Public Works Which have Been Completed in India by the East India Company Within the Last Ten Years

1851 (1851)

James C. Melvill

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EAST INDIA. (PUBLIC WORKS, INDIA.)

RETURN to an Order of the Honourable The House of Commons, dated 4 March 1850;-for,

A RETURN "of all PUBLIC WORKS which have been completed in India by the EAST INDIA COMPANY within the last Ten Years; including EMBANKMENTS, CANALS and WORKS of IRRIGATION, ROADS and BRIDGES, BUILDINGS, FACTORIES, DOCKS, and all other Public Works:"

"Also, a similar RETURN of all PUBLIC WORKS now in Progress in India (with the Addition of any proposed RAILWAXS), showing in each Case the Object of the Work, the Date of its Commencement, and (where terminated) its Termination, the Amount of Expense incurred, the Amount Estimated for Completion, and the probable 'Time of Completion of all unfinished Works; with such Statements or Documents as may be deemed necessary to explain or illustrate the above Returns."



East India House, 26 July 1851.

JAMES C. MELVILL.

(Mr. Ewart.)

Ordered, by The House of Commons, to be Printed, 1 August 1851.

622.

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N. B.—The Return to this Order, so far as it relates to the Presidency of Bengal, comprises Public Works of all descriptions constructed under the sanction of the Government. The amount expended in the improvement of Roads, &c. under the control of local Committees, out of funds derived from Ferries, and other sources placed at their disposal for that purpose, is not included, nor the value of convict labour employed on Public Works.

The Return for the Presidencies of Madras and Bombay contains only the amounts expended on Works of Irrigation, Roads and Bridges, no general statement having been furnished by those Governments of the expenditure on Public Works of other descriptions; but such Statement has been called for.

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East India House, 26 July 1851. T. L. Peacock, Examiner of India Correspondence.

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RETURN FOR	THE	PRESIDENCY	OF	BENGAL.	-
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NAME of WORK.	OBJECT	Length,	Place of Termination, or of
HARE U WVRR,	CONSTRUCTION.	and Date of Commencement.	intended Termination.
		-	
	ges, South Eastern Provinces:		
loads from the Town of Aeng, in Arracan, to Na- gatongu and Thorowsh,		sanctioned, 1840-41	
and for the construction of Bridges.			
kyab: Construction of two Wood- en Bridges over the Peck Tock Kying Nullah.	to replace old Bridges which were originally constructed of indifferent materials by the Mughs of the pro- vince.	sanctioned, 12 January 1841	Akyab
Construction of five Ma- sonry Bridges over Nul- labs.	for maintaining an uninterrupted communication at the station.	sanctioned, 16 February 1841 -	
Construction of Pucka Drain Bridges in the town.	- the necessity for this work was brought to the notice of Government by the Local Civil Officers.	sanctioned, 18 May 1841 -	·•• · • • •
Construction of two Pucka Bridges.	- ditto	sanctioned, 27 April 1841 -	one on the road towards Nagarpa- ra, and the other
			in the town, on the bank of the Pick Sik Kyong.
Restoration of the Bund and Sluice at Akyab, and Clearance of Jun- gle.	for the purpose of drainage, and as essentially necessary to the salubrity of the station.	sanctioned, 3 April 1843 -	Akyab
			1
Construction of two Bridges at, in the Arra- can Division.	required to keep open the commu- nication between the Station and the Point Bungalows, belonging to the residents.	sanctioned, 18 August 1840 -	in ■■ Notes in the second second Second second second Second second
Construction of two Pucka Drain Bridges in the town of Akyab.		sanctioned, 28 November 1842	• • •
leng Road and Pass, Con- struction of a Bridge, and Repair of seven others, and of Travellers' Houses.	these works are intimately con- nected with the interests of the trad- ing community.	sanctioned, 9 September 1844 -	5
Agrachour to Baildah, Con- struction of a Foot-road connecting the Contar with the Cuttack Road.	to facilitate the transmission of the Dawks between Contar and Midna- pore.	sanctioned, 16 April 1845 -	Baildah
Roads and Brid	ges, Lower Provinces:	•	
Assam Roads :			•
Lower Assam : From Raha to Gobba -		length, 27 miles	
" Talia Mhookutta to Lowkhoah,		, 10 »	Assam
" Nowgong Division		», 9 ", sanctioned,	
Roads. "Borallygong to Soo-		9 January 1838.	
naree. "Nowgong to Demoo-		, 2 ,	

<u> </u>		<u>г </u>	,	
1	Amount of	Estimated Amount	Probable	· · · · · · · · · · · · · · · · · · ·
	Expense incurred.	for Completion.	Time of Completion.	REMARKS
	Rs. a. p. - 17,823 7 4	Rs. a. p.	season 1840-41	seven of the bridges to be restored were destroyed by the Burmese in their flight from Arracan to Ava in the year 1824.
	5,869 11 1	5,470 31 3	completed, 1842-43.	the breadth of these bridges, as first sanctioned, was 18 feet for both, but sub- sequently the Government authorized the width of one to be increased to 22, and the
	- \$,078 10 7	5,272 - 2	completed, sea- son, 1842–43,	other to 24 feet. This has consequently increased the expense by Rs. 608. 2. 7,
	875 1		- constructed, season 1842–43.	
}-	- 1,445 12 2		- ditto.	
•	M ¹			
6	• 3,482 6 10	7,203 9 2	completed, sea- son 1843-44.	- this work, which was sanctioned in 1841 42, at an estimated cost of Rs. 6,637. 14. 6 was completed for Rs. 7,527. 10. 4., but i
and the second			ب	was destroyed by an irruption of the sea during a violent storm on the 15th May 1842, through a want of sufficient height. It was raised five feet above the highest spring tides, nevertheless the sea, on this occasion, overtopped the bund by five feet. The saving has accrued chiefly by a reduc- tion of the rates, and also by the employ
~	4,375 10 2	5,523 3 9	completed, sea- son 1842-48.	ment of convicts on a portion of the work.
-	- 351.72	• • •	- ditto.	
-		1,161 11 1		
-	1,873 6 8½	1,886 8 7		
	· · · · · · ·	981 7 5 9,917 7 11		
-	مور رو و ^{الر} و الم	972 9 - 297 10 7	+ - completed, sea- son 1842-43.	- these are unmetalled roads, and their width is 16 feet; they have been raised where necessary.
-	• • • • •	588 8 -		
62 62		1	A 3	- continued

- RETURN FOR THE PRESIDENCY OF BENGAL.

6 • RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

NAME A MODE	OBJECT	Length,	Place of Termination,
NAME of WORK.	CONSTRUCTION.	and Date of Commensement.	or of intended Termination.
Roads and Brid	ges, Lower Provinces-continued.		
Assam Roads-continue	d.		
Lower Assam :			£., .
Repair of the Road from Kulling River to Kolia- bur.		length 72 miles sanotioned, 22 August 1842,	
From Koliabur to the Dunsary.		~, 60 , J (·• ·• •
Repair of Road between Nowgong and Tespore.		, 17 ,, sanctioned, 26 April	• • •
Repair of Road from Rab to Daboka.	·	, 23 ¹ / ₂ , 1843.	₩
Roads and Br	idges, Central Provinces :		
imere and Nusseerabad	metalling of such portions, as	length of the road, 13 miles	
Road, metalling of.	from the nature of the soil may require the construction of a hard artificial surface.	4 furlongs; aggregate length requiring to be metalled, 6 miles 4 furlongs and 6 yards. Sanc- tioned, 12 January 1848.	· .
Roads and Br gra. Strand, Bridging of Drains on the.	idges, North Western Province	S: sanctioned, 1848-49	Agra » »
ge, Bridge over the Doos	on account of the inconvenience experienced by the public, who have	sanctioned, 7 December 1840 -	*
. FUKUF FUNVIDG.	occasion to pass by the bridge and bazar near the Tripolish, std Cauze- para, owing to there being but one narrow confined road at this entrance of the town.		
Tukar Ravine. Agra to Mynpooree :	occasion to pass by the bridge and bazar near the Tripolish, vid Cauzee- para, owing to there being but one narrow confined road at this entrance		
	occasion to pass by the bridge and bazar near the Tripolish, vid Cauzee- para, owing to there being but one narrow confined road at this entrance	sanctioned, 1840-41 -	Мупроотев
gra to Mynpooree : Construction of Bridges over the Jhera River and Guddakhur Ravine, and over the Peelakar	occasion to pass by the bridge and bazar near the Tripolish, wid Cauzee- para, owing to there being but one narrow confined road at this entrance of the town. - this road is of much importance, being a direct communication between	sanctioned, 1840-41 -	Мупроотее
Agra to Mynpooree : Construction of Bridges over the Jhera River and Guddakhur Ravine, and over the Peelakar	occasion to pass by the bridge and bazar near the Tripolish, wid Cauzee- para, owing to there being but one narrow confined road at this entrance of the town. - this road is of much importance, being a direct communication between	sanctioned, 1840-41 - - of three arches of 40 feet span; sanctioned, 3 January 1845.	crossing the Agra and Myn- pooree road, 15 miles from Myn-
Agra to Mynpooree : Construction of Bridges over the Jhera River and Guddakhur Ravine, and over the Peelakar Rivulet. Construction of a Bridge	occasion to pass by the bridge and bazar near the Tripolish, wid Cauzee- para, owing to there being but one narrow confined road at this entrance of the town. - this road is of much importance, being a direct communication between	of three arches of 40 feet span; sanctioned 3 January	crossing the Agra and Myn- poorce road, 15

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RETURN FOR THE PRESIDENCY OF BENGAL-continued.

Rs. a. p. Rs. a. p. B,474 1 son 1848-49. 9roposed width 15 feet.	Amount of Expense indurred.	Estimated Amount Probable REMAR for Completion. Time of Completion.	K Š.
according 100 worden bridges and drains. 4,924 8 4,924 - 4 4,924 8 4,924 - 4	Rs. a. p.	r. Rs. a. p.	•
 - 4,924 - 8 - 4,924 - 4 - completed, 1846-47. - vidth 12 fost, with 22 bridges and 1846-47. - width 13 fost, with 23 bridges and drains. The saming of Rs. 1,976, the estimate has been efforted by the ion of rates. - 7,910 18	• • • •	2,474 1 completed, sea this road will be made son 1842-48. 108 wooden bridges and	12 feet wide, with drains.
		proposed width 16 feet.	, ,
	- 4,924 - 8	- completed,	ridges and drains.
bridge over the Rs. a. p. 910 8 2 - 1,113 2 4 completed, sea- son 1842-43. ompleted, sea- son 1841-49. completed, sea- son 1841-49. completed, sea- son 1842-43. completed, sea- son 1842-43. the savings on the sanotice make, viz. of Rs. 6,803. 8. Rs. 10,851.15.6, respectively, and 17,071 - 1 23,874 3 7 17,071 - 1 23,874 3 7	5,152 18 8	3 6,528 3 4 width 12 feet, with w drains. The saving of F the estimate has been effe	la. 1,875. 14. 8, on
bridge over the Rs. a. p. bridge over the Rs. a. p. bridge over the Rs. a. p. bridge over the Rs. a. p. 			
- 910 \$ 2 - 1,113 2 4 - bridge over the <i>Rs. a. p.</i> 13,017 12 6 - completed, sea- son 1841-42. - completed, sea- son 1842-43. - completed, sea- son 1842-43. - the savings on the sanction mates, viz. of Rz. 6,003. 8. Rs. 10,681. 16. 8. respectively, a to much of the masonry work have			· · · · · · · · · · · · · · · · · · ·
- 910 \$ 2 - 1,113 2 4 - bridge over the <i>Rs. a. p.</i> Jhera - 7,063 8 6 Ditto over the Peelakar Rivalet 5,161 10 - <i>Rs.</i> 12,215 2 6 - 17,071 - 1 - 23,874 3 7 (- the savings on the sanction mates, viz. of Rs. 6,008. 8. Rs. 10,681. 16. 8. respectively, a to much of the masonry work have			
bridge over the .R.s. a. p. Jhera - 7,063 8 6 Ditto over the Peelakar Rivalet 5,151 10 - R.s. 12,215 2 6 - 17,071 - 1 - 23,874 3 7 	- 7,910 18		Станов т. А 1949 - Малана 475 - А
Jhera - 7,063 8 6 Ditto over the Peelakar Rivalet 5,151 10 - Rs. 12,215 2 6 - 17,071 - 1 - 23,874 3 7 (the savings on the sanction mates, viz. of Rs. 6,808. 8. Rs. 10,681. 16. 8. respectively, a to much of the masonry work have	- 910 8 2		•
Jhera - 7,063 8 6 Ditto over the Peelakar Rivalet 5,151 10 - Rs. 12,215 2 6 - 17,071 - 1 - 23,874 3 7 (the savings on the sanction mates, viz. of Rs. 6,808. 8. Rs. 10,681. 16. 8. respectively, a to much of the masonry work have			•
Ditto over the Peelakar Rivulet 5,151 10 - Rs. 12,215 2 6 17,071 - 1 23,874 3 7 (the savings on the sanotion mates, viz. of Rs. 6,808. 8. Rs. 10,681. 16. 8. respectively, at to much of the masonry work have			
17,071 - 1 23,874 3 7	itto over the akar Rivalet 5,151 10 -	<u> 51 10 -</u>	•
the savings on the sanction mates, viz. of Rs. 6,803. 8. Rs. 10,681. 15. 8. respectively, at to much of the masonry work hav			an da An Anna Anna An Anna Anna Anna
to much of the masonry work hav		the savings on the mates, viz. of Rs. 6, Rs. 10.681. 16. 8, respe	808. 8. 6. and ctively, are owing
22,951 5 7 33,633 5 3 son 1840-47. being more favourable than was of expected, and to other judicious di from the plan. A reduction of r	- 22,951 5 7	- 83,683 5 3 83,683 5 3 83,6	work having been equence of the soi han was originally idicious deviation ction of rates have
also contributed in effecting these		also contributed in effect	ing these savings.

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NAME & WODZ	OBJECT	Length,	Place of Termination,
NAME of WORK.	CONSTRUCTION.	and Date of Commencement.	or of intended Termination
Roads and Bridg	ges, North Western Provinces—continu	eđ.	
Agra and Bombay Road :	1	and the second second	Bambar -
To the Nerbudda River -	- • a fair-weather road adapted for hackeries or wheel conveyances being	Length, 1st portion: M. f. yds. Agra to Indore - 870 3 102	Bombay
•	much required between Agra and Bombay, it was determined in 1840	Length, 2d portion :	a
	to improve, with occasional diversion, the existing road; the improvement	Indore to Akber- pore on the	
ð	was to comprise the removal of the principal obstructions in the ghauts.	Nerbudda - 51 0 167	•
•	jungles, and in the passage of rivers and nullahs, or mountain streams.	Length, 3d portion : Akberpore to Sind- wa - 43 1 0	
	And Multimoj of moultain Sticalis.	Length, 4th portion :	-
		Sindwa to Bom-	
:	· · · · · · · · · · · · · · · · · · ·	TOTAL • 734 7 8	tha ba ba
•		commenced in 1840.	
	<u>.</u>		
	•		
Construction of a Well at the top of the Kilner	on a representation from the resident at Indore of the very serious	sanctioned, season 1845-46 -	between Deo- das and Akbar-
(Gara) Ghaut.	inconvenience experienced by troops and travellers, from the want of water		pore.
	at that spot.		a de la composición d
Agra: Proposed construc-	• • • • • • •		Agra 🔹 .
tion of a Suspension Bridge over the river Jumna.			Г н е н
		-	
			•
			· ·
	• • • • •		
Civil Building	re South Fostor During	 	
Akyab:	35, South Eastern Provinces ; .		
Construction of a Cut-	to replace the existing cutcherry, not worth repairing.	sanctioned, 1 August 1839 -	Akyab
Construction of a new Gaol.	to replace old buildings, which are unserviceable and unworthy of	sanctioned, 28 March 1841 -	Akyab -
.	repair.		
Construction of a Sanita- rium Bungalow, with Bathing - rooms and Out-offices.	- it is not stated for whose use the building is designed.	sanctioned, 9 January 1838 -	situated at the end of the Faqueer's Rocks two miles from the station of
•		ļ	Akyab.
	,	• • •	•

RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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)harite 2 . . RETURN FOR THE PRESIDENCY OF BRIGAL-continued.

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	Amount	of	,			Esti	imated J	Amou	nt		Probable	REMARKS.
	Expense in	ourre	d. ,			for	r Compl	letion.			Time of Completion.	
	·.						Rs.	a,	p.	T		
the ex	penditure v	ithir	the	Beng		11.0	00,000				_	- Major Drummond has brought his survey of t
	November	1847			- 1 .	Eleve	n lacs alling.) wi	thout	ŧ		portion of the line between Agra and Nerbudda to close; and with reference to the enormous expen
	f road - I			,			*******5*					which must be incurred for such a road as would available throughout the rainy season, the Governme
tepairs, &c	lence' - 1	47,	642	,54,90	i.8							has come to the resolution to limit the work to a great degree to give up the new lines which had be fune 1840, sanctioned an estimate of 1,20,000 rupe
	chended on the road wi		Di-				exclusiv	ve of	engine	eer's	salary and establishmen	it, for improving the worst parts of the road between i between Indore and the Nerbudda River, 764 miles,
pril 184	reaidency, . 9, exclusive		76-				increase	e ia t	he widt	th o	f the Ghauts, from 10 to	ncluding a branch road from Suppres to Gwalior. o 14 feet, was authorised on 8d January 1843. Retu
aire, was	also been a	• 		,74,81	1	. • .	this gr	eat li	ne of 1	road	as urgently required eit	rtaking the improvement of such detached parts alo ther construction or repair, when the following estima-
um sanctio	med for variation of about			7,00	0						ommended for immediat about 20 miles of the r	Rs.
	a TOTAL O	e - 1	Rs. 18	_	-1		F	or con of 9:	mpletiz 3 mile:	ng pa a, wi	art of the road under cl th bridges and drains	harge of the civil engineer, a distance
, * *				-	- -	•	F F	or bri	idging	a po	ertion of the road betwe he unmetalled portion of	en Soonghur and Dhaolin 65,000
		1										Toral Ro. 7,11,614
							ፕቴል	se wn	rka. bo	9476V	er desirable, were consid	lered too costly to be undertaken at present. A sur
τ	· .`				ł		4,224	rupee	s Was s	sanc	tioned in June 1849, fo	r converting into a fair-weather road the line of 43 m his Highness Holkar having contributed a moiety.
							Court,	in Ja	inuary	185		al expenditure of 29,700 rupers for the maintenance
	Rs. 594 1		₽` 8		. ·	÷	760	14	5	-1	completed, sea-	
·* ``										^	son 1846-47.	
		· •.								•	an an Arrana A	
		÷				-						a francisco de francisco de la Salidaria
al _ =	-	•	-	•			8,878 1,749	_	_		• •	the first estimate is for a bridge two spans of 500 feet each, with two he
											,	spans of 225 feet each, and a roadw 28 feet broad, supported by three chain
		1					•				the other, wi chains. The	ith the same openings, supported by t se estimates, together with others on
				•					· ,			Dredgian principle, were held over, await special committee on the causes of the fail
											of the Balli	Khall Bridge on the Dredgian princi these proceedings, the construction of brid
		ł	' ,						•		on the taper	chain or Dredgian principle was generation the home authorities. An estimate for
		i							- '		masonry bridg	ze was then submitted, but the Lieutena
		•									a railway brid	g doubtful whether the same site would a dge as would be selected for the ordin
											ceedings. Th	country, has suspended any ulterior p he proper site for a railroad bridge, it
											supposed, wou short of Agra	ld approach Agra by Ferozabad, two marc
		•			ŀ			Ą				
											• ¹ •	•
· ·	•	_].			_	_			
• •	4,869 •	8	5	-	-	4	4,742	8	3		completed,sea- son 1841-42.	
• •	12,159	9	4	•	-	1	4,862	7	1		completed, sea- son 1848–44.	the new gaol is equal to the account dation of 820 prisoners.
• •	4,813	9 :	10 -	•	-	-	٠	-	-		constructed in	
		•									1840-41.	·
·.	•											
		•										(continue
										1		

RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE د. محمد المربع ا

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	OBJECT	Tength	Place
NAME of WORK.	of	Length, and Date of Commencement.	of Termivation, or of
	CONSTRUCTION.	and place of Commencements	intended Termination.
Civil Buildings.	 South-Eastern Provinces; Judicial-c	ontinued.	
kyab, Construction of a Treasury Record-toom, Malkanah and Cash-room		sanctioned, 19 October 1841 -	Akyab
at the Civil Station. Imherst, Construction of a new Gaol at.	- in consequence of the insufficient accommodation afforded by the exist-	sanctioned, 11 January 1842 -	Amherst -
,	ing gaol.		•
e de la constance de la constan La constance de la constance de			A
llipore Gaol, Construction of a Barrack and a Picket- shed.	for the gaol guard. The old guard-rooms were partly blown down by the storm of the 3d June 1842.	sanctioned, 9 January 1843 -	Allipore
kyab: Construction of a Geol Wall, with Sentry-boxes.	- in consequence of a suggestion by the Commissioners of Arrscan, that all men sentenced to more than one year's imprisonment should be located at Akyab.	saactioned, 17 May 1838 -	Akyab - •
Construction of Wards within the above Gool Wall.	- • the existing gael buildings having become old, and unworthy of further repair.	sanctioned, season 1840-41 -	- ditto 📜 - 📑
Construction of a Sudder Hospital at.	rendered necessary by the exist- ence of a military police, the flotilla establishment, crews of vessels, &c., all requiring medical aid, in conse-	sanctioned, 6 February 1848	- ditto - •
1	quence of the insalubrity of the cli- mate, as well as the ruinous condi- tion of the old hospital.		
llipore Gaol, Alterations and improvement to. kyab:	- to improve the gaol, as regards eleanliness, salubrity and discipline.	sanctioned, 22 June 1841	Allipore - ;
Construction of six Drain Bridges.	necessary to the cleanliness and selubrity of the town.	of one arch of six feet, sanc- tioned 20 August 1845.	on the Chow- reggya road.
Construction of a Bridge at Tales Bazar.	- required 'to replace bridges of wood, reported to be unsafe for wheel carriages; and as the line of road on which they are situated is consi-	one arch, of 20 feet span -	Akyab - •
Construction of a Bridge at Nazirpah.	dered the most important at Akyab, it is considered that they should be of the most durable description -	24 feet span	- ditto
llipore Gaol, Putting up a Pump.	for raising water from the large tank in the gool to the reservoir above it, 'to supply the different wards with drinking water.	sanctioned, 20 August 1845 -	Allipore -
kyab, Construction of the Budder Mokam Stone Sluice.	this sluice, together with the bund at Akyab, was destroyed by a storm on the 15th May 1842.	sanctioned, 28 May 1845 -	Akyab -
llipore Gaol : Alterations and improve- ments,	to improve the gaol as regards cleanliness, salubrity and discipline.	sanctioned, 22 June 1841	Allipore -
· , ,			•
i			
Construction of a Bala- gustee Guard-room to the.	- this building will be of more durable materials than the last, which has been entirely destroyed by white ants.	sanctioned, 22 June 1845	- ditto
kyab, Additions and altera- tions to the Cutcherry at.	for the better accommodation of the different civil officers.	sanotioned, 3 June 1844	Akyab

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Amount of Estimated Amount Probable BEMABKS. for Completion. Time of Completion. "Expense incurred. Rs. a. p. Rs. a. p. Ł 5.741 15 6 6.414 15 9 - - completed, season 1843-44. 3,445 5,106 14 8 -- completed, sea-4 - - the gaol is intended for the accommodation of 280 sonvicts. The difference is ewing to the employment of convicts, and to a reduction of the accommodation, with the concurrence of the Commissioner. The son 1843-44. dimensions sanctioned were 240×50 , while those of the new gaol are 157×48 . - these buildings are required for the ac-commodation of 211 mea. The walls will be of masonry, and the roofs of tiles. 5,776 13 1 5.494 12 - - completed, season 1843-44. Level - Broke Start season 1838-39. 9,100 14 2 14,362 7 .1 14,862 /7 .1 - - the new wards will accommodate 120 . son 1840-41. prisoners, - the new hospital will be 60 × 24, with 1.703 1 1,397 11 99 - - completed, seas 10-feet verandah all round, the corners of which are to be partitioned off into se-parate rooms, for the native doctor, disson 1844-45. pensary and operating rooms. 1 20,784 13 10 22,377 15 8 - - completed, sea son 1843-44. - - completed, sea 1.942 2.292 -5 son 1846-47. 6,313 ---4.998 - completed, see 402 402 8 8 son 1846-47. - - the roadway over the sluice has been made sufficiently large to be safe and practi-- - completed, sea-1,783 15 8 ÷ 1,788 15 8 son 1846-47.

22,377 15 8

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2,306", 9 3

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- - - RETURN FOR THE PRESIDENCY OF BENGAL-continued.

cable for wheel conveyances. The re-construction of the bund was reported in 1844. - the works sanctioned are as follows :---

son 1848-44. The construction of squeducts to carry water to the reservoirs in the several court-yards, for drinking and other purposes; the construction of privies; the filling up of wells; the construction of partition walls, with a view to the separation of the convicts into squads of about 100 men; the removal of the existing solitary calls to a more nive site. and the

the existing solitary cells to a more airy site, and the construction of an additional ward and working shed, - - completed, season 1845-40.

> - - this building has been lengthened about 40 feet.

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20,734 13 10

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- - completed, sea-

(continued)

RETURN OF PUBLIC WORKS COMPLETED IN INDIA,"IN THE

	OBJECT	Length,	Place of Termination,
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination
Civil Buildin	ags, Lower Provinces ; Judicial :		•16
rrah, Sudder Ameen's Cut- cherry.		G. O., 23 January 1889 -	Arrali
kyab, Construction of a Cutcherry at.		sanctioned, 1 August 1839 -	Akyab
rrah, Construction of a Dewanny or Civil Gaol.	no separate provision had been made for the confinement of oivil prisoners, and, in consequence, per- sons of this class were mixed up with the common felons of the gaol.	sanctioned, 1 November 1842 -	Arrah
rrah Gaol, Construction of 60 Ventilators, and lower- ing the Compound Walls.	for the better ventilation of the eriminal wards.	sanctioned, 17 February 1848 -	Arrah
Civil Building	s, Central Provinces; Judicial :		
llahabad, Sudder Ameen's Cutcherry.		sanctioned, 28 August 1839 -	Allahabad -
imere Gaol, Alterations to the.	• • • • • • •	sanctioned, 24 December 1840	Ajmere
zimghur, Construction of a Record-room.	for the use of the Collector and Magistrate.	sanctioned, 23 March 1844 -	1.15.8 av 1.
Civil Building	s, North Western Provinces; J	rdicial .	
yghur Gaol, Construction of an additional Ward.		sanctioned, 30 August 1841	
gra: House for the Magistrate and Collector, and his Deputy.	the house which had been rented was no longer in a fit state for a public office.	sanctioned, 11 September 1842	Agra
Erection of Offices for the Court of Sudder Dewanny.		sanctioned, April 1843 -	1917 - -
Erection of Offices for the Board of Revenue.		- ditto	
Construction of a Hospital Ward at the Foujdarry	for the use of females	sanctioned, 4 November 1843 -	Agra -
Gaol. lyghur, Construction of a Gaol in the Fort.	to relieve the district gaol by the withdrawal of life prisoners, and to lessen the expense for increased guards for the custody of convicts.	sanctioned, 2 March 1844 -	Allyghur -
	n an		
	an Na Airtíne Na	-	
ra, Construction of a	for the Sessions Judge -	sanctioned, 3 June 1845	Agra
yghur, Construction of Cutcherries for the Sudder Ameens and Omlahs.	during the last rains the old build- ings became too dilapitated for use.	sanctioned, 25 March 1846	Allyghur -
Civil Building	s, South Eastern Provinces; Re	Venue -	ł
yab, Additions and Al- erations to the Treasury		sanctioned, 9 September 1844 -	Akyab
nd Record-room.			
Civil Building	s, Central Provinces; Revenue:		•
aliabad, Pilgrim Hospi- al, Additions to.		20'December 1839	Allahabad -
	· · ·		

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	, Amount of Expense incurre	ed. An element	for Comp		Probable Time of Completion.	REMARKS.
	Rs. a. 	p.	Rs.	a. p	season 1849-40.	(x, 1) = (x, 1) + (x, 2)
	4,749	- 6140 au	e to and			
	3,437 12.	7	< 1 4,64 9	10 5	completed, sea- son 1844-45.	in the new gaol, and at the suggestic of the Judge, separate accommodation
						provided for prisoners of rank and caste.
	492 7 1	10.,	E 1 . 412	4. 8	season 1848-49.	n Maria an Anna 1946 - Maria Anglas, ang
						A set of the set of
	- 5. 1,278 6	8.1-7 (1.1-1)	1,579	,8 ,-	completed, sea- son 1841-42.	ne te Digin la nechanal) Se de la constante de la constante
	- 1,700		1,700	-	season 1840-41.	and the second sec
	- 2,225 7	9	2,238	69	completed, sea- son 1846-47.	n an
	1,484 4 1	l0,	•	e de la Frank en		and and the same
			11,956	19:0	season 1842-43.	(1) A state of the second sec second second sec
		48.3 ⁴ 5. 3 ⁴ 7.	. , <u>1</u> 1900	19 8	season 1842-43.	
	20,392 9	3	17,501	••••••••••••••••••••••••••••••••••••••	completed, sea- son 1844-45.	these new offices will be built near t Secretariat Buildings, and the whole of t public buildings will be enclosed by a lo wall.
			11,067		the excess of expenditure is owing to rise in the price of timber in the bazaar.
	849 6	7	969	12 9	donstructed, season 1843-44.	the necessity for this work was report direct by the civil authorities to the G vernment.
	these works sus season 1844-45.	spended in	66,989	1		- This gaol is intended to accommode 1,200 male and 200 female convicts. The whole of the buildings are to be surround
				1 .	wall 14 feet secured with the ditch an be substanti	A feet broad and 12 feet deep, with a puck thigh in the centre. The slopes are to h masonry revetments, and the bottom ad a few feet of the bottom of the slope ally faced with masonry, and the ditch asiderably wider at top.
	6,436 10		8,558	12 9	completed, sea- son 1846-47.	
	8,355 13 1	10	3,003		completed, sea- son 1846-47.	
1						
	1,625 -		1,625		completed, sea- son 1845–46.	the works executed consisted of an a caded pucca verandah in lieu of a thatche one, additional alterations to doors an windows, and renewing the terrace roof.
	1,475 1		1,475	1 -	completed, sea-	
;			-,		son 1840-41.	

RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

	RETURN FOR THE PRESIDENCY OF	BENGAL continued.	
NAME of WORK.	OBJECT	Length,	Place of Termination, or of
	CONSTRUCTION.	and Date of Commencement.	intended Termination.
Civil Buildings	Central Provinces; Revenue-continu	ed.	
Office of the Sudder Board of Revenue.	repair of injury done by storms on the 2d and 3d May 1848.	18 October 1838	Allahabad -
Construction of four Tehsil- darry Gutcherries.	• • • • • • •	sanctioned, 27 August 1840 -	these cutcher- ries are situated at Menjah, Chail, Kur- chunna and Manjun-
zimghur, Construction of a Tehsildarry Cutoherry.		sanctioned, 31 March 1838 -	pore, at Cheerkote -
Ilahabad, Construction of a Treasury-room to the late Judges' Cutcherry.	this outcherry has been transferred to the Collector of Allahabad.	sanctioned, 27 March 1847	Allahabad -
Civil Building	s, North Western Provinces;	Revenue :	
gra : Construction of a Cut- cherry for the Commis-		sanctioned, 11 August 1846 -	Agre
sioner of the Division.			
Addition of Ont-buildings to the Cutcherry of the Commissioner.	consisting of a guard-house, godown and shed,	the necessity for these works , was brought to the notice of the Lieutenant-Governor, who stonce directed the Executive Officer to commence on the buildings.	ditto
llyghur, Construction of a Tehaildarry Cutcherry at Eglass.	the tchsil duties have been carried on with much inconvenience at the Sudder station, which is a distance of 15 miles.	sanctioned, 7 July ¹ 1848	Eglass
Civil Building	zs, South Eastern Provinces; C	leneral -	
kyab, Enclosure of the Burial-ground.		sanctioned, 16 May 1842	· • •
llipore: Removing and setting up a Steam-engine in the Iron Bridge Yard.	this engine, which has been trans- ferred from Chaund Paul Ghaut, is of 10-horse power.	sunctioned, 23 October 1843	Allipore
Construction of New Buildings.	for the icstablishment attached to the Mathematical Instrument De- partment,	sanctioned, 16 January 1844 -	ditto -
kyab: Protection of the Beach and formation of a Landing-place,	- the necessity for this work was brought to notice by the Marine Board, and the Commissioner of Arracan.	"sanctioned, 19 June 1843"	Akyab
Construction of a large Shed with Verandali, to serve as an Exchange.	- a place of this description is much wanted at Akyab, where merchants, sgents, captains, &c. may assemble under shelter from sun or rain.	sanctioned, 17 Nowember 1845	
Construction of three Ma- rine Wells.	• • • • • • • • • •	sanctioned, 20 March 1844 -	
llipore : Additions, &c., to the Iron Bridge Yard.	for increasing the accommodation to afford shelter to the carpenters, who at present work in the open air; for English smithy coal, to prevent its wastage from wind and rain; and also to provide sufficient space to meet heavy demands.	sanctioned, 27 May 1846	Allipore
Construction and setting up of an additional Boiler to the Steam-engine at the Iron Bridge Yard.	- necessary to secure the efficiency of the establishment and prevent delays, which would prove detri- mental to the public service.	sanctioned, 17 May 1845	ditto
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." Estimated Amount Probable Amount of REMARKS Expense incurred. for Completion. Time of Completion. ٠ Rs. Rs. a. p. a. -' 8,540 8,540 -- completed, sea son 1839-40, _ -- 19,812 .4 õ 20,428 2 4 - - completed, season 1842-48. 24 5,790 -- completed, sea-son 1841-42. 43 . -. • 3,869 -9,561 6 -- completed, sea-son 1846-47. 10,573 --. 1,206 5 7 1,588 - 3 - - completed, season 1847-48. 4,092 12 6 1,985 12 3 7,249 7,020 ---- completed, seaa son 1844-45. 3,794 F2 3,794 12 8 season 1843-44. R mpleted, sea-- - this outlay is to be defrayed from the port dues. The saving on the work is 3,748 rupees, in consequence of 74 groins having been constructed instead of 10. The pier provided in the same tioned estimate, has not been executed. The shows amount has been placed at the disposal of the Commissioner of Arracan, for completing the pier or breakwater. 13,868 11 2 -completed, sea-- 10,120 7 son 1845-46, ł 1,500 - - the shed is to be .66, \times 20 with a verandah 12 feet on four sides. season 1845-46 ~ · • 1 - - completed, sea-767 з Э son 1845-46. 4,199 ieason 1848-49. 4,269 2 6 ÷ 1 - 1 - - constructed, 3,289 15 3,289 15 9 9 season 1846-47.

RETURN FOR THE PRESIDENCY OF BENGAL-continued. ٠ • -

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(continued)

RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

	RETURN FOR THE PRESIDENCY	op Bengal-continued.	
NAME of WORK,	OBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.
	Curd Factor Provinces (Correct)	attineed	
Amherst, Provision of a Pilot Station on the Island off Amherst.	South Eastern Provinces ; General	sanctioned, October 1848	Amherst
Civil Buildin	gs, Lower Provinces ; General :		· · · ·
Akrs, Additions to the Sema- phoric Tower.	٠ ١	sanctioned, 12 August 1846 -	Akra
Civil Building	s, Central Provinces; General:	•	
Allababad, Ghaut on the Jumna at.		sanctioned, 1839–40	
Agra, Provision of Accom- modation for the Establish- ment with the Governor-		sanctioned, season 1848-44 -	Agra
general.		an ation of 14 Tabayar 1848	Allahahad
Allahabad, Enlargement of the Burial-ground.	the ground in the existing cut- cherry was completely occupied with graves, and the burial-place required extension.	sanctioned, 14 February 1848 -	Allahabad
Civil Building	s, North Western Provinces; C	eneral :	
Agra :			۰.
Enclosure of the new Burial-ground.		sanctioned, 17 October 1842 -	Agra
Construction of a Record- room.	for the Accountant, North-Western Provinces.	sanctioned, 6 October 1845 1 2.	Agra
Erection of a new Staging Bungalow.	in lieu of the present building, which is not suited for the accom- modation of travellers.	sanctioned, 14 August 1845 -	Agra
Civil Building	s, Lower Provinces ; Political :		
Assam, Upper, Construction of various Buildings at.	at Subsaugor : Treasury, Record- room, Magazine, with Guard-room. At Detroghur : Record rooms, Trea-	sanctioned, 3 August 1840	Upper Assam -
	sury, Powder Magazine, Store- Room.		
Civil Building	s, Central Provinces; Political		- -
Ajmere, Construction of Residency Buildings.	an an a sa an an a'	sanctioned, 31 August 1840 -	• 2• 2-
Civil Building	35, North Western Provinces; P	olitical :	
gra, Construction of ad- ditional Buildings,	for the accommodation of the records of the office of the Secretary to Government.	sanctioned, 13 February 1846 -	Agra
Marina Ruita	ngs, Lower Provinces :	, · · · ·	μΩ
kyab, Construction of a Lighthouse on the Great	ngs, Lower 1 rovinces :	sanctioned, 9 November 1842 -	
Savage Rock.			
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Amount of Expense incurred		nated Amount Completion.	Probable Time of Completion.	BEMARKS.
Rs. a. p.		Rs. a. p.		-
487 11 11	• •	500	reported, sea- son 1848-47.	
575 10 1			season 1847-48.	
		•		•
5,799 12 -	3	,500	completed, 1840-	the excess over the estimated amount i
		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	41.	owing to the execution of the work on more complete plan than was intended, i accordance with the advice of the magin
•		· •		trate, who had promised aid to the exter of 2,000 rupees towards the undertaking.
2,611 15 11			season 1843-44.	
	•	· ·		
- 529 2 11		564 5 3	completed, sea- son 1848-49.	
		•		
		м -		
886 1 4			completed, sea- son 1842-43.	
2,181 10 10	~~~ ~ . 2	,168	completed, sea- son 1846-47.	
1,756 5 9	• • [2	,102	completed, sea- son 1846-47.	
-		*		•
	···] II	,913 9 9	season 1840-41.	
				•
		•	•	
- 1,024 3 5	· • • • • • • • • • • •	,160 15 11	completed, sea-	
		4	son 1841-42,	
2,789 9 10			constructed,	- the new Record-room measures 80 x 1
	-	• •	season 1846-47.	feet, with two side and one end verandul 10 feet in the clear.
RA Cost of Light- house -} 83,68	The The	,425 8 7 cost will be I from the	completed, sea- son 1843-44.	35 feet of the rock downwards has been removed, and a base thus obtained for the superstructure. The rock is now 403 fee
Buildings at- tached 1,50	1 9 6 funds of lieved to	f the port, wh o amount to	20,000 or	above high-water mark, and the light house will be raised to the height of 50
Lantern - 15,00 Rs. 50,08	used, w	rupces. The lan hich is values rupces, will be	l at about	feet, so that it will be 100 feet above the highest spring tides. The lantern was lighted on the 7th March 1844.

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NAME of WORK.	OBJECT	Length,	Place of Termination, or of
	CONSTRUCTION.	and Date of Commencement.	intended Termination.
Embankment	s, South Western Provinces:	•	
Burdwan Division : Restoration of the Kannee Khal Bunds.		sanctionsd, 15 July 1841 -	Burdwan
New Bund on the Adjye River.	- to prevent injuries to lands by the overflows of the river,	sanctioned, 1841-42	general en en
· Embankments	s, South Eastern Provinces :		
logree, Construction of a new Bund on the Selin River.	to replace the old bunds which were pronounced to be quite insus- ceptible of efficient repair.	- · length 10,460 feet; sanc- tioned, season 1843-44.	Bogree Pergunnah
burdwan, Construction of a new line of Bund from Salelpore to the Canna Nuddee, and repairs and renewale to the Burdwan	•• the new bund is proposed for construction at a point where the old one has frequently failed, caus- ing great damage to the country. •	length of new bind, 4 miles; sanctioned, 1847–48.	Burdwan
Bunds generally.			
alasore Division, Con- struction of new Bunds, and restoration of others which had been aban-	required for the protection of the Estate Mouzah Sindeeah, Pergunnah Soonhut.	sanctioned, January 1844 -	
doned.	• •		
Embankment	s, Lower Provinces :		
erhampore Division, Bunds at Moorshedabad.		length, about 74 miles	
sauleab Bunds, New Bund from Huntanabad to Bau- leab Ghaut.	for the protection of the town -	- length,2 miles, 1 furlong and 180 yards; sanctioned, 6 Feb. 1840; 3,100 feet additional, sanctioned December 1840.	
•			
•	s, Central Provinces:		
Sehar, Sacri Bund, recon- struction of.	- to protect the country on the Western Channel from inundations.	sanctioned, season 1838-39 -	Behar
		•	
,			
Canals, North	Western Provinces :		
Beejapore : Watercourse in the Deyrah Dhoon.	for the irrigation of land lying between the Tonse, the Arson, and Bogul Rivers.	sunctioned, 1838-39 - +	Deyrah Dhoon -
Construction of Masonry falls.	to lessen the rapidity of the stream	senctioned, 1838-39	
struction of 50 Masonry outlets.	for irrigation	sanctioned, 7 March 1837 .	• • •
eejapore Watercourse, Con- struction of a Masonry Tunnel.	in lieu of a wooden tunnel	sanctioned, 26 September 1843	near the villege of Dakra.
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REFURN FOR THE PRESIDENCY OF BENGAL-continued. ς. Amount of. Estimated Amount P_sobable REMARKS. for Completion. Expense incurred. Time of Completion. . Rs. a. p. Rs. a. p. 1,075 12 season 1841-42 -- the length of embankments in the Burd-wan Division is represented in 1839-40 to be 285 miles, and the estimated cost of annual repairs, 4,619 rupees. 1,884 11 - - completed, season 1841-42. - . it is expected that about 844 beegahs of land will be fertilized. 2,487 14 1 - completed, sea son 1848-44. 72,176 12 9 ź - - the average length of embankments in 1830-40 in the Balasore Division was estimated at 185 miles, and the cost of annual repairs, 1,655 rupees. In 1847-48, the estimate for annual repairs was Rs. 7,097, 13. 9. 230 season 1843-44 -

- - the cost of annual repairs is about 8,000 rupees. 4,111 1 - this work is in progress. 1,837 completed 1841-42 8 11 - - Rs. 1,272. 14. 11. less than the original estimate, owing to the employment of convicts on the work, completed 1840-41 - - the great excess of expenditure be-yond the estimate was occasioned by Lieute-nant Ommaney not making a sufficient allowance for the great distance from which the earth had to be brought. The bund has fully answered the purposes for which it has been reconstructed, and the Collector anticipates no difficulty in realizing from the zemindare the amount expended. - 18,218 -9.155 2 7 Estimate for ordinary repairs 1,500 rupees. the zemindars the amount expended. 15,926 14 7 completed 1840-41 6.864 9 completed 1841-42 501 1 - completed, season 1842-48. 2,996 14 2,996 14 -- completed, sea - the wooden tunnel was a source of son 1848-44. much trouble and expense, owing to the repairs which it required constantly.

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NAME of WORK.	• OBJECT of	Length,	Place of Termination, or of
	CONSTRUCTION.	and Date of Commencement.	intended Terminatio
Canals, Sou	th Western Provinces :	*	•
Canal from the Banka Nul- lah to the New Pertaub khallee Canal in Tamlook	 navigable communication between the Huldee and Roopnerain River, and is chiefly used for the transport of Salt. By the New Cut the dan- gerous route taken by the salt-boats of Tangrakhally and Roopnerain 	miles and 145 feet; sanctioned 24 November 1841,	
* 、	Rivers will be avoided.		
Baliaghatta Canal		sanctioned, 13 December 1839	
	•	•	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
Roads and B	ridges, South Eastern Provinces	:	· · · ·
Construction of a Bridge on the Burdwan and Hooghly Road at Shaickpore.	of the road which is liable to be cut through whenever the floods of the Damooda Nullah are brought down	sanctioned, 23 December 1840	
	the Banka Nulla, from the neigh- bourhood of Burdwan.		
Bancoora and Burdwan Road	I a portion of the old line of road bordering on the southern bank of the Damoodah Rivers by the floods of which it is constantly breached, is to be abandoned, and a more direct one adopted.	length 144 miles; sanctioned 16 February 1841 and 9 May 1842.	
Bissenpore Road : Construction of a New Masonry Bridge on the.	- indispensable for the safety of the Bissenpore Road, of which, owing	sanctioned, 28 August 1843; to consist of two arches of 16	near Gobroo Bazar.
Construction of a Ma-	to insufficiency of drainage, 2,000 feet were carried away by a flood. - to supply the place of an old	feet span each.	
sonry Bridge over the Doodiah Khall.	bridge which was destroyed by inun- dation.	of 4 arches 20 feet span each, sanctioned 26 March 1845.	between Mid- napore and Bis- senpore.
Boringham, Construction of two additional Arches to the Masonry Bridge at.	this Bridge was severely injured by the overflowing of the river in September 1843. It is hoped that these arches will reduce the elevation of the waters in some degree, and thus lessen the evil to be feared by	sanctioned, 29 June 1844	on the Rae- pore Mail Road in the Nagpore territory.
	the error in construction of not having raised the pier to a sufficient height.	•	-
Ballee Khal Iron Tension Bridge : Construction of	a bridge at the spot selected, will		
•	be a great public convenience.	one span of 250 feet, with a 16 feet roadway; sanctioned 3 June 1844.	situated on the right bank of the Hooghly River
		. đ.	near Howrah, op- posite Calcutta.
Restitution of the		sanctioned, 29 October 1845	1 4 ³
Making the Approaches		sanctioned, 16 March 1846	-
to the. Bissenpore Road, Strength- ening of the Tamaul Nul- lah and Sautbancoorah Masonry Bridges.	- in consequence of injuries sus- tained by the floods of season 1844.	sanctioned, 27 August 1845	situated in the Midnapore Divi- sion.

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Amount of	Estimated Amount	Probable	•
Expense incurred.	for Completion.	Time of Completion.	REMARKS.
•	•		
	•		
- this project was abandoned under orders of Government, 17 August 1842.	estimated for the New Cut Rs. a. p.	• • • •	- further inquiry established the fact that there are no sufficient grounds for enter- taining the expectation that it will be
• • • •	17,619 2 -	• •	possible to locate 800 or 400 khalines along the sides or in the vicinity of the proposed Canal, and that the risk attending the transport of the Ourung Salt to Ghat Na- rampore as now conducted, ought, with proper precautions, to be quite inconsider-
Rs. a. p.			able.
1,611 4		completed, sea-	
sanctioned for strengthening the south bank by piling.		son 1843-44.	· · · ·
nother and a burnedi		1	
•			
	• •		· · · · ·
- 1,588 9 5	1,681 1 10	completed, sea- son 1842-43.	this is to be a bridge of three (3) arches.
	•	TO A TO A	
*		1 -	
• •			•
cost of the bridges, Rs. 7,890 -	12,000	completed, sea-	the number of bridges and drains to
- (and 8,880 14 3	son 1846-47.	be constructed amounts to 34. The road is under charge of the Burdwan Local
· · ·		•	Committee.
٠			•
2,120 1 -2 -	2,438 2 10	completed, sea- son 1844-45.	this is an important line of communi- cation, as it connects the Grand Trunk Road with Midnapore and the Province of Orissa.
7,449	8,646 4 -	completed, sea- son 1847-48.	
4,945 13	4,945 13 -	completed, sea- son 1846-47.	the bridge consisted of three arches.
		-	•
			,
	•		
			•
• • "	•		
	48,447 9 -		the inflabitants subscribed 17,800 ra- pees towards its erection; the requisite
fell down in June 1845, in the central connexion	immediately after its con of the chains.	mpletion, which was	Ferry Funds of the district. This bridge attributed to a want of sufficient strength
	put up greatly strengthe tch dated 3d December her adopted in the const	(No. 9) 1845, disa	pproved the tension principle, and directed
12,927 9 8	, 7,431	reconstructed,	· · ·
•		season 1846-47.	· · · · · · · · · · · · · · · · · · ·
	2,445 9 7		5 - C
- 2,172 1	3,572	completed, sea- son 1847-48.	
1 16		• .	
622.	•		i
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21

RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

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	OBJECT	Length,	Place of Termination,
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination.
•		• · · ·	
Roads and Bridg	es, South-Eastern Provinces-continued	<i>d</i> .	
ankipore to Jehanah, Re- construction of a Bridge and two small Drains.	these works were carried away by a high flood on the 22d August 1844.	sanctioned, 7 May 1845	•
Behar District, Construction of Drain Bridges on the Line of the Grand Trunk Road.	for the drainage of the road	sanctioned, 80 April 1845 -	•
Budge-Budge Road, Con- struction of four Drain Bridges, and Repairs there- on.	with a view to render the road more practicable for mail carts.	sanctioned, 24 December 1845	
Bissenpore Road, Repair of the Masonry Bridge over the Tamal Nullah.		sanctioned, 9 May 1847 - •	•
Deads and D.	idaan Caman Daaria	•	•
	ridges, Lower Provinces :		
Beyalal to Diamond Har- bour, Repairs to the Pucka Road and Bridges on.		length, 24 miles; width, 14 feet; sanctioned 28 July 1845.	Diamond Harbour
Barripore to Calpee, Con- struction of a Cutcha Road.		length, 32 miles ; sanctioned in 1844.	Calpes
Surgatchy to Dinagepore, Raising of the Road.	- this line was adopted in lieu of the old road vid Malda, when the settlement at Darjeeling was first formed.	length, 91 miles and 71 yards; sanctioned 20 October 1847.	Dinagepore -
Roods and Pa	Jame Marth Wastern David		•
	idges, North Western Province	8:	
ridge over the Baigool River on the Peelibheet Road, in the District of Rohilcund.	sanotioned in season 1339–40 -		
		•	
Civil Building	s, Lower Provinces; Judicial:		•
araset Gaol, Rebuilding of the Compound Wall.	the former wall was pulled down when the alterations to the gaol, for the reception of the followers of the Ameers of Scinde, were undertaken.	sanctioned, 18 July 1844 -	•• • ••• •••
Civil Building	s, South Western Provinces; Ju	ndicial :	
alasore Gaol;	•	· · · · · · · · · · · · · · · · · · ·	
Construction of additional Wards	owing to the insufficiency of accommodation.	sanctioned, season 1839-40 -	Balasore -
Improvements to the Drainage of.	* * * * * *	sanctioned, season 1841–42 -	и – и
Civil Building	s, Lower Provinces, Judicial :		
auleah Gaol, Additions to, and Drainage.	to provide for better ventilation, &c.	length of drain, 361 feet	Bauleah
ehar, Construction of an additional Record-room.	for the records of the office of the Judge.	sanctioned, 11 September 1843	Behar -
urnagore, Construction of a small Gaol, with Out- offices.	for the prisoners employed at Burnagore.	sanctioned, 12 December 1845	Burnagore

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Amount of Betimated A Expense incurred. for Compl		Probable Time for Completion.	REMARKS.
Rs. a. p. Rs. a			• •
1,901 1 and			•
10,000 for drain	 1826.	-	
8,177.13 4 8,177 1		constructed,	•
•		season 1846-47.	
2,440 - 9 2,440	- 9	season 1845-46.	
		1 - C.	
· · · · · · · · · · · · · · · · · · ·	9 1		
•			and the second s
35,000 35,000	 .	completed, sea- son 1845-46.	the estimates for annual repairs to th pucca centre of this road amounts t 3,991 rupees.
19,948 6 6	• .	completed, sea-	
		son 1847–48.	
	0 0	•	
16,010	29		• • •
•			•
11,298 3 8≩ 9,158	8	completed, sea- son 1841-42.	diture beyond the estimate, is owing to the difficulties encountered in the execution
	· .*	•	the work, and to convict aid to the exter contemplated not having been afforded.
•		•	
1,057 9 2%	* -	completed sca- son 1844–45.	Government subsequently decided a sending the ox-Ameers to Hazareebaugh,
	•	2. A.	
		•	
4,740 4,605	.	completed, sea- son 1641-42.	•
			• • •
- 1,095 2 1		completed, sea- son 1841–42.	
		•	
• - 8,027 8 9 7,726		completed, sea-	• • •
for addit	ions.	son 1840-41.	
1,239 3 1,239	8 -	season 1813-44	the necessity for this additional accommodation was brought to notice by the Sudder Dewanny Adawlut.
• 1,396 1,396 -		season 1846-47.	•
622.		с. с.	(continued)

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			Place
NAME of WORK.	OBJECT of	Length, and Date of Commencement.	of Termination, or of
	CONSTRUCTION.		intended Termination.
· Civil Buildings,	Lower Provinces ; Judicial -continued.	•	
araset Gaol, Additions and Alterations to.	to render it secure as a place of confinement.	sanctioned, 20 April 1846 -	Baraset ~ ~
• 4	•		
auleah, Addition of a Ve- randah to the Principal and two Sudder Ameens' Cutoherries.	in consequence of the crowded state of these cutcherries, and also with a view to make the buildings more comfortable.	sanctioned, 9 September 1846 -	Bauleah
Civil Building	s, North Western Provinces; J	udicial :	
areilly Gaol :		•	
Construction of two Ex- perimental Wards.	• • • • • • • •	sanctioned, 7 October 1842	Bareilly -
			•
Construction of additional Public Buildings.	for a mill-house, guard-room and cook-room.	sanctioned, 17 February 1843 -	ditto + +
udaon Gaol		sanctioned, 1838-39	Budaon
areilly, Construction of a Howalat at.	for the accommodation of pri- soners under trial.	sanctioned, 15 November 1841	`m oğ maş
colundshuher Guol, Alte- rations to.	for the improvement of the prison discipline, and for two separate rooms for juvenile offenders.	sanctioned, 16 December 1842	• • •
owannah,Construction of a Tubsildarry Cutcherry at.	the old cutcherry was in ruins, and inconveniently situated.	sanctioned, 22 November 1842.	1
handaree, Construction of Police Guards and Gaols.	for prisoners under trial - '-	sanctioned, 27 April 1844 -	in the districts of Kuchwagur and Bhandaree.
olundshuher Gaol, Con- struction of Outbuildings and Cook-rooms.		sanotioned, 20 August 1844 -	Boolundshuher -
Civil Building	s, Central Provinces; Judicial:	· ,	
enares, Additions and Al- terations to the Insane Hospitul.	for the better classification and custody of the insanes, two of whom lost their lives from the want of means of separating the harmless from the violent.	sanctioned, 26 February 1845 - •	Benures
edur Gaol, Alterations, &c.	- for security of the prisoners, and for the ventilation of the gaol.	senctioned, 9 May 1843 -	Bedur
andah Gaol, Construction of a Pucca Well.	- required to replace an old one, which has failed.	sanctioned, 18 August 1846	Bandah -
andah, Construction of a new Cutcherry for the Collector.	the cutcherry is at present held in a hired building in cantonment, but it is required to be given up to the military.	sanctioned, 3 April 1947 -	ditto
eneres, Construction of a Well outside the Gaol Compound.	the only well outside the gaol which supplied water to the establish- ment of Burkundauzes, had fallen in.	sanctioned, 17 June 1847	Benares • •

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Amount of Expense incurred.	Estimated Amount	Probable Time of Completion.	REMARKS,
Rs. a. p.	Rs. a. p. 6,945	completed, sca- son 1847-48.	the contemplated works are the subst tution of iron for the wond-work of th windows, &c., and raising the surroundin wall from 9 to 13 feet.
1,817 1	- 1,959 2 8	completed, sea- son 1847-48.	the lowness of the wall, only 12. below the beams, rendered them exceed ingly close and hot.
	•		and the second
11,170 9 14 Rs. 10,000 have been paid for the site of the building.	- 12,436 5 8 F	completed, sea- son 1842-43.	
2,143 4 10 -	- 2,355 10	completed, sea- son 1844-45.	an a
13,981 and Rs.469. 9. 4. for draining	5-	completed, sea- son 1844-45.	- this gaol consists merely of an enclosu wall, a hospital, guard-room, sentry-box and wells. The convicts to build the own huts.
	2,634 5 -		
- 602 10 8	2. 73 MB 2 14 14 16 16 1 1,438 4 4 9	completed, sea- son 1843-44.	two rooms for juvenile offenders ha been constructed; the rest of the improv ments estimated for were not consider absolutely necessary.
- 5,641 3 1 -	- 5,641 8 1	completed, sea- son 1842–43.	
- 2,200	- 2,200	season 1844-45.	
1,601 1 1 -	- 1,600 +5 1	completed, sea- son 1844-45.	
		N Balle Strange	
5,459 6 6 -	- 6,173 7 4 ¹	season 1848–49–	of the contemplated alterations, per of the compound-wall will be taken dow and 29 suitable and commodious cells we be built. Provision has also been man for improving the drainage.
714 14 2 -	714 14 2	season 1843–44.	• • • • • • • • • • • • • • • • • • •
14,709 11 6 -	1,804 1 -	completed, sea-	- this cutcherry has been made of pe
		son 1848-49.	manent materials, on a revised plan.
830 4 9 -	- 571 5 9	completed, sea- son 1847-48.	•

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	OBJECT ,	Length,	Place of Termination,
NAME & WORK.	of CONSTRUCTION.	and Date of Commencement	or of intended Termination.
Civil' Buildin	gs, South Eastern Provinces ; J	udicial:	1
urrisaul :	{ 		
Cutcherry for the Magis- trate and Registrar.	to replace the cutcherry destroyed by fire in February 1838.	sanctioned, 15 January 1839 -	Burrisaul
New Cutcherry for the Principal Sudder Ameen.	this was rendered necessary, in consequence of the existing cutcherry	sanctioned, 16 November 1841	ditto
	being far removed from that of the Judge, and thus occasioning much. inconvenience to suitors and pleaders.		
Piling of the bank of the River.	in consequence of an encroach- ment of the Burrisaul River on the town.	sanctioned, 12 March 1842	ditto
			1
the second second			
bograh, Construction of a new Circuit Bungalow,	and the first state of the second state of the	sanctioned, 20 November 1844	
with Out-offices.			
urrisauf, Construction of a new Circuit House and Out-offices.	on the requisition of the Commis- sioner of Daeca, who represented that there was no circuit house for his	sanctioned, 16 December 1846	Burrispal +
Ouromces.	accommodation, as well as that of his office; and that the transfer of a		
	large section of the Soonderbunds to the Collector's jurisdiction, demanded		
	that a great portion of his time should be devoted to the affairs of this collectorate.	9	4
urrisaul Gaol, Construc- tion of four Solitary Cells, and Drainage of.	The necessity for these works was originally brought to the notice of Government by the local civil autho-	sanctioned, 28 December 1846	ditto =
	rities.		
urdwan Gaol, Hospital, Construction of an addi- tional Ward.		sanctioned, 24 November 1847	Burdwan
	·	•	
Civil Buildings,	Lower Provinces ; Revenue :		
	on a representation from the Col- lector to the Commissioner, of the	sanctioned, 11 August 1847 -	Bhangulpore -
	great inconvenience felt from the small size of the cutcherry.		
Civil Buildings.	South Eastern Provinces; Rev	(eque :	•
urrisaul, Additions to the	- required on account of the	sanctioned, 26 November 1845	Burrisau,
Collector's Cutcherry.	crowded state of the record-room, and also for the accommodation of		
	two deputy collectors, recently added to the collectorate of Backergunge.		
Civil Buildings,	Central Provinces; Revenue :		
undlecund, Enclosure of the Tubsildarry Cutcherry at Koonch.	in consequence of an attempt made to plunder the treasury.	sanctioned, 29 March 1842 -	Koonch
enarces, Construction of a Verandah to the Collec- tor's Cutcherry.	the necessity of this work was brought to the notice of Government by the local civil authorities. These verandabs will make the cutcherries	sanctioned, 26 April 1846 -	Benares -
· · ·	cooler, and afford greater facilities for putting up tatties during the hot season in the upper rooms.	•	
- 4	I	·	1

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RETURN FOR THE PRESIDENCY OF BENGAL-continued. Amount of **Estimated Amount** Probable REMARKS. Expense incorred. for Completion. Time of Completion, A. . . Same Rs. a. p. Rs. a. p. 7,052 4 7 -- completed, _ 1840-41. 2,695 13 11: .-2,894 15 3 - - the old cutcherry has been made over to -- completed, sea-٠ son 1843-44. the Local Committee of Public Instruction at Burrisaul, to be used as a school-house. ŧ - the labour will be performed by convicts. These measures proved a failure. The Ex-ecutive Officer submitted a project for the purpose of turning the current of the river, which in execution would costabout 1,00,000 2,830 9 10 2,664 6 -- completed, sea-son 1848-44. rupees; the Government declined to sanction the work, doeming it inexpedient to incur further expense. entra providente. A construction de la construcción d . ! -- completed, sea-4,682 14 7: 4,999 5 day of a la ·. son 1846-47. $\alpha = 0.03$ 1. Friday 5,490 15 10 . 11 8 ÷ Sec. 2. a ce $r_{i,k}$ der och 3.2.94 11.1 3 4 . • \mathbf{t} 1.15 6. 1 ŝ 1 1,843 15 11 Į 12 d. 1. 11 - 11 - 1 Ξ., - - to be constructed by the convicts, under 1 4.18 the immediate superintendence of the Magistrate, assisted in respect of plans by the Executive Officer of the division. 3,269 4 91 2 1.1 111 · * 1 -- completed, sea-5,848 14 10 - - -- 6,533 son 1847-48. 5 S. 5 1.11 *i* . . ••• e de pl 1.04 -: 1.173 4 4 1 - - completed, sea-1,441 8 11 5 BOB 1842-43 1,683 2 11 -- completed, sea-• : . 1,683 2 11. son 1846-47. (continued)

622.

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

NAME of WORK.	OBJECT of CONSTRUCTION.	· Length, and Date of Commencement.	Place of Termination, or of intended Termination.
Civil Buildin	s; Lower Provinces, General:		5 .A
ulloah, New Salt Cut- oherry.	for the use of the Salt Agent	sanctioned, 1839-40	at Noacolly.
arrackpore Government- house, Construction of new Out-houses.	a da kanalari ya sa	sanctioned, 4 November 1840 -	p. • €)2 p. • •
agundee, Construction of a new Guard-house,	for the Sepoy gaard	sanctioned, 8 January 1841 -	tin foto a in a
	n pana bi Serie da construction April 2011		•
arrackpore : Enlargement of the Bu- rial-ground.	the extension is urgently required -	sanctioned 6 September 1844 -	Barrackpore
Conversion of a Building in the Park into an Aviary.		sanctioned, season 1845-46 🕞	1 - 755 (g)
auleah, Construction of a Post-office.	this is a pucca building	sanctioned, 10 February 1847	Bauleah
Civil Building	s ; Central Provinces, General :		
uxar Chapel, Repair of the, and Construction of a Veranduh.	• • • • • • • • • • • • •	sanctioned, season 1846-47 •	• - situated mid- way between the fortand the build-
			ings occupied by invalids.
enares, Construction of an additional Godown.	to extend the accommodation of the opium factory premises.	sanctioned, 17 February 1847 -	Benares -
- Civil Building	38, Lower Provinces ; Ecclesiast	ical:	
arrackpore Church, Con- struction of a Wall.	to enclose the church	sanctioned, 9th October 1889 -	Barrackpore
Embankment	s, South Western Provinces :		
ulmeejole Division		length, 426 miles; estimated cost of annual repairs, 1839–40, Rs. 18,823. 9.	
•			
uttack		length, 560 miles	-

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4,646 - 4 84	Amount of Expense incurred.	*•Estimated Amount	Probable Time of Completions	REMARKS.
 11. 5 p 2.646				n man La Chin (La Ch
 1840-41. 1840-41. 1841-43. 1841-44. 1841-43. 1841-44. 1841-45. 1841-45. 1841-45. 1841-45. 1841-45. 1841-45. 1841-45. 1841-45. 1841-46. 184			-'- completed, 1839-40.	- the former building was altogethe unfit for the purpose, for want of sufficien accommodation, and from the dampness o
 1841-42. In the Sepory guard, which, in the genome opinion of the officers, as well as as an officers, as well as officers, as an officers, as well as as an officers, as and as a sub as an	4,646 - 4 81	and the first state of the		and a second s and a second s and a second s
 son 1845-46. - 7,558 13 4 - 1,169 7 11] - 1,2714 8 11 - 1,974 11 2 completed,seation 1847-48. completed,seation 1847-48. completed,seation 1847-48. af arther sum of 400 rupes sanctioned for alterations to the boundary wall of the factory. - 1,100 10 7 season 1839-40. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the out of repairs to the average to store and the cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the cost of repairs to the average cost of annual repairs in the Cultaneylo division in 1847-48. 		543 2 8	-~ - completed, 1841-43.	• - great sickness and mortality occurre in the Sepoy guard, which, in the genere opinion of the officers, as well as of th eivil surgeon, was owing to the proximit of the old guard-room to the salt godowns
 son 1845-46. - 7,558 13 4 - 1,169 7 11] - 1,2714 8 11 - 1,974 11 2 completed,seation 1847-48. completed,seation 1847-48. completed,seation 1847-48. af arther sum of 400 rupes sanctioned for alterations to the boundary wall of the factory. - 1,100 10 7 season 1839-40. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the out of repairs to the average to store and the cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division, was in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the Cultaneylo division in 1847-48. the average cost of annual repairs in the cost of repairs to the average cost of annual repairs in the Cultaneylo division in 1847-48. 				
 1,169 7 111⁻¹ 1,874 11 2 completed,seatson 1847-48. this chapel was assigned over the factory. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the average cost of annual repairs in the Culmegiole division, was in 1847-48. the cost of repairs to the embank monts in the Cuttack blirision in 1847-4 was Rs. 22,822,14.7. The report 1840-41, pars. 10, it is state that in central Cuttack alone, during the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes have bare monthing the last 10 years, 11,09,427 ruppes ha	1,044 10 5 tort	1.025 7 -8		the additional space to be included measures 380 × 100 feet.
son 1647-48. 1,874 11 2 completed,sea- son 1847-48. Afarther sum of 400 rupes sanctioned for alterations to the boundary wall of the factory. 1,100 10 7 season 1839-40. the average cost of annual repairs is the Culmejole division, was in 1847-48. the average cost of annual repairs is the Culmejole division, was in 1847-48. Rs. 24,948 the cost of repairs to the amback ments in the Cuttack Division in 1847-48. the cost of repairs to the amback ments in the Cuttack Division in 1847-48. the average cost of annual repairs is the Culmejole division, was in 1847-48. the cost of repairs to the amback ments in the Cuttack Division in 1847-48. the cost of repairs to the amback ments in the Cuttack Division in 1847-48. the cost of repairs to the amback ments in the Cuttack Division in 1847-48. the cost of repairs to the amback ments in the cuttack Division in 1847-48. the cost of repairs to the amback ments in contral Cuttack along, during th lat 10 years, 11,09,427 rupes have beer runder the form drong the lat 10 years, 11,09,427 rupes have beer	7,558 13 4	- 7,558 13 4		1
	1,169 7. 111	- 1,226 11 1	- completed, sea- son 1647-48.	m <mark>en k</mark> arati (), testete este statione
son 1847-48. Government by the Missionary Society ; measures 40 × 20 feet (interior dimensions). 		• 1	and the contrar	Cherner Development Cherner
 4,817	6 注 だいやいとうほどう	1,874 11 2	completed, sea- son 1847-48.	Government by the Missionary Society;
the average oost of annual repairs in the Culmeejole division, was in 1847-44 Government Bonds - Rs. 15,620 18 1 Zemindarty 9,116 2 Rs. 24,943 - the cost of repairs to the embank ments in the Cuttack Division in 1847-44 was Rs. 22,822, 14. 7. In report 1840-41, para. 19, it is state that 10 years, 11,09,427 rupees have bee remitted on account of loss from drough	the second second second			
1,100 10 7 season 1839-40. the average cost of annual repairs i the Culmeejole division, was in 1847-4 Government Bonds - Rs. 15,920 18 1 Zemindarry - ^- 9,116 2 Rs. 24,943 - the cost of repairs to the embank ments in the Cutack Division in 1847-4 was Rs. 22,822. 14. 7. In report 1840-41, para. 19, it is state that in central Cutack alone, during th last 10 years, 11,09,427 rupees have bee remitted on account of loss from drough	→ - 4,817 · ⊥	A further sum of 400 rupees sanctioned for alterations to the boundary wall of the	· · · · · · · · · · · · · · · · · · ·	en e
the average cost of annual repairs in the Culmeejole division, was in 1847-4 Government Bonds - Rs. 15,926 18 1 Zemindarry 9,116 2 Rs. 24,943 - the cost of repairs to the embank ments in the Cuttack Division in 1847-4 was Rs. 22,322. 14. 7. In report 1840-41, pars. 19, it is state that in central Cuttack slone, during th last 10 years, 11,09,427 rupees have bee remitted on account of loss from drough			Level parties	March & Barry Sugar Barry
the Culmeejole division, was in 1847-4 Government Bonds - Rs. 15,828 18 I Zemindarry 9,116 2 Rs. 24,943 - the cost of repairs to the embank ments in the Cuttack Division in 1847-4 was Rs. 22,822. 14. 7. In report 1840-41, para. 19, it is state that in central Cuttack alone, during th last 10 years, 11,09,427 rupees have bee remitted on account of loss from drough		- 1,100 10 7	season 1839–40.	
the Culmeejole division, was in 1847-4 Government Bonds - Rs. 15,828 18 I Zemindarry 9,116 2 Rs. 24,943 - the cost of repairs to the embank ments in the Cuttack Division in 1847-4 was Rs. 22,822. 14. 7. In report 1840-41, para. 19, it is state that in central Cuttack alone, during th last 10 years, 11,09,427 rupees have bee remitted on account of loss from drough			sectory Land	the second second
Rs. 24,943 - the cost of repairs to the embank ments in the Cuttack Division in 1847-4 was Rs. 22,822. 14. 7. In report 1840-41, para. 19, it is state that in central Cuttack alone, during th last 10 years, 11,09,427 rupces have bee remitted on account of loss from drough		a politiko (n. 1945) – Listo en en Referenza de la constata Referenza de la constata Referenza de la constata		the Culmeejole division, was in 1847-4
the cost of repairs to the embank ments in the Cuttack Division in 1847-4 was Rs. 22,822, 14. 7. In report 1840-41, para. 19, it is state that in central Cuttack alone, during th last 10 years, 11,09,427 rupces have bee remitted on account of loss from drough				Zemindarry 9,116 2
ments in the Cuttack Division in 1847-4 was Rs. 22,322.14.7. In report 1640-41, para. 19, it is state that in central Cuttack alone, during th last 10 years, 11,09,427 rupces have bee remitted on account of loss from drough				Rs. 24,943 -
that in central Cuttack alone, during to last 10 years, 11,09,427 rupees have bee remitted on account of loss from drough		- de recuel a f		ments in the Cuttack Division in 1847-4
				that in central Cuttack slone, during the last 10 years, 11,09,427 rupees have bee remitted on account of loss from drough
				•

- - - RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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29

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

	OBJECT	Length,	Place
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	of Terminatio or of intended Termina
Roads and B	ridges, South Eastern Provinces	:	
Construction of Wooden) • · • • • • • • •		• • • • • •
Bridges on the road be- tween Chittagong and the			1
Fenny River, in Arracan.			
Culna Road :			
Repair of	l a l'anna ann an ann an	length 354 miles; sanctioned,	
		1841-42.	to the Hoog River.
Matelling of the	• • • • • • • • •	competition of A June 10/4	1
Metalling of the		sanctioned, 6 June 1844	- ditto
Chittagong :			
Construction of a Drain	in the place of a bridge destroyed	sanctioned, 15 January 1845 -	-
Bridge.	in the rains of 1843.		
Construction of Ramps	these ramps are intended for the	sanctioned, 28 January 1846 -	between Chi
in the Nullahs on the Chittagong Road.	passage of cattle, with a view to the preservation of the wooden bridges.		gong and the Fenny River.
Amania and made	hisser and a mite wooden burghes"	1	- comy tuver.
· · · · ·			· ·
Calcutta to Barrackpore, repair of the Road.		sanctioned, 2 September 1845 -	from Sha
Thurs or 1004 TOOMET			bazur Bridge Pettah Ghaut
Chittagong City, Construc-	in lieu of a bridge destroyed by	sanctioned, 31 March 1847 -	Chittagong
tion of a Bridge.	inundation during the rains of 1841.		
Chittegong, Road to the Big	additional flooring to six masonry	sanctioned, 11 January 1848 -	Bin Farm D'
Fenny River.	bridges, to prevent their destruction	sancuoned, 11 January 1848	Big Fenny Ri
	by undermining.		
Boods and But	dana Laman Dunaturana		
	dges, Lower Provinces:		
Chupprah to Mootearee -	as a means of communication with the new Civil' Station, estab- lished in Chumparum in 1837.	length, 61 miles ; estimated for in August 1839.	Mootearee Chumparun.
Chupprah to Rewah Ghaut.	• • • • • • • • • • • • • • • • • • •	length, 22% miles; estimate dated 4 June 1839.	₹11,7 ^{,8}
Colmere Ghant to Buxar, Construction of Bridges and Draine.	- for keeping open the communi- cation between Ghazeepore and Dinapore.	• • • • • •	Buxar -
	and the second second		
	•		
Cachar to Munnipore -	to make the communication be-	length, about 93 miles; com-	Paiksandy
ĺ	tween the Eastern Frontier and the Burmese country comparatively easy.	menced in 1837.	Cachar.
	for keeping up the communication	senationed a Mar 1040	Dame 11
	in the rainy season between the Mili-	sanctioned, 2 May 1842 -	Dorundah -
	tary and Civil Stations at Dorundah.	- · ·	•
Comillah Road, Construction	• • • •	sanctioned, 8 July 1844	situated 1
of 16 new Jungle-wood Bridges.			tween Comill
Cossyah Hills to Assam :	· · · · · ·		and the B Fenny,
Repair of the Road and	· · · · · · · · · · · · · · · · ·	length, 85 miles ; sanctioned	from Purree
Bridges over the.	•	13 November 1844.	Ghaut to Pane
			gong in Assam
Construction of Iron Sus-		East Bridge, 6 feet in width;	Course IT'II
pension Bridges over		sanctioned 10 July 1839.	Cossya Hills
the Bogs and Burpanes	,) .	•	
1 OITCHING			
		•	•
		,	

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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p. - 3,625 6 8	•	the Executive Engineer will consider the future maintenance of this roud as part of his ordinary duty.
		en de la com	Lunder and erasantif and he
and Rs. 1,282 12 10 Bridges.		completed, 1841-42.	the expenses will be paid by the Rajoh of Burdwan.
12,419	11,937 6 3	completed,sea- son 1846-47.	· · · · · · · · · · · · · · · · · · · ·
		constructed, season 1845-48.	
- 1,165 4	1,521	constructed, season 1846-47.	- a large trade in cattle is carried on between Arracan and the Bengal districts to the north; and it has been ascertained
			that so many as 8,000 have passed down the read in one month.
	57,713 15 115		the road is to be repaired with three- inch gooting.
	1,551	• • •	- the new bridge will be of two seg- mental arches of 10 feet span, each versed 14 of span.
- 1,212 9 10	1,260 8 7		
	() () () () () () () () () ()	n an	α το μεταξικό με το
•	· · ·		and the state of the
An	47,286 7 4	its completion not reported.	
7,448 1 9	8,602 5 7	season 1841-42,	
	67,783 8 8	not reported -	- this road, though it forms part of the communication by land between the Military Station of Ghazeepore and Dinapore, is no
	br -	them being always to the traffic of	thoroughfare, the communication between aysopen by water; it is, however, of importance one of the richest and most populous districts in d be kept up, if possible, from local resources.
- about 39,947 10 4		completed, sea- son 1842-43.	
1,406 18 11	1,406 18 11	season 1842-43.	
• 1		· · · · · · · · · · · · · · · · · · ·	
	886 3 6	season 1844-45.	
a fina a su an			
• • • • • • • • • • • • • • • • • • •	4,845 11 6	completed, sea- son 1846-47.	
14,057 11 13	14,827 14 4		although the bridges are defective in some points of construction, they are
•		span of 94 feet pended approa long, and the B	believed to be, in all essential respects, l suitable. The Bogapanee Bridge has one between the points of suspension, with sus- sches, one of which is 28 and the other 30 feet urpanee consists of two spans, one of 88 feet 5 feet between the points of suspension.

