works.

Ordered also that the Report of the Superintendent of Roads with the above remarks be printed, and that 450 copies be struck off for distribution.

(A true Extract.)

D. BOURDILLON,
Secretary to Government.

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OF SELECTIONS FROM THE RECORDS OF GOVERNMENT.

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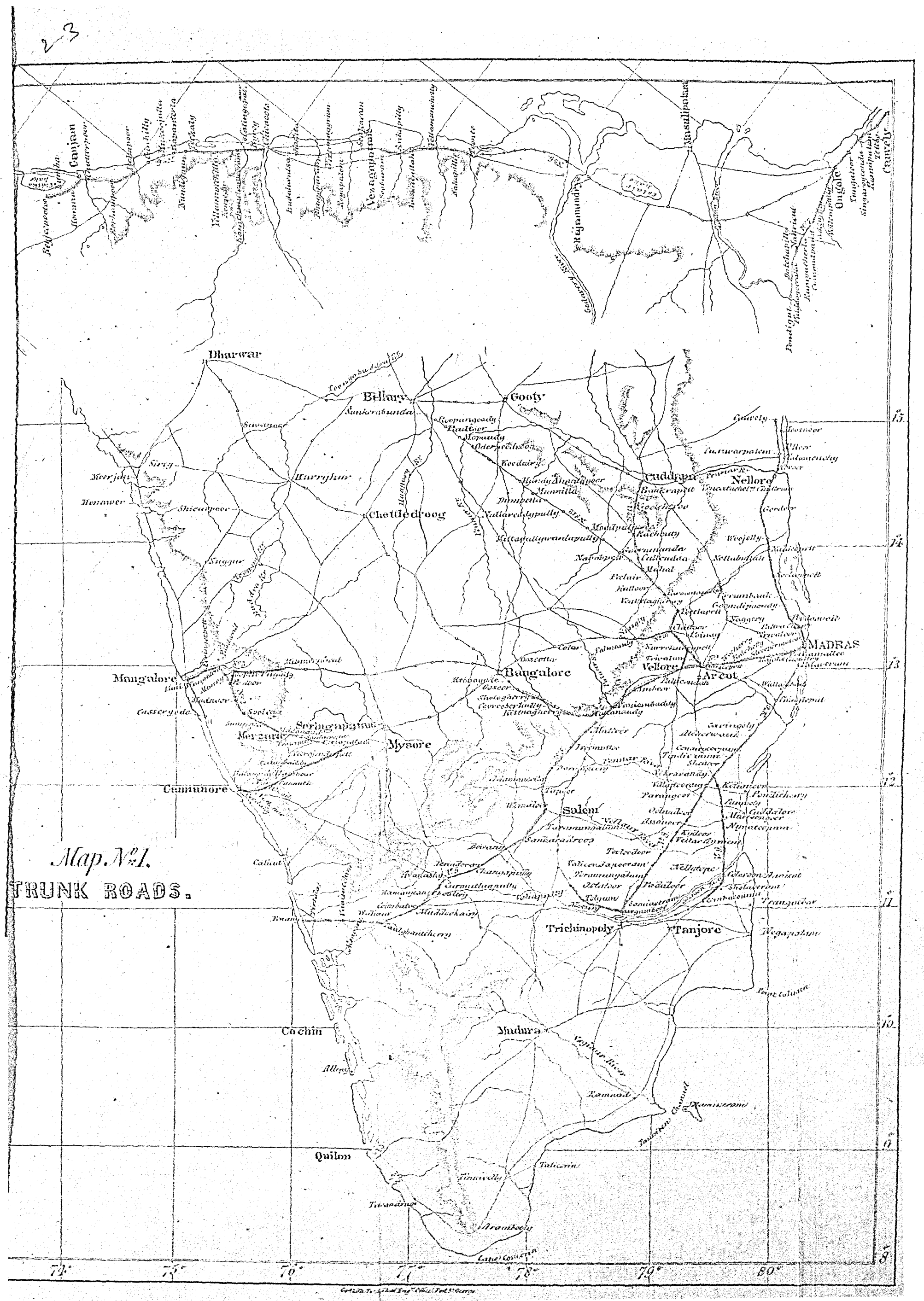