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

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NAME of WORK.	OBJECT of	Length, and Date of Commencement.	Place of Termination, or of
	CONSTRUCTION.		intended Termination.
Roads and B	ridges, Central Provinces :		
Chunar to Sookroot, in the Mirzapore district.	to supersede the old road	length, about 19 miles ; esti- mated in September 1839.	Sookroot 🛰 🔹
Civil Buildin	s, North Western Provinces; J	ndicial :	· · ·
		sanctioned, 4 January 1845 -	0
Chunderee, Construction of a small Gaol and Cutcherry Bungalow.		bagoardon, a cannon y road	Chunderes
Civil Building	s, South Western Provinces; J	udicial :	
Calcutta House of Correction, Construction of Solitary Cells at the.	twenty-four cells have been con- structed with improved accommoda-		Calcutta
Centa at suc.	tion for prisoners.		
Civil Building	s, South Eastern Provinces; Ju	1	
Cuttack Gaol Hospital, Con- struction of Three Wards.	for insane patients	sanctioned, 23 July 1840	Cuttack
Commillah, New Court-room for the Magistrate.		sanctioned, 5 November 1840 -	Commillah -
N			
Caloutta Penitentiary : Construction of SixWards	• • • • • •	season 1841-42	
Alterations and Additions to.	in consequence of defects having been discovered, whereby the security of the prisoners was compromised.	sanctioned, 10 May 1843.	
Calcutta Aqueducts, Setting up a Steam-engine, and Al- terations and Enlargement of the Aqueducts, from the Reservoir at Chundpaul Ghaut, to the South-west	to raise water for filling the aque- ducts; the enlargement of the aque- ducts was rendered necessary, con- sequent on the enlarged supply of water to be expected from the sub- stitution of a 20 for a 10 horse	sanctioned, 6 January 1841 -	Calcutta - · · · · · · · · · · · · · · · · · ·
corner of Esplanade-row East.	power engine.		
Calcutta Police Hospital : "	```}		
Construction of Two Ad- ditional Wards.	for the sick poor of the town, and as a place for the resort of the poor from the neighbouring district for surgical operations.	sanctioned, 1841-49	- ditto = =
Construction of a Tiled Shed at the Sudder De- wanny.	- for the convenience of vakeels and others who attend the court.	sanctioned, 19 September 1842 -	- ditto
alcutta Penitentiary : Construction of Six Wards	for civil and oriminal Supreme Court prisoners.	sanstioned, 16 June 1841 -	- ditto
Construction of a New Steam-engine house.	for a 20-horse power engine, tranferred from the Arsenal of Fort William to the town of Calcutta.	sanctioned, 7 September 1841	situated at the Chaund Paul Ghat.
Construction of other Works connected there- with.		sanctioned, March 1844	• ditto
hittsgong Gaol, Additions and Improvements to.	in consequence of the offensive state of the gaol, the want of proper ventilation, and the dampness of the floor of the gaol hospital.	sanctioned, 17 October 1842 -	Chittagong -
alcutta: Construction of Machinery in the House of Correc- tion, and erection of a	to employ the power of cast iron tread-mill, received from England.	sanctioned, 16 September 1844	Calcutta
Building.			·

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Expanse incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p.		
6,998 7 9	6,325	completed, sea- son 1841-42.	
	600	constructed, season 1844-45.	• • • • • • • • • • • • • • • • • • •
		· · · · · ·	
9,586 3 IO		completed 1839-40	the cost has been defrayed from fund realized by the prisoners' labour. Th Chief Magistrate considers the cells t
	,		have answered their intended object so well, that the construction of 24 additional ones is contemplated.
	in a state of the		
646 12 2 - 7-	495 2 -	completed, sea- son 1840-41.	n na serie de la companya de la comp
2,426 1 7	3,307 2 8	completed 1841-42	- this work was completed for a sum of Rs.881.1.1. less than the estimated cost owing to the labour having been done by convicts.
7	82,900 8 9	completed, sea- son 1842-43.	
2,296.15 -8	2,296 15 8	completed, sea- son 1844-45.	an a
Cost of setting up the Engine 11,074 12 7	{ For setting up the Engine } 11,074 12 7	{completed, sea- son 1842-43.	the engine, which is of 20-horse power is valued at Rs. 11,008. 12. 112, and wa
Cost of New 8,194 8 6 Aqueduct - 8,194 8 6	{For enlarging the Aqueduct -}9,863 11 3	{ completed, sea- son 1845-46.	sent to India in 1828-29, with the saw mill machinery; it is now transferred from the Arsenal of Fort William.
	į	· · · · · ·	
- 1,817 2	1,817 2 -	season 1841-42.	
]	
1,340 4 9	1,359 5 8	completed, sea- son 1848-44.	
1,340 4 9	1,359 5 8		
1,340 4 9 	1,359 5 8 32,900 8 9		
	•	son 1848-44. completed, sea-	
30,800 - 7 -, -	32,900 8 9	son 1848-44. completed, sea- son 1842-43. completed, sea-	
	32,900 8 9 11,074 12 7	son 1848-44. completed, sea- son 1842-43. completed, sea- son 1849-43. completed, sea-	
	32,000 8 9 11,074 12 7 16,252 1 7	son 1848-44. completed, sea- son 1842-43. completed, sea- son 1843-43. completed, sea- son 1848-44. completed, sea-	
	32,000 8 9 11,074 12 7 16,252 1 7	son 1848-44. completed, sea- son 1842-43. completed, sea- son 1843-43. completed, sea- son 1848-44. completed, sea-	the power is intended to be applied it turning a soorkee mill, and grinding corn but neither objects have as yet been ef ficiently attained.

		a a construction of the second se	1
NAME of WORK.	OBJECT of	Length,	Place of Termination, or of
	CONSTRUCTION.	and Date of Commencement.	intended Termination,
•			
	South Eastern Provinces; Judicial-co	ontinued.	
alcutta, General Hospital. 'Excavation of two Tanks.	for watering the roads in the vicinity of the General Hospital.	season 1846-47	Calcutta
n	•	-	÷
hitterang Gool Constant	a more thorough ventilation of	sanctioned, 20 May 1846 -	Chittenana
hittagong Gaol, Construc- tion of 22 Ventilators.	the gaol being considered necessary by the local and medical authorities, for the improvement of its salubrity.	Balleaullea, 20 May 1040	Chittsgong -
alcutta House of Correc- tion, Construction of a Pucca Tiled Shed.	has fallen into ruin.	sanctioned, 19 May 1847	Calcutta ~ -
alcutta, Construction of	in compliance with a recommen-	sanctioned, 19 May 1847 -	situated in
Quarters for four Serjeants.	dation from the Chief Magistrate.	and the second	the north-west corner of the
			Police Compound
			at Calcutta.
omillah, Additions and improvements to the Judge's Cutcherry.	- • the necessity of these additions was brought to notice by the Civil and Sessions Judge.	sanctioned, 22 December 1848	
•		• • •	
. Civil Buildin	gs, South Eastern Provinces; H	levenue :	
Icutta : Alterations of a portion of the Audit Office.	te provide for a stamp-office	sanctioned, 19 May 1841 -	Calcutta
Construction of a Portico		sanctioned, 28 November 1842 -	- ditto
to the office of the Sudder Board of Re- venue.			•
			40
Erection of Sheds at the Iron Bridge Yard, for 20 additional Forges.	in consequence of the heavy de- mand for iron suspension bridges from all quarters, particularly for the	Fanctioned, 8 May 1843 -	- ditto
	Grand Trunk Road.		
		n	
	gs, South Western Provinces; 1		
attack, Revenue Survey Office and Record-rooms.	for the Revenue Surveyors and es- tablishment.	sanctioned, 16 January 1838 -	Cuttack
char, Construction of a Treasury and Record- room.	for the reception of the treasure and records.	sanctioned, 16 January 1843 -	Cachar
10011,			
Civil Building	gs, North Western Provinces;	Revenue :	s in a starte
unpore, Construction of a Tubsildarry Cutcherry.	rendered necessary with reference to the new settlement of land re- venue in the North Western Pro-	sanctioned, season 1838-89 -	in Zillah Bijnore
	vinces.		
			•
Civil Building	gs, Central Provinces; Revenue	;	
ilsa, Repair of the Tuh-		sanctioned, 27 May 1840	

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RETURN FOR THE PRESIDENCY OF BENGAL-continued.

Rs. a. p. Rs. a. p.		Amount of Expense incurred.	Estimated Amount for Completion.	Probable	BEMARKS.
- the resolution of the proposed two hans multiple of production of the proposed two fails will reduce the blacketies of hand been anthorized for the payment of blocation, for watering the reads. - 781 11 8 - 758 constructed, essand 1840-47. - 1,174 1,174 6 10 completed, ess- son 1847-48. 				Time or Completion.	
 been malled for, in the meantime as anamal outlay of 9,248 represented by the second second for the payment of bhootists, for the payment of bhootists, for warning the roads. 781 11 8 758		Rs. a. p.	1		
 1,174			been called for, in the meantime an annual outlay of 2,248 rupees has been authorized for the payment of bheestics, for watering	• • • •	the excavation of the proposed two tanks will reduce the labour, and conse- quently the outlay for the bheesties to 1,864 rupees per annum.
son 1047-48. son 1048-44. son 1048-44. son 1048-44. son 1048-44. son 1049-40. son 1049-40. son 1049-40. son 1049-40.		731 12 8	- 758		en de la construcción de la constru La construcción de la construcción d La construcción de la construcción d
 		1,174	- I,174 6 JO -	completed, sea- son 1847-48.	
ditional upper rooms, one of 41 × 15 and one 58 × 143, the raising of the wal so the three old apper rooms, one of 41 × 15 and one 58 × 143, the raising of the wal so the three old apper rooms, one of the upper rooms, one of 41 × 15 and one 58 × 143, the raising of the wal so the three of apper rooms, one of the upper rooms, one of the uppe	and the second se	an agter ag an	- 5,714 7 -		An Article Constraints (Annual Constraints) Annual Charles Constraints (Annual Constraints)
ditional upper rooms, one of 41 × 15 and one 58 × 143, the raising of the wal so the three old apper rooms, one of 41 × 15 and one 58 × 143, the raising of the wal so the three old apper rooms, one of the upper rooms, one of 41 × 15 and one 58 × 143, the raising of the wal so the three of apper rooms, one of the upper rooms, one of the uppe		ан н ал н			
 4,050 9 5 4,220 5 9completed, seeson 1841-42. 819 7 6		• • • • •	- 5,261 6 6 -		ditional upper rooms, one of 411 x 15
son 1842-42. 					them convenient as Record-roome, and the supplying of record racks.
	Total a survey	- 4,050 9 5	- 4,220 5 9 -	completed, sea- son 1841-42.	
 season 1843-44. 2,071 9 4 2,071 9 4 completed, season 1839-40. 195 6 4 195 6 4 ditto	A STATEMENT OF A	819 7 6			Periodi and a sign of promotion of the second secon
2,071 9 4 2,071 9 4 completed, sea- son 1839-40. 195 6 4 195 6 4 ditto		5,046 1 10			
 195 6 4 195 6 4 195 6 4 ditto the smallness of the outlay was cause by the employment of convict labour. 				season 1843-44.	se to en ante parte de la composi- presente en el compositor en el compositor presente en el compositor
 195 6 4 195 6 4 195 6 4 ditto the smallness of the outlay was cause by the employment of convict labour. 			- 2.071 9 4 -	completed see-	
3,264 - 6				son 1839-40.	
son 1840-41.					by the employment of convict labour.
son 1840-41.		3,264 - 6	en en genoden green.	completed, see-	•
			, ,	, , , , , , , , , , , , , , , , , , ,	
		- 4,894 15 2			
RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.
Civil Building	s, South-Eastern Provinces; C	deneral :	
	to replace buildings destroyed by	sanctioned, season 1839-40	Calcutta
tion of a Guard-house and Stabling.	a storm on the 29th of April 1839.		
Swam2.	n ng sala di San		×
alcutta Treasury, Improve-	to remedy the inconvenience felt	sanctioned, 4 March 1840 -	• •
ments at the.	for want of office accommodation.		
		-	-
• •	• • •	· • .	
·			
		:	
Chittagong, Repairs to the	for the safety of the sult in store	sanctioned, 1 April 1842	Chittagong
Breakwater in front of the Salt Golahs.	during the rains.		
Satt Golans.			
		Tor Mark Tours	Calcutta
Calcutta Custom-house, Con- struction of additional Buildings.	to accommodate the increasing trade of the port.	sanctioned, 31 March 1841 -	Calcuna -
Calcutta General Treasury,	to afford additional accommodation	sanctioned, season 1838-39	ar rae 🖕
Additions to.			
alcutta :			
Construction of a House in the Botanical Garden.	for an assistant overseer	sanctioned, 22 September 1841*	ff 900, 7 · • •
Construction of a Record- room.	for the General and Financial De- partments.	sanctioned, 26 March 1842	8 <u>1 (872)4</u> - <u>-</u>
Raising the Floors of two Godowns.	they were subject to inundation in heavy rains.	sanctioned, 14 September 1842	(1) (548) (1)
New Roofing of the Cir- cular Cutting-out Room at the Mint.	in consequence of some of the beams having failed.	sanctioned, 8 March 1843 -	"·····
~		- * (
Quadrennial Repairs to the Government House		sanctioned, season 1842-43	174 - 194 - 1
and Out-offices.	· · · ·	· · · ·	•
Construction of Lecture- rooms and School-rooms	for the General Committee of Pub- lie Instruction.	sanctioned, March 1843 -	•
at the Hindoo College.			
Repairs to the General Treasury Premises.		sanctioned, 8 March 1843	81_40181010101010
alcutta Medical College :			
Construction of Quarters for the House Surgeon	in consequence of insufficient ac- commodation.	sanctioned, 18 September 1843	Calcutta
and Staff Serjeant.			1
	• •	 The second s	
Construction of a Veran- dah to the Male Hos- pital.	under a representation of its necessity from the Council of Educa- tion.	sanctioned, 14 July 1843 -	- dītto

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Rs. a. p.	
 18,350 8 10	
 	
 23,138 4 6 - the house used for the Sa is altogether removed, and an is altogether removed, and an is altogether removed, and the Saconna to the antic frontage, Treasury, and the Accountant-gen and the Savings Bank. - 12,478 6 7 - 14,633 1 completed, season 1842-44. - 12,478 6 7 - 14,633 1 completed, season 1842-44. - 20,054 19,710 1 10 - completed, season 1842-43. - 20,054 19,710 1 10 - completed, season 1842-43. - 20,054 19,710 1 10 - completed, season 1842-43. - 20,054 19,054 19,054 completed, season 1842-43. - 1,913 11 4 - 1,803 2 0 - completed, season 1842-43. - 4,289 15 4 1,428 15 4 - ditto. 2,0088 14 2,0088 14 - ditto. 2,0088 14	sidered su ecessary fo
 is allogather removed, and a n erected on the entire frontogo, Treasury and the Accountant-offices. The new building will up to the full height of the Tr will provide accountant-formation for Treasury, the Accountant-gen and the Savings Bank. - 12,478,6 7 - 14,633 1 completed, see-son 1843-44. - 20,054.7	y done.
Treasury and the Accounter Gises, The new building will up to the full height of the T will provide accommodation for Treasury, the Accounter and the Savings Bank. - a saving of Rs. 2,154. Gires - 12,478, 6, 7, - 14,633, 1 completed, sea- son 1842-43. - completed on the amount authority - completed on the same of the world - completed on the same of the world	ew buildin
-12,478 6 7 14,633 1 completed,see- son 1848-44. a saving of Rs. 2,154. curred on the amount authorize equence of a reduction in the well as in the rates of the work $-20,021$ 15 6 completed,see- son 1842-43. a saving of Rs. 2,154. curred on the amount authorize equence of a reduction in the well as in the rates of the work $-20,021$ 15 6 completed,see- son 1842-43. $$ 1,913 11 4 $$ 1,913 11 4 $$ 1,913 14 completed, see- son 1842-43. $$ 1,913 11 4 $$ 1,913 14 $$ 1,913 14 $$ 1,913 14 $$ 1,913 14 $$ 1,913 14 $$ 1,913 14 $$ 1,913 14 $$	t - general l be carrie
$\begin{array}{c} \text{son 1843-44.} \\ son rate of b a mount authors is equal on the amount of the world is in the rates of the world is in the $	the Genera
$\begin{array}{c} \text{son 1843-44.} \\ son rate and the importance of a reduction in the sequence of a reduction in the sequence of a reduction in the well as in the rates of the worl well as the rates of the worl well as in the rates of the w$	10. 5. 0
-26,021 15 6 $ -$	ed, in col quantity, s
son $1842-43$. - 26,021 15 6	
$= 1,913 11 4 = 1,803 2 9 = -completed, sea-son, 1842-43.$ $= 4,289 15 4 = 4,289 15 4 = -ditto.$ $= -1,325 10 6 = -1,412 4 8 = -ditto.$ $= -2,224 11 5\frac{1}{5} = -completion not reported.$ $= -26,983 14 = -26,983 $	
= 1,913 11 4 = -1,803 2 9 = -0000000000000000000000000000000000	,
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	na i Nationa
$\begin{array}{c} - & 4,289 \\ - & - & 4,289 \\ - & - & 1,325 \\ - & - & - \\ - & - & - \\ - & - & - \\ - & - &$	
- 1,325 10 6 1,412 4 8 - ditto. 	e ny linnye Itali
the estimate framed is for reported. 26,983 14	e Sergen Seg
reported. supported on iron beams. - 2β,983 14	en garen Kontor
26,983 14 26,983 14	a new ro
- 18,152 4 5	ан 1 Ай 1 Ай
season 1844-45. equal shares by Government e lege.	20.1
season 1844-45. equal shares by Government e lege.	isti Sydta ist
	in near and the Co
435 11 -	
	.,
6,091 ,6 5 6,319 6 11 - completed, sea- Rs. 2,000 also granted son 1844-45.	·
for the purchase of	· •
ground required to be added to the Medical	
College premises. 1,019 3.10 - ditto this work was necessary to	he comfor
efficiency, and internal econo establishment.	my of th

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NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.
Civil Building South	Eastern Provinces ; General—continue	d	
Calcutta Medical College, Construction of a new Dissecting-room.	it was considered necessary to re- move the dissecting operations to a distinct building; they had been earried on in a room in close proxi- mity to the Female Hospital and quar- ters of the Secondary School.	sanctioned, 2 October 1848	Calcutta
Calcutta, Additions to St. James' Church.	- the works consist of a new wooden gallery, laying a marble floor, &c.	sanctionsd, 15 March 1843 -	- ditto - "-
Calcutta Government House :			
Construction of an En- trance Gate.	to the gardens south of the build- ing.	sanctioned, 14 February 1843 -	- ditto
New Supreme Court-house and Insolvent Court.	In consequence of the existing buildings and arrangements not af- fording the necessary accommoda-	estimates called for, 7 June 1842.	• • •
	tion for the distribution of business.		
•		ж. м	~ •
Construction of New Salt Golahs on the banks of the Creek between the Islands and of Kankra	,		• • • • •
and Kissenpore.		-	
			т.
		in the second se	
hittagong, Construction of a new Tiled Roof Custom- house, and purchase of a site.	required to replace a thatched shed, which is out of repair and in- conveniently situated, being sepa- rated by a large nullah from the pier at Chittagong.	sanotioned, 8 March 1843 -	Chittagong -
alcutta General Post-office, Additions to.	represented by the Postmaster- general to be indispensable, with re- ference to the increased business transacted in the Post-office.	sanctioned, 2 July 1845	Calcutta -
. 1			
alcutta Medical College : Construction of additional Rooms.	for cook-rooms to the Female Hos- pital.	sanctioned, 28 January 1846 -	
Construction of a new Coach-house,	required in lieu of the former one, which had settled and cracked.	sanctioned, 7 November 1845 -	
alcutta Mint, Building and fitting up an Electrotype		sanctioned, 13 December 1844	
refinery.			•
alcutta Stamp Office, Con- struction of a Drying- room over the Stables attached to the Stamp- office.	the necessity for this work was brought to the notice of Government by the Board of Customs, Salt and Opium.	sanctioned, 20 October 1847 -	Calcutta
uttack, Repairs to the School-house.	damage was occasioned to the school-house by a fire, which occurred on the 7th of May 1846.	sanctioned, 9 September 1846 -	Cuttack

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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p. 5,119 6 7	Rs. a. p. 5,119 5 7	season 1843-44.	
4,007 3 10	• • • •	constructed, senson 1843-44.	of the amount expended, R.2,844.2.9. have been recovered from the restry of the church, such being the engagement under which the work was executed.
851 15 3	871 10 1	completed, see- son 1844-45.	ordered by the Governor-general.
the proposal was referred to the Home Authorities, to whom the necessity for the contem- plated arrangements was not apparent.	3,94,580		- the present Court-house is a public building, valued at 80,000 rupces, and the Insolvent Court is held in an adjoining building, rented at 500 rupces per mensem,
	16,236 2 6 		the estimate is for 10 golahs each, cal- culated to hold 75,000 maunds of selt, and for a maund raised 73 feet, 717 × 264 feet for the golahs to be built on. The excavation
			of the work intrusted to the officers in the Salt Department, there being no officer of the Department of Public Works availa- able for the duty.
5,150 1	5,448 - 9 Cost of site, Rs. 5,000	son 1846-47.	the bridging of the nullah would have been more expensive than the building the new Custom-heuse.
Den Karlen Maria - Angelan Angelan Maria - Angelan Angelan Maria			
this work was suspended, the	9,485		the additions will comprise an upper
erection of an entirely new Post- office being contemplated by Government.			room 50 × 85, a room 16 × 16.
		{	
	505	completed, sea- son 1847-48.	
1,143	1,148	season, 1845-46.	en en ser en
3,510		constructed,	
		season 1846-47.	
• • • • •	2,176 18 3		
• •			
865 1 4		season 1847-48.	
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	OBJĒCT	Length,	Place of Termination,
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement,	or of intended Termination.
Civil Buildings,	South Eastern Provinces; General-con	ntinued.	
alcutta Post-office, Con-	to provide residences for the dis-	sanctioned, 19 May 1847 -	Calcutta
struction of Sheds in the Compound of the General Post-office.	tributing peons on the spot, so that their services may be available at all hours.		
alcutta General Post-office, Construction of a Stable, Cart, and overland Van	the Postmaster-general considered the proposed works absolutely neces- sary for conducting the greatly in-	sanctioned, 19 July 1847 -	Calcutta
Sheds in the Compound of the Post-office.	creased business of the office, and more particularly of the steam branch.		
Civil Building	s, Lower Provinces; General:		. n
hinsurah Church, Repairs to.	the roof, owing to the decayed state of the beams, was reported to be in a dangerous state.	sanctioned, 23 February 1842 -	
heera Coal Mines, Con- struction of a Roadway.	for facilitating the means for the conveyance of coals from the Cheera Hills to the plains.	sanctioned, 5 October 1842 -	Cheera
binsurah, Enlargement of the Burial-ground.	• • • • • •	sanctioned, 15 February 1847 -	Chinsurah "-
		•	ŕ.
			с. Г
Ciuil Duilding	a Couth Western Durninger F		
	s, South Western Provinces; Ed	· · · · ·	
rcular Road, Purchase of Land.	for a burial-ground	sanctioned, 28 August 1839 -	1 - 1 - 1
			}
	•		
Civil Building	s, South Eastern Provinces; E	cclesiastical :	
uittagong Church, Con-		sanctioned, 9 October 1840 -	
struction of.			
		, 1	
Marina Build	non South Western Dramines		
	ings, South Western Provinces :		
alcutta, Construction of a House and Offices for the Master Attendant,	residence for the Master Attendant and offices and godowns for naval stores.		
Marine Build	ings, Lower Provinces :	• ,	
ittagong Pier:	0	•	•
Construction of	• • • • • •		,
Repairs to the	in consequence of injuries done to it by marine worms.	sanctioned, season 1842-43 -	
hittsgong, Construction of a tiled roof Custom- House.	to replace a thatched shed, which is out of repair and inconveniently situated.	sanctioned, 8 March 1843 -	

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Expense incurred.			
· · · · ·	for Completion.	Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p.	i.	
- 2,194 11	2,199	completed, sea-	
		son 1848-49.	
•			•
- 2,505 9 11 -	3,107 8 9	completed, sea-	
,000 - 11 -		son 1848-49.	• •
· · · · · · · · · · · · · · · · · · ·		$F_{\rm eff}$	
2,674 7 12 -	2,674 7 12	a completed as	this is an old Dutch building, and
2,074 7 14 -	, 2,07±, 7 1 <u>5</u>	completed, sea- son 1842–43.	supposed to have been built in the yes
Калада бала алаба бала алаба алаба алаба Калада бала алаба бала алаба алаба алаба алаба алаба алаба алаба алаба	66,584 11 -		
ngan ten nartina tina. a	- • the payment of Rs.2,788. 11. was	season 1846-47 -	an estimate amounting to 452 rupe was sanctioned on the 28th July 1848, for
	sanctioned, as well as the remission of		the enclosure of the newly purchase
	Rs. 25. 4., or Com-		ground.
	pany's Rs.26. 15., on account of annual re-		
	venue.	•	
-* 1,088 2 10 -	19,700 for ground, and Rs. 2,385. 9. 5. to adapt	completed, sea- son 1840-41.	the saving of Rs. 307. 7. 7. withit the estimated amount, is owing to the material for the pathways having been
	it for the object in- tended.		obtained from certain buildings which was found necessary to clear off the groun purchased.)
		•	
- 10,335 - 2"1"	9,947 3 8	completed, sea- son 1843-44.	- of the amount, 3,518 rupees has bee paid by Government, and the remaind (6,817 rupees) by the community and the Church Building Fund.
		{·	
	46,000		
1			
		. 1	
4			• • • • •
6,504 14 10 -	6,504 14 10	completed, 1830-40.	
1,213 14 10 -		completed, sea- son 1842-43.	
	5,448 - 9		

RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

NAME of WORK.	ÔBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.
	CORSTRUCTION.		
(::) D	· 	1	
	gs, Lower Provinces ; Judicial :		
hupprab, Construction of a Hazut Tuzwees Ward.	for the Magistrate of Sarum	sanctioned, 24 May 1848 -	Chupprah
hitpore, Construction of a Thannah House near the Suspension Bridge.	to replace the former thatched building, which was destroyed by fire.	sanctioned, 7 July 1847	Chitpore
		e. E	
Canala North) Western Provinces :	· · · ·	
-	I WESTELLI I I DATIGES .		
oab Canal :			
Construction of five additional Falls and	for irrigation and navigation	estimates sanctioned in 1839 -	Doab ; the falls are to be at
Locks.			Lerkurrie, Hullall pore, Meg, Chup-
	1		per, Ruree, and
		•	Balpore.
•			
-			بہ ۱۰ ک
Internalization of Dathabas			
Introduction of Rajbuhas, in the tract between	these rajbuhas are water-chan- nels, which, diverging from the main	estimates sanctioned, May 1839	
the Canal and the River Hindun.	stream of the canal, flow to a con- siderable distance from its line, and		
	serve to extend the irrigation to		
	numerous villages, which could not without much inconvenience and		
r -	many disputes, obtain water direct from the canal itself; they are very	•	
	useful works, and likely to afford a good return for the outlay expended on them.		
Plantations of trees on the		E-m 1990 4- 10/0 /1	
banks of the.		from 1830 to 1840-41	
• • •			ļ
Connexion of the, with the Dumola River.	• • • • • • •	14 September 1889	Doab Canal -
	$\epsilon = \epsilon_{\rm e}^{\rm T}$		
elhi Canal			en en la la
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Amount of Expense incurred.	Estimated Amount for Completion,	Probable Time of Completion.	REMARKS
Rs. a. p.	Rs. a. p.	· ·	
4,782 - 63	5,409 1 8	completed,sea- son 1848-47.	
1,160 18 7	1,150 15 7	completed, sea- son 1847-48.	as the thannah at this locality he been burnt down three times during twelv years, the present estimate provides fo the erection of a puoca building.
	94		
- 52,856 8 1	69,171 sanctioned for addi- tional falls and locks.	completed, sea- son 1840–41.	the raising of the banks of the Dor Canal was sanctioned in 1888-29, th cost was Rs. 70,644. 8. 6., and the enti length of the work done 385,139 fest; th additional bunding up of the main stree
cost of Rs. 21,040. 11. 7.	•		of the Jumna, in order to convey the water to the canal, puts an entire stop the timber trude from the bills, but when the canal has been made navigable, the inconvenience will cease. The total amount expended on account of the Doab Canal 1840-41, amounted to Rs. 1,16,156, 12, 1
- 20,000	20,000	season 1839-40 -	and the direct return to 1,65,905 rupees. - this sum of 20,000 rupees, was place at the disposal of Captain Cautley, for t introduction of rajbuhars or watercourse on a tract of land lying between the Do Canal and the river Hindun, a great pr of which had fallen to the British Gover ment by the dcath of her Highness t Begum Sumroo.
- 14,891 12 7 amount realized from cuttings 10,435 rupees.	• • • •	N 4 4	- the number of trees on the banks the Doab Canal to 80th April 1848, w 2,85,827, and their value was estimated 80,000 rupees; a sum of Rs. 9,872. 4. had been realized by the sale of timbers.
- · · · · · · · · · · · · · · · · · · ·	18,800 sanctioned for the construction of aque- ducts.		
	- the amount of ex- diture incurred on acc of plantations on the b of the Delhi Canal the Soth April 1847	ount anks to was	
	Rs. 27,363. 5. 7., the am realized Rs. 52,025. 12 and the estimated valu the trees on the banks o connal, Rs. 5,66,998. 6 Orders were reported	8. 6., 10 of f the 5. 4.	
	season 1846-49, for the moval of δ ,746 trees; humber remaining amou to 369,646 of different : and their value, was est	e re- \ the inted ages,	

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

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NAME of WORE.of CONSTRUCTION.and Date of Commencement.or of intended Termination.Canals, North Western Provinces—continued.Deyra Dhoon:Construction of a Masonry Tunnel in liem of a wooden one on the Bee- japore Canal the wooden tunnel was a source of much trouble and expense, owing to the repairs which it constantly required.sanctioned, 26 September 1843 - situated near- the village of Dakry, - from the hills at Rajpore WatercourseRajpore Watercourse to supply pure and wholesome water to the town of Deyra, for do- mestic purposes length, 7½ miles; sanctioned, 8 March 1841 from the hills at Rajpore to the town of Deyra.Setting up of a Saw Mill Pore Watercourse the watercourses in Deyra are stated to be peculiarly applicable to machinery of all kinds.sanctioned, 11 September 1843 in the Deyra Dhoon.Construction of 12 small pore Watercourse intended for watering the village cattle, and they will relieve the main stream intended for drinking pur- poses from impurities, of which it could not be kept free so long as cattle resorted to it generally.sanctioned, 14 June 1844 ditto dittoConstruction of four Corn Watercourse the construction of those mills will be advantageous to the Govern- mills, distant between four and five milles.sanctioned, 15 June 1844 - ditto		OBJECT	Length,	Place of Termination,
Deyra Dhoon: the wooden tunnel was a source of much trouble and appears, for de- juppee Canal. ethe wooden tunnel was a source of much trouble and appears, for de- mestic purpose. ethe wooden tunnel was a source of much trouble and appears, for de- mestic purpose. ethe wooden tunnel was a source of much trouble and appears, for de- mestic purpose. ethe wooden tunnel was a source of much to be pocularly opplicable of mestic purpose. ethe wooden tunnel was a source of much trouble and wholesome water to its town of Dayrs, for de- mestic purpose. ethe wooden tunnel was a source of much town of Dayrs. Sotting up of a Saw Mill reserver to the be pocularly opplicable to machinery of all kinds. ethe wooden tunnel was a source of much town of Dayrs. ethe thills at Rajpore to the Source machinery of all kinds. ethe thills at Rajpore to the Source machinery of all kinds. ethe thills at Rajpore to the Source machinery of all kinds. ethe town of Dayrs. Construction of four Corn. ethe construction of the source and the source and the source and the machinery and town of much and the dynamic source and the construction of four Corn. ethe source and the machinery finds over the machinery and town of much and source and the source and the machinery and town of the source and the source and machinery and town of the source and the source and machinery and town of the source and machinery and town and the source and machinery and town and machinery and town and the s	NAME of WORK.		-	oraf
Depring Discon:	Canala North W	estern Provinces-continued.		1
Construction of a Masony: the wooden tunnel was a source wooden one on the Bas- japore Canal. in the wooden tunnel was a source of the repairs which it constantly required. in the word a spaces, owing of the repairs which it constantly required. is anotioned, 36 September 1843 from the hills at Rappore to the text of the town of Dayrs, for do- messio purposes. Setting up of a Saw Mill reservation of 12 small is the restronmes in Dayrs are restrated to be precluding upplicable to machinery of all kinds. is anotioned, 14 September 1843 is in the Deryrs town of Dayrs. Construction of 12 small pore Watercourse. intended for watering the village of the load randgement to the Gorren met, as well as to the inholitants, witch ourse. in the Deryrs Dhoo. Construction of four Corn Watercourse. in bag of an old bridge, two arabes of which hed fallon. ennotioned, 4 October 1839 eithated near the village of Shabpore. New Cut for proteeting the Channel, and for the security of the Da- bridge acrose the Neret. to protect the Delbi Canal from injury, by iteractions of the Soare finale, with hed fallon. not in security of the Da- the communication of the soare in Stappanion Ridge yes in Actioned, 16 August 1837 eithated - - with were to the maintenance of Bactioned, 16 August 1838 stanctioned, 24 August 1838 New Cut for proteeting the communication of the soare stappes and Ridge xti in dore or the. with with we arried area accessary which was arried away during heary in blackooper. with wither		($(1,1) \in \mathcal{H}^{1,1}(\mathbb{R}^{n})$
Tunal in lien of s of much trouble and axpanse, owing wooden case in the repairs which it constantly required. the repairs which it constantly required. Rajpore Canal. to supply pure and wholesome water to its town of Dayrs, for domewater to its the security of the Day. its the Dayrs Days of the Sone for the Son	-	the wooden tunnel was a source	sanctioned, 26 September 1843	- situated near
japore Canal. required. Rajpore Watercourse to supply pure and wholesome water to the town of Dayra, for domestic purposes. Setting up of a Saw Mill to watercourses in Deyra are interface to be peccellarly applicable to makinery of all kinds. Construction of 12 small the watercourse in Deyra are intended for watering the village to makinery of all kinds. Construction of fur Corn the watercourse in the provide state and they will reliave to main stream intended for dinking purport to cold not be kept free so long us cold not be kept free son to a free mails, distant between four and free mile, and free mile, distant between four and free mile, distant between four and free mile, distant between four and free miles. eitended and indige, two atches free so long us cold not be construction of the long. eitended kept long long long long long long long long	Tunnel in lieu of a	of much trouble and expense, owing		the village of
Rajpore Watercourse to amply pure and wholesome water to the town of Dayrs, for domesio purposes. length, 7½ miles; sanctioned, if Anne hills at Rajpore to the form of the second purpose. Setting up of a Saw Mill the watercourse in Dayrs are stated to be pecilically explicable to mesio purpose. sanctioned, 11 September 1843 in the basic card, and day will releve the mills of an index for drinking purpose. Construction of 12 small intended for watering the village action of the or mills of the or mills of an intended for drinking purpose. sanctioned, 14 June 1844 in the Dayrs Dhoon. Construction of four Corr Mile on the Beejnort Wateroourse. is construction of the construction of the or mills will be aternate score to to the minites, of while to the inhibites of which had falles. aanctioned, 16 June 1844 is situated near the will be dentate score to other mile. Mesonry Bridge over the Beejnort Mile of an old bridge, two arches of which had falles. is misse of an lot bridge, two arches River. sanctioned, 4 October 1839 is situated near the willage of Sahapors. New Cot for protecting Canal at Rhudour. to protect the Dahi Canal from River. with a vive to the maintenance of the town of Rhudour. with a vive to the maintenance of the communication of the construction of two Line. with a vive to the maintenance of the communication of the construction of two Line. with a vive to the maintenance of the communication of the construction of two Line. with a vive to the maintenance of th				Dakra
water to the town of Deyra, for domestic purposes. 8 March 1841. at Rajpore to the form of Deyra. Setting up of a Saw Mill the watercourses in Deyra are machinery of all kinds. annotioned, 11 September 1843. in the Deyra purpose in the reacting and the reacting of the state, and they will reader the reacting. annotioned, 14 June 1844. in the Deyra purpose from inpurpose from i	· ·			
Construction of 12 anall	Rajpore Watercourse	water to the town of Deyra, for do-		at Rajpore to the
Construction of 12 mull			· · · ·	
Reservoire on the Rej- pore Watercourse. cattle, and they will relive the main poses from impurities, of which it could not be kept free so long as will be advantageous to the Gormills will be advantageous to the Gormills on the Delhi Canal. sanctioned, 15 June 1844 - ditto Delhi Canal : Mesonry Bridge over the Bowanee Outles Nullah, on the Delhi Canal. in lieu of an old bridge, two arches of which had falles. sanctioned, 4 October 1839 situated near the village of Shahpure. New Cut for protecting the Gonstruction of an Iron Suspension Bridge at Indore over the. to promote the trafic of the town of Rhadour. to promote the trafic of the town of Rhadour. sanctioned, 16 August 1837 esanctioned, 24 August 1838 esanctioned, 24 August 1838 New Channel under the Indore Bridge. in lieu of an over-fall drain bridge; which was carried away during heavy artis in 1841. in senite bridges are balance, 16 August 1838	Setting up of a Saw Mill	stated to be peculiarly applicable to	sanctioned, 11 September 1843	
Reservoire on the Raj- pore Watercourse. cstie, and they will relive the main pore Watercourse. Dhoon. Construction of four Corr Watercourse. - second not be top free so long as cattle resorted to it generally. senctioned, 15 June 1844 - ditto Construction of four Corr Watercourse. the construction of those mills will be advantageons to the for mills, distant between four can dive mills. senctioned, 15 June 1844 - ditto Delhi Canal : in lieu of an old bridge, two arches of which had fallen. sanotioned, 4 October 1839 aituated near the villago of Shabpore. New Cut for protecting the Scamptry of the Dar- doopore Dam. to protect the Delhi Canal from injury, by incursions of the Scanes of Rhadour. to promote the traffic of the town of Rhadour. to promote the traffic of the town of Rhadour. sanctioned, 16 August 1837 Delhi Construction of an Iron Supponsion Bridge at indore ores the. in lieu of an over-fall drain bridge; which was carried away during heary rains in 1841. sanctioned, 16 August 1838	Construction of 12 small	intended for watering the village	sanctioned. 14 June 1844 -	in the Devra
Construction of four Corn Mills on the Beeippore Wateroourse. the construction of those mills will be advantageous to the Govern- ment, as well as to the inhabitants, who now carry their corn to other mills, distant between four and five mills. sanctioned, 15 June 1844 - ditto Delhi Canal : Massoary Bridge over the Bowanee Oculet Nullab, on the Dolhi Canal. in lieu of an old bridge, two arches of which had fallen. sanotioned, 4 October 1839 situated near the village of Shahpore. New Cut for protecting the Channel, and for Canal at Rhudour. to protect the Delhi Canal from injury by incursions of the Soanee River. length, 11,000 fact, width, 75 feet, average depth 9 feet. Delhi Bridge over the Delhi Canal at Rhudour. to protect the traffic of the town of Rhudour. to promote the traffic of the town of Rhudour. sanotioned, 16 August 1837 sanctioned, 24 August 1838 New Channel under the Indore over the.		stream intended for drinking pur- poses from impurities, of which it could not be kept free so long as		
Mille on the Beeipore Wateroourse. will be advantageous to the Govern- ment, as well as to the inhabitants, who now carry their core to cother mills, distant between four and five mills. anotioned, 4 October 1839	Construction of four Corp		constinued 15 Tons 1844	
Delhi Canal : in lieu of an old bridge, two arches sanctioned, 4 October 1839 situated near Mesonry Bridge over the of which had fallen. sanctioned, 4 October 1839 situated near New Cut for protecting to protect the Delhi Canal from sanctioned, 11,200 feet, width, 75 Delhi New Cut for protecting to protect the Delhi Canal from length, 11,200 feet, width, 75 Delhi Bridge over the Delhi to promote the traffic of the town sanctioned, 16 August 1837 Construction of an Iron with a view to the maintenance of sanctioned, 24 August 1838 New Channel under the in lieu of an over-fall drain bridge, sanctioned, 16 April 1843 New Channel under the in lieu of an over-fall drain bridge, sanctioned, 15 April 1843 Construction of a Dam in lieu of an over-fall drain bridge, sanctioned, 15 April 1843 - New Channel under the in lieu of an over-fall drain bridge, sanctioned, 15 April 1843 - Construction of two Inlet in lieu of an over-fall drain bridge, sanctioned, 19 June 1847 - Construction of two Inlet in lieu of an over-fall drain bridge, sanctioned,	Mills on the Beejapore	will be advantageous to the Govern- ment, as well as to the inhabitants, who now carry their corn to other mills, distant between four and five	Banchoned, 19 June 1044	- aito
Mesonry Bridge over the Bowance Outlet Nullah, on the Delhi Canal. in lieu of an old bridge, two arches of which had fallen. sanctioned, 4 October 1839 situated near the village of Shahpore. New Cut for protecting the Channel, and for the security of the Da- doopore Dam. to protect the Delhi Canal from injury, by incursions of the Soanee River. length, 11,200 feet, width, 75 feet, average depth 9 feet. Delhi Bridge over the Delhi Canal at Rhudour. to promote the traffic of the town of Rhudour. sanctioned, 15 August 1837 		IIIICS,		
Bowaree Outlet Nullah, on the Delhi Canal. of which had fallen. of which had fallen. the village of Shahpore. New Cut for protecting the Channel, and for the security of the Dar doopore Dam. to protect the Delhi Canal from injury, by incursions of the Soanee River. length, 11,900 feet, width, 75 feet, average depth 9 feet. Delhi Bridge over the Delhi Canal at Rhudour. to promote the traffic of the town of Rhudour. sanctioned, 16 August 1837 Construction of an Iron Suspension Bridge at Indore over the. with a view to the maintenance of the communication of the country. sanctioned, 24 August 1838 New Channel under the Indore Bridge. in lieu of an over-fall drain bridge, which was carried away during heavy rains in 1841. sanctioned, 15 April 1843 Construction of two Inlet Bridges over Raving the Pucce Tank, west of Hissar. these inlet bridges are necessary to preserve the continuity of the em- tank ments, and to, check the influx of allt, at a point between the pucca tank of Hissar at the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at the sanctioned, 19 June 1847	+ t +	· · · · · · · · · · · · · · · · · · ·		, situated many
the Channel, and for the security of the Da- doopore Dam. injury, by incursions of the Soanee River. feet, average depth 9 feet. Bridge over the Delhi Canal at Rhudour. - to promote the traffic of the town of Rhudour. sanctioned, 15 August 1837 Construction of an Iron Suspension Bridge at Indore over the. - with a view to the maintenance of the communication of the country. sanctioned, 24 August 1838 New Channel under the Indore Bridge. in lieu of an over-fall drain bridge, which was carried away during heavy rains in 1841. sanctioned, 16 April 1843 Construction of two Inlet Bridges over Ravines, entering the Canal near the Puecea Tank, wet of Hissar. these inlet bridges are necessary to preserve the continuity of the em- backments, and to, check the influx of all, at a point between the pueca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the ecanals at	Bowance Outlet Nullah,		sanctioned, 4 October 1839 -	the village of
Canal at Rhudour.of Rhudour.Construction of an Iron Suspension Bridge at Indore over the with a view to the maintenance of the communication of the conntry.sanctioned, 24 August 1838 -New Channel under the Indore Bridge in lieu of an over-fall drain bridge, which was carried away during heavy rains in 1841.sanctioned, 15 April 1843 -Construction of two Inlet Bridge across a Ravine, at Dadoopore these inlet bridges are necessary to preserve the continuity of the em- bankments, and to, check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals atsanctioned, 19 June 1847 -	the Channel, and for the security of the Da-	injury, by incursions of the Soance		Delhi
Suspension Bridge at Indore over the. the communication of the country. New Channel under the Indore Bridge.			sanctioned, 15 August 1887 ~ -	
Indore Bridge. Indore Bridge. Indore Bridge. Construction of s Dam Bridge scross a Ravine st Dadoopore. in lieu of an over-fall drain bridge, which was carried away during heavy rains in 1841. sanctioned, 15 April 1843 Construction of two Inlet Bridges over Ravines, entering the Canal near the Pucca Tank, west of Hissar. these inlet bridges are necessary to preserve the continuity of the em- backments, and to, check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at sanctioned, 19 June 1847	Suspension Bridge at	with a view to the maintenance of the communication of the country.	sanctioned, 24 August 1838 -	<u>.</u>
Bridge across a Ravine at Dadoopore. which was carried away during heavy rains in 1841. sanctioned, 19 June 1847 Construction of two Inlet Bridges over Ravines, entering the Canal near the Pucca Tank, west of Hissar. these inlet bridges are necessary to preserve the continuity of the em- backments, and to, check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at sanctioned, 19 June 1847		,- ,-	sanctioned, 24 August 1838 -	
Bridge across a Ravine at Dadoopore. which was carried away during heavy rains in 1841. sanctioned, 19 June 1847 Construction of two Inlet Bridges over Ravines, entering the Canal near the Pucca Tank, west of Hissar. these inlet bridges are necessary to preserve the continuity of the em- backments, and to, check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at sanctioned, 19 June 1847				
Bridge across a Ravine at Dadoopore. which was carried away during heavy rains in 1841. sanctioned, 19 June 1847 Construction of two Inlet Bridges over Ravines, entering the Canal near the Pucca Tank, west of Hissar. - these inlet bridges are necessary to preserve the continuity of the em- backments, and to, check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at sanctioned, 19 June 1847				
Bridge across a Ravine at Dadoopore. which was carried away during heavy rains in 1841. sanctioned, 19 June 1847 Construction of two Inlet Bridges over Ravines, entering the Canal near the Pucca Tank, west of Hissar. - these inlet bridges are necessary to preserve the continuity of the em- backments, and to, check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at sanctioned, 19 June 1847				-
Bridges over Ravines, entering the Canal near the Pucca Tank, west of Hissar.	Bridge across a Ravine	which was carried away during heavy	senctioned, 15 April 1843 -	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
the Pucca Tank, west of silt, at a point between the pucca of Hissar. Solumo Shekepore, where both banks of the canal are interrupted by ravines, which enter the canals at	Bridges over Ravines,	to preserve the continuity of the em- bankments, and to, check the influx	sanctioned, 19 June 1847	
ravines, which enter the canals at	the Pucca Tank, west	of silt, at a point between the pucca tank of Hissar and the village of Solumo Shekspore, where both banks		
obhasve harnes		ravines, which enter the canals at		
		Chhoave hornes.		

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Amount of	Estimated Amount	Probable	REMARKS.
Expense incurred.	for Completion.	Time of Completion.	A LMARKS.
Rs. a. p.	Rs. [a. p.		
- 3,858 1 6	2,996 14 -	completed, sea-	
s.6,244 sanctioned for the con- struction of falls, or masonry		son 1844-45.	
descents, for the passage of the waters.	en e		
- 42,084 11 9	41,207 2 4	constructed, sea-	the object for which this watercour
	ائو ما و فات ا	son 1844-45.	was constructed has been fully obtaine the water running in a clear and pu
		·	stroam.
-Rs. 2,000 advanced -		constructed, sea- son 1844-45.	
		4 M	
- 1,608	1,608	constructed, sea- son 1844-45.	
	· · ·		•
	2,500	constructed, sea-	
		son 1844-45.	
		n an 1997 1997 1997 1997 19 De la companya ang sa	and the second sec
	- -		
2,315 8_10	3,330 9 9	completed, sea- son 1840-41.	the savings are ascribed to the su stitution of gratings at the depth of a feet, instead of cylinders, under the win walls.
. 1,779 13 2	1,779 18 2	completed, sea-	the cut has since been widened, by t
		son 1848-44.	action of the current, to twice its origin dimensions.
- 9,577 5 2		completed, sea-	the roadway is of timber, and is su
		son 1841-42.	ported on mesonry piers.
- 13,267 7 5	•	completed, sea- son 1840-41.	
1 ·		алан улд 199 т	
15,717 14 2	18,122 15 5	completed, sea- son 1842-43.	the soil through which the new cut w to be excavated, proved to be so saturate with water as to prevent a greater dep
			of excavation than four feet being attaine The action of the current has howev cleared out the channel to the depth
			eight or nine feet.
	548 15 10		
			• • • •
na ,	1,141 - 10	,	•
		•	ere y f
	•		
			•

NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement	Place of Termination, or of intended Terminatio
Canals, North W	astern Provinces—continued.		
Deyrah Doon : Construction of Corn Mills.		sanctioned, 6 July 1844, and 30 August 1844.	under . th town of Rajpore
Compensation to Indivi- duals for Loss of Pro- perty and Profit.	in consequence of the water from the old Rajpore watercourse having i been turned into the masonry channel.	sanctioned, 18 May 1845; sanctioned, 24 July 1845.	i *ima, μα∕π, μα
Re-construction of the Dakra Aqueduct.	this aqueduct was severely da- maged by heavy rain, on the 27th July 1844.	sanctioned, 2 December 1844 -	
Repair of 13 Tanks -	to making them serviceable as reservoirs for irrigation.	sanctioned, 10 July 1845 -	™ щ '/ ′н
Dooab Canal			
			•
•			,
	· · · · · · · · · · · · · · · · · · ·		
		-	
Restitution of the Now- gong Dam, and Con- struction of a Retaining Dam.	greatly injured by a flood, on the 21st June 1841.	sanctioned, 24 March 1848 -	• • •
Constructing the Outlets of the Head of the Pu- thine Rajbuha, in the North Division of the.	- with the intention of protecting the head supply, as well as giving the power of delivering water into the rajbuha, or irrigation channel, with greater facility.	sanationed, 20 September 1844	
Clearance of the Khorra Head of the Canal.	in consequence of a change which took place in the main channel of the Jumna, towards the close of last rains.	sanctioned, season 1844-45 -	
Dadoopore Dam : Protection of the East flank of the.	by securing the right bank of the Jumna against further encroachments of that river.	sanctioned, 26 July 1845 -	•
Measures for the Security of the Canal Works,	the floods of July 1845, from their long duration and extreme violence, did considerable injury to the crib spurs intended for the protection of	sanctioned, 19 March 1846 -	
	the right bank of the Jumna, to the earthen bund on the Sombe.		
Delhi Canal : Improvement of the Em- bankments of the.	with a view to confine the canal within certain limits.	sanctioned, 9 September 1845 -	near Hissar
Construction of 20 Second- class Chowkies, and furnishing Chowkies.	necessary to enable the Superin- tendent and his establishment to pass with convenience and rapidity along the line.	sanctioned, 1 December 1845 -	

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RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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	Amount o	af		Estimated	Amount	Probable	ł	
	Expense inca	cred.		for Comp	letion.	Time of Completion.	REMAR	K S.
	Rs. a.	р.			1	-		
	4,998 2	-		for 8 miles "6"	, Rs. 5,414 3,960			
		•			Rs. 9,374			•
	2,732 18	-				4	ten miles already con	structed by Concern
-	4,205 -	-		Rs.	a. 1).	· · ·	i ment on the watercours	A. have been rented
	1,542 10	1	• : •	1,480		completed, sea-	for upwards of 4,000 ru	pees per anuum.
1	,					son 1845-46.	•	
N	5,004 10	7		5,00≰	10 73	season 1845-46.		
M 7 A			• -				total amount ex-	
		•					pended on account of causi works, including	
				· ·	• •		current expenses, to 1 May 1847	Rs. a. p. 23,20,868 11 7
					•		Deduct, value of Dead Stock -	
			•			States and	Dead Stock -	8,01,983 12 2
		•				· · · ·	Amount realized	15,19,884 15 5
	•					•	by revenue - Deficit - Co's. Rs	14,63,196 4 I1 65,688
							The amount expend	
•	-	2 			, *	1847. was F	n the banks of the Donak (a. 21,182. 12. 2. The . 0.; and the value of the 93 rupees.	amount realized
	00.001	: : •					••••••••••••••••••••••••••••••••••••••	
••••	86,694 4	5	•	30,745	·····			
* * *	36,694 4	5		30,745	 ,			
•	86,694 4 656 9	5	• •	30,745	8 8			
• •		5			8 8	completed, sea- son 1846-47.		
• •		5	• •		88	completed, sea-		
•		5			88 88	completed,sea- son 1846-47.		
•		5	•	661	88 88	completed, sea-		
•		5		661	88 46	completed,sea- son 1846-47.		
	656 9	5 		661 1,871	88 46	completed, sea- son 1846-47. season 1844-45.		
		9		661	 8 8 4 6	completed,sea- son 1846-47.		· · ·
	656 9	5		661 1,871	 8 8 4 6	completed, sea- son 1846-47. season 1844-45. completed, sea- son 1846-47. completed, sea-		
• •	656 9 6,717 6	9		661 1,871 6,073	 8 8 4 6	completed, sea- son 1846-47. season 1844-45. completed, sea- son 1846-47.		
• •	656 9 6,717 6	9		661 1,871 6,073	 8 8 	completed, sea- son 1846-47. season 1844-45. completed, sea- son 1846-47. completed, sea-		· · ·
	656 9 6,717 6	9		661 1,871 6,073	 4 6	completed, sea- son 1846-47. season 1844-45. completed, sea- son 1846-47. completed, sea-		
• •	656 9 6,717 6	9		661 1,871 6,073	8 8 4 6 	completed, sea- son 1846-47. season 1844-45. completed, sea- son 1846-47. completed, sea-	in consequence of too in the original construct startly floods the land	ion, the canal con-
	656 9 6,717 6 15,211 -	9		661 1,871 6,073 14,647	8 8 4 6 	completed, sea- son 1846-47. season 1844-45. completed, sea- son 1846-47. completed, sea-	in consequence of tog	ion, the canal con-

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE ____

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		1	
NAME of WORK.	OBJECT	Length,	Place of Termination,
NAME of WORK.	CONSTRUCTION.	and Date of Commencement.	or of intended Terminatic
Canals, North W	Vestern Provinces-continued.	· · ·	
Delhi Canal, Construction of five First-class and six Second-class Chowkies.	senctioned, alter personal in- quiry as to their necessity.	sanctioned, 7 May 1845 -	
booab Canal: Construction of three Bridges on the.	- to facilitate the communication of the country. At present the villagers, with difficulty and incon- venience, ford the canals at their respective ghauts.	sanctioned, 8 April 1846 -	at Admerpor Kyampore, an Behlap, in th South Division.
Alterations to 15 Bridges on the.	with a view to give an increased and less impeded waterway.	sanctioned, 28 March 1846 -	in the Centr Division.
Digging of the Manti Rajbeeha on the.	to give a supply of drinking water to 33 villages in the district of Scharunpore, and for irrigation.	sanctioned, 22 November 1841	•
Construction of a Dam with Bridge for.	for securing all the Dooab Canal escape water for the Delhi Canal.	sanctioned, 23 October 1841 -	at Fysabad
	•		-
Construction of Drains for Irrigation.	a a ajta attat	sanctioned, 31 May 1831 -	
Construction of a third Chamber at the Ghinea and Megla Falls,	- • to facilitate repairs, and to avoid the necessity of forming cuts around the falls for the passage of water, and thereby admitting silt at the same time into the canal.	sanctioned, season 1838-39 -	~ ~ ~ ~
Construction of a third Chamber at the Rundole and Bobyla Falls.	;	sanctioned, season 1838–39 💈 -	-
Construction of a Fall at Behut, between the Muskarra Dam and Bekia Falla.	to lessen the velocity of the water in that part of the Dooab Canal, and its injurious effects on its bed and sides.	sanctioned, 14 March 1837 -	• *
Construction of an ad- ditional Tail to the Nowgong Dam.	necessary for the safety of the dam	senctioned, 19 April 1842	
udoopore Dam	repair of breaches made by floods in July 1845.	sanctioned, 18 August 1846 -	
elhi Canal : Construction of a Pucca Revetment.	this work will conduce to the appearance of the canal, and to the comfort, and perhaps even the health of the inhabitants of Delhi.	sanctioned, 3 September 1846 ~	
Construction of 114 Ma- sonry Outlets on the Banks of the Canal.	• • • •	sanotioned, season 1846-47	
ooab Canal : Improvement to the Ro- malls and Kandraoli Bridges.	to remedy the inconvenience ex- perienced in the free transit of boats between Selimpore and Shamli.	sanctioned, 8 June 1846	Dooab Canal
Construction of 60 Cross Drains attached to the ramps of 30 Bridges.	the ramps are high and massive, and as they intersect the natural drainage of the country at right angles, the rein-water, without these drains, would have accumulated on the uner side of the remea and	sanctioned, 5 March 1847 -	
	the upper side of the ramps, and noxious swamps have been formed.		

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	TURN FOR THE PRESID		· · · · · · · · · · · · · · · · · · ·
Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p. - 9,133 4 10 -	completed, sea- son 1845-46.	
4,004 - 9	- 4,394	completed, sea- son 1847-48.	
- 7,270 8 9	- 8,528	completed, sea- son 1847-48,	
· · · · · · · ·	an advance of 19,120 rupees, sanctioned on the 22d Nov. 1841.	•	the return to the state will be abou 5,500 rupees per annum.
13,881 3 1	- 13,304	•-completed, sea- son 1843-44.	this outlay will soon be repaid by th return derived from the employment i irrigation of the quantity of water nor lost, and by the annual saving of th expense of temporary bunds.
16,221 8 2	- 16,376 8 2 -	completed, sea- son 1841-42.	
20,761 11	- 13,518 5 3 -	son 1841-42.	the estimate is exceeded by the amount of Rs. 7,243. 5. 9., owing to the difficulties which had to be overcome.
. · · ·			
7,996 3 1	- 10,178 - 2 -	completed, sea- son 1841–42.	there not having been any natur difficulties to overcome in this work, th charge is by Rs. 2,181. 13. 1. less the the sanctioned estimate.
22,885 15 6	- 14,743 - 9 -	completed, sea- 1841–42.	owing to the difficulties met with the execution of the work, the bill h exceeded the estimate by Rs. 8,142. 14. 5 but no blame straches to the Executi officer.
	- 18,000	completed, sea- son 1842–43.	this dam was almost entirely destroy by a severe flood on the 21st June 184
1,756 6 1		completed, sea- son, 1846–47.	
۰ ۱۹۹۰ - ۲۹۹۹ میلاد میلاد است. ۱۹۹۰ - ۲۹۹۹ میلاد است. ۱۹۹۰ - ۲۹۹۹ میلاد است.	- 9,277		
16,059 12 2		completed, sea- son 1846-47.	these are fitted with lever frame lever sluice, and shutters.
2,347 13 5	- 2,338	completed, sea- son 1847-48.	the superstructure of these bridges in been raised.
	- 5,174 6 -		
622.	j :	G	. (continued)

- - RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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RETURN FOR THE PRESIDENCY OF BENGAL-continued. Place of Termination, OBJECT Length, NAME of WORK. of or of and Date of Commencem CONSTRUCTION. intended Termination Canals, North Western Provinces-continued. Dooab Canal : Protection of the Gunde-- considered indispensable to the sanctioned, 17 December 1846 safety of the bridge, which has been considered for some time past in a war Bridge by a masonry Tail. precarious state. - - it was considered desirable to Construction of a Firstsanctioned, 10 December 1846 have a depôt for tools and stores at class Chokee at the the head work, instead of having to Kharra, or upper head of the Canal. depend on that at Nyaskur, the nearest first-class chokee, which is at a distance of 64 miles from the Kharra head, Delhi Canal, repair of the to increase the waterway sanctioned, 23 June 1847 Madhilpore -Madhilpore Bridge over the. at er Delhi, Reconstruction of Nos. 17 and 18 sanctioned, 18 March 1847 Delhi Water Mills' Range. Delhi Canal: - - these artificial banks constructed Formation of Road Emsanctioned, 19 September 1845 on low ground, confine the waters of the canal within their limits, and prevent the formation of swamps. bankments. - for a dispensary and quarters for the sub-assistant surgeon appointed to the medical charge of the canals Construction of Buildings sanctioned, 17 February 1848 -Dadoopore at Dadoopore. Dooab Canal : Construction of Masonry for the protection of the banks sanctioned, 5 June 1847 -Heads to nine Rajbuhas. Dooab Canal 1 Construction of two Flour - - in order that advantage might be sanctioned, 5 August 1847 Mills on the Cardbunna taken of water-power available in and Madhoopore Rajthese rajbuhas. buhas. Construction of a second - - to prevent the stoppage of the mills when the supply is cut off from sanctioned, 28 August 1847 Head to the Scharunpore the first head, to enable the workmen Mill Cut. to clear away the silt, which is freely deposited in this channel. Construction of the Amith - this cut was made to enable the sanctioned, 30 May 1846 Mhow Cut, with two natural drainage of a large tract of - in Pergunnah Masonry Bridges. ground to pass freely through the Gungo, Zillah Scharunpore. canal embankments. ... Deyrah Doon, Repairs to the Rajpore Watercourse. - - the Ruspinmah River has been sanctioned, 12 May 1847 turned back to its old channel.

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	unt of Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
Rs.	a. p.	Rs. a. p.		
		9,021 2 -	3	
·	,	1,198 7 4		•
•				
nin tara ang marina na ang ang ang marina ang ang ang ang ang ang ang ang ang a		2,490		- the eastern abutment of the brid was turned by the floods of August 18 and as the canal is about 20 feet wi
				than the length of the bridge, it is p posed to reconstruct the abutment a pier, and to add an arch of 22 feet to bridge.
- 681		681	reconstructed, season 1847—48.	
- 13,974	66		completed, sea- son 1847–48.	the swamps originated in too great economy in the construction of a can which was led through low and broi ground without any measures being adop
960	159	1,029	completed, sea- son 1848-49.	to confine its water.
		3,631 11 -		
 ·	•	2,878 2 8		there is every veason to believe t the outlay will be turned to good account
	· · · · ·	2,198		
				•
1,436	88	• • • •	constructed, season 1847-48.	the land thus relieved from standi water is now available for sultivation.
1,573		1,578	completed, season 1847-48.	

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NAME of WORK.	OBJECT of	Length,	Place of Termination,
NAME & "CAS.	CONSTRUCTION.	and Date of Commencement.	or of intended Terminatio
Boode and Br	idges, South Western Provinces		
	, -		in the 24 Pe
Diamond Harbour and Barri- poor Roads, Repair of the portion between Gurria- haut and Barripore.	- both these lines are much out of repair, and are much wanted to enable the cultivators to bring the produce of their lands to Calcutts.	sanctioned, 6 April 1841 -	gunnahs.
		·	
Roads and Br	idges, Lower Provinces :	· · · ·	
audpore to Sheerpore, Construction of a new Road.	in lieu of a road which had been carried away by encroachments of the River Ganges.	length, 13 miles; sanctioned 4 June 1839.	Sheerpore -
ondcondy to Mungdo, Construction of Forty Wooden Bridges.		sanctioned, 27 May 1841 -	Chittagong t the Ferry nee Company kattat
Parjeeling and Calcutta Road.	- to perfect the communication be- tween Calcutta and Darjeeling, which new station is becoming a place of general resort for invalids.	length, about 363 miles; sanctioned, season 1840-41. Berhampore to Baraset, 120 miles; Baraset to Kishnagur, 50 miles.	Calcutta
			and and a second se
			•
		-	
	•		
arjeeling, Road from, to the foot of the Hills.	- this work, when finished, will be eminently useful.	length, 33 miles and 181 yards; sanctioned 30 November 1840 and 1841.	Hills abo Darjeeling.
	na Saban en		2 1
· · · ·	t at		
	·		
	· · · · · · · · · · · · · · · · · · ·		
arjeeling Road : First Division ; Construc- tion of Three Bridges and Six Drains.		sanctioned, 28 December 1841	Berhampore -
Second Division; Con- struction of Wells.	for the convenience of travellers -		between Bu gatchee and D nagepoor.
Construction of Roads in the Neighbourhood of, including the "Auck- land Road."	for facilitating the means of com- munication.	length, about 4½ miles; sanctioned, season 1844-45.	Darjeeling
inapore to Bankipore ; Re- construction of the Pucka portion of this Road.	this road connects the city of Putns with the cantonment of Dina- *pore.	length, about 7 ¹ / ₂ miles, from the main guard bridge at Dina- pore, to the parade at Banki- pore.	Bankipore
epair of the Road between Dum Dum and Cossipore.		length, 3 miles; sanctioned 3 December 1839.	Cossipore -
inagepoor Bridge, over the Guggrah Nulluh at.	required in the place of the Creighton's pucks bridge, which was destroyed by an inundation in July 1841.	- • the water-way of this bridge is 191 feet in length; sanc- tioned, 9 January 1843.	Dinagepore*

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Amount of Expense incurred,	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p.	- The Arithman Arithman	an an Africa Anna
10,190 12 2	10,190 12 2	season 1841-42 -	- an attempt was made to obtain the assistance of the landholders; but nearly all the estates along the line were under the management of the Government officers and accordingly the State was, in fact, the
			zemindar.
1	•	مندية و ملائم ملائم منابع	
1,692 4	1,592 4 - th	season 1839-40 -	this new line is taken well inland.
	an dia mandri		n an
- 3,625 6 8)- · -	3,625 6 8	completed, sea- son 1841–42.	all the masonry bridges on this line ar being repaired, great damage having been done by an unusually severe flood.
- the work has been performed under divisional superinten- dence. No general return of the amount of advances has been prepared; but so far as can be ascertained, the amount expended		completed, sea- son 1848-44.	the old line of road between Berhampor and Dinagepore via Malda, has been abar doned, and a new line, 30 miles shorter adopted. This road was reported to hav been put in a perfect state of repair as dry-weather communication, and it woul
for road works, bridges and bungalows, to the period of its completion, has been about 95,957 rupees.			only require ordinary repairs after the rains of each year. It had been intended when the road was first projected, to emplo convicts extensively on it, but owing the great sickness, the convicts were entirely withdrawn.
the aggragate cost of this line was 66,829 rupees, includ- ing that of bungalows, &c.	28,396 11 2	completed, sea- son 1840-41.	• • - this road has been opened for foot par sengers by Lieutenant Nupier, of the Eng neers, and is quite practicable to traveller and laden Coolies. Of this line, 283 mile
		and 6½ to 6 attended wi is owing to	to the full width of 11 feet; 8 miles to 9 fee feet. The execution of the work has been the great labour; the excess of expenditur the employment of hired lubour in lieu of the opers, a sufficient number of whom could not
7,087 10 21	7,087 10 22	completed, sea- son. 1844-45.	•
- 436 6 6	436 6 6	- ~ constructed, season 1842-43,	
4,499 8	n na standing ang sa standing sa standi Sa standing sa standing sa Sa standing sa	completed, sea- son 1844-45.	
	1,276 7 9	د ه این از این ا س از این از این این از این از این از این این از این از	the width of the metal is 26 and 20 feet.
			 * e) e
	6,776	completed, sca- son 1839-40.	this is a pucka road.
6,601 11 6}	8,260 11 2	completed, sea- son 1847-48.	

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

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			1
NAME of WORK.	OBJECT of	Length,	Place of Termination,
HAME OF WORK.	CONSTRUCTION.	and Date of Commencement.	or of intended Terminatio
Bonda and B	nidgen North Western Province		
	ridges, North Western Province	1	Shamlie -
Delhi to Shamlie vid Kur- naul, Estimates for Bridg- ing and Metalling the Road.		estimate submitted, July and August 1840.	STRAILE -
Delhi:			1
Projects for a permanent Communication across the Jumna at.	the point proposed is important in a military point of view, as it would provide the ready means of access to	submitted to the Lieutenant- governor on the 8d April 1846.	Delhi -
	the city of Delhi, and the arsenal it contains, from the neighbouring can- tonment of Meerut, in the Dooab.		
	In a commercial point of view, it is important to connect Delhi with the		
	grand trunk road, and so form a	•	n an
	good means of transit for the valua- ble merchandize which passes through	and the second se	-
	Delhi in either direction from the	n 198 Nettyrol nar Bonna	
•	LUGE OL WODEL	$(\mathbf{x}_{1}, \mathbf{x}_{2}) = \mathbf{\hat{\mathbf{y}}}_{1} \mathbf{\hat{\mathbf{y}}}_{2} \mathbf{\hat{\mathbf{y}}}_{2}$ (15)	El contra complete a con
	-		
		₩ ··· = #	
		n grund frankrigerigerigerigerigerigerigerigerigerige	
Construction of a Cause- way on both banks of the River Jumna, hav-	• • • • • •	sanctioned, 22 July 1846 ~	from the ter minus of the
ing two openings, each duly provided with			grand trunk road at Selempore to the Negumbode
Pucca Bridge Heads, for the passage of the waters of the river.	•		gate of the city.
1			
Roads and Bri	dges, Central Provinces:		
ecokullee Bridge over the Gungee Nullah, on the Rosd from Benares to Ghazeepore.	- this bridge was required in the place of one built in 1820, which, owing to an insufficiency of water- way, fell in the year 1830.		
ceodee River, Construction of a Causeway across the.	to superseds the construction of a bridge, which would have cost, by a rough calculation, about 40,000 rupees.	sanctioned, 7 October 1846 -	
ו נדר ב מ			
	idges, South Eastern Provinces		
um Dum to Baraset, Re- pairs of the Pucks Road.	- forms a part of the road to Dar- jeeling.	length, seven miles; sanc- tioned 15 April and 31 May 1844.	Baraset -
arjeeling Road, Construc- tion of 13 Houses.	for the accommodation of dawk- bearers, and to prevent their resorting	sanctioned, 23 May 1843 -	between Bar- gatchee and Tit-
	in bad weather to the villages at some distance from the road for protection,		talya vid Dinage pore.
	and thus occasioning much delay and inconvenience to travellers.		Print a lite
· ·			
Civil Building	s, Central Provinces; Judicial:		
unoh, Construction of a fortified Gaol at.	• • • • • •	sanctioned, 16 April 1845	Dumoh -
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	Amor			Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
	Rs. a.	p.		Rs. a. p.		
-			-	2,95,056		the work has been placed in the hands of the local Civil Officer; the expense to be defrayed from local funds.
By	1st Scher a Causeway Causeway Bridge of b	and Bridg	e of B	Boats :		the Governor-general admitted the im- portance of the work, but was neverthe less of opinion, that in the present state of the finances, other public works of still preserve whilter much here the present
	2d Scher	ne •	I COLL			greater utility must have the preference.
By	a Suspension Suspension Causeway	1 Bridge a	nd Cau -	186way: Rs.7,00,000 1,50,000		
	8d Scher	ne ·	Total	Rs. 8,50,000	•	
By	a Masonry I Masonry b Causeway	Bridge, wit ridge	h Can	meway: Rs.4,50,000 1,50,000		
			Total	Rs. 6,00,000		
•		· · · · ·	-	1,37,481	the G	the less expensive project of a cause way with two openings was sanctioned by overnor-general in July 1846. The main g having a span of 2,800 feet, the other
	· · ·				frat m	11
•	- 14,087	- 3 -	-	the immediate spac will be filled by s bridge of boats, which	the flor water * * * feet), completed in season 1841-42,	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river an uninterrupted waterway of 2,670 feet.
	- 14,087	· 3 -		will be filled by a	the flor water completed in season 1841-42.	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river a an uninterrupted waterway of 2,670 feet.
	- 14,087 - 7,866	- 3 -		will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Commit-	the flor water completed in season 1841-42.	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river e an uninterrupted waterway of 2,670 feet. this bridge is of three arches, of 8 feet span each. the length of the pucca pavement i 201 feet clear roadway, of which 156 fee
	- 7,866	· · · ·		will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Commit- tee. 7,909	the flor water & feet), completed in season 1841-42. completed, sea- son 1846-47.	the length of the pucca pavement i 201 feet clear roadway, of which 156 fee are level, and raised 1 foot above the
		· · · ·		will be filled by a bridge of hoats, which will be formed and maintained by the Ferry Fund Commit- tee.	the flor water & feet), completed in season 1841-42. completed, sea- son 1846-47.	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river e an uninterrupted waterway of 2,670 feet. this bridge is of three arches, of 8 feet span each. the length of the pucca pavement i 201 feet clear roadway, of which 166 fee are level, and raised 1 foot above th
	- 7,866	· · · ·		will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Commit- tee. 7,909	the flor water & feet), completed in season 1841-42. completed, sea- son 1846-47.	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river e an uninterrupted waterway of 2,670 feet. this bridge is of three arches, of 8 feet span each. the length of the pucca pavement i 201 feet clear roadway, of which 166 fee are level, and raised 1 foot above th
	- 7,866	· · · ·		will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Commit- tee. 7,909	the flor water & feet), completed in season 1841-42. completed, sea- son 1846-47. completed, sea- son 1844-45. completed, sea-	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river e an uninterrupted waterway of 2,670 feet. this bridge is of three arches, of 8 feet span each. the length of the pucca pavement i 201 feet clear roadway, of which 166 fee are level, and raised 1 foot above th
	- 7,866	· · · ·		will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Commit- tee. 7,909	the flow water & feet), completed in season 1841-42, completed, sea- son 1846-47. completed, sea- son 1844-45. completed, sea- son 1845-46.	ting of 80 boats 24 feet wide, drawing 1.6. assuming the main depth of the river an uninterrupted waterway of 2,670 feet. this bridge is of three arches, of 8 feet span each. the length of the pucca pavement: 201 feet clear roadway, of which 166 fe are level, and raised 1 foot above th
	- 7,866	· · · ·		will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Commit- tee. 7,909	the flor water & feet), completed in season 1841-42. completed, sea- son 1846-47. completed, sea- son 1846-46. completed, sea- son 1846-46. completed, sea- son 1846-46. completed, sea- son 1846-46.	ting of 80 boats 24 feet wide, drawing 1.6. (assuming the main depth of the river an uninterrupted waterway of 2,670 feet. this bridge is of three arches, of 8 feet span each. the length of the pucca pavement i 201 feet clear roadway, of which 166 fee are level, and raised 1 foot above th

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56 RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

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NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement-	Place of Termination, or of intended Termination.
Civil Buildin	gs, North Western Provinces ;	Judicial :	
Delhi Gaol : Construction of Gaol Wards, with Cook- rooms and Guard-rooms.		season 1841-42	Delhi
Delhi Hospital	for insunes	sanctioned, 9 March 1841 -	•
Deyrah Gaol		sanctioned, 1888-39	• • •
		/•·•	•
Delhi Gaol Hospitel, Con- struction of a new Roof.		sanctioned, 16 August 1841	
Delhi, Construction of a new Kotewallee for the City, and a Lock-up House.	the old kotewallee is in a dan- gerous dilapidated state, part having already fallen.	sanctioned, 4 April 1845	Delhi -
		and a second	90 ¹⁵
Delhi Penitentiary, Addi- tions to the.	in compliance with the orders of the Lieutenant-governor for the in- troduction of a capstan mill, to be worked by the prisoners.	sanctioned, 23 May 1845 -	- ditto
Civil Building	s, Lower Provinces; Judicial:		1
Dinagepore Gaol : Drainage and Ventila- tion of the.	to improve the salubrity -	sanctioned, January 1840 and April 1841.	Dinagepore -
Addition of 18 Skylights	ditto	sanctioned, 28 February 1842 -	- ditto ' ' '-
Dacca Insane Hospital ; Construction of additional Cells.	in consequence of the insufficiency of the accommodation.	sanctioned, 24 July 1843 -	Dacca .
Construction of quarters for the Native Doctor and Darogah.	ditto	sanctioned, 26 December 1843	- ditto
Durrang, Construction of New Buildings.	in lieu of the existing cutcherry gaol and thannah, which are in a totally decayed state.	sanctioned, 3 November 1841 -	Durrûng
Debrooghur : Construction of a Gaol at	for the accommodation of 196 prisoners, males and females.	sanctioned, 3 April 1843 -	
Construction of a Circuit Bungalow.	in consequence of the incon- venience experienced by the Deputy Commissioner in holding his court, from the want of proper buildings.	sanctioned, 14 August 1843	Debrooghur
Dumoh, Construction of a new defensive Gaol.	• • • • • •	sanctioned, 27 January 1844 -	Dumoh

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	Amount of Expense incurred.	Estimated Amount	Probable Time of Completion.	REMARKS
			Ande of Completion.	
	Rs. a. p.	Es. a. p.	an An Anna an An Anna an An	
	9,542 5 11	9,999 - 3	completed, sea- son 1842-43.	
			×	
ole	- 25,723 - 10 xelusive of Rs. 399. 5. for earing and levelling a portion the site for the ssylum.)	26,963 4 1	completed, sea- son 3846-47.	- the plan provides for a main building, a separate place for convalescents, and for a garden.
1				
	- 18,558 11 6	15,808 2 7	completed, sea- son 1840-41.	- the excess of Rs.2,744. 8. 11. over the estimated cost, is owing to a failure in the Executive Officer's kilns, and the ne- cessity he was under of purchasing bricks
	•			from the bazaar, and also to the execution of additional work.
	2,586 6 1	2,757 15 -	completed, sea-	
	. = 2,586 6 1		son 1842-43.	n an
fo	r the lock-up house : 2,869 10 10	- for the Kote- wallee5,929 1 4 Lock-up house 2,446 5	completed, sea- son 1846-47.	the execution of these works devolved on the Magistrate.
	1	Rs 8,375 6 4		
		1,858 10 6	completed, sea-	•
			son 1846-47.	and the second sec
÷	•			
	- 3,227 10; 8	8,780	completed, sea-	
*		and the second	son 1842-43.	
•	- 8,149 18	8,149 13 -	season 1842-48.	
	- 1,228 5 4 - · ·	1,228 5 4 .	constructed, sea- son 1848-44,	
-	يوني موجود من	n • • Silise pierren i la • a •	completed, sea- son 1848-44.	
- -				
	1,217 11; 7. pice -	1,158 11 -	completed, sea- son 1844-45.	
	- 6,495 1 10	, i. j. 6 , 506 57 ,	completed, sea- son 1844-45.	na series ander 2 € series en en en La grande Series Series ander Series
•	1,180 2 11	/ 1,746 2 6	completed, sea- son 1845-46.	in a substantia de la companya de la Companya de la companya de la company Companya de la companya de la company
				na serie de la construcción de la c
	a an	16,662 14	•••	- Government expressed a desire that the buildings should be calculated for defence by a small body of men, and that provision
•	•		,	should be made for the occasional close confinement of all the prisoners, so as to enable a small body of troops to retain the prisoners.
		ł	T	(continued)
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	OBJECT	Length,	Place of Termination,
NAME 'of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination.
Civil Buildings,	Lower Provinces ; Judicial-continued.		
beebrooghur, Construction of a new Cutcherry.	in lieu of a similar one con- demned hy the Annual Survey Com- mittee.		Deebrooghur -
Dinagepore, Improvements to the Magistrate's Cut- cherry, by the construction	the insufficiency of the existing building was brought to notice by the Civil Anthorities, who preferred	sanotioned, 7 July 1847 -	Dinagepore
ofa Room with Varandahs.	the present arrangement for improving the buildings to assigning the upper epartments of the Judge's old cut- oherry to the Magistrate, which would have been difficult of access to the poor.		
ebrooghur, Construction of a new Gaol Hospital.	the new hospital will be built on a better site; the present buildings, owing to the want of ventilation, are very damp and unkeelthy	sanctioned, 12 May 1847 -	Debrooghur -
Civil Building	s, North Western Provinces ; F	levenue :	-
atagunge, in the district of Budaon, Construction of a Tehsildarry Cutcherry at.	میں ہوتے ہوتے ہیں۔ ایس راغلار یا ہوتے ہیں۔ مرید ایر ایک میں ایک میں	sanctioned, 13 December 1838	Datagunge -
Civil Building	s, North Western Provinces ; G	eneral :	
elhi: Improvements to the Staging Bungalow.	the alterations consist in the ad- dition of new dressing and bath- rooms, the construction of a veran- dah, and throwing a thatch roof over the flat one.	sanctioned, 9 April 1845	Delhi
New College at	altering the Residency buildings, to adapt them for a college.	sanctioned, 26 November 1846	1
ongurtal, on the road be- tween Nagpore and Seonee, Construction of a Staging Bungalow.	for the convenience of travellers -	sanctioned, 8 August 1840 -	
umow, Construction of a Dawk Bungalow and Out- offices.		sanctioned, 21 June 1842 -	Dumow -
earee, Enclosure of the Burial-ground.		sanctioned, 26 September 1844	on the Burd- wan and Benares Road.
Civil Building	I s, Lower Provinces ; General :		
acca College	• • • • • •	sauctioned, season 1842-43; estimate revised, 16 October 1844.	Dacca .
Construction of a sur- rounding Wall and Out- offices.		sanctioned, 80 September 1846	• • •
ebrooghur Road to Jaipore, Construction of two Se- races on the.		sanctioned, 30 April 1845	, :: : : • • . : : • • . : • • .
arjeeling, Construction of Staging Bungalows at Carrogolab Ghaut, Pur- neah and Kishengunge.	for the use of Europeans and their families proceeding from the Western Stations, and from Calcutta to Darjeeling.	sanctioned, season 4846-47	Darjeeling -

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Amount o	4 ·	Estimated Amount	Probable	
Expense incu	rred.	for Completion.	Time of Completion.	REMARKS
Rs; a. 900 -	p.	Rs. a. p. 5,832 1 7	Besson 1847-48 -	the purchase of Captain Fagan's bun- galow for 900 rupees, for a cutcherry, was authorized on the 9th June 1847, as the site was better than any other that could be obtained.
anna ann ann ann ann ann ann ann ann an	• • • • • • •	8,927	en la el marca de la marca	- the room is to be 40×24 feet, with a 10-feet verandah on the east, west and south sides.
• •		-	n an Araba Marina an Araba Marina an Araba	
				 A A
		681 1 4		
			to an element of the second	
4,360 12	يەرىكى ھا ب	4,860 12 -	constructed, season 1838-39.	
· · ·			-	
1,849 10	1. 	1,849 10 -	completed, sea-	
- 5,699 1	8	6,242 8 6	completed, sea- son 1847-48.	
1,068 5	6	1,075 0 1	completed, sea- son 1841-42.	- this route is much frequented by per- sons on their way to or from Bombay.
= = 1,478 14	· 7 _ [™] <_	1,478 14 7	completed, sea- son 1843-44.	
- 552 10	1841-1-1-L	612 4 -	completed, sea- son 1846-47.	
1				an an an an A
- 33,707 14		20,568 5 10 the Government con- tribution not to exceed 17,000 rupees. An additional outlay of 11,874 rupees, sancti-	completed, sea- son 1848-49.	the additional outlay of 11,874 rupees was found necessary for the construction of a building in every respect suited to the purpose intended.
-" - 3,137 -	U ,-	oned 16 April 1844 3,187	constructed,	
- 7,ŏ00 -	• • • • •	500	season 1846-47.	the Superintendent of Darjeeling re- presented the very great incouvenience ex- perienced from the want of such accom- modation.
ó22.			н2	(continued)

- . RETURN FOR THE PRESIDENCY OF BENGAL-continued

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA IN THE

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	OBJECT		Place
NAME OF WORK.	of	Length,	of Termination, or of
	CONSTRUCTION.	and Date of Commencement,	intended Terminatio
Civil Buildings,	Lower Provinces; General-continued	1	
Dacca, Rebuilding the En-		sanctioned, 23 September 1846.	Dacca
closure of the Old Burial- ground.	of 1845.		
Civil Buildin	gs, Lower Provinces; Political:		
Debroo Mookh, Grant for	this station promises to become a		, the site is
Temporary Buildings at the New Station of.	place of considerable trade, being particularly convenient for many of		the bank of t
	the tea localities, and for the export		called the Mech
	of grain and cotton from Mattock.	Gooter, three miles up from of the Berhampooter.	the main stream
Darjeeling, Construction of	these consisted of a magistrates'	Resolution of Government,	w. · · · • .
Public Buildings at the Civil Station of.	cutcherry, a hospital, thanah, bazaar shops, out-offices, tanks.	Political Department, 23 May 1838.	
	anops, our ondes, thurs,	1000.	•
Civil Building	s, Central Provinces; Political:		_
Dumoh, Construction of	as quarters for the Adjutant and	sanctioned, 11 March 1844	Dumch -
Buildings.	non-commissioned officers of the 2d Police Battalion.		
Cial Date			
	s, North Western Provinces; F		
Delhi, Excavation of a New Tank.	required in front of the Delhi Palace.	sanctioned, 3 February 1845 -	on the site con monly called t
elhi Palace, Repairs to -	and the second		Goolabaee Bagh.
		estimate submitted, 27 Feb.	Delhi
Canals, South	Eastern Provinces :		, · ·
intallee Canal, Excavation			
of Mud from the Bed of the.		senctioned, 9 January 1848	
astern Canals, Clearance of	to complete the tracking commu-	sanctioned, 25 September 1843	
the Embankments.	nication along them.		
ntallee Canal, Excavation of Deposit from the Bed	and an	sanctioned, 18 April 1846	Anglishing ang
of the.	n an		
' Roads and Bri	dges, Lower Provinces ;		, ,
ridge at Ektearpore, on the		of five arches of 20 feet span	
Road from Jounpore to Buxar.		each, sanctioned 6 February 1838.	
Cial D	Nanth W.		•
tawah New Gaol, New Gaol	, North Western Provinces; Ju		•
Buildings.	offices for the Magistrate and Col- lector.	sanctioned, May 1840	tator
l Civil Building	North Western D		11
	a, North Western Provinces ; G	· · · · · · · · · · · · · · · · · · ·	
Staging Bungalows.	me accommodation of travellers -	sanctioned, 7 January 1846	Etawah -
Civil Building	s, Eastern Settlements ; Genera		
EASTERN SETTLEMENTS ;	, venencents ; veners		
ngapore	Hospital for Convicts	sanctioned, June 1837	
	Market at Company Glam Enclosure to Gaol	sanctioned, January 1836	
		sanctioned, July 1838	

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12 RETURN FOR THE PRESIDENCY OF BENGAL-continued.

Estimated Amount Penhahla Amount of REMARKS. for Completion. Time of Completion. Expense incurred. н÷, Rs. a. p. Rs. a. p. ~ 81 season 1847-48. 680 _ . 2,700 season 1839-40. . . • 15,087 15 - 7 . -- completion re-ported, season 1843-44. 154 4,652 15 5 - - completed, sea-4,605 - 52. son 1846-47. 1.54 Maple 1 $\{\cdot\}$ and the _1 7 2 25,117 22,845 8 - - completed, season 1846-47. A . ing 3 ŧ j. 3 12 50,573 · • • 1.1.1 8,679 15 5 -- completed, sea-son 1844-45. 8 3,248 15 -- completed, sea-son 1844-45. 4,368 4 6 3,726 11 8 - - the deposits which had silted up the bed of the canal have been removed, and the bed has been deepened. -- completed, sea-4.470 8 5,172 son 1846-47. 1.54 1 14 e 1 4,197 11 6 - - - -- - the cost of this bridge will be defrayed from the funds under the management of -- completed, sea-son 1840-41. 4,197 11 6 the local Agent at Shahabad. ' 2 **)**, 14 . . . ? ş ι. nga a se <u>i</u> china 1.000 26,761 14 13,857 5 7 - - completed, season 1841-42. and the state • 4,497 -4,647 - - completed, season 1846-47. ι. 3 - 16 - 11 1 2,670 7 5,703 2 10,290 5 9 ٠, `4 . 5 10 Rs. 18,663 15 11

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	RETURN FOR THE PRESIDENCY	OF BENGAL-continued.	• # + ~ +
NAME of WORK,	OBJECT of	Length,	Place -1 of Termination,:
	CONSTRUCTION.	and Date of Commencement.	or of întended Termination.
Civil Buildings,	Eastern Settlements ; General-continu	ued.	
Eastern Settlements-co		1	
Singapore	new market at the China Town at Singapore.	sanotioned, September 1834 -	• • •
Construction of a new Fish-Market.	in consequence of the present market being liable to inundation,	sanctioned, season 1840-41 -	
. Roads and Br	idges, North Western Province	8:	
Road from Ferrah to Horal on the route from Agra to Delhi, Estimate for Drains and Bridges.		length, 1021 miles ,	Horal -
Road from Ferozepore to Shikarpore.	for a military road • • -	sanctioned, season 1841-42; length 415 miles.	Shikarporo -
Civil Building	zs, North Western Provinces ;	Judicial :	
Ferozepore, Construction of a Gaol at.	necessity of retaining a gang of con- victs to supply the place of hired	sanctioned, season 1846-47 -	Ferozepore
	labourers, of whom a sufficient num- ber for carrying on the numerous works in progress could not be ob- tained.		
Civil Building	s, Lower; ProvincesJudicial:		
Furreedpore, Additions and Alterations to the Gaol.	to improve the salubrity of the building.	sanotioned, 9 April 1845	Furreedpore -
Civil Building	s, Central Provinces; Judicial	:	
Futtehpore, Construction of a Judge's Court-house and Out-offices,	- a new court-house was much required; the records were kept in almost irreparable bungalows, and were exposed to much risk of destruc- tion.	sanctioned, 22 April 1847 -	Futtehpore -
0:_:1 D_::1			· ·
	gs, North Western Provinces;	Revenue :	
Furruckabad, Construction of Tehsildarry Cutcherries.		sanctioned, 11 April 1843 -	- st Teriva and Ayrwah.
Futtehpore, Enlargement of the Circuit-house to ac- commodate the Collector and Magistrate and their Records, and construction of a Cutcherry for the Huzoor Tuhseel, and a Guard-room for 70 men.	••• this concentration of offices has been sanctioned, to put an end to the existing inconvenient arrangement of these functionaries holding their offices in separate buildings, and being separated a distance of one mile from their records.	sanctioned, 17 August 1843	Futtehghur -
Civil Building	s, South Eastern Provinces; G	eneral:	
False-point Lighthouse -		sanctioned, season 1839-40 -	
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RETURN FOR THE PRESIDENCY OF RENGAL continued.

1 <	Amou		Estimated Amo		Probable	REMARKS.
	Expense in	earred.	for Completi	00.	Time of Completion.	ALMARKS.
	Rs.	a. p.	Rs. ú.	р.		
	28,980	2 7			completed, 1839-40.	this market covers an area of twice the size of the old one, in order to meet the daily increasing necessities of the
]	- 2,216	24			- completed, 1841-42.	sottlement.
		* *	- 14,884 7	7 -		this work has been placed in the hand,
				!		of the local Civil Officer at Agra, and the expense will be provided for from the local funds.
-	11,145	9 8		-	56530n 184142 -	the bill for this work was submitted by Captaia Hatton, attached to Shah Socjab's force.
		•	· · ·	· .		
	- 1,402	3 5		•	completed, sea- son 1846-47.	
					an a	
	•			-		· .
	- 4,104	10 10	- 8,623 11	10 -	season 1848-49 -	the floors will be built on flues fou feet from the ground; some division walk which obstruct the free circulation of air will be removed.
			1	· · ·		
	 Privet S 	• • •	- 14,962 -	-	kana ang ang ang ang ang ang ang ang ang	- the building will be constructed o proce materials, with flat roof, and con sist of nine rooms, with a surrounding verandah.
at Ay	rwah 3,955	i 8 5	- 8,870 4	6 -	completed, sea- son 1846-47.	
-	- 15,807	1 91	- 17,482 5	4 -	completed, sea- son 1844-45.	
		:•				
	, •	v	·			•
pleted or 296	at a cost o	r has been com- f Rs. 2,204. 6., than the amount	- 731 14 sanctioned for tering the bu and 2,500 rupe breakwater of stone at the b bund.	plais- pilding, es for a rough	- ~ completed, sea- son 1841-42.	- the building is of a red colour, having a large white stone on the sea-front, and is easily distinguished by passing vessels, The inverior of the lighthouse has been rendered completely habitable. The break water was visited by the Superintand- ing Engineer of the South Eastern Pro- vinces, on the 13th March 1843, and was
			i De			found quite effective in preventing an en- croachment of the sea.

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- - RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

NAME of WORK.	OBJEÇT of	Length,	Place of Termination, -
	CONSTRUCTION.	and Date of Commencement.	or of intended Termination.
Civil Buildings	, South Eastern Provinces; General-co	Intinued.	
Fakeer Point, Construction of a Lighthouse.		sanctioned, 9 November 1842 -	\$* * *
ν ²			
Civil Building	gs, Central Provinces; General:		÷
Futtceabad, Repairs to the Staging Bungalow.	considered indispensable for the Superintendent of the Bhuttan a terri- tory and the residents at Susa.	sanctioned, 28 Marohr 1842	situated be- tween Susa and Hissar.
Civil Building	s, North Western Provinces ; G	eneral:	· · ·
erozepore Burial-ground, Enlargement of the.		sanctioned, 25 March 1846 -	Ferozepore -
Canals, North	Western Provinces ; General :		
anges Canal	for making the waters of the Ganges available for irrigation on the eastern side of the Docab.	suggested by Captain Caut- ley, in the year 1886.	to leave the Ganges at Kun- kul, and pass near to Meerut. and
		•	Coel, and finally join the River Esau, near Myn-
	х.	. .	pooree.
			· · ·
•			
anges Canal, Construction of a Hospital.	for the Native establishment and workmen of the canal.	sanctioned, 31 December 1845	at Roorkie -
Roads and Bri	dges, South Eastern Provinces:		· · ·
rand Trunk Road between Allahabad and Delhi.	of this road only a small portion is in the south eastern provinces. This road may be considered as the main artery of land communication	1st Division. Pullsghant to Barrakur Rive 2d ,, Barrakur River to Burkee 3d ,, Burkee to Carannessa River 4th , Carannessa River to Allahah 5th ,, Allahahad to Bewar -	97 1 123 0 ad 106 0
	through Bengal and Hindostan.	6th ,, Bewar via Allyghur to Gazee	dugger - 198 4
•		7th " Mearut to Delhi Branch	_800 5 40 0
		•	840 5
•		The Branch Roade are, Agra to Allygbur Keorja to Meerut Sth Division	M. f. - 47 0 - 50 4 - 78 0
•			TOTAL - 1,015 1
Restoration of the Iron Suppension Bridge at Muggra.	blown down during a storm on the 3d June 1842.	length of the bridge 110 feet, and breadth 12 feet; built in the year 1830, by subscription. Its restoration sanctioned 1 August 1842.	situated seven miles to the west- ward of Hooghly.
Metalling of the portion of the, within the Be- nares Division,		- length, 4 miles 7 furlongs; sanctioned, 6 October 1846.	. • . • . • <u>.</u>
Repairs to the portion from Goopeegunge to	• • • • • • •	length, 1141 miles; sanc- tioned, season 1846-47.	

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Amount of Expense incurr	ed.	Estimated Amount	Probable Time of Completion.	REMARKS.
Rs. a. - 7,082 9	•	R:. a. p. 5,000 – –	completed,sea- son 1845-46.	the excess is owing to the necessity of providing red stained glass and reflectors for the lantern, and other necessary items overlooked in the first estimate.
	•		and the second second	
552 15	1 -	*	completed, sea- son 1848-44.	this building was erected by. Major Thoresby, at a cost of 2,000 rupees, and made over by him to the Government.
	-	3,894 2 -		
				- it will be necessary, first of all, to convey the water
length of main line length of Futto, brano , Boolundsl ,, Etawah ,, Cawnpore	hghur hh - 160 huhur 70 - 179 - 423 8983	which would be re- quired for an equeduct over the Solani River, which work may be avoided by taking a more circuitous route, and by crossing the Solani Valley at a	Chitoors, mean widt mean width 90 feets; canale; vis. the Fut 6,53,667 rupees. 7 1,93,746 rupees. 7 cost, 7,10,997 rupee 30 feets, cost, 3,06,1 work in 1842; the	provides for carrying the main branch from Roorkee by h of canal 150 feet; and thence to Cawnpore, 230 miles, nt a cost of Re. 23,86,281. O. G.; and for four branch telight branch, 160 miles, mean breadth, 403 feet, cost, he J'nepub tranch, 70 miles, mean breadth, 263 feet, he Shekoabad branch, 100 miles, mean breadth, 884 feet, s. The Allahabad branch, 100 miles, mean breadth, 80 ruppes. A sudden stop was put to the progress of the Governor-general being desirous of applying a further
	the money alread his operations fro was pleased to his assignment was h Revenue despate	om the head to the village of mit the expenditure on the accessed to the amount of the h to the Government of Indi	This absolute prohib Government being spees, would be to a great Noorpoor, on a line of al anal, uncil further orders ree lace (3,00,000) per a a, dated 20 May (No. 12)	ition was, however, partially withdrawn on the 39th June apprehenaive, itat if a total stop were put to the work, degree lot; and Captain Caulty was required to confide Jout 100 miles. On the 7th October 1843, Government 1 to two lace (2,00,000) pare annum. In July 1844, hh
- 1,286 1	the money alread his operations fro was pleased to his assignment was h Revenue despate	ly laid out, about 1,06,000 r own the head to the village of mit the expenditure on the ucreased to the amount of the h to the Government of Indi	This absolute prohib Government being spees, would be to a great Noorpoor, on a line of al anal, uncil further orders ree lace (3,00,000) per a a, dated 20 May (No. 12)	ition was, however, partially withdrawn on the 29th June ; apprehensive, that if a total stop were put to the work, degree lose; and Captain Caulty was required to confine bout 100 miles. On the 7th October 1842, Government s, to two lace (2,00,000) per annum. In July 1844, bit num, to which the Court's annotion was given, in theis) 1844. The Military Board, in their Annual Report for 18, at Rs. 20,34,463. 2. 5j.
- 1,286 1	the money alread his operations for was pleased to lin assignment was in Revenue despate] season 1848-49,	ly laid out, about 1,06,000 r own the head to the village of mit the expenditure on the ucreased to the amount of the h to the Government of Indi	This absolute prohib Government being prees, would be to a great Noorpoor, on a line of al anal, until further order cee lace (3,00,000) per a a, dated 20 May (No. 12) up to the 30th April 184 - completed, sea-	
- 1,286 1 expenditure to 30 A 48,91,000	the money alread his operations for was pleased to in Revenue despate season 1848-49, 7	ly laid out, about 1,06,000 r own the head to the village of mit the expenditure on the ucreased to the amount of the h to the Government of Indi	This absolute prehib Government being press, would be to a great Noorpoor, on a line of al anal, until further order ree lace (3,00,000) per a a, dated 20 May (No. 12) up to the 80th April 184 completed, sea- son 1847-48.	itics was, horever, partially withdrawn on the 39th Junes apprehensive, that if a total stop were put to the work, degree lots; and Captain Cautey was required to confidence of the stop of the control of the court's another was given, in their on the Court's another was given, in their 1844. The Military Board, in their Annual Report for 1844. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, is the completion of the Great Trunk Road; we desire to see it completed with substantial bridges: those over the Scane and Junna should be for the present suspended; but you will carefully oonsider whether the prospect of a railway through the North Western Provinces is sufficiently near to justify the suspension of any other portion of thij
expenditure to 30 A	the money alread his operations for was pleased to in Revenue despate season 1848-49, 7	iy hid out, about 1,06,000 ru om the head to the village of mit the expenditure on the versased to the semont of the to the Government of Indi stated the amount expended 873 Che estimated amount for com- pletion in December 1848, was- <i>Rs</i> , for road works - 33,02,607 for bridge over the Some - 60,00,000 for bridge over the Jumna - 10,00,000	This absolute prehib Government being press, would be to a great Noorpoor, on a line of al anal, until further order ree lace (3,00,000) per a a, dated 20 May (No. 12) up to the 80th April 184 completed, sea- son 1847-48.	itics was, however, partially withdrawn on the 39th Juae apprehensive, that if a total stop were put to the work, degree lot; and Captain Caulty was required to confus yout 100 miles. On the 7th October 1842, Government, to two lace (20,00,000 per annum. In July 1844, th num, to which the Court's anotics was given, in their 1844. The Military Board, in their Annual Report for 8, at Ro. 20,34,463. 2. 5j the Court, in a deepatch, dated 80 Jan (No. 2) 1850, observe, "We attack great importance to the completion of the Great Trunk Road; we desire to see it completed with substantial bridges: those over the Scane and Jumna should be for the present suspended; but you will care fully consider whether the prospect of 1 railwuy through the North Western Provinces is sufficiently near to justify the
expenditure to 30 A	the money alread his operations for was pleased to in Revenue despate season 1848-49, 7	iy hid out, about 1,06,000 ru om the head to the village of mit the expenditure on the versased to the semont of the to the Government of Indi stated the amount expended 873 Che estimated amount for com- pletion in December 1848, was- <i>Rs</i> , for road works - 33,02,607 for bridge over the Sone - 60,00,000 for bridge over the Jumna - 10,00,000	This absolute prehib Government being press, would be to a great Noorpoor, on a line of al anal, until further order ree lace (3,00,000) per a a, dated 20 May (No. 12) up to the 80th April 184 completed, sea- son 1847-48.	itics was, however, partially withdrawn on the 39th Juae apprehensive, that if a total stop were put to the work, degree lot; and Captain Caulty was required to conflation of the court's anterior was given, in their on the 26 (200000) per annum. In July 1844, the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. A the Source of the completion of the Great Trunk Road; we desire to use it completed with substantial bridges: those over the Soane and Jumna should be for the present suspended; but you will care fully consider whether the prospect of a railway through the North Western Provinces is sufficiently near to justify the suspension of any other portion of this present for the constant of the prostent of the prostent of any other portion of the prostent of the suspension of any other portion of the prostent of the suspension of any other portion of the prostent of the prostent of the prostent of the prostent of the suspension of any other portion of the prostent of the proste
expenditure to 30 A	the money alread his operations for was pleased to in Revenue despate season 1848-49, 7	iy hid out, about 1,06,000 ru om the head to the village of mit the expenditure on the versased to the semont of the to the Government of Indi stated the amount expended 873 Che estimated amount for com- pletion in December 1848, was- <i>Rs</i> , for road works - 33,02,607 for bridge over the Sone - 60,00,000 for bridge over the Jumna - 10,00,000	This absolute prehib Government being press, would be to a great Noorpoor, on a line of al anal, until further order ree lace (3,00,000) per a a, dated 20 May (No. 12) up to the 80th April 184 completed, sea- son 1847-48.	itics was, however, partially withdrawn on the 39th Juae apprehensive, that if a total stop were put to the work, degree lot; and Captain Caulty was required to conflation of the court's anterior was given, in their on the 26 (200000) per annum. In July 1844, the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. A the Source of the completion of the Great Trunk Road; we desire to use it completed with substantial bridges: those over the Soane and Jumna should be for the present suspended; but you will care fully consider whether the prospect of a railway through the North Western Provinces is sufficiently near to justify the suspension of any other portion of this present for the constant of the prostent of the prostent of any other portion of the prostent of the suspension of any other portion of the prostent of the suspension of any other portion of the prostent of the prostent of the prostent of the prostent of the suspension of any other portion of the prostent of the proste
expenditure to 30 A	the money alread his operations for was pleased to in Revenue despate season 1848-49, 7	iy laid out, about 1,06,000 r om the head to the village of mit the expenditure on the usersset to the amount of the h to the Government of Ludi stated the amount expended 873 Che estimated amount for com- pletion in December 1848, was R, for road works - 33,02,507 for bridge over the Soane - 60,00,000 for bridge over the Jumna - 10,00,000 Rs. 1,03,02,507	This absolute prehib Government being press, would be to a great Noorpoor, on a line of al anal, until further order ree lace (3,00,000) per a a, dated 20 May (No. 12) up to the 80th April 184 completed, sea- son 1847-48.	itics was, however, partially withdrawn on the 39th Juae apprehensive, that if a total stop were put to the work, degree lot; and Captain Caulty was required to conflation of the court's anterior was given, in their on the 26 (200000) per annum. In July 1844, the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. A the Military Board, in their Annual Report for 1845. A the Source of the completion of the Great Trunk Road; we desire to use it completed with substantial bridges: those over the Soane and Jumna should be for the present suspended; but you will care fully consider whether the prospect of a railway through the North Western Provinces is sufficiently near to justify the suspension of any other portion of this present for the constant of the prostent of the prostent of any other portion of the prostent of the suspension of any other portion of the prostent of the suspension of any other portion of the prostent of the prostent of the prostent of the prostent of the suspension of any other portion of the prostent of the proste
expenditure to 30 A	the money alread his operations for was pleased to in Revenue despate season 1848-49, 7	iy laid out, about 1,06,000 r om the head to the vilings of mit the expenditure on this persast to the amount of the h to the Government of Ludi stated the amount for com- pletion in December 1848, was————————————————————————————————————	This absolute prehib Government being press, would be to a great Noorpoor, on a line of al anal, until further order ree lace (3,00,000) per a a, dated 20 May (No. 12) up to the 80th April 184 completed, sea- son 1847-48.	itics was, horever, partially withdrawn on the 39th Junes apprehensive, that if a total stop were put to the work, degree lots; and Captain Cautey was required to confidence of the stop of the control of the court's another was given, in their on the Court's another was given, in their 1844. The Military Board, in their Annual Report for 1844. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, in their Annual Report for 1845. The Military Board, is the completion of the Great Trunk Road; we desire to see it completed with substantial bridges: those over the Scane and Junna should be for the present suspended; but you will carefully oonsider whether the prospect of a railway through the North Western Provinces is sufficiently near to justify the suspension of any other portion of thij

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NAME of WORK. d CONSTRUCTION. nal Das of Communication in the standard formation is the standard formation in the standard formation is standard for sta				
CONSTRUCTION. and Date & Commentation intended Wermination Reads and Bridges, South Eastern Provinces-continued. annoinced, 8 July 1840	NAME of WORK.			of Termination,
 Truck Road: Construction of a now is explored to replace an old one which we have main to dring the heavy rains of the last season. Construction of Wells on the set is during the heavy rains of the last season. Construction of Wells on the set is during the heavy rains of the last season. Construction of the Wing and Parapha of Bridge on the during the heavy rains of the set is during the set is during the heavy rains of the set is during the heavy rains of the set is during the set is		CONSTRUCTION.	and Date of Commencement.	intended Termination
 Truck Road: Construction of a now is explored to replace an old one which we have main to dring the heavy rains of the last season. Construction of Wells on the set is during the heavy rains of the last season. Construction of Wells on the set is during the heavy rains of the last season. Construction of the Wing and Parapha of Bridge on the during the heavy rains of the set is during the set is during the heavy rains of the set is during the heavy rains of the set is during the set is				}
Construction of a low Maconry Bridge on the Maconry Bridge on the Maconry Bridge on the Maconry Bridge on the the sease hear it during the heavy rains of the last season. 	Roads and Bridg	es, South Eastern Provinces-continues	<i>i</i> .	
Masonry Bridge on the heavy rains of the last season. enclose to heavy rains of the last season. enclose to heavy rains of the last season. enclosed, 25 December 1845 - and Futchpor and Futchpor anothor anothor anothor anothor anothor anotho	rand Trank Road :			., .
 Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Tanaion Bridge over the Noonis Nuddee. Construction of an Iron Trate Construction of an Iron Trate Construction of an Iron Construction of an Iron Trate Construction of an Iron 		with reference to the injury done to it, by a breach near it during the	sanctioneu, o July 1040	
Raining of the Wing Walls and Perspets of Bridges and Drains be- treen Futerbapres and Goorshaigunge.		traveliers halting at the bungalows have felt much inconvenience for the	sanctioned, 28 December 1846 -	and Futtehpore.
Walls and Parapets of Bridges and Drains be- treeen Rutchpore and Goorshaigunge. to replace a bridge injured by a breach which cocurred an the road wear it, during the heavy rains of 1888. sanctioned, 8 July 1845		want of water.		
Goorshaigunge. to replace a bridge injured by a breach which coourred an the road breach which coourred an the heavy ratus of 1843 Grand True Road. Ireas Supported Totalsh Torrent an else distribution of an Irea Tension Bridge over the Noonia Nuddee. an else distribution of an Irea Tension Bridge over the Noonia Nuddee. an else distribution of Bridge over Singhars Rives. Laying down Irea Treat Road over the Noonia, Singhars and Tensia	Walls and Parapets of Bridges and Drains be-	• • • • • • • • • • • • • • • • • • •	sanctioned, season 1846-47 -	Goorshaigunge
the breach which courred an the road mean it, during the heavy rains of 1848. Irea Surpension Bridge				
Irea Suspension Bridge		breach which occurred on the road		Grand Trual Road.
over the Tomlah Torrent. miles esat Re-construction of the - - sanctioned, 15 September 1847 - - Construction of an Iron - - sanctioned, 31 July 1847 - - Construction of an Iron - - sanctioned, 31 July 1847 - - - Ke-construction of an Iron - - - sanctioned, 31 July 1847 - - - Construction of an Iron - - - sanctioned, 31 July 1847 - <	•			
Re-construction of the - - - sanctioned, 15 September 1847 - - ditto - Construction of an Iron Tension Bridge over the Noonia Nuddee. - - - - - in the distribution of an Iron of an Iron Tension Bridge over Singbarra Bives. - <	Iren Suspension Bridge	• • • • •	sanctioned in 1843	- situated three
Re-construction of the - - - sanctioned, 15 September 1847 - - ditto Construction of an Iron Noonia Nuddee. - <t< td=""><td>•</td><td></td><td>•</td><td></td></t<>	•		•	
Construction of an Iron Tension Bridge over the Noonia Nuddee. Construction of an Iron Tension Bridge over Singbarra River. Laying down Iron Tract Reads over the Noonia, Singbarra and Tomlah Bridges. Construction of a Bridge over the Gowarsee				
Construction of an Iron Tension Bridge over the Noonia Nuddee. Construction of an Iron Tension Bridge over Singharra River. Laying down Iron Tract Reads over the Noonia, Singharra and Tomlah Bridges. Construction of a Bridge over the Gowarsee Sanctioned, 25 September 1843- of Behar.	.Re-construction of the -		sanctioned, 15 September 1847-	- ditto
Tension Bridge over the Noonia Nuddee. of Beerbhoom. Construction of an Iron Tension Bridge over Singharra Rives. sanctioned, 31 July 1847 Laying down Iron Tract Roads over the Noonia, Singharra and Tomlah Bridges. sanctioned, 21 May 1847 Construction of a Bridge over the Gowarace sanctioned, 25 September 1843-	n an an an Anna an Anna an Anna. Anna an Anna an Anna an			
Tension Bridge over the Noonia Nuddee. of Beerbhoom. Construction of an Iron Tension Bridge over Singharra Rives. sanctioned, 31 July 1847 Laying down Iron Tract Roads over the Noonia, Singharra and Tomlah Bridges. sanctioned, 21 May 1847 Construction of a Bridge over the Gowarace sanctioned, 25 September 1843-				
Construction of an Iron Tension Bridge over Singharra River. Laying down Iron Tract Roads over the Noonia, Singharra and Tomlah Bridges. Construction of a Bridge over the Gowarsee	Tension Bridge over the	en e	sanctioned, 31 July 1847	of Beerbhoom.
Tension Bridge over Singbarra River. Laying down Iron Tract Roads over the Noonia, Singbarra and Tomlah Bridges. Construction of a Bridge over the Gowarsee		 An and the second second		• :
Tension Bridge over Singbarra River. Laying down Iron Tract Roads over the Noonia, Singbarra and Tomlah Bridges. Construction of a Bridge over the Gowarsee				
Tension Bridge over Singbarra River. Laying down Iron Tract Roads over the Noonia, Singbarra and Tomlah Bridges. Construction of a Bridge over the Gowarsee	• 1			
Tension Bridge over Singbarra River. Laying down Iron Tract Roads over the Noonia, Singbarra and Tomlah Bridges. Construction of a Bridge over the Gowarsee				
Tension Bridge over Singbarra River. Laying down Iron Tract Roads over the Noonia, Singbarra and Tomlah Bridges. Construction of a Bridge over the Gowarsee	·			
Roads over the Noonia, Singharra and Tomlah Bridges. Construction of a Bridge over the Gowarsee	Tension Bridge over	inan janaj jana antinan antinan antinan National antinana National antinana antinana antinana antinana antinana antinana antinana antinana antinana anti	sonctioned, 51 July 1847	- ditto
Roads over the Noonia, Singharra and Tomlah Bridges. Construction of a Bridge over the Gowarsee				(
Roads over the Naonia, Singharra and Tomlah Bridges. Construction of a Bridge over the Gowarsee	·			
Roads over the Noonia, Singharra and Tomlah Bridges. Construction of a Bridge over the Gowarsee	Laving down Iron Tract		sanctioned. 21 May 1847	
over the Gowarese of Behar.	Singharra and Tomlah			
over the Gowarese of Behar.		•		[
over the Gowarese of Behar.				
	over the Gowaraee	A second se	sanctioned, 25 September 1843 -	in the distric of Behar.
Construction of a Bridge sanctioned, 21 August 1848 i- in the distri- over the Danwah Nullah.	over the Danwah		sauctioned, 21 August 1848 1-	• - in the distric of Behar.

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Amount of Expanse incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
Rs. a. p.	Rs. a. p.		the second second
	2,057 9 10		
	1,201 6 6		
 9,089 ? 5	n Brown Processon 1 Brown Processon 1 Brown Processon 1 Brown Processon 1 Brown Processon 1 Brown Processon	completed, sez- son 1846-47.	
1,791 11 11	1,791 11 11	son 1846-47.	- this is a bridge of two arches of ten feet span.
- 9,168 - 10	9,168 — 10 •	completed, sea- son 1844-45.	- this bridge is to consist of two spans of 30 feet, and one of 90 feet, with a 16- feet road-way; *and is to be constructed on the Dredgian or tension principle.
9,198 12 10	9,198 12 10	completed, sea- son, 1847-48.	the bridge first constructed fell down, owing to a deficiency of water way, and to a want of depth of foundation to the abutment piers.
- 28,228 18	28,223 13 -	completed, sea- son 1847-48.	this bridge has had some standards of stone mascory. The centre span is 150 feet, the side spans 68.74 feet; embanked approaches neatly sloped off and turfed, lead to the bridge, 1,610 feet long, and having an average height above the country of 10 feet. The embankment is supplied with two drain bridges of stone mascory of 5 feet span each.
29,788 8 6	20,733 8 6	-	- this is a similar bridge of the same size as the former, but with masonry, part stone, part brick, with three subsidiary drains, each of 10 feet span, of masonry, with embankments 2,500 feet long, and averaging 20 feet high.
	2,062 4 8	• • •	- the tracts for each will be 16 inches wide, consisting of four plates three inches bread, with intermediate spaces of 15 inches. Four tracts will be laid for the entire length of each bridge, to admit of two wheeled vehicles passing over the bridge at the same time.
19,601 12 53	19,601 12 5 1	completed, sea- son 1847–48.	this is a stone masonry bridge of 5 arches, each of 86 feet span.
- 10,956 12 1	16,056 12 1	completed, 1847–48.	this is a stone masonry bridge of 4 arches, each 36 feet span.
622.		12	(continued)

RETURN FOR THE PRESIDENCY OF BENGAL-continued. --÷ '

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

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NAME of WORK.	OBJECT of	Length,	Place of Termination, or of
	CONSTRUCTION.	and Date of Commencement.	intended Termination
Roads and Bridges, S	outh Eastern Provinces-continued.		ાર્ચ કરે છે. તેઓ કરે છે.
Grand Trunk Road : Construction 'of a Drain Bridge.	ی در بید کنی ایس ایس ایس ایس ایس ایس ایس ایس ایس ای	sanotioned, 12 April 1845 -	situated between Barah and Mud denpore.
Construction of a Dawk Staging Bungalow.	to replace the old bungalow -	sanctioned, 24 March 1848 -	at Jehanabad.
Metalling of the Road be- tween the Raj Ghaut ut Allahabad and the Raj Ghaut at Benares.		length, 75 miles; sänctioned, 30 January 1848.	•• • • •
Gokcolpore, Construction of a new Bridge on the Ten- sion Principle over the Kallee Nuddee at.	the old bridge was severely injured by floods on the 20th June 1842.	sanctioned, season 1844-45	
Natice Muddee ac		•	
م الم الم الم الم الم الم الم الم الم ال	in the state of th		
Googree, Construction of a Staging Bungalow at.	an a	sanctioned, 27 June 1846 •	
Roads and Bridg	ges, Lower Provinces :		
Gowahatty to the Kulling River in Lower Assam, Reconstruction of the Road.	this is represented to be one of the most frequented roads in Assam, and a highly important military commu- nication, being a continuation of the	length, 833 miles; sanction- : ed, 15 August 1842.	Kulling River -
	road from Bengal, by Gowalparrah and the Coseyah Hills, to this pro- vince.		
Gya Roads, Annual Repairs, 1842-43.		From Gya to Jehanabad Miles on the Patna Road 30 "to Shergatty, on 22	 ■ ■ ■ ■
		the Trunk Road - { 22 to Surwah, on the Trunk Road - } 20	
		Miles 72	
Jolar Ghaut to Bor Pathor through Nagara.	The opening of this road will, it is considered, afford the most effec- tual means of opening an inter- course with, and controlling the	length, about 30 miles ; sanc- tioned, 24 August 1844.	Bor Pathor
Gyah Roads, Construction of s new Line from Doo-	Nagas, It is contemplated to abandon the two existing lines of road which	length, about 21 miles ; sanc- tioned, 20 August 1845.	Doobeen
been to Gyah.	branch off from the Grand Trunk Road towards Gyah, the one from Sherghotty, and the other from Sur-	workers and range to the	
•	wah. The new line is not intersected by rivers, whereas to make the old lines practicable for wheel carriage		· · ·
	traffic throughout the year, it would be necessary to bridge four large rivers and four small ones, at a very consi- derable cost.		•
	l · · ·		•
	ges, Central Provinces:		
Great Deccan Road, Metal- ling of the.	and tear on the.	length, 245 miles ; sanctioned, 28 September 1840.	from Telwarra Ghaut, between Jubbulpore on the
· •,			Nerbadda, and Mirzapore on the Ganges.
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	unt of incurred.	Estimated Amount for Completition.		Probable Time of Completion.	REMARKS.
Rs.	a. p.	Rs. a. p.	!		e Entre para en a gran e
- 5.99 -19.5,864 17. 2937 - 3887 - 31 9		5,864 7 87		completed, 1847-48.	this is a drain bridge of stone masonry.
1,648	- 5 3 12 8 2223 ⊑ 1	n 1,648 · 8 · 8 ·	. 1 -	completed, sea- 1847-48.	
	n an li france sa	80,258 9 9 4	•	••••••	- the metal is to be spread of the average depth of 4.75 feet.
		1.			
		6 - 18,517	an a the second s	tan ann an san an san san san san san san	the expanse of water in the valley of the Kallee Nuddes, during the flood in Jun 1842, extended over a breadth of 3,630 feet, and the water-way of the bridge prover insufficient for the passage of this large vo lume of water. The entire bed of th Nullah under the arches was swept away and the piers of the bridge, being under mined, subsided.
- 2,403	7.9	++: 2,408 - 7. · 9 ·		completed, sea- son 1846-47.	 A spectra of the second se
	· }			en e	Material in A. Davis and
6,536	2 ⁴ ,8×80,00 ↔	1997 (2019 ,982 , 19 1 ,99 ,5 4 1927 - Color Parlan, 199 19	- : - : - : - :	completed, sea- son 1844-45.	bridges of masonry, and 118 of wood. The saving on the estimate is owing to a reduc tion in the rate, and also in the quantity of work contemplated.
	n in Sin II Sin Sin Sin Sin Sin Sin Sin Sin Sin Sin		1	ng Eliter (
- 2,132	i i i a dia	рина (1997) (1997) 1997 - 19 1,911 (199 6) 7 (1997) - 1 911 (199 6) 7 (1977) - 1977) - 1977 - 1977) - 1977) - 1977 - 1977) - 19	ł ·		- of this extent of road, 15 miles are kept in repair by the Gya convicts, and accord- ingly provision is not made in the estimate for repairing the same.
	- 47	Strado St. 1977 Sta			
800		n Mar Dir 800 in <u>A</u> ray beraha Maraka asar di Sergheraha		season 1844-45.	na ing madana ang mang mang mang mang mang mang ma
			;		e d _e se
nd er (på virtera) I de staten (transmittera)	an at Says - written to	83,895		completion not reported.	- the old line of communication from Gyah to Jehansbad (29 miles), and from Jenaha- bad to Patna (about 30 miles), will not be changed.
					сивидок.
				parti da secondo de la composición de l Na	na e construir An construir a construir a An construir a
				n, de la terre a general de la terre a a sa dete	an an an Araban George an Araban An Araban
•			;	5 . L. C.	a Desgen) a j€s (1esa) (1
6 1-7 88,024 a second dia a to the second basic constant a to a second a second to a second to a second a second to a second to a second a second to a second to a second a second to a second to a second to a second a second to a second to a second to a second to a second a second to a sec	selet North	86,826 15 4		completed, sea- son 1843-44.	this road was originally constructed by Major Drammond. A sum of 3,180 rupees was expended on repairs to this road during 1847-48, and an estimate of Rs.6,648.11.8. was sanctioned for the following year.
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RETURN FOR THE PRI 'n. •

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NAME of WORK.	OBJECT of	Length,	Place of Termination, or of
	CONSTRUCTION.	and Data of Commencement.	intended Termination
Civil Buildin	gs, Lower Provinces; Judicial :		
Gyah, Construction of two Record-rooms.	- for the records of the officers of the Judge, and of the Collector.	sanctioned, 2 April 1837	
Gowhatty : Construction of Buildings	for a cutcherry for the Collector and Magistrate.	saactioned, 4 January 1842 -	
Construction of Temporary Gaol Buildings.	to replace buildings burnt down on the 4th April 1840.	sanctioned, 12 February 1841 -	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -
Construction of a Record- room.	for the records of the Commis- sioner's effice.	length 50 feet by 20 ; sanc- tioned, 16 January 1838.	.
Construction of a Treasury Room.	for the use of the Commissioner's office.	sanctioned, 4 January 1841 -	an tait sa Tait
Gowalparrah, Lower Assam :		· · · · · · · · · · · · · · · · · · ·	
Construction of a Cut- cherry for the Magis- trate.	to replace an old cutcherry of temporary materials, which was in a dilapidated state.	sanctioned, 5 December 1837 -	
Reconstruction of the Gaol Buildings.	- in consequence of the decayed state of the present temporary gaol buildings.	sanctioned, 29 December 1842	
Gowahatty, Erection of a Wall sround the Gaol.	proposed by the Commissioners to save the expense of keeping the bamboo fences in good order.	sanctioned, 20 May 1844 -	Gowahatty
Gyah, Construction of an additional room to the Judge's Record Office.		sanctioned, 11 September 1844	Gyah -
Gowalparrah Gaol, Con- struction of Cook-rooms of Masonry.	- for the convicts and their guards, in lieu of similar buildings of in- flammable materials.	sanctioned, 6 August 1845 -	Gowalparrah
Gowahatty :	•		· .
Addition to the Commis- sioner's Cutcherry.	to afford shelter to the people attending court.	sanctioned, 5 November 1845 -	Gowahatty
Construction of a new Record-room for the Collector and Magis-	the necessity for this work was brought to notice by the civil autho- rities, who suggested that a room be	sanctioned, 19 May 1847 -	Gowahatty
trate.	built over the existing treasury and record-room.		
Gowahatty Gaol, Construc- tion of a Criminal Ward.	to replace an existing ward re- ported by the Commissioners of Assam to be dilapidated beyond repair.	sanctioned, 12 May 1847 -	Gowâhattÿ
Gyah, Construction of a Cutcherry.	for the Principal Sudder Ameen, and additional Moonsiff of Behar.	sanctioned, 22 March 1848 -	Gyah -
Civil Building	zs, North-Western Provinces;	Judicial :	
Goorgaon, Construction of a Cutcherry with Out- effices.	for the Collector and Magistrate; the construction of this cutoberry will do away with the renting of buildings stated by the local officer to be inconvenient and ill adapted,	sanctioned, 27 November 1847	Goorgaon -
		t •	

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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Gompletion.	REMARKS.
Rs. a. p.	Rs. a. p.		
		completed, 1840-41	
λ 2		ing san transformer y. N	
6,705 .3 6 -, -	6,036 5 10	completed, sea- son 1848-44.	Hereita de la composition de
1,150 .8 5	1,361 10 10	completed, sea- son 1841-42.	
	2. 2,528 5 7	and the second second	
902 . 6 6	and the first state of the	completed, sea- son 1841-42.	
3,596 9		completed, sea-	
3,596 9	ig the set of the Charles The	son 1841-42.	
-• - 3,015 . 8 4.1.7,	3,425 3 6	completed, sea- son 1844-45.	
2,166 6 9	. 2,210 10 -	completed, sea-	n an
•		son 1845-46.	an a
1,141 T 8 1	1,141 , – 6	completed, sea- son 1845-46.	
2,812 14 8	2,812 14 3	completed, sea- son 1845-46.	
			e e
602 4 4	602 4 4	constructed, meason 1848-47.	
	-3,454 7 2		the estimate provides for a new build- ing, as the house would not have borne the weight of an upper story.
•			weight of an upper story.
t Line to the state of the state and the state of the	1,768 7 6		
	1,818	ender och som som Reference och som	and a second second Second second second Second second
	, no star		en e
an a	11,465 5 8		n an an Anna Anna an Anna an Anna Anna
		n an Arrana Anna an Arrana Anna an Arrana	

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	OBJECT	Length,	Place of Termination.
NAME of WORK.	of CONSTRUCTION.	and Date of Commancement.	or of intended Termination
Civil Buildin	ngs, North Western Provinces;	Revenue:	t.
Gunour, Construction of a Tuhsildarry Cutcherry.	and the second sec	sanctioned, season 1838-39 -	in Zillah Budaor
Civil Buildin	gs, Central Provinces; Revenu	e:	-
Ghazeepore, Construction of a Guard-room to the Collector's Cutcherry.	in consequence of the insufficiency	· · · ·	Ghazeepore
Civil Building	s, Central Provinces; General:		
Ghazeepore : Extension of the Godown accommodation in the Opium Factory, and Bungalow for the use of the First Assistant.	L Carrison Space -	sanctioned, 1 May 1839	Ghazeepore
Construction of an Opium Godown at.	- required in lieu of one built in: 1835-36, which was reported to be in ruins.	sanctioned, 10 September 1845	-`ditto
Construction of a Bunga- low and Out-offices at the Opium Factory.	- for the Second Assistant to the Superintendent at the Factory.	sanctioned, 17 September 1845 -	- ditto
Civil Building	s, South Eastern Provinces; G	eneral:	•
Great Savage Rock, Con- struction of a Lighthouse on the,	- this lighthouse will enable vessels of a certain draft of water to cross the bar of the river during the night,		1 ⊈97,25⊈∎1 1
$\begin{array}{cccc} & & & & \\ & & & & \\ & & & & \\ & & & & $			
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	944 - 1		
يو موجود و ۲ موجود در ۲۰۱۵ کرد. او د مرکز و در کرد کرد			s *
	s, Lower Provinces; General:		
Shazeepore, Enlargement of the Burial-ground.	- the necessity of its enlargement was brought to the notice of Govern- ment by the local authorities at Ghazeepore, through the Arch- deacon.	sanctioned; August 1843 - 1 - 1	Ghazeepore
oolzarbaugh, Construction of a Boundary Wall to the Opium Godown.	considered necessary for the se- curity of much valuable property from fires and plunderers.	sanctioned, 3 December 1845 -	Goolzarbaugh
yah Road, Additions and Alterations to the Staging Bungalows on the.	with a view to assimilate them to the bungalows on the Grand Trunk Road.	sanctioned, 8 September 1845 -	Gyah Road
owabatty : Rebuilding the top of the Spire of Christ's Church.	fractured by a shock of earth- quake on the 18th June 1846.	sanctioned, 12 February 1847'-	Gowahatty
Rebuilding of the Gaol Hospital.	- ditto	ditto	dítto 🖌 🐣
yab, Construction of an additional Opium Godown.	- in compliance with the opinion of the Board of Custom, Salt and Opium, in regard to the necessity of the proposed outlay.	sanctioned, 13 March 1848	Gyab
Civil Building	s, North Western Provinces; P	olitical :	· · ·
walior Hospital	for the sick of the escort of the Resident.		Gwalior

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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p. - 4,581 15- 8	Rs a. p.	completed, sea- son 1841-42.	
- 575 4.9	575 4 2	completed, sea- son 1844-45.	
-		ġ.	
11,884	• ; • • •	completed, sea- son 1841-42.	
	2,314 14 114	completed, sea-	
antana antana Antana antana a	1,275	son 1846-47. season 1845-46.	
	83,425 8 7	completed, sea- son 1843-44.	the lantern was first lighted on night of the 7th March 1844 :
			Rs. a. Cost of Lighthouse - 33,587 10 Buildings attached - 1,501 9 Lantern 15,000 -
			Rs. 50,089 3
			The total cost of the structure, include a building for establishment and stores, been Rs, 50,089. 8. 10.
1,527 / 8 - 4	1,527 8 4	season 1843-44 -	a space of 300 × 330 has been added.
			·
-** _{16 1}	5,170	completed, sea- son 1846-47.	
• • • • • • • • • • • • • • • • • • •	611	completed, sea- son 1845-48.	
- <u>1975</u> 187, 57 (10) - 1- 10, -	200	completed, sea- son 1847-48.	
151 1.8	• • •	completed, sea- son 1847-48.	•
• • • • • • • • • • • • • • • • • • •	2,776 10 3		
2,128 . 2 . 84	2,038 15 7	completed, ses- son 1843-44.	
622.	•	K	(continued

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NAME of WORK.	OBJECT of	Longth,	Place of Termination, or of intended Termination.	
	CONSTRUCTION.	and Date of Commencement.		
	s, South Eastern Provinces :	•		
Hidgellee: • Embankments in the Rus- sulpore River frontage.	for the protection of large tracts of resumed lands in Hidgellee.	 length, 56 miles ; sanctioned, 6 November 1841. 		
	Ex. 4			
Construction of a new line of Bunds in Per- gunnah Khadar.	for the protection of the Govern- ment estate of Bolakeepore.	length, 23 miles; senctioned, 26 April 1842.	.	
Excevention of the Koonj- pore and Mirzapore Khalls.		length, 8 miles; sanctioned, season 1843-44.		
Excavation of Patgoda Canal.		sanctioned - ditto	n in Miller Line in Angel	
Drainage of the Jella- mootab Pergunnah.	this work is stated to be in- dispensable to the prosperity of the cultivation of the pergunnah.	sanctioned, 6 June 1844.		
Construction of a new Bund.	to prevent the ingress of salt water to the Kusbah, which now finds its way into the cultivated lands at high spring-tides, through certain low channels.	the new bund measures 2 miles and 495 feet, and its average height is 9 feet; sanc- tioned, 26 September 1844.	at Kusbah -	
Construction of new Bunds	for the protection of the resumed mehals of Ustiacool and Bunder- booriah.	length, 4 miles and 5 fur- longs; sanctioned, 15 January 1845.	situated at Per- gunnah Pahar- pore.	
Construction and separar of Bunds on resumed Estates.	for the protection of resumed estates, and with a view to increased cultivation.	length, 3 miles and 1 fur- long; sanctioned, 18 January 1845.	in Pergunnah Nurroomootah.	
Canals, South	Western Provinces :			
lidgellee Canals, Deepen- ing of a Khall leading from Tanropukerish to Kallynuggar on the Hul- dee, and Russoolpore.	- to facilitate the concentration of the salt of the Hidgellee Agency in one set of golahs. For this object the canal is of great importance, when the strong winds make the coast navigation dangerous.	sanctioned, 15 May 1839 -	د م الم الم الم الم الم الم الم الم الم الم	
Canals, Nortl	h Western Provinces :			
allalpore and Meg Chup- per, Repairs of the Falls and Bridges.	with a view to the Doab Canal being hereafter used both for irriga- tion and navigation.	sanctioned, season 1838-39	- on the Doab Canal.	
Roads and Bri	dges, Lower Provinces :			
lajeepore to Kurrunjah on the Mozufferpore Road.	to supersede the old road to Mo- zufferpore vid Persa Ghaut,	estimated, January 1840	Kurrinjah -	

RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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	Amonat of Expense incusred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS
	Rs. a. p.	Rs. a. p.		
	, Rs. a. p.	Rs. a. p.		
		11,648 - 4 1		the length of the embankments in th Hidgelles Division in 1839-40 was 1,04 miles, and the estimated cost of annue repairs 23,500 rupees. In this division 1 sluices have been sanctioned in the Soc jamote Pergunah, which is under th
	,	· · ·		management of the Court of Wards.
	-, - 3,314 6 8	3,163 7 6	completed, sea- son 1843-44.	
	8,645 5 9	3,680 6 2 1	completed, sea- son 1847-48.	the width of these khalls varies from 72 to 80 feet throughout,
		· · · ·		
, [4,080 10 -	1	
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		· · · · ·		
	and the second second	Charles and the	and the second second	teres de la servició
	• • • • •	8,800 8 2 3	its completion not reported.	
1	-			
	1,003 24 53	1,008 2 5‡	completed, sea- son 1845-46.	
	1,852 13	1,389 6 -	completed, sea- son 1846-47.	 Martin State Martin State
		2. A.	ter e e compañía	
			}	
	• • • • •	28,138		
				,
				•
Ì				
•	20,725	17,479	completed 1840-41	an excess of Rs. 3,247. 15. 11. he been incurred in their execution, owing the renewal of the old bridges entirely
	•			and a greater depth and solidity havin been given to the foundations, with refe ence to the unfavourable nature of th soil.
		40,686 12 1		this work does not appear to have bee carried out.
			1	(continued

NAME of WORK	OBJECT of	Length,	Place of Terminution, or of
	CONSTRUCTION.	and Date of Commencement.	intended Termination.
			•
Roads and Brid	ges, Lower Provinces-continued.	1. 1. 1. 1. T	at a 125
azareebaugh, Construction	this road connects the military	sanctioned, 2 April 1841	- Grand Trunk
of Drains, &c. on the road from, to the Grand Trunk Road.	station of Hazareebaugh with the Grand Trunk Road at Barria.		Road.
Roads and Br	idges, South Eastern Provinces		·
azareebaugh, Construction of a Stone Bridge over the Aarah Nuddee,	en an	sanctioned, 16 October 1843	
	· · · · · · · · · · · · · · · · · · ·	•	
Roads and Bri	dges, North Western Provinces		•
indun Bridge: Proposal for converting it into a Suspension Bridge,	and the form the state of the state	fer oglette pekjt er se mer nam genestraantering s nam angeste afternam astigante er anternam	
		and and the constraints of the c	
Filling up Deep Pools in front and at the tail of the Bridge.	the pools were filled up with blocks of kunkur, to prevent damage to the bridge.	sanctioned, 28 May 1847	
	a na standar Tana standar T		•.
ydramal Bridge over the Kallee Nuddee, metalling the Causeway of.	the metalling had worn out, and the road-way surface had sunk gene- rally so much as 9 inches below the mouth of the drain.	sanctioned, 14 May 1844	- (
indun Causeway, Con- struction of a Drain Bridge under the.	required to pass off the waters which collect in the nook or angle formed by the junction of the Meerut road and causeway.	sanctioned, season 1844-45	
urreepore, Construction of an Iron Suspension Bridge over the Gumbleer River.	to replace a Shakespearian bridge, reported unworthy of further repair.	sanctioned, 26 July 1844	- to be one span of 120 feet, with
			breadth of road- way 7 feet. Situ- ated about 64 miles from Suba- thoo.
urdwar <i>vid</i> Roorkie to Saharunpore, Construc- tion of a Road.	for the good of the trading com- munity, and for the benefit of the Ganges Canal. By the proposed road, lime, timber and bricks may be	length, 42 miles	Seharunpore
1997 - 1997 -	conveyed to the works on the canal.		
ndun Bridge, Completion of the Causeway leading to the.		sanctioned, 16 March 1847	5-15-15-1

RETURN FOR THE PRESIDENCY OF BENGAL-continued. Amount of Estimated Amount Probable REMARKS. Expense incurred. 1.0 for Completion. Time of Completion. 13 Rs. a. p. the contract بالاسراد الإلال Rs. a. p. 1 ۲. 🛔 3.758 15 15 . 1.1 1 - completed, sea-8.707 14 8 son 1841-42. 1 address and a short also be a count as you got ------5,029 5,029 - 7 -- completed, sea--- this bridge has three arches of 20 feet son 1846-47. span. Sec. A. Sec. Mark of the State of the and all and 1,45,577 . 10 2 - - completed, sea-- this bridge was thrown open to the including the expense of metalling the portion of son 1845-46. public on the 28th August 1845. the Grand Trunk Road between the bridge and Schinpore, near Delhi. , : - - the pooling appears to have arisen from the set of the current having turned against the eastern abutment of the bridge, 5 x - - completed, season 1847-48. and the outlay was necessary to prevent further damage. 241.14 3,620 15 د پر ب - - completed, sea-- - the expenditure was incurred for cartson 1844-45. ing kunkur. The labour was performed by convicts. 129 y 189 • T % 62.2 1 C 702 9 11 ۰. A CONTRACT . - 21,712 18- 8 -3. 10,721 10 8 -- completed, sea-- - this sum exceeds the authorized estimate di di testa by about 10,080 rupees, in consequence of the son 1847-48. necessity of restoring certain parts of the abutments and revetments, which were in-**-**93200 1 . A. A. jured by the floods; also, in part, by carry-ing the foundations of the abutments to a H. Anola and the paper water greater depth than was originally intend-See. 3 ed, and by the construction of an addi-tional wing-wall up stream. 14.700 ^_ - - the Saharunpore local committee have assented to bear the whole cost; the money assented to bear the whole cost; the money will be advanced by Government, the committee returning it by instalment of 2,000 rupees per annum. This work was projected by Lieutenant Strachey, an executive officer of the Ganges Cansi, and its execution will be entrusted to him. _ 5.862 6 11 ... 5,862 6 11 - - completed, sea-..... . son 1847-48.

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(continued)

NAME of WORK.	OBJECT of	Length,	Place of Termination, or of	
	CONSTRUCTION.	end Date of Commencement.	intended Termination	
Civil Buildin	gs, North Western Provinces;	l Judicial :		
lyderabad, Conversion of an Enclosure into a tempo- rary Civil Gaol.	at the recommendation of the Go- vernor of Soinde.	sanotioned, 8 August 1844 -	Hyderabad	
-			,	
Civil Building	gs, Lower Provinces; Judicial:			
azareebaugh :			Wannaharak	
Purchase of an Estate, the property of Major Bird, for a Cutcherry, for the Principal Assistant	the existing cutcherry was repre- sented to be quite inadequate for the accumulated records, and to be too confined for the large number of per-	sanctioned, 25 January 1841 -	Hazareebaugh	
Commissioner.	sons constantly in attendance.		1	
Construction of a Gaol at	for civil and criminal prisoners	sanctioned, 8 May 1838 -	- ditto	
Committeend of a Claut at	IDF GIVIS AND CLIMINS PRISONERS *	Sanctionen a preà 1099 - " -	- areco a	
Purchase and alteration of a Bungalow as a Cut-	rendered necessary in consequence of the Government Cutcherry Bun-	sanctioned, 24 January 1845 -	- ditto	
cherry for the Principal Agent, Governor-general.	galow having been appropriated to the use of the Ex-Ameers of Scinde,		·	
oogbly Gaol: Supply of water to the	for the use of the prisoners	sanctioned, 25 February 1846 -	Hooghly -	
Construction of two Cook- ing Sheds and Ventila- tors.	the removal of the present cooking sheds was necessary to prevent the escape of the prisoners, and the other sanatory works were considered es- sential.	safictioned, 21 July 1847	- ditto	
azareebaugh, transfer of	for the confinement of prisoners -	mutional 1 December 2048		
the European Hospital to the Judicial Department.		sanctioned, 1 December 1847 -	ilazareebaugh ~	
Civil Building	s, Central Provinces; Judicial			
oshungabad Gaol, Con-	and the second	•	TT. 1 . 1 . 1	
struction of additional Wards,	of space, admit of no classification, or internal gool discipline.	sanotioned, 9 March 1846 -	Hoshungabad -	
oshungabad :		, ·		
Restoration of the Pesk- karree Cutcherry.	this outoherry was destroyed by fire on the 27th May 1846.	sanctioned, 2 February 1847 -	- ditto	
Civil Building	s, Central Provinces; Revenue			
loshungabad : Construction of a Pees-				
kar's Cutcherry.		sanctioned, 26 December 1838 -	- ditto	
				
Civil Building	gs, South Eastern Provinces; (deneral:		
owrah, Extension of the Burial-ground.	• • • • • • •	sanctioned, 14 March 1842 -	Howrah	

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Amount Expanse is	of ,	Estimated Amount for Completion,	Probable Time of Completion.	REMARKS.
Rs. A	.	Rs. a. p.		Ч. с. – . <u>– . е</u> . – . (р. – .)
	n n e n deine d			- the gasl will consist of three flat-roofer wards, with guard-rooms and out-offices.
• • •				
	1 1 1			and the state of the state
3,500			season 1841-42 -	the estate is beyond the limits of can tonments.
			nig Straining of	and the second of the second
1987) 1987) 1987 1987 - 1987 1987 - 1987	1	An Same and An		na artista en la constanta de l En la constanta de la constanta
4,699 7		4,699 7 - <u>j</u>	completed, sea- son 1842-43.	the buildings of this gool are of a tem porary nature. A hospital and wards for females are included amongst the building which have been constructed.
*	2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	Pitage and concerns.	•	which have been constructed.
3,772 8	8 9 0 11 − 11 − 11 <u>−</u> 1 1 1	8,772 8 9	season 1845-46.	
•				
L - 2,082 S	-405, G	2,184	completed, sea- aon 1846-47.	
°- °→ 1,725 ℓ	8	1,692 10 8		
* a *	i			a si su
rai ng sepain T	t Angel Angels (Samp) Angel Angels (Samp) Angel Angel Angel Angel Angel	1,889 2 11 <u>1</u>		- this arrangement will obviate the net cessity there would otherwise have been t enlarge the Kishenpore gaol.
		- 14 1	n an training the	the state of the s
۰.	n di ni di Nationali di Antonio di Antonio Nationali di Antonio di Antonio di Antonio di	en frañs a sua 1940 - Elen Spinster a ser 1941 - Elen Spinster a ser	- - -	e e e e e e e e e e e e e e e e e e e
6,411 8	2	6,694		n n n j tin station j setter
- 580 -			season 1847-48.	
i a		с -		
	t t			and the second
1,074 8	6	an a a a	completed, sea- son 1841-42.	
•		2 		and the second
	6		completed, sea- son 1842-43.	a space of about 175 \times 170 has been taken in and enclosed.
622.		ļ ,	K 4	(continued

. . . . RETURN FOR THE PRESIDENCE OF BENGAL-continued.

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NAME of WORK.	OBJECT		Length,	Place of Termination,	
	CONSTRUCTION.)	and Date of Commencement.	or of intended Termination.	
-				2	
Civil Buildin	gs, Lower Provinces; Gene	eral	te de la companya de		
Hooghley River, Construc- tion of two Obelisks on the.			sanctioned, 20 May 1844	one at Canter- bury Point, the other at the mouth of the Hog River Creek.	
	gs, Central Provinces ; Gene	rai			
Hattrass, Repairs and Im- provements to Harding- gunge.	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		sanctioned, 26 July 1841	riattrass • •	
Civil Buildin	gs, Lower Provinces; Politic	al :			
Iasareebaugh, Repair of Buildings.	purchased for the accommodat of the ex-Ameers of Soinde.	ion	sanctioned, 17 January 1845 -		
Canals, North	Western Provinces:				
atally Canal, Excavation and Clearance of	م به بر الم	20 1	sanctioned, 14 April 1840 -	E112	
uma River	improvements to the navigati of the.	- 1		i.	
Plantations on the Banks of the Canels west of the Jumna River.			from 1830 to 1 January 1841 - A the draw its and encystation and include seconds to beginn	5.0435 - 5.1	
	l l		an a construction of the second s (a) a second s (a) a second s		
,		,			
man Bund, Repair and Extension of the.	for the purpose of relieving t Jumns New Cut and Bund from portion of the flood-water, and eler ing out the mouth of Blone's Cut.	18. 17-	sanctioned, 8 April 1837	n na far an ann an Anna Anna an Anna Anna Anna A	
Roads and Bri	idges, South Eastern Provin	Ces			
ggernauth Road		-	- length, 261 miles, extends from the old Benares Road at Jellalabad vid Midnapore, to Pooree.		
Repairs to the Ghoree Khall Suspension Bridge on the.	n an an an an Argana. An Argana		built by Lieutenant Schalch many years ago; repairs sanc- tioned, 20 July 1841.	in the Bala- sore division.	
•	a de la companya de La companya de la comp				
Repairs to the Foolnackra Bridge, in the Cuttack Division of this Road.	damaged by a flood on the 9 October 1842.	24	sanctioned, 5 June 1843		
Construction of a Drain Bridge in the Balasore Division at Ummerrah.	to supply the place of a 4-fe drain, which was carried away by flood in September 1841.	et a	the new drain is of 8 feet span		
Renewal of the Wood- work of the Iron Sus- pension Bridge at Kud- dum Khandee.		-	sanctioned, 8 October 1842 -		
Construction of a new Drain Bridge on the,	this drain is much required at the spot, which is cut every year by the spots to let off the water from the fields.	he i '	sanctioned, 23 October 1843. This bridge is to be of 8 feet span.	at Dysurrah	

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LAST TEN YEARS, AND OF THOSE NOW IN PROGRESS. the set of a second second

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Amoun		Estimated Amount for Completion.	Probable Time of Completion.	REMARES.
Rs.	-	Rs. a. p.).	and the second of	ricuot, and that had
traden official configure no 1998 de 1999 de 1999	4° 101 14^1 -	2,003 12 5	completed,sea- son 1845-46.	the obelisk at Canterbury Point is to be 50 feet, and that at Hog River Creek 40 feet in height.
9 8 5 N 4 1				
		· · ·	1 .	The start of the s
'- ^{(*} - '`9,339' 1	5 7 Lark 2	4,006 ° ° T * 7	completed, sea- son 1843-44.	(4) D. C. Start, S. M. Joseph and S. S. S. Sandar, and S. S. Sandar, and S. S. Sandar, and San Sandar, and Sandar,
	2 1 2	· :1	nantol (como o d	Land a patient for)
- 529	5. Ert viaga	1. 71 (529 ¹⁹⁶ 8 8 1 6	son 1845-46.	the children in any structure of the second se
				ampall altight desails
- 3, 468	9. 5 (1) es 12.	4 an estimate for i clearance, amountis to Rs. 4,528, 10, 6.		Antonio Constanti Francisco e e e e e e e e e e e e e e e e e e e
			and group and some pr	and the second mande
	incurred in rear smount realized from these trees	¹ ¹ since 1830 an ave age yearly outlay 2,000 rupees has be ing plantations. The by the sale of cutting a has been 19,960 r nount expended 22,45	of en 38 u-	they consist chiefly of babool, toon, saul and sizeco, which, when they arrive at maturity, will yield a very profitable return.
				a spend of the end following to
not reported -		·	માં પ્રદેશ મુખ્યત્વે કે આવેલું છે. આવેલાં દુશ્લે કે કે કે આવેલું છે. આવેલાં દિલ્લા ટ્વાર છે આવેલાં છે. આવેલાં છે આવેલું છે છે છે છે છે.	na spill i kuna pari i su da se ancienta da se ancienta da se ancienta da se ancienta da se anciente da se enclata da se anciente da se anciente enconcente da se anciente da se ancient
•		• •	out and another the	Louis Jost Late Marit
	- and then Happed	n 142 prototor bol bin og no 13 4 jan bogenisti		• psolitionaers god
22243		1 7111 02 0 00 0	completed, sea- son 1844-45.	- the standards have given way, and the failure is ascribed either to the masonry on which the ground links are built having sunk and allowed the chain to come for- ward, or to the ground links not having been firmly built into the masonry at first.
1,399 1	1 9 2 61 1	1,399 11 9	completed, sea- son 1843-44.	n an ann an Arraige ann an Arraige ann ann an Arraige ann ann ann ann ann ann ann ann ann an
579 1	0 . 7 . 1	e <u>na post</u> ar os de la la c	completed, sea- son 1842-43.	الا بعد من التي يكن الإيران المعالمين والم المقالية المالية المقالية المعالمين والمعالية الأربع المقالية من من المعال المعالية المعالية
- 886 1	1 5 4 7	992 2 1	completed, sea- son 1848–44.	an an ang transition ang transition gan manghan tan ban ng santan ng santan gan gana ang santan
5 - 13 813 1	3 1-1 parama 8 8 7 13 7		completed, sea- son 1843-44.	ing the constant of antiparty of the second
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NAME of WORK.	OBJECT	Length,	Place of Termination,
NARBU WVRAL *	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination,
Roads and Bridg	es, South Eastern Provinces-continue	d.	
aggernauth Road :		,	•
Construction of a new Bridge near the present Noomajoory Bridge.	with a view to the preservation of the Juggernauth Road, which at the sits fixed on for the new bridge was constantly liable to be out through	sanctioned, 27 August 1844 -	
	by the floods of the country.		
Repairs to, in the Bala- sore Division.	in consequence of heavy damage sustained by floods.	length about .83 miles; sanctioned 27 February 1845.	between Go- reekhaul and Raj- ghaut.
	and the state of the		Browne
Construction of a Drain Bridge on the.	- the road was every year out through by the ryots, to let the water off their fields; this practice, it is hoped, will be put a stop to.	of 8 feet span ; sanctioned 23 October 1843.	at Dysurrah -
	· · · · · · · · · · · · · · · · · · ·	the first state in the	
Construction of a Drain Bridge on the.	with a view of bringing the water into the villages, instead of allowing it to be carried off to a different	sanctioned, 26 April 1844	at Khurruckpore
	direction		4
•	for drainage	San Contraction	 C + 2 A
Construction of two Bridges.	for drainage	sanctioned, 8 September 1847 -	at Rajghaut -
Roads and Br	idges, North Western Province	* 8:: • 1:: 1:: 1:: 1:: 1:: 1:: 1:: 1:: 1:: 1:	• • • • •
als Datama in den ale Clam	e velatione en a ser e		
sh Bridge, under the City of Bareilly, on the road to Moradabad.		(1) And the second s	
•		na se ana na na gaine na taran na La tara da ana an gaine na taran na La tara da se an an ang tarang tarang ta	and and a second s
	· · · · · · · · · · · · · · · · · · ·	I when a segurited a set	
raree, Construction of an Iron Suspension Bridge, on the Taper Chain prin-	in lieu of a bridge which was carried away in September 1840 by a sudden rise of the river.		Jyares
ciple, over the Kossillah River at.			
	•	•	
Roads and Br	idges, Lower Provinces :		
malpore, Construction of Drain Bridges at.		sanctioned, 10 May 1844	Jamalpore
			·
ipore to Ningroo, Opening of a Road.	military posts having been esta- blished at these places, it has been	length, 27 miles; sanctioned, season 1844-45.	Ningroo
•	found necessary to open a temporary communication between them.		· · · ·
Roada and Ry	idges, Central Provinces :		
bbulpore to Mirzapore, or	TOTAL TITLE	· · · · ·	
the Great Deccan Road : Metalling of the	in consequence of the great wear	length, 245 miles; sanctioned,	from Tilwarra
	and tear on this road.	28 September 1840.	Ghaut between Jubbulpore on the Nerbudda, and
	•		Mirzapore on the Ganges.
Annual Repair to the metalled portion of.	also for making wooden bridges, &c.	sanctioned, 30 November 1842	Mirzapore -
•			
	· · · · ·	يحتم فالبيس المالي	1

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Estimated Amount Amount of Probable REMARKS. Time of Completion, for Completion. Expense incurred. a. p. Rs. Rs. a. p. • • a. . - - this is a bridge of five arches, viz. two of 22 feet, two of 24 feet, and one of 11.094 2 4 16,856 4 9 -- completed, sea-son 1846-47. . / 26 feet span. A saving of Rs. 5,762. 9. 5. has been effected by a reduction in the quantity of mesonry, as well as in the rates assumed in the estimate. 1,404 9 11 2 1.404 0 11 веавов 1845-46. 4. 4. 22.4 . . 802 8 + 5 302 8 -5 - - constructed, Saute 1.1 season 1848-44. . ÷., . : : in Auto - 14 5.213 12 243 .5 11 5 11 season 1844-45. 248 Stander Oak . not stated .. each of two arches of 10 feet span. ٠Ĺ , . . two en a . · . . 15,702 -- a wealthy native gentleman, Dewan Behadoor Sing, offered to defray the cost of this bridge, which had been taken out of the hands of the Executive Engineer. ; 1 9 24 8,581 8 8 10.543 - - completed, sea - - this bridge is to consist of five arches of son 1846-47. 20 feet span each, with piers 20 feet high. o fair de -- completed, sea-950 9 son 1844-45. a Correction 1 11 ź 989 - - the road has been marely cleared of the 1.075 8 5 - constructed, season 1845. jungle, so as to admit the passage of troops. 1. - this road was originally constructed by 88,924 10: 5 86,826 15 4 -- completed, sea-Major Drummond. son 1848-47. . for Bridges -Rs. 2,448 5,168 8 8] -- completed, sea-- - this estimate also provides for the con-" Repairs -BOD 1846-47. struction of 15 wooden bridges on the road 2,708 connecting Jokehia and Dumoh, and olearing the Nuddee Ghauts. Rs. 5,156 . (continued) L 2 622.

- - RETURN FOR THE PRESIDENCY OF BENGAL-continued.

NAME of WORK.	OBJECT	A i Leng th,	Place of Termination,
NAME & WORK.	CONSTRUCTION.	and Date of Commencement.	or of intended Termination
Roads and Bridg	ges, Central Provinces-continued.		
Jubbulpore, vid Seonce to Hamptee, Proposed Me- talling and partial Bridg- ing of the Road.	to continue the great road from Mirzapore to Jubbulpore (or Great Deccan Road).	Length: M. f. ydt. Jubbulpore to Seonee 63 7 32 Seonee to Kamptee 63 7 96	Kamptee .
الحكوم معرف من المالي المالية. مريد حالي أنه المالية الأمر المالية. مريد الم	2. Second States and second States are second states and second states are second states are second states are second states.	Miles 148 0 0	
α το		With reference to the magnitude of the outlay contemplated, its commencement has been deferred	• • • •
		until the estimates have been reported on by the Superintend- ing Engineer, after personal in- spection.	i ,
Civil Building	gs, South Eastern Provinces; J	udicial :	
latally, Purchase of Ground	for the sheds of the conservancy department.	sanotioned, 2 April 1839 and 23 June 1840.	Intally
Civil Building	5, Lower Provinces; Judicial:		
lessore, Construction of a flat-roofed Cutcherry.	- for the two Principal Sudder Ameens, to enable them to give up the rooms in which they at present hold their cutcherries, for the custody of the records of the Judge and Ma- gistrate.	sanctionéd, 2 May 1842	Jessore
essore Gaol, Construction of 12 necessaries.	्रिया के प्रतिकार के स्वार के प्रतिकार के स्वार के क्रिक्स के स्वार के स्वार	sanctioned, 25 January 1848	Jessord
essors : Cutcherry for the Sudder Ameen.		sanctioned, 27 February 1843 -	Jessore ''
Construction of a Selak- hana.	for the reception of property re- covered in cases of dacoity, burglary, &c., and in lieu of an old building inconveniently situated.	sanctioned, 26 February 18442	the new build- ing will be erected close to the Magis trate's cutcherry.
essore Gaol, Construction of a Dead-house and Dis- pensary.	a a second s	sanctioned 27 May 1846	Jessore
Civil Building	s, Central Provinces ; Judicial :		•
ubbulpore: Construction of a new Gaol.	for the accommodation of 800 prisoners.	sanctioned, 10 March 1841	Jubbulpore
Construction of Public Buildings.	for the 1st battalion of military police,	sanctioned, 14 August and 13 October 1843.	an the a
Construction of a New Gaol Hospital.	under a representation that the gool hospital was not a fit receptacle for the united Thug and zillah sick prisoners.	sanctioned, season 1844-45 -	n Cales a
Civil Building	s, South Eastern Provinces; G	eneral	
ames Princep Ghaut, Con- tributions towards the Erection of.	- to be erected with the aid, of Government, by the inhabitants of Calcutta, to the memory of the late James Prinsep, Esq.	sanctioned, 1840-41	in a situation highly useful for the embarkation
:		الله المراجع ال المراجع المراجع	or disembarka- tion of European troops.