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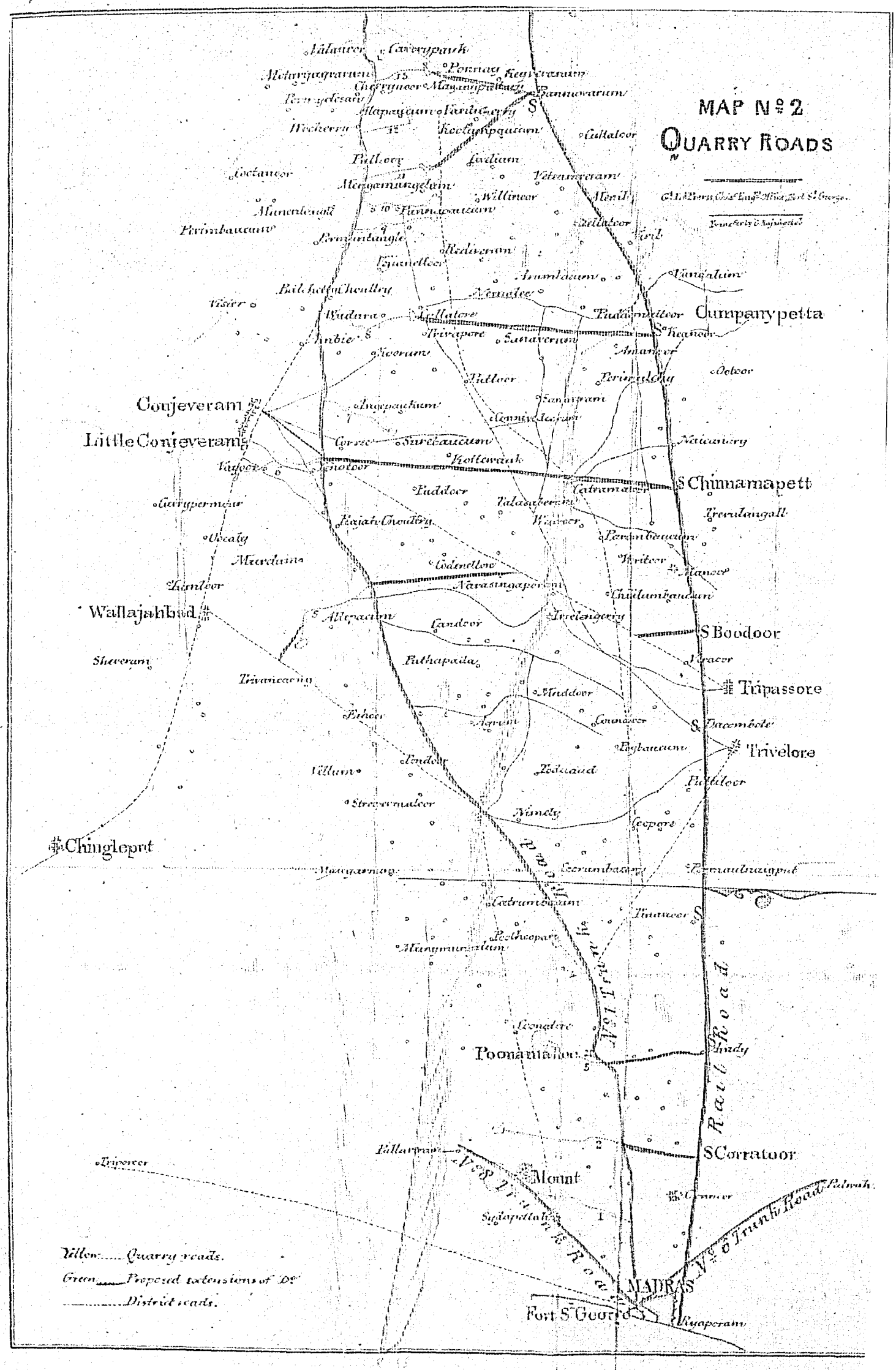
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Map No. 1.
TRUNK ROADS.

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MAP N^o 2 QUARRY ROADS



Yellow..... Quarry roads.
Green..... Proposed extensions of D^o
..... District roads.

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