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1	Amount of Expense incurred.	Estimated Amount	Probable Time of Completion.	REMARKS
	Rs. a. p.	Rs. a. p.		
-		1,76,246	n Senegari visen i viens Senegari visen i Antonio	- Rs. 20,010. 5. 61. were expended in season 1847-48 in cutting jungle, making
		Rs. 2,37,746		proper inclined ghauts, and clearing and smoothing the surface of the ghauts; and
	مورد معرف المراجع الم	exclusive of the item of bridges.		advance of 16,000 Company's rupees was sanctioned for the earth-work of the por- tion of the road in the Nagpore territory,
	ويسترج والمحار	nde ne engligente en igeneel de Agaberrizien gebeure en de de		and Rs. 24,180. 8. 10. for earth-work be- tween Jubbulpore and Seonee.
	ાત્વરજીવાને ના લાન્સ્વિત્ર જ	ne mer mil tribisseringasjangen. Til unternetan vers danser	· · ·	
		માનું આવેલ તમાનવા હતાં ને વૃત્ત માનું આવેલ તે નામના હતાં ને વૃત્ત		
		18 18 19 19 19 19 19 19 19 19 19 19 19 19 19		
		1. 	and the second second	at Hattan Constant I
	7.000/1-55		1	· ·
	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	i kan bi ya sena ana ana Man bi anali sha		an an an Araba an Araba an Araba an Araba. Araba an Araba an Araba
			. Bandinde gere e	and provent - actively and
-	- 2,696 - 5 - 31		completed,sea- son 1844-45.	- the cutcherry is to be flat roofed with tiled verandabs.
			and the second second	
			Comment into the Com Legit Store as both of	
•	1,234 , 0.8 (1) = 0.5 (1)	1. 16. 16 1.118 12	completed, sea-	and a second sec
			1	
•		3,657 10 , 9	completed, sea- son 1844-45.	and the second s
-			completed, sea- son 1844-45,	regulation for a second of a second second
	har never of their sent of a difficult of sential committees and their of sential		and the e	na se suba da segara da sera d En la calita da sera canada sera da ser En la calita da sera da
-		र्त्त कोट्री हे बहेल्ड्डली क	completed, sea- son 1847-48,	ان المراجع الم المراجع المراجع
			BUM 1041-40,	[10] T. K. Sign D. C. Yu, "Restriction of PAPA".
			testati, an	Martin Carlos A. C. A. C. A. C. A. C. S. A.
•	- 16,044 11 .9	15,541 11 1	completed, sea- son 1842-43.	
-	= 2,411 71		completed, sea- son 1844-45.	
•	- 8,765 5 8 - ,-	8,8767 . 5	-'- completed, sea- son 1846-47.	and the second
			жод 10ж0-ж/,	
		•	s in politi	
	antion, season 1840-41 3 November 1842: Flag-static contributed towards its erect to the value of		n de la marca de la marca Referencia de la marca Referencia de la marca de la	- on the 3d July 1843, the completion of the work devolved on the Garrison Engineer of Fort William, who it was understood had been provided with funds
	3 July 1843: A further gr authorized, of	rant 2,756		sufficient for that purpose.
		Rs. 13,356		• • • • • • • • • • • • • • • • • • •
1			1	(continued)

- RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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	OBJECT	1	
NAME of WORK.	of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of
	CONSTRUCTION.		intended Termination
Civil Buildings	, Lower Provinces ; General :		
-		annational DE Mauch 1949	
ames' and Mary's Anchor- age Creek, Construction of an Obelisk at the.		senctioned, 25 March 1843 -	situated below Fultah, on the Hooghly River.
Civil Buildings,	Central Provinces; General:		-
nahowna, Construction of	1	sanctioned, 7 May 1843	
a Staging Bungalow at.		Bancuonen, / Dizy 1043	situated he- tween Sultanpore and Benares.
ugadaree, Erection of a			
Staging Bungalow and Out-offices,		sanctioned, 9 September 1848 -	situated be- tween Umballah and Kherce.
~			
Civil Buildings,	Jullundhur Division; General:		· · ·
ullundur, Construction of a Cutcherry and Guard-	for the Deputy Commissioner of the station.	sanctioned, 81 August 1847	Jullundhur 2
room,			
,		n reasta 🖕 💶 📲	2 40 ⁴ 4
Canals, South W	estern Provinces :		
amapookreah Khal, Repair of the Dam across the	and the second according to the second s	sanctioned, 1840-41	e, erre e ge
Mouth of the.	17 - 18 - 18 - 18 - 18 - 18 - 18 - 18 -	er en alla a e	• 6 . .
		~	.
Canals, South Ea	astern Provinces:		
otakhally Nullah in Chit- tagong, Excavation of the.		sanctioned, 29 May 1888	· · ·
hattee Canal, Repair and Improvement of.	in consequence of the abandonment of the Oolabarreah Canal.	sanctioned, 12 February 1845 -	this canal is a communication
			between the Da- moodahand Hoogh
, ·			ly Rivers.
hattee Bund, raising of the,	to bring it above the level of the	cometianed OF Manager 4	· · · ·
two feet.	inundations which occurred in Au-	sanctioned, 27 May 1845	
	gust 1844.	•	
			١
Canals, North W	Vestern Provinces :	•	
unjnoon, Escape Nullah -	construction of a masonry bridge	sanotioned, 4 April 1836	
	across the,	sauctonen, * April 1836	near the village of Nakroan.
utta Puther Canal	- for the purpose of irrigating a traot of country bounded by the Jumna	sanctioned, 4 February 1848 -	
	on the west by the Asum on the		
	south, by the hills on the north, and on the east by a stream called		
· · ·	the Sutwala Rao.	· · · ·	
· · · · · · · · · · · · · · · · · · ·	· · ·		

RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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Amount of Expense incurred.	Estimated Amount for Completion,	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p.	en e	na Nasali yana kating nationali
2,642 10 43 -	- 1,861 - 10	completed, sea- son 1843-44.	its height will be 80 feet.
	•		
		en de la production Nacional de la composition Nacional de la composition de la composi	ne several de la companya de la propertie de la La companya de la comp
	1,881 4 8	sesson 1848-44 -	this bungalow will be constructed from
na se a la facto de la companya de Norma de la companya d Norma de la companya d	F Constant in the second s F Constant in the second	en en statistica en	the funds originally granted for the bunga- low at Benares, a bungalow at the latter place being under construction from funds collected by private subscription.
		and a start	r some to are to the loss of a
	• 2,248 10 9	completed, sea- son 1846-47.	
· · · · · · · · ·			
	-		
tin terretaria. Tin terretaria	25,450 4 10		the old fort at Jullundur, formerly used as a outcherry, has been sold for 40,000
•			Company's rupses.
•			
813 15 6 -	825	repairs com- pleted 1841-42.	- the total sum expended for this work since its commencement is 2,945 rupecs.
San an a		1 - A.	an an an ann an Anna Anna Anna Anna Ann
(,	in a statistical de la statistical de l La statistica de la statist La statistica de la statist
1,224 9 11 -		completed, sea- son 1841-42.	
2,000	l l	completed, sea-	en e
tenna (open 1920) Di open ersenserse nyen. Di open open open open Dieten	<pre>/ * * * * * * * * * * * * * * * * * * *</pre>	son 1845-46.	And the provide state of the second state of t
and a second		· · ·	•
	2,568 3 6		- the greatest part of the earth for this work will be dug out from the Khattee
		an an an an Arran an Arra An Arran an Arra Ar	Canal, the improvement of which will thus be effected at little or no expense.
			}• • •
2,142	- 2,143	constructed, season 1846-47.	this bridge has timber road-way, on ma- sonry piers and abutments.
	- 88,902 11 1 ₁	· · . 	this tract of land to be irrigated, contains 20,254 acres (31 square miles), more than four-fifths of which is good land for culti- vation.
622.	I	L4 '	(continued)

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Repair of the Road. river, and forms a bund to keep out inundation. Roads and Bridges, South Eastern Provinces : hoords Road : Repairs to, and clearance of Jungle on. construction of 129 Bridges and Drains on the. youk Phyoo, Construction of first-class Masonry Bridges. hoorda Road, Construction of large Bridges on the. required over rivers that intersect the road. required over rivers that intersect the road. the length of the Khoorda Road is 69 miles, 5 further to Cuttack. to facilitate the means of communication. to facilitate the means of communication. <	a - 4 - 1	between Upper and Lower Assam.		
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Roads and Bridges, South Eastern Provinces : hoords Road : Repairs to, and clearance of Jungle on. Construction of 129 Bridges and Drains on the. youk Physo, Construction of large Bridges. hoorda Road, Construc- tion of large Bridges on the. Hoorda Road, Construc- tion of large Bridges on the road. Hoorda Road, Construc- tion of large Bridges on the road. Hoorda Road, Construc- tion of large Bridges on the road. Hoorda Road, Construc- tion of large Bridges on Hoorda Road, Construc- tion of large Bridges on the road. Hoorda Road, Construc- tion of large Bridges on Hoorda Road, Construc- the road. Hoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. Hoorda Road is 60 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. Hoorda Road is 60 miles, 5 furlongs and Hoorda Road is 60 miles, 5 furlongs and Hod is 60 miles, 5 furlongs and Hoorda Road is 60 miles, 5 furlongs and Hod is 60 miles, 5 furlongs and Hoorda Road is 60 miles, 5 furlongs and Hod i	wehren of the word	inundetion		
hoords Road : Repairs to, and clearance of Jungle on. Construction of 129 Bridges and Drains on the. youk Physo, Construction of five First-class Ma- sonry Bridges. hoorda Road, Construc- tion of large Bridges on the road. to facilitate the means of commu- nication. to facilitate the means of commu- nication. the length of the Khoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Sa- hal River; one over the Con- one over the Commu- one over the Com- one over the Co	• 1	t it is and		
 accords Road : Repairs to, and clearance of Jungle on. Construction of 129 Bridges and Drains on the. to facilitate the means of communication. to facilitate the means the facilitate the means of communication.<td>Roads and Bri</td><td>dges, South Eastern Provinces :</td><td></td><td></td>	Roads and Bri	dges, South Eastern Provinces :		
Repairs to, and clearance of Jungle on. Construction of 129 Bridges and Drains on the. youk Phyco, Construction of five First-class Ma- soury Bridges. hoorda Road, Construc- tion of large Bridges on the road. to facilitate the means of commu- nication. to facilitate the means of commu- nication. the length of the Khoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Coosmy River; One over the Sa- hal River; One over the Sa-				· · · · ·
or Jungie on. Construction of 129 Bridges and Drains on the. youk Physo, Construction of five First-class Ma- soury Bridges. boorda Road, Construc- tion of large Bridges on the road. to facilizate the means of commu- pication. to facilizate the means of commu- substitution. the length of the Khoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the foo- hal River; - One over the Com- 	Repairs to, and clearance		length of road, 69 miles. 5 fur-	• • extends from
Construction of 129 Bridges sad Drains on the. youk Phyoo, Construction of five First-class Ma- sonry Bridges. hoorda Road, Construc- tion of large Bridges on the.	ot Jungle on.	• · · •	longs, and, 115 feet; repairs	the Madras fron-
snd Drains on the. youk Phyoo, Construction of five First-class Ma- sonry Bridges. noorda Road, Construc- tion of large Bridges on the road. required over rivers that intersect the road. the length of the Khoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Coosmy River; One over the Sa- hal River; One over the Con-	Construction - \$100 P.11.	a de la tatula de	1	
youk Physo, Construction of five First-class Ma- sonry Bridges. hoorda Road, Construc- tion of large Bridges on the.		to iscilizate the means of commu-		• • •
rouk Phy oo, Construction of five First-class Ma- soury Bridges. soorda Road, Construc- the road. required over rivers that intersect the road. the length of the Khoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Coosmy River; One over the Sanctioned over the Con- the Road is 60 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Con- the Road is 60 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Con- the Road is 60 miles, 5 furlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the Con-	4 1 A A A A		Mar Conference	- 君一王・武王王 - こ
of five First-class Ma- sonry Bridges. noorda Road, Construc- the road.		and a strain of the second str	sanctioned 18 Sentember 1944	W I D
soury bridges. moorda Road, Construc- tion of large Bridges on the road. required over rivers that intersect the road. the length of the Khoorda Road is 69 miles, 5 forlongs and 115 feet; sanctioned, 25 Sep- tember 1844. one over the coosmy River; One over the Sancher - one over the Coosmy River; One over the Con-	of five First-class Ma-			Nyouk Phyoo -
noorda Rosd, Construc- tion of large Bridges on the road.	sonry Bridges.			
the. Hoad is 69 miles, 5 forlongs and 115 feet; sanctioned, 25 Sep- tember 1844. One over the Sa- One over the Con-	boorda Road, Construc-	required over rivers that intersect	the length of the Khoorda	OBE over the
tember 1844. Var Ser hal River; end a stand hal River;	non or large bridges on the	the good	Road is 69 miles, 5 furlongs and	Coosmy River :
One over the Con-		i i i i i i i i i i i i i i i i i i i	tember 1844	
One over the Con.	1		1 4 (2.14) 1 (1 (1)) + 1 (1)	hal kiver;
		a de la companya de l		One over the Con-
said the state of safety and safety	 a) (1.4) and (1.4) and (1.4) 		and the set	

Amount of Expense incurred,	Estimated Amount for Completion.	Probable Time of Completion.	/ REMARKS.
Rs. u. p.	Rs. a. p.		was built by the late Nuwab Mehindri Allee Khan Bahadoor, but having beer made over to Government by his nephew Ahmed Allee Khan Bahadoor, orders have
<u>-</u> - 5,609 4 8	9,170 13 1	completed, sea- son 1842-43. •	been given to provide for its future repair.
-, - 940 11 6	420 5 7	completed, sea- son 1844–45.	this bridge was totally destroyed by the storms which occurred between the 17th and 20th July 1844. It will not be restored.
			, ,
21,056 - 3	22,818 13 4	completed in 1846.	- a wealthy native gentleman, by name Kallee Podar, has made an offer to Govern- ment to defray half the cost of this bridge This bridge had been but recently con structed and reported upon (on the 26th August 1646) he consult
		in c been	August 1848) by a special committee, and while their report was under consideration accounts were received of its fuilure on the September 1846, with a loss of 150 lives consequence of the whole structure having thronged with natives witnessing the pas
		estir to 5 to th tem 1844 tens	of the Doorgah under the bridge. Th nate for the restoration of the bridge amount 426 rupess. The Court, in their despatoi he Government of India dated the 29th Sep per (No. 25) 1847, reiterated their orders n 5, forbidding the further adoption of th ion principle in the construction of suspen bridges. Sce Ballee Khal Bridge.
1,839 14 5		completed, sea- son 1842-43.	the amount will be charged partly b the Town Improvement Committee funds and partly to the Mofussil Road funds.
not reported	24,500 2 2		the construction of 240 drain bridge on the line is provided for in the estimate
0,212	6,212	completed, sea- son 1844-45.	
	·		
	11,450 io -1	•	
49,702 8 5	60,678 3 6 •	completed, sea- son 1845-46.	• - the saving of Rs. 10,970. 11. 1. is owing to a reduction of rates, and also to the quantity of masonry.
10,518 14 10	11,856 7 1 •	completed, sea- son 1842-43.	•
] []	6,970 14 1		for a bridge of seven arches and 20 fee span over the Coosan River.
No report of the final com- pletion of these bridges has been received	9,668 9 2		for an iron suspension bridge of 8 feet span over the Sahah River.
	30,382		- for a bridge on the tension principle over the Consnie River.

·	OBJECT	Length,	Place
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	of Termination, or of intended Termination
Deads and D-11	C. d. Factor P		
	ges, South Eastern Provinces—continued	ι	•
yook Phyce : Construction of two		Constinued 15 Auril 2040	771
Construction of two Sluices with self-acting Gates to Bunds.		sanctioned, 15 April 1846 -	Khycok Phyco -
Construction of twelve Puces Drain Bridges.	these works were undertaken at the requisition of the Commissioner		at Mugh Bazar -
Construction of four Drain Bridges.	of Arracan.	- ditto	at Khyook Phyoe
edgeree Dâk Road, renewal of Wooden Bridges over the Kolah Khallee, and Tangooah Khalls.	to replace the present structures, which are in a decayed and dangerous condition.	sanctioned, 17 March 1847 -	Kedgeree Dâk Road.
A angovan ixitatas.	•		•
D. 1 1 P	1 13		•
	idges, Umballa Division :		
alka to Dugsbye	with reference to the formation of a new cantonment on the hills at Dugshye, the road from Kalka at the foot of the hills will be extended	length, 181 miles; sanctioned 28 April 1847.	Dugshye
	to Dugshye.	•	
Civil Building	s, Lower Provinces; Judicial:		
youk Phyco, Construction of a Cutcherry Bungalow at.	- • to be used either by the Assistant at Aeng, or by the Commissioner.	G. O.; 26 September 1839, -	Khyouk Phyco -
osbangh near Moorsheda-		sanctioned, seasons 1840-41,	Koosbaugh -
bad, Repairs to Buildings at the Mausoleum of Mo-	•,	and 1841-42.	. 1908040181
habut Jung.	· · · · · · · · · · · · · · · · · · ·	•	
shenagur Gaol, Erection of a Dead-house.		sanctioned, 23 November 1846	Kishenagur -
colna, Construction of a Cutcherry and Dwelling-	the construction of the building was rendered unavoidable, in conse-	sanctioned, 3 June 1844	Khoolna
house for the Joint Magis- rate.'	quence of a tendency to outrage and disturbance existing in that quarter, which called for the constant presence	• • •	
	of a Joint Magistrate.		
ssenpore Gaol, New Tile roofing to the.	the gaol had heretofore been thatched, but a thatched roof, from its liability to take fire, was considered	sanctioned, 16 September 1844	Kissenpore -
	particularly objectionable for a gaol.		• •
Civil Building	s, South Eastern Provinces; Jud	licial :	•
ouk Phyce:		α με το	
Addition of Out-offices to the new Circuit-house.		sanctioned, 5 October 1841 -	
Construction of new Gaol Buildings.	the old gaol wards were quite unworthy of further repairs.	sanctioned, 81 July 1843	Kyouk Phyco -
Construction of a Suddur Hospital.	indispensably necessary for the accommodation of the sick of the police, the flotilla, and other civil establishment	sanctioned, 24 June 1844	
Construction of two new Wells for the Gaol.	establishments.	sanctioned, 31 July 1843	

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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion-	REMARKS.
Rs. ° a. p	Rs. a. p.		•
1,828 4	- 1,461	completed, sea- son 1845-46.	
1,217 15 7, for 1 bridges in 1847-48.	ine 1,381		•
• • • • • •	- 1,348	•	
- 4,009 7 10 -	- Rs. 2,230 1 1 1,778 6 9	completed, sea- son 1847-48.	the bridge over the Kolah Khallee to be of 70 feet span ; that on the Tange Khall, of 60 feet span.
	Rs. 4,009 7 10	an an Araba an Araba. An Araba	Andri, or ou rest span.
			•
	- 1,20,250		up to the 1st April 1848, a sum Rs. 45,068. 1. 3., had been expended on
	•		work, the progress of which has also b assisted by three or four companies of corps of sappers and miners.
7,428 5 8 -	- 5,335 9 8	completed, sea- son 1842-43.	the whole, or nearly so, of this exce has been expended on works not inclu
2,308 10 6 -	- 2,308 10 6	season 1841-42,	in the original estimate.
			•
417 11 4 -	-	costructed, season 1847-48.	
6,796 11 10 -	- 7,150 8 9	completed, sea- son 1845-46.	
•			•
2,066 5 11 -	- 2,616 4 3	completed, sea- son 1846-47.	
	•		•
• • 1,082 \$ 3 -	- 1,082 - 8	completed, ses- son 1842-48.	•
a a a a a	- 20,867 5 2		•
1,753 10 6 -	- 1,760 5 -	completed, sea- son 1845-46.	
- 517 5 9 -	- 517 5 9	constructed, season 1845-46.	• .

	OBJECT	T-math	Place
NAME of WORK.	lo	Length, and Date of Commencement.	of Termination or of
an a	CONSTRUCTION		intended Termina
Civil Buildin	 gs, North Western Provinces; .) Judicial :	
umaon, Construction of a Cutcherry.	for the accommodation of the junior Assistant Commissioner and Suddur Ameen.	sanotioned, 7 July 1841 -	and a second
Kuchwagur, Construction of Police Guarda.	for prisoners under trial	sanctioned, 27 April 1844	Kuchwagur
			•
Civil Building	gs, South Eastern Provinces; R	evenue:	
Youk Phyoe : Construction of Masonry Sluices with self-acting Gates.	in compliance with the recom- mendation of the Commissioner of Arrocan.	senctioned, 4 March and 20 May 1846.	in Freema Bund at Kya Physo.
Construction of a Masonry Sluice with self-acting Gate.	- ditto and according -	sanctioned, 15 April 1848	in Hopkinso Bund at Kyo Physo.
Construction of a Masonry Sluice with self-acting Gate.	- ditto	sanctioned, 4 March 1846 🤹 🔸	- in the F Villege Bund.
Civil Baildin	gs, South Eastern Provinces; G	anoral .	
edgeree Tripod			
A AND	1 for the security of the estab- lishments at Kedgeres, as well as of the inhabitants, in the event of a cale occurring similar to that in	- the fabric will be 50 feet high, and of four stories; sanctioned, 27 January 1840.	Kedgeree -
	lishments at Kedgeree, as well as of	and of four stories; sanctioned,	Kedgeree -
idderpore, New fitting Shop in the Steam Dock- Yard.	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in	and of four stories; sanctioned,	Kødgeree -
idderpore, New fitting Shop in the Steam Dock-	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in	and of four stories; sanctioned, 27 January 1840.	Kedgeree -
idderpore, New fitting Shop in the Steam Dock- Yard. Ledgeree, Enclosure of the	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 26 April 1842 by order of the Commissioner of Arracan, dated 17 February	•
idderpore, New fitting Shop in the Steam Dock- Yard. Ledgeree, Enclosure of the Burial-ground.	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind whatever.	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 20 April 1842	Kyouk Phyoa
idderpore, New fitting Shop in the Steam Dock- Yard. Gedgeree, Enclosure of the Burial-ground. Gyouk Physoo: Construction of Godowns Construction of a new Marine Magazine. Kootubdea Island, Con- struction of a Lighthouse,	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. - the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind whatever. for marine stores -	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 26 April 1842 by order of the Commissioner of Arracan, dated 17 February 1840.	Kyouk Phyoa Kyouk Phyoa
idderpore, New fitting Shop in the Steam Dock- Yard. Gedgeree, Enclosure of the Burial-ground. Construction of Godowns Construction of a new Marine Magazine. Cootubdea Island, Con- struction of a Lighthouse, &c. Kidderpore :	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind whatever. for marine stores - - the old building has been in a state of dilapidation since 1838.	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 26 April 1842 - by order of the Commissioner of Arracan, dated 17 February 1840. sanctioned, season 1842-43 'sanctioned, 11 January 1843 -	Kyouk Phyoa Kyouk Phyoa Kaotubdea Isla
idderpore, New fitting Shop in the Steam Dock- Yard. Sedgeree, Enclosure of the Burial-ground. Syouk Physoo: Construction of Godowns Construction of a new Marine Magnzine. Kootubdea Island, Con- struction of a Lighthouse, &c.	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind whatever. for marine stores - - the old building has been in a state of dilapidation since 1838.	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 26 April 1842 - by order of the Commissioner of Arracan, dated 17 February 1840. sanctioned, season 1842-43	Kyouk Phyoa Kyouk Phyoa
 Gidderpore, New fitting Shop in the Steam Dock- Yard. Gedgeree, Enclosure of the Burial-ground. Gyouk Physos: Construction of Godowns Construction of a new Marine Magazine. Kootubdea Island, Con- struction of a Lighthouse, &c. Kidderpore: Additional accommoda- tion in the Steam De- 	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. - the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind whatever. for marine stores - - the old building has been in a state of dilapidation since 1838. - for a new store-room, offices and model-room.	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 26 April 1842 - by order of the Commissioner of Arracan, dated 17 February 1840. sanctioned, season 1842-43 'sanctioned, 11 January 1843 -	Kyouk Phyoo Kyouk Phyoo Kootubdea Isla
 Gidderpore, New fitting Shop in the Steam Dock- Yard. Gedgeree, Enclosure of the Burial-ground. Gyouk Physos: Construction of Godowns Construction of a new Marine Magnzine. Kootubdea Island, Con- struction of a Lighthouse, &c. Kidderpore: Additional accommoda- tion in the Steam De- partment. Construction of Pucka 	lishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833. - the place was represented to be a perfect jungle, without any surround- ing wall, hedge or fence of any kind whatever. for marine stores - - the old building has been in a state of dilapidation since 1838. - for a new store-room, offices and model-room. in lieu of the existing cutchs dook -	and of four stories; sanctioned, 27 January 1840. sanctioned, season 1839-39 sanctioned, 26 April 1842 by order of the Commissioner of Arracan, dated 17 February 1840. sanctioned, season 1842-43 sanctioned, 11 January 1843 - sanctioned, 20 July 1842 - sanctioned, 10 October 1842.	Kyouk Phyoa Kyouk Phyoa Kaotubdea Isla

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Am	ouut of	Estimated Amount	Probable	
		. 1 i for Completion.	Probable Time of Completion.	REMARKS.
Re		. Rs. a. p.		•
•	· •	Rs. a. p.	- completed, sea- son 1841-42.	
9,20)of	2,200, m,	constructed, Beason 1844-45.	an a
• •	•			
· · ·				Let contract the prost of the
219 21 1 9,51 219 2 3 2 3 2 5 219 2 3 2 5 219 2 5 219 2 5 219 2 5 219 2 5 21 9,51		•	completed, sea- son, 1847-48.	and the second sec
(1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)		9#-6-1.1982:3-11	completed, sea- son 1847-48.	an a
2 1 12 10 10 55 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	8 14 9 - ···	a⊷ (10 (1 598 0 14 × 9 → }	completed, sen son 1847-48.	
· ·				•
•		}		Constant of the second second
- ···4,]{	89-11:0,	• 4,214 9.9 9 • • • • • • • • • • • • • • • • • • •	completed, sea son 1841-42.	three of the stories will be for places of refuge in times of, inundation, and th fourth may be used by the Semaphor establishment, and also for the purpose of exhibiting a light, if necessary, for the use of the shipping.
12,94	15 - 1 -	α το	completed, sea- son 1841-42.	the work has been antisfactorily executed.
- • ~ 78	4 12 11 <u>1</u> -	- 796 5 -	completed, sea- son 1843-44.	
• • •				
- 2,5	i0 [°] 3 10 -	, ma [time] = mayatin maraka an ara-ara-ara-ara-ara-ara-ara-ara-ara-ara	completed, sea- son 1841-42.	these buildings replaced two other which had been pulled down.
- 1,79	8 9 2		completed, sea- son 1842–43.	
• 35,5]	1	- 20,235 6 5	completed, 21 February 1846.	the light will be exhibited 100 feet above high-water spring tides, and the lanters is to be 12 feet in diameter.
40,08	6126 -	45,376 4 6	completed, sea- son 1844-45.	- the saving of Rs. 5,330. 0. 8., is as cribed to modifications from the origina design.
92,04	3 7 9 <u>1</u> -	87,788 7 1	completed, sea- son 1844-45 -	of the undertaking, the floor of the docl
هي خرج ه		- 2- 2- 2		necessary to change the mode of laying the foundation.

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	OBJECT	Length,	Place of Termination,
NAME oF WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination.
Civil Buildings,	South Eastern Provinces; General-co	ntinued.	
idderpore : Renewing a Store-room, constructing a Coal-tar	at the request of the Superinten- dent of the Marine.	sanctioned, 9 April 1844	Kidderpore -
Tank, &c., in the Naval Storekeeper's Depart- ment.			•
Construction of Buildings	for the reception of the pump and punching machine.	sanctioned, 17 June 1844 -	
Construction of a Shed -	as a receptacle for coals	sanctioned, 28 February 1644 -	• • •
Dock-yard, Kenewal of a portion of the Retain- ing Wall.	the old retaining wall is in a dangerous state, and the foundations are supposed to be defective.	sanctioned, 22 July 1846	
	•		
Youk Physos, Construc- tion of three Jetties or	for the convenience of the salt traders frequenting the port.	sanctioned, 16 September 1844 ·	Kyouk Phyco .
Piers.			
Xidderpore Dockyard, Con- struction of a Masonry Platform.	for setting up an iron crane, shipped by the Court of Directors.		
Lootubdeå, Lighthouse Baildings.	for a lighthouse tower and lan- tern, with buildings for the establish- ment of Overseer and Lascars, on the Islund of Kootubdea.	sanctioned, 8 October 1845 -	Kootubdea Island
			· · · ·
Adderpore : Proposed construction of a Basin or Wet Dock.	for inland steamers	submitted for sanction, 19 June 1846.	Kidderpore -
,		•	
	•	Ц	
Dock vard, Construction of Boat and Coal-sheds, and fitting up a Tank.	the necessity for these works was brought to notice by the Acting Superintendent of Marine.	sanctioned, 21 June 1847 -	- ditto
Dockyard, Construction of Dwelling-houses.	for the Naval Storekeeper and Marine Surveyor and Builder.	sanctioned, 29 April 1848 -	- ditto
	•		
● • •		•	
C::1 D:13:		•	
	s, Lower Provinces; General:		
urseong, Construction of a Staging Bungalow.	this bungalow is to be in the place of the staging bungalow at Mahalderam, built by the Darjeeling Committee, but now in a dilapidated	sanctioned, 5 August 1844 -	Kurseong
•	state.		
ishenagur, Construction of a Post-office at.	the accommodation heretofore af- forded to the records of the Post- office in the Collector's office, is no longer available,	sanctioned, 6 March 1846 -	Kishenaghur .
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RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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	. Amount of	Estimated Amount	Probable	
	Expense incurred.	for Completion.	Time of Completion.	REMAR _X S.
	Rs. a. p.	Rs. a. p.		. 4
	8,507 8 9 -	6,564 4 1	completed, sea- son 1844-45.	
			н. По 14	
	8,429 8 9 -	7,005 8 6	completed, sea- son 1845-46.	
	- 477	477	constructed, season 1844-45.	
	- this work was suspended in 1845-46, as the entrance to a projected wet dock for steamer will be made on part of the in- tended site.			the section of the new wall will be similar to that of the wharf wall at Sheer- ness, where the soil somewhat resembles that at Kidderpore.
,		3,748 8 -		
	•			
•	20,240	17,375		
	an ann an Arrainn an Ar	e 16 - 2		
	35,289 - 5	29,235	completed, Fe- bruary 1846.	- the excess over the original estimate was occasioned by the rates assumed by the Executive Engineer being purely con-
	•			jectural, in consequence of the isolated spot at which the work was to be car- ried on.
		• 1,27,211 6 9		it is proposed to make the entrance
•		•		into the wet dock through the dry dock whereby the expense of constructing a new entrance, with locks, &c., will be in great part avoided, while the dry dock will stil
	4 			remain available for the purposes of its original construction, whenever required.
		16,057 7 d	•	
•	• • • • •	19,608 11 8		- this arrangement will make the present
	•		•	house occupied by the Naval Storekeeper available for the Assistant Surveyor and Builder. The quarters of the latter, which
	• • • •			are unfit for a dwelling-house, the rooms being confined and low, will be converted into godowns, as proposed by the Marine Superintendent.
		u a a .		
	3,190 11 6, -	8,107 15 4	constructed, senson 1846-47.	- at the suggestion of the Superinten- dent of Darjeeling, the site of the bunga- low has been removed to Kurseong, which station is five miles nearer the plains than Mahalderam, at which latter place there has hitherto been, and still is, an hotel for the accommodation of travellers.
	733 9 5 -	722	completed, sea- son 1847-48.	- this building is to be of pucca, on account of the great destruction of wood- work at the station.
	622.	1	м4	(continued)

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	OBJECT	Tanéh	Place
NAME of WORK.	of CONSTRUCTION.	Length, and Date of Commencement.	of Termination, or of intended Termination.
Civil Buildi	ngs, North Western Provinces ;	General :	
Kurnaul, new Roof to the Roman Catholic Chapel.		sanctioned, 6 April 1842	Kurnaul
Kussowles: Construction of a Pro- testant Church at.		sanctioned, 17 January 1845 -	Kussowlee -
Construction of a Staging Bungalow.	the necessity for this bungalow appears to have been brought to notice by the Post-master, North Western Previnces.	sanctioned, 23 November 1844	
Kurrachee, Erection of a Post-office.	sanctioned by Government in the Foreign Department.	sanctioned, 18 July 1844 -	
Civil Buildir	ngs, Central Provinces; General	/ 1:	
Kheree, Construction of a Staging Bungalow.	the existing buildings, owing to the inefficiency of accommodation, did not meet the public wants.	sanctioned, 9 September 1843 -	Kheree
	gs, South Western Provinces; 1	Marine :	ж. Т
idderpore, Construction of Workshop for the Comptroller of Steam Ma- chinery.	sanctioned, 22 May 1839		• • •
· Roads and B	 ridges, Central Provinces :		
weknow Canal, Bridge over the, on the road from the city to Constantia, and bridging of the water- courses on that road.	these bridges are to be on a new line of road, half a mile less in length than the old road, which is through the King of Oude's private park, at Delkoosah, and although his Majesty permits all European gentlemen to use this road, it is ap- prehended that this privilege would not be extended to all classes of per- sons proceeding to and from Con- stantia, after it shall have become	Estimate submitted, 26 Feb. 1842.	
• •	a public College.		
Roads and Br	idges, North Western Province	s: .	
oharee Bridge, over the Uril River.	increase to the water-way in con- sequence of the approaches to it being flooded in the rains.		Loharee -
ocknow Bridge, and repair of the Canseway.	two lengths of the causeway, mea- suring 551 and 307 feet respectively, were entirely destroyed by a violent flood on the 20th June 1842.		near Scharunporo
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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p. 577 15 11	Rs. a. p.	completed, sca- son 1842-48,	
this work was suspended in season 1845-46.	25,734 12 6		
3,806 12 8	3,913 12 5	completed, sea- son 1845-46.	
840 8 -	N		
	• • •	constructed, season-1844-45.	· · · · · · · · · · · · · · · · · · ·
1,947 - 1 2	2.037 10 2	completed. sen-	
	and Rs. 186. 7, 8. for the requisite furni- ture.	son 1844-45.	
	• `	×.	
6,601 12	6,893 4 8	completed in season 1839–40.	•
	•		
not reported	10 KEK 9 8	not reported	the bridge over the Lucknow Canal i
	and Rs. 682. 7. 10. for bridges.		to be of three arches; the cost will, it i believed, be defrayed from the Maritim Fund.
			· ·
49			
	• •		
I1,322 8 53	. 11,333 15 1	completed, sea-	
in the second		son 1842-43.	a second a function of D films
	• • • • •		- the causeway of the Lucknow Bridge constructed on land arches traversing plain of deep sand, and extends to a lengt of 2,224 feet. The bridges and causewa
			were constructed in the year 1827, at a co of 36,000 rupees. The piers of the main arches of the bridge are carried down 2
	, , ,		feet below the bed of the river to solid soi Two of the arches having been choked up and shown symptoms of settlement in 1847-48, a sum of Co.'s Rs. 536. 6. was expended in flooring the spaces be tween the piers with rough wooden can sons.
	Its. a. p. - 577 15 11 - this work was suspended in senson 1845-46. - 3,806 12 8 - - 849 8 - - 1,947 · 1 2 - 6,601 12 - not reported -	Expense incurred. for Completion. Rs. a. p. Rs. a. p. - 577 15 11 - this work was suspended in season 1845-46. 25,734 12 6 - 3,806 12 8 3,913 12 5 - 849 8 - - 1,947 · 1 2 - - 6,601 12 - - 6,601 12 - - 6,601 12 - - 6,601 12 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 - - 12,565 3 6 -	Expense incurred. for Completion. Time of Completion. Rs. a. p. Rs. a. p. completed, scason 1842-43. this work was suspended in season 1845-46. 26,734 12 6 completed, scason 1842-43. this work was suspended in season 1845-46. 26,734 12 6 completed, scason 1842-43. this work was suspended in season 1845-46. 26,734 12 6 completed, scason 1845-46.

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·	OBJECT	Length,	Place of Termination,			
NAME of WORK.	of CONSTRUCTION.	and Date of Commensement.	or of • intended Termination			
Roads and Bridg	es, North Western Provinces—continue	d.				
andour Roads : Reconstruction of several portions of the Embank- ment Walls.	these roads were greatly injured by heavy rains in August 1842.	sanctioned, 6 January 1843 -	• • •			
Repair of, and Enclosure of parts of the Road leading from the Bar- racks to the Hospital	these roads were again injured by the heavy rains of August and Sep- tember 1843.	sanctioned, 1 December 1843 -	- - - -			
with a rough Railing. ohoo Ghaut, Construction of an Iron Suspension Bridge over the Lohoo	this bridge is intended to replace an old wooden bridge, which is con- sidered by the local authorities to be	sanctioned, 26 September 1846	Lohoo Ghaut			
River at.	no longer safe.					
Civil Building	s, North Western Provinces;	General :				
andour, Enclosure of the Burial-ground at.	• • • • •	sanctioned, 1 October 1842	• , • • •			
ochooghaut, Construction of a wall around the Burial-ground.		senctioned, 21 July 1843	• •			
oodianah Church, Addi- tion to.	in consequence of the accom- modation being insufficient for the increased number of European troops.	sanctioned, 8 April 1844	15 1.11 ₩.			
, • • •	s, Central Provinces; Ecclesias	itical : I				
ucknow Church	• • • • • •	sanctioned in August 1838				
Civil Building	s, North Western Provinces; I	Ecclesiastical :				
andour Church, Construc- tion of.	••••••••••••••••••••••••••••••••••••••	senctioned in 1838				
andour Burial-ground, Con- struction of a Wooden	to inclose the burial-ground	sanctioned, 29 November 1839	• • •			
Railing.		• * • • • • • • •				
Civil Building	s, Central Provinces; Political		1			
ucknow, Completion and Repairs of the Constantia House Buildings.	• • • • • • •	estimates submitted, 18 July 1843.				
Civil Building	s, North Western Provinces ; F	Political :				
ahore, Conversion of the Anarkuller House into a Residency.	for the Political Resident	sanctioned, 6 October 1847 .	Lahore -			
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Amount of Expense incurred:	Estimated Amount for Completion.	Probable Time of Completion.	REMABKS, ●
Rz. a. p. - 5,548 3 8	Rs. a. p. 5,832 7 11	completed, sea- son 1843-44,	
- 2,131 6 8	3,444 5 8	completed, sen- son 1844-45.	a railing has been erected along the road.
	2,455 9 7		
- 781 12 9	781 12 9	completed, sea-	and and a second se Second second second Second second second Second second
- 261 1 2 -		son 1844-45. completed, sea- son 1844-45.	
- 4,043 11 2	• . • • • • •	- completed, see- son 1845-46,	an addition of 40 feet has been made to the length of the church.
- 5,400		completed, sea-	the future repairs of the church will
which 1,900 rupees were by private subscription.		son 1840-41.	be repaid by the State.
- 6,493 7 6	5,000	completed, sea- son 1840-41.	
	937 11 7		
	1,96,650 4 4	•	the estimates were returned with an opinion, that the design appeared good and
· •			the rates moderate.
	24,900		the Resident is to be permitted to occupy the building rent-free, on the con- dition that he shall keep it in tenantable repair at his own cost, after the addi- tions and repairs provided for have been completed.

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Construction of a new Line in lieu, of the old Zemindarry Khattee Bund, in Pergunnah	Leogth, and Date of Commencement. length, 657 miles; estimated amount for annual repairs, Rs. 29,720. 11. 7. length, 3 miles 1 furlong y sanctioned, 14 February 1842.	Place of Termination, or of intended Termination.
Construction of a new Line in lieu, of the old Zemindarry Khattee Bund, in Pergunnah	length, 657 miles; estimated amount for annual repairs, Rs. 29,720. 11. 7. length, 3 miles 1 furlong 5	intended Termination.
Midnapore Division	amount for annual repairs, Rs.29,720.11.7.	
Construction of a new Line in lieu, of the old Zemindarry Khattee Bund, in Pergunnah	amount for annual repairs, Rs.29,720.11.7.	
Line in lieu, of the bareah mail road. old Zemindarry Khattee Bund, in Pergunnah	length, 3 miles 1 furlong ; sanctioned, 14 February 1842.	}
Mingleghaut.	•	,
Construction of two Irri- gation Channels, with Sluices these works were proposed by the local authorities for the improvement of the Government estate; viz. the pergunnah of Khider Koond.	one of the sluices 16,000 feet in length, the other 765 feet in length, from the Cossye River, with two sluice-gates; sanctioned, 8 October 1845.	Midnaporo –
liddleton Point, Saugor Island; Construction of a new Bund in consequence of the old bund having been nearly washed away during the gale of September 1846.	sanctioned, 17 February 1847 -	
Canals, South Eastern Provinces :		
ofuesil Canals, Improve- ments of the.	sanctioned, 28 September 1848	· · · · · ·
Canals, North Western Provinces :		
uskurra River: Construction of Retaining Dam, south of the Masonry Dam. - for the protection of the dam which, during the flood of the 21st and 22d June 1842, appears to have been in great danger	sanctioned, 2 March 1842	Gerri
Prolongation of the Box- work tail of this Dam considered indispensable for the safety of the dam.	sanctioned, 29 January 1844	ar en a
uskurra Dam, Repair of Damage occasioned by Floods. the Muskurra River, by the breaking of the bunds at the Kola- walla Pass, and at the Dawalooka, received all the mountain supply which usually passes off down the Hindun.		
Roads and Bridges, South Eastern Provinces		
idnapore, Construction of in lieu of an unserviceable bridge a new Masonry Bridge.	sanctioned, 28 February 1842 -	t in the second
uggrs to Chotekund, on the Grand Trunk Road, metalling of.	sanctioned, 22 April 1847	Chotekund
sumbhoom, Construction of s Bridge over the Jailgarrah Nuddee.	sanctioned, 16 October 1843 -	Maumbheom -
idnapore to Bissenpore, Construction of 12 Ma- sonry Bridges.	sanctioned, 8 September 1847 -	Bissenpore

Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.	
Rs. a.	Rs. a. p.			
		•		
7,717 -5 9	7,717 5 9	completed, sea- son 1848-44.	- large plains, heretofore totally unpro- ductive, have been brought under cultiva- tion.	
	•			
- 2,078 -	2,078	season 1845-46.	kan an artista y sara s na an tangan sara tan	
	n an			
1,625	si 1.1,625 ∩ ,	a, An Ann		
	-,	n an	an a	
			Colored And Carlos	
	4 ,368: 4 6	n na sea an s	these works will materially facilitate the inland communication.	
		and the second sec	$\frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} \right\} \right\} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} \right\} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right\} + \frac{1}{2} \left\{ \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right\} + \frac{1}{2} \left\{ \frac{1}{2} + $	
10,490 5	deno 183,580 en ⊶neus - Pr 2	completed, sea- son 1843-44.	this work has fully answered the expec- tations entertained of it.	
5,398 13 10	6,102 8 5	completed, sea- son 1844-45.	an a	
		an an an an tha said An an an an Anna Anna Anna Anna Anna An	an tha a tha can Albard an Sharar a tha can Albard an Sharar a Sharar a tha can tha can san a san a	
			 Electric A Construction 	
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• •	(андар (1 . 2000) он		
, 781 8 10. :	a. Co <u>ta lo manesco i</u> n	constructed, season 1843-44.	a se estas de la companya de la comp La companya de la comp	
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1			- the distance to be metalled is about	
	· · ·		20 miles. The high rate for metalling (amounting to nearly 4,000 rupees per mile) is occasioned by the great distances at which the quarries are situated.	
5,929 9 3	••• [•] 8,861 • 7 [•] 1	completed, sea- son 1840-47.	- this bridge is of three arches of 25 feet span each. The saving of Rs. 2,931. 13. 10. was in consequence of a saving on the quantity of mesonry in the foundations, and of a great reduction of rates.	
: المها الأسر المراجعين المراجع الم	s og 2 1,480 - ⊂ − ⊂ −		ар — Абрания — Аралана — Арала Аралана — Аралана — Ар	

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	OBJECT		Place		
NAME of WORK.	of	Length	of Termination, or of		
••••••••••••••••••••••••••••••••••••••	CONSTRUCTION.	and Date of Commencement.	intended Termination.		
Roads and	Bridges, Lower Provinces:				
Munipore Road	to make the communication be-	length, about 93 miles	Panksandy, in		
	tween the Eastern Frontier and the Burmese country comparatively easy.		Cachar.		
		1			
•					
Roads and	Bridges, Central Provinces :	•			
Mogul Serai to Allahabad -	the project is highly advocated, as	length, about 98 miles; esti-	Allahabad -		
	forming a direct communication be- tween the Grand Trunk Road east	mates submitted 28 February 1840.			
	of Benares and Mirzapore, without crossing the Ganges at Benares and				
	recrossing it at Mirzapore, as at pre-				
		-			
lirzapore to Jubbulpore -	for opening a communication with the Saugor and Nurbudda Territories,	commenced in 1824 -	Jubbulpore		
• • •	and with a view to its ultimate con- tinuation to Nagpore and Oomraotee.		(This is a portion of the Great Dec-		
			can Road).		
Airzapore to Jubbulpore, Construction of three	in lieu of bridges carried away by floods in 1839.	sanctioned, season 1839-40 -	ta tena la la		
Bridges on this Road be- tween Myhna and Sewa-	NOORD IN TOOP.	· · ·			
gunge.		:			
Boods and	Bridges, North Western Provi		-		
		1 Ces :			
deerut to Ghazeeoodennuggu Improvement of the Road	ur:				
•		sanctioned, season 1848-49; length, 28 miles 7 furlongs.	Ghazeeooden- nuggur.		
	,				
Construction of a Bridge	for drainage -	sanctioned, 27 October 1842 -			
over a Nullah.					
	1				
feerut to Kurnaul	represented to be useful both for commercial and military purposes.				
Aohana, Construction of a Paved Causeway agross	- • this work is considered absolutely	sanctioned, 16 January 1847 -	on the road		
the River Parbattee.	necessary on account of the rough- ness of the present crossing, at which vehicles frequently break down, or are so much shaken as to render them almost useless.		between Gwalior and Seepree.		
loozuffernuggur, Restora-	- carried away by a flood on the	· · · · · · · · · · · · · · · · · · ·			
tion of the Bridge over the Kallee Nuddee.	20th June 1842.	sanctioned, 17 November 1842	at Mulleerah -		
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BE	TURN FOR THE PRESI	DENCY OF BENGAL-	-continued.
Amount of Expense incurred.	tor Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p. - • 92,427 9 1	Rs. a. p. I,26,340 4 4	completed, sea- son 1842–43.	- the line of road was considered by the Committee appointed in 1843 to have been judiciously selected, and the construction of it generally to reflect the greatest credit on the engineer officer. The road is quite practicable for the passage of guns except at one point, where, however, the difficulty may be obviated by the use of ropes.
	estimate for the portion of the road from Mogul Serai to Mirzapore, 113 ¹ / ₂ miles, 1,08,040 rupees.		in 1840 the Government stated that the large amount contemplated was more than could be assigned to the object from the general resources of the State; it was not intended to abandon the plan altogether, and the surveys and estimates are therefore made over to the Commissioner of the Be- nares Division, with instructions to apply all available resources for the advancement of the project.
- 7,60,302	60,000 also Rs. 3,573. 7. 2. for the re-construction of bridges carried away by hill floods in 1839	completion re- ported; season 1839-40;	
3,506 14	3,573 7 2 <u>1</u>	completed, sea- son 1842-43.	1 Para Santa S Santa Santa
Rs. a. p. - for bridges - 7,745 - 5 for metalling - 68,861 14 11 for a pucka drain 7,745 - 5	77,407 – – sanctioned for metalling this road. 620 4 4	constructed,	the construction of this road was first undertaken by the Meerut Road Fund Com- mittee, by whom it was abundoned after eight miles had been completed, owing to insufficient means, the Committee pledges itself to execute the earth-work, leaving the metalling and bridges to Government. This line of road has been transferred from the Meerut to the 7th Division of the
1	4	8eason 1843–44.	Grand Trunk Road; the annual repairs are estimated at 6,625 rupees.
-, <u>-</u> , <u>-</u> , <u>-</u> , <u>-</u> ,	¹ 9,490 8 6 ●		the causeway is of rough stone, dressed with chisel.
14,404 12 9	11,205 8 2	- • completed, sea- son 1844–45.	this bridge was constructed in 1828 by Captain M Mullin at a cost of 52,000 ra- pees. The five principal arches which withstood the flood were founded on wells, those which failed rested only on caissons. To the defect and to the contracted spin of the arobes, the failure is in a great mea- sure to be ascribed. The piers are to be raised to 14 j instead of 9 feet.
622.	. Í 1	} ₹4	(continued)

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NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.
Rouds and Bridg	es, North Western Provinces—continue	 d	
Meerut to Khoorja, Con- struction of a Road.		length, 50 miles ; sanctioned 24 January 1843.	Koorja
			-
			<i>•</i>
	· · · ·	· · · · · · · · · · · · · · · · · · ·	
and and a second se Second second second Second second	· · · ·		
Mulluck Chund Seraie, to the boundary of the Can- tonments at Agra; Con- struction of a raised Metal	: ــــــــــــــــــــــــــــــــــــ	length, 14 miles; sanctioned 20 April 1846.	Agra Canton- ments.
Rond.			
Malwa, Construction of a Bridge over the Nullah at Chittrokherce.	- the nullah is bunded for irriga- tion below the road, and after a favourable rainy season there is sometimes a depth of five feet of water on the ford crossed by the road. The nullah bed being black soil, and the ford impassable for travellers or carts until the season of irrigation has passed over, the necessity for the construction of the bridge is	sanctioned, 5 December 1846 -	
Moulmein, Alterations to the Gaol, and construct	sufficiently obvious. s, South Eastern Provinces ; J	udicial : sanotioned, 9 May 1887	Moulmein -
tion of Buildings. Midnapore, Construction of an additional Room to the	owing to the small size of the room in which the Magistrate's Court	sanctioned, 18 July 1844	
Magistrate's Cutcherry.	is held, it has been found necessary to exclude all persons except those whose cases were actually being heard.		
Maumbhoom, Construction of a Cutcherry for the Native Judge.		sanctioned, 20 June 1842	Maumbhoom -
Moulmein Gaol, Altera- tions to.		sanctioned, 22 June 1844	; <i>≂</i> ×, : -
Moulmein Court House :			
Alterations to	with a view to improve the in- terior arrangements.	sanctioned, 5 August 1844 -	1. T (
		sanctioned, 23 April 1845	
Construction of Night Privies to the Gaol.			

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		Amo Expense	unt o incu			••		Estimat for Co			at	Probable Time of Completion.	REMARKS.
		Rs.	a.	p.				Rs.	a	• P			
	1,	48,919	.	т 8 .4	ني: •	-	4 4 4 4 1	98,64	5 8	3 1	8	completed, sea- son 1848-47.	twenty bridges will be constructed on the line, and four dåk bungalows, vist, Kurkhonda, Hauppera, Gallowtee, and opposite to Boolundshur. The three for- mer bungalows it was subsequently found
													would not be required. The formation and metalling of the portion of this road ba- tween Gallowtee and Khoorja (23 miles), which had been left to the Boolundshur Road Fund Committee, was so imperfectly
	ę							•					done in the first instance by that com- mittee, that a supplementary estimate of Rs. 55,274. 10. was sanctioned on the 27th August 1846, for repairing ruts and restoring the metalling.
<u>.</u>	1 . (5,235	4	at <u>e</u> r	- <u>1</u> -			5,23	5	t	- '`	completed, sea- son 1846-47.	
						÷			•				
•		1	-	.,,		•		2,87	9 -				the bridge is to be of three arches, with raised approaches.
			:									arta Araba (1997) arta Araba (1997) arta (1997)	•
								· .					
												· · ·	
		•	:					. 1	ي روني	. {	,		
۰ ⁄	· · ·	en er M			,	. t •		9,89	8 6	3] -		completed 1341-42.	
		•	4 ⁵ ,						,				na ann an an an an an ann an ann an ann an a
•	:	2,348	5	′ - <u>1</u>		• •		2,34	95	5 (81	completed, sea- son 1847-48.	for the proper custody of the numerous valuable papers connected with the survey, resumptions, and actilement proceedings,
										•	• •		recently brought to a close.
•	-	1,264	11	-	•		-	•		•,	-	completed, sea- son 1844-45.	
-	-	2,084	2	9		-	•	•	•	•	-	completed, sea- son 1844-45.	the gaol wall, which varied from 9 to 12 feet in height, has been raised to an uniform height of 15 feet all round.
•	1	1,611	10	2	-	-	 '-	-	-	•	•	completed, sea- son 1844-43.	
-	-	426	8	9	•	-		42	6 8	3 1	9	constructed, senson 1845–46.	
•	•	621	` _		•	-		62	1 -	• -		constructed, season 1845-46.	

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RETURN FOR THE PRESIDENCY OF BENG onti-e

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NAME of WORK.	OBJECT	Length,	Place of Termination,
NAME & WORK.	of CONSTRUCTION.	and Date of Commensement.	or of intended Terminatio
Civil Buildings	, South Eastern Provinces ; Judicial-	continued.	
Moulmein, Construction of Offices and Sessions Court.	for the Commissioner of the	sanctioned, 17 October 1845	- Moulmein
Mergui, Purchase and Re- pair of a Building.	for a Circuit House	- sanctioned, 2 June 1847 -	- Mergui
Midnapore Gaol, Construc- tion of improved Venti- lators, and additional ac- commodation.	- fifty-seven ventilators were con- structed in 1841-43, which only partially succeeded, in consequence of their inadequate size, being only 1} feet square, in improving the salubrity of the gaol.		- Midnapore
Midnapore, Additions to the Collector's and Magis- trate's Cutcherries.	the construction of seven additional rooms of pucca masonry, with flat roofs, is required.	sanctioned, 16 June 1847	
Civil Building	gs, Lower Provinces ; Judicial	:	
Moorshedabad, Construction of four experimental Peni- tentiary Wards.		sanctioned, 8 February 1842	Moorshedabad -
Moozufferpore, House of Correction.	· · · · · · ·	sanctioned, 7 December 1841 -	Moozufferpore -
, , , , , , , , , , , , , , , , , , ,			
Moorshedabad, Imambarrah	- to replace an old imambarrah in a state of great decay, and which was considered too close to the	sanctioned, 7 December 1840	Moorshedabad .
Monghyr Gaol, Construc-	palace.		
tion of additional Wards.	- for the accommodation of the prisoners, the existing space being insufficient.	sanctioned, 17 November 1840	Monghyr
Monghyr:			ŕ
Construction of a Cut- cherry for the Magis-	called for with reference to the sppcimtment of a separate officer to the magistracy.	sanctioned, 29 July 1844 -	ditto
Construction of a Circuit House.	t di transferio di la constante	sunctioned, 20 November 1844	, - 11 - 11 - 1
Mootecarse, Construction of a Circuit House and Out- offices.	na an train Charles na an train an train an train an train 1 a Germania an train	sanctioned, 20 November 1844	Mooteearee
Maldah, Purchase of a House, and its adaptation for the purposes of a Circuit House.		sanctioned, 20 November 1844	Maldah
	- for a outcherry for the Sessions Judge.	sanctioned, 28 December 1838 -	

RETURN FOR THE PRESIDENCY OF BENGAL-continued.

Amount of Expense incurred.					Estimated for Com				Probable Time of Completion.	REMARKS.		
		Rs.	a.	p.			Rs.	a.	p.			
		13,877	3	7 -	-		10,569	-	•		completed, sea- son 1847-48.	the excess over the estimate is owing to difference of rates, and the execution of much work which was not provided . for.
	·- ·-	1,863	14.	0			· · · <u>-</u> ·	~ <u>~</u>	: •	-	season 1847-48.	
I		4 61 6	. .	× .					1			
		4,010	0				4,010	6	-	,	constructed, sea- son 1846-47.	the new ventilators are of a larger de- scription, being 8×2 in the clear.
-			••									
			_		- 2 -		9,111	.8			n - Marian Angelaria Angelaria	
				-	-		****	J.			$\mathcal{F}(\mathcal{F}_{\mathcal{F}}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}_{\mathcal{F}}_{\mathcal{F}}}}}}}}}}$	$ \frac{\partial \left(\left(\frac{1}{2} + \frac{1}{2} \right) - \frac{1}{2} + $
		. •.			۰.	1	28		÷	•		and a start of the second s
		23,962	, <u> </u>	_ 1'2'	• •		23,962	2	. - -		• •	these four wards are for 120 men.
			1				•			•		
	• ²⁴ •,	14,947	4 "	12 -	•		13,000	-	-		completed, sea- son 1842-43.	of the encroachments of the river, must ere long be entirely given up. The pri- soners of this district sentenced to longer
						ļ.,.	· . • ·		• •			periods of confinement than one year, will be sent to the Patna Penitentiary.
	hot rep	orted 🚽	l. ∎.	, : <u>-</u> 1	-		90,000	-	а <mark>н</mark> С		not reported -	- this work will be paid for from the Nizamut Deposit Fund.
	4 4 4	885		41 -	-		695	8	9		completed, sea-	
	-				. ,	• . ·			- 1		son 1841-42.	
		4,931	, 	6 - '	. L		5,190	13	10		completed, sea-	
			,								son 1846-47.	
	•• •	4,572	9	87 -	•		4,999	5	-	.*	senson 1847-48 -	a private house was purchased and converted into a circuit house, in second- ance with an estimate sanctioned on the
			<u>.</u>	.								7th October 1845.
		5,072	10	5 •	•	 	4,999	5	-		completed, sea- son 1847-48.	
		5,761	13 1	.1 -	-		5,761	13	11		season 1844-45.	
		1,700		·	-		· •	ч .		-	geason 1841-42 -	this building, which was the property
												of Meer Abdoollah, and had been hired ever since the year 1803, at a monthly rent of 80 rupees, has been purchased for less

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· · · · · · · · · · · · · · · · · · ·	OBJECT of	Length,	Place of Termination, or of
NAME of WORK.	CONSTRUCTION.	and Date of Commencement.	intended Termination.
Civil Buildings,	Lower Provinces ; Judicial—continued.		
Nonghyr, Additions to the Magistrate's and Collec- tor's Cutcherry.	to afford more accommodation -	sanctioned, 2 November 1841.	
Mymensing : Addition of a Pucka Tiled Verandah to the Judi- cial Cutcherry.	for the accommodation and con- venience of suitors.	senctioned, 6 July 1841	1- C s
Construction of Cutcher- ries for the Principal Sudder Ameen.	- the present building is a cutcha building with a thatched roof, and is considered by Government an unfit place (in consequence of its liability to be destroyed by fire) for the recep- tion of documents of greatimportance, which are now lodged in it.	sanctioned, 30 July 1845	Mymensing
Mymensing Gaol, Construc- tion of seven Night Privies.		sanctioned, season 1844-45	€ ditto
Monghyr, Construction of a suitable Court-house for the Sudder Ameen and Moonsiff.	- this building is required in lieu of a private building, the property of the former Native Judge, which is inconveniently situated, being in the heart of the town, and at a consi- derable distance from other public offices, which are all within the fort.	sanctioned, 16 April 1846	Monghyr
Moozufferpore : Raising the pillars of the Verandah of the Judge's Cutcherry.	~ - to raise the verandah two feet, and to give it a sloping terraced roof.	sanctioned, 30 April 1845	Moozufferpor e -
Construction of a House of Correction.	for 562 prisoners, including pa- tients in hospital at Moozufferpore.	sanctioned, 17 November 1847	~ · · · ·
Civil Building	s, North Western Provinces;	Judicial :	
luttra Gaol, Improvements to the.	to increase the accommodation	sanctioned, 29 April 1840	1 1 1 1 1 1
Malhout, in the Bhuttee Ter- ritory; Construction of a Well.		sanctioned, season 1889-40	
Meerut, Construction of Houses.	for the Non-commissioned Officers of the Police Battalion.	sanctioned, 31 March 1845	and the second s
Mooradabad, Construction of a Record-room for the Collector and Magistrate's Cutcherry.	the Lieutenant-governor satisfied himself, on a visit to the station, of the necessity for this accommodation.	sanctioned, 23 August 1845	Mooradabad
Civil Building	s, Central Provinces ; Judicial:		
Virzapore: Construction of a new Gaol Hospital.	on account of the confined and unhealthy site of the existing hospi- tal.	sanctioned, 10 August 1841	
Construction of a Bridge near Wellesley's Thanah.	i An an	sanctioned, 23 March 1841	· (1
Construction of a Cut- cherry for the Collector and Magistrate.	in consequence of the sale of the Custom-house,	sanctioned, season 1839-40	• • • •
Jundlaiser Gaol, Additions		sanctioned, 27 November 1841	

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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p.		
883 4 10 1-	n in Sym Michigan Stranger Sint	constructed, season 1842-43.	
n s μeγ με αματικά ματα πατα γ γματικά ματα τα τα τα γ γματικά ματα τα τα τα ματα τα τα τα τα τα ματα τα τα τα τα τα ματα τα τα τα τα τα τα τα ματα τα τα τα τα τα τα τα ματα τα τα τα τα τα τα τα τα τα ματα τα τα τα τα τα τα τα τα τα τα ματα τα τα τα τα τα τα τα τα τα τα ματα τα	5,088 ¹⁷ -1 ⁻¹ -	n an	
am''an 107 - 2021		An go dhias An go don San Sinn An Sin An Sinn An Sinn	and an and an and an
667 13 93 - · · · -		completed, sea- son 1845-46. completed, sea-	
		son 1847-48.	
1,541 13 6	1,541 13 6	completed, sea- son 1846-47.	
· · · · · · · · · · · · · · · · · · ·	20,601 9 8	an a	
8,238 15 9	; [••• • •] ••• • • 4,041 • ≟ • <u>•</u> • •	- completed, sea-	
1,408 6 4	2,000	son 1841–42. completed, sea- son 1840–41.	the excess of 408 rupees was owing the necessity for making the well 168 deep, instead of 90 feet, as contempla by the estimate.
	3,658 2 10	completed, sea- son 1845-46.	
5,238 11 4	- 6,235 -	completed, sea- son 1847-48.	
	la de la companya de	tan ng san sa	lagtina an ting tanana an ting tanana an ting tanàna amin'ny fisiana amin'ny fis
12,405 6 2····	12,698 8 2	son 1848-44.	
610 - 6 		completed, sea- son 1841-42.	- this work was represented to be v much required.
• • • • 3,771 • 3 • • •		son 1841-42.	the new building is capable of holdi
		son 1842-43.	60 or 70 convicts. (continued)

	OBJECT		Place
NAME of WORK.	of	Length, and Date of Commencement.	of Termination, or of
	CONSTRUCTION.	ann Dare of Commencement.	intended Terminatio
Civil Building	{ s, South Eastern Provinces; R	evenue :	. N
Midnapore, Additional Ac- commodation to the Col- lector's Cutcherry.		sanctioned, 6 April 1841	
	 - I Decederate Deve		
-	s, Lower Provinces; Revenue:		
Moozufferpore, Construc- tion of two Dams in the River Little Gunduck.	for the protection of the station -	sanctioned, 25 April 1842 -	
Moorshedabad, Record-room for the Collector's Cut- cherry.	• • • • • • • • • •	sanctioned, 16 June 1840	
Mymensing, Construction of Tiled Cutcherry for the Deputy Collector and Law	rendered necessary in consequence of the crowded state of the Collector's cutcherry.	sanctioned, 21 September 1846	Mymensing .
Officer, and Rooms for Records of the Magistrate and Collector.	946	· · · ·	
Moozufferpore, Construc- tion of two Pucca Veran- dahs.		sanctioned, 1 July 1846 -	to the east an west sides of th
		-	Collector's cu cherry.
Civil Building	s, South Western Provinces; R	Avenuo .	-
Midnapore :			
Enlargement of the Col- lector's Cutcherry.	to provide accommodation for the Joint Magistrate and the Assistant.	sanctioned, 13 September 1836	
House for the Revenue Surveyors and Estab- lishment.		sanctioned, 16 January 1838 -	
Civil Building	 s, North Western Provinces ; I	l	
Мупроотее :	209 TIOLUT ALCONCITT CHIATHRAS ; T	sevenue:	
Construction of a Tehail- darry Cutcherry,	for the Collector and Magistrate -	sanctionéd, 8 March 1842	at Ghirole
Alterations and Additions to the Sirpsorah Cut- cherry.	to adapt it for the Tebsil esta- blishment of the Lukat Eytah Divi- sion.	sanctioned, 7 October 1842	Sirpoorah
Mahur, Construction of a Bungalow.	for the Deputy Callector -	sanctioned, 18 June 1846	Scinde Division
Civil Building	s, Lower Provinces; General:		
Moorshedubad College, Con- struction of.		sanctioned, 6 April 1840 -	Moorshedabad
· · ·			
Civil Building	s, North Western Provinces; (l Jeneral •	
Mohun Chowkee, new Staging Bungalow at.	in substitution of one previously existing at Rajpore.		
Musscores Church, Con- struction of a new Roof.		sanctioned, 21 September 1541	

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.... - - -. -. RETURN FOR THE PRESIDENCY OF BENGAL-continued. Amount of Estimated Amount Probable REMARKS. for Completion. Time of Completion. Expense incurred. Rs. a. p. Rs. a. p. -- completed, sea-son 1842-43. 2,643 8 5 2,762 6 -. ł -- this work was proposed by the Civil Officer and the Durbungah Rajah. 682 7 11 - - constructed, season 1842-48. 1,685 2 93 -- - completed, ac 4 + son 1841-42. - - as very indifferent roofs are made from tiles at the station, a revised estimate was passed, providing for the substitution of flat roof and puece superstructure walls, in lies of tiled roofs and kutchs puece 5.875 1 2 4.948 1 5 <u>،</u> walls. 408 8 - . constructed, 408 4 8 4 \sim season 1847-48. - the additions made were four rooms, 7,054 10 2 . # and verandahs on three sides of the outcherry. 2,913 11 4 11 1.3 4,174 7 .2 - - completed, sea 4,009 11 6 son 1848-44. - - completed, sea-1,728 2 6] . son 1648-44. 1,964 5 2 - - completed, sea-1,964 õ 2 son 1846-47. ... α Sec. 1 - - in the amount expended is included 73,000 . - - completed, sea-76,500 5 4 -Rs. 2,400. 5. 4., for the purchase of lands, &c. for a site, which was not included in son 1848-44. the estimate. . - - it is expected that the convenience of travellers will be much increased by this 1,189 18 5 - - completed, sea-1,477 7 8 son 1840-41. arrangement. - - the cost of furniture is included in the -- completed, sea 1,359 5 expenditure. son 1843-44. . (continued) 04 622.

	OBJECT	Length,	Place
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	of Termination, or of intended Terminatio
-	-	-	
Civil Buildings,	North Western Provinces; General-	1	
Mozuffernuggur, Construc- tion of Staging Bunga- lows at Scharunpoor.	the Executive Engineer was di- rected to commence upon the build- ings without delay, as they were urgently required for the accommo- dation of travellers.	sanctioned, 18 November 1844	
Civil Buildin	gs, South Eastern Provinces; (' General :	
Midnapore :	1		
Construction of a Staging Bungalow.	as a resting-place for travellers -	sanctioned, 14 July 1841	Midnapore
Construction of a new School-house,	- to replace a building which is stated to have been accidentally burnt down.	sanctioned, 1 December 1841 -	- dittoj -
Addition to the Collector's Cutcherry.	for a Post-office	• • • • • .	
Moulmein, Construction of a new Wharf.	for the principal bazaar +	sanctioned, 17 July 1843 -	Moulmein
•			
		. ,	
Middleton Point, Renewal of the Stockade, with Saal Posts.	this stockade must be maintained, for the protection of the Government establishment from tigers.	sanctioned, 20 November 1844	Middleton Poin
Moulmein, Substitution of Tiled for Thatched Roofs	for the protection of naval stores -	sanctioned, 11 March 1846 -	Moulmein
to certain Marine Build- ings.		• •	
	1	,	~
Civil Building	s, Central Provinces ; General		
Mirzapore, Construction of a Staging Bungalow.	for connecting the line of bunga- lows on the Decean Road towards Nagpore, with those on the Grand Trunk Road from Calcutta to Delhi.	sanctioned, 25 September 1843	Mirzapore
		_	
Civil Building	s, South Eastern Provinces; N	larine :	н. Г
Moulmein : Construction of a Hospi-	for the reception of the sick men	remotioned 24 Tenner 10/0	
tal Ward within the Compound of the Euro- pean Infantry Hospital.	of Her Majesty's ships on the river.	sanctioned, 24 January 1842 -	Moulmein -
Construction of a Post- office and five Sheds.	for marine stores	sanctioned, 27 April -	
Political Build	lings, Lower Provinces:		
Noorshedabad, Repairs to the Mausoleum of Moha- bat Jung.	• • • • •	sanctioned, season 1840-41 -	at Kooshbaug

Amount of Expense incurr	1	Estimated A		Probable Time of Completion.	REMARKS.
Rs. a.	p.	Rs.	a. p.		
4,122 -	ang an s, ≦nn	4,890	82.	completed, sea- son 184546.	
	[
				1	
•		•		•	
1,442 8	9 <mark>1</mark>	1,463	- 4	completed, sea- son 1842–43.	
3,217 6	7	3,409	- 7 .	completed, sea- son 1843-44.	
	· · ·	1,042	2 1 ¹ / ₄	•	
بر بن ب ب		2,672	1 29		the suspension of the works was or- dered on the 23d September 1943, as
			•		some changes were stated to be in contem- plation which might render the construc- tion of the wharf unsuitable at the place originally intended.
	8	2,665	, 13 –	completed, sea- son 1845-46.	
719 9	9 🖦 📲	730	- 9	completed, sea- son 1847-48.	
		•			
				i Ali an tao ang tao	
- 2,840 9	2	2,840	92.	completed, sea- son 1844-45.	
			•		
				aler er fikken i den s	
- 758 8	10; -	1 2 - 758	8 10 ·	season 1842-43 -	the seamen have hitherto been received into the Regimental Hospital, but owing to the increase in the strength of the corps the hospital is now barely sufficient for the men of the regiment.
4,004 6	3	8,221	5 7	completed, sea- son 1842-43.	
					e la casi
1,914 1-		.	•• [*] ••	completed, sea- son 1842–43.	
622.				P .	(continued)

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	RETURN FOR THE PRESIDENCY		1
NAME of WORK.	OBJECT - of	Length,	Place of Termination, or-of
	CONSTRUCTION.	and Date of Commencement.	intended Terminatio
Consta North	Western Provinces:	-	
· · ·			this wate
Nyashur Watercourse -	for irrigation	sanctioned, 21 November 1835	course leaves t
•			main channel ju under the villa
· · · · · · · · · · · · · · · · · · ·			of Tanda, a
•		· · ·	passes to the ea of Nyashur.
		• • • • • • • • • • • • • • • •	
Nuggeenah Canal, at Mora- dabad.	for irrigation	length, 23 miles 5 sanctioned in 1839-40.	y ≞na Ar≞ • S
	in order to admit a sufficient quan-	sanctioned, 16 March 1841	riestav, t≖rik
the.	tity of water.		
Nujufghur Jheel Canal,	to enable the people to cultivate	sanctioned, 1846-47	
Formation of a Channel for the draining the.	such land which in past seasons has been submerged.	•	
Nuggeenah Canal :	····		
Construction of a First-	أعراقه ويرتب المراجب المراجب	sanctioned, 3 March 1843	situated ne
class Chowkee.			the regulation dam on the Ku
			oola Nuddee.
Construction of a Second- class Chuwkee.	and a second	sanctioned, 8 March 1842 - 8-	situated ne
			Jogeepara.
Nysahur Dam, Increase to the Waterway of the.	- in consequence of the excessive body of water thrown on the dam during the rains.	sanctioned, 31 March 1845	• • • •
Nujufghur Jheel Drain,		sanctioned, 3 February 1848	
Annual Clearance of the.		saluctoned, 5 replacify 10x0 =-	
Constant Bi	T		
· · ·	vers, Lower Provinces:		
Nuddea Rivers, Toll Collec- tions.			• • • • ' '
	ing to A ≱ in the state of the		
والمتحافي وتحال المتأكلات	a she as a start a star		
	 A subset of a sub		
Roads and Bri	dges, South Eastern Provinces		
	ages, South Dastern 1 Invittes	•	
Nudden, Construction of an Iron Suspension Bridge	lanis antišan santišantišantiša. Strutstvo santa	sanctioned, 24 February 1847 -	at the villa of Bungong.
over the Ishamuttee River.		en de la tras	or bungong.
		instant de la Califia de la composition de la Califia de la Califica de la Cali	
			i s
Roads and Brid	dges, Central Provinces:		
Nusseerabad and Ajmere :		-	
Improvement of the Road between.	to remove the difficulties attending the passage of wheel carriages be-	length, 133 miles; estimate	1-037,6 - 0 - 6
	tween these two places, the one, a	sanctioned, 13 November 1840.	
	whief military station, the other, a depôt for military stores.		
		la a case a l	
Further Improvements to	by constructing pucks revetments over watercourses which intersect this line.	length, 131 miles; sanotioned, 5 November 1842.	•€e _{ng n} • ∞' –
l Roads and Bri	idges, North Western Province	 s:	
Newabgunge, Construction	in consideration of the great	sanctioned, season 1844-45	-asion the ro
of an Iron Suspension Bridge over the Pangyle,	traffic on the line of road, and of the importance of the bridge to the good		between Bareil and Perlibheet.
	of the country.		

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son 1841-42. 1,049 11	Amount of Expense incurred.	Estimated Amount fer Completion.	Probable Time of Completion.	REMARKS.
son 1841-42. 1,049 11		Rs. c. , p.		
sesson 1842-42. 1,049 11	- 83,369 5 7		completed, sea-	it is expected that 5,000 rupees will be
 932 7 8 932 7 8 932 7 8 completed, season 1843-44. 181 6 3 181 6 8 completed, season 1843-44. 711 14 4 711 14 4	•	• • • • • • • • • • • •		ultimately realized by water-rent.
son 1843-44. - 131 6 3 131 6 8 completed, sea- son 1843-44. - 2,040 - 711 14 4 - 711	•	58,077 2	• • •	- the complete drainage of the Jheel has this year brought a large quantity of land into cultivation.
son 1843-44. - 2,040 - 711 14 4 - 711 14 4 the toll collections on these rive the Blaigerutty, Muttabhangeh a linghy, during the year 1847-48, to Rs. 2,88,729. 2. 9. The total diture on account of establishme for the execution of the works und to facilitate the navigation, and Rs. 47,262.15. 6.; surplus, Ra.1,91,4 the project for this bridge conte two spans of 180 feet each; with way 16 feet wide, including the th of the half drop bars on each sid angle of suspension will be 15°.	- 932 7 8	932 7 3 -		
 - The toll collections on these rive the Blaigerutty, Muttabhaugah a lingby, during the year 1847-48, to Rs. 2,38,729. 2. 9. The total diture on account of establishme for the execution of the works und to facilitate the navigation, amo Rs. 47,262.15. 6.; surplus, Ra.1,91,4 48,000 8	- 131 6 3	131 6 8 -		
48,000 8 - of which 20,000 rupees will be subscribed by Baboo Kalleepersaud Podlar.		2,040		
46,000 8 of which 20,000 rupees will be subscribed by Baboo Kalleepersaud Podlar. To 70, 9, 9, this road has been made practice	- 711 14 4			
of which 20,000 rupees will be aubscribed by Baboo Kalleepersaud Podlar. Toro 2 9 9 this road has been made practice				the toll collections on these rivers, viz., the Blaigerutty, Muttabhaugah and Jel linghy, during the year 1847-48, amount to Rs. 2,38,720. 2. 9. The total expen- diture on account of establishment, and for the execution of the works undertaken to facilitate the navigation, amounts to Rs. 47,262.15.6.; surplus, Rs. 1,91,468.8.8
5,773 14 30 7,979 2 9 sompleted, sea- son 1842-43. wheeled carriages.	w. B	which 20,000 rupees vill be subscribed by Saboo Kalleepersaud		the project for this bridge contemplates two spans of 180 fest each; with a road- way 16 fest wide, including the thickness of the half drop bars on each side. The angle of suspension will be 15°.
	- 5,773 14 30	7,979 2 9 -		this road has been made practicable for wheeled carriages.
- 2,259 4 3 2,204 8 10 completed, sea- son 1843-44.	- 2,259 4 3	2,204 8 10 -	•• completed, sea- son 1843–44,	
25,943	- 25,943	27,471 11 23 -		• •

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		DF BENGAL-continued.	I
NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.
	CONSTRUCTION.		[
Civil Building	gs, South Eastern Provinces; J		100
Noacolly, Construction of a Wall around the Gaol Hospital, and one separa- ting the Female Wards,		sanctioned, 15 January 1839 -	Noacolly
Noakalles Gaol, Construc- tion of two additional Wards.	for the Hazut and Dewanny prisoners; to effect a better classifi- cation of the prisoners.	sanctioned, 4 November 1846 •	Noakallee
Civil Building	s, Lower Provinces; Judicial:	•	, · ·
Nowgong : Temporary Buildings, Roads, &c.	the civil station of Bungagarah has been removed to Nowgong.		an etage e t
Construction of additional Buildings.	as a treasury and record-rooms	sanctioned, 22 June 1841	- 51450
المعالية بينانية المحمد ال محمد المحمد ا المحمد المحمد	(a) A set of the dimension result of the dimension of the dimension of the dimension of the dimension of the dimension		
Construction of an addi- tional Gaol Ward, and other Works.	ang sa	sanctioned, 30 March 1841	₩ <u>1</u> (09 <u>1</u> *)
Construction of 20 Drain Bridges.	for drainage purposes	sanctioned, 12 September 1842,	4 51 \$1374 -=- 8
Construction of a Cut cherry.	to replace an old outcherry, built originally of interior materials, and now in a decayed state.	sanctioned, 23 October 1844 -	1 139977 - T
Construction of a new Circuit Bungalow.	in lieu of the present circuit bungalow, which is in an unsafe state.	sanctioned, December 1845 -	Nowgong
Erection of a Wall round the Gaol Buildings.	in accordance with the views of the civil officers.	sanctioned, 28 October 1846	din settin
Nattore, New Roofing the south end of the Judge and Magistrate's Cutcherry.		sanctioned, 20 May 1846	Nattore
Civil Building	s, Central Provinces; Judicial	ана (1997) • Солон (1997)	
Nursingpore, Construction of a Malkane, and addi- tions to the Cutcherry at.		sanctioned, 1 April 1844	્યા કરવાયું કે વેવવ
Newabgunge, Addition of a Record-room to the Collector's Cutcherry.	- great inconvenience was experi- enced from the distance between the cutcherries of the Magistrate and Collector; the new record-room was to be connected by a covered passage.	sanctioned, 14 January 1846 -	7 7077 4-
Neemuck, Construction of a Guol at,	the outlay is chargeable to the revenues of the district of Jawud Neemuck, transferred by Scindia to the British Government.	sanctioned, 10 October 1846 -	Neemuck

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R	Ámount a		Estimated Amount for Completion.	Probable Time of Completion.	e REMARKS,
عم ر برید. مربق	-Longe them			The or completion.	
	Rs. a.	p .	Rs. 1 a. p. 1.	and the first	
 =**	,021 7	11			the works were executed a considerable
. •		•		• .	time back, but there has been delay in the submission of the bill.
	1,746 🗠	2 4 1 1	1,964	completed, sea- son 1847-48.	and the second
•	۰.		•	BUIL 1047-40.	
		•		al intervence	and the second second second second
• • •	2,948 78	6	· · · · ·	nde an en 1000 event The analysis of 1000	n de manage en la constant de la con
' - (3,417 -	A-	4,950 8 6	constructed, season 1846–47.	the buildings are to be of pucca mate- rials, with a terraced roof. There has been an excess of Rs. 1,406.2. 6. over the
				• • • • • •	sanctioned amount; and as the executive
,					officer has been able to account satisfac- torily for this to the extent of Rs. 752, 10, 1, only, he has been held responsible for the
•-	-008 10	7	เป็นสู่สามรู้แห่งสามุโทยเหตุ (annual at a large	balance.
•	200 10	· · ·		completed, sea- son 1841-42.	na standing di tanàna si kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kaominina dia kao I Tanàna dia kaominina dia k
, 	1,722 13	10	1,722 18 10		n na son de la calendaria de la calendaria. Esta de la calendaria
*	7,039 5	11 - ^{600 - 6} -6	4,354 9,5	completed, sea- son 1848-49.	the amount includes the cost of an addi- tional wing not provided for in the estimate, but commenced on, in compliance with a requisition by the Commissioner in Assem.
1"` n "		- Ci-1	2,753	na a charaig dh' anns an t-	an estimate amounting to Rs. 8,188. 10. 2. for the construction of a new gool in 1848,
					to consist of a criminal ward, 160×36 , a civil ward, 72×36 , hospital, 72×86 ,
- :	3,302 I	10 <u>1</u> -	3,302 1 10 <u>1</u>	• • •	guard-room and malakana, 70×20 feet, with six ranges of cooking sheds; the buildings to be thatched over, supported on
:					sawl posts and walls of whole bamboo. The new buildings are to be constructed within the wall erected agreeably to the estimate sanctioned in 1847.
· • · ·	.732 5	'	and the second s	completed, sea-	
				son 1847-48.	
		1	1	$\{j,k,k\} \in \{n,k\}$	918 - L - L - L - L - L - L - L - L - L -
~ = 4	1,094 10	5 <u>-</u>	4,739 9 -	completed, sea- son 1846-47.	the necessity for these works was brought to notice by the Commissioner of the Saugor Division.
- 1	,407 8	. 2 * - ^{fra - j} -	7,164	completed, sea- son 1847-48.	
		i i		an a	
· - 14	1,109 10 ⁻	10	17,860 3 8	completed, sea- ton 1848-49.	
•	•				

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	OBJECT	Length,	Place of Termination,
NAME of WORK.	of CONSTRUCTION.	and Date of Commanoement.	or of intanded Termination.
			1
Civil Building	gs, Central Provinces; Revenue		مراجع مراجع المحمد المراجع
Nuroal, Construction of a New Tehsildarry Cut- cherry at.		sanctioned, in 1843	situated in the Cawnpore district at Soosulanepore.
Civil Building	s, South Eastern Provinces; Ro	evenue :	
Noakhally, Construction of	the necessity for this work was	sanctioned, 29 December 1847	Noakhally
s Record-room over the Collector's Cutcherry.	brought to notice by Mr. Commis- sioner Ricketts, who stated that all useless papers among the Bullooah records had been destroyed, and that the remaining papers had been sr-		
	ranged with all practicable economy of space, but that there was no ac- commodation for them.	-	
Civil Building	rs, South Eastern Provinces ; G	eneral :	
Noakhally, Enlargement of the Burial-ground.		sanctioned, 26 September 1642	Noakhally -
Nurrungabad, Construction of a Dak Bungalow at.	- in lieu of the existing bungalow, which is in a ruincus state, and not worthy of repairing.	sanctioned, 16 September 1846	
Canals, South	Eastern Provinces :		e a.
Dolabareah Canal			
	•	•	, , ,
			e Ne se se se se se se se
Ooltadanga: Iron Suspension Bridge -	• • • • • •	estimates submitted, 19 May 1840.	,
Construction of Roads to the East and West of the Bridge.	• • • • • •	senctioned, 25 July 1844	
		J '	
	idges, South Eastern Provinces:	· ·	
Dolabareesh Road : Construction of a Bridge at Sirrerampore.		sanctioned in March 1841 -	Oolabarceah
			с. у. "
Renewal of a portion of the.	- this road, awing to the mistake in its first formation, of placing the canal to the south or lowest side, instead	length, 181 miles; sanctioned in March 1841.	- ditto -
•	of the north of the road, is liable to constant injuries during the rains. Owing to this defect it was found		*
	necessary to abandon about 12 miles, and a new and more retired line was adopted.		•
Bridge at Jorehuitee, on the.	required for purpose of general drainage.	of one arch of six feet span, sanctioned 28 November 1842.	- ditto -

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Rs. a.	₽ .1}	Rs. 5,674 , 8,252	- 7	sompleted son 1844-45	
- 5,687 4		. 5,674	- 7	son 1844-45	
• •	. 15	•	:	son 1844-45	
• •	VIRA VIN	•	:	son 1844-45	
	a Vento - Num	3,252			
	TARA NON	3,252		·	•
	₹X¶4 × Dγ.	3,252			
	TINI NUN	8,20 2			[1] A. K.
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			l, cero		
307,14	8.31 2-45	80 7	14 3	completed	, sea- the space enclosed measures 92×63 .
			1	- C	
3,021 -	ರ⊧≺1 ಅವಿಗೆ	3,021	a ta t	season 1846-	-47. (Sub- 1997)
			·	ha bas yarewe	anna a chana dha mar i sugar an sha fara su su Cato a farfar ta ta c
1					The second s
		•	1	-	All and the second s
· · · ·			_		the abandonment of this canal we
		• • • •	- I.		determined on, on the 12th February 184
		· ·	1	}	owing to its encroachment on the ros along its side, and the Khuttee Cana
			1		which is also a communication betwee the Damoorda and Hooghly Rivers, we
- !	 Х	•	l.		repaired and improved.
10 859 8	patrus in	12.040	2 6	construc	sted, under instruction from the Court
12,000_0	មិតណ៍ពារ ខេត្ត	Capiti najvjev ,		Beason 1843-	44. Directors.
			- t	ļ	
1,598 5	27 - 1 her	1. A. C. A. S.		completed,	
				вод 1845-46	
х. , I				A BALLAN ST. COMP.	• 1 hold and a case of
	-8 -1 ++ 1- 1	2,000	- <u>-</u>	- completed,	sea through this road the communication is at present maintained with Bombay vi
			ì	son 1841-42.	the Raepore Road.
6,504 .8	1 3 100 100-7	.i.a. 6,843	12 3	+ - completed	
	· ·		17 mil - [son 1842-48.	, the canal.
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	' i				•
~ ~ . 890 10	6	j	10 6	season 1842-	48. Construction of the second s
	and real	1. 1 - 1 - 1		1	(continued)

RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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	OBJECT	. Length,	Place of Termination,	
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination.	
Civil Building	s, Central Provinces; Judicial:		•	
Dorai Gaol, Construction of		sanctioned, 9 May 1846 -	in the Gwalion	
Joral Gaoi, Conservour of	local officers showing the necessity of the work.		Ceded District of Kuchmarghur, of Bhindaree.	
Canals and Ri	vers, North Western Provinces	S:		
Phoulock Bridge, Repairs	the renewal of the east abutment.	sanctioned, 22 August 1846 -	• . • · · •	
to the.	which failed during the rains of 1844.			
Roads and Br	idges, Lower Provinces:			
Patna to Gyah, Raising of the Road.		sanctioned, season 1838-39 -	Gyah	
Patna City Road, Recon- struction of the.		length, 71 miles	 .	
Purneah, Construction of four Pucca arched Drains	these drains are required to pre- vent in future the cutting of the	sanctioned, 5 June 1843	Purneah	
across the Station Roads.	station roads, which are raised from three to four feet in height, for the			
•	purpose of letting off the rain-water which collects within the station			
	lands.			
Roads and Br	idges, Central Provinces :			
	this road is crossed by many nullahs liable to temporary flood.	length of road, 16 miles 6 furlongs.	Dumow	
Roads and Br	idges, North Western Province	۱ ۵c •	, F	
angyle Nuddee, Construe-		sanctioned, 1 February 1842 -	Newabgunge -	
tion of an Iron Suspension Bridge over the, at New- abgunge, on the road be- tween Barolly and Poelib- heet.		, , , , , , , , , , , , , , , , , , ,		
Pinjore vić Khalka and Kus- sowlee to Subathoo, Con- struction of a Road.		length, 21 miles 6 furlongs; sanction- ed 22 March 1845.	8 53 48	
		2d portio from	n-) (from	
		Khalka t Kussonia		
		8d portio	1	
	•	, Kussowle to Subath	• · · · · ·	
 Civil Building	s, South Eastern Provinces; J	udicial :	1	
	to contain 2,004 prisoners -			
Central one. Pooree, Construction of Circuit-house.	 for the use of the Commissioner; the temporary building was destroyed by a gale on the 30th April 1840. 	sanctioned, 29 September 1840	Pooree	
Poorce Gaol, Additional Hos- pital.	for sick and insane prisoners	the gaol was constructed in the year 1838; the addition of		
-		a hospital, sanctioned in season 1840-1.		

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Amount of Expense insurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs., a. p.	,Rs. a p.		•
		completed, sea-	
· · · · ·		son 1847-48.	
		9 3	•
and the second			
- 644		completed, sea-	
		son 1846-47.	
		•	
51,292 18 7	70,222 10 71	completed, sea-	
		son 1841-42. "	
- 15,765 11 8		completed, sea-	
		son 1845-46.	
- 983 11	• • • •	constructed, season 1848-44.	
		асязоп 1949-44.	
			-
	•		
1404 1 01	•	i i jan. L	L
$-1,484$ 1 $8\frac{1}{2}$ -		completed 1840-41.	
•	•		·
4			
this work was suspended in	•		•
season 1842-43.	22,000		
1			-
- 60,787 15 6	67,807 6 11	completed,sea- son 1845-46.	
s. Na Statistica			
	· .	n ang sa sa	
· · · · · · · · · · · ·	· ·		
•			
	4,41,564 8 5		k:
7,596 8 81	8761 D F	- a completed see	
	5,751 8 5	completed,sea- son 1842–43.	
•		•	•
- 1,832 18 7	1,190 11 3	completed, sea-	
• • • • •		son 1841-42,	
1		l I	(continu ec

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NAME of WORK.	of	Length, and Date of Commencement.	of Termination, or of , intended Termination.
	CONSTRUCTION.		intended fermination.
Civil Buildings,	 South Eastern Provinces; Judicial-ca	ntinued.	
Pooree :	· · · · ·	1	
Reconstruction of the Dis- pensary.	- • in lieu of a building which was blown down by a gale on 30th April 1840.	Banotioned, 21 February 1842 .	Poores + 1, -
Buildings for the use of the Treasury Guard.		sanctioned, 27 March 1843	- ditto -
•	s, Lower Provinces; Judicial:	(
	to supersede the present places of	sanctioned, 27 October 1845	Patna -
Patna Penitentiary, Con- struction of four Wards.	confinement situated in different parts of the station and its vicinity, each at an inconvenient distance from the Magistrate's office.		
Purallia temporary Gaol	en a de la composition de la compositio La composition de la c	sanctioned, 11 October 1836 -	
Purellia temporary Gaol, Chota Nagpore.			
Purneah Gaol, Estimate for	owing to the dampness in the	sanctioned, 17 November 1840	
Fluing the Floors.	existing floors.	A A A A A A A A A A A A A A A A A A A	
	additional wards for medicine-	sanctioned, 12 October 1841 -	Purneah -
Purneah Gaol Hospital, Ad- ditions to.	rooms, &c.		1 umetem
Pubna, Construction of a Circuit-house.	· · · · · · · · · · · · · · · · · · ·	sanctioned, 20 November 1844	Pubnah -
Purneab :		•	
Reconstruction of 13 Night Privies.		sanctioned, 17 December 1845	Purneah -
Construction of a Guard-	, μ.	sanctioned, 28 December 1846	- ditto -
room for the Burkun- dauzes attached to the			
Judge's Cutcherry.			
Civil Building	s, South Eastern Provinces; G	eneral: 1986 of a second second	an an an Carlon ann a Tarta an Santa
Pooree:			
Construction of a Wall around the Burial- ground.		sanctioned, 28 August 1843	Pooree
	these buildings were injured by a	sanctioned, 17 April 1843	ditto
Pucka Treasury and Collector's Cutcherry.	storm.		
Puchim Bamney Khall, Con- struction of an Iron Sus-		sanctioned, 20 January 1847 -	on the road
pension Bridge over the.			from Calcutta to Nullooah and
· · ·		•	Calpee.
			• 1 •
· · · · · · · · · · · · · · · · · · ·		1	
	s, Lower Provinces; General:		
Purneah, Construction of a Cutcherry.	for the Sub-deputy Opium Agent	sanctioned, 18 July 1838 -	
_			
Patna, Donation towards the construction of a new		sanctioned, 15 December 1840 -	• • • • • • •
Church	and the second sec		
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Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Counseline.	REMARKS.
		n second a straight second	i ka si satu ka
Re. a. p. - 5,256 15' 5	Rs. a. p.	completed, sea-	a Filipperson in the second
			 F. A. Spiels States and Sciences and Science
2,030 8.4	2,080 8 4	season 1843-44.	ji. Na sena na transfering transfering transfering transfering transfering transfering transfering transfering trans
1	1. 30 17 - 10 17 - 10	num tonus ange di spi Tese di tesente en si Tesente en spinologia en si	i Meriji na salagagat sa sati yay Astronom sanaka sa
36,251 75 81	23,677	completed, sea- son 1846-47.	the plan approved is for the accomm dation of 240 prisoners.
	904391 stf (ai with program	dend≱ (dantrina)
	2,924 7 6		in a standard standard Standard standard stan Standard standard sta
	an Brintona Stagram in ana i	ا جار ٩ - يەرەپ المىلىد	Pare - a portana ana
-, - 1,151 13 1	1,220 10 -	completed, sea- son 1841-42.	ngtong solar ang position n ngtong solar
	- 15 e X - 15 e X	the starting of a	1.505 g 102
4,825 7 2	5,098 4 51	completed, sea- son 1845-46.	
4,414	4,999 5 -	completed, sea- son 1845-46.	Lean , while (top)
	🕻 🖉 the second second		and the second
	2,970 14 6		
884 13 8½	• • • •	constructed, season 1847-48.	
and an	i an index person references proved	the the second star we get the second star	
			•
- 945 2 7	1,108 4 -	completed, sea- son 1848-44.	- the necessity for this work was broug to notice by the Magistrate of the Southe District of Cuttack.
2,720 5 83		completed, sea- son 1844-45.	
• • • • •	15,715 4 5		the span of the suspended roadway 100 feet between the centres of the standard with 16 feet width of roadway, or 14 fe clear traffic way. The soil of the Khall
			good, the piers will therefore be buy merely of gratings of saul wood, witho piles below them.
antino sen parte de entre •arcono entre •arcono entre	2,048 12 53	completed, sea- son 1840-41.	- the foundation and plinth of the built ing are of pucks masonry, the superstru- ture of cutchs pucks, and the roof tiles.
Government donation of rupees.	16,072		for this edifice the Protestant residen at Patna have subscribed 5,500 rupees.
			is the intention of the Lord Bishop to mal up the deficiency from the Church Buildin Fund.
622.	•	Q 2	, (continuc)

	. RETURN FOR THE PRESIDENCY O	BENGAL-continued.	• • •
NAME of WORK.	OBJECT	Length,	Place of Termination, or of -
	CONSTRUCTION.	and Date of Commencement.	intended Terminatio
Civil Buildings,	Lower Provinces ; General—continued.	ал. С	Patns -
Patne, Construction of Tiled Verandah to the Cutcherry of the Sub-deputy Opium	in lieu of an old verandah, which no longer affords the required protec- tion.	sanctioned, 17 March 1843	L'atna
Agent.	1 1 1 1		
Punkabarree, Construction of a new Staging Bungalow .and Out-offices.	to replace a similar building con- structed by the Darjeeling Committee, which was condemned, as totally unserviceable.	sanctioned, 18 June 1845	Punkabarree
· · · · · · · · · · · · · · · · · · ·	misel Alcepte:		1
Chull Dulling			
	s, South Western Provinces; R		
Pores Pilgrim Hospital, Re- built-		Banctioned, 1838-39	Pooree -
Patna, Provision of a Cir- cuit Bungalow.	the Special Commissioner's cut- cherry has been converted for the	sanctioned, 25 May 1845	Patna
	reception of the office of the Com- missioner of Revenue, in order that that officer's cutcherry may be		×.
	given over for a circuit bungalow.		
Civil Building	s, South Eastern Provinces; R	evenne	
	of course masterine rounded, at		
Peoree, Construction of a Treasury Guard-house for the Collector's Cutcherry.		sanctioned, senson 1839-40	
•			
Canals, Lower	Provinces:		5
Rajmehal Canal, Construc-	for irrigation, and to supersede	length, 130 miles, breadth 50	
tion of.	the changeableness and uncertainty of the channels of the Nuddea Rivers,	feet, and carrying at the lowest depth 5 feet water.	readen and i
	any permanent improvement of the navigation of which cannot be		
ا الا الا الحيات الجامع العام الع الحال العلم العال العام ال	reckoned on.		na lati wani ka 1 ki wa afi ji s
			a station
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	ana a a a a a a a a a a a a a a a a a a	· · · · · · ·	
Canals, North	Western Provinces:		
Rohilcund Canal	irrigation	length, 48 miles; estimates	from a poi
1975 - 19	10 1 N 1	submitted in 1840.	on the Ramoun
4 e - 1		· • •	to Shahpore, of the banks of the
			Dhela, near M
and the second second		, , •	radahad, with series of branch
			for irrigation.
	 The point The point The point 		
	•	м ,	
,	n an		1.00
Rajpore Watercourse, Re- pairs to the.	owing to the unusual height of the floods of the year, some injury had been sustained.	sanctioned, season 1846-47	

- RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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 had been made in the estimate. <	Amount of Expense incurred.		Estimated Amount for Completion.	Probable Time of Completion.	REMARKS,
 son 1944-46. son 1944-46.<	1 · · · · · · · ·	p.			· · · · · · · · · · · · · · · · · · ·
 1,880 4 2 861 14 84 861 14 84 94 - 10 completed, season 1846-47. 963 - 7 54 - 1,000 8 4 964 - 45, 100 -	- 1,118 <u>1</u> 1		1,338 10 11	completed, sea- son 1844-45.	and a second secon
 - 1,886 4 2 - 661 14 6¹/₂				• •	
 1,886 4 2 861 14 81	իչ ան Դիասելելըը, ամիչի է ա ։ ։	in ⊨ sonsf	3,221 13 1	n de la composition Nomen de la composition de la compositio	 A state of a state o
 1,886 4 2 861 14 81		•	•	na s _{a d} an na si i	a da ser en la companya de la compa Nome de la companya de
 - 661 14 82 - 14 completed, seeson 1846-47. the difference is owing to its have been found practicable to dispense veight iron gratings, for which provide had been made in the estimate. the boats proceeding through the carwould reach Rajmstan out be great to by traversing 202 miles indistance, and from 16 to days in time; as impets would be a found true, say by the School rouge per anum, 144 per cent, on the great miles as the school of the success that so it as the school of the school o			in another all :	etense Proce	
 son 1846-47. a the difference is owing to its have been found preschable to dispense weight into gratings, for which provide the section of the integration of the	1,886 4	2 • •	n ≥ Cinneng ¹ e	÷ ,	
 son 1246-47. son 1246-47. the difference is owing to its hav been found preschable to dispense v eight ino gratings for which provid had been made in the estimate. the boats proceeding through the ear would reach Rajanchal on the great riby traversing 202 miles instead of 1 miles, as by the Soonderbund routs, aw 320 miles in distance, and from 16 to days in time; as impetual routs, aw 320 miles in distance, and from 16 to days in time; as impetual routs, aw 320 miles in distance, and from 16 to days in time; as impetual routs, aw 320 miles in distance, from its earned at 40 lace, to be raised by a of 2 rupees per 100 maunds on all beat of 2 rupees per 100 maunds on all beat and the second at a stars and stars and the Rangungs to distance the undertaint provide at the second at a stars and the Rangungs to distance the process of the reacting when a stars of the Rangungs to distance the undertaint of the rangement of the stars of the Rangungs to distance the process of the rangement of th	861 14	8] - alas	a 🖬 in 🖌 ilan 🗤 👾	completed, sea-	and the second s
 - the scheme was rejected by - the scheme was rejected by - the scheme was rejected by - the boats proceeding through the au would reach Rajmehal on the great riby traversing 202 miles instead of 1 miles, as by the Sociaterbund routs, saw 326 miles in distance, and from 15 to constant on the Hooghly to one near Monghyr on the Ganges. 4,50,000 4,50,000 - it is probable that 201 square mines to be derived by a social for a scheme to be derived by a social for a scheme to be derived by a social for the section of the sectors of the Ramgings to be scheme by a social for the sector of the sectors of the Ramgings to be scheme by a social for the sector of the sectors of the Ramgings to be scheme by a social for the sectors of the Ramgings to be scheme by a social for the sectors of the Ramgings to be scheme by a social for the sector of the Ramgings to be scheme by a social scheme social for the sector of the Ramgings to be scheme by a social scheme social for the sector of the Ramgings to Government to postpone this scheme to the derive social scheme social for the sector of the se				son 1846-47.	i ser a sub a s
 643 - 7 64 - 7 64 - 7 64 - 1,080 8 4 completed, see son 1841-42. - the scheme was rejected by the season 1841-42. 38,47,437	78	•	•	nan sanatan Panga Panasa	A Design of the second se
 643 - 7 64 - 7 64 - 7 64 - 1,080 8 4 completed, see son 1841-42. - the scheme was rejected by the season 1841-42. 38,47,437	•		· · · ·	· · · · ·	
 son 1841-42. son 1841-42. been fromd practicable to dispense weight iron gratings, for which provise had been made in the estimate. - the scheme was rejected by the Home authorities in season 1844-45, but a report was called for on another line; vir., from a point near Chinsurah on the Hooghiy to one near Monghyr on the Ganges, on the Ganges, 4,60,000	•		t the set of the	and the second second	Margana and Anna Andrea Margan
 - the scheme was rejected by the Home suthorities in season 1844-46, but a report was called for on another line; viz, from a point near Chinsurch on the Hooghly to one near Monghyr on the Ganges, 4,50,000 - 4 - it is probable that 291 square mi will be susceptible of irrigation, when where of the Rangungs turned into it; the revenue to be deriform it is assumed at Ra 87,531. 4 januar. The Ravenue Board sugges to Government to postpose this sche until it can be assortiated with great with the completion of works physical whether the undertaking may 1 jinterfere with the completion of works higher importance. 	648 - 7	5g - '-	1,060 8 4	completed, sea- son 1841-42.	been found practicable to dispense w
 the solution was rejected by the Home authorities in season 1844-45, but a report was called for on another line; viz., from a point near Chinsurah on the Home authorities, and the Home authorities in a season 1844-46, but a report was called for on another line; viz., from a point near Monghyr on the Ganges. 4,50,000				•	eight iron gratings, for which provisi
 the scheme was rejected by the Home authorities in season 1844-45, but s report was called for on another line; viz., from a point near Chinsurah on the Home authorities in season 1844-45, but s report was called for on another line; viz., from a point near Monghyr on the Ganges. 4,50,000 it is probable that 291 square mi will be susceptible of irrigation, when whole of the water of the Rangunga turned into it; the revenue to be derived it is assumed at Ra. 87,631. 4 anoun. The Revenue Board sugges to Government to postpone the source with the completion of works higher importance. 1,880 7 7 	· •				<u>_</u>
the Home authorities in season 1844-45, but a report was called for on another line; viz., from a point near Chinsurah on the Hooghly to one near Monghyr on the Ganges, 4,50,000					and the second
4,50,000	the Home authorit 1844-45, but a repo for on another line a point near Chins Hooghly to one ne	es in season rtwas called ; viz., from urah on the	38,47,437		the boats proceeding through the can would reach Rajmehal on the great riv- by traversing 202 miles instead of 6 miles, as by the Soonderbund route, savi 326 miles in distance, and from 15 to days in time; an impetus would be giv- by it to the working of the iron-mines as coal-fields. The income from it is en coal-fields. The income strending
will be susceptible of irrigation, when whole of the waters of the Ramgungs turned into it; the revenue to be deriv from it is assumed at Rs. 97,831. 4. annum. The Revenue Board sugges to Government to postpone this sche until it can be ascertained with grea certainty what advantages it holds o and whether the undertaking may i interfere with the completion of works higher importance.	•		1 : e 1. e.	Ì ar∑an a	assumed at 40 lacs, to be raised by a t of 2 rupees per 100 maunds on all boat
will be susceptible of irrigation, when whole of the waters of the Ramgungs turned into it; the revenue to be deriv from it is assumed at Rs. 97,531. 4. annum. The Revenue Board sugges to Government to postpone this sche until it can be ascertained with grea certainty what advantages it holds o and whether the undertaking may i interfere with the completion of works higher importance.			•. • • •		
 turned into it; the revenue to be derived from it is assumed at Rs. 87,531. 4. annum. The Revenue Board sugges to Government to postpone this solution until it can be ascertained with great certainty what advantages it holds of and whether the undertaking may to interfere with the completion of works higher importance. 1,880 7 7 	i Inner Span (1994) - 14 E - 14 (1995) - 14 Inner Statut	signal (nas).	4,50,000	a i 2 . a i	it is probable that 291 square mil will be susceptible of irrigation, when t whole of the waters of the Ramgunga s
until it can be ascertained with great certainty what advantages it holds of and whether the undertaking may is interfere with the completion of works higher importance.		•			turned into it; the revenue to be deriv from it is assumed at Rs. 87,531. 4. p annum. The Revenue Board suggest
1,880 7 7				· • •	until it can be ascertained with great certainty what advantages it holds on and whether the undertaking may in interfere with the completion of works
		- a a	1,880 7 7	alat taa soo	TENER TITLES INTOL
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	OBJECT	Length,	Place of Termination,
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination
	il Cutt Eutom Bussies		14 14
Roads and B	ridges, South Eastern Province	8	
Raipore Road : From Calcutta to Bombay	for rendering the everland com- munication with England easy to travellers, and rapid for the convey- ance of the mails.	length from Bombay to Cal- cutta about 1,200 miles; sug- gested by the Bombay Govern- ment in season 1887-38.	Bombay -
	allog of the himse		(
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	المراجع والأفريق والمراجع المراجع		Electron de la
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		· · · ·	
Construction of four large Bridges on the Third Division of this Road.	n an	of 3 arches 30 feet span each - of 8 arches 36 feet span each - of 5 arches 45 feet span each of 2 arches 45 ¹ / ₂ feet span each sanctioned, 15 January 1845.	at Sakelie River at Sandrawapah at Choolbund at Cheekalah
Ruttenpoorah Nullah on the		length, 222 feet ; sanctioned,	
Grand Trunk Road, Con- struction of a Masonry		2 October 1843.	1
Bridge over the.			
Boods and Br	idges, Lower Provinces :		
•	iuges, Lower 1 Iovinces :		•
Rewah Ghat to Mozufferpore in Tirhoot.		length, 23 miles 7 furlongs ; sanctioned, 22 November 1886.	Mozufferpore
Boads and B	idges, North Western Provinc		-
•	ingest form a carrier i tovine	1	
Rujpore Dhoodlee, Widen- ing of the Road.		length, 14 miles ; sanctioned, 12 January 1842.	Dhoodlee -
Civil Building	s, South Eastern Provinces; J	udicial :	
Ramree, Construction of a new Gaol.	to replace the old gaol which was represented to be in a dangerous	senctioned, 14 August 1843 -	Ramree -
анан санан сан Санан санан сан	state of decay.		
• •			
Ramsee, New Circuit Bun- galow.		length, 80 feet; breadth, 64 feet; sanctioned, 1 August 1839.	Ramree -
Civil Building	s, Lower Provinces ; Judicial :		
Rungpore Gaol, Additiors to	ī , , , , ,	sanctioned, season 1841-42	
· · · · · · · · · · · · · · · · · · ·	geol.	1	

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Amount of		ount of	•			Estimated Amount		Probable			
	Expens	incurs	ed.			jiar (Campletio	n. '	Time of Completi	ion-	REMARES.
		. 1						•			
•			* je	• . • . •		· 3					
	Rs.	a.	p .	Se i							
-	-		P			from 50,00,00	30,00,0		[- ·		in 1838-39, the Court were advised of measures adopted for improving the com-
						to 50 la			•	- 1	munication between Calcutta and Bombay
		÷				00	molete	to ensh	l le them to decid		but the information supplied was too in- he line of transit, or the nature of the read
		1				w	hich she	ould be	constructed. I	The R	lesident at Nagpore reported the willing
		1 - 2	A.,								00 rupees towards the road, which he was cknowledgments.' Two plans were sub
	Ŧ	i Çe			l	m	itted; f	irst, fo	the construction	on of	a road to be at all times practicable for
	•	1 IN		, i	•						or transit of trade between Bombay and aveyance of mails between the capitals, by
		;			1	re	ndering	the lis	as of communica	ation	practicable for horsemen or foot-runners
		i									made practicable for horsemen or dawk 30 rupees which had been already autho
			4			ris	zed, and	L 968 🗆	miles remained.	Ast	the plans involved a very large outlay, the
		í		•		· m	ourt we enced u	are aesi ntilar	rous inat no po nore satisfactory	surve	of that which remained should be com ey of the line was made, and an estimat
					1	oí	f the ex	pense s	ubmitted to ther	m; bu	it as the main-road on to Bombay could
•		1.				di	iate mea	sures f	or forming a roa	ad for	Government were authorized to take imme horsemen and dawk-runners from Ahmed
		1	. ' K	ess 🥊		. 101	uggur t	o Midı	apore, which w	ould	be practicable throughout the year. Th d January 1845) informed the Governmen
	•	1			1	th	at they	could	not sanction the	e const	truction of an expensive road, and directe
						th	at their	exerti	ons be confined t	to the	discovery of the best route, on which such he transit of the mails imperatively required
						10	аргочен	ients OI	-		The manage of the mana miles advesty reduced
		· .	1.0			10,674	7 41	1.2.		<u> </u>	
. .	·• .•.	-	- 11 - 1 - 11 - 1	14.57	1.	, 9,957	∃4 .7,6]	Rs. 48,62		n mel	and the second second second second
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	11,32	5 11 [°]	3	Ngala H		11.5	325 11	* (* ± ¹) • 8	completed,	sea-	this bridge is stated to be a handsom
	,			: · · ·					son 1846-47.	ł	and durable structure, leading the road
		· • •			- 'I'					· · •	anon and now entruerd cullebe and bring
										f	
•										Ĩ	over two very awkward nullahs, and bring ing it up to a horizontal level with th heights east and weat.
•					~		*			Ĩ	ing it up to a horizontal level with th
•					~	1. 1.	*			Ĩ	ing it up to a horizontal level with th
	60.00	•	1. dia	•	4			- 			ing it up to a horizontal level with th
•	- 63,29	• •	1 1	•	л. 		n ¥ telonia te ∰r telon∰	-	completed, son 1839-40.	868-	ing it up to a horizontal level with th
•	- 63,29		. ₩ 1	•	A	- - -	ی به جاری در این جاری در این در در د	- - 		868-	ing it up to a horizontal level with th
	- 63,29			•	л. 		n Internetion Int	н 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		868-	ing it up to a horizontal level with th
	- 63,29	(<u>-</u>	1. S.	•			• • • • • • • •		son 1839-40.	968-	ing it up to a horizontal level with th
	- 63,29 - 1,48	- -						· · · · · · · · · · · · · · · · · · ·		8ea-	ing it up to a horizontal level with th
	- 63,29 - 1,48;	- - -	 1	• • • •		- 1	₩		son 1839-40.	8ea-	ing it up to a horizontal level with th
	- 63,29 - 1,488	i 11	1. 1. 1. 1.	• • • • •	л. — — — — — — — — — — — — — — — — — — —				son 1839-40.	8ea-	ing it up to a horizontal level with th
	-	•	1999 271 271 271 271 271 271 271 271 271 271	• • • •			nejoog k € stan e stan e stan e stan e stan		son 1839-40. completed, son 1843-44.	8ea-	ing it up to a horizontal level with th heights east and west.
	- 63,29 - 1,48 <i>i</i> - 7,05	•	1 5						son 1839-40. completed, son 1843-44.	8ea-	ing it up to a horizontal level with th heights east and weat.
	-	•	1 1 1 1 5			• • • • • • • • • • • • • • • • • • •	10,00,00 10,0		son 1839-40. completed, son 1843-44.	8ca-	the new gaol will be surrounded by a pucks walk 13 feet high, and will consis of one dewanny ward and three foujdarree
	-	•	i i i i s			• • • • • • • • • • • • • • • • • • •	 South 		son 1839-40. completed, son 1843-44.	868- 868-	the new gaol will be surrounded by pueks wall 13 feet high, and will consu of one dewanny ward and three foujdarre wards, a hospital, guard-room, &c. Th
- 4	-	•	ца 2771 1.39 1 1 5						son 1839-40. completed, son 1843-44.	863- 863-	the new gaol will be surrounded by pueks wall 13 feet high, and will consis of one dewanny ward and three foujdarre wards, a hospital, guard-room, &c. Th
	- 7,05	38	1 1 5			, ' G	1		son 1839-40. completed, son 1843-44.	802- 802-	the new gaol will be surrounded by pucks wall 13 feet high, and will consi of one dewanny ward and three foundarre wards, a hospital, guard-room, &c. Th walls of these buildings will be compose
	- 7,05	•	10.45 27 L 2 S 2 1 1 5	1999 1999 1999 1999 1999 1999 1999 199		, ' G			son 1839-40. completed, son 1843-44. completed, son 1844-45.	863- 863- 868-	the new gaol will be surrounded by pucks wall 13 feet high, and will consi of one dewanny ward and three foundarre wards, a hospital, guard-room, &c. Th walls of these buildings will be compose
	- 7,05	38	1 5 5			, ' G	1		son 1839-40. completed, son 1843-44. son 1844-45. completed, s	863- 863- 868-	the new gaol will be surrounded by pucks walk 13 feet high, and will consis of one dewanny ward and three fourier wards, a hospital, guard-room, &c. Th walls of these buildings will be compose
	- 7,05	38	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			, ' G	1		son 1839-40. completed, son 1843-44. son 1844-45. completed, s	868- 868-	the new gaol will be surrounded by , pucks wall 13 feet high, and will consis of one dewanny ward and three foujdarre wards, a hospital, guard-room, &c. Th walls of these buildings will be composed of planks, and the roof of thatch.
	- 7,05	3 8 4 16	1 5 9. 2				1		son 1839-40. completed, son 1843-44. son 1844-45. completed, s	802- 802- 902-	the new gaol will be surrounded by pucks walk 13 feet high, and will consis of one dewanny ward and three fourier wards, a hospital, guard-room, &c. Th walls of these buildings will be compose

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NAME of WORK.	OBJECT of CONSTRUCTION.	Length, and Date of Commencement.	Place of Termination, or of intended Tarmination.
Civil Buildings,	Lower Provinces; Judicial-continued.	I	
Rungpore :	1		
Conversion of an old Judicial Cutcherry into		sanctioned, 28 December 1842 -	
a Gaol Hospital.			
Construction of a Circuit			4 A
Construction of a Circuit- house, Sudder Ameen's Cutcherry, &c.	- to provide accommodation for the Judge's records, and the property of persons dying intestate at Rung- pore.	sanctioned, 3 April 1843	Rungpore
· ·	poro.		
Civil Building	s, North Western Provinces ; J	udicial :	•
Rhotuck, New Gaol	• • • • • •	sanctioned, 7 December 1839 -	
Civil Building	s, North Western Provinces ; G	eneral:	
Roorkhee, Construction of Buildings.	for a Civil Engineering College	sanctioned, December 1847 -	Roorkhee -
Civil Building	s, South Eastern Provinces; C	General :	12 pa
Russapuglah, Additions and Alterations to the Building		sanctioned, 15 February 1843 -	Russapuglah -
occupied as the Office of the Superintendent of the Mysore Princes.			
	· · · · · · · ·		•
	s, North Western Provinces ; R	levenue :	b m
Raneca, in the Bhuttee terri- tory; Construction of a Tehsildarry Cutcherry.		sanctioned, 7 November 1840 -	••.
Embankments	, Lower Provinces:	• • • • •	
Sarun and Tirhoot Bunds :			
Construction of a new Bund, about 1,000 yards from the Old Bunds.	for the protection of the country between the villages of Nowkurrah and Pursadee from encroachments of the Gunduck river.	length, 231 miles; sanctioned October 1841.	.
Construction of some new inner Bunds at Sarun, and strengthening of a part of the main Bund.	owing to encroachments of the river Gunduck.	length, 4 miles; sanctioned, 4 April 1845.	· · · · · · · · ·
Construction of new	in parts where the main Bund is encroached on by the River Gunduck.	sanctioned, 29 April 1846	

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Amount of , Expense incurred.	Estimated for Comp		· · ·	Probable Time of Completion,	REMARKS.
		-			
Rs. c. p.	Rs.	a.	p.		
3,493 6 9	*8,493	6	9	season 1842-48 -	the estimate provides for new roofing part of the building, removing partition- walls, and dividing the hospital for the
	•		-		wails, and driving the nospital for the separate accommodation of male and female patients; it also provides a place for the Native Doctor and medicines.
- 7,728	6,791	9	3	completed, sea- son 1845-46:	owing to the porous nature of the tiles made at Dacca, and the consequent leakiness
		: :		, 2013) (), 2010, 2010, 1	of the roof, it has been found necessary to replace the tiled roof with a flat roof; the excess of Rs.1,403.5.8. on the bill for the above work has been disallowed by Government.
	• • •		1		
•		:	, , 1	tan ang tan	
- 7,790 15 74	6,742	2	8	completed, sea- son 1839-40.	this gool is capable of accommodating 850 prisoners; the walls are of outchs pucka materials, and the roof is of thatch.
• 75		• .	; 		
	19,000	-	 `		
		an An an	. +) 		
- it was decided by Govern- ment, on the 5th July 1849, not to sanction the proposed outlay on this account.	8,851	6	1		the board solicited the orders of Govern- ment to be allowed to call for tenders for the execution of the work by contract.
	ı				· · · · ·
	,	•			
- 6,014 14	5,653	15	1	son 1842-43.	
	•		,		
	•			1	•
- 4,877 4 5	ō,081	4	9	completed, sea- son 1842-43.	the length of these Bunds is 140 miles, and the estimate for their annual repair, 5, 11. 2.; the Executive Officer has been direc- tion to the second section making the Bunds
				ted to ad 8 feet abo	o, 11.2.; instructure of the section, making the Bunds opt the standard section, making the Bunds ove the highest known rise of the river, 8 feet op, and giving a slope of 8 to 1 towards the 2 to 1 in the rear.
6,512 7	9,151	4	22	completed, sea- son 1848-49.	
2,781 9 2	3,851	•	-	completed, sea- son 1848-49.	•
(t .	(continued)

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	OBJECT	Length,	Place of Termination.
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination,
Canals, Nor	th Western Provinces :		
Seharunpore, Construction of a Corz-mill House.	to replace the former building, set of mills which were destroyed by the failure of the foundations, in December 1844.		
Roads and B	idges, South Eastern Province	l	es
andowsy, Reconstruction	to keep open the communication	sanctioned, 30 October 1844	Sandoway
of the Shoo's Bridge st.	between his cutcherry and the most populous purt of the Sandoway Val-		
owrah Bridge, Repairs to -	ley below the village. this bridge crosses the Sowrah River	length of the bridge, 800	
		feet ; width, 20 feet ; repairs sanctioned, season 1845-46.	crosses the public road be tween the statio
• • •			and town of Pur neah.
heikpore, Construction of two Bridges on the Grand Trunk Road.		sanctioned, 1 July 1846	between Burd wan and Gyretty
		the fill of a south	
atgong to Muggra, on the Grand Trunk Road; Wi- dening of the Road.	the metalled portion has been widened, and the road straightened.	length, 2 miles and 100 yards; sanctioned, 24 March 1847.	Muggra -
			1
	dges, Lower Provinces:		
ebsagur to Jypore, in Upper Assam.	• • • • • • •	length, 56g miles.	
ebsaugor to Borahaut, in Upper Assam, Repair of an old Road.	•	length, 50 miles	Borahaut -
ebsaugor to Debroghur -	• • • • • •	length, 17 3 miles.	
ebsaugor to Chokey Haut, on the Boores Dehing River.		sanctioned, 21 June 1841	Chokey Haut.
ik wah to Rungagorah, in Assam, Opening of part		sanctioned, 14 December 1844-	Rungagorah
of the Road.	•		-
Roads and Br	dges, Central Provinces:		2004 (
ugor to Dumoh, Change in the Line of Road.	- to obtain a line more accessible to the traffic of the country, to which the imperfectly finished ghauts on	sanctioned, 22 October 1840	
ugor, Erection of an Iron Suspension Bridge over	the old line presented obstacles.		10 miles east
the Beose River.			from Saugor.
· .		•	1 445 - 1 1 1
dge over the Surjoo River t Lot Ghaut, in the Dis- rict of Azimghur.	- for the promotion of the traffic between the districts of Gornokpore	sanctioned, 24 January 1838	Lot Ghaut

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RETURN FOR THE PRESIDENCY OF BENGAL-continued. 11

	Amou Expense		Batimated Am for Complete		Probable Time of Completion.	R E M A R K S.
	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	175276				
S. A	<i>Rs</i> .	a. p.	Rs. a.	` р.		
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4		· ·		• •		
		х 1			, and the second se	
. ∎1.	• 643	9 · ·	1,111 11	6	completed, ses- son 1845-46.	by a reduction in the rate for carpenters
	198 î. j.	 FERSEALS 	Ya Maya ka	t i	 ■ attraction of the second sec	work.
- ~	891-	4 1 4 1	r ek frankriger e	6 ·	completed, sea-	
					son 1845-46.	
2	na internationale de la composición de La composición de la c	er e			•	
	n an Room. Taga at Santa	• • • •	18,458 15			one bridge, of three openings of S6
τ. ·	an an An Anna an Anna					feet each, and arches to be segments of circle, rising 14 feet; the other of thre openings 20 feet each, with similar arches
	រុំ ^រ ំលែងលោក ។		- , i	•		5 feet in height.
-**	• 7,118	10	7,490 11	1	completed, sea- son 1847-48,	both khos and gooting have been use in the repairs and extension of the metal.
•	 note If 	SANDA IN	antination de la seconda de La seconda de la seconda de		and the second sec	
				ся.		
	· •	+ •				
		• •	3,765 -		• • •	this work has been executed by th Political Officers of Government,
		· • •				
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•	•			H k 🖌		
+	.11 ·	in personale			season 1844-45.	
-	- 2,145	13	2,145 18	, ,	BOBSON 1044-20.	
		na Nationalist T	el sur d		- , ·	
	•		-	-		
		•		. 7	· · · ·	
•	- 1,081	4 28	1,199 9	10	completed, sea- son 1842-48.	the ascents over the ghauts on the old line were as steep as 1 in 10, or 1 in 12.
. . ′	·			•		
-	- 88,177	6	• • •	•	constructed in 1832.	this bridge was constructed in 1832 by Major Presgrave. The span is 200
-	•					feet; breadth of platform, 12 feet; height of pillars and piers, 68 feet. Repairs were effected in season 1846-47, at a cost of Rs.3,445. 5, 9.
-	- 8,752	511		•	completed, sea- son 1841–42.	this bridge is of masopry, and of three arches; the centre arch 84 feet span, and the side ones 28 feet each.
	2.		1 a 2 c 4		R 2	(continued)

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CONSTRUCTION. Roads and Bridges, North. Western Provinces: ishagar River, Bridge over the. the. charunpore, Bridge over in lies of a bridge of two arobes, which was deteroyed by a high flood on the 27th September 1841. ingapore Bridge in lies of a bridge of two arobes, which was deteroyed by a high flood on the 27th September 1841. ingapore Bridge injured by the floods of 20 June anationed, season 1838-30 /- injured by the floods of 20 June sanctioned, 17 Novembe 1848 ingreed by the floods of 20 June anationed 21 February charupore, Construction of a Rosd. in lies of others of a like and head carrieges. in lies of others of a like and head carrieges. in lies of others of a like anatars, arrey report of the 26th November androwy, Construction of a row define dia bandoo house, with being standard in the heart of ballee, arrey report of the 26th November andrey; Construction of a row define stand hamboo house, with being standard in the heart of ballee, arrey report of the 26th November andrey; Construction of a row define standard hamboo house, with being standard in the heart of ballee, arrey for the stath and hearboo house, with being state of the gool, the west dhearotore areas a hogingh, hab hean assigned for the use of the priso				
NAME of WORK CONSTRUCTION. and Date of Communication Immedial Termination Roads and Bridges, North. Western Provinces: sanctioned, 25 July 1840 Schagur River. ibager River, Bridge over the Dialis Khall at. on the S7th Sprimbe 1841. to keep open the communication between Futtyphur and Etawah. sanctioned, 25 July 1840 Scharuppore etherunpore, Bridge over the Dialis Khall at. on the S7th Sprimbe 1841. in liau of a bridge of two arches which was destroyed by a high flood on the S7th Sprimbe 1841. sanctioned, season 1841-42, '- Scharuppore etherunpore, Bridge injured by the floods of 20 June Is42. sanctioned, 17 Novembe 1344 ever the Site gepore River. etherunpore, Repairs to the Damolah Bridge. injured by the floods of 20 June Is42. sanctioned, 17 Novembe 1344 inspired by the floods of 20 June Is42. Civil Buildings, South Eastern Provinces ; Judicial: to be poesable throughout the year for thops and whell carriages inspired by the floods of 10 basen is Theory, Construction of a Theory, Construction of a Theory report of the 20th November 2041. inspired by the floods of 20 June Is43 is sanctioned, 10 June Is44 is sanclooned, 11 March Is46 is				of Termination,
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sencioned, 17 Novembe 1848 gapors River. Givil Buildings, South Eastern Provinces ; Judicial : anctioned, 19 June 1842. 1: sanctioned, 10 June 1843. 1: sanctioned, 11 March 1846 (s. Salker - fananda of Puce metates of the gapo, the ward here of solker, are linkle to be burd down. gapors River. gapors River. gapors River. gapors River. gapors River. Gardoway. Gonstruction of a fanance of the convoded sick removed into a thatched building in the eivil gaol. Givill Buildings, Lower Provinces ; Judicial : anctioned, 14 April 1840. gapors River. Sandowayoutoherry, 100 by 40 fast, a tesaury gapors River.	Seharunpore, Bridge over the Dholla Khall at.	which was destroyed by a high flood	sanctioned, season 1841-42	• Seharunpore -
 Scharmpore, Repairs to the Dumohab Bridge. - injured by the floods of 20 June 1842. - injured by the floods of 20 June fort ; sanctioned 21 February 1846. Civil Buildings, South Eastern Provinces ; Judicial : - the scoommodation flored in Gauchery for the Nativ Judge. - in lian of others of a like nature, and Gaud-toom of Ma survey report of the 20th November 1841. - intended to replace the stating that ha and bamboo houses, which being situated in the heart of Sulkes, anotioned, 19 June 1843 (- Sulkes - tails. - in consequences of the crowded state of the groi, the ward horstofore used as a hospital, has been assigned for the use of the groi, the ward horstofore used as a hospital, has been assigned for the use of the Commissioner - isechpore in Assam - - measurement, 60 feet by 30; sanctioned, 14 April 1840. Sandoway - outoherry, 100 by 40 fast; a treasury grad, 63 by 83 fost; a dwanny grad, 100 by 85 fost; a dwanny grad, 100 by 85 fost; a dwanny grad, 100 by 85 fost; 	Sinconora Bridga	an a	sanctioned, season 1838-39	fover the Sin-
Dumohah Bridge. 1842. Sukkur and Shikarpore. to be passable throughout the year for troops and wheal carriages. Sukkur and Shikarpore. to be passable throughout the year for troops and wheal carriages. Civil Buildings, South Eastern Provinces; Judicial: length, 24 miles; width, 40 Sory, Construction of a Caucherry for the Native guite unit for holding his court. an lieu of others of a like nature, which were condemned in the annual and Cauchrom of Marsurey report of the 26th November 1841. Sukkas, Construction of a Trasaut of Pucces metals. in lieu of others of a like nature, which were condemned in the annual and Cauchrom of Marsurey report of the 26th November 1841. Sukkas, Construction of a Trasaut of the spoil, the been assigned for the use of the prioners, and the side report in the assigned for the use of the prioners, and the side report in the east of Bulke, are liable to be burnt down. Soory Gaol, Construction of a new Hospital. in consequence of the crowded state of the gool, the ward heretofore line assigned for the use of the prioners, and the side removes in the association to the east of bulke, are liable to be burnt down. Civil Buildings, Lower Provinces ; Judicial : Sandoway: New Thane House in Arroan. for the use of the Commissioner - seeppore in Assam - were for the use of the Commissioner - seeppore in Assam -	STITE PLACE PLACE			gapore River.
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Civil Buildings, South Eastern Provinces; Judicial: Soory, Construction of a Cutchberry for the Native Judge. Sandowsy, Construction of a Treasury Record-mom, and Guard-noom of Ma- soury. Sulkes, Construction of a Thannah of Pucca ma- terials. Soory Gaol, Construction of a new Hospital. Civil Buildings, Lower Provinces; Judicial : Sandowsy: New Thana House in Arreaa. New Circuit House Seeppore in Assam Seeppore in Assam		to be passable throughout the year for troops and wheel carriages.	length, 24 miles; width, 40 feet; sanctioned 21 February	Shikarpore -
Seory, Construction of a the accommodation afforded in Cutcherry for the Native due Magistrated cutcherry being quite unit for holding his court. Sandoway, Construction of a in lieu of others of a like nature, and Guard-room of Ma survey report of the 20th November 1841. Sulkas, Construction of a in tanded to replace the existing thatch and bamboo houses, which being situated in the heart of Sulkes, are liable to bourd down. Soory Gaol, Construction of a in onsequence of the orowdad state of the gaol, the ward heretofore used as a hospital, has been assigned for the use of the prisoners, and the sick removed into a thothed building in the civil gaol. New Circuit House in Arrocan. New Circuit House - for the use of the Commissioner - Seebpore in Assam outherry, 100 by 40 fast, with wings, 30 by 40 fast, a criminal gaol, 100 by 38 fost; a dawnay gaol, 100 by 38 fo				а <u>а</u> , , , , , , , , , , , , , , , , , , ,
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 a Treasury Record-room, and Guard-room of Masonry. which were condemned in the annual survey report of the 26th November 1841. sanctioned, 11 March 1846 (+ Sulkes, are liable to be burnt down. bory Gaol, Construction of a construction of a new Hospital. civil Buildings, Lower Provinces ; Judicial : sandowsy : New Circuit House in Arracan. New Circuit House - for the use of the Commissioner - seature and solve and solve	Cutcherry for the Native	the Magistrates' cutcherry being	sanctioned, 20 June 1842- 1+	
Sulkes, Construction of a Thannah of Puoca ma- terials. Soory Gaol, Construction of a new Hospital. Civil Buildings, Lower Provinces ; Judicial : Sandowsy : New Circuit House in Arraoan. New Circuit House - Seebpore in Assam -	Sandowsy, Construction of a Tressury Record-room, and Guard-room of Ma-	which were condemned in the annual survey report of the 26th November	sanctioned, 19 June 1843 2-	Sandoway -
Thannah of Puoca materials. thatch and bamboo houses, which being situated in the heart of Sulkes, are liable to be burnt down. sanctioned, 17 June 1846 Soory Soory Gaol, Construction of a new Hospital. in consequence of the orowded state of the gaol, the ward heretofore used as a hospital, has been assigned for the use of the prisoners, and the sick removed into a thatched building in the civil gaol. sanctioned, 17 June 1846 Soory Civil Buildings, Lower Provinces ; Judicial : Sandoway: measurement, 60 feet by 30; sanctioned, 14 April 1840. - New Circuit House - for the use of the Commissioner - sanctioned, 14 April 1840. - Seebpore in Assam - - eutoherry, 100 by 40 feet; a treasury guard, 62 by 33 feet; a dewanny guard, 63 by 34 feet; a thana house, 36 by 24 feet;	sonry.	1841.	•	
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for the use of the prisoners, and the sick removed into a thatched building in the civil gaol. Civil Buildings, Lower Provinces; Judicial: Sandoway: New Thana House in Arracan. for the use of the Commissioner sanctioned, 14 April 1840. Seebpore in Assam		state of the gaol, the ward heretofore	sanctioned, 17 June 1846	Soory
Civil Buildings, Lower Provinces; Judicial : Sandoway: New Thans House in Arracan. New Circuit House - Seebpore in Assam - Seebor		for the use of the prisoners, and the sick removed into a thatched build-		n Resultan en a
Sandoway: New Thana House in Arracan. New Circuit House - for the use of the Commissioner - Seebpore in Assam				
Sandoway: New Thana House in Arracan. New Circuit House - for the use of the Commissioner - sanctioned, 14 April 1840. Seebpore in Assam	Ciail Datition		l .	
New Thana House in Arracan. New Circuit House - for the use of the Commissioner - sanctioned, season 1838-39 - Sandoway - Seebpore in Assam		s, Lower Provinces; Judicial:	•	4
New Circuit House for the use of the Commissioner - sanctioned, season 1838-39 - Sandoway - Seebpore in Assam	New Thans House in	•	measurement, 60 feet by 30;	
Seebpore in Assam	5		Banctionen, 14 April 1840.	•
with wings, 30 by 40 feet; a treasury guard, 52 by 33 feet; a criminal gaol, 100 by 38 feet; a dewanny gaol, 100 by 38 feet; a thana house. 35 by 22 feet;	New Circuit House	for the use of the Commissioner -	sanctioned, season 1838-39	Sandoway
a treasury guard, 52 by 33 feet; a criminal gaol, 100 by 38 feet; a dewanny gaol, 100 by 38 feet; a thans house. 35 by 22 feet;	Seebpore in Assam 🖕 🚽		with wings, 30 by 40 feet.	
sanctioned 20 February 1839.			a treasury guard, 52 by 33 feet; a criminal gaol, 100 by 38 feet; a dewanny gaol, 100 by 38 feet; a thana house, 35 by 22 feet.	
			Banchoned 20 February 1889.	

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RETURN FOR THE PRESIDENCY OF BENGAL-continued.

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	Amount Expanse inc)	Estimated Amount		Probable Time of Completion.	R B M A R K S.
		<u>}</u>		<u> </u>	Time of Completion.	
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1	r mi Aoren I		1 4,384 2 8	• • • ·	and the second sec	the enlargement of the area of the gr by building a new surrounding wall
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				4.		height of 15 feet, is intended.
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4	- 810 4	10	844 18 2	ι. Γ	completed, sea- son 1841-42.	the wall will be of mat, the r thatched, but the floor will be well rai and planked.
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1-	- 2,347 6) 6 4 4	2,406 9 -		son 1842-49.	
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<u></u>		gr BENGAL-continued.	1
	OBJECT	Lengtų,	Place of Termination,
NAME of WORK.	CONSTRUCTION.	and Date of Commencement.	or of intended Terminatio p.

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Civil Buildings, I	ower Provinces; Judicial-continued.	non som en er en	
	1	1	- ·
Shahabad, Purchase of a School-house.	for a cutcherry for the Magis- trate.	sanctioned, 4 February 1841 -	·**` * * *
•			and a construction
Improvement of the Drain	-)	sanctioned, 26 January 1842 -	
age of the Gaol.		1	
0			
Seebsaugor in Upper Assam, Construction of a Cut- cherry.	• - for the Magistrate, in lieu of a cutcherry which was destroyed by fire on the 25th August 1840.	sanctioned, 26 January 1841 -	
*	• • • •		с ⁸³⁷ • А
Seebsaugor, Construction of		sanctioned, 18 February 1840 -	
a new Gaol Hospital, with a new Bamboo Stockade			· · · ·
to the Gaol.			
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Seebsaugor, Lower Assam, Construction of a Gaol at.	for 204 prisoners, males and females.	sanctioned, 3 April 1843 -	Seebsaugor -
		$= M_{\rm ell} + \sigma_{\rm ell} + \sigma_$	
1			a transformer and
Silchar, Construction of a new Mohafez Thanna and Treasure-room.	for the security of the records and treasure.	sanctioned, 6 November 1844 -	Silchar = -
Seebsaugor, Construction of a new Treasury and	in lieu of similar buildings blown down by a storm in May 1843.	sanctioned, 21 August 1843 -	Seebsaugor
Thannah.	· · · · · · · · · · · · · · · · · · ·		
			•
Seebsaugor, Provision of a New Gaol.	the permanent, hospital con- structed for the light infantry is to be converted into a gaal.	sanctioned, 3 April 1843_ (- ditto
	$\Phi(x_1,x_2,\dots,x_{n-1}) = \Phi(x_1,\dots,x_{n-1})$	•	- * 1.34 # }
Sylhet, Improvements to the Gael Hospital.	this hospital, which was originally	sanctioned, 15 March 1847	Sylhet -
eases treshime	a mosque, is considered by the medical officer, from its extreme lowness, an		
	unfit habitation for the sick.		· · · }
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•	•	1 •	
Seebsaugor, Rebuilding of the Circuit-house.	- this work was necessary in con- sequence of the damage sustained by the old Circuit barred	sanctioned, season 1847-48 -	Seebsaugor -
	the old Circuit-house during a storm on the 28th April 1846, when the walls were so forced out of the per-		ХХ ¹ н н
	pendicular, as to make the building in imminent danger of falling.		
a a nan ina ing	. ч. т. С]]
Renewal of the Gaol Stockade.	the necessity for this work was reported by the civil authorities.	sanctioned, 8 December 1847 -	- ditto -
· · ·	· · · · · ·		
Civil Building	s, North Western Provinces; J	Judicial :	
Shajehanpore, Construction	•		Shajehanpore -
Hospital and Buildings.	,	¢ · · · · ·	
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RETURN FOR THE PRESIDENCY OF BENGAL-continued. • ٠ . 7 Amount of Estimated Amount Probable REMARKS for Completion. Expense incurred. Time of Completion. 1 2 ... Rs. a. p. Rs. a. p. . . . - - this building had been newly conseason 1841-42 8,000. ١.... structed. -1,246 6 -- completed, sea-1,195 19 63 -6 • son 1842-43. . - - the building consists of a room 80×20 feet, with a wing 30×20 , and a 10-feet verandah all round. 1,329 ģ - + completed, sea 1,516 15 102 son 1842-48. . . -. - - the building consists of one centre room 84×20, with an 8-feet verandah -- constructed, sea-887 13 8 son 1842-43. all round. ÷. - - the foundation and plinth of the gaol wards will be of masonry, and the re-mainder of the building will be composed 9,008 14 4 -- this work was suspended in season 1843-44. of temporary materials. - L.S. ł --- completed, sea 2,239 4 7 2,072 1 7 son 1846-47. 618 8 1 Acres 64 Acres b - completed, sea 17,308 2 1 17,884 10 4 son 1845-40. . - the estimate provides for raising the roof 61 feet higher; and with a view to improve the ventilation, the surrounding wall, with the guard-room, will be removed 1,885 to a proper distance. • } . t -- completed, sea 697 son 1847-48. - - completed, sea-483 9 485 1 8 son 1848-49. · · · · .) . -- completed, sea-5,207 13 81 5,276 8 7 son 1845-6. (continued)

irsa, Construction of a Well at. eharunpore, Construction of a Pucka Guard-room at the Gaol. hikarpore, Conversion of the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (civil B	oBJECT of CONSTRUCTION. The Western Provinces ; Judicial—co For the use of the Judicial Department owing to the insufficiency of the axisting guard-rooms. Central Provinces ; Judicial : in consequence of the removal of 100 prisoners from the district of Dumoh. , Eastern Settlements ; Judicial	- depth, 113 feet; diameter, 8 feet; sanctioned, 26 Maroh 1841. sanctioned, 8 December 1843 - sanctioned, 3 April 1845 - sanctioned, 24 January 1846 -	Place of Termination, or of intended Termination. Sirsa
Civil Buildings, No at. Seharunpore, Construction of a Pucka Guard-room at the Gaol. Shikarpore, Conversion of the Fort into a Gaol. Shikarpore Gaol, Construc- tion of a Hospital, Cook- room, &c. to the. Civil Buildings, G sugor Gaol, Enlargement of the. Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings	CONSTRUCTION. orth Western Provinces; Judicial-c for the use of the Judicial Department - owing to the insufficiency of the paristing guard-rooms. Central Provinces; Judicial: - in consequence of the removal of 100 prisoners from the district of Dumoh.	entinued. - depth, 113 feet; diameter, 8 feet; sanctioned, 26 March 1841. sanctioned, 8 December 1843 - sanctioned, 8 April 1845 sanctioned, 24 January 1846 - sanctioned, 16 April 1845 sanctioned, 16 April 1845	intended Termination. Sirsa Seharunpore ditto Shikarpore ditto
irsa, Construction of a Well at. eharunpore, Construction of a Pucka Guard-room at the Gaol. hikarpore, Conversion of the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (civil B	For the use of the Judicial Department - owing to the insufficiency of the existing guard-rooms. - Central Provinces ; Judicial : - in consequence of the removal of 100 prisoners from the district of Dumoh.	- depth, 113 feet; diameter, 8 feet; sanctioned, 26 March 1841. sanctioned, 8 December 1843 - sanctioned, 3 April 1845 sanctioned, 24 January 1846 - sanctioned, 16 April 1845 sanctioned, 16 April 1845	Seharunpore - Shikarpore - ditto - Singapore - 5 - 141
irsa, Construction of a Well at. eharunpore, Construction of a Pucka Guard-room at the Gaol. hikarpore, Conversion of the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (augor Gaol, Enlargement of the. Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	For the use of the Judicial Department - owing to the insufficiency of the existing guard-rooms. - Central Provinces ; Judicial : - in consequence of the removal of 100 prisoners from the district of Dumoh.	- depth, 113 feet; diameter, 8 feet; sanctioned, 26 March 1841. sanctioned, 8 December 1843 - sanctioned, 3 April 1845 sanctioned, 24 January 1846 - sanctioned, 16 April 1845 sanctioned, 16 April 1845	Seharunpore - Shikarpore - ditto - Singapore - 5 - 141
at. sharunpore, Construction of a Pucka Guard-room at the Gaol. hikarpore, Conversion of the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (augor Gaol, Enlargement of the. Civil Buildings ngapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	- owing to the insufficiency of the misting guard-rooms. Central Provinces; Judicial: - in consequence of the removal of 100 prisoners from the district of Dumoh.	Steet; sanctioned, 26 Maron 1841. sanctioned, 8 December 1843 - sanctioned, 8 April 1845 - sanctioned, 24 January 1846 - sanctioned, 16 April 1845 -	Seharunpore - Shikarpore - ditto - Singapore - 5 - 141
of a Pucka Guard-room at the Gaol. hikarpore, Conversion of the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (augor Gaol, Enlargement of the. Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	Existing guard-rooms. Central Provinces ; Judicial ; in consequence of the removal of 100 prisoners from the district of Dumoh.	sanctioned, 3 April 1845 sanctioned, 24 January 1846 - sanctioned, 16 April 1845 al: sanctioned, 18 November 1839	Shikarpore ditto Singapore - 5-111
hikarpore, Conversion of the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (augor Gaol, Enlargement of the. Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	in consequence of the removal of 100 prisoners from the district of Dumoh.	sanctioned, 24 January 1846 - sanctioned, 16 April 1845 al : sanctioned, 18 November 1839	Shikarpore - ditto Singapore 5 - 141
the Fort into a Gaol. hikarpore Gaol, Construc- tion of a Hospital, Cook- room, &o. to the. Civil Buildings, (augor Gaol, Enlargement of the. Civil Buildings ingapore : New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	in consequence of the removal of 100 prisoners from the district of Dumoh.	sanctioned, 24 January 1846 - sanctioned, 16 April 1845 al : sanctioned, 18 November 1839	ditto Singapore 5 - 144
tion of a Hospital, Cook- room, &c. to the. Civil Buildings, (augor Gaol, Enlargement of the. Civil Buildings ingapore : New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	in consequence of the removal of 100 prisoners from the district of Dumoh.	sanctioned, 16 April 1845 al : sanctioned, 18 November 1839	Singapore -
Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	in consequence of the removal of 100 prisoners from the district of Dumoh.	al : sanctioned, 13 November 1839	Singapore -
Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	in consequence of the removal of 100 prisoners from the district of Dumoh.	al : sanctioned, 13 November 1839	Singapore -
of the. Civil Buildings ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	100 prisoners from the district of Dumoh.	al : sanctioned, 13 November 1839	Singapore -
ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	, Eastern Settlements ; Judic	sanctioned, 13 November 1839	Singapore -
ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	, Eastern Settlements ; Judic	sanctioned, 13 November 1839	Singapore -
ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	, Eastern Settlements ; Judic	sanctioned, 13 November 1839	Singapore -
ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	, Eastern Settlements ; Judic	sanctioned, 13 November 1839	Singapore -
ingapore: New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.	, Eastern Settlements ; Judic	sanctioned, 13 November 1839	Singapore -
New Police Office - Construction of a Police Thannah at Campong Clang. Civil Buildings sugor Island; Construc- tion of a Lighthouse at Middleton Point.			Singapore -
Thannah at Campong Clang. Civil Buildings augor Island; Construc- tion of a Lighthouse at Middleton Point.		sanctioned, 25 March 1840 -	
augor Island; Construc- tion of a Lighthouse at Middleton Point.		•	ditto
augor Island; Construc- tion of a Lighthouse at Middleton Point.	· · · ·		· , .
tion of a Lighthouse at Middleton Point.	, South Eastern Provinces ; G	eneral:	
	- with a view of replacing the pre- sent tripod, which the Superintendent of Marine, after personal inspection, reported to be in a ricketty condition,	sanctioned, 18 January 1847 -	Middleton Point
·	and accordingly recommended a ma- conry tower in preference to the re- construction of a tripod, on the score		
	of ultimate economy, as well as superior efficiency.		
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{ Civil Buildings	, Central Provinces ; General	•	
ulkes, Construction of New -		orders of Government, 5 July	Sulkea
Salt Golahs.	-	1837.	
			} 1

Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Rs. a. p.	Rs. a. p.		
1,193 10 10	1,198 10 10	season 1841-42.	
	a second de		
930 1 10	930 1 10	season 1843-44.	the new building is to accommodate \$0
		•	
4,531 8 2	4,531 8 2	season 1845-46.	
		-	
1,521	1,521		
•			
47,386	45,528 9 8	completed, sea-	Government was of opinion that occa-
the second se		son 1847-48.	sions might arise in which this gaol might aid the military defence of the place, and
•		1	expressed a desire that the building should be calculated for defence by a small body
		1	of men, and that provision should be made
	a la companya da companya d		within the gaol for the occasional close confinement of all the prisoners. The new
			gaol has been fortified, and is on a much more extensive scale than the Dumoh gaol
•			
		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
4,041 9 7		constructed, 1840-41.	
3,143 7 6		constructed, 1840-41.	1
			•
	25,988 9 4		the new lighthouse will be a tape
a tali an			column, divided into five vaulted stories and surmounted by a lantern of coppe
· ·		con terrace, l	and plate glass. Total height of the bea 02 feet; the shaft 82 feet in height, tapering
• •		from 20 feet	at bottom, to 12 feet diameter at top, and ith stone coping and battlement. In season
		1847-48. the	Military Board reported that the encroach great, that it was feared that the masonry
•	4	l lighthouse m	ust be abandoned, and an iron lightnous
		44.130 rupees	e rough estimate for which, amounting to , had been referred to the home authorities
		tion of iron li	rring to parties experienced in the construct ghthouses, for their opinion as to the relative
		i merit of Color	iel Irvine's, Major Goodwyn's, or some othe tisfied that preference was due, on severa
1	• •	necounts, to t	he shell, or iron-plate mode of construction gly accepted an offer made by Messrs. Fox
		Henderson &	Co., to furnish an iron-plate lighthouse, with
		h and covered	gun-metal lantern, glazed with plate glass with copper, reciprocating light, with sil
		vered paraboli	io reflectors, together with certain stores and ials, for the sum of 2,164 <i>l.</i> , or about 400 <i>l</i>
•	,	less than the	stimated cost of a structure of masonry.
		,	- these golahs, 11 in number, are o
	57,244 8 4	completed, sea- son 1888-39.	pucca masonry, and have been well con-
	r i	1	structed by Ceptain Fitzgerald, at a cosi of Rs. 6,343. 2. 6. less than the sance
	· ·		tioned estimate.

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NAME of WORK.	OBJECT	Length	Place of Termination,
·	CONSTRUCTION.	and Date of Company ent-	or of intended Termination.
Civil Buildings	Central Provinces; General-continued.		
Sulkea:	Constant 1 Tovinces; Cleneral-Continued	Part of the second	
Construction of Division Walls in 27 Salt Golaha		sanctioned, 19 August 1840 -	Sulkea
	ing salt of different qualities by mata in these Golahs, as the mats frequently rot, and the salt becomes mixed.		· · ·
Renewal of the roofs and improvements to some of the Salt Golahs.	in consequence of the great wastage of salt occasioned by leakage.	sanctioned, 28 December 1840	
ecundrabad, Erection of			
a Staging Bungalow and Out-offices.		sanctioned, 19 August 1843 -	situated on the Grand Trunk Road between Allyghur and Delhi.
Civil Buildin	gs, North Western Provinces; (Jamaunk.	unu 170mi.
hekoabed, Erection of a			
Staging Bungalow.	vellera proceeding to or from Agra.	sanctioned, 5 September 1840 -	40 miles from Agra.
yree, in the Hill District of	to replace an old bungalow, which		
Subathoo ; Construction of a Staging Bungalow.	did not afford sufficient accommoda- tion to travellers.	sanctioned, 1839-40	• • •
mlah, Construction of Public Offices.	for the Civil Officers of the station -	sanctioned, season, 1840-41	Simlah
ubathoo:	~	Production of the second se	
Construction of a Protest- ant Church.	this building is to be calculated to hold 500 persons.	sanctioned, 7 February 1845	Subathoo -
,			· · · ·
Proposed construction of a House.	- to serve for the performance of Divine service on the Sabbath, and for a school-room on other days.		•
· Civil Building	s, Central Provinces; Revenue:		
conce, Construction of a		sanctioned, season 1839-40 -	
Tubsildarry Cutcherry.	1		• • •
meerpore, Construction of B Bungalow and Out-		sanctioned, July 1842 -	
offices at the Cotton Farm,			
oundra, in Zillah Cawn- pore; Construction of a Fubsildarry Cutcherry.	in consequence of the lapse of the Secundre Jaghur, and the annexation of the Pergunnah to the Cawnpore District.	sanctioned, 4 November 1842 -	Secundra
eorejpore, Construction of Tubaildarry Cutcherry t.	to replace the present cutcherry, which is represented to be very con- fined and insecure, being surrounded by and connected with the houses of the village.	1	- Sheorajpore in he Cawnpore Dis- rict.
Civil Building	s, Central Provinces ; Ecclesiasti	cali -	
gor Church	A	Penetional PA D	baugor
		•	1

Expense incorred.	Estimated Amount	Probable	
Expense insuited.	for Completion.	Time of Completion.	REMARKS
Rs. a. p.	Rs. a. p.		**************************************
- 7,879 4 8	8,606 9 -4	edmpleted, see- see 1841-42.	
			• ` -
	16,470 8 -		•
	· · · · · · · · · · · · · · · · · · ·		
2,072 13 5	2,138 4 4	son 1843-44.	
	• • •		
794 10 6 and	844 18 9	completed, sea- son 1841-42.	 A second sec second second sec
80 18 7 for furniture.	• , • ,	. ~ .	-
• • • • • •	1,282 6 9		•
- 6,053 4 4	4,643 14 -		•
	4,043 14 -	completed, sea- son 1842-43.	the excess was owing chiefly to the ersotions of out-offices, which were not it cluded in the estimate.
•• this work was suspended : vide paragraphs 322 and 323 of Report of 1845-46,	16,798 7 6		- the masonry throughout to be of dress stone, with lime cement, but without pla ter, and the roof to be formed of shingl on battens, rafters, purlins and trusses.
	5,491 15 6 ·		
986 14 8	J,304 13 9	+ - completed, sea-	
- 986 14 8		completed, sea- son 1841-42.	- • the execution of this work was sul
- 986 14 8	J,304 18 9 9,944 10 7		sequently entrusted to the Civil Depar ment, not however before an outlay Rs. 1,587. 12. had been incurred by th
- 986 14 8			sequently entrusted to the Civil Depar ment, not however before an outlay
-, - 986 14 8 			sequently entrusted to the Civil Depar ment, not however before an outlay Rs. 1,587. 12. had been incurred by th Executive Engineer in the collection
· · · · · · · ·	9,944 10 7	son 1841-42.	sequently entrusted to the Civil Depar ment, not however before an outlay Rs. 1,587. 12. had been incurred by th Executive Engineer in the collection
· · · · · · · ·	9,944 10 7	son 1841-42.	sequently entrusted to the Civil Depar ment, not however before an outlay Rs. 1,587. 12. had been incurred by th Executive Engineer in the collection
5,491 2 - 1	9,944 10 7 5,189 13 8	son 1841-42. completed,sea- son 1844-45. completed,sea-	sequently entrusted to the Civil Depar ment, not however before an outlay Rs. 1,587. 12. had been incurred by th Executive Engineer in the collection
5,491 2 - 1	9,944 10 7 5,189 13 8	son 1841-42. completed,sea- son 1844-45. completed,sea-	sequently entrusted to the Civil Depar ment, not however before an outlay Rs. 1,587. 12. had been incurred by th Executive Engineer in the collection

- - - RETURN FOR THE PRESIDENCY OF BENGAL-continued.

	OBJECT	Length,	Place of Termination,
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	or of intended Termination
· .	gs, North Western Provinces;	1	
Soneput, in the Northern Division of the Delhi Dis- trict; Construction of a Cutcherry.	to replace a cutcherry built by the late Baba Bhae, which was in a state of disrepair, and in an objectionable situation.	sanctioned, 18 December 1838 -	//////////////////////////////////////
Shahjehanpore, Additions and Alterations to the Collector's Cutcherry.	rendered necessary by the union of the offices of Collector and Magistrate of the district.	sanctioned, 16 September 1845	Shahjehanpore
Civil Building	gs, North Western Provinces ;	Political :	
Shikarpore, Repairs to the Old Agency Buildings.		sanctioned, 22 July 1844	Shikarpore-
Scinde, Construction of an Office.	for the Secretary to the Govern- ment of Scinde.	sanctioned, 9 November 1844 -	Scinde
Embankment	s, South Eastern Provinces		
Wenty-four Pergunnahs: Construction of a new		and a local a	Twenty-fou
Line of Bunds from Kal- kapore towards Moneer- gong, and back to Bar- reeabaugh, to include the Village of Gillarchut.		sanctioned, 1 June 1841	Pergunnahs.
Construction of Eleven Bungalows on these Embankments.	- for the use of the Superintending Engineer, and the Superintendent while on inspection duty.	sanctioned, 24 May 1843	- ^C ditto
Embankment	s, Lower Provinces:		-
wenty four Pergunnahs :	•		
Bunds		the reconstruction of these bunds was sanctioned on the 1st November 1842. Their entire length is 300 miles; the cost of their annual repair is estimated at Rs. 18,751. 14. 6.	Factoria 🧰 🚊
Ditto	the construction of a bund has been authorized for the protection of an estate situated on the verge of the Sounderbund Forest, near the Chan-	length, 11 miles; commenced in season 1839-40,	
New Line of Bunds from	nel Creek.	Journath 14 million 0. Civil	
Calcutta towards Mo- neergong, and back to Boreebaugh Khal, to	· · ·	length, 14 miles 8 furlongs; sanctioned, 1 June 1841.	
include the Village of Gillarchat.			
Construction of Hussea Bunds and Dam across the Khus Mehal Nun- noraj.	with a view to the improvement of the Mehal.	the Bhoorda Khall has been excavated to the length of 3,000 feet, and Husseea three feet in height, with a dam, has been	
•		constructed, under orders 19th October 1841.	
	Western Provinces :		. :
ully's Nullah, Strengthen- ing Banks opposite to the Kidderpore Toll House.	• • • • • • • • • • •	sanctioned, 10 May 1847	Kidderpore

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R. a. p. R. a. p. • • • • • • • • • • • • • • • • • • •	Amount of Expense incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
 7,884 11 8 - 7,700 - 7,000		Rs. a. p.		
 son 1847-46. 7,000 7,000 7,000 7,000 7,000 9,169 4 3 the walls will be of brick and mod, and the roof tild. a considerable saving on the estimate ported, seamon 1844-46. a considerable saving on the estimate ported, seamon 1844-46. a considerable saving on the estimate ported, seamon 1844-46. a considerable saving on the estimate ported, seamon 1844-46. the importion bungalows on the emposition for the during of a khall hed sufficient. a constructed, seamon 1844-46. the importion bungalows on the emposition the during of a khall hed sufficient. a constructed, seamon 1844-46. a completed, seamon 1844-46. this estate ought, it is stated, to yield at least 9,000 mpase, if programmat of deres, for bits interfor. a completed, seamon 1840-41 this estate ought, it is stated, to yield at least 9,000 mpase, programmat one-fourth of the interfor. a completed, seamon 1841-42. a completed, seamon 1841-42. a completed, seamon 1848-44. a c				
 7,000	- 7,364 11 6	7,700		the old outcherry was disposed of fur a sum of 8,100 runses, to Contain Ludlow
 2,169 4 3 5,398 14		· ; · · · · ·		
 5,598 .14	- 7,000	7,000	season 1844-45.	· · · · · · · · · · · · · · · · · · ·
 1,070. 1	ατ. •• •• •• •• •• •• •• •• •• •• •• •• ••	2,169 4 8		the walls will be of brick and mud, and the roof tiled.
 1,070. 1,070				
 season 1844-46. bankments in these provinces, have been made available to the Magistrates, Collectors, and other Government officers, for occasional use when their duties call them into the interior. 6,008 6,008 season 1840-41 6,008 6,008 season 1840-41 - this estate ought, it is stated, to yield at least 20,000 rupees, if properly oultivated ; whereas in its present neglected state, it does not pay to Government one-fourth of that sum. 8,333 14 4 - 8,333 14 4 season 1841-42. - this expected that the returns from this state (6,000 rupees per annum) will be almost doubled, when a proper system of drainage has been established. 317 10 501 5completed, see- 		8,833 14 4	ported, season	was effected, by dispensing with a portion of bund where the damming of a khall
 6,068 6,068 season 1840-41 - this estate ought, it is stated, to yield at least 20,000 rupees, if properly oultivated a whereas in its present neglected state, it does not pay to Government one-fourth of that sum. 8,333 14 4 8,333 14 4 season 1841-42. - 1,248 6 3	- 1,070 1			bankments in these provinces, have been made available to the Magistrates, Col- lectors, and other Government officers, for occasional use when their duties call them
 6,068 6,068 season 1840-41 - this estate ought, it is stated, to yield at least 20,000 rupees, if properly oultivated a whereas in its present neglected state, it does not pay to Government one-fourth of that sum. 8,333 14 4 8,333 14 4 season 1841-42. - 1,248 6 3				
 6,008 6,068 season 1840-41 - this estate ought, it is stated, to yield at least 20,000 rupes, if properly oultivated; whereas in its present neglected state, it does not pay to Government one-fourth of that sum. 8,333 14 4 8,333 14 4 season 1841-42. 1,248 6 3 completed, season 1843-44. 317 10 501 5 completed, season			completed, sea- son 1848-44.	
 8,333 14 4 8,333 14 4 8,333 14 4 8,333 14 4 8eason 1841-42. 1,248 6 3	e surger and			
8,333 14 4 8,333 14 4 season 1841-42. - 1,248 6 3	• • 6,0 <u>0</u> 8 • • • • • • • •	6,068	season 1840-41	least 20,000 rupees, if properly cultivated; whereas in its present neglected state, it
- 1,248 6 3		a ong 14 4		
son 1843-44. estate (8,000 rupees per annum) will be almost doubled, when a proper system of drainage has been established. 317 10 501 5 completed, sea the banks have been protected]by piling,	- 8,333 14 4	0,000 14 4	season 1841-42.	
son 1843-44. estate (8,000 rupees per annum) will be almost doubled, when a proper system of drainage has been established. - 317 10 501 5 completed, sea the banks have been protected]by piling,				
	- 1,248 6 8	in the second		estate (8,000 rupees per annum) will be almost doubled, when a proper system of
	- 317 10	501 5		

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	OBJECT	Length,	Place
NAME of WORK.	of CONSTRUCTION.	and Date of Commencement.	of Termination or of intended Termina
Canals, Nor	th Western Provinces :		
Tajjawalla New Cut, En- largement of the.	•		
Roads and B	ridges, South Eastern Provinces	l Presentation and a sub-	
Tumlook Road, Construction of Drain Bridges.	the road interfered with the natural drainage of the country.	sanctioned, 27 March and and 24 July 1843.	
Topechanchee :		• • • • • • • • • • • • • • • • • • •	-
Construction of a Bridge two miles east of.		sanctioned, 16 October 1848 -	
Construction of two Ma- sonry Bridges, one three miles and one four miles	• • • • •	sanctioned, 16 October 1843 -	
east of.			
Roads and Br	idges, Lower Provinces:		· ·
Cëzpore Bridge, in Lower Assam,	to complete the communication between the station and the gaol.	sanctioned, 12 January 1841 -	
itillya Ghaut across the Cossyah Hills, to Pance- gong in Assam.		· length, 44 miles; sanctioned in season 1838-39,	Paneegong
Roads and Br	idges, North Western Provinces	*	
ongra to Goona, Straight- ening the Road from, and Construction of a Bridge across a Nullah at Lock-	• • • • • •	sanctioned, 1 August 1845 -	Goons
Was.	· · ·	•	
mballa to Pinjore, Con- struction of a Military Road.	with reference to Government Gene- ral Orders of 17 November 1642, relating to the opening of roads adapted for all military purposes in the North Western Frontier.	- length, 34 miles and 7 fur- longs; sanctioned, 29 November 1844.	Pinjore 🖬
Civil Building	s, South Eastern Provinces ; Ju		· ·
wenty-four Pergunnahs,	, South Basteril Frovinces; Ji		•
Construction of a new Insane Hospital.		sanctioned, 26 January 1544 -	situated be tween the Sudde Dewannee Court house and th
avoy : Construction of new Buildings.	- • a new house for the gaoler and gaol cooking sheds, the former re-	sanctioned, 26 March 1845	Iron Bridge Yar
~	quired to replace the gaoler's house, which had decayed, the lattor in lieu of the present sheds, which, from their objectionable position, afford means of escape to prisoners.		• •
Construction of Circuit Houses and Out-offices.		sanctioned, 17 September 1845	Tavoy

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Amsunt of Rypense incurred.	Estimated Amount:	Probable Time of Completion	REMARKS.
Rs. d. p.	Re. a. p.	•	
not reported	1,930 1 2	season 1844-45 -	- this cut was originally excavated by Colonel Colvin, immediately below th
	4 19 1	1	junction of the two canal heads.
8,126 8 1	3,602 11 8	`completed, sea- son 1844-45.	such of these drains as it may be desire
4	·	BOR 1041-43.	ble to adapt to purposes of irrigation, wil have sluice-gates attached to them at th cost of the landholders.
•	tan sha an	λ.	
3,983 11 7	6,009 7 8 ;	completed, sea- son 1846-47 -	22 feet in span,
	7,013 1 2:		The saving is owing to a great reduction in the quantity of masonry work, and is the rates generally.
•	4 . · · . ·		
716 12 7	841 — -	son 1848-44	
8,888 I 6	• • • •	completed in seasonal 841-42.	the whole line as it exists now, may b traversed in every part by troops and lade
• • • • • •	к. Р. – –		cattle. The bridges are of wood, and bein built of large trees, they will answer eve for laden elephants.
1,993 18 11	1,993 18 11	completed, sea- son 1846-47.	
•	•	·	
	91,081 8 6		- the estimate provides for the construc- tion of two bridges across the Labrov Nullah and the Choar, near Moohambpor
· . ·		· ·	and 75 drain bridges of shorts.
80. VI		{.	
47,847 15 5	47,322 5 10	completed, sea- son 1848-49.	
e e	• • •		
	t		
1,253 10 9	1,751 8 -	completed, sea- son 1846-47.	
Rs. 3,893. 6. 8. was incurred	7,527 13 6	the completion	
in the construction of the circuit- house.	3,007 AU U	of the circuit- house was reported in season 1847-48.	

RETURN FOR THE PRESIDENCE OF BENGAL-continued. 2

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RETURN OF PUBLIC WORKS COMPLETED IN INDIA, IN THE

NAME of WORK.	OBJECT + of	Length,	Place of Termination, er of
	CONSTRUCTION.	and Date of Commencement.	intended Terminati
Civil Buildin	gs, Lower Provinces; Judicial:		
Tezpore, in Lower Assam : Construction of a Trea- sury and Record-rooms		sanctioned, 30 March 1841 -	Tezpore -
New Gaol	the existing gaol building being in a very dilapidated state.	sanctioned, February 1841 -	Tezpore -
1			{
n an		$x = x^{\alpha} \frac{1}{2}$	· ·
Construction of a Thatcher Roof Cutcherry.	at the requisition of the Commis- sioner of Assam, in lieu of the present cutcherry, which is in a dilapidated	sanctioned, 24 June 1846 -	Tezpore -
	state.		m
Additions of Cutcha Pucce Walls to the Circuit Bungalow.		sanctioned, December 1845 -	Tezpore -
Civil Buildin	igs, South Eastern Provinces; C	eneral :	
Tavoy, Construction of a new Wharf.	Y .	sanctioned, 9 September 1844 -	Tavoy -
	except at high water, owing to there being a space of 73 feet of soft mud between it and the stream.		
. Civil Buildir	gs, Lower Provinces # General :		
Titalya, Construction of a Staging Bungalow.		22 September 1847	Titalya -
		an a	· .
·		and the second sec	· · · ·
•		international de la constant de la filipidad de la constant de la constant de la constant de la constant de la La constant de la cons La constant de la cons	
Civil Buildin	ngs, Central Provinces; Revenu	ê:	
Toshaum, in the District of Hissar, Construction of a Tuhseeldarry Cutcherr		sanctioned, 1839-40	Toshaum -
at.		D	
Civil Buildin Tirwah, Construction of	ngs, North Western Provinces;		
Buildings.	Tuhseel and Thannah Establishments.		• • •
Civil Buildin	gs, North Western Provinces;	General :	
Umballah, Staging Bun- galow at.	for the convenience of travellers proceeding to or from Simla.	sanctioned, 1839-40	Umballah -
Umballah Church, Purchase of the Private Church.		sanctioned, 8 December 1846 -	Umballah -
Civil R. I.I.	gs, North Western Provinces ;	Judicial ·	
	for the police battalion	sanctioned, 12 June 1844	Umballah -
Buildings.			س چال اف ا
	х		
	na ten stander general i en sin i sa sen	nine regenting of restrict in the same approximation of the same state of the same same same in the same same s	and a second sec
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LAST TEN YEARS, AND OF THOSE NOW IN PROGRESS.

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	Amount of	Estimated Amount	Probable	
	Expense incurred.	for Completion.	Time of Completion.	REMARKS.
			•	
	Rs. a. p.	Rs. a. p.	· ·	
•	- 4,589 14 4 -	2,563 2 4 exclusive of convict labour.	completed, sea- son 1846-47.	
•	- 18,928 1 5 -	13,805 12 6 This amount it is ex-	completed, sea- son 1846-47.	this consists of four oriminal, one hazu one civil, one female and one hospital ward
		pected will be consi- derably reduced by the employment of convict labour.	•	with dead-house and out-offices. Th whole of the buildings are of kutcha puce masonry with thatch roof, with the excep tion of the cook-rooms, which have tile
	•	lauour.		roofs.
			· · ·	E = E
-	- 4,299 15 4	4,402		
	. Ì			
	· · · · · · · · · · · · · · · · · · ·			
-	• • • • •	2,008		
•	.			
•	- 1,778 11 2 -	1,778 11 2	season 1844-45.	
			1	
	1		•	
÷			· · ·	}
•		- an advance of 2,000 rupees was made. An estimate, amount- ing to Rs. 8,230. 14. 8.	• • •	- will supply the place of an hotel which existed at the spot, but was burnt dow in 1847.
		was subsequently (5th September 1848) sapc- tioned.		
	, į			
-	- 8,568 8 7 -	3,568 3 7	season 1839-40.	
	v		1	
•	· _ · · · · · · ·	7,127		
•		Survey and		•
-	- 1,645 4 5 -	1,645 4 5	season 1840-41.)
-	- 8,000		purchased, sea- son 1846-47.	the sum of 3,000 rupees provides als for alterations and purchase of church fur niture.
	4			
-	- 8,634 14 10 -		completed, sea- son 1846-47.	- these buildings consist of a bungalow without-offices for the Adjutant, a magazine eight bells of arms and a rear-guard, an

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INDIA,

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Presidency of Bengal

INDIA, PUBLIC DEPARTMENT.

(No. 2, of 1850.)

COPY of a Despatch of the Honourable the Court of Directors to the Government of India in the Public Department; dated 30 January 1850.

Our Governor-General of India in Council.

Para. 1. SEVERAL very important and intimately connected questions, in relation to the superintendence and management of Public Works, have been brought under our consideration in letters from all the Presidencies; we have thought it desirable to embrace the subject in one view, and to communicate our opinion on it to your Government.

2. We shall notice these questions, and the subjects from which they have arisen, in the following order:

1st. The Great Trunk Road.

2d. The Agra and Bombay Road.

3d. The District Roads of Madras.

4th. The Bombay Road and Tank Department.

5th. The separation, for India and Bengal, of the Civil Branch of -Public Works from the duties of the Military Board.

6th. The Education of Young Natives as Assistant Engineers.

The Great Trunk Road.

See below.

3. The documents connected with the letters noted in the margin,* report the progress of the works on the Great Trunk Road; the amount already expended; the amount required for the completion of the road, and the probable annual sum which will be required for its maintenance.

4. The report of the superintendent, Captain Willis, of 14th December 1847, gives a summary of the work that had been done up to that date; of deficiencies in the execution, and of the causes of those deficiencies.

5. Of the work that has been done, including a quantity of extra work resulting from damages by the floods of 1845, the report is on the whole satisfactory. Of the deficiencies, the causes are recapitulated as follows:

The ignorance of overseers.

The increase of work from the unprecedented floods of August 1845. The delay in passing estimates.

The ignorance of accounts in one executive officer.

The dilatoriness of another.

The increase of Captain Willis's charge.

The alteration of limits, causing delay in transfer of duty.

The cholera.

The absconding of workmen from unhealthy districts.

The illness and death of many overseers.

The illness of Lieutenant Beadle, from the unhealthiness of his locality. The seizure of hackeries for troops.

6. The report of the Military Board, dated 15th December 1848, brings down the statement of expenditure to 30th April 1848.

7. The

India Public, 28th August (No. 39) 1847, paras. 74 to 83; 10th December (No. 52) 1847, paras.
105 to 111, and 116 to 117; 81st December (No. 55) 1847, paras. 83 to 89; 11th March (No. 17)
1847, para. 80; 20th May (No. 30) 1847, paras. 88, 69 and 95; 19th August (No. 43) 1847, paras.
108 to 110, and 121 to 124; 21st October (No. 55) 1847, paras. 64 to 70, and 72; 13th January (No. 1) 1849, paras. 74, 75 and 78.
Bengal, 21st March (No. 9) 1849, paras. whole.

India Judicial, 10th July (No. 9) 1847, paras. 19 to 22; also, p. 15, Public, No. 51, of 1847; paras. 12 to 15, Public, No. 41 of 1848, whole; Public, No. 2 of 1849. Bengal Judicial, 18th November (No. 24) 1847, paras. 4 and 5.

TEN YEARS, AND THOSE NOW IN PROGRESS. ... 147'

7. The statement submitted to Government with the Mili tary Board's letter, dated 21st August 1846, showed the	i- e	· Rs.	a.	p .	Presidency of Bengal.
expenditure to 30th April 1845, as		38,41,489 10,50,108			**************************************
Making the total expenditure to 30th April 1848 -	-	48,91,597	14	2]	

8. The estimate for the completion of the works was given in August 1846 as Rs. 43,68,818. 8., which included 18 lacs for the Soane and Jumna Bridges. In December 1848 it is given as

For the road-works -	2	- 33,02,507
For the bridge over the Soane	-	- 60,00,000.
For the bridge over the Jumna	-	- 10,00,000 ₀
and the second		······································

Total -1,03,02,507

9: The estimate for the completion of Est Er the works, after deducting the intermediate expenditure, remains nearly the same in Bal 1848, excluding the Soane and Jumna Bai Bridges, as it was in 1845 including them; Esti it therefore appears that there is an in- Inc crease on the estimate for road-works of Net

18 lacs, and a new estimate of 70 lacs for the two bridges in question, making a total addition to the estimate of .88 lacs

timate for completion of works 1845-46 penditure in three years to April 30th 1848	-	:	2	:	43,68,818 10,50,108 1	
lance of Estimate, including 18 lacs for S.	unḋ J.	Brid	ges	-	33,18,709 1	3
lance of Estimate, deducting the 18 laca timate 1848, excluding bridges	•	•		-	15.08,709 I 33,02,507	3
crease of Estimate for road works	1		:			3
Inurtase o	f Est	imete			87,83,797	3

10. We observe on your proceedings of an earlier date, that the Governorgeneral, in anticipation of railways, and in consideration of the great outlay in 1848 on the Ganges Canal and on Aden, had proposed that the construction of all great bridges on this road should be suspended, and that this proposal had. been adopted, one exception being made in favour of the Burrakur Bridge, in consideration of its forward state, and of the great accumulation of materials.

11. The estimate for the maintenance of the road after completion, was roughly given by the Military Board (21st August 1845) at 350 rupees per mile, or 3,50,000 rupees per annum for the entire distance from Hooghly to Delhi.

12. The drawings of the second division of the road transmitted with your letter dated 21st March (No. 9) 1849, reflect the highest honour on Captain Beadle, the late assistant surveyor, by whom they were executed, as he states, in hours of leisure; and it was his especial request that they might be transmitted to us. We desire that our acknowledgments and approbation may be communicated to him.

The Agra and Bombay, Road.

13. The Agra and Bombay Road was planned under the Government of Lord Auckland.* The projected expenditure was as follows:

For the road from Agra to Dewas, with a branch road from Gwalior

60,000 to Seepree --فالجني فالمنا ويترك وتوبيت والواري For the road from Dewas to Akburpore on the Nerbudda --- 60,000

			•			Carı	ied fo	irward	1*	- 1	,20,000 •
	•								·		60,000
	Dhar	-	-	· • ·		. :	m. #		10,0	100-	
	Dewas	-			• •	.	10,0	100	
	Holkar.	-	. .	-	-		÷ • .	a	20,0		· · ·
Th	us contrib British (t -	-	-	-	-	- 20,0		· •

* India, Public, 4th February (No. 8) 1848, para. 74; 20th May (No. 30) 1848, para. 87; 10th August (No. 40) 1848, whole; 14th August (No. 41) 1848, para. 18; 19th August (No. 43) 1848, para. 125; 21st October (No. 65) 1848; para. 73 & 74; 13th January (No. 1) 1849, para. 79 to .82; Bombay, 24th December (No. 182) 1846, whole; 1st April (No. 22) 1848, whole; 16th October (No. 84) 1848, whole; 15th November (No. 100) 1848, whole; 14th February

(No. 6) 1849, paras, 52 to 56, 63 to 67, & 69." 622. T 2

Presidency of Bengal

Two estimates subsequently sanctioned expenditure, 15,279 rupees for the fi 11,779 rupees for the second portion.	
. ~	<i>Rs.</i> 1,90,051
14. The expenditure to November 18	47 is stated as follows : But he states a
New work of road	

15. The new work, therefore, exceeded the whole amount sanctioned intentionally and inadvertently, and the expense of the superintendence, repairs and contingencies, carried on the amount to more than double the original intentional sanction.

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16. We cannot suppose that the original sanction did not include the probable charge for superintendence, for from the manner in which this portion of the expenditure is stated, " Salaries and Establishments" for superintendence, it appears to be all special charge for this particular work ; yet the statement that the charge had exceeded the estimate by 31,300 rupees, would seem to imply that an indefinite charge was to be understood as necessarily added to the original sanction. This is a point which requires to be distinctly cleared up and explained, with reference not to this work only, but to all public works, as it is impossible to know what is sanctioned if superintendence and contingencies are not included in the estimate.

17. Our sanction is now requested to an annual expenditure of 28,700 rupees, for the repair and maintenance of this road. and at range of the

and the second second Madras District Roads.

18. The letters noted in the margin* from the Government of Fort St. George. relate chiefly to the formation and maintenance of roads under that Presidency. The letter dated 3d January 1849, transmits a general report of the Road Department from its establishment to the 1st May 1848, and the orders passed thereon a walk ta annavat sa si by the Government.

19. The whole of the proceedings referred to in these letters lead to the following conclusions : 特别的现在分词 法未承认法罪 医小疗

20. The roads in some instances, from want of previous survey and other causes, have not been well planned with respect to the line, so that a road on a new line becomes desirable and even necessary for permanent traffic.

21. They have been carried below the level of tanks, when they might have been carried above it, and embankments have been broken and bridges carried away by inundations, which, on the higher line, would have been comparatively innocuous.

22. They have been constructed without due provision for their permanent maintenance, so that either the entire road has gone to decay, or one portion of it has become unserviceable, while another portion was in progress of construction.

23. In many parts of the Presidency it is impossible, from the want of local materials, to construct metalled roads, except at an altogether disproportionate cost. 24. The

¥ 1

Rs. 3,54,958

See below.

[•] Madras, Public, 17th January (No. 1) 1848, para. 3; Madras, Public Works, 26th May (No. 6) 1846, para. 17; 14th January (No. 1) 1848, whole; 29th January (No. 2) 1848, whole; 4th February (No. 3) 1848, whole; f3th March (No. 4) 1848, paras. 2, 12, 15, 18 & 22 to 24; 21st March (No. 5) 1848, whole; 15 April (No. 7) 1848, paras. 2 to 6, 15 & 16; 12th July (No. 9) 1848, paras. 2, 3, 9 & 10; 25th September (No. 11) 1848, paras. 6 to 9; 27th October (No. 12) 1848, paras. 2 & 3; 8d Janu-ary (No. 1) 1849, whole; 12th April (No. 3) 1849, paras. 2 to 4, 6 & 8.

24. The carts generally used are constructed on a principle calculated to destroy the roads. This principle was introduced about 50 years ago, and it may be therefore presumed that the people would not object to the introduction of an improved form.

25. To construct a system of trunk and branch roads on a permanent and generally useful principle, would require a greater outlay than can be afforded by Government, unless aided by one or all of three modes of contribution—the levy of tolls; the levy of a cart-tax; the requisition of village labour. The objections to the first of these methods are clearly and forcibly stated by Captain Best; who advocates the second and third. He calculated that the requisition of a day's labour at the rate of one cooly per cawny from places within two miles of a road, and of a commutation of two annas per cawny from places within that distance, and of one anna per cawny from places at a greater distance, would yield 34,00,000 days' labour and 3,18,750 rupees per annum; but he does not state by what machinery, at what cost, and with what checks and securities against exaction and oppression these very minute contributions of labour and money could be levied.

26. Captain Best appears also to regret the prohibition of a fourth mode of assistance—convict labour, which he thinks not liable, in the Madras territory, to the objections which were taken to it in Bengal.

27. Labourers require vigilant superintendance, and there is a great deficiency of practical knowledge in local overseers. Lord Tweeddale, in his minute of 25th January 1848, dwelt very strongly on the necessity of having men of practical experience to do justice to the science which is abundantly possessed by the engineers of the Presidency. The letter from the Government, dated 4th February, No. 3, of 1848, requested that two practical overseers who understand the business of road-making in all its branches, should be sent out from England for the purpose of instructing the local overseers and operatives.

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28. The letters noted in the margin from the Government of Bombay,* relate See below. to the operations of the Road and Tank Department, which was established at that Presidency in 1835.

29. A proposal for abolishing this department and forming a new system of local agency under the superintendence of the Military Board, has been long under the consideration of the Government of Bombay. The Chief Engineer and the Military Board proposed the abolition in 1844. The government of Sir George Arthur did not concur in the expediency of the measure. The government of Sir George Clerk was divided in opinion, but the measure was resolved on by the Governor and Commander-in-Chief in opposition to Mr. Reid and Mr. Willoughby. The government of Lord Falkland has suspended the abolition, and has referred the question for our orders on the measure generally, and on the several points on which a difference of opinion exists in regard to its details,

30. The arguments for the abolition are principally that the machinery is too costly for the amount of work executed, and that the tank branch of the work has been either ill done, or not done. Of this, some remarkable instances were given in the reports of 1844 from the Chief Engineer and the Military Board. Sir George Clerk says in his minute of March 1848, "My objections to the continuance of the Road and Tank Department have been formed after much observation of its defects; these, among others, are inutility and costliness. These, my objections, are insuperable, because founded on its enormous waste of public money, during '10 years, and on its entire disregard, during the whole period, of that important means of fertilising our territories which was one of the two purposes for which ostensibly it was instituted, and which it is quite evident it has never been capable of applying."

31. The

India, Public, 19th May (No. 13) 1845; Bombay, Public, 26th November (No. 116) 1845;
 81st December (No. 135) 1845; 5th August (No. 82) 1846; 31st March (No. 81) 1849.
 622.

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Presidency of

Bengal.

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Presidency of Bengal. 31. The expense of the department for superintendence was stated by the Chief Engineer in 1844 to have been for the nine years of existence Rs. 7,27,921. 2. 4. Within the same period, the total expenditure on tanks has been 42,000 rupees, a great portion of which had been lost by the failure of the works. The value of the Department was, therefore, to be sought only in the road branch of its services; in this the charge for superintendence had been about 50 per cent. on the work performed. The Military Board saw no necessity for working out such an expenditure by such expensive machinery.

32. Mr. Reid, however, observes, that much of the charge does not especially belong to the Department, the separate expense of which consists solely of "the salaries and personal establishments of European officers of the Department, since the charges of subordinate officers who are employed on particular works would be incurred under whatever system of management those works may be conducted."

33. Captain Berthon, Superintendent of the Department, in his last report, dated 22d September 1848, represents that the work done by the Department had greatly increased, and had been all well done, and that the per centage had been reduced from 50 to 182 per cent., and submits that a more rapid advance from inexperience towards perfect efficiency was perhaps never accomplished by any Department that had ever been formed in India.

34. The Military Board, 23d September 1848, submitted a plan for the organization of the proposed new Department of Public Works: Into the details of this plan it is not at present necessary to enter; the whole subject is well and fully discussed in the Minutes of Government of December 1848 and January 1849, which terminate by referring the question for our decision.

INDIA and BENGAL.

Proposed separation of the Civil Branch of Public Works from the Duties of the Military Board.

35. This proposal was discussed in Council in November 1846, and the opinion of the Military Board was requested on,

Ist. The constitution of a distinct agency for each division of the Presidency, to be vested with the charge of all civil buildings, and with the superintendence and management of public forests, canals and embankments, roads and bridges.

2d. On the details of the proposed plan.

36. The Military Board, in reply (27th April 1847), were of opinion that public advantage, would arise from the proposed separation, and submitted the outlines of a plan for carrying it into effect.

37. The Board incidentally submitted the question, whether the Great Trunk Road should be considered a civil or military work, with reference to the importance of retaining the superintendence of Captain Willis, and to some other details.

38. The President in Council determined (17th May 1847), to await the opinion of the Governor-general. This opinion has not yet been received, and here for the present the question rests.

Education of Young Natives as Civil Engineers.

39. The importance of educating young natives as assistant engineers, is brought especially to our notice in your letter, dated 2d September (No. 48) 1848.*

40. The proceedings previously examined, contain many valuable remarks on this subject. The reports of tall the superintendents dwellu much on the necessity of having properly qualified assistants, capable of enduring the climate,

and

^a Indis, Public, 2d September, (Na. 48) 1848; Bengal, Public, 27th December (No. 35) 1848; Madras, Public, 22d February (Na. 5) 1848, p. 6 to 8; Bombay, Public, 16th October (No. 85) 1848. and conversing with the natives. The local experience of the ryot, it is observed, is often of great value, and is lost to those who cannot communicate with him in his own language.

41. The authorities at the several Presidencies, for the most part, appear to consider necessary for the purpose a higher degree of scientific attainment than is contemplated by Lord Tweeddale, or by any of the superintendents, with whom a certain proficiency in arithmetic, geometry, levelling, surveying and mechanical drawing, combined with bodily activity and taste for the pursuit, seem to constitute the principal scientific requisites. Young natives, thus qualified, receiving practical instruction from persons who, in addition to the necessary scientific knowledge, have had ample experience in the classes of public works, in which those trained under them would be employed, would supply one of the greatest desiderat to the efficiency and economy of this department of the public service.

42. The want of properly qualified subordinates, and in addition to the want of qualification, the frequent illness and frequent removal, and change of European assistants, is strongly dwelt on by all the authorities who have recorded opinions on the subjects previously noticed. These circumstances are placed most prominently forward as a principal cause of all the failures and disappointments, the combined costliness and inefficiency, which have been experienced in a greater or less degree in all the subjects of our previous examinations.

43. Bridges, embankments, annicuts, though essentially connected with and indeed component portions of roads and canals of irrigation, are severally in themselves great branches of practical engineering, and in all these, scparately considered, the inefficiency of subordinate agency has been experienced.

44. The question appears to have been considered, whether native youths would be induced to undergo the necessary preliminary studies, by attending institutions, which might be formed for that purpose, without a tolerably certain prospect that they would be employed in the public service, if found qualified for it. It appears that the want of sufficient encouragement in the public service, to young men who have distinguished themselves in this branch of study, has caused the engineering class in the Elphinstone Institution at Bombay to be deserted; and that you have expressed to the Bombay Government a desire that the youths, who have been trained in that class, and whose qualifications are so highly spoken of, should have employment found for them as vacancies occur. We scarcely know how to reconcile these circumstances, with the necessity for such assistants so urgently pointed out by the Superintendents of Public Works, unless it should have been found that the education which they have received has been more scientific than practical.

45. We shall now communicate to you the conclusions at which we have arrived on the several points which have been previously examined.

46. We attach great importance to the completion of the Great Trunk Road. We desire to see it completed with substantial bridges; those over the Soane and Jumna should be for the present suspended, but you will carefully consider whether the prospect of a railway through the North Western Provinces is sufficiently near to justify the suspension of any other portion of this great work.

47. The three superintendents of the Great Trunk Road, of the Madras District Roads, and of the Bombay Road and Tank Department, Captains Willis, Best and Berthon, appear to be well qualified and efficient in their respective departments; in so far as they are personally concerned, no change is desirable.

48. But there are several points in respect to the authorities under whom they act, and the subordinates whom they employ, which admit of material amelioration.

49. To the first class belongs the delay in passing estimates, whereby the sanction for emergent work is frequently not given till it is too late in the season to execute it; on this point we cannot doubt that a due degree of energetic activity in the various departments, through which the estimates pass, would ensure in most cases the timely performance of that duty. We are much averse, if it can be avoided, to confer any greater degree of discretionary 622. T 4 authority

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authority upon the superintendents, and it is desirable that you should prepare, and submit for our sanction, some rules calculated to expedite the progress of references respecting public works or repairs of an emergent nature, by limiting the time within which reports upon such subjects are to be made to you, or by other regulations, and by instructing your secretaries to pay the earliest attention to such references. It is most desirable that your authority should, if possible, 'be obtained for every such work; where it is evident that time will not admit of the requisite delay, a discretionary power to commence a work might be lodged with the authority under whom the superintendents shall eventually be appointed to act, but it should be so guarded as to bring the question at the earliest practicable period under your supervision.

50. To the second class belongs all that has been said of the inefficiency of local assistants; on this point we are disposed to entertain favourably the several proposals before us, for educating young natives as civil engineers; and for giving a fixed position in the public service to a limited number of pupils of distinguished proficiency; but we fully concur in the reasons already noticed, for thinking that this education should be in a great measure practical, that a mere scientific class at the Presidencies, though essential as a preliminary, should be but the first step of the system, and that the education of the assistants should be practically completed, under properly qualified persons, on the scene of operations.

51. We are disposed to approve the establishment of a course of lectures on geology, and we think it should be connected with the class of civil engineering, should such a class be constituted; the importance of geological knowledge to engineers is well pointed out in the memorandum of Mr. Simms; we think also that the Museum of Economic Geology should be assigned to the same class, and that the expense of the lectures and the museum should be brought under one head.

52. We observe that the Military Board had proposed to assign a portion of the allowance made to the museum for the establishment of a course of lectures on the subject; you do not express an opinion on this suggestion, nor notice in any way the passage quoted in the margin from the Military Board's letter of the 25th April 1848.

53. The 9th para. of your letter dated 2d September (No. 48) 1848, adverts to the several applications for Professors of Civil Engineering.

54. The application for a Professor of Civil Engineering, for instructing the students in the Hindoo College at Calcutta, was suspended by the Bengal letter dated 7th September (No. 26) 1847, and the appointment of Mr. Sutcliffe as Professor of Natural Philosophy and Civil Engineering in that institution, at a salary of 400 rupees per mensem, was reported to us in the letter dated 27th December (No. 35) 1848.

Fort St. George 55. The application from blackes that Index Straining Solution, 22d February the plan for the establishment of a class in the Madras University for training (No. 5) 1948, para. Civil Engineers. 55. The application from Madras was made conditional on our approval of

56. As regards Bombay, it has been intimated, that until a scheme shall have been matured for the employment of those who are to be trained in 'civil engineering, it will not be desirable to engage a teacher.

57. The result of our inquiries satisfied us that the services of persons properly qualified for these professorships could not be again obtained on the terms formerly accepted by Mr. Pole; although the Bengal Government, by engaging a person

Bombay letter, 16th October (No. 85) 1848.

[•] This proposal arrived in India at an unfortunate time, in November 1841, or thereabouts, and Lord Auckland transferred the matter to the Asistic Society temporarily, together with the (300) three hundred rupees per mension, and the society made the money over to Mr. Piddington, who, though since appointed coroner, still retains the nominal duties; the specimens remaining in the rooms of the Asiatic Society a sealed book, instead of becoming, as they would do in the Medical College, the groundwork to a course of lectures for the instruction of native youth, where science may be made available towards the gradual accomplishment of the views of the Honourable the Court of Directors, the utility of which the Council of Education, as well as Mr. Simms, have so strongly pointed out."

a person on the spot, appears to have obtained his services on nearly similar terms; but whenever you may find it necessary to bring the subject again to our notice, it is desirable that you should state the amount of salary which you think should be assigned to the office.

58. In a foregoing para. we noticed, as a most valuable qualification of the subordinate officers whom it is proposed to educate for the public service, the knowledge of the native languages which they would certainly possess, and which should be in all cases an indispensable condition of their employment; this knowledge is not less necessary for our officers of engineers, and it is our intention to address you on the subject in the Military Department.

59. With respect to the chief superintending authorities, the present practice at the several Presidencies is different.

60. Under the Presidency of Fort William (he superintendence of public works is vested in the Military Board in two branches, military and civil; it has been proposed to separate the latter altogether from the duties of the Military Board, and create a new department for the superintendence of the civil branch of Public Works; the duties of the military branch are stated to be fully as much as the Military Board can attend to. This proposal has been suspended for the opinion of the Governor-general.

61. Under the Presidency of Madras, the control of all works connected with the Land Revenue, especially all works of irrigation, is entrusted to the Board of Revenue in the Department of Public Works, which consists of the ordinary members of the Board, with the addition of the chief engineer, and with a distinct establishment, at the head of which is placed an engineer officer as secretary; all other works are placed under the superintendence of the Military Board.

62. Under the Presidency of Bombay, the Military Board has the superintendence of all Public Works in two departments, one of which, the Road and Tank Department, created in 1835, is, under the circumstances previously stated, proposed to be abolished by the majority of the Bombay Government.

63. It is most important that the system of the superintendence of Public Works should be assimilated at all the Presidencies; but considering that the opinion of the Governor-general has not yet been given on the division of Public Works in Bengal ; considering also the unsatisfactory working of the system at Madras, which formed the subject of our despatch to that Presidency, 29th May (No. 12) 1845, and the great differences of opinion in relation to the change of system at Bombay, the subject is not brought before us in a state for final decision ; it is desirable that the entire question in relation to all the Presidencies should first pass under the deliberate review of your Government.

64. In forming a judgment of the system of superintendence, it is necessary to have a clear view of the actual state of all the work which is the subject of superintendence; this, in the districts, and especially in the district roads, embraces a most extensive field of operations; the documents which we have examined exhibit many proofs of cost and labour thrown away, of work done over again and again without a good final result, of great excess of expenditure over estimates; in short, an extensive admission of defects, and a great diversity of opinion as to the mode in which those defects should be remedied.

65. We think it desirable that you should select two or three competent officers, from persons already at the Presidency, and whose services can be either wholly or partially spared for the purpose, to form a temporary commission, to inquire into the whole subject of the superintendence and execution of Public Works, not omitting any subject noticed in this despatch; that similar commissions should be formed at the other Presidencies; that they should make full and detailed reports to their respective Governments, embodying such suggestions as may appear to them advisable; that these reports should be submitted to you, and that we should receive from you such a distinct opinion on the whole of the questions herein considered, as shall place it in our power to come to a decision respecting them.

66. In conclusion, as the letters before us make some specific applications, we sanction the proposed expenditure of 28,700 rupees per annum for the maintenance of the Bombay and Agra Road. 67. We

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Presidency of Bengal. 67. We do not consider that any great public advantage would result from the engagement of two practical overseers thoroughly conversant with roadmaking in all its branches, as proposed in Lord Tweeddale's minute of January 1848, especially as it would be impossible to send out persons possessing the essential qualification of a knowledge of the native languages.

68. Of all other applications and suggestions for purposes of permanent utility but not of immediate temporary necessity, we shall postpone the consideration till we are in possession of the opinions with which we have required you to supply us.

alloway. hepherd. c. &c. &c.

STATEMENT exhibiting the EXPENNES incurred on WORKS, SALABIES, ESTABLISHMENTS, &c., in the CIVIL DEPARTMENT of PUBLIC WORKS, as they stood in the Military Board Office Bill Books, within the Ten (10) Years, from Season 1939-40 to Season 1848-49 inclusive.

							Ks.	a.	p.
Season	1839-40	~		•	-	<u>_</u>	15,22,222	14	-4
	1840-41	-	-	-	-	-	18,06,020		9
	1841-42			-	•		24,87,568	2	7
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1842-48	-	-	•	•	-	18,72,164	8	`
	1843-44			~	-	-	21,02,495	8	2
,, ,,	1844-45	-	-		-		21,67,166	12	- 4
,, ,,	1845-46	-	-	•		-	21,41,888	14	8
,,,	1840-47	-	-	•	-		21,85,147	2	6
,,	1847-48	-	-	-	-	-	26,75,947	9	1
	1848-40	-	-	. •	-	-	83,14,871	9	8
		To	TAL		-	Rs.	2,23,65,343	15	1

RETURN FOR THE PRESIDENCY OF FORT ST. GEORGE.

ROADS.

Presidency of Fort St. George,

IN April 1845 the Honourable Court of Directors confirmed the appointment of a Superintendent of Roads for the Madras Presidency, and gave their consent to a proposition of the Madras Government, that four lacs of rupees (4,00,000 rupees) annually, might be allotted to the improvement and maintenance of the roads: the improvements and repairs of branch roads not being allowed for in this sum. Under date the 9th August 1848, a General Report on the Road Department, from its establishment to the 1st May 1848, was submitted by the Superintendent of Roads, from which it appears, that in 1847 an arrangement was approved of by the Government by which ten (10) of the most important roads in the Presidency were selected, the management of which, under the denomination of "Trunk Roads," specially devolved on the Road Department, some portion of them in accordance with this decision, to be constructed under the immediate supervision of the Superintendent of Roads and his assistants, the remainder under thatof civil engineers of divisions, corresponding on the subject of trunk roads with the Superintendent of Roads, as they do with the Board of Revenue in the Department, of Public Works, regarding branch and minor roads, and works of irrigation. By order of Government, dated in April 1849, a new line of road from Madras, by Roychotty, the Goolcharro Pass and Cuddapah to Bellary, was placed under charge of the Superintendent of Roads as "Trunk Road No. 11." The amount placed at the disposal of the department from May 1845, when the order for forming it was issued, to the 30th April 1848, was Rs. 4,12,147. 3.; the sum actually expended within the same period was Rs. 2,79,870. 5. It was remarked by the Superintendent, "Ilad more estimates been sent in by me, no doubt the Government, under the permission granted by the Honourable the Court of Directors, to expend four lacs of rupees (4,00,000 rupees) annually, on the trunk roads, would have granted more money; but, considering that the department was new, and believing that what has been expended has been laid out with due attention to economy, and with a fair result of useful and permanent work. I trust trust the Government will be satisfied." Trees had been prepared for planting all along the roads; as far as work was in hand, palmyras had been sown to mark the limits of the road ground, parkimsaiwa along the foot of the raised banks in sandy soil; and in addition to these, avenues, chiefly of tamarind trees, will be gradually planted out. In order that a road should be well and cheaply made, three or four years time was stated to be necessary, whatever its length may be : "the marking out and the earth-work will occupy the first year; the bridges cannot well be completed in less than two more : the safest plan is to build foundations and piers one year, and the arches of the bridge a year after. Raised earth continues to subside for at least two monscons, and until it has sunk aud consolidated, the application of gravel or broken stone is wasteful and unsatisfactory; but a chief and cogent reason for proceeding deliberately with the construction and improvement of roads is, that if a large sum is to be laid out in one year on a few miles, the work is liable to be obstructed for want of labourers."

TRUNK ROADS.

No. 1. Western Trunk Roads, Madras, towards Bangalore.

Length, about 200 miles; commenced in 1838, to terminate at the frontier of Mysore near Hebbagode, on the road from Ossoor in Salem to Bangalore. This road cost to 1848 (including food and expenses of convicts) nearly 12 lacs of rupees for 121 miles, or about 10,000 rupees a mile. Estimates for an increased annual allowance for this road, and for an additional metalling to its surface, were forwarded for the sanction of Government in April 1849, the amount is 81,244 rupees annually, for four years, and afterwards 39,178 rupees per annum; the estimate from Madras to Vellore was Rs. 46,686. 2. 2. It had been under construction by convicts until the end of 1844, when orders were issued to discontinue convict labour, unless in the immediate neighbourhood of gaols. A line has been marked from Pulmansir to Yelloopelly, where the Mysore Road terminates: this and the improvement of the road from Chittoor down the Moogly Ghaut to Paulsamoodrum and thence to Arcot, are required to render this route perfect. The proper way from Madras to Bangalore is by the Moogly Ghaut, and when the line is made good, the Western Road will be the road to Arcot, Vellore and Waniambaddy, but not the road to Bangalore.

No. 2. Frazerpett, on the Cauvery River, to Mangalore.

Commencing at the Western frontier of Mysore, crosses the Coorg country and passes through Mercara, the chief place, and having entered Canara, near Sumpagee, descends the Ghaut known as the Sumpagee or Mercara Ghaut, and proceeds to Mangalore on the coast; an annual outlay of Rs. 5,262. 8. 4. (being at the rate of 50 rupees per mile) for annual repairs, to the part of the road from Frazerpett in Coorg to Mangalore, was sanctioned in 1847. This road was commenced by the sappers in 1838, after the termination of the Coorg war, and from that time until the end of 1838, parties of sappers were employed, by whom, with the aid of Coolies, the road from Frazerpett to Mercara was chiefly made. The tracing out and construction of the Ghaut had been commenced in 1837, by a party under the late Lieutenant Fast, of the engineers, and by that officer and Lieutenant Collyer the work was carried on until 1839. The completion of the Ghaut was reported in March 1846.

No. 3. From the North Western part of Mysore, towards Canara, by a Pass descending from the Table Land near Munzerabad.

Length, 46 miles; this road joins the Western line at Buntwal. Its construction was commenced under the orders of the Board of Revenue in the Department of Public Works, and has been under their control until completed.

No. 4. From Hoonsoor, in Mysore, to Cannanore by the Parumbaddy Pass.

Strong arguments were advanced for the construction of this road. It unites with the road from Seringapatam to Mercara and Mungalore at Hunsoor, and will complete a first-rate line of communication between Cannanore and Madras. 622. U 2 Length,

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Presidency of Fort SL George. Presidency of Fort St. George, Length, 68 miles, was sanctioned by the Court of Directors under date the 3d November 1847, to terminate at Cannanore. Estimated cost, Rs. 2,00,376. 3. 8.; of which sum 98,285 rupees are for the portion that lies in the Coorg country, 85,091 rupees for the part that is in Malabar, and 17,000 rupees for 17 miles in Mysore. All the intersecting streams are to be bridged, with an exception at the Irrity Cadavoo, where a ferry is to be established. The Ghaut, of which the steepest part ascends 1 in 20, will be very much superior in every respect to the Peria and other Ghauts which are now in use, but are not fit for traffic by means of carts.

No. 5. From Waniambaddy, by Salem and Coimbatore, to the Western Coast at Ponany.

Sanctioned in May 1845, to terminate at Ponany. The amount (35,111 rupees) sanctioned in 1848, was for making the road from Walliam to Ponany practicable throughout for wheel carriages.

No. 6. Great North Road from Madras to Calcutta.

Length, about 900 miles; to terminate at Calcutta. Between 1824 and 1845. inclusive, 2,70,935 rupees were laid out on the northern road south of Ulloor. An expenditure of 5,760 rupees per annum was sanctioned in 1846, for the gradual repair and improvement of the road. Rs. 6,912. 14. were granted for improvements of the 18 miles between Berhampore and Itchapoor, and 720 rupees per annum for the preservation of this portion, and 1,680 rupees for that of the portion between Berhampore and the Bengal frontier. In the years 1847 and 1848, the sum of 19,410 rupees was expended on this road. The country is very difficult, much of the soil, an extremely fine sand, mingled with soda and salt earth. The inundations of the rivers Cortchi-aur and Poinay and their branches. extend fur and wide in heavy monsoons for days together, swamping the lands for 50 miles north of Madras, and in some parts from 10 to 20 miles inland, and combining a multitude of tanks, and the Pulicat Lake in one sheet of shallow water, above which the red hills, and the sites of villages rise as islands; as the water subsides it collects in deep muddy channels, which take weeks to run dry, and the position and extent of these drains is continually varying. The ground south of the Peimaur or Nellore River, is an alternation of gravelly ridges and of valleys of loose soil, in great part cultivated with paddy; across the valleys great embankments were made, with the intention of topping the floods which pass through them to the coast; in some parts these are 15 or 18 feet high, the sum of their lengths being about 32 miles; a great number of bridges were anade in these embankments, to allow the passage of the obstructed waters. In 1837 and 1838 the rains were excessive, and the extent of embankments carried off was very great. Several new bridges were built in the subsequent years, and to provide water-way, the system of overtopping the inundations was so far abandoned, that several gaps from 120 to 350 feet were left in the embankment ; these gaps were paved with saterite, so that when the waters moderate, they can be crossed ; but so long as the floods continue, they are impassable, the water flowing through them five to seven feet deep. The water-way is not yet sufficient; both in the monsoon of 1846 and that of 1847, the embankments were extensively breached, and for long distances, where there were no gaps made in them, the water rose above the embankments, and swept away all the gravel with which their tops were covered. Great as has been the expense already incurred on this road, a further large outlay will be necessary. The selection of the line north of Nellore is bad; from Ulloor the track crosses swamps and paddy-fields, and continues over low sands, partly inundated, until it reaches the river of Singaroyconda. Material for making the swampy and sandy track into a good road is so distant that it may be looked on as impracticable, and the selection of a new line is contemplated. From Tungatoor north to Ogle, thence to Guntoor, the road is over cotton soil, it requires much work to make it passable after even moderate rains; near Ongool and in Guntoor some good bridges have been built, and in the year 1841 a considerable part of the read in the Guntoor district ; but having been raised above the level of the country, and running in a north and south direction, so as to impede the flow of water towards the coast, it was swept away for miles together, and in such parts it is only to be traced by the hollow which was formed where the water cleared the bank away. Most of this road road was made by convicts. North of the Kistna River, the road continues on good soil chiefly, to about nine miles south of Ellore; this part of the road was made by the Pioneer Battalion in 1827, and following years, but not finished; there is but little trace of their labours; the pioneers did not construct bridges, but wherever a shallow stream crossed a road, their remedy for it was a paved dip; the pioneer roads are generally discoverable now chiefly by the pavements of solid construction at short intervals along the lines; these pavements are fatal to cart axles. In the neighbourhood of Ellore, and up to the Godavery, opposite Rajahmundry, the line chiefly passes over very heavy muddy country.

No, 7. From the Great North Road near Ongle, to the Nizam Frontier.

Length, about 22 miles. A great deal of trouble, and some money, were given to form avenues of trees along this road, but they are all of fruitless sorts, and planted along a track which is crooked, and which ought in some parts to be abandoned for better ground; these avenues are rather an impediment to improvement. This road passes over some cotton-ground, but on the whole the soil is hard and more favourable than through the corresponding part of road No. 6, except in the two stages nearest the Kistna.

No. 8. Inland Southern Road, as far as Trichinopoly.

Length, about 215 miles. The 12 miles to Palaveram are kept good by the Superintendent of Government Roads; the next 24 miles, by convicts from Chingleput, and for the next 56 miles, an estimate of Rs. 1,27,875. 5. 8. was sanctioned in January 1847. In March 1849, the portion of this road between Chingleput and Vikravandy was reported to be fast advancing towards completion, and estimates were submitted for continuing the line from Vikravandy to Oolundoorpett, by a new and shorter line; these estimates amounted to Rs. 99,610. 1., and provided for bridging all the rivers on the road (save the Pennaur and Mulletam, 1,410 and 900 yards respectively in breadth). Of the above amount, a portion, viz. 54,899 rupees was sanctioned to enable the earthwork and the construction of the smaller bridges and tunnels to be at once proceeded with. A bridge of seven arches of 36 feet span near Caroongoly was completed in 1849; the foundations are built on solid rock; up to the spring of the arches, the whole is built of stone taken from the ruins of the Carrongooly Fort, and laid in mortar. Six other bridges of considerable size will be built north of Vikravandy, and entirely finished in 1849; the foundations are all of stone on mortar, on rock or hard soil; the piers and superstructure are of brick-work; the cost of them will be less than the estimates. In February 1850, the Government sanctioned an estimate amounting to 1,10,488 rupees, for a bridge over the Coleroon River at Trichinopoly; a new road has been designed across the island of Soringham to it, from the end of the bridge over the Cauvery, already commenced. North of the Coleroon the road proceeds in a very winding course to the village of Munshenellow to Samaaverand, a little beyond which village it crosses two rivers, called Oopaur, that unite only a few yards to the eastward. It is proposed that a new road be made which shall avoid the winding, and cross the Oopaur Rivers below their junction, so that one bridge may serve instead of two. Between the river of Vicavandry, at 93 miles, and the Geddelum, at 115 miles from Madras, is a tract of country which is all sandy to an unexplored depth; the southern Pennaur River runs through it, and disembogues near Cuddalore; this stream occupies a shallow sandy bed; that where the road will cross it is 1,410 yards wide; in this tract, and in many other parts of the Madras Presidency, as the alluvial part of Tanjore, metalled roads would appear to be out of the question ; such parts admit of very little improvement of surface, but the establishment of ferries over the wide, and of bridges over the narrow waters, would be very beneficial.

No. 9. Proposed to branch from No. 8, and take a more easterly direction, so as to lead to the new Annicut, lately built over the Vellaur River, thence across the Coleroon River at its lower Annicut, into the Tanjore district, near Combaconum and Myaveram.

Length, about 102 miles. Estimates for the improvements of the portions of this road aggregating Rs. 31,098. 9. 6. were sanctioned on the 5th January 1849, also the expenditure of 10,000 rupees for the preparation of materials for bridging the Coleroon River. In April 1849, an estimate amounting to Rs. 18,480. 4. was sanctioned for arching the Vellaur Annicut; also an outlay of 1,845 rupees 622. U 3 in

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in clearing jungle, and marking out the line of road proposed between Vikravandy and the lower Coleroon Annicut.

No. 10. Proposed Road from Madras through Chittoor, Palmanair, Balsamoodram, to Bellary.

Length, about 309 miles. This road, as far as Wallagunuggur, follows the high Western Road, then goes to Poinay, on the bank of the river of that name, and afterwards winding among hills, goes on to Chittore, a distance of 98 miles in parts over the sandy bed of the river, in other parts over the rugged surface of rocks. A new line has been examined, which will be only 88 miles long, and of which 24 miles being on the road to Cuddapah has a double claim to attention. Beyond Chittoor, the road, as far as the border of the Cuddapah Districts a little beyond Balmanair, is very good; it comprises the Moogly Ghaut, which is very easy for carts, two bullocks drawing a load of 1,500 lbs. up it.

No. 11. New Line from Madras by Roychotty, the Goolcherroo Pass, and Cuddapah, to Bellary.

The estimated amount for opening the Goolcherroo Pass was Rs. 7,359. 6. The Superintendent of Roads in his report for January 1849, discussed the comparative merits of the lines of road to Cuddapah, and came to the conclusion that when the Goolcherroo Pass is opened, there will remain no doubt of the inferiority of the others. No great amount of labour or expenditure appeared requisite to make this line to Cuddapah sufficiently good for ordinary traffic. Government, in April 1849, directed that "measures be immediately adopted for improving it, and thus make, at the least cost and trouble, one good road to Cuddapah ;" the road to be included among the Trunk Roads under the charge of the Superintendent.

DISTRICT ROADS.

REPORTS from Collectors on the state of the roads in the districts under the Presidency of Fort St. George, were submitted to the Court of Directors by the Government of that Presidency, under date the 6th May 1850. In reference to these reports, the Board of Revenue in the Department of Public Works remarked, that "the want of money for road improvements, once the greatest difficulty, is now lessened by the liberal regard which has been of late displayed to the subject, but the want of officers to prepare for and superintend the works, remains at present a serious and almost insuperable obstacle to efficient progress." In a minute by the Governor, it was remarked that when well prepared plans for the formation and improvement of District Branch Roads have been laid before him, he has not withheld his sanction to them; and he is still ready to consider favourably propositions of this character, and to give them his sanction when satisfied that dependence can be placed on the energy, exertions and means of the local officers to carry them into effect. It was stated, that estimates aggregating Rs. 29,535. 4. 8. had been sanctioned within the last two years; that the Board's recommendation that each district should be provided with one permanent Engineer Office was at present under consideration, and would in due course be laid before the Government of India, and that the proposition for allotting to each district an annual sum for the maintenance of Branch or District Roads, had been urged on the attention of the Court of Directors.

Ganjam.

In this District, with the exception of the Northern Trunk Road, on which a considerable sum has been expended during the last six or eight years, there is no made road; the opening of the Hurdumooloo Ghaut near the Bengal frontier, has afforded much facility to the communication with Cuttack.

Vizagapatam.

There are no made roads in this District.

Rajahmundry.

The high north-road has undergone repairs under the sanction of Government, dated 8th April 1837. Estimates are in preparation for opening a road between Samulcottah and Coconada. A lattice bridge over the river between Coconada and Juggernaik, has been completed. The road between Cankarapurroo and Nursapoor has been partly made, and will shortly be completed.

Masulipatam.

The Hyderabad Road between Masulipatam and Neerdonole, and from thence towards Weyoor, has been cleared of the prickly-pear bush which covered it, and near the Nabobpettah tank it has been repaired, and two sluices have been built under it. The road from Bezwadah to Rajahmundry has been repaired through the town of Ellore. On the road from Masulipatam to Ellore, a mile of road has been raised and put in good order. What is principally required to facilitate traffic, is the bridging of small nullahs, and tunnelling watercourses, without which the lines of road must remain traversable with difficulty in dry weather, and in the rainy season impassable.

Nellore.

The repair of the roads and bridges about Nellore and Ramapatam have recently been effected. A parapet wall has been raised to a bridge at Sangum on the Dovoor Channel, a work of great utility, suggested by the Civil Engineer Department. - A road has been opened to Kishnapatam, shortening the distance two miles, and will be completed in 1849; in the district west of the high North Road as far as Vencatagherry and on the north and south banks of the Pemair River, the roads are reported fair, and no impediment is experienced to the progress of bandies.

Cuddapah.

The roads in this district are in a bad state. A sum of 550 rupees per annum has been placed at the disposal of the Collector, to be expended at his discretion in the repair of such portion of the Southern Road to Chittoor, Bangalore and Wallajapett, where impediments to transit rendered such disbursements absolutely necessary. The plan of establishing tolls to compensate for the outlay incurred in proposed improvements to the internal communications of the district, is advocated.

Bellary.

The roads in this district are in a wretched state. Excellent roads, feasible not only for the common country carts, but for spring carriages, have been made in many directions throughout the Mysore country, which borders for a distance of about 200 miles on the south boundary of Bellary, but there are no corresponding roads to meet them in that district, and consequently not only the town of Bellary, but the whole district is cut off from the advantages which are offered by an open and easy communication with the Mysore territories, with the ports on the Western coast, and the whole Southern Peninsula. The lines from Bellary to Baugulpilly, being the high road to Bangalore, and the Bombay and Madras Road from Bellary to the river Toombadra, are comprised in the trunk roads under the charge of the Superintendent of Roads, as part of the road No. 10, from Bombay to Madras. The road from Bellary to Dharwar has been partially made. There are nine different lines of road, containing about 700 miles, which it is desirable should be surveyed, marked out and levelled, to be completed by degrees, at a cost estimated at between four and five lacs; there are no arched bridges in the district out of the town of Bellary, but one; there are a few stone flat bridges.

Canara.

The interior of Canara has hitherto been, to a great extent, locked up, owing to the difficult nature of the country, and it will require years of perseverance and energy before there will be any lack of objects deserving of and calling for attention. Within the last few years, large sums have been expended; the 60.0 amount

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amount of estimates sanctioned, and now under execution, is 1,74,540 rupees, but the greater part of these works are as yet unfinished, and the benefit which will result to the trade of the country will not be fully developed until their completion. There is, however, a very perceptible increase in the trade of most of the ghauts, partly owing to the improved state of the roads, even in their incomplete state, but perhaps fully as much to the stimulus given to trade by the removal of all restrictions on transit within the Company's territory, and to their late partial removal in the neighbouring territories of Mysore.

Canara (Sumpajee Ghaut or Military Road).

This road lies between Mercara and Mangalore, and is the only one which at present furnishes a direct and perfect communication for cart traffic between the interior of Mysore and the coast; the traffic on it has greatly increased. The principal articles of trade are salt and betel-nut exported from Canara, and cotton piece-goods, rice, dry grains, and castor-oil from the upper country; thevalue of imports and exports in Fusly 1257, was 3,38,412 rupees or 25,616 rupees in excess of the previous year; this road is in very good order, and wil be kept up under the orders of the Superintendent of Roads.

Canara (Munjarabad Ghaut).

This ghaut is at present under construction, the estimate for it being Rs. 59,862. 14. 6.; most of the road-work has been completed, but the bridging is only partially executed, and two more seasons will be required fully to open the ghaut for cart traffic. All the tobacco for the monopoly of this district, which used before to be brought down the Kuddakul Ghaut, was last year brought by Munjarabad. The salt from Canara by this route increased from 10,888. rupees to 27,284 rupees; the total value of goods passing in Fusly 1257, was 1,54,363 rupees or 1,26,300 rupees in excess of the previous year.

Canara; Agoomby Ghaut, and communicating Lines of Road.

The passage down the mountains has now been completed for about seven years, but it is only very recently that any measures have been taken for continuing the communication with the coast, as originally designed; the trade by this ghaut shows a falling off in value in Fusly 1257, as compared with Fusly 1256, of 12,792 rupees; the cause being, that the trade was made up of more bulky and less valuable articles; the increase being in sandal-wood, rice and dry grains, and the decrease in salt, piece-goods and sundry articles. The sanction lately given for opening the communications with the river in two directions; viz. at Beyjee and Kulladi, at a cost of Rs. 4,483. 3. and Rs. 2,239. 8. respectively, are being carried out as quickly as possible, as well as the sanction for overcoming the principal obstacles on the road between this ghaut and Mangalore, at an estimated cost of 5,700 rupees.

Canara ; Coloor Ghaut.

The construction of this ghaut on a limited and cheap plan was sanctioned in 1846, and it has not yet been wholly completed. The Mysore authorities are fully sensible of the advantages to be expected from this work, which will open a direct communication between the heart of the Nuggur country, and the coast at Cundapoor and Byndoor; the Commissioner of Mysore has liberally contributed to advance this work, and has sanctioned the continuation of the roadbeing made from the head of the ghaut to join other roads traversing the Nuggur country. About 10 miles of this latter portion of the road runs through the Company's territory before it reaches the Mysore country; the length of road from Windsay on the Cundapoor River, to Jalah, at the extremity of the Hannar Magain above the ghauts, is about 30 miles, and a hope was expressed that it would be opened during season 1849-50. No regular accounts of the trade on this ghaut have hitherto been taken with respect to any article except. salt, the value of which has increased during the year from 1,424 rupees to 5,916 rupees.

Canara; Guersippah or Hossamukky Ghaut.

This is an important line of communication with the upper country, leading from the northern part of Mysore down to the port of Honore, to which the Guersippah River is navigable from the neighbourhood of the ancient ruined city of that name, a distance of about 18 miles; the ghaut is bad and rocky at present; the value of the trade by this ghaut has considerably more than doubled during the past year, being in Fusly 1256, 82,541 rupees, and in Fusly 1257, 1,84,650 rupees, or an increase of 1,02,109; the principal item of increase is in cotton piece-goods imported, which from some unexplained cause, but probably with the view of avoiding the Mysore chokies, appear to have been brought down into Canara by this route instead of by the Agoomby Ghaut; the increase by the one nearly corresponding with the decrease by the other; the quantity of salt exported shows an increase of about 2,500 rupees.

Canara; Neelkond Ghaut.

The trade by this ghaut greatly exceeds in value that of any of the other roads, owing to its being the route by which the principal part of the cotton is brought down from Dharwar and Bellary, for shipment to Bombay and Comptah. The value of the trade which in Fusly 1256, was 12,32,945 rupees, was in Fusly 1257, 17,62,192 rupees, or an increase of 5,29,247 rupees. The increase in cotton alone is 4,25,820 rupees, the remainder principally consisting in cotton piece-goods, cardamums and salt. The value of salt exported shows a net increase of 4,649 rupees.

Canara; Devamunni Ghaut.

This ghaut, which will almost entirely supersede the former when completed, will open a direct route for wheeled-carriages the whole way from Dharwar to Coomptah; the sauction for opening this as a first-class road, at an estimated cost of Rs. 71,729. 10. 10, was communicated last year. The present width of the road is insufficient for the transit of cotton bales. The value of the trade increased from 2,13,000 rupees, in Fusly 1256, to 2,51,000 rupees, in Fusly 1257; the increase being principally in jaggery, coarse sugar, sandal-wood, and other articles imported from the upper country.

Canara; Arbyle Ghaut.

This is the last ghaut towards the north by which any great amount of trade is carried on. Sanction was granted in 1848 for expending a sum of 5,601 rupees in improving the ghaut itself, and opening a small road from its head as far as Yellapoor, the Cusbal station of the Soopah talook, and for two branches leading from the foot of the ghaut, one to Meerjan on the Tuddri, and the other to Sanicutta, the great salt depôt on the back water. Great importance is attached to this road, both because it is the nearest from Dharwar to the coast, is very easy, has abundance of forage for cattle, and because of the excellence of the harbour at the mouth of the Tuddri. The trade by this ghaut, which in Fusly 1256 was of the value of 2,62,089 rupees, was in Fusly 1257 of the value of 3,82,913 rupees, showing an increase in the latter year of 1,20,824 rupees; the chief increase is in raw cotton, and cotton piece-goods imported.

North Arcot.

An estimate has been framed for a new line of road between Arcot and Chittoor by Bommasamoodrum, which is shorter than the present line. The plan comprises the formation of a branch from Bommosamoodrum to Arcot; and 13 miles of it, viz. from Chittoor to Bommasamoodrum, will serve for both roads to Vellore as well as to Arcot. From Chittoor to Moogly there is a tolerable road for light traffic; the ghaut between Moogly and Palamanair is under the charge of a small permanent establishment from the head of the ghaut to the Cuddapah frontier on the route to Bellary. The road was made at the same time with the ghaut in 1841, but has fallen into bad repair; a sum has recently been sanctioned for its repair. At Palmanair the road branches off to Bangalore. The road between Pullycondah and Goriatum has been executed, but the communication with the Mysore country by that line is almost closed, 622. X owing

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Presidency of Fort St. George. owing to the bad state of the Nackenary Pass. From Arcot, two important lines of road proceed southward; one, the Poloor to Trichinopoly, the other through Trivatoor and Vendarash to Cuddalore, neither of which have ever received much outlay, and there are many parts in both where they are hardly practicable in wet weather. There are two other important lines of road through this district, viz. the road from Madras to Cuddapah through Curcumbady, and that from Chittoor by Triputty and Calastry to Vellore ; neither of these appear ever to have received much expenditure, and both are represented to be much in need of repair ; they are shortly to be surveyed.

Chingleput.

The Southern or Trichinopoly Road is in good order as far as Chingleput, and is being carried on to the limits of this district. The bridge over the Cullar River, running from the Callingulah of the Madrantacum Tank, which was under construction during last year, has now, with the exception of the wingwalls, been completed. The new line for the Northern Road has been laid out, and the necessary embankments, &c. are being made. The old Arcot Road via Codambankum, and that leading from the Elphinstone Bridge by the coast, have been repaired, as also the two roads to Trivatore from the limits of the Presidency.

South Arcot.

The road-expenditure of this district from 1821 to 1840, although considerable, was spread over a number of small works, and the roads, with the exception of small portions, are in a ruined state; the only annual allowance at present proposed is 150 rupees for the maintenance of the Mareanum Causeway; but the expenditure on bridges and tunnels in the same period was nearly 1.50,000 rupees; and rather more than the same amount has been disbursed from 1833 to 1847, for the same purpose, from private Chuttrum and Devastanum funds.

Salem.

The roads in this district are kept in repair without expense to Government. It is worthy of remark, that in 1847 there were no less than 400 miles of road traversed by carriages without obstruction at all seasons, besides branch-roads, which only require some bridges to place them in equally good condition. The amount expended by Government from 1821 to 1840 was large, but the results were also very great. In 1848, the number of carts employed by the community exceeded that of the previous year by 80, which is attributed to extended. trade from the improved state of the roads. The roads and side channels are kept in good repair, and the avenue trees are in a flourishing condition. The new road between Namoul and Moganoor is not quite completed, but is passable for carts. The line between Shenkerrydroog and Womaloor is in progress. A line is under construction between Razapoor and Attoor. The bridges which have been sanctioned have been some completed, others in progress, and many covered drains have been made through the different lines of roads.

Tanjore.

Considerable improvement has been recently effected throughout the province in the formation and opening out of roads, and the bridging of streams. The public have been greatly benefited by the completion of the repairs sanctioned in 1847 for the lines between the towns of Tanjore and Tivady, Tanjore and Combaconum vid Pampanasem, and the chain of communication is thus ren-dered perfect. The new line between Titrapoondy and the sea-port of Moottoopettah has been finished, with the exception of two bridges over the Mercalcurray and Corryaur streams. The construction of the Corryaur Bridge has been recently sanctioned, and when finished, this line will be perfect. Improvements on the great road connecting Negapatam and the south and western parts of the district, towards Ceylon and Titrapoondy, have been fully executed, leaving only the bridge over the Cuddayaur to be finished, which will shortly be opened; this line will be very complete as soon as the bridges sanctioned across the Vullyaur and Talten Choultry Cut are built. The bridges over

over the Arsalaur and Trimalrojen having been completed, opens the line successfully from Negapatam to Myaveram, and so on to Madras. The two great roads from Trichinopoly, the one leading to Madras viá Trivady and Combacomuni, the other to Negapatam through Vellum, Tanjore and Aupapettah, have been thoroughly repaired and tunnelled, proving most beneficial to the traffic and transit of the province. The near completion of the new routes from Combaconum to Tranquebar and Hurrical, along the banks of the Veerasholagen and native Vorkal streams, offers every facility to commerce and convenience to travellers, shortening the distance between Trichinopoly and the eastern coast. The new road between the Cusbah Shealtry and Trimuloassel has been finished, and this gives a more direct communication from the sea-coast to the Great Madras Road than the old route. There are several bridges and other improvements throughout the district now in hand, which, when finished, will place the interior communication on a most efficient footing.

Trichinopoly.

The road from Trichinopoly to Tanjore, Negapatam, &c. will shortly be finished; that from Trichinopoly vid Keelikoodoo to Tanjore, is impassable, and only frequented by foot passengers; that from Trichinopoly to Combaconum, Pondicherry and Madras, is much frequented, and is in good order. The whole of the line from Trichinopoly to Arrealone and Oodiarpolliem is in a bad state, particularly in the limits of Poonaloor; it is being repaired. The repair of the line from Trichinopoly to Madura and Tinnevelly has been sanctioned, and will shortly be completed. The lines from Trichinopoly to Dindigal, from Trichinopoly to Sevagunge and Ramnad, and from Trichinopoly to the Tondaman's country, are in a bad state, and scarcely to be passed but by foot travellers; no repairs have ever been made to these roads at the expense of Government. A sum of money has been sanctioned for filling up deep cuts on the line from Trichinopoly to Coimbatore vid Mangaveram and Caroor; the road-work on the line from Trichinopoly to Caroor, along the course of the River Cauvery, is being proceeded with under an estimate, amounting to Rs. 8,683. 12., sanctioned in 1846. The greater part of the line from Trichinopoly to Salam vid Vatalaygoodooloor requires to be widened, and the whole to be extensively repaired. The alteration of the line to Bangalore via Manachenelloor is under consideration; the repair of the high road from Trichinopoly to Madras via Oottaloor, has been partly effected; the repair of further portions of the road in the same line from the north bank of the Coleroon to Poongooney Nullah, was sanctioned in November 1847, as well as that of a portion of road in the limits of Suranjam.

Coimbatore.

The road from Coimbatore to Walliaur is in urgent need of repair; the repair of the road to Seugarellore, on the line of communication to Trichinopoly, for which an estimate was sanctioned in 1848, will be executed promptly, and when completed, will be a great convenience to travellers. The trade of the district in Fusly 1257 exhibits an increase of 7,17,131 rupees over that of the previous year, which is attributed to the favourableness of the season. The cost of repairs to the roads in this district in 1846 amounted to Rs. 7,689. 7. 3., and in 1847, to Rs. 11,795. 7. 5.

Malabar.

A general Report on roads in this district was submitted to Government in 1847. The total length of the roads for which an annual grant was required was 900¹/₂ miles, and the proposed amount 12,660 rupees, or 14 rupees per mile: the amount required for disbursements on the same roads, on estimate, was Rs. 30,559. 8. The roads are, No. 1. The Coast Road, 95 miles in length. No. 2. From Trichoor to Palghaut, 24¹/₄ miles. No. 3. From Palghaut to Colongode, Palachy, 22 miles. No. 4. From Palghaut to Palachy, in Coimbutore vid Elapully, 11 miles. No. 5. From Ellapully to Wadakenjerry, 25¹/₄ miles. No. 6. From Pal Ghaut to Manar Ghaut, 15¹/₄ miles. No. 7. From Tertallah to Cherpoolcherry, 15 miles. No. 8. From Cherpoolcherry to Vanissolun, 3¹. No. 9. From Cherpoolcherry to Lackaduttah, 15¹/₄ miles. No. 10. From Tirtallah to Amgarripooram, 13¹/₄ miles. From Amgarripooram to Mana Ghaut 20 miles. No. 12. From Amgarripooram to Terooraugaddy, 22 miles. No. 13. 622. x 2

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Panoor to Tirtallah, 26 miles. No. 14. From Porpanaugaddy to Mulipooram, 18 miles. No. 15. From Mulipooram to Angaripooram, 91 miles. No. 16. From Mulipooram to Mangerry, 51 miles. No. 17. From Mulipooram to Coondotty, 71 miles. No. 18. From Mungerry to Wandoor, 12 miles. No. 19. From Mungerry to Nelumboor, 71 miles. No. 20. From Mungerry to Ariacode, 8 miles. No. 21. From Tirooraugaddy to Coondotty, 9 miles. No. 22. From Tirooraugaddy to Kacunjarry, 11 miles. No. 23. From Calicut to Palghaut vid Angaripoorum, 814 miles. No. 24. From Calicut to Ariarcode vid Condotty, 9 miles. No. 25. From Calicut to Ariarcode direct, 25 miles. The Koondah Ghaut being daily more and more used, the road from Calicut to its foot will be made quite perfect, so as to induce Coolies and the people coming down from Oolacamund with bullocks, to take back salt and other produce from the coast. No. 26. From Ariarcode to the foot of the Akoonda Ghaut, 27 miles. No. 27. From Calicut to Tambecherry, 22 miles. No. 28. From Tambercherry to Coo-From Cancut to Famoecherry, 22 miles. No. 26. From Tambercherry to Coo-teaddy, 12 miles. No. 29. From Coondatty to Tambercherry, 16 miles. No. 30. From Calicut to Cooteaddy, near Nodawnoor, 31 miles. No. 31. From Baddag-herry to Cooteaddy, 22 miles. No. 32. From Coteaddy to Tellicherry, 17 miles. No. 33. From Tellicherry to Perriah, 26 miles. No. 34. From Canna-nore to Perriah, 16 miles. No. 35. From Cananore to Khealoore (included in . estimate for Persambaddy Road). No. 36. From Cananore to Verburg 25 miles. estimate for Perambaddy Road). No. 36. From Cananore to Vythur, 35 miles. No. 37. From Cananore to Talliparamba, 9 miles. No. 38. From Noadcain to Goodaloor, 3 miles. No. 39. From Perriah to Goodaloor, 72 miles. No. 40. From Sultan's Battery to the foot of the Tigoor Ghaut, 24 miles. No. 41. From Vytherry, top of the Tambercherry Ghaut to Maniemtoddy. No. 42. From Maniemtoddy to Bawali, 9 miles. No. 43. From Maniemtoddy to Corotha, 11 miles. No. 44. From Punnawarancottah to Corotha, 12 miles. In no instance can the original cost be ascertained.

Madura.

The road from Trichinopoly via Mansper to Dindigal, Ediacottah, Darapooram and Palghat, 75 miles in length, is in fair order ; parts of the road from Dindigal to Palney and Palghaut, 48 miles within the Madura District, are under repair. Abridge over the Shunnoogun River is much required between Palaney and Vayloor, for which an estimate will be submitted. The line from Madura by Nuttoor to Trichinopoly is here and there in bad order. The road from Trichinopoly through Madura to Palmacottah has bungalows for travellers along the whole line; much expense has been bestowed on it : it is in fair order, but repairs are required within the limits of Tellanaikenputty, for which estimates have been sanctioned. On the road from Meybor to Poodoocottah and Tanjore, which is a second-class road, 29 miles in length, to Pulavessel, in the Poodoocatay territory, a bridge of three arches has been recently constructed over the Oopaur River, about six miles from Meyloor; the soil is very bad in this part, and the road heavy; repairs are required in other parts of this line. The road from Puttoocatay and Arandhongey, in Tanjore, to Sahai and Cunnoozoody, in the Sheevagunga zemindary, 33 miles in length, is a road of little importance, and runs over a naturally favourable soil; as also the line from Arundhangy to Ramnad, 59 miles in length, which is but little frequented. The road from Chetto Bova Chuttram, in Tanjore, to Ramnad and Tutacorin, south of the Tanjore frontier. lies entirely in the Ramnad zemindary, and is much frequented by pilgrims to Ramiswarun, 69 miles in length to Ramnad, and is generally over firm sand, but it is raised in places, and is heavy. For the repair of the cross road from Ramnad by Moodookaolattoor to Madura, 77 miles in length, estimates are being prepared. The cross road from Ramnad by Mundalmankeem to Madura, 75 miles in length, is not much frequented. The road from Trichinopoly to Shevagunge, and thence to Ramnad, 74 miles in length, in the district, is an important roud, and an estimate of Rs. 6,520. 3. 3. has been submitted for its improvement. The cross road from Trichinopoly by Culliarcovil to Ramnad, 111 miles, is not much frequented. The road from Tondi by Nuthum to Dindigal, 87 miles in length, is of great importance to the salt trade, and is also a Tappaul route. A bridge and pavement have lately been completed at Ooralipillay. The line from Tondi to Madura, 66 miles in length, is also important to the salt trade, and requires repair. The route from Ranagswarum by Mahura to Dindigal, 143 miles, is a most important route, and is much out of repair, owing

to the rains of 1847, and a naturally bad soil. The road from Madura to Sayagoody, in Ramnad, and thence to Tutycolin, 61 miles in length, is of some importance to the cotton trade; scarcely any money has ever been expended on its repair. Cross road from near Palaputty to Pulknooth, 24 miles in length, is a route much frequented by the cotton traders, and by pilgrims to Palaney; it is under repairs which, when completed, it will be in moderately good order. The road from beyond Neltacolay by Perea Colum to Goodaloor, at the end of the Cumboon Valley, 72 miles, is a most important road, by which the produce of the Dindigal or Cumbum Valley is conveyed; it requires raising and gravelling in some places, and the construction of one bridge at Pereacolom, and two others between Battagoontah and Nellacottah, for which estimates will shortly be prepared. The road from Dindigal to Nellacotlay is not a very important road. On the line from Madura to Audiputty and Chinnamanaikoor, 59 miles, the pass at Audiputty will be repaired; between Audiputty and Vellalonaddy, a bridge is urgently required over a jungle stream; in other respects, the road is in fair order. Road from Devadhanaputty or Pereacolum, across the Varahara or Palaney Hills, 66 miles; there are four passes from the eastern side of these hills, one very steep, but comparatively short, from Pereacolum to Shembaganoor; another called the Adakun Pass, very steep and bad, but direct to the Godowns at Seeradunkannel; a third called the Coopum Pass, from Valcat, 6 miles from Pereacolum, and a fourth from Devadhanaputty. On the road from Meyloor to Heeroochoole, in Ramnad, 37 miles in length, the approaches to the bridge over the Krithamanuddy River, near Hurpooanam, are under construction, and a bridge is necessary over the Oopar Oday, at the north entrance of the Thirooradoor ; the road requires earth repair. The route from Strevallepoottoor, in the Tinnevelly district, to Pulchamalacotay Chuttram, on the route to Pulknooth and Palavey, 49 miles, in Madura, is one on which there is considerable traffic, and it requires repair; on both sides of the village of Ooshemputty it is nearly impassable after rain. The line from Meyloor, through Shevagunga and Ramnad, to Cadoogoochemthoo, 67 miles, is considered not to be of very great importance.

Tinnevelly.

On the road from Madras to Quilon vid Streevellypoolear, Tencausay and Arambooly, distance 1384 miles; a bridge is being built at Imboor. The construction of an improved road from Palamcottah to Tentacorin will be undertaken; the repairs sanctioned to the line branching from this, and leading to Coilpatam salt-pan are still under progress. The repairs to the minor roads do not require particular notice from their importance or their extent of repair; every effort has been made to improve the communications generally.

Kurnool.

There are three principal roads in the district; viz., from Kurnool to Bellary vià Coadmoor; that from Kurnool to Ghooty vià Dhona, and that from Kurnool to Cuddapah, through the Kusbah towns Nundial and Chagulmurg; the soil prevalent throughout these lines is generally rich black cotton-ground, in which it would be impracticable to form a good metalled trunk road, unless at an outlay far exceeding the advantages likely to be derived from such a work. During the dry months of the year, these roads are smooth, and very easy of passage for carts of every description; there are, however, a few nullahs which it would be advantageous to have bridged. A large bridge is in course of construction at Candurabad. The road from Kurnool to Pannen, the Cusbah town of the Panneen talook, is interrupted by a short difficult pass near the village Timmarazupully; this and the opening of the pass through the Nulla Mulla range of hills, into the subdivision of the Cuddapah collectorate, should be opened sufficiently for cart traffic.

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Presidency of Fort St. George.

STATEMENT of CHARGES incurred in the Repair and Construction of WORKS connected with IRBIGATION, and on ROADS, BRIDGES, and GEAUTS, in the Collectorates under the Presidency of Fort St. George, for the Years 1838 to 1847 inclusive.

		YEAI	R		On Works of Irrigation.	On Roads, Bridges and Gheats.	TOTAL
~~~~~					Rs. a. p.	Rs. a. p.	Rs. a. p.
1838	-	-	-	-	5,96,668 8 6	4,00,665 14 6	9,97,334 7 -
889		-	-	-	5,14,818 - 6	3,01,558 1 <b>3</b> 8	8,16,377 - 2
840	-	-	-	-	6,25,013 8 10	4,19,412 6 8	10,44,425 10 1
841	-			- [	5,69,937 15 5	2,69,855 2 10	8,39,793 2 3
842	-	-		-	5,30,845 7 11	4,56,532 8 7	9,87,378 - 6
843		· •	-	-	8,98,016 8 8	1,43,294 9 2	5,41,311 1 10
844	-	•		- 1	6,09,687 13 2	1,46,034 13 6	7,55,722 10 8
845		•	•	-	5,80,681 8 2	1,16,670 5 10	6,97,301 14 -
1846	-	•		-	5,65,186 14 10	1,18,502 14 10	6,83,689 13 8
1847	•	-	-	-	7,85,630 18 4	1,52,222 6 8	8,87,853 4 -
		Total	•		57,26,436 14 4	25,24,750 1 10	82,51,187 - 2

Presidency of Bombay.

### RETURN FOR THE PRESIDENCY OF BOMBAY.

[A Return to an Order of the Honourable The House of Commons, dated the 20th December 1847, was presented on the 7th February 1848, which Return contained Copy of the Annual Reports of the Superintendent of Roads and Tanks within the Presidency of Bombay, from the first (viz. that for Season 1835-36) to the latest received to that time, or to Season 1844-45, inclusive. The Reports for Season 1845-46 and 1846-47 are now furnished.]

ANNUAL REPORT of the ROAD and TANK DEPARTMENT at Bombay, for the Official Year 1845-46, dated 29 July 1846.

### No. 1,073, of 1846.—General Department.

(V. 6,504.) To E. II. Townsend, Esquire, Revenue Commissioner, Southern Division, Poonah.

Handing up report. Expenditure for the past year. Sir.

I HAVE the honour to submit the following Report of the proceedings of the Road and Tank Department for the official year which terminated on the 30th April last, with a statement appended of the expenditure incurred in the construction and repair of Public Works, and a memorandum of the comparative cost of superintendence, whence it will be seen that the entire outlay for the past season amounts to (1,96,357) one hundred and ninety-six thousand three hundred and fifty-seven rupees, and the average charge for superintendence (263) twenty-six and three-quarters rupees per cent.

2. Since the transmission of my report of last year, opportunities have not been wanting of enabling me to judge of the correctness or otherwise of the opinions therein expressed on the subject of the division of duties of the First and Second Assistants of the department, and I may venture to affirm that, repeatedly as the capabilities of many of the Second Assistants have been tested, in estimating, and occasionally even in designing, in no single instance has a case of incompetency been brought to light. Should this assertion appear to stand in need of confirmation, I think I might with success respectfully appeal to the Military Board, whose opportunities of judging of the comparative merits of the Second Assistants' performances, are as superior to mine as would be the weight of their decision.

3. The

Working of the department.

3. The merit of the introduction of measures which have led to this degree Qualifications of of proficiency on the part of the Assistants supplied from the Artillery or Infantry Assistants draw regiments, of course rests with my predecessor, for I consider it to be almost entirely owing to the examination which candidates are subjected to, previous to admission into the department, that their general efficiency is so far supe-rior to what it used formerly to be. I am firmly impressed with the belief, however, that sufficient stress has not been assigned in the prescribed scale of qualifications to an acquirement, which experience has taught me to believe is an all-important one, either in this or any other branch of the Engineer Department-I mean the art of drawing. An officer who possesses not this accomplishment, finds the duties he is called on to perform irksome and distasteful, and is incapable, moreover, however talented he may be in other respects, of rendering such service as must occasionally be expected from him.

4. Inefficient as the subordinate ranks of the department are, both numerically Proficiency in drawand professionally, the qualification I have first alluded to is the more essentially ing ought to be pro-necessary on the part of the Assistants themselves; and if the experience of several years entitles my opinion to any weight, precautions will no longer be neglected of ensuring, in all future candidates for engineer employment, a certain standard of proficiency in civil, military and plan drawing.

5. But if drawing is an acquirement that cannot be dispensed with in the Description of perin-door duties of an Assistant, so also is bodily activity as absolute a sine qua non fect Assistant. in the proper performance of his out-door business. The first may always be ensured, the latter can only be hoped for. But supposing both qualifications to exist in the same individual, there remains but to be added a correct knowledge of arithmetic, levelling and surveying, together with a strong taste for his duty, to render the possessor perfect in his sphere.

6. The changes which have taken place amongst the First and Second Assistants Changes and apof the department since the date of my last Report are as follows :-- Captain Ash pointments, was compelled, on account of ill health, to take his departure for Europe early in August last, and was succeeded in his First Assistantship by Captain Jacob, of the Engineers, in the latter end of September ; Lieutenant Bruce, who acquitted himself with some credit as a First Assistant before the Examination Committee assembled in September last, was once more placed at the disposal of his Excellency the Commander-in-Chief for regimental duty, in January of the present year, and Lieutenant North, of the Engineers, in the following month was placed in temporary charge of his office by Government, and conducted the duties thereof till Lieutenant Bruce's return, in May last. Captain Owen, who also passed his examination last year as Second Assistant, was absent from the department for the space of four months on regimental duty in Scinde, but no officer was appointed to perform his duties, and they consequently fell considerably into arrears. Lieutenant Dickinson, of the Engineers, having received the appointment of Executive Engineer at Ahmedabad, quitted the Road and Tank Department on the 1st June last; and Lieutenant Scott, of the same corps, succeeded to the situation of Second Assistant at Tannah, and assumed charge of the office on the 20th idem. In all other respects the officers of the department retain the position they respectively held at the date of my last Report.

7. I now proceed to a description of the performances of the First Assistants Performances of the during the past year, taking up the narrative of their proceedings from the day Fint Asistantas Cap ouring the past year, taking up the narrative of their proceedings from the day tak Ash and Captain on which my last account was submitted, at which period Captain Ash was Jacob. Akourdee engaged, as therein stated, in preparing plans and estimates for the works new road and juncrequired on the two proposed junction lines between the Akoordee new road and the main road to Seroor. The same duty furnished him with employment for the short time that he subsequently remained, and on his departure the designs were completed and the estimates proceeded with by myself, till Captain Jacob's joining enabled me to transfer the completion of the latter task to him. The surveys, sections, designs and estimates connected with these two lines of junction were accordingly received in this office on the 22d November last, and were transmitted on the 27th idem to the Military Board, with a letter from myself, deferentially attempting to prove that the construction of neither of the lines would be absolutely incumbent on the completion of the Akoordee new road, a work which I looked upon and still consider as one of downright necessity, X4 622.

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tion lines.

Presidency of Bombay. necessity, and which ought not to be deferred for a moment longer than can be helped. The estimated cost of the longer of the two lines of junction, by Kullus and Kessurwady, amounted to (55,099) fifty-five thousand and ninety-nine rupees, while that of the shorter, by the Daporee and Holkar bridges, amounted to (7,877) seven thousand eight hundred and twenty-seven rupees.

Captain Jacob ; new terminus to Mail Road.

8. The duty on which Captain Jacob has been since employed, by order of the Military Board, and with the approval of Government, is one to which a good deal of public interest attaches, and it is fortunate, therefore, that it has fallen into such hands. It consists of the survey of the proposed new terminus to the Bombay and Poonah Mail Road on Hog Island, and of the country through which the connecting line will pass, together with the projection of the road, and of all the works that will be required thereon, a distance which is slightly in excess of 12 miles. The survey has been finished, the line laid down, the works designed and partly estimated for, and the whole of the papers connected with the subject will be laid before the Military Board before the close of the monsoon.

9. The account which I gave last year of Lieutenant Bruce's performances was unsatisfactory; not that any great amount of blame attached to that officer, but that circumstances, as detailed in the report, had conspired to prevent his making himself so useful as his capabilities and acquirements would otherwise have enabled him to be. It appears, that at the date of my report Lieutenant Bruce had made but little progress with the survey below the Thul Ghaut, beyond commencing the projection of a new line of road, and taking a set of levels on the old one, and he was unable to take any further steps towards the completion of that performance before he was temporarily removed for regimental duty. He had contrived, however, previous to his departure, to finish the survey of the proposed new line between Comah and Wangoollee, and to prepare designs for the several bridges and other works required thereon, and he is now engaged in perfecting the plans and in framing estimates of the cost. The whole of the papers relating to the construction of this proposed new line will probably be submitted before the determination of the rains.

10. The extent of Lieutenant North's performances during the time that he held charge of Lieutenant Bruce's office is as follows: He surveyed the hilly and difficult country lying between Kussara and Kurdee, below the Thul Ghaut, and selected and took the levels of a line of road between those places, so far superior to the present one, that anticipations have been formed of the slope in no instance exceeding 1 in 20. Whether these expectations are to be realized or not, will be shortly known, as Lieutenant North, though in possession of his appointment at Belgaum as Executive Engineer, has been permitted by the Military Board to plot and prepare a report on the work, on which he was lately engaged. To aid him in this duty, he has been allowed the services of one of Lieutenant Bruce's Assistant Surveyors, the only one indeed whose services were worth having, as the deficiency in the most essential qualifications of the remaining one incapacitate him from rendering any effectual assistance in the most ordinary of engineering duties.

11. I now come to the commencement of my description of the out-door labours of the department, and in the details that I am about to offer for your consideration, will still adhere, for the sake of uniformity, to the routine that has been hitherto observed in the manner of arranging the various subjects. First, therefore,

### I. The Agra Road,

acclivities.

12. From Kussowlee to Bhewady, from the latter place to Purgab, and from thence to Shapoor, this road, considering that it is not metalled, may be characterized as good; and both from its appearance as well as from the regularity of the moorum heaps. I should say that the repairs have been very carefully attended to by Lieutenant Dickinson, since he has been in charge of this portion of the line. From the last-mentioned place to Kurdee, owing to the undulating nature of the ground, the state of the road can only be described as tolerable, and from thence to Kussara, at the foot of the ghaut, there are so many steep descents and

Lioutenant Bruce ; Thul Ghaut Road, Wagoolco new line.

Licutenant North ; Thul GhautRoad and survey of new line.

Commencement of details of work performed by the Department.

State of repair and expenditure.

acclivities, that it would be beyond the power of the most scientific road-way engineer to keep it, exposed as it is to a heavy traffic, in anything like a decent state of repair, even with a far greater expenditure than is at present allowed. The outlay on the periodical repairs for the past season, between Colsette Bunda and the top of the ghaut, amounted altogether to 9,262 rupees, (nine thousand two hundred and sixty-two), thus averaging 159 rupees per mile.

13. Having mentioned Colsette Bunda, it may not be out of place to inform Inefficient state of you, that the ferry there established, appears to have been for some time past in rectified. an inefficient state, though there are few situations on this side of India where a safe and expeditious transit, both for passengers and merchandize, would be more desirable. The circumstance, however, has been duly represented, and Government have sanctioned a new raft for the ferry, which is now under construction in the dock-yard, and which, with the one already plying, and another that has been lately transferred from between Mahim and Bandora, will, probably, suffice for present wants.

14. What effect the proposed railroad, when completed, may have in diminish- Steam Forry suging the traffic on this line, it is difficult to say; but were it not for this doubtful greated at Colorito. point, it would be well worth the consideration of Government, whether a steam ferry, similar to that which plies between Gosport and Portsmouth, might not be most advantageously substituted at Colsette for the present establishment of decked double boats. A locality better adapted for the purpose could not possibly be desired, and I should conceive that the expense of fuel and maintenance could hardly exceed the cost of keeping in an efficient state the rafts now in use, with crews of the needful strength.

15. The want of water at Kussara and on the ghaut still furnishes cause for Scarcity of water at complaints, though during the past season the evil was unquestionably enhanced Kussura to a very great degree by the unfavourableness of the preceding monsoon. The well, which was deepened and enlarged in May of last year, at the village just named, and which is now being completed, was full nearly to the brim, notwithstanding the scantiness of the rains, when I saw it in December last, but great as was the increase, the supply was insufficient, and failed towards the end of April.

16. From the account which I gave in my last year's Report of the progress of The Ghaut; experithe experimental mile on the Thul Ghaut, no expectations will have been formed mental portion when likely to bo that are likely to be disappointed, when I state, that it is now only approaching opened; cause of completion, and that it will not be available to the public till after the present delay. This piece of work, it will be remembered, was commenced in March monsoon. 1843, and I need hardly say, has turned out a far more laborious undertaking than Major Peat could have anticipated, when he predicted that it would be open to traffic by the close of the year following. That officer, however, at the period of holding out these hopes, did not contemplate the construction of a parapet till the whole of the ghaut should have been in other respects completed, whereas, for unanswerable reasons, it has been judged advisable to proceed with the parapet simultaneously with the rest, and the consequence is, that a wellbuilt wall, three feet in height, and 4,445 feet in length, has most materially swelled the amount of Lieutenant Chapman's past year's labours on the ghaut.

17. With the view of preventing the ill effects and inconvenience which would Reasons for comhave been occasioned on the completion of the experimental mile, by the dis- mencing new po banding of the work-people and the temporary cessation of further operations, Government were pleased, under date the 10th November last, to authorize another portion of the line being taken in hand, and the lower portion of the ghaut, which connects the experimental mile with the road below, was accordingly commenced in the month of December following. The length of this portion does not exceed 1,837 feet, and as the progress of the works has advanced with greater -comparative celerity than was the case on the former piece, it is expected that, with the exception of the parapet, it will be so far completed by the close of the year, that there will be no obstacle to its being thrown open to the public in conjunction with the upper portion, thus forming a clear line of communication of very nearly a mile and a half in length, between two points on the old road.

18. Having alluded to the parapet as a work that considerably tends to retard Pampet; expense, the completion of the road over the ghant, it is now necessary I should mention description. that it will also add most materially to the cost of the undertaking, for lying, as the greater part of the line does, along the sides of steep hills, accidents must of 622. necessity

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Presidency of Bombay. necessity be guarded against by some protection on the outer edge of the road-way, and it has been found, that the entire distance requiring to be so defended, does not fall short of three miles four furlongs and twenty-five yards. To have made this protection of anything but of good and substantial masonry, would have been imprudent, and calculated to lead to much future trouble and expense. It has, therefore, been constructed of rubble and choonam, with a stone coping roughly cut, in the manner of the subjoined sketch.

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Difficulties to be contended against on the Ghaut.

19. Unusually tardy as the progress of the works has been on the ghaut, there have yet been many causes for such a circumstance, which may almost be deemed peculiar to the place; or which, at all events, if felt in other localities, would have had a less painful influence. One peculiarity for instance is the position of the work, far removed from any large town, and in a remarkably thinly populated country, where work-people and labourers are not procured with that facility they are in other places. Another difficulty that has to be encountered is the climate, which is notoriously unhealthy, and deservedly shunned. A third'objection is the scarcity of water, the supply of which, towards the close of the hot season, occasionally fails *in toto*, and the neighbourhood is, in consequence, partially deserted. With the exception of stone, building materials are also expensive, and have to be brought from a distance, so that all things considered, the Thul Ghaut may be deemed a very ineligible site for engineering operations.

Glumit estimates.

Egutpoores to Chandore ; state and expenditure.

Demolition of the Undwell Lattice Bridge,

Three streams require bridging. 20. The estimate for the unfinished portion of the ghaut, or that part which lies above the experimental mile, a distance of 20,164 running feet, was received from Lieutenant Chapman on the 18th ultimo, accompanied by plans of all the works required, and is now in course of examination by myself.

21. From Egutpooree at the top of the ghaut to Nassick, the road is in much the same state, generally speaking, as it was last year, though some places appear to have had a greater amount of attention bestowed on them than others; on the whole, however, it may be said to have undergone some improvement, and to be in very fair order. The remainder of the road under Lieutenant Chapman's charge between Nassick and Chandore has also benefited in a certain degree by the care it has met with, but there is still great room for improvement, and it will require more than one favourable season, joined to careful superintendence, to restore it to tolerable order. The expenditure on this road for the past year, from the Thul to the foot of the Chandore Ghaut, amounted to 12,456 rupees, or an average of 155 rupees per mile.

22. No offer having been received for the purchase of the materials of the Undwell Lattice Bridge, the superstructure of which during the past year had become still more unsafe than previously reported, the frame-work has beencarefully taken down under the authority of Government, dated 15th July last, and portions of the wood-work applied to the construction of the doors and windows of a regimental hospital now in progress at Nassick; the remainder of the wood will be carefully expended in the construction of a railing for the Nassurdy causeway, of the present want of which complaints have been frequently made.

23. There are three small rivers on the portion of the line last described, which on account of their depth, and the consequent hindrance offered to the passage of the dawk, should be permanently bridged; these streams are met with at Argaum, Wagur and Pimplegaum, and at the two former places might be bridged at comparatively small cost.

24. The breast-walls on the Chandore Ghaut, which were reported last year in some instances to have bulged, have not yet been reconstructed, nor indeed has the estimate of the probable cost been, up to the present moment, received, in Chandore Ghaut. consequence of the greater portion of Lieutenant Chapman's time having been engrossed in the more difficult and important duty of attending to the works on the Thull Ghaut ; as the symptoms of weakness above alluded to, however, have neither extended themselves, nor become more manifest, the delay hitherto has been attended with no unpleasant consequences.

## II. Mail Road from Panwell to Poonah.

25. Captain Pruen still remains in charge of that portion between Panwell Expenditure. and the foot of the Bore Ghaut, and Lieutenant Cowper of the remainder, as far as Poonah; the expenditure for the past season under the former officer, amounts only to 4,942 rupees, or something more than 2,048 rupees below the estimated cost; but as this is attributable to the circumstance of labourers having been latterly quite unprocurable in consequence of the general prevalence of cholera along the line, it is not to be inferred that the whole of this balance will lapse to Government; for a great deficiency of metal has yet to be prepared out of last year's funds. The expenditure under the latter officer has been the same as during the preceding year, and amounts therefore to 18,200 rupees, the work having been performed by contract under the same engagement that was entered into on the 1st May 1844.

26. As the stipulated period of the contractor's responsibility will have expired Contract for rond on the 30th April 1847, it may not be amiss to make you acquainted with the repairs. manner in which his agreement has been hitherto fulfilled, though as I shall have occasion, before I conclude this Report, to bring more strikingly to your notice the merits and defects of the contract system generally, as it exists in the Deccau, I will refrain at present from troubling you with anything beyond a few facts connected with the repair of the Mail Road, which have fallen under my own observation.

27. The road itself between Poonah and Khandalla is for the most part state of the road; in good order, and it might at first sight be supposed, therefore, that the con- contractor delintractor was entitled to some credit; but a more intimate acquaintance with the quencies. merits of the case suffices to prove that his conduct is more deserving of censure than applause, and that but for the exertions of the officer in charge, the state of the road, so far from being satisfactory, would be quite the reverse ; the contractor indeed has got so many works of magnitude to attend to at Poonah, that were he the most energetic and enterprising native in the country, and even did he reckon amongst his qualifications the knowledge and skill of a civil engineer and architect, his effectually attending to the whole of those works would yet be beyond the bounds of possibility; that he should neglect the roads, therefore, for the repair of which he is responsible, is a sequence that might reasonably have been expected, and accordingly it will be found that Lieutenant Cowper has had the greatest amount of trouble in inducing him to perform his work at the appointed seasons, and has even been repeatedly compelled to hire the requisite number of labourers, and complete a portion of it himself. The operation of rolling, of the necessity of which the more I see the more do I feel convinced has been amongst other things most culpably neglected ; and all menaces and warnings have been attended with but little beneficial effect; were the contractor at liberty however to devote a small portion of his time to the state of the roads entrusted to his management, I doubt not that he would show a greater desire than he now does to make them as perfect as his own , interests would permit; but under the circumstances above described, his will to execute appears to be on a par with his knowledge of what is required.

28. Having alluded to the necessity for the use of rollers on the Mail Rond, I Causes of the no will now endeavour to point out how it happens that such necessity should exist, system of repair when, in England, probably no such precautions are found to be required for the due consolidation of the metal. The season of repair in this country is unavoidably confined to the four monsoon months, during which period traffic may be said to have come to a comparative stand-still, if not to have entirely ceased; and the surface of the road is completely remetalled therefore at a time when there is no possibility of ensuring the binding of the metal except by means of rollers. The mail carts, and the few other carts and conveyances which frequent the road, closely follow the track which may have been formed by the transit of 622. Y 2 the

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the first pair of wheels after the renewal of the surface, and the consequence is, that if rolling should be neglected, these tracks or ruts are the only places wherethe metal will be found to have amalgamated, or where the road is traversable on the opening of the season ; when that season arrives, it is then too late to attempt to consolidate the loose metal with which the road is strewed; all the traffic in India would not effect it properly, and bitherto it has consequently been, the custom to remove a great portion of all such material, and once more pile it for future use, or possibly even for a repetition of the process just described, at the road-side; with such a system, it is not surprising that the roads should not be in first-rate order, and by avoiding it in future, I really do not see why a very palpable improvement should not be effected. My impression is, that metal once faid down should not be removed, if by any possibility it can be worked into the surface of the road, and the only means by which this object can be accomplished in this country, however opposite may be the necessities of the case at home, is, as I have above shown, by rolling.

29. The rate for rolling, which amounts to 10 per cent. on the estimate, has

been complained of as insufficient, and possibly such may be the case; but I see no necessity for its increase until actual experiment shall have proved beyond a doubt, that without a further allowance the operation cannot be effectually per-

Charge for rolling.

Omission of upwards estimatos of current усаг.

Quality of the metal, ccasional inferio rity. probable

consolidated.

Drains and culverts required on Mail Road.

Panwell Bunder.

formed. At present, as far as my knowledge extends, the contractor has never attempted to test its inadequacy, much less to prove the fact. 30. An omission has been made in the annual estimates for the current of nine miles of Mail season, of all provision for remetalling that portion of the Mail Road which lies. between Dapooree Bridge and the western point of a junction of the new Akoordie line, a distance of upwards of nine miles. This reduction was resorted to in consequence of the expressed opinion of the Honourable the Governor in Council, that the yearly process of remetalling was not necessarily required throughout the whole length and breadth of the road, and that it would be sufficient to relay those portions only where depressions and inequalities were observable; the piece selected to experimentalize on, was in fair order, and in good form, and exposed to far less traffic than any other portion of the Mail Road, and even should the neglect of one season's repair prove injurious to its state of efficiency, it will be matter of little moment, as there is every prospect of its abandonment on the completion of the Akoordie new line. Whether the mode of repair recommended by his Honor in Council can be systematically adopted, remains to be seen; but there would be a much greater prospect of success than there now appears to be, were the metal applied invariably of the first quality, and well

> 31. The inferiority of the metal used on this line has formed a subject of complaint in former Reports from this department by both of the officers who have preceded me, and a few visits to Khandalla in the rains have also led me to a somewhat similar, though to a less general conviction. The metal, though rarely if ever the best the country might afford, is ordinarily very passable, it is. seldom that really objectionable material is to be observed, and the instances that occur are confined chiefly to the neighbourhood of the ghauts, where the rock y material which is used, though to an inexperienced eye well enough adapted for the purpose, is yet, after a few days' exposure to a heavy soaking rain, reduced to a substance of the consistency of mud, on being crushed by the wheels of carts and carriages. This, no doubt, is owing to its being in the first stage of decomposition at the time of being quarried, and consequently liable to be speedily dissolved on being subjected to the same trial that metal in the neighbourhood of the ghauts usually is. As the material alluded to, however, is easily detected by its porous appearance and want of uniformity in colour, precautions may possibly be taken to guard against its future use on the Mail Road.

> 32. Having observed on the occasions just referred to of inspecting road, that there were many streams and watercourses requiring to be bridged or drained, which now cross the line with no inconsiderable force and volume, to the injury of the road and occasionally to the obstruction of the post, a representation was made on the subject to the Military Board, and plans and estimates have consequently been called for. These are under preparation by Lieutenant Cowper, and I trust will be, ere long, ready for transmission.

> 33. The raising of the platform on which the custom-house of Panwell is situated, together with the reconstruction of masonry revetments, were sanctioned by .

by Government to be performed by contract under date the 2d January last, at a cost of 5,725 rupees, but as the stipulated period was five months, and the contractor did not conceive himself capable of completing the work before the setting in of the monsoon, its commencement has been postponed till the opening of the season.

.34. The few additions which were required to the tank at Khandalla to render Tank at Khandalla. it efficient and complete, have been duly effected by Lieutenant Cowper, at a cost of 1,421 rupees. The retaining wall has been raised to a uniform height, and a coping added of three feet broad; coping stones of angular formation have also been affixed to the tops of the well walls, so as to prevent people washing in the water they contain. The whole of the stone-work is very good, and I should say unprecedentedly cheap, but the choonam, like almost all choonam in the Deccan, is of inferior quality.

35. A small double tiled building of stone and choonam masonry has also Post-office at Khanbeen erected at Khandalla, at a cost of 286 rupees, to answer the purpose of a post-office, the outlay having exceeded the estimate by 30 rupees, chiefly in consequence of teak having been used instead of jungle-wood in the construction of the doors and windows.

36. The only other works which have been constructed or improved during New traveller's the past season on this line are a traveller's bungalow and a public well at Bungalow, and Well Karlee; the former entirely new, at a cost, including out-houses, of 2,289 rupees, of Karlee. and the latter a complete re-construction of cut stone masonry, at an expenditure of 770 rupees.

### III. Road between Poonah and Nuggur.

37. This line still continues under charge of Mr. Scott, and has been repaired State and expendiduring the past season at an expenditure of 7,878 rupees, or at an average of ture; relaying and 104 rupees per mile. Several rollers having been constructed out of the amount of last year's sanction, and carefully used, an improvement has been effected in portions of the line, but as the fall of rain during last monsoon was extremely scant, the operation was not attended with such good effects as would have been the case in a more favourable season. The little rain that did fall too, was not sufficiently taken advantage of, in consequence of the material of the roadway not having been renewed in time, but steps have been resorted to to ensure the moorum being spread during the present season, as well as future ones, early enough to derive the full benefit of the brunt of the monsoon, whatever the fall of rain may amount to.

38. Bridges were sanctioned by Government under date the 30th January last Twonew bridges. for the Roudevpore and Wasudev Nullahs, the streams of which have hitherto, at flood, invariably impeded the passage of the dawk, occasionally for as much as three hours. They are both to be built by contract, on designs by Major Peat, the former at a cost of 6,995 rupees, and the latter at a cost of 4,305 rupees.

39. Wire ropes have been substituted this year at the Kore Gaum Flying Wire ropes for Bridges, for the hempen hawsers commonly in use, and, as far as I am at present flying bridges in lien able to say the alteration annears likely to prove a very indicious one both in of hempen hawsers. able to say, the alteration appears likely to prove a very judicious one, both in regard to economy and expediency. The only perceptible objection they are liable to, is the circumstance of their wearing out the traversing blocks, though the sheaves of the latter are made of brass. I am now engaged, however, in experimentalizing on the merits of a contrivance which appears to me well suited to answer as a substitute for the block hitherto in use, and it is not impossible that before the close of the rains, I may have it in my power to report on its adaptation to the desired purpose.

40. As in sinking the masonry cylinder in the bed of the Seena River at Nuggur, Bridging the Beena under the idea that such would be the best method of forming the foundations river, experimental of the proposed bridge, it was ascertained that at the depth of about 12 feet a rocky stratum is met with, it has been decided by the Military Board that the foundations may be constructed without difficulty in the usual manner, and further experiments have been accordingly discontinued. Feeling satisfied, however, that no reliance could be placed on the section of the river received from the Executive Engineer's Office at Nuggur, I have directed Mr. Scott, of this Department, to take fresh levels at the earliest opportunity, and as soon as that dutv 622. ¥ 3

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New line between Poonah and Waugoolia

duty shall have been performed, the bridge will be designed and estimated for without delay.

41. The new line between Poonah and Waugoolie, which I have already stated is now being estimated for by Lieutenant Bruce, will be so much more direct than, and at the same time so superior to the present one, that it can hardly be doubted the improvement will be eventually carried into effect. When this shall have come to pass, the present circuitous route by Holkar's Bridge and Soogaum, will be entirely forsaken as far as traffic and communication between Poonah and Nuggur are concerned, as well during the rains as in the fair season; and it is by no means unlikely that the Poonah route may be preferred, both in a commercial and a military point of view, even between Bombay and Nuggur, for the increase in distance does not exceed a couple of miles, while the road will be incomparably easier. Should this view of the case appear to merit consideration, it follows that the necessity of a junction line between the new Akoordie Road and the road to Seroor, will be more than problematical, if not clearly refutable.

#### IV. Road between Poonah and Neera Bridge.

Present state and expenditure.

Neera Bridge.

Expenditure. Romarks on present

state.

42. This road, which is still under charge of Mr. Scott, has been repaired during the past year at an expense of 2,471 rupees, or an average cost per mile of 60 rupees, out of which a few additional rollers have been supplied, and the state of the road somewhat improved. Deficiency of rain, however, has militated here, as elsewhere, against the rollers being used with that effect which was anticipated.

43. But little injury was sustained by the Neera Bridge during last monsoon, and such repairs as became necessary were effected for a few repees. The annual repairs for the past season have been performed at an expenditure of 20 rupees, or thereabouts.

#### V. Road between Nagotua and Mahableshwar.

44. This road, which is under charge of Captain Pruen, has been repaired by contract at an expense of 5,025 rupees, or at an average cost per mile of 70 rupees. The portion which lies between the foot of the ghaut and Mhar is in fair order, though in the total absence of cart traffic, it would not be unreasonable to entertain expectations of considerable improvement. The remainder of this line at the time of my inspecting it, had not been repaired, and it appeared to me doubtful whether the contractor had been so mindful of the interests of Government as I had been induced to suppose; steps have been taken, however, to ensure the completion of the repairs for the present season at an earlier date than those of last year, and due attention will also be paid to the shape and convexity of the road.

45. A new bungalow has been built for the use of travellers at the village of Parr, with out-offices attached, at a contract cost of 2,000 rupees. The accommodation, though not very extensive, is yet ample for all purposes in that locality.

46. The clearing out of the Chowdar Tank, which the inhabitants of Mhar represented themselves to be so greatly interested in, was not commenced this year in consequence of the prevalence of cholera during the working season, and the impossibility of procuring labourers in sufficient numbers to complete the work before the rains; and as this malady appears to be of annual occurrence in that neighbourhood, it is to be apprehended that the work may have been indefinitely postponed. The inhabitants, it will be recollected, were to have been responsible for the sum of 2,000 rupees, Government paying the remainder of the amount required, but as in realizing the subscriptions, there turned out to be a defulcation on the part of the Mussulman population of 497 rupees, which has been since made good by Government, the whole amount to come from the treasury will be 4,544 rupees.

#### VI. Cross Roads in the Poonah Collectorate.

Expenditure. Contract for Narraingaum Road.

47. The roads which are included under this heading have been repaired during the past season at an aggregate expenditure of 4,602 rupees. The principal line under this denomination is the Narraingaum Road, the repairs to which

Chowda Tank, Mhar.

which have cost about 65 rupees per mile; but as they are entrusted to the nanagement of the same contractor who has been unfavourably mentioned in a revious section of this Report, it is not to be wondered at that they have been ess carefully attended to than could have been desired. The moorum appears to be generally of fair quality, and the traffic is certainly light; under these circumstances, therefore, the road ought unquestionably to be in good order, which is not invariably the case.

## VII. Cross Roads in the Nuggur Collectorate.

48. The repairs to these roads, which are under charge of Mr. Scott, have Expenditure. been made during the past season at an expenditure of 719 rupees, and the Present state. roads themselves are represented to be in tolerable state.

#### VIII. Cross Roads in the Nassick Sub-Collectorate.

49. The outlay on these roads for the past season amounts to 1,580 rupees, Expenditure. Dipa and the dips on the Sinnur Road, which is the principal one under the above Paved. heading, have been paved at an expense of 861 rupees. Had the traffic been sufficient to have justified the recommendation, I should have most strongly advised the erection of bridges in place of constructing dips, as the latter are in most instances open to objection on the score of liability to injury from floods.

#### IX. Cross Roads in the Tannah Collectorate.

50. The aggregate expenditure on these roads for the past season amounts Expenditure. Indifto 3,038 rupees, the repairs to that which connects Khapoolee with Penn having ferent repairs been performed by contract, the rest departmentally. The state of the former has been much complained of, and as Captain Pruen has vainly attempted to persuade the contractor to pay due attention to his work, it has been resolved that the agreement shall not be renewed, and that the road during the present season shall be repaired, like the rest, under that officer's immediate superintendence.

#### X. Cross Roads in the Rutnagherry Collectorate.

51. The roads in this collectorate, during the past year, have been Expenditure. New repaired at an expense of 1,077 rupees, and three miles of road leading into piece near Chiploon. Chiploon have also been completed, at a cost of 2,700 rupees, thus perfecting the communication between that town and the Kocmbarlee Ghaut, which was represented in my Report of last year to be defective.

#### XI. Roads in Salsette.

52. These roads, which are still under charge of Mr. Mungavin, consists of Expenditure. 171 miles of the Agra line, between Sidu Causeway and Colsette Bunder, of 214 miles between Baudora and Ghorabundar, and Saukey and Audherria, of 51 miles between Trombay and Sion Chowkey, and they have cost in repair, during the past season, the aggregate sum of 12,113 rupees, or an average per mile of 269 rupees.

53. With so large an annual outlay, it would be difficult to conceive how the State of disrepairs state of these roads is generally so objectionable as it is, were it not that on Major Peat's authority we are cognizant of the fact of their having been handed over to Mr. Mungavin by the former contractor, in a lamentable state of disrepair. On a late personal inspection of the several roads alluded to, however, I could not shut my eyes to the fact that the system of repair adopted by Mr. Mungavin was far less perfect than that usually pursued in the other offices of the Road and Tank Department, and that if inattention and negligence on the part of the former contractor had been the primary cause of the censurable state of the roads, that want of proper management on the part of Mr. Mungavin had also tended in no slight measure to the circumstance of their having undergone so little improvement subsequently.

54. The chief objections which were noticeable in Mr. Mungavin's mode of Objections to Mr. repair, consisted firstly in the admixture of a preponderating proportion of Mungavin's mode of moorum and common earth with the metal, for the purpose of binding it; and improvement. secondly, the application of this mixed material at a season of the year when road 622.

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Presidency of Bombay, road repairs in this country are unattended with advantage. Had the whole of the sums allowed for the repair of these roads, since Mr. Mungavin took charge, been expended in laying down good and unadulterated metal, and in rolling the same during the monsoon, instead of being laid out as in the manner just described at unscasonable periods, it is not to be doubted that a very favourable change would have been observable in the state of the roads generally, nor is it now too late, by the adoption of ordinary prudential measures, to effect a palpable improvement before a couple of seasons shall have passed. That Mr. Mungavin possesses both the energy and will to give complete effect to this design, is not for an instant to be doubted; and the wished-for improvement may therefore be confidently looked forward to, as steps have been taken which can hardly fail of success.

New line sanctioned to be constructed by Subsidiary Gaol under Mr. Mungavin.

Small bridge built near the 21st milestone.

Froposed now bridge at Erla Pucha, with description.

Proposed Wharf at Ghorabunder set askir.

Tannah Canseway ; guna removed, mooring-rings mhstitutesi.

Completion of new piece leading out of Poonah Cantonment.

New line under inkon between Patus and Indapore, under the orders of Serjeant Overseer Armistead.

55. As the Government of India have been pleased to sanction the construction of the line of road proposed by Lieutenant Crawford, between Coorla and the 20th milestone, vid Bhaudoop, the work will be commenced on the opening of the season by a Subsidiary Gaol, under the orders of Mr. Mungavin, who, from his previous experience in the management of large bodies of convicts, and from his general energy and activity, has been selected by Government for the performance of the duty. On the completion of this new line, it is presumed, that the existing one by the Vehar Khind will be totally abandoned.

56. A bridge of 25 feet span, and consisting of masonry abutments and wooden superstructure, has been constructed between the 21st and 22d milestones on the main road, at an expenditure of 1,310 rupees, in lieu of one which had fallen into a state of decay, and become dangerous.

57. A plan and estimate have also been prepared for a bridge at Erla Pucla, about five miles from Bandora, in lieu of one which was represented by Sir Jamsetjee Jocjechboy to be so inconveniently shaped and situated, as to impede the increased traffic which the new causeway was calculated to attract. On examination it would appear, that the circumstance complained of is attributable to the bridge having been built at right angles with the course of the stream, while the direction of the road is very oblique; the remedy consists therefore in the erection of a skew bridge, for which description of work the plan and estimate accordingly provide, the proposed structure consisting of two brick arches of 20 feet span, with stone pier and abutments; the estimated cost is 5,224 rupees, out of which Sir Jamsetjee Jeejeebhoy has expressed his readiness to furnish 4,000.

58. All intention of building a new wharf at Ghorabunder has been for the present laid aside, with the concurrence of the Revenue Commissioner, Northern Division, in consequence of the present manifestations of an increased amount of traffic having been considered too slight to warrant so extensive an outlay.

59. The work which is designated the "Tannah Causeway," consists, strictly speaking, of but a couple of ramps, one on either bank of the estuary, which approach each other towards the centre of the stream, where there is a flooded interval of the natural bed of considerable length at ebb tide, and never less than five fect deep; the greater portion of the ramps is consequently submerged at high-water, and the guns erected along the sides for the purpose of fastening vessels to, have been complained of as causing, while thus invisible, much damage to the native craft; they have therefore been removed, and mooring rings substituted.

#### XII. Poonah and Sholapore Roud,

60. The works which at the date of my last Report were stated to be in progress by contract under the orders of Mr. Scott, have been completed during the past season at a total outlay of 8,230 rupees, and the length of roadway which has been thus added to the line of communication under charge of this department, together with the bridges constructed thereon, may be justly characterized as a work of very great utility, as the traffic in the vicinity of such an extensive cantonment is even now any thing but triffing.

61. A line of works of far greater importance however has been undertaken by order of Government since the beginning of the present year, with the charitable intention of furnishing food and employment to the distressed population of the Bheenturry and Indapoor districts, who were represented to be suffering suffering severely from the high prices and scarcity consequent on a succession of unfavourable seasons. This addition to the labours of the department consists of no less than the construction of a road between Patus and Indapoor, of 40 miles in length; the superintendence of the work, as well as the organization and management of the labourers having been entrusted to Serjeant Overseer Armistead, whose constant and severe attacks of ill health at the Thul Ghaut had incapacitated him from further employment in that neighbourhood, except at the risk of life.

62. The road under construction is of the same formation as the Akoordee Construction of new new line in its unfinished state ; that is to say, it is trenched and raised, and will line. be curbed and drained after the same fashion; but it is not designed to be metalled, as is the Akoordie line, and its breadth is greater by two feet. Lest this description should afford but an imperfect idea however of the nature and formation of the work in progress, I beg to subjoin a couple of sections of the road, one over black soil, the other over moorum.



63. The cost of roads completed by this department seems to have varied Cost of new line, as considerably more even than would have been warranted by the difference in the compared with nature of construction and it difference in the others. nature of construction, and it is difficult therefore to institute a fair comparison between the present and preceding instances; but there can be little doubt that the Patus and Indapore line, when completed, will have averaged a much higher rate of expenditure than did its prototype the Akoordee line, although it may possibly not be in excess of others.

64. That a work undertaken as this has been, principally from motives of charity, should be more expensive in execution than one that was decided on from necessity or expediency, and carried into effect under the usual amount of departmental and professional assistance, is by no means surprising, however; and the circumstance can hardly be considered a legitimate ground for disappointment, provided the road be so constructed as to be permanently useful.

65. The numbers of people who have been furnished with employment since Numbers of people the work was set on foot, have been gradually on the increase up to the present employed. time, the month of February having exhibited an average daily total of all ages of 1,012, while the past month shows no fewer than an aggregate daily muster of 6,470. It is exceedingly difficult, however, to control and exact work from such masses of people with due advantage to Government, and I am not without hope that the present indications of a favourable season will be the means of ameliorating the distress which has latterly prevailed in the Indapore districts, and of reducing the numbers of applicants for work to more manageable limits.

#### XIII. Nagpore Dawk Line.

66. The works on this line included between Nuggur and the Wurdar River, Ceptain Dennis meare now under charge of Captain Dennis, of the 5th Regiment Native Infantry, code Captain Eck-who has succeeded Captain Fickfold in the appointment of notimeter the latter fort. Expenditure. who has succeeded Captain Eckfold in the appointment of postmaster, the latter officer having been compelled by ill health to take his departure for England in the month of January last. The repairs and reconstructions on the line during the past season amounted to 6,352 rupees, and as no complaints reached me from the post department of the inefficiency of the works, or of any unusual detention to the dawk, I conclude that they answered the purpose moderately well.

67. Having had occasion, however, to make inquiries regarding the nature of Defects of present method of crossing construction of those works which come under the denomination of "flying method of crossin bridges" in the estimates, I was so struck with their clumsiness, fragility and nullabs, with pro costliness, that I could not avoid suggesting the adoption of some other means posed improvements. more simple and efficacious, but less expensive; I therefore proposed the sub-622.

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Presidency of Bombay, stitution of caubes, with hauling lines affixed at each extremity, and attached to rings on either bank, so that each or any dawk runner, as he arrived at a nullah, might haul himself across without difficulty, and possibly without assistance; a trial of this scheme was authorized by the Millitary Board, but as they at the same time pointed out a far more perfect arrangement, my attention has been confined to giving effect to their suggestion. The plan devised by the Board, in which a trifling modification has since been made, will be clearly enough comprehended by a reference to the annexed sketch, in juxta-position with which I have also represented the mode of crossing hitherto in vogue under the misnomer of a "flying bridge."



Proposed Method. 68. By a comparison of the foregoing methods, it will be observed, that while by

Further description of the two methods.

the old plan of crossing, the dawk is calculated to lead to the annual consumption of much material and money, both by reason of the perishable nature of the wood, and the establishment required to be kept up; the new plan has only to be carefully attended to in the first instance to ensure continued efficiency for the future, at a very inconsiderable outlay; as will be seen indeed, it is nothing less than a rude description of a suspension bridge, in which, should the abutments be well built, no after expense whatever will have to be incurred, save on account of ropes and flooring as they may happen to become expended or unserviceable; while the time that will be gained in crossing, as compared with the old plan, will be of no trifling importance.

69. I was sanguine enough to hope, that with the description I have now given, I should have been able to make you acquainted with the success attendant on the first trial; but a disappointment in the arrival of the ropes from Bombay has put it out of Captain Dennis's power to complete a specimen of the proposed bridges.

70. A decked double boat or raft has been constructed at Toka on the Godavery under the orders of Mr. Scott, at an expense of 2,435 rupees, being in excess of the estimated cost, of 323 rupees. The details of the causes of this excess have not yet been received, and I cannot therefore form a correct opinion of its justifiableness or otherwise; but whether they should prove to be satisfactory or the reverse, I cannot here omit the opportunity of stating that "boat-building" is a handicraft of which I myself and the officers of this department are necessarily, and therefore excusably ignorant; and that as it is impossible to procure qualified artificers to make up for this deficiency, blunders and partial failures ought not to be visited with a heavy amount of censure. This raft I propose handing over to the charge of Captain Dennis, after the present monsoon, as it is on the direct line of works entrusted to his care, and very remote from the scenes of Mr. Scott's duties.

#### XIV. Works of the Regular Lines of Roads.

71. The first in point of importance is still, as it was last year, the new Poonah Bridge, now progressing towards completion, by contract, on a design of Major Peats; the arches had been constructed and the centerings struck, before the setting in of the monsoon, and the circular openings, as well as some portions of the backings and spandrils, have been since completed.

72. Though the brick-work of the arches has been very creditably performed, and is infinitely superior to the ordinary run of this description of masonry about Poonah;

Non-arrival of ropes, and consequent disappointment.

New raft at Toka on the Godavery. Excess.

Poonah Bridge

Style of work. Contractor.

Poonah ; the circumstance is almost solely attributable to the incessant care which Lieutenant Cowper and his subordinate Serjeant Taylor, have bestowed upon the work during its progress; and is ascribable, but in a very remote degree, to the merits of the contractor. This man indeed is no other than the one who has been previously alluded to in this Report, and who has his hands too full of engagements therefore to pay as much attention as would be desirable to the due fulfilment of each.

73. The special repairs to the roof of the Tannah Church were completed by Repairs to Tannah Lieutenant Dickinson, in the month of April last, at a cost of 5,070 rupees, and, as far as I could ascertain from an inspection of the building, were well done; but from a report since received from that officer, it would appear that the sheet lead wherewith some parts of the terraces over the church and porticos were covered, was much warped and damaged by the extreme heat of the sun in April and May last, and leakage has in consequence resulted since the setting in of the monsoon.

74. Having had an opportunity of visiting and examining the site of the Wytums River; proposed foot-bridge over the Wyturna, near Kougaum, which was alluded to in my last year's Report, I became convinced of the inutility of constructing any bridge whatever, whether wooden, masonry or suspension, as it would not only be thrown away in a country so wild and thinly populated, but would be endangered by floods during every monsoon, and sooner or later most inevitably destroyed. As a safe and permanent means of transit appeared to be required, however, by the few villagers who dwell in that neighbourhood, I proposed stretching a couple of wire ropes across the chasm, which is only 17 feet wide, with a flooring of rough planks, or battens or split bamboos, or whatever might happen to be the easiest procurable materials, and a single rope as a guide or hand-rail, three feet above the level of the pathway, after the manner of the subjoined sketch, which will possibly give a better idea of the peculiarities of the place, and the proposed method of crossing, than could be gathered from a a written description.



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Church.

crossing.
75. The proposition, which you will observe may be carried out for a very few rupees, met with the approval of Government, and was sanctioned under date the 7th February last; but as the wire rope was not available at a sufficiently early period to admit of the work being completed before the rains, its commencement has been postponed till the re-opening of the season.

76. A plan and estimate were prepared by Lieutenant Dickinson, for the improvement and partial reconstruction of the Gakhirwa Bridge, connecting the island of Basseiu with the main-land which had been for some time in a state of great dilapidation, and the latter, amounting to 5,702 rupees, was sanctioned by Government, under date the 31st March last; but the work has not as yet been taken in hand. This bridge was represented by the Collector of Continental Customs and Excise to be much required, on account of its being on the high road from Bassein to Bhewndy, and in the neighbourhood of extensive salt-pans, the produce of which is conveyed over it to the interior of the country,

77. An estimate was also prepared by the same officer, of the cost of repairing the Cooly Bridge on the west of the town of Bassein, amounting to 569 rupees, which was sanctioned by Government under date 26 December last; these repairs were nearly completed on the 30th April last, and have since no doubt been brought to a close.

78. Extensive repairs to the Bunder at Kusseylee, were provided for in an estimate by the same officer, under date the 29th July last, the amount of which was sanctioned by Government on the 3d November following; considerable progress has been made in the execution of these repairs, but their completion has been deferred in consequence of the setting in of the rains.

79. A report was also prepared and sent in under date the 15th May last, by the same officer, regarding the feasibility of a project which had been entertained by one of the inhabitants of the name of Shaik Ahmed Cubbey, for supplying the town of Tanna with water at his own expense. Levels were taken between the contemplated point of supply, which is at a distance of two miles from the town, and the site of the proposed reservoir near the cutcherry: and the result, which was highly favourable to the probable success of the undertaking, was duly communicated by the Military Board to the Collector of Tanna, under date the 28th May last.

80. A boat for the Oomergaum Ferry was sanctioned by Government on the 23d March last, at an estimated cost of 576 rupees, and was, till latterly, under construction by Mr. Mungavin; but in consequence of the impossibility of procuring competent artificers at this season of the year, it has been temporarily postponed.

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## XV. Military Buildings.

Department, during the past season.

23d of May last, and the works are now in progress.

81. A slight accession of work, in the shape of the construction and repair of military buildings, has been included in the list of labours of the Road and Tank

82. In addition to the usual annual repairs to the pendalls occupied by the

Native troops at Tannah, Mr. Mungavin completed in the month of October last, two new buildings of this description, at a cost of 2,362 rupees, and he has since sent in an estimate, on the requisition of the military authorities, for still further additions and alterations, the probable cost of which amounts in the aggregate to 4,250 rupees. This estimate was sanctioned by Government under date the

Accession of work.

Regimental Buildings at Tannah.

Regimental Buildings at Nassick.

Regimental Buildings at Bhewndy. those building are now in progress under the orders of Lieutenant Chapman. 64. Besides the above, there are sundry trifling repairs made annually to the military buildings at Bhewndy, under the direction of the Second Assistant, who has charge of the works on that line. For last year, the cost of these repairs amounted only to 172 rupees.

83. An estimate for a temporary hospital, quarter-guard, and store-room for

a wing of the 9th Regiment Native Infantry at Nassick, amounting to 3,042 rupees, was also sanctioned by Government, under date the 11th of May last, and

XVI. Building

Projection supplying Tanna with water.

Comergaum Ferry,

Kussecyles Bunder.

Cooly Bridge, near Bassein.

Postponed temporarily.

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Gakhirws Bridge

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#### XVI. Building and Building Materials.

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85. The custom has prevailed to an impolitic extent in this department, of Inferior construcresorting to the too frequent use of an inferior description of work along the tion. lines of communication, in the construction of bridges and drains, and other Public Works, so that few of them are calculated to be of any lengthened durability, much less to be anything approaching a lasting memorial of the superiority of European skill.

86. This has, doubtless, arisen from motives of economy, but it would take Argument in favour but a short time to prove that the view is an entirely mistaken one, and that the of the best work being the cheapest. better a work is constructed in the first instance, the cheaper it will eventually prove. Let two bridges be supposed, for instance, to have been constructed in the Deccan about the same period, one of cut stone masonry, the other of rubble piers, and abutments with wooden superstructure. The former may possibly have led at the outset to an expenditure of half as much again as the latter, and may in consequence have been originally sanctioned with less alacrity; but in the course of some five-and-twenty years the circumstances of the case will be found to have widely altered. The bridge of temporary construction will have required periodical repair from the day it was erected, and put the Government to a certain expense as regularly as the seasons have come round; it is not too much to suppose, indeed, that the whole of its superstructure will have been once renewed, and that its abutments and retaining walls may have been occasionally damaged and rebuilt; but notwithstanding this constantly increasing outlay, the bridge will be still liable to decay and further damage, and in all probability will ultimately become so bad, that there will be no alternative but to replace it with a better one. The cut stone bridge meanwhile, will never once have been repaired, and at the expiration of the twenty-five years will be found to be as good as when it was built, and still calculated to out-last several successive generations.

87. That the foregoing supposition may not be deemed likely to prove fictitious, Argument supported I have only to mention a couple of instances in elucidation of its truth. The cut by proof. stone bridge across the Indrownee, near Kurkulla, on the Mail Road, was built, I believe, by the Pioneers many years back, but whatever its age, or by whomsoever built, it has never been repaired, nor is it likely to require repair for years to come. Three bridges, on the other hand, which were built across three large nullahs by the Engineer Department within the last 10 or 12 years, on the same Mail Road between Poonahand Kirkee, though they have been periodically pointed and plastered, and dammered and patched, and occasionally otherwise repaired, are even now showing symptoms of failure. The retaining and parapet walls of the approaches of one of them were washed away, indeed, by the first flood of the present monsoon, and there is not one of the others but what would have suffered in a precisely similar way had it been exposed to a like destructive power.

88. As far as my experience goes, I should say that on all fixed and permanent Cut stone prefere lines in the Deccan, cut stone should be generally, if not the only material, used ble to all other in bridges and other Public Works, not only because it is the most durable and descriptions of work. in bridges and other Public Works, not only because it is the most durable, and eventually the cheapest, but also because its stability is not so dependent on the quality of the mortar as is that of rubble or brick-work, and because more adepts in the art of stone-cutting are to be met with amongst Deccan artificers, than in any other description of work whether of masonry or carpentry.

89. Brick-work is rarely to be met with good, never of first-rate quality, both Interiority of brickby reason of the inferiority of the material and the unskilfulness of the brick- work in the Deccan, layers; good carpentry is equally rare, by reason of the scarcity of wood and workmen; but cut stone work is almost invariably of an undeniably good sort, and is, par excellence, the standard work of the Deccan.

## XVII. The Contract System at Poonah.

90. I believe it to be an acknowledged fact, that there is neither law nor measure, Venkuttieh Narhowever just or benevolent may have been the motives in which it originated, rayen's Monopoly. that may not, for want of due attention to its mode of working, be converted into an abuse, and become the very reverse of what was contemplated. The contract system, as it exists at Poonah, is no exception to the rule, for, whereas it was intended by the Honourable the Court of Directors, that by the competition it. should 622. 23

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Disadvantages of

monopoly.

should engender, and the general influence it should maintain, it should become " an important element towards the improvement of the native character ;" it is literally fast sinking into a monopoly, and is now chiefly beneficial as concerns the pecuniary interests and aggrandizement of one individual.

91. I need hardly detail the disadvantages which necessarily result from such a state of things, such, for instance, as the undue power acquired by the contractor over all classes of artificers and labourers, the impossibility of his personally attending to all the works entrusted to his management, the consequent necessity of resorting extensively to the practice of sub-letting, and lastly, to a professional man, the most to be regretted of all, the extreme likelihood of failure, either in the fulfilment of some of his many engagements, or in the stability of the works themselves. These are the evils, though possibly not all, which are the selfevident result of the system animadverted on ; a mere allusion to them, therefore, is all that is here deemed sufficient, a substantiation of my statement being the only additional requisite, and that will be found in the following enumeration of works now progressing by contract in one man's name, and under one man's responsibility : 1.1.1.1.1.1.1.1.1

## Under the Department of the Superintending Engineer.

Sir Jamsetjee Jeejeebhoy's Bund, Reservoir, Contractor, Venkuttish Narrayen. Fountain, &c., opposite the Parsee Church, at the end of the Suddur Bazaar,-Resor-

voir in the Arsenal Compound.

#### en a Christen an Under the Department of Roads and Tanks.

astration of

A DIRE EXPLOYED STORE

Bungalow Repairs.

Under proper restrictions, contract system deserving of encouragement.

Not advisable for road repairs.

Advantages of system when wall conducted.

European subor-dinates. Changes and appointments

The Poonah Bridge. Contractor, Venkuttish Narrayen. In addition however to this list of Mail Road Repair, works held in contract under the name of Venkuttish Narrayen, there are many gaum Road, 46 miles. others, and some of them important ones, which are nominally concluded and others, and some of them important ones, which are nominally concluded and carried on by his inferior agents, and in which, though his name is kept in the back-ground, he is to all intents and purposes the virtual contractor, and the chief appropriator of the profits arising from those transactions.

> 92. With so many works, and some of them of such magnitude, under one man's hands, it ought to afford no matter for surprise were an occasional failure to take place; but it would be eminently unjust to condemn the contract system on a trial so partial and unsatisfactory. Full well knowing as I do that the stability of the Poonah Bridge has only been ensured by Lieutenant Cowper's unremitted exertions, and the adoption of the most stringent measures to counteract the ill effects of the contractor's inertness ; feeling convinced, moreover, that the work would have run the risk of being ere this a mass of ruins, had the contractor been left to his own devices; and believing as I do, that constant surveillance on the part of the Executive Officer or other Government servant, is absolutely necessary to ensure good work on all occasions, I yet have such an opinion of the system, under due restrictions and management, that I should be glad to see it more generally introduced into this department than it is at present.

> 93. For repairs to roads, extending over tracts of many miles, I am inclined to think the contract system is not calculated to answer, as efficient supervision is almost unattainable to such an extent; but for bridges and other buildings of more definite proportions, I am persuaded it might with advantage be more generally acted on and encouraged.

94. The advantages of contract work are, first, the saving effected on the estimated cost; secondly, the diminution of office labour and accounts; and thirdly, a freeness from all apprehension of an excess, which in the case of work departmentally performed, either by an extravagant or inexperienced officer, is unfortunately not always to be expected. The sole disadvantage is, the absolute necessity for constant and strict supervision, from the knowledge, that the slightest laxity on the part of the superintending officer or his subordinates is liable to be turned to his own account by the constructor, and in the absence of efficient establishments, this amount of attention is not always to be ensured.

## XVIII. Department and Establishment.

95. Amongst the European subordinates of the department, several transfers have been made, consequent on Serjeant Overseer Armistead's departure from the Thul

Thul Ghaut, and Corporal Daviss quitting the department from ill health; Serjeant Butler has been remanded to his corps, in consequence of unsteady conduct and neglect of his duties; and as this is the only removal that has occurred in addition to Corporal Daviss, while three new comers have lately joined the department, the number available for duty exceeds by one that which was at the disposal of the department this time last year, and at the present moment amounts to eleven.

96. The conduct of these European overseers has been in most instances Conduct. satisfactory, in some praiseworthy; and, with the exception of Serjeant Butler, in no instance very reprehensible. Those who have most distinguished themselves either by superior attainments or exemplary behaviour, are Serjeant Overseers Armistead and Taylor, and Serjeant Assistant Overseers Levien and Anges.

97. The only change of any note which has taken place amongst the Assistant Native subordi-Surveyors and Builders is the transfer of Narrayen Moraba from Mr. Mungavin's mater Assistant Surveyors' changes office to the Department of the Superintending Engineer Southern Provinces, in consequence of his being incapacitated from ill health to perform duties which constantly entailed a certain amount of exposure and suffering. As his place has been supplied, however, by an Assistant Surveyor from the Superintending Engineer's office, the total available number attached to the department remains unaltered, and amounts to 13, the same as at the date of last year's Report.

98. The conduct of each and all has been, with one or two trifling exceptions, satis- Conduct. Deficiency factory on all occasions; and in the case of Venaick Bhiccajee and Ragoba in qualifications. Hurjee, commendable in a high degree, but it would have given me a far greater amount of satisfaction had it been in my power to represent that the professional attainments of all were on a par with their general behaviour; if I have found it necessary however at the commencement of this Report to urge the advisability of ensuring a due degree of proficiency in drawing in all future candidates for engineer appointments, I will not now conclude without recording my firm conviction, that an Assistant-Surveyor, unpossessed of this qualification, is of comparatively little use, and that if he is at the same time an indifferent arithmetician, he is unfit for the performance of duties he is daily liable to be held responsible for. 1.1.1 . 1 . . .14

99. With but 11 Europeans and 13 Native subordinates at the disposal of the Inefficiency of department, it may be readily conceived that the offices of the First and Second establishing Assistants, amounting with Captain Dennis's to no less than nine, would at the best be but very scantily supplied with professional aid; but when it is considered that out of the above number of European Overseers, the best qualified of all has been for some months employed on a special duty, and is himself for the time being at the head of an office and in need of assistance; when it is recollected, moreover, that three of the number have joined since the close of the official year, that they are mere novices, and as yet but ill acquainted with their duties, it will hardly be denied that the accomplishment of what has been detailed in the foregoing narrative must have called into activity the energies of the department generally, if not of all its individual members.

100. If this be an admitted fact, as I trust it will, it only remains for me to Increased amount of express my own opinion of the performances of the Assistants, and to state, that work satisfactorily if in the aggregate the work of the department for the past season shall be performed. deemed a tolerably satisfactory allowance by yourself, by the Military Board, and by the Government, so also do I feel assured and satisfied that the duties of each of the Assistants have been performed both willingly and well, and that had it not been for the compulsory absence of Lieutenant Bruce and Captain Pruen on field service, a proportionate amount would have been rendered by each of those officers.

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#### I have, &c.

(signed)

Poona, 29 July 1846.

H. Berthon, Captain, Superintendent Roads and Tanks.

STATEMENT

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Presidency of

Bombay.

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Fresidency of Bombay.

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ار با از کار کار در این اور ا اور اف از میشود این میشود این ا STATEMENT of EXPERDITURE in the Construction and Repair of Public Works in the ROAD and TANK DEPARTMENT, from the 1st May 1845 to the 30th April 1846. · •

NAMES OF WORKS.	AMOUNT.	TOTAL.
	1.5 m 5	6 4 5 5 5 5 F
WORKS connected with the Communication of the Country :	Rs. a. p.	Rs. a. 1
Annual repairs to Mail Road, Poonah to Khapoolie, for 1844-45	6,119 1 8	
Ditto ditto , - for 1845-46		
Ditto to Bridges on, for 1844-45	740	
Ditto ditto for 1845-46	308	
Ditto - + to Cross Roads, for 1844-45	60 14 1	
Ditto ditto for 1845-46	8,041 5 4	1
Ditto - to Fair-weather Roads, for 1845-46 -	155	have a
Ditto - to Flying Bridges, for 1844-46 Ditto ditto for 1845-48	80	
Constructing a Bridge in Poonah	240	1
Overseers superintending ditto	16,494 8 9 473 - 2	<ul> <li>+ 3 × 5 3 ×</li> </ul>
Removing Buildings near the site of ditto	850	
Constructing Drain on the Bombay Road -	140 4.0	1 ·
Repairing three Bridges on ditto -1	101 8 _ }	
Constructing two Traversing Blocks, with brass sheaves -	96 8	the Vistorian St.
Repairs to the Ford of the River Yeil	40 9 4	يكفى العارف فرأو
Smoothing the bed of the River Meena	166 5 2	al esta .
Enlarging the Waterway of a Drain on the Mail Road	95 1 -	5 - <b>1 - 1</b> - 1
Minor Works	212 14 4	a statistica (
Pulling down the Pritteeneedee's House, near the Poonah Bridge	·· 8 14 14	and the state
Repairing a Gully on the Narraingaum Road	81 19 5	
Repair to Fords	14 15 2	
Annual repairs to Seroor Road, for 1844-45	281 6 5	ta kanan
Ditto ditto for 1845-48	4,868 10 6	Here the second
Ditto - '- to Bridges and Drains on ditto	845 14 10	
Ditto - to Road from Poonah to Neera Bridge -	2,471 12 2	
Ditto - to Bridges and Drains on ditto Ditto - to the Sholapore Road	818 6 7	- -
Ditto - to Bridges and Drains on ditto	886 2 5	· .
Ditto - to Flying Bridges	26 18 1	
Ditto - to Cross Roads	616 - 6	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -
Ditto - to Bridges and Desine on ditte	425 12 2	1977 - 1 <b>*</b> *
Ditto a a to Seroar Contanment Read	64 1 5	11
mproving the Sholapore Road	884 8 8	The first second
Shortening the communication between the Hospital and Burial-	5,896	, A. 1
Riound at Wilkee	920	
Minor Works	180 18 2	1-1-1-1-1
Constructing three Stone Rollers	201 - 4	
Annual repairs to Main Road from Seroor to Nuggur	8,009 6 5	4.14
Ditto • • to Dridges and Drains on ditto	848 12 8	• • • • •
Ditto - to Cross Roads	719 8 5	array cart
Ditto - to Bridges and Drains on ditto	74	A PLACE OF
Ditto a new line batween Dates	2,435 4 11	ater is a second
Ditto - new line between Patus and Indapore -	16,562 15 1	en a g
Annual repairs to Works on Nagpore Dawk Line for 1845	4,877 11 8	
Ditto ditto Faking charge of Stores on Nagpore Dawk Line	1,071 11 5	2.1. 6.4
Mary Wubbes of Perrymen for 1848	168 {	100 C 100 C
Runsel repairs to Main Road from Thul to Chashe 'ou	2,779 1 3	
	12,456 6 8	a da a ser da
sunue repeirs to pridge and Drains on a	896 5 7	1 - 1 - 1 - 1
Millo * * to Cross Roads	282 - 1	in the second
Ditto - to Ferry-boats	1,580	1
Videning Bridges and Drains on Main Days		ender an der
VUTUUUE NEGOD Forry-hast into a Plana Data	528 1 2	a a tra stra st
		na ana ang
	861 7 4	
	9 14	
advaring and improving Calling Dias	28,346 14 10 299 9 8	
Annual repairs to Main Road from Colsette Farry to Thul Ghaut	<b>A A A A</b>	
Annual repairs to Bridges and Drains on ditto	000 -	
	34 7 10	÷.'
Sepairs to Coolis Bridge at David	16 4 8	
TYTUINE ONLINE MARTE Constants of the second s	465 8 9	
	53 9 6	
annual repairs to Roads in Di	776 2 1	
annual repairs to Roads in Bhewody		

## TEN YEARS, AND THOSE NOW IN PROGRESS.

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NAMES OF WORKS.	AMOUNT.	TOTAL	Presidency ( Bombay,
and a state of the second s			
The second s	Rs. a. p.	Rs. a. p.	•
Pousirucung Lannan Causeway	\$10	1	
Ditto to Bandbra ditta	5,214 - ~		
Constructing Tannah Causeway Innual repairs to Sion Main Road Ditto - to Bandora ditto Ditto - former unexpended balance	5,688 14 9		
Ditto to Trombay Main Road -	672 8 11 1,910		
constructing a new Bridge on the Bombay Road	1,810		
mproving Anick and Chember Road	918 11 7	1	
lepairing three Bridges on Bombay Road	45 8 -		
Ditto - Ramp at Trombay Pier Jinor Works	23 8 8	ł	
milding a new Roat for the Demonstrating Former	165 4 5	1	
building a new Boat for the Oemergaum Ferry	150 - 6	1	
Ditto to Bridges and Drains on ditto	4,941 14 9	1	
Ditto - to Nagotua Road	85 13 8 2,000		
Ditto - to Cross Roads, Northern Concan Ditto - ditto - Southern ditto	8,088 8 2		
Ditto ditto Southern ditto	1,077 4 1	· · ·	
onstructing new piece of Roads leading into the Town of l	L	· ·	
Chiploon -	1,500		
		1,76,906 5 6	
TANKS, WELLS and BUNDS;			
learing out Well at Karlee		1	
Dearing out Well at Karles	770	1 - 2 - K	
learing out and repairing Wurgaum Tank	280	A State of the second	
coping of Cut Stone to Wells, and retaining Walls of Tank at	200 - 2		
Khandalla _' _	863 14 9		
pening Sluices of Kutrass Tank -	6 2 10		
losing ditto ditto,	40		
epairs to Wells, N. S. Collectorate	16		
Josing Sluices of Kutrass Tank Josing ditto ditto, epairs to Wells, N. S. Collectorate learing out Tanks and Wells, ditto nprovement to Well at Kussarah	81 18 1		
mbuoaement ro a en st trassust	627 9 11		
	ويرغينه يتبريهم بالمتعادية المتعادية المتعاد	2,864 8 7	
BUILDINGS :		1.1	
nnual and special repairs to Traveller's Bungalows, and Fur-			
niture	4,150 7 11	ł	
ulling down and rebuilding portion of Wurgaum Bungalow .	71		
onstructing new Bungalow at Kurles onstructing new Outhouses to Karles and Wurgaon Traveller's	2,289 15 7	P · · · ·	
Bungalows	F 10	e e de la compañía de	
epairs to Station-house at Seroor -	749		
Iterations to Islampoor Bungalow	171		
ompleting Bordered Ceilings of the Kurdee and Kuesara Tra-		1. A.	
veller's Bungalows	18 8 7	1	
onstructing Pinfold at Bhewndy	410		
onstructing Cutcherry at ditto	100		
pecial repairs to Tanna Church	2,876 9 9		
nnual repairs to Military Buildings at Bhewndy	172 6 -		
Ditto - to Store Room ditto	72 6 11	i ·	
epairs to Store-houses, Nagpore, Dak Road -	45 1 -	1	
recting new Stable and Cook-room to Traveller's Bungalow at			
Tannah	687 1 2		
onstructing a Privy in Tannah Fort Walls	695 11 8	1 . · · ·	
onstructing Wooden Shutters to Civil and Detachment Hospitals	678	- · ·	
nnual repairs to Civil and Detachment Hospital	111 2 -	ł	
Ditto to permanent and temporary Pendalls	389 7 8	ł	
pecial repairs to permanent Pendalis	288 2,862 <b>3</b> 10	ļ	
recting new Bungalow at Parrgaum	750	ł	
lterations to Bathing Rooms of Traveller's Bungalow at Hernes	82 14 6	<b> </b>	
		16,586 18 2	
1 	· · ·		
GRAND TOTAL	• Rs.	1,96,857 11 8	
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Presidency of Bombay.

## ANNUAL REPORT of the ROAD and TANK DEPARTMENT at Bombay, for the Official Year 1846-47; dated 4 August 1847.

· To E. H. Townsend, Esq., Revenue Commissioner, S. D., Poonah. in di ta baran. Ana sa ta sata

Sec. 2. 1. 18

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1. . . . . .

Manding up report. Expenditure, 3,14,785 rupees.

(V. 2,347.)

Sir, I HAVE the honour to submit the following Report of the proceedings of the Road and Tank Department, for the official year 1846-47, with a statement appended of works performed, showing a total expenditure of 3,14,795 rupees,

Cost of superintendence.

Mode of calculating cost of superintendence.

Ditto.

Ditto.

Performances of First Assistant, Captain Jacob : New Terminus to Mail Road on Hog Island.

and an average charge for superintendence of 18 § rupees. 2. The mode of calculating the cost of superintendence is the same that was

adopted by Major Peat, and is also similar, I believe, to the practice pursued in other branches of the Public Work Department, but as the per centage varies so widely, a word or two of explanation may be appropriately introduced in order to render the causes intelligible.

3. In addition to the consolidated staff-pay and tentage of the Executive Officer, the pay and allowances of the "permanent establishment" are alone admitted into the calculations from which the per centage is derived; the cost of maintaining "temporary establishment" that may be required is not taken into account. Now, when there is no permanent establishment whatever under the Executive Officer, or when it is inadequate for the duties required, there is no alternative but to make up the deficiency by the temporary employment of the best qualified maistrees and carcoons procurable, and the pay of these men is not taken into account in calculating the per centage.

. 4. In the case of Mr. Armitstead, I do not mean to say, that even were the pay of the temporary establishment he has been thus compelled to employ included in the calculation, it would materially increase the rate for superintendence, or cause it to exceed 2; per cent. The rates at which his karkoons and other temporary employés are paid have been so low, and the numbers of labourers so unusually great, that the total charge for the former is the merest trifle when compared with the expenditure incurred on labour and materials on such an extensive line of works, but under different circumstances, and with works scattered over the country and of greater variety, the addition of the pay of the temporary establishment might very perceptibly affect the charge for superintendence ; and this I mention, for the purpose of showing that rates, deduced as at present, are not to be considered undeviatingly correct.

5. I have mentioned that the whole of the staff pay of the Executive Officer is included in the charge for superintendence, and although it would be impossible, perhaps, to do otherwise, still it cannot be doubted that the practice is calculated to convey erroneous impressions. The duties of the Executive Officer are as much those of a designer and estimater and accountant, as an actual supervisor of work, and in truth it may be asserted as a general rule, that a far greater proportion of his time is passed in the varied labours of his office, than in personally watching the progress of the buildings and other public works he may have in band. To debit the whole of his pay to the charge for "superintendence" when probably two-thirds of it ought to be allotted to other items, is clearly, therefore, a mistaken principle.

6. In my report for 1845-46, I stated that Captain Jacob had finished a survey of the proposed new terminus to the Mail Road, and was then employed in designing and estimating for the works required thereon. These estimates were duly completed in October, and together with several designs for bridges, drains, causeways and pier were submitted to the Military Board on the 12th of that month. As the depth of the creek which separates Hog Island from the reclaimed flats had not been tested, however, with sufficient accuracy, instructions were received from the Board to probe it to the bottom, and it was at the same time requested, that the slopes over the hilly ground, on other parts of the proposed

line, ٠.

line, might be reduced to a maximum of 1 in 20, instead of 1 in 18, as designed by Captain Jacob.

7. The bed of the creek was accordingly probed in various places, and as a rocky stratum was invariably met with within 15 feet of the surface, it was found unnecessary to make any alteration in the estimate for the causeway, which already allowed for a foundation of that average depth, but provision was made for the improved slopes recommended by the Board, and the estimate for the entire line of works thus corrected amounted to 2,65,539 rupees. In this Ra 2,65,539 estimate the construction of the road across the flats reclaimed from the sea was incomparably the heaviest item, amounting to no less than 40,000 rupees a Ra 40,000. mile, while the rest of the line, inclusive of piers and bridges, barely averaged 17,000.

8. A discovery was made in regard to the nature of the flats, however, while Performances of First the bed of the creek was being examined, which materially interfered with the Assistant Captain 'Jacob: New Termimode of construction proposed by Captain Jacob; for it was ascertained, on nus to Mail Road on removal of the surface crust, a layer which extended only to the depth of a foot, Hog Island. or little more, that the substratum was soft enough to admit of its being penetrated to the very bottom, with almost as much facility as the mud in the creek. Under these circumstances, as wooden piles would not answer, and a loose stone foundation would have been inordinately and almost incalculably expensive, it was proposed to construct the road on the undisturbed surface of the soil, with an underlayer of hurdles, to diffuse the pressure and prevent sinking. It was further intended, that this road should have been protected from the encroachments of the sea by putting the reclaiming bunds into a state of efficiency.

9. The mode of construction just described would doubtless have been much Ditto. less costly than the one Captain Jacob had originally estimated for, under the supposition that he could cut trenches in the soil and build masonry retaining walls for the support of the road-way, but as it was impossible, in the absence of any data, to calculate the cost with any approximation to accuracy, the estimate was left unaltered.

10. Manifold and undeniable as would have been the advantages of this new Reasons for abandon line, which would have placed an always accessible terminus some 12 miles nearer Bombay than the present inconvenient and unapproachable one, its probable cost was yet so great, that with the prospect of a connexion between. the Presidency and the Deccan at some future day by means of a railroad, the Government declined sanctioning it, and Mr. Secretary Escombe, in his letter to the Military Board of the 4th June last, No. 1,552, stated that certain arrangements with the Bombay Steam Navigation Company, which Government had under consideration, for the conveyance of the mail to Panwell, would obviate, if carried out, any further necessity for the consideration of the subject of a new terminus.

11. On the completion of the duty just described, Captain Jacob undertook Katrey Tank. the survey of the Katrey Tank and its environs, in compliance with a wish expressed by the Honourable Court of Directors in their letter to the Bombay Government of the 21st May 1844, and with a view to determine on the best way of preventing a further accumulation of mud in its bed; but as I shall shortly have occasion to describe how this duty was performed in another section of my Report, I will not now dwell upon the subject.

12. It merely remains for me to add, in allusion to Captain Jacob, that as Captain Jacob withsoon as all the designs and estimates connected with the improvement of the drawn from the department, and Katrey. Tank had been submitted to higher submitter the interests of Content, and soon as all the designs and estimates connected many the interests of Govern- appointed to super-Katrey Tank had been submitted to higher authority, the interests of Govern- appointed to superment and the urgency of the occasion rendered it advisable that that officer should be removed from the Road and Tank Department to take charge of the Jamsetjee Bund at Poonah, which till then had been under the department of the Superintending Engineer S. P. Independently of losing the services of an officer whose established reputation would be but little enhanced by any praise from me, and who possesses the rare merit of being just as hard-working as he is talented and able, Captain Jacob's removal, unavoidable as it probably was, afforded further matter of regret to myself, in consequence of its incapacitating the A A 2 622.

Presidency of Bombay.

ment of the project of the proposed new Term inus

Bund.

. Presidency of Bombay.

Lieutenant Bruce's

performances : Wangoolie new line.

Lieutenant Bruce remanded to his Re-

giment.

the department from undertaking several projects for the extension of irrigation, which it otherwise might have done. The vacancy occasioned by his withdrawal a govern prover of is as yet unfilled. 1

13. Lieutenant Bruce, at the date of my last Report, was engaged as therein mentioned, in preparing designs and estimates for a proposed new line of road between Poonah and Waugoolie ; but these documents, instead of being ready for transmission to the Military Board by the month of October, as I had anticipated, and as they undoubtedly ought to have been, were not received from Lieutenant Brace till the 12th of January following. The estimate for 81 miles of bridged and finished road, which was minutely worked out and tolerably accurate, amounted, after correction, to 88,986 rupees, and the designs for all the works required on the line were very creditably done. The delay, however, which had occurred in their preparation was unsatisfactorily accounted for by Lieutenant Bruce, and he was consequently remanded to his regiment by Government on the 19th of May last, since which date, the department has been without a First Assistant. Contra of 

Jehoor Ghaut

Performances of Becond Amistants

14. Before leaving the department, however, Lieutenant Bruce contrived to make a survey of the Jehoor Ghaut, on the much traversed road between Nuggur and Arungabad, which had been represented to be in a dangerous state, and a serious impediment to cart traffic. A sketch survey remarkably well drawn, and accompanied by a report, was accordingly despatched to the Military Board's Office on the 25th of February last; and had Lieutenant Bruce but shown as much alacrity in the previous performances of his duty as he did on this occasion, it is possible that he might have escaped the censure of the Military Board and the displeasure of Government. a think of the others

15. In recounting the performances of the Second Assistants, it may be as well to adhere to the practice introduced by Major Peat, and hitherto observed by me, of classing them under distinct headings, in connexion with the lines of road respectively under their charge, but for the sake of perspicuity, and also with the view of showing the greater importance that has been attached of late to works for the extension of irrigation, and for supplying water to towns and villages, that part of my Report which relates to tanks, bunds and wells, will appear under a separate head.

### I. The Agra Road.

Between Colactie Bunder and Thul Ghaut ; State and expenditure, 9,070 rupces.

Unfair treatment of road,

Proposed new line een Ku and Kurdee. Rs. 1,33,391.

Proposed means of carrying it on.

16. Lieutenant Scott still remains in charge of that portion of the line which lies between Colsette Bunder and the Thul Ghaut, and the expenditure during the past year has been 9,070 rupees. The state of the road appears to me to have been much improved since my inspection of the previous year, most of it was really good, and considering the irrigation of the ground between Kurdee and Kussara, the immense traffic on the road, and the rough treatment it experiences at the hands of cart drivers, it might afford matter for surprise how a moorum surface lasts so well.

17. When the opium traffic is at its height, strings of unwieldy and greatly overloaded carts may be seen descending the steep dips below the ghaut, their wheels locked, and acting like ploughs on the surface of the road, and as if they were not sufficient to destroy it, trunks of trees are frequently attached to the rear of the carts, and with men seated thereon, are trailed after them as drags or make-weights. Such treatment as this is surely sufficient to damage the best of roads; that it should injure a moorum road need not to be explained.

18. The survey of Lieutenant North's proposed new line of road, between Kurdee and Kussara, was sent in to the Military Board on the 22d October last, and the probable cost, roughly estimated by that officer at 1,33,391 rupees, was sanctioned by the Supreme Government, as communicated in Mr. Secretary Escombe's letter of the 18th March last, No. 712. The new line only deviates from the old one where the dips are at present too steep for traffic, and no slope is to exceed 1 in 19.

19. The preparation of the several designs for the works required on the new line, as well as the actual commencement of the road itself, have been temporarily postponed, till arrangements could be made for rendering an officer available for

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the duty. At the date of receiving the intimating of sanction, Lieutenant Scott was too much occupied with other work to admit of my recommending him for the performance of this important duty; but on the opening of the season. I am of opinion that he might be advantageously employed thereon, the more especially as the proposed new line is conveniently situated for the purpose, and as the experience which that officer has now had in the duties of the Road and Tank Department will prove of some service in the performance of this.

20. The portion of the new road at the bottom of the Thul Ghaut, which, in Thul Ghaut new my last Report, was stated to have been commenced in the month of December Road. 1845, was completed by Lieutenant Chapman on the 27th of December last, when, in conjunction with the portion previously finished, it was opened to the public, and has since been in constant use. The expenditure on the entire completed piece of road, which is in length a mile and a half, amounted to 70,256 rupees.

21. The portion of road which was first completed was formed with an inward Ditto. slope, the outer edge having been made a foot higher than the inner, and the surface a plane instead of a curve. The road at the bottom of the ghaut has been constructed with the usual slight convexity of surface, and will not only, therefore, be much easier for draft, but will also, I think, be more evenly used throughout its entire breadth than the other, and will consequently suffer less from the heavy traffic that passes over it.

22: On the completion of the lower portion, the encampment of labourers, with Ditto. storehouse and workshop, were removed with all expedition to the top of the ghaut, the cuttings on which were commenced in the month of January, and carried on with as much celerity as the paucity of labourers in that neighbourhood would admit of. Up to the 30th April last, 4,200 running feet of side-cutting had been completed to the full width of road-way, and 1,157 feet completed to average widths of 10, 12, and 18 feet respectively.

¹¹¹23. The estimates for the completion of the road over the ghaut were de- Ghaut. Estimate "spatched from this office, after examination and amendment, in the month of and Plana. September last, the total amount being 1,48,391 rupees, which was sanctioned Re. 1,48,391. by Government on the 12th of the following month. The parapet wall which has been built along the edge of certain portions of the road-way already completed, and which was described in the 18th para. of my Report for 1845-46, having been considered unnecessarily expensive by the Military Board, a more simple style of construction has been provided for in the estimate, viz. dry rubble. ....

24. The road from the top of the Thul Ghaut to Nassick is in much the same Road between Thul state as it was last year, slightly improved in some places, a little fallen off in Ghaut and Nassick, and between Nassick others; but from Nassick to Chandore, a very decided change for the better was and Chandore. State observable at the date of my last visit, and it would have been difficult to find and Expenditure. a half-mile in any portion of its length that could have been justly characterized as in bad, or even in indifferent order. Considering the state that I found it in on my first inspection, this improvement is very creditable to the officer in charge. The expenditure on the whole during the past year, from the top of the Thul Ghaut to the bottom of the Chandore Ghaut, has amounted to 12,936 Re 12,936. rupees. Sales and the

25. The ferry boat on the Kadwa River at Kokengaon has been converted into Flying bridge at a flying bridge, by the addition of standards and ropes; ramps have also been cut through the banks for landing-places, and approaches from the main road have been constructed; the whole at a cost of 565 rupees.

26. A bridge of 60 feet span has been designed by Lieutenant Chapman, for Proposed bridge at the Pharasherry River at Pimpulgaom, where the post is occasionally delayed as Pimpulgaom. Lieutenant Cowper much as eight hours, and an estimate has been laid before the Military Board, but of the Engi appeared desirable with a view to appointed to the ly elapse before the proposed work engaged in estima as some modification in the diminish the cost, a month or two will probably elapse before the proposed work engaged in estim can receive the sanction of Government. The small rivers at Wozur and Argam ing for other imrequire also to be bridged, as recommended in my Report of last year, and the provemented on the line. requisite plans and estimates are under preparation by Lieutenant Cowper of the Engineers, who has been attached to this department for the purpose of esti-622. AA 3 mating

Presidency of Bombey.

Kokengaor

Ra. 565.

ments required

Presidency of Bombay. mating for these and other improvements between Egutpoora and Chandore, which the Postmaster-general has, in a late report to Government, represented to be advisable.

## II. Mail Road.

3.1

Below the Bore Ghaut ; Above ditto. Expenditure. Rs. 5,973. Rs. 15,640. 27. Captain Pruen and Lieutenant Cowper still retain charge of the portions below and above the ghaut respectively; the expenditure or repairs under the former having amounted to 5,973 rupees, and under the latter to 15,540 rupees. The three years' contract with Venkuttish Narrain for the repairs of the Mail Road under Lieutenant Cowper having terminated on the 30th of April last, fresh tenders were invited for the performance of the repairs for the ensuing season, and the lowest tender having come from Nunderam Soonderjie, a man of character and substance, has been approved of and accepted.

Panwell Bunder.

revetments to protect it from the tide, have been carried on during the past season, and are now completed at a contract cost of 5,725 rupees; but I regret to say that the contractor, Govind-bin Hurry has given a deal of trouble by frequent attempts to introduce bad work, and that it has been necessary to resort to the most stringent remedies the terms of the agreement allowed of, in order to prevent his succeeding in these fraudulent practices.

28. The raising of the Panwell Bunder, as well as the construction of masonry

Completion of New Akordie line, annotioned by Honourable Court. Rs. 20,420.

Rs. 46,858. Rs. 5,512.

Probable date of completion, and suving in annual expenditure for ropairs.

Ra. 4,800.

Junction Line with Serger Read by Halkar's Bridge,

Culvoria and drains required between Poonah and Kundalla,

Widening the road through Kukee.

29. The sum required for bridging and metalling the new Akoordie line, smounting in the aggregate to 28,425 rupees, were sanctioned by the Court of Directors under date the 25th November last, and the works are now in progress by contract under the orders of Lieutenant Cowper. The entire cost of this piece of road, which is eight miles and a half in length, will, on completion, have amounted to 46,858 rupees or 5,512 rupees per mile, which may be accounted a rather moderate rate than otherwise for a metalled and perfect road in the Deccan, considering that the country is almost always either undulating and intersected by numerous watercourses, or else composed of black soil, where the foundations of a road are an unavoidably expensive item.

30. The contractor is not bound to finish the work before the 31st July 1848, but as it is an object of importance to have the new line open by the commencement of the monsoon, every exertion is being made, and will continue to be made, to prevent any work remaining on hand after the beginning of June. As the Ounde and Panowlie and Bhojapoor lines will be abandoned on the completion of the Akoordee Road, the saving in road repairs will amount to no less than 4,800 rupees per annum.

3). A short line of junction between the Dapoorie and the Holkar Bridges was at the same time sanctioned by the Honourable Court, at an estimated cost of 7,827 rupees; but as it appeared likely that a contractor might be found to do the work for a smaller amount, tenders were invited, and the lowest, amounting to 6,350 rupees, has been accepted; this short piece of road is intended to perfect the communication between Bombay and Nuggur, when the Bhojapoor line shall have been abandoned, but it is believed that during the fair season, the greater portion of the traffic between those places will proceed by Poonah and Kurradee.

32. The plans and estimates which were alluded to in my last Report as being under preparation by Lieutenant Cowper, for a number of small bridges and drains required on the Mail Road between the western extremity of the Akoordie new road and Khundalla, were despatched to the Military Board's Office on the 31st of May last, the aggregate of the estimate amounting to 31,224 rupees, and the number of works provided for being 53. A few of the streams for which culverts or drains of several waterways have been designed, are from four to two feet deep in the monsoon, and form an occasional obstruction to the post, but the generality are small, and are chiefly to be objected to as being injurious to the road.

33. Plans and estimates prepared by the same officer have also been sent in for widening that part of the Mail Road which lies between Dapoorie Bridge and the point of junction with the Seroor Road, and the maximum width of which is at present only 17 feet; these estimates were originally called for by Major Peat, who

#### TEN YEARS, AND THOSE NOW IN PROGRESS. 191

who foresaw the necessity that would exist for making this portion of road of a convenient width, as soon as the completion of the Akoordie Road should have thrown it open to all the traffic between Bombay and Poonah. The length to be widened is 2 miles and 581 yards, and the estimated cost of making it uniformly 25 feet broad, inclusive of the cost of drains, amounts to 10,567 rupees.

## III. Road between Poonah and Nuggur.

34. Mr. Scott is still in charge of this line of road, and the expenditure on State of the road, repairs during the past year has amounted to 8,223 rupees. On the whole it and expenditu may be said to have been generally improved by the trouble that was bestowed on it last monsoon, and in some places, especially near Soopa where the moorum is of first-rate quality, it is equal in smoothness of surface and almost in hardness to the best parts of the Mail Road.

35. The two bridges of stone and choonam masonry, which in my last Report Two new Stone were stated to have been sanctioned by Government for the nullahs at Konda- of mud centring. poor and Wasudwadee, the one at a contract cost of 6,995 rupees, and the other at a contract cost of 4,305 rupees, were commenced in the month of October last, under the orders of Mr. Scott. The progress of both works was very satisfactory up to the month of May last, when an unseasonable and totally unexpected fall of rain caused a sudden rise in the nullah at Kondpoor, which produced a slight sinking in the mud centrings, and thus caused the arches of the bridge, then being turned, to show cracks between their haunches and the skewbacks of the pier. No alternative presented itself but to pull down the damaged arches and the incorrect centrings, and as the monsoon was at hand, to postpone further operations till the re-opening of the season; of course the contractor was in nowise to blame, as the accident was one over which he had no control, and which could not have been foreseen. The nullah at Wasudwadee, though distant only three miles from Koudapoor, was neither flooded nor in any way affected by the fall of rain alluded to, and the progress of the bridge advanced therefore without interruption.

36. The retaining walls of the eastern approach of the Shikrapcor Bridge, Shikmpoor Bridge which are constructed of dry stone, squared and coursed, and which adjoining the abutments are no less than 25 feet in height, began to bulge and give way in the latter end of 1845. A portion which has actually tumbled down was rebuilt by Mr. Scott in the month of July of last year, at an outlay of 309 rupees, but a much larger expenditure will be requisite before the security of the entire approach can be ensured. The bridge was built in the year 1842-43, under the orders of Lieutenant Hart, of the Engineers, and the fault of construction in the retaining walls appears to be in want of bearing in the facing stones and in the looseness of the backing.

37. Having very attentively examined the bed of the Seena River when last Seena River; best at Nuggur, it appeared to me that if piles could be forced to penetrate the hard way of bridging it stratum below the gravel of which the bed consists, to the depth of a couple of feet or so, the style of bridge best suited to the locality, and incomparably the cheapest, would be a wooden one, and the Military Board have sanctioned an experiment being made to ascertain this point. Though styled a river, and in point of breadth almost deserving of the name, being 333 feet across, the extreme height of its banks does not exceed four feet, and as the layer of gravel which forms its bed is 12 or 13 feet in depth, a masonry bridge with foundations springing from the rocky stratum would be enormously expensive, considering the ordinary shallowness and insignificance of the stream. Were the river freshes confined indeed within its proper channel, it might be almost doubted whether a bridge of any sort would be absolutely required; but flooded as the banks occasionally are to a considerable distance, the stream is at times impassable.

38. The wire ropes which were substituted last monsoon in lieu of the usual Wire ropes for hempen hawsers for the flying bridges of Koregaon and Poonah, are likely to prove flying bridges; their far more economical than the latter, and with the improved species of traverser which has been introduced instead of the ordinary swinging blocks, the passage A A 4 622.

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Substitute for swing ing block.

of each raft across the river is reported by the boatmen in charge of the flying bridges to be effected with much greater celerity than formerly. The only fault or failure in the wire rope that has yet been discovered, is its liability to oxidation, but this may possibly be remedied by an annual coating of tar.

39. The new traverser just alluded to, the efficiency of which was stated in my last year's Report to be then under trial, has these advantages over the old block : First, that it is but very slightly worn away during a season by the friction of the rope, instead of being rendered useless, as the block was, in the course of a month. Secondly, that it can never be top-heavy, as the blocks fre-quently were, and that it therefore traverses more freely. Thirdly, that it is shipped and unshipped simply by the removal and replacing of the pin of the sheave, while the fixing or unfixing of a block necessitated the unfastening and refastening of the rope itself; and fourthly, that it costs seven rupees less in the construction. As it is not likely, however, that the mere detailing of its advantages will convey a correct idea of this simple contrivance, a sketch is subjoined, which will obviate any necessity for further description. The sheaves or rollers, it may be observed, are case-hardened exteriorly, and the loops or shanks are of wrought iron.



Proposed new line etween Poo

40. The new line between Poonah and Wargoolie via Kurradee I have already alluded to, in mentioning Lieutenant Bruce's performances; but as it is not improbable that at some future day this may be the only established line of communication towards Nuggur, I may here take the opportunity of stating that the construction of a bridge across the Moota Moola at Kurradee, having been deemed by yourself of greater primary importance than the completion of a road without the bridge, the Military Board have directed the subject to be taken into consideration.

41. The flying bridge which plied opposite the town, and which became useless on the completion of the Poonah Bridge, has been removed to Kurradee, where it is now being established at a contract cost of 1,931 rupees. The chief causes of this work being so expensive are, first, the extensive repairs required by the two boats and other wood-works of the raft, and secondly, the great amount of rock-cutting which was found to be requisite at the new site, in the formation of ramps.

#### IV. Road between Poonah and Neera Bridge.

42. This road is still under charge of Mr. Scott, and has been repaired during the past season at a cost of 2,646 rupees, which has been laid out with great advantage, and considerably improved its condition. The Bapdeo Ghaut will always be a formidable obstacle to traffic, which is not, however, so important on this line as to render the construction of a new ghaut advisable.

43. On the requisition of the Postmaster of the Deccan, an estimate has been prepared and submitted, amounting to 539 rupees, for the erection of huts at five

Wargoolis

Removal of Poonah Flying Bridge to Kurrades.

State and expandi-Bapdeo Ghaut.

Huts for Dawk Runners

five stages between Poonah and Jeejoorie for the use of the dawk runners on this line.

#### V. Road between Nagotna and Mahableshwur.

44. This road has been repaired by contract under Captain Pruen, at an State and espendiexpense of 5,025 rupees, and is in fair order, and but little damaged by Mr. ture. Baretta's phaetons having been re-established between Mhao and Nagotna.

45. The only works which have been performed on this line during the past Ceiling to Bungalow season are of a trifling nature, one being a munda ceiling to the traveller's at Indapoor; removal of rocks in bungalow at Indapoor, at a cost of 101 rupees, and the other the removal, by Nagotna River. blasting, of certain rocks which impeded the navigation of the Nagotna River. at a cost of 36 rupees.

#### VI. Cross Roads in the Poonah Collectorate.

46. The roads which are declared under this head, and which are in length Expenditure. 54³/₄ miles, have been repaired during the past season at an aggregate cost of used as mail-road 4,348 rupees. The portion of roads which connects the Dapoorie Bridge with will revert to its the Bhojapoor Road, which is 2 m. 5 f. 180 yds. in length, and which has former use of crossroad. heretofore been repaired as part of the Mail Road at a cost per mile of 3031 rupees, will revert to the former use as part of the Narraingaum Road, on the completion of the Akoordie new line, and will be repaired, like the rest of that road, with moorun instead of metal, at an annual expense of 98 rupees per mile.

#### VII. Cross Roads in the Nuggur Collectorate.

47. The repairs to these roads, which still remain under charge of Mr. Scott, have been made during the past season at a cost of 737 rupees, and their state remains the same as at the date of my last Report.

#### VIII. Cross Roads in the Nassick Sub-Collectorate.

48. The outlay on these roads for the past season amounts to 1,639 rupees, State and exand they are in tolerable order.

49. A bridge over a large nullah on the road between Nassick and Sinnur, and Injury to a bridge about a mile distant from the former place, was partially swept away by a heavy from last monsood flood in the month of luna last way and manufacture and the month of luna last way and the flood in the month of June last year, and was repaired at a cost of 297 rupees, and the Nassurdy Causeway was also slightly injured on the same occasion. No damage would, in my opinion, have been sustained by either of those works had their style of construction been as good as it ought to have been.

#### IX. Cross Roads in the Tannah Collectorate.

50. The aggregate expenditure on these roads for the past season amounts to Expenditure; pro-3,522 rupees. The Collector of Continental Customs and Excise, under date posed improvement. the 29th August last, suggested the advisability of widening and raising certain portions of the road between Khopoolie and Dhurm Tur, and a report has been received from Captain Pruen on the subject which is now under consideration.

51. The Collector of Customs, at the same time, recommended the construction Two salt-water of branch roads to the salt-works at Wansee and Oomarde, which are situated, Creeks proposed to the former at three miles and the latter at one mile from the main road, but it Penn. appeared to Captain Pruen, after an examination of the country, that the work would be more extensive than the occasion called for, and that it would be sufficient to bridge two salt-water creeks, which, after the middle of the month of November, are the only impediments that exist to traffic. Plans and estimates for these works are consequently in course of preparation.

### X. Cross Roads in the Rutnagherry Collectorate.

52. The roads in the above collectorate have been repaired during the past season, at a cost of 1,169 rupees, and are represented to be in good order.

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XI. Roads

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### XI. Roads in Salsette.

53. These roads are still under Lieutenant Mungavin, and have been repaired during the past season at a cost of 1,731 rupees. Though a trifle better than they were, they have not been improved to the extent that I anticipated at the date of my last Report, and I was informed by Lieutenant Mungavin, during last rains, that the iron rollers, which have been found so effective elsewhere, had but little effect on the Salsette Roads. The only way in which I can account for this is, under the supposition that the roads have been so deteriorated for some years past, by the admixture of bad moorum and earth with the metal, that it is now impossible to get a thin layer of the latter material to form a compact surface.

54. The new line of road between Coorla and the 20th milestone vid Bhandoop, which was stated in my last Report to have been sanctioned by the Government of India, and about to be undertaken by a subsidiary gaol, was not commenced till the 16th December last, in consequence of the delay that occurred in supplying guards, by which means six weeks of the working season were irretrievably lost. When once commenced, however, the work proceeded with rapidity, and up to the end of April last, a length of nearly four miles had been completed, inclusive of bridges and cross-drains, with the exception of the parapets.

55. In the month of February last, when some progress had been already made, a representation which had been addressed to Government by Framjee Cowasjee, Esq. was received in this office, to the effect that the value of his estate of Poway would be very much deteriorated by the abandonment of the old, and the construction of the new road, the former having passed through the cstate, while the latter would merely skirt it; and it was further attempted to be shown that a shorter and a better line than the Bhandoop one might be carried through another part of Poway, with mutual advantage to the public and the proprietor.

56. In consequence of this representation, instructions were received by the Military Board from Government, to cause Framjee Cowasjee's new line to be surveyed and levelled, but as this duty had already been performed by Captain Ash, when engaged on the Vehar Khird survey, whose field-books were in my office, pothing was easier than to plot the survey and lay down the longitudinal section on paper with accuracy ; this was accordingly done, and in company with ' a detailed report, which a careful inspection of the ground had enabled me to prepare, with survey and section, were submitted to the Military Board in the month of March, the whole plainly proving that Captain Crawford's Bhandoop line was, in all the essential characteristics of a good road, superior to the Poway one; it was better watered, better wooded, shorter, and more level, and the Government in consequence decided that it should be carried out as originally · contemplated; but, with the view of preventing any injury to Framjee Cowasjee's estate, instructions were subsequently issued by Government that, on the completion of the new line, a branch road should be constructed connecting it with Poway, and the necessary sketch is now under preparation by Lieutenant Mungavin.

57. It was originally intended, and instructions were given to that effect by the Military Board, that the accounts connected with the cost of the subsidiary gaol should be so carefully kept, that the relative expense of convict and free labour in the construction of roads in this country should be satisfactorily determined; this object. I need hardly say, has been most carefully kept in view, but I am inclined to believe that the result of the experiment will be less favourable to the employment of convicts than it would have been had no delays been permitted to occur, and this much I think is clear, that a subsidiary gaol would be employed to much greates comparative advantage on a line of work that could be completed in one season, than on an undertaking of greater magnitude, where more than one season would be required, for the contingent expenses incurred on account of guards and establishment during the monsoon, when there is no equivalent in the shape of work, must make a material addition to the debit side of the gaol account.

58. The proposed new bridge at Earla Parla, which was stated in my last Report to have been then estimated for, was commenced by contract under the orders orders of Lieutenant Mungavin in the month of February last, and progressed fairly and satisfactorily till the beginning of June, when the self-same cause which proved so injurious to the centrings and arches of the bridge at Kondapoor on the Seroor Road, had a similar effect on the work at Erla Parla; a beavy and unlooked for fall of rain caused one of the centrings to sink, and the arch to crack, so that I have been obliged to direct Lieutenant Mungavin to see that the contractor re-constructs on a correct centring,

59. In both cases the centrings were of mud and rubble, a style of construction which is in so far preferable to wood, that it is much cheaper and more expeditiously carried on, but, as will have been seen by the instances now brought to notice, it is not to be relied on in wet weather, and becomes decidedly dangerous as the rains approach ; mud centrings ought never, therefore, to be used, except in cases where there is a certain prospect of the arches being completed, and the mortar set before the usual period of the first monsoon showers.

## XII. Poonah and Sholapoor Roads.

60. The piece of metalled road leading out of the town of Poonah, in the direction of Sholapoor, is 2 m. 3 f. 200 yds. in length, and has been repaired by Mr. Scott during the past season, at a cost of 631 rupees ; that part of it which is beyond the camp having been but recently completed, needed but very little remetalling, and there the average cost per mile appears somewhat small, but during the current year it will more nearly approximate to the usual charge for other metalled roads under this department.

61. That portion of the Poonah and Sholapoor Road which is now under construction between Patus and Indapoor, a distance of 44 miles and 6 furlongs, has been expeditiously carried on since the date of my last Report, by Mr. Sub-Conductor Armitstead. On the 30th April of last year, 9 miles and 6 furlongs had been trenched and raised with moorum; on the 30th April of the present year, 43 miles and 5 furlongs had been trenched and raised, 13 miles cross-drained, 17 miles curbed, and 7 miles completely finished. On the portion cross-drained, 1 small bridge, 3 culverts, and 66 drains of sorts, had been constructed. The entire expenditure had amounted to 1,42,284 rupees, out of which sum 1,23,208 rupees had gone solely on labour, and its trifling proportion of superintendence.

62. An estimate for the completion of the road and all the works required thereon, accompanied by appropriate and well executed designs, was received from Mr. Armitstead in February last, and forwarded to the Military Board on the 16th of that month. It provided for all work that remained to be performed on the 1st day of the present year, and amounted to 1,31,643 rupees, so that as the expenditure up to the close of last year had amounted to 1,22,985 rupees, the total probable cost for the entire piece of road between Patus and Indapoor will be 2,54,628 rupees, or 5,690 rupees per mile.

63. After visiting Indapoor in November last, and carefully examining the works in progress, I was enabled to submit a very satisfactory account of Mr. Armitstead's proceedings to the Military Board. Such deviations as had been made from the old track appeared to me judicious, and the work of every description was excellent. The masonry of the culverts and drains is composed of hammer-dressed or rough-cut stone and choonam, and the workmanship is inferior to none that I have seen in this Presidency. The such* stones are of an * Orig. Qu, much almost uniform size, and of the best basalt, varying not more than from  $10'' \times 10'' \times 18''$  to  $9'' \times 9'' \times 15''$ , and should any objection be made, either to these or to the masonry, on the score of their being too good or too expensive, I have only to mention that, good as they are, the curb-stones only cost 31 rupees per 100 running feet, and that, excellent as the masonry is, a culvert of three arches, each of five feet span, is completed for the moderate sum of 647 rupees.

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Presidency of Bombay. to work on what required the least teaching, *i.e.* the trenching and raising of the road-way.

65. Thus it is, that the entire raising of 44 miles was almost completed before a single bridge or drain had been commenced, but under other circumstances, where choice should be the guide and not necessity, the system which you have before now advocated is the one that would be followed, and the passage of such rivers and streams as were calculated to impede traffic would be the first step to be accomplished in opening a new line of communication. The Military Board, indeed, guided by the same views, have already instructed me to send in rough estimates of the cost of bridging the remainder of the Sholapoor Road.

## XIII. Nagpoor Dawk Line.

60. Captain Dennis still retains charge of the line of works between Nugga and the Wurda River, and the expenditure during the past season in repairing and renewing old works amounted to 10,306 rupees.

67. Delays on this line appear now to be of rare occurrence instead of great frequency, as was the case some few years back, and it may be safely inferred, therefore, that wide and unstable as many of the bridges and other constructions are, they are yet moderately efficient so long as they last.

68. A sample of the rope-suspension bridge, which it was proposed at the date of my last Report to substitute for flying bridges over the large nullahs on this line, was completed in the month of July of last year by Captain Dennis, who reported favourably of its utility and suitableness for the dawk runners or foot-passengers, but he at the same time gave it as his opinion, that great difficulty would be experienced in crossing the horses, who would naturally' take alarm at the oscillating motion of the footway. This opinion was undoubtedly well-founded, for the bridges were only designed with the view to afford a safe and speedy passage to the men themselves, for which the flying bridges had been so ill adapted.

69. As it did not appear impossible, however, to make such improvements in the construction and substantiality of bridges of this description as would admit of horses crossing over without difficulty or fear, an experiment is about to be tried with wire-ropes and a firm flooring, protected on either side by a light railing.

70. The ferry across the Godavery at Toka has been transferred to the charge of Captain Dennis from that of Mr. Scott, as proposed in my Report of last year, and on the recommendation of the former officer is about to be converted into a flying bridge, for which the raft which was constructed by this department last season will answer the purpose very well. As no flying bridges exist on this side of India of so great a span as this will be, the standards will require to be of unusual height and strength, and the rope it is intended shall be of wire  $3\frac{1}{2}$ " in circumference, which is equal in strength to an  $8\frac{1}{2}$ " hempen hawser.

### XIV. Works of the Regular Lines of Road.

71. The Poonah Bridge, which was commenced on a design of Major Peat's in the month of November 1844, was completed by contract under Lieutenant Cooper's orders in December last, at a total cost of 28,212 rupees, out of which the inhabitants of the town bore 10,382 rupees. To this outlay has subsequently been added the sum of 1,352 rupees, being the calculated amount of expense the contractor was put to in pulling down and removing the centrings, and the consequent amount of compensation adjudged by Government. The entire cost of the bridge, therefore, from first to last, has amounted to 29,564 rupees, and no one can deny that it is extremely moderate.

72. The partial reconstruction and improvement of the Gokhurwa Bridge, near Bassein, which was stated in my last Report to have been then estimated for, and sanctioned by Government, at a cost of 5,702 rupees, has also been carried on during the past season, and must ere this have been completed, but numerous circumstances have combined to render an excess upon the estimate unavoidable. unavoidable. In addition to the fact of building materials having turned out to be much dearer in that neighbourhood than was originally calculated on, it was found, on dismantling the bridge, that the timbers were in such a state as to preclude the possibility of their being used to a tenth of the extent that was allowed for; and as a still further cause of increased expenditure, the progress of the work was much retarded by the tides, by which, at the springs, the piers and abutments were covered for several days. A supplementary estimate, therefore, became unavoidable, and Government have accordingly sanctioned an additional sum of 976 rupees.

73. Lieutenant Scott has also constructed a flight of steps to the jetty at Callian, and repaired the Mamlutdar's Cutcherry at the same place, the former at a cost of 43 rupees, and the latter at a cost of 228 rupees; and the same officer has likewise furnished the extensive repairs which were required to the Kusseybee Bunder, and which, as stated in my last Report, had been postponed on account of the rains, the total expense having amounted to 1,782 rupees.

74. Lieutenant Mungavin completed the boat intended for the ferry at Oomergaom, at a cost of 571 rupees, and despatched it to that place in the month of January last.

75. An estimate for a Mamlutdar's Cutcherry at Oarum, in Carrinja, was sanctioned by Government, under date the 30th April last, for 1,367 rupees, and will be commenced by contract under the orders of Captain Pruen, on the opening of the season.

76. Estimates, accompanied by plans, were submitted to the Military Board in the months of October and February last, for an Assistant Collector's Cutcherry at Kelwa Mahim, and for a Bungalow for one of the uncovenanted Assistants of the Collector of Continental Customs and Excise at Bassein, the former amounting to 2,914 rupees, and the latter to 5,400 rupees, but nothing has been communicated in regard to their sanction.

#### XV. Military Buildings.

77. The repairs to the military buildings at Tannah have been completed by Lieutenant Mungavin for 117 rupees, and the same officer has constructed four new pendalls, and improved two old ones, for the sum of 3,470 rupees, a saving of 212 rupees having been effected on the estimate for the repairs, and a saving of 779 rupees on the estimate for the new pendalls; the former in consequence of the reduction of work caused by the removal of the temporary pendalls, and the latter in consequence of the employment of convict labour.

78. Lieutenant Mungavin is also now engaged in building a new Detachment Hospital at Tannah, 56 feet in length by 18 feet in breadth, with dispense rooms and out-offices, the estimates for which, amounting to 4,340 rupees, were sanctioned by Government under date the 12th March last.

79. An estimate, prepared by Lieutenant Mungavin, amounting to 2,138 rupees, and accompanied by a plan, was submitted to the Military Board in the month of May last, for two new pendalls for the use of the detachment of Ghaut Light Infantry stationed at Tanna, but np intimation of sanction has yet been received in this office.

80. The regimental buildings which were stated to be in progress at Nassick at the date of my last Report, were completed, under the orders of Lieutenant Chapman, in the month of September last. The estimated and sanctioned amount was 3,366 rupees, but through the extreme carelessness and negligence of Sub-Conductor Viges, to whom the superintendence of the work had been entrusted by Lieutenant Chapman, while himself otherwise engaged, this sum was exceeded by a very large amount. From Lieutenant Chapman's explanation. of the business, it appeared that the estimate itself was deficient to the extent of 421 rupees; but, independently of all the legitimate causes which could be assigned for an excess upon the sanctioned amount, Lieutenant Chapman discovered, on investigating the case, that there was an additional sum of 1,150 rupees expended, for which Mr. Viges was totally unable to account.

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of some of the native subordinates, who absconded; that he took even a portion of it has not been proved, and may be doubted, but that the loss was entirely owing to the most gross negligence, enhanced by indulging in habits of intemperance, was unfortunately but too evident.

82. This, however, was not Mr. Viges' only breach of duty. He abstracted from the bag entrusted to his charge for the payment of people employed on road repairs, the sum of 230 rupees, with which he liquidated a private debt. The fault was freely acknowledged, and it is possible that Mr. Viges might have intended to replace the money as soon as he was able; but it was perfectly clear that a man who could be guilty of such neglect of duty and dishonesty was unfit for any situation of trust under Government. He was, therefore, removed from this department, and remanded to his corps as a second corporal.

83. Some additions to the buildings alluded to were sanctioned by Government in the month of January last, at a probable cost of 591 rupees, and are now progressing towards completion.

#### XVI, Tanks, Bunds and Wells.

84. Though the energies of the Road and Tank Department have been directed to the accomplishment of more important undertakings than had ever previously engaged the attention of any branch of the Public Works Department under this Presidency, still it has furnished cause for complaint, and has been a source of regret to myself, that, comparatively speaking, but little has been effected towards the extension of irrigation throughout the country by the means of tanks, bunds and wells.

85. To remedy this deficiency, the most strenuous efforts have been latterly made, but owing to the numerous difficulties which have been encountered, and the many conflicting interests which often have to be reconciled before a work can be undertaken, less progress has been made than could have been wished; though, on perusal of the following Report, I think it must be admitted, that, as far as the Road and Tank Department is concerned, matters are in fair train towards effectual and speedy amendment.

86. Before entering into particulars, however, I would request permission to, say a word or two on the subject generally; and, first, in regard to the policy and advantage of putting into an efficient state such of the old works which are to be found scattered throughout the country, as may now only need a few repairs to render them as productive to the revenue of the existing Government. as they were to former times. Of those works, the most deserving of attention are the bund and bundaras, by means of which the land on either bank of many rivers and rivulets was fertilized and rendered productive throughout the greater part of the year. To say what amount of profit would be yielded by the repair of each, would of course require the knowledge and experience of a Government Revenue officer, but as far as rendering them efficient may be concerned, numerous are the instances in which a trifling expenditure, and a very small amount of engineering skill would suffice to secure the desired result ; and surely, unless my judgment is greatly at fault, it would be but a common act of prudence to incur a small outlay in perfecting those ancient works, whose strength and substantiality have resisted the floods of possibly a century, and whose utility has been proved beyond a doubt, before we make attempts at constructing most costly and expensive new ones; attempts, moreover, which, like others of recent date, might chance to prove abortive, despite the amount of science and talent which would doubtless be brought into requisition.

87. With views such as these, it was my anxious wish to have had some 50 . bunds in the Nassick Collectorate put into a state of efficiency, and as the Collector and the Superintendent of the Revenue Survey were both agreed as to the advisability of the measure I proposed to the Military Board, under date the 11th August 1846, that a First Assistant of a department should be employed in reporting on and estimating for the whole. This duty would, in consequence, have been performed by Captain Jacob long ere this, but for his untimely removal from the department to superintend the reconstruction of the damaged portion of the

the Jamsetjee Bund at Poonah, and as no other officer's services have been available for the work, it still remains in abeyance.

. 88. Another remark, which ought to precede my report on the subject of Works for Irrigation, is, that easy as it may appear at first sight, to discover places where bunds might be constructed with effect, there are two points to be considered and made to agree, before anything definite can be attempted; for not only ought the locality selected to be free from all engineering difficulties, and to afford every facility for the construction of the proposed work; but it ought also to be so peculiarly situated as to render remuneration from increase of revenue a moral certainty. Many are the places where the eye of an engineer might detect desirable sites for drains and bunds, but few there are in comparison where the Revenue Officer could see any prospect of a profitable return to Government.

89. The most expensive project which has been contemplated during the past year in connexion with the subjects of an increased supply of water is, that which has already been briefly alluded to in the 11th para. of this Report, viz. the clearing out and improvement of the Katrey Tank. The attention of this department has for some years past been directed to the advisability of removing the earth which has been gradually accumulating for the last half century in the bed of the tank; and a proposition was made by Lieutenant Hart, while a Second Assistant in the department, to make an opening in the bund, through which the mud, after having been stirred up by labourers, might be forcibly carried by the rush of water in the rains. This suggestion was fortunately objected to by the Honourable Court of Directors, in their letter to Government of the 21st May 1844, and directions were given that a very careful survey might be made of the nullah which supplies the tank, with the view of devising some remedy for the prevention of further accumulation in its bed. A most accurate survey was accordingly made by Captain Jacob, the place was carefully examined by both of us on more than one occasion, and the means of effecting the desired object were fully discussed, the result of which was, that an estimate was prepared, and sent in to the Military Board on the 26th December last, accompanied by a survey and sections for the excavation and removal of a mass of earth, whose solid contents amounted to 2,900,000 cubic feet, and for the re-opening of a channel, and repair of a bund which had been originally constructed with the intention of carrying off all earthy matter, and preventing any deposit in the tank, but which had fallen into complete neglect and disuse. The probable cost of these several improvements amounted to 4,765 rupees, and the additional quantity of water which Captain Jacob calculated would be available for the inhabitants of Poonah amounted to a 30 days' supply.

· '90. Another project of some importance which has engaged the attention of this department, is that which is alluded to in the 4th para. of the Superintending Engineer's Report for 1844-45, and which at that period was affording some employment in estimating and designing to the Executive Engineer of Nuggur, I mean the proposed aqueduct at Teola for the supply of the town with water; it appears that an estimate, amounting to 29,972 rupees had been prepared by the Executive Engineer, under date the 9th February 1846; but that the project had been temporarily abandoned, in consequence of the inhabitants of the town evincing a disinclination to pay the amount of subscription originally agreed on by them. At the recommendation of the Revenue Commissioner, however, the project was revived by this department, and it was intended that Captain Jacob should have been deputed to examine the locality, and prepare fresh estimates, if the proposed means of supply appeared likely to prove sufficient ; but Captain Jacob's employment on the special duty already alluded to prevented this arrangement, and I contrived, therefore, during my tour of inspection, to visit Yeola, and examine the place myself.

91. The complaint regarding the scarcity of water, I found to be but too well founded. The wells in the town and its immediate vicinity, which are the only available sources of supply, though numerous, are for the most part of little use, and many of them even in the month of January were perfectly dry. The Pannulla Well, from which it was proposed to supply the town, and which is about half a mile distant from the walls, is the only favourable exception that 622. BB4 could

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could be pointed out, and as it is fortunately fed by a very strong spring, it yields a moderate supply to a great proportion of the township during the hot . weather. The depth of water at the time of my visit was 11 feet, and the rate of supply, on being carefully tested, was found to amount to 2,800 gallons per hour. This, though of course insufficient for all the inhabitants, would have yet been enough to fill some three or four reservoirs, and with a Persian wheel to raise the water, and masonry pipes to convey it to the town, the expense, I think, would have been very moderate compared to what the Executive Engineer of Nuggur had reckoned it at. The chief inhabitants, however, with whom I held some conversation on the subject, though evidently extremely anxious to avail themselves of any liberality the Government might be pleased to extend towards them, manifested a very great and extraordinary reluctance to bear any portion of the expense of thus adding to their own comforts; and as it appeared to me to be advisable, before estimating for the work, to ascertain from the proper quarter to what extent this disinclination might extend, a reference was made to the Collector of Nuggur, under date the 23d February last, which to this day remains unreplied to; nothing further, therefore, has been done:

92. Various projects have been under consideration for increasing the supply of water on the Thull Ghaut Road, and some, I hope, ere this will be sufficiently matured to be laid before Government and approved of. Without entering into particulars, I may mention that estimates are either in progress for proposed new works or improvement at Kussara, Kurdee and Kullumgaom, or else that the necessary preliminary inquiries are being made, with a view to the preparation of those documents with sufficient accuracy to be submitted to superior authority.

93. The work proposed at the last-mentioned place is a new bund, which I think might be constructed at a very triffing outlay, and with a certainty of success. The original one was built by this department in 1837, and appears to me to have been faultily designed, loosely constructed, and injudiciously placed, so that its failure so shortly afterwards is easily accounted for. Though 14 feet in height, its thickness at the base is only five and a half feet, and though intended to stem a stream of some force, as well as to resist the pressure of a column of water of the height just stated, the masonry is of rubble and choonam, and that not of the best quality. As to the site, I am unable, except by a sketch, to convey a correct idea of its inferiority to another which might have been selected, and I therefore add the subjoined rough outline, showing the position of the proposed new bund, as well as that of the old, together with their relative dimensions and construction.

94. At the requisition of the Collector of Tanna, an estimate hy Lieutenant Scott was sent in on the 1st May last, amounting to 2,325 rupees, for clearing out and adding a bund and escape-channel to the tank at Colsette, which the Collector stated would not only benefit the inhabitants of that village, but the travellers generally who frequented that great line of road. The villagers, themselves offered to contribute the sum of 251 rupees in cash and manual labour. A report and sketch have also been received from the same officer, and are now under consideration, for improving in a similar manner the tank at Kulwah, opposite Tannah.

95. The best means of improving the Waddala Tank at Panwell, from which the inhabitants draw so large a portion of their supply of water, has also afforded matter for consideration and office labour. It appears that during a flood, which occurred in 1844, the earthen embankment by which the water is retained, together with the masonry retaining-wall on the inner side, were partially but extensively injured, and that the breach so made was promptly repaired by an individual of the name of Sookul Sing, to the extent that is of renewing the embankment, but the retaining-wall was not rebuilt, and a proposition was made by the Acting Collector of Tannah to remedy the defect. On an inspection of the place, however, the standing portion of the retainingwall appeared to me to be so deficient in foundation and strength, that it afforded no protection or support to the embankment, and that it would be therefore therefore useless renewing the breached portion on the same plan as the old wall. It was clear, moreover, that the embankment itself was amply strong enough to retain the water as long as it was not overflowed, and I proposed, therefore, to make escape-channels to give egress to the surplus water after it should have reached the level of the top of the retaining-wall. The Military Board having approved of this suggestion, an estimate has been called for, and is under preparation by Captain Pruen.

96. On the recommendation of the Judicial Commissioners for Goozcrat and the Concan, an attempt was made in the month of May, of last year, to clear out a large tank in Tannah, which affords the chief supply of water to that town, and which had become choked up to a great extent with mud and weeds. As it was found to be a too expensive work to be done by free labour, I suggested that all the convicts who were then available from the Tannah gaol might be employed on it, and this proposition having been approved of by Government, Mr. Mungavin took out 250 prisoners on the 22d May, and commenced work; he had made, however, but four days' progress when the convicts were withdrawn by order of the Acting Session Judge, in consequence of a recommendation to that effect from the Civil Surgeon, and this exceedingly useful work was thus abandoned.

97. The clearing out of the Chowdar Tank at Mhar, which was stated in last year's Report to have been postponed in consequence of the prevalence of cholera, has been this year satisfactorily completed by contract. The accepted tender amounted to 6,047 rupees, but as the mud in the bed of the tank was found after the water was drawn off to be but four and a half feet in depth instead of five and a half, as had been originally calculated on and estimated for, a corresponding deduction has been made from that sum, so that there is an unexpended balance of 1,614 rupees. This balance it is proposed to lay out in repairing certain portions of the retaining-wall, which are in a dilapidated state.

98. The sluices which it was proposed to make in the bund across the Kurra at the village of Kullud, as mentioned in my Report for 1844-45, have been completed by Mr. Scott during the past season, at a cost of 637 rupees, the expense having been defrayed partly by Mahadeo Rao Nilkunt Poorundurry, Jagheerdar, and partly by the villagers.

99. A new well, with cut stone retaining-wall and stone parapet, is under construction by Lieutenant Chapman at Egutpooree, near the top of the Thull Ghaut, at an estimated cost of 751 rupees; and as the site is well chosen, there is every prospect of its affording such an abundant supply of water, that, together with the excellent well which now exists, it will prevent any further complaints of scarcity at this constantly frequented halting-place. A well is also being cleared out and improved by Mr. Scott, at Shicrapore, on the Seroor Road, at an estimated cost of 176 rupees.

#### XVII. Building and Building Materials.

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100. In my Report of last year, I ventured to offer a few remarks on the bad policy and false economy of resorting too generally to what is usually denominated "cheap work" on lines of communication intended to be permanent, and I was in hopes that the examples therein cited of the comparative cost and durability of good work and "cheap work" might have the effect of bearing out my opinions.

101. As it is possible I may have been misunderstood, however, when I stated that "the better a work is constructed, the cheaper it will eventually prove," I now beg to explain, that I never intended the word "costlier" to be used synonymously with the word "better," and it was very far from my purpose to advocate the construction of ornamental or highly-finished work; I merely wished to make it appear, that when the best of all known building materials abounded, it was a great mistake not to take advantage of it; in other words, that where stone was to be had on the spot for the mere cost of quarrying, as it is in almost all parts of the Deccan, it was a pity to use wood, which has to be 622. C c bought

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Presidency of Bombay. bought at an enormous expense from the Calicut or Dhaug forests; still greater pity to resort to rubble-work, which though cheaper at the outset than cut stone, possesses not a tenth of its durability.

102. The style of work whose general adoption on permanent lines of communication in the Deccan I respectfully contend for, is anything but a costly one; in fact, it is not more expensive than those which I condemned. A good bridge of roughly-cut or hammer-dressed stone, chisel-edged at the joints, would not cost more than a bridge of rubble and choonam abutments and piers, and teakwood superstructure; it would be, beyond all comparison, more lasting, and it would not require annual pointing and dammering, and other repairs, to prevent decay and dilapidation, as the other most assuredly would. With the material here adverted to, abundant as it everywhere is in the Deccan, and easily prepared, I think I may venture to reassert, without fear of misapprehension, that the better a work is constructed, "the cheaper it will eventually prove."

103. Viewed in the light I intend, the rule might be made applicable to the products of all countries. In Goozerat, for instance, where stone does not exist, and where brick and choonam are the most easily procurable of all building materials, and with a little trouble are generally to be had of good quality, I would construct all bridges, where a good foundation was to be had, of masonry so composed, and to carry out the rule I have laid down, I would invariably insist upon the work being of the best description, firmly believing that it would eventually prove the cheapest.

104. Of the sad impolicy of "cheap work," the Report I have now the honour to submit furnishes additional proof: the failure in 1840 of the bund at Kullumgaom and its prototype at Kurroond, and the present failure of the approaches of the Shicrapore Bridge and the small bridge near Nassick, are either solely or in part attributable to the fact of a very inferior description of work having contented the designer or the builder; and to these instances I might add that of the parapet walls, of a second bridge on the Mail Road between the Sungum and Kirkee, which are in so dilapidated a state, that a heavy shower of rain would probably wash them away. Other works there are of greater magnitude, which might be adduced as examples of the fault I complain of, but at present it comes not within my province to notice them.

#### XVIII. Department and Establishments.

105. Several changes have taken place amongst the European overseers. Mr. Sub-Conductor Viges was remanded to his corps in December last, for the extreme negligence and untrustworthiness which he had manifested in the case of the regimental buildings at Nassick, as explained in the 81st para of this Report, and Corporal Acting Sub-Assistant Overseer Goldfrey was transferred to the Executive Engineer's Office at Poonah in November, in order that he might be instructed in his duties.

106. Serjeant Assistant-Overseer Brock was transferred from Lieutenant Mungavin's office to that of Lieutenant Chapman in April 1846, and Corporal Sub-Assistant Overseer Tudor was also placed under the latter officer, for employment on the Thul Ghaut, in January of the present year. Corporal Sub-Assistant Overseer Mungavin rejoined the department, after a temporary absence at Aden of 18 months, in August of last year. Gunner Morgan, of the Horse Artillery, was admitted into the department, and joined in October following as an Acting Sub-Assistant Overseer; and Serjeant Assistant-Overseer Roberts was also transferred to the department, and placed under Captain Pruen's orders in March last. In consequence of these changes, the number of European Overseers now at the disposal of the Department exceeds by one the number available at the date of my last Report.

107. By the promotions in the Public Work Department, which were published in Government General Orders of the 15th of February last, Serjeant Overseer Armitstead rose to the rank of Sub-Conductor, and Serjeants Levien and Brock, from Assistant Overseer to that of Overseer. On the conduct of the former, no further commendation need now be bestowed, as it was solely on account account of his exemplary behaviour and superior qualifications that he was selected by the Military Board to fill the responsible situation in which he is at present placed, and to hold the rank he now does; Serjeant Levien is also well worthy of his promotion, and his steady conduct and high attainments as a draughtsman give him claims to the favourable notice of his superiors. Of the rest of the European Overseers, Serjeants Taylor and Angas have most distinguished themselves, by uniform excellence of behaviour and great attention to their duties, and Serjeant Brock is also favourably spoken of by Lieutenant Chapman.

108. The only Overseer whose conduct has been complained of is Serjeant Allyman, whose unfortunate addiction to intemperance has at last compelled Captain Pruen to solicit his removal, and his loss will be the less felt, as his acquirements are of so ordinary a kind as to be barely useful, except in superintending road repairs, and such like work.

109. The only changes which have been made among the Assistant Surveyors and Builders since the date of my last Report, are the departure of Hurbajee Rowjee to Aden, and the re-appointment of Govind Moreshwar to the department, and the conduct of all the others has given satisfaction to the several officers under whom they are placed. Venaik Bhicajee, as usual, has entitled himself to great praise for his invariable willingness and diligence, as well as for his qualifications; and Ragoba Hajee has also maintained his previous good , character.

110. That all of the Assistants have been diligently employed, either in carrying on sanctioned works, or in estimating for proposed ones, will be fully credited, I trust, after a perusal of the foregoing account, and an inspection, of the appended lists of estimates which have been submitted for consideration and sanction. And having now concluded my Report of the proceedings of the depart, ment for the past official year, I am contented to hope that the satisfaction which Government were pleased to express at its performances of the preceding (year may be augmented in proportion to the increase of work which has been here it and the true of the proceeding (the true of the proceeding (the true of the t

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	Annual repairs to Main Road, Seroor to Nuggur, 1846-47	3,862 9.10	
	Annual repairs to Bridges and Drains, ditto, 1846-47 -	447 13 -	•
	Annual repairs to Cross Roads, 1846-47 Anaual repairs to Bridges and Drains, 1846-47	78 12 2	
	Minor Works	, 24 2 2	
	Annual repuirs to Works on Nugpore Dak Line	5,841 3 4	
	Special repairs to ditto ditto	1,783 7 7	
	Erection of New Works ditto	1,660 5 2	Call South
	Maintenance of Ferrymen and Haulers, ditto	8,002 1 1 240	the second sector
	Annual repairs to Main Road, from Thull to Chandore Ghaut,		Sale 2 -
	1840-47	12,936 2 7	a na di 🏘 kari di d
	Annual repairs to Bridges and Drains, 1846-47	178 15 11	
	Anneal repairs to Cross Roads, Nassick Sub-Collectorate	1,639 18 5	
	Annual repairs to Bridges and Drains, ditto	83 0 7	
	Annual repairs to Ferry Boats and Plying Bridges Special repairs to Main Road	162 14 7 23 14 10	and shares the
	Converting Kadoo Ferry Boat into a Flying Bridge	54 13 7	and a state of
	Renairing a Bridge on Sumier Cross Rond	296 15 5	A Sector 12 Contractor 12
	Minor Works		
	Pulling down and stacking frame-work of the Undwell Bridge Completing lower and experimental portions of Road on the	85 6 2	<ol> <li>It such as</li> </ol>
	Thull Ghaut	16,691 11 9	the trade (
	Ditto 2 2 - "upper portion 2-	6,702 - 11	to a transformation
	Special repairs to Main Roady Colsetts Ferry to Thul Ghaut -	89 - 7	an an ann an Arthur
	Anauel repairs to ditto ditto, 1846-47	9,070 10 4	a per la ca Ta
	Repairing Bridge at Gokluriva	5,805 9 11	and the less
	Constructing Steps to Jetty at Callian	18 12 - 48 3 6	e na state de
•	Repairs to Bridge at Bussein	102 14 5	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
	Annual repairs to roads in Bhewndy, 1846-47	194 6 8	
	Special repairs to Kusseyles Bunder (called erroneously in last		N M M (Second L) Second
	year's Report, owing to a mistake of the copyist, " Callian Pier "}	1000 0 0	
	Conveying four guns from Tannah to Kusseyles Bunder	1,006 7 6	1
	Repairing Road from Anich to Chenboar	115 4 5	
	Building a Bout for Oomergaom Ferry	421 10 1	
	Brenking down and Rebuilding Wing Walls of Mullas Bridge	404 7 -	
	Constructing four Rolls-frames Annual repairs to Main Road. Sion and Colsette, 1840-47	120	ļ
	Annual repuirs to ditto 4 - Bundora to Ghorabunder, 1848-47	5,042 15 9	,
	Annual repairs to ditto 'I' - 'I'rombay to Sion, 1846-47 -	10 10 998 7 -	
	Special ditto to ditto, between Tannah and Perseeh	····· 51 - 2	
	Minor Works and a Har and a Maria and a light	01.15 40 4 5	1
	Annual repairs to Roud from Chemboar to Mhoul, which a solar Special repairs to Sankee Bridge and Vehar Bhund and the second statements	1000 100°	ł •
	Removing Guns from the Ramps of the Tabnah Causeway, and	part C anti Sena	ļ
	substituting Mooring Rings - other to report a to allor the	196. 1159-11 - 6	ł
	Erecting a Bridge at Erla Parlee	1,500 00	a.
	Constructing new Rond from Coorls to Bhandoop, by Convict		•
	Providing metal for the Mail Road from Panwell to Khoopoolie,	7,500 - 4	i yn
	out of the sunction for 1815-40	01 J45 15 - 7	2014 - 104
	Annual repairs to Nagotas and Mahableshwar Road, 1845-46 -	3,025	1
	S (sensitive)	1	l

NAMES OF WORKS.	AMOUNT.	TOTAL	Presidency of Bombay.
		<u> </u>	
-	Re. a. p.	Rs. a. p.	
Repairing Platform of Panwell Bunder	4,342 8 8		
Annual repairs to Mail Road, 1846-47	5,978 7 1		
Annual repairs to Bridges and Drains, 1846-47	91 10 8		
Annual repairs to Nagotna and Mahableshwar Road, 1846-47 -	4,670		
Annual repairs to Cross Road, Tannah Collectorate, 1846-47 - Constructing a piece of Road leading into the Town of Chiplow	3,357 13 2 1,439	м. ( <b>Х</b> . ₁ .	
Annual repairs to Cross Roads, Southern Concan, 1840-47 -	1,169 1 5		
		2,92,867 5 5	
TANKS, WELLS and BUNDS: *			
Deepening Well at Wursoolie	16 4 4		
Building Coping of Cut Stone to two Wells in the Khundalla Tank	551 9 <b>-</b>		
Opening Sluice Gates in the Dhumm at Kullud	687 15 10		
Opening Sluice Gates of Kutrass Tank	6	1. Sec. 1. Sec	
Closing ditto ditto Repairs to Wella, Nassick Sub-Collectorate	47 84 7 11		
Deepening and enlarging Well at Kussara	221 13 10		
Improving the Tank at ditto	109 15 7	{ · · · · ·	
Clearing Tank in the Town of Tannah	9 5 6		
Clearing out Chowdar Tank at Mhar	4,855	5,989 7 -	
and the second state of th			
BUILDINGS:	a se		
Annual and special repairs to Travellers' Bungalows and Furni-			
ture, for 1846-47	4,146 12 8		
Building a Post-office at Khundalla Supplying Plank Weather Frames to Karles and Murgaom	1	and the second second	
Bungalows and Outhouses	113 4 5		
Building a Privy at Veera Bridge Bungalow	171		
Repairs to Roof of Seroor Bungalow	87 8 2		
Repairs to ditto of Chandore Bungalow Outhouses Erecting Military Buildings at Nassick	3,852 4 8	and a second of	
Certain additions to ditto ditto	497 7 10		
Annual repairs to Store Room at Bhewndy	9 9 9	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Annual repairs to Military Buildings, ditto	69- 91110		
Special repairs to Tannah Church	84 5 0	1 . * · · ·	
Annual repairs to Buildings in Customs Department at Tannah	105 4 1		
Special repairs to ditto ditto	10 4 -		
Constructing a Gate and repairing Enclosure Walls of Mam- lutdar's Cutcherry at Cullian	258 8 1		
Annual repairs to Civil and Detachment Hospital at Tanna -	90 15 8		
Annual repairs to Store Room, ditto	42		
Weather Screens for Entrance to Tannah Church	99 7 - 40 7 9		
Special repairs to Office of Collector of Customs, Tanna Annual repairs to permanent and temporary Pendalls	117 9 8		
Erecting four new and improving two old ditto	3,470 7 8	1	
Constructing three Sentry Boxes -	24 15 8	1.	
Erecting a new Detechment Hospital	1,500		
Constructing a new Bungalow at Par	1,250		
Furniture for ditto Numda Ceiling to Indapore Bungalow	101 11 11		
		16,439 - 10	
GRAND TOTAL - Three Lacs, Fourteen Thous Hundred and Ninety-five, Thirteen Annus and Three	Pies -} -	8,14,795 18 8	
The second s	1. <b>.</b>	÷	
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TEN YEARS, AND THOSE NOW IN PROGRESS. 205

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**STATEMENT** 

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STATEMENT of Exterdires incurred under the Presidency of Bonkey on Works of Issioarnee, and in the Construction of Roans and Barness, for the Ten Years, from 1836-37 to 1845-46, inclusive.	KPENDITCRE IN	curred under ti	te Presidency	of Bombay	1 on Wore	s of IERIOA	rrow, and in	the Construc	tion of I	to a ne and Br	tness, for the	ren Years, from	1836-37 to 1845-	46, inclusive.
					<b>A</b>	OADS	and B.R.	IDGB	ಶ	,				
				Defi	rayed from	the late C	ounty and A	sessment Pr	unds, and	I the present	Defrayed from the late County and Assessment Funds, and the present Municipal Fund.	īd.		
!	1836-37.	1637-38.	1838-39.	. 39	1839-40.		1940-41.	1841-43		1842 43	1843-44	1844 45.	1845-46.	Torat.
Charges for repairs to Old Roads	Re. 6. 3 71,072 7	p. 114.	B. P. B.	4 •	R	ي م م	Ra. a. p. 63,664 - 11	R	<u>i</u> , «	Ra. 4. p. 63,321 6 4	Rt. c. p. 61,982 6 5	B4. 2. p. 85,412 ⁻ 1 11	Rt p. 64,867 2 -	Rs. a. p. 6,91,128 6 3
Charges for constructing New Roads	81,358 3 3	3 47,180 15	62,661 15		46,457 18	**	33,549 6 2	17,674 ]4	*	7,507 - 3	31,069 6 1	61,687	63,64S - 7	3,81,673 10 4
Charges for repairs to Old Bridges	1 1 1	•	1 1 3 4	; '	۲ ۱	1 	•	· .	· ·	1	, , ,		<b>4</b> Ø	ч Ф.
Charges for constructing New Bridges	1	,1			1		1	1		1	l	J	I	I
TOTAL Re	1,02,425 11	- 1,21,089 9	- 1,33,762	9 i 8	1,09,116	11 B	97,212 7 1	90,056 9	9 6 70	70,628 6 7	93,051 12 6	1,37,699 1 11	1,18,411 11 11	10,72,803 9 11
					Defn	syed from (	the Honoura	Defrayed from the Honourable Company's Treasury.	y's Trea	ury.				TOTAL
	1836-37.	1837-38.	1838-39.	1639-40.	e	1840-41.	1841-42.		1842-43.	184 <b>3-44</b> .	1644-45.	1845-46.	Torat.	from all Sources.
Charges for repairs to Old Roads	i Ra. e. p. 61,791 - 1	a. p. Ro. a. p. Ro 1 1,12,9264	Re	Ra.	6 0 1 1 -	R P.	Ra. a. 1,22,704 10	. <b>P.</b> . R.	4 9 11 6	Re. a. 1	p. Rs. a. - 1,68,039 12	P. R. a. p. b 2,15,033 14 10	Ra. a. p. 13,16,619 9 6	Rt. a. p. 20,07,747 15 9
Charges for constructing New Roads	58,556 15 11	86,523 - 9	<b>55,849</b> 7 2	161'89	0. 38	67,045 11 8	39,592 1	4 28,442	1 1	1,09,622 3	6 94,191 8 10	10 45,851 3 11	6,62,871 15 11	10,44,545 10 8
Charges for repairs to Old Bridges	4,579 6 1	4,870 8 1	11,877 18	9,427	2+	8,879 8 4	8,776 15	2,265	-	3,458 6 10	0 3,164 6	1 3,686 8 11	60,687 8 10	60,689 2 2
Charges for constructing New Bridges	• 967 12 -	2,353 14 7	9,869 10 - 3	22,637	) ود (	62,043 13 4	77,106 10	3 20,112	8	13,712 13	8 3,476 1	- 21,667 11 11	2,33,975 14 4	2,33,975 14 4
TOTAE Rs. J.	1,25,905 2 1 2	2,05,673 13 3	1,79,881 14 4	1,96,011	- 2	2,76,563 1 11	2,48,180 5	4 1,84,816	6 3	2,81,811 10 10	0 2,88,571 12	- 2,96,441 7 7	22,74,155 - 7	33,46,958 10 6
							ŀ							

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BOMBAY.

				TANKS, &c.,	and WO	RKS of 1	RRIGAT	ATION.		•			
		Incurred on the Bombay		l, in the Construc Co	otion, Repairing unty and Asses	g, and Mainten sment Fund, a	ance of Tank ad the presen	a for Purposes 4 Municipal F	s other than Iriund.	rigation, and defr	Island, in the Construction, Repairing, and Maintenance of Tanks for Purposes other than Irrigation, and defrayed from the late County and Assessment Fund, and the present Municipal Fund.		
	1836-87.	<b></b> 83738.	1838-39.	1839-40.	1840-41.	1841-42.		1842-43,	1843-44	1844 <u>-</u> 45.	1845-46.	TOTAL.	
Charges for constructing	Ra. a. p.	Ra a. p.	Ro. a. p.	Re. G. P.	Re	j. Ra.	24 •d • •	Rs. a. p.	Rs. a. p.	Re. c. p.	Rs. a. p.	Re. a. p.	
	1	i	1	1	1			t	 1	1	1	1	TEN
Charges for ropairing and maintaining ditto	3,267 19 0	10,312 4 8	<b>5,882 13 5</b>	7,232 4 9	1,169 3 10	577	ي بر بر	971 4 -	9 11 696	4,598 13 -	4,972 1 9	38,993 8 8	
Torat - Re.	2,267 12 9	10,312 4 3	5,882 13 5	7,238 4 9	1,189 3 10	10 577	6	- + 1/6	969 11 6	4,598 13 -	4,972 1 9	38,993 8 3	EAR
		Incurred under the Be	ider the Bombay	ombay Presidency, in the Construction,	he Construction		nd Maintenar	ice of Tanks,	Repairing, and Maintenance of Tanka, Wells, Canals, Bundarahs,	, Bundarahs, Sc	&c., for Irrigation.		IS, A
	1836-37.	1837 <b>-3</b> 8,	1638-39.	1839-40.	1840-41.	1841-42.	  .	1842-43.	1843-44	• 184 <del>4 4</del> 5.	184 <del>5-4</del> 6.	Total	
ູ ບ	Re. e.	Re. 4. P.	Re a p	id is Ref	3 2	b. Fr. o	4 4 5	Re. a. p.	Re. a. p.	Re. a. p.	Ra. a. p.	At. a. p.	
A duraha Ba	14,396 10 11	11,367 2 5	14,538 14 8	12,208 5 8	21,633 14	5 9,693 14	4	8,198 11 8	3,088 <b>4</b> -	2,283 7 3	619 6 9	93,283 11 3	
Charges for repairing and maintaining ditto	4 23,636 9 9	86,341 15 k	26,801 9 7	54,699 8 -	17,640 8	7 30,434	9 9 50'A	29,507 11 7	9,877 - <b>5</b>	33,859 4 8	30,096 9 2	2,92,794 12 4	
Totat - Re.	86,033 4 1	47,600 1 10	41,335 7 -	66,907 8 8	- 89,474 2	- 40,133	8 1 32,701	6 10	12,965 4 5	86,142 11 11	30,775 15 11	8,86,078 7 7	
•	1646-37.	1837–48.	1436-39.	1839-40.	1840-41.	1 <u>9</u> 41-43.	1842-43.	1843-44	1844-45.	1845-46.	TOTAL	TOTAL from all Sources.	N FF
Charges for constructing	81 a.p.	Rt. G. P.	Re. c. p.	R. 9	Re a p	Re e. p.	Re a p	Ra. a. p.	Re. c. p.	. Re. c. p.	Rs. a. p.		lUG
Tauka Wella, Canala, Bun- daraha, &c. ,-	4,524 3 11	13,996 - 7	8 21 167,8	11,423 2 8	6,618 \$ 10 J	13,497 9 1	5,364 4 11	7,408 8 11	16,619 2 3	22,479 6 6	1,14,120 9 8	2,07,404 4 6	
Chargen for repairing and maintaining ditto	4 8,904 13 7	14,103 8 7	14,696 5 6	6,123 15 1	7,903 1 10 1	16,060 9 8	5,077 14 9	7,897 5 6	11,633 - 9	14.006 6 7	1,08,615 11 10	4,38,404 - 5	
Total . B.	17,429 1 6	36,098 8 2	2 2 879.23	17,545 1 9 1	14,421 7 8 9	20,678 2 9	10,443 5 8	15,806 14 5	28,453 2 11	36,485 13 1	2,20,735 5 1	6,45,808 4 11	
		ROADS TANKS	ROADS and BRIDGES ; TANKS, br., and WORE	ROADS and BRIDGES ; Total from all Sources	X ; Total from all	• • •	•••	• •	Rs. a. p. 33,46,958 10 6 . 6,45,808 4 11	4.9			:
						U	GRAND TOTAL	1 1 1	Ra. 29,92,166 15		,		207
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TEN YEARS, AND THOSE NOW IN PROGRESS.

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STATEMENT of Experiments incurred under the Presidency of Bomboy on Wonnes of Innostructur, and in the Construction of Roans and Berroers, for the Ten Years, from 1836-37 to 1845-45, inclusive.

BOADS and BRIDGES.

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					R V A U	המוג מיני	U D K I D						
				Defraye	d from the L	ate Count	ry and Asses	rment Punds, a	nd the present	Defrayed from the late County and Assessment Funds, and the present Municipal Fund.			
	1836-37.	1637-36	1838-89.		1839-40.	1840	1840-41.	1841-42	184 <del>3 4</del> %	1843-44	1844-45.	1845-46.	TOTAL.
Churges for repairs to Old Roads	RA 6. 71003 7		n. p. Ra.	d. 0 1	Rs. e. p. 63,658 6 8	R.c. 63,664	a≟ / ∰ a = 1	He. e. p. .72,361 11 2	Re. c. p. 63,221 6 4	Re. 2. p. 61,982 6 5	Ra. a. p. 85,412 1 11	R	Re. e. p.
ler constructurg N			8 62,851 15	•	45,457 12 3	33,546	я Ф	17,674 14 4	7,307 - 3	31,069 6 1	<b>b</b> 1,687	1	9 9
Charges for repairs to Old Bridges	• •	•	• • •	í 	1	1 1	• •		•	•	1 1 1	<b>*</b> 6, 14	1 0 T
Charges for constructing New Bridges	1	. <b>!</b>	1	·	1	1		 	1	I		I	I
Torat Re.	1,02,425 11	- 1,21,059 \$	- 1,33,762	•	1,09,116 2 11	812,79	1	90,056 9 6	70,628 6 7	03,051 12 6	1,37,699 1 11	1,18,411 11 11	10,72,803 9 11
					Defrayed f	rom the	Honourable	Defrayed from the Honourable Company's Treasury.	asury.				TOTAL
Į	1836-57.	1837-38	1838-39.	1839-40.	1840-41	· 🗧	1841 <b>-42.</b>	1842-43.	1843-44	1844 45.	1845-46.	Torat	from all Sources.
Charase for rensing to Old	Re. e. p.	Rt. 4. p.	- 12 - 12 - 12		R.	- <del>5</del> .   11		Re.	ie Ke	Re. a.			la su com
Ronds -	61,791 - 1	61,791 - 1 1,12,926 10 10	1,02,264 15 11	1,05,749	3 1,19,096		1,22,704 10 -	1,33,994 9 11	1,55,018 13	- 1,68,039 12 4	2,15,033 14 10	13,16,619 9 6	20,07,747 15 9
Charges for constructing New Roads	58,556 15 11	85,523 - 9	55,849 7 2	\$9,197 <b>9</b>	67,045 11	φ,	39,592 I 4	28,442 I I	1,09,622 .3	6 94,191 8 10	45,851 3 11	6,62,971 15 11	10,44,545 10 8
Charges for repairs to Old Bridges	4,579 6 1	4,670 8 1	- 91 229	9,427	7 8,379		e,776 15 4	2,265 1 7	3,458 6 10	0 3,164 6 1	3,888 8 11	60,687 8 10	60,689 2 2
Charges for constructing New Bridges	• 967 12 -	2,353 14 7	9,889 10 - 3	22,637 2	<b>5</b> 62,042 12	•	77,106 10 8	20,112 9 8	13,712 13	6 3,476 1 -	21,667 11 11	2,33,975 14 4	2,33,975 14 4
Turat Ra 1,25,903 2 1 2,05,573 13 3 1,79,691 14	25,905 2 1	2,05,673 13 8		4 1,96,011 7	- 2,76,563	1 11 2,4	2,48,180 5 4	1,84,816 6 3	2,81,811 10 10	2,88,871 12	- 2,86,441 7 7	22,74,155 - 7	33,46,958 10 6

## PUBLIC WORKS COMPLETED IN INDIA IN THE LAST

22.		Incurred on the Bombay	No.	d, in the Constr (	uction, Repair Jounty and As	ring, and Mair sessment Fund	itenance of T	anks for Purpa esent Municipal	ses other than I Fund.	rrigation, and def	Island, in the Construction, Repairing, and Maintenance of Tanks for Purposes other than Irrigation, and defrayed from the late County and Assessment Fund, and the present Municipal Fund.	
•	1636-97.	-183738.	1838-39.	1839-40.	1840-41.		1841-42.	184 <u>2-4</u> 3.	1843-44.	1844-45.	1845-46.	TOTAL.
Charges for constructing	Ra. G. p.	Re. a. p.	Re. a. p.	Rep	6 .	a P. R.	4 5	Rs. a. p.	. Re. a. p.	Re. a. p.	Rs. a. p.	Re. c. p.
Tenka, Wella, Canala, Bun- daraha, &o	1	i.	1		1		4	; 1	1	1	I	1
Charges for repairing and maintaining ditto	2,267 19 9	10,312 4 8	6,882 13 b	7,232 4 5	69 j ¹ 189 1	3 10 577	- - -	971 4 -	9 11 696	4,598 13 -	4,972 1 9	38,993 <del>8</del> 3
Torai - Ra.	2,287 13 9	10,312 4 3	6,882 13 5	1,239 4 5	91,189	3 10 577		- + 146	9 11 696	4,598 13 -	4,972 1 9	36,993 8 3
		Incurred under the ]		tombag Presidency, in the Construction,	the Construct		Repairing, and Maintenance of	enance of Tanks,	s, Wells, Canals,	Bundaraha,	&c., for Irrigation.	•
,	1836-87.	1837-38.	1838-39.	1839-40.	1840-41		1841-42.	1842-43.	1843-44.	- 1844-45.	1846 <b>—1</b> 6.	TOTAL.
A Charges for constructing	Re a p	Re. a. p.	Re. a. P.	R	p K.	a. P.	4 6	Re. a. p.	Re a p	Re. c. p.	Rs. c. p.	Rt. a. p.
the Tanke, Welle, Canala, Bur-	14,396 10 11	11,367 2 5	14,535 14 8	12,208 5	8 21,633 14	<u>م</u>	9,698 14 4	8, 11 891,8	3,098 4 -	2,263 7 3	679 6 9	93,263 11 3
Charges for repairing and maintaining ditto	23,636 9 2	36,241 15 E	26,801 9 7	54,699 8	- 17,640	8 7 80,434	- 6 6	29,507 11 7	9,877 - 5	33,859 4 8	20,096 9 2	2,92,794 12 4
TOTAL RA	38,033 4 1	41,609 1 10	41,885 7 -	66,907 8	8 : 39,474	2 - 40,133		82,701 6 10	12,965 4 5	36,142 11 11	80,775 15 11	3,66,078 7 7
	1636-37.	1637-38.	1438-39.	1839-40.	1840-41.	1841-48	1642-43.	1843-44	1641-45.	1845-46.	TOTAL	TOTAL from all Sources.
Charges for constructing	Ri ap	Re. a. p.	Re. c. p.	म् म म	Re. a p	Re e.p.	Be	P. R. G.	p. Re e	p. Re. a. p.	Re. a. p.	Re. a p
Tauta, Wella, Canala, Ban- darrina, &a	6,534 3 11	13,996 - 7	6,291 12 6	11,423 2 8	6,515 \$ 10	13,497 9 1	5,364	4 11 7,408 8	8 11 16,619 2	3 22,479 6 6	1,14,120 9 3	2,07,404 4 6
Charges for repairing and maintaining ditto	8,904 13 7	14,105 8 7	14,686 5 6	6,123 15 1	7,908 1 10	16,050 9 8	6,077 14	9 7,897 5	6 11,833 -	9 14,006 6 7	1,06,615 11 10	4,88,404 - 5
. Toras - Re.	17,429 1 6	28,098 8 2	22,978 2 2	17,546 1 9	14,421 7 6	39,578 3 0	10,443 3	6 15,306 14	5 28,453 2	11 36,485 13 1	2,20,736 5 1	6,45,808 4 11
		ROADS	ROADS and BRIDGES ;	GES; Total from all Sources				• •	R. a. 23,46,969 10 6.45 800 4	si 10 =		- -
										. [ •	,	
						•	GRAND TOTAL	0TAL	Ra. 89,92,766 15	•		

TEN YEARS, AND THOSE NOW IN PROGRESS.

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Presidency of Bombay.

SUMMARY of Expenditure incurred under the several PRESIDENCIES, as follows; viz.

PRESIDENCY.	DESCRIPTION.	AMOUNT.
		Rs. a. p.
Bengal	- on Works, Salaries, Establishments, &c., in the Civil Department of Public Works within the ten (10) years from season 1839-40 to season 1848-49 in- clusive, from the Military Board Office Bill Books	
Fort St. Grouge -	- on Repair and Construction of Works of Irrigation, and on Roads, Bridges and Ghauts for the ten (10) years from 1838 to 1847 inclusive	82,51,187 - 2
Jomuay	on Works of Irrigation, and on the Construction of Roads and Bridges for the ten (10) years from 1836-37 to 1845-46 inclusive -	39,92,766 15 5
4	Rs.	3,46,09,297 14 8

Thus, while the works particularized as above appear to have cost Rs. 3,46,09,297. 14. 8. in the aggregate, that sum cannot be considered as the total amount expended by Government for works of public utility; the outlay incurred in the improvement of roads, &c., under the control of Local Committees, out of funds derived from ferries and other sources placed at their disposal for that purpose, not being included, nor the value of convict labour employed on Public Works. The years subsequent to those referred to in the above statement, will likewise show a much higher rate of expenditure; the Court of Directors having made large grants for several important Public Works, the principal of which are the following; viz.

At Bengal, a special grant of 97 lacs of rupees (nearly 1,000,000 *l*.) for the completion of the Ganges Canal.

In the Punjaub, an annual outlay of 5,00,000 rupees (50,000 l.) for canals and roads, besides a special grant of 50,00,000 rupees (500,000 l.) for the construction of canals of irrigation and navigation in the Baree Dooab.

At Madras, an additional grant of between 4,00,000 and 5,00,000 rupees (40,000 l. and 50,000 l.) for the Godavery Annicut, and of 15,00,000 rupees (150,000 l.) for works on the Kistna River.

At Bombay, a grant of 3,09,610 rupees (30,961 l.) for the construction of the Mole and Road at Kurrachee.

Plans for completing the road under construction on the Phoonda Ghaut, and also for providing a supply of water to Bombay, both which schemes involve a very large amount of expenditure, are under the consideration of the Court of Directors, who await the receipt of further surveys and revised estimates, before giving their final sanction thereto. The recent correspondence respecting these works is given in an Appendix.

East India House, 26 July 1851.

Railways.

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## RAILWAYS.

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#### BENGAL.

#### EAST INDIA RAILWAY.

A RAILWAY is in course of construction in Bengal, which is to form part of a Line of Railway from Calcutta towards the Upper Provinces of India. The execution of it is undertaken by a Company on terms specified in a contract which has been entered into by them with the East India Company, who provide all the land required for the Railway, and guarantee 5 per cent. interest for 99 years, on the capital of 1,000,000*l*.; this amount is to be paid into the East India Company's Treasury by August 1852, and drawn out from thence as required.

The contract bears date the 17th August 1849. The works were commenced in India in September 1850, and it is expected that the section now being proceeded with, will be completed in the year 1853. The question of extending the Line towards the North Western Provinces, is now under consideration.

#### BOMBAY.

#### EAST INDIA PENINSULAR RAILWAY.

A RAILWAY is being constructed in this Presidency, which commences at Bombay and proceeds towards the Ghauts by way of Callian. The execution of this Line is also committed to a Company, on the same terms as those granted to the East India Railway Company. Under an existing contract, a capital of 500,000*l*. has to be raised by the Railway Company, and under a clause of the deed of contract, this may be hereafter increased to 1,000,000*l*. The question of this increase is now under consideration. The first section is intended to terminate near to Callian, a distance of 40 miles. Directions have been given for making surveys, in order to enable the authorities to determine what direction the second Section Line, shall take, and what shall be its proposed termination.

The whole outlay already sanctioned for the purposes of Railways in India is 2,000,000*l*.; this is independently of the cost of land, which is borne entirely by the East India Company.



#### Appendix.

## APPENDIX.

## GANGES CANAL.

## REVENUE DEPARTMENT, 7 July (No. 9) 1847.

## Our Governor-General of India in Council.

Para 1. WE have received a letter from our Governor-general in the Home Department, dated at Simila the 20th April (No. 5) 1847, in which his Lordship solicits our sanction to the immediate prosecution of the works on the Ganges Caual on an extensive scale, and to the assignment of 20, or even 30 lacs of rupees per annum to that object. 2. In our despatch of the 1st September (No. 12) 1841, we gave our sanction to the plan "

as it was then proposed, the estimated cost being 60 lacs, and the expected net return 2,50,000 rupees; since that time, we have on several occasions, and particularly in our despatches of the 20th November (No. 12) 1844, and I July (No. 8) 1846, expressed our sense of, the -importance of the undertaking, and our hopes that means would be placed at the disposal of the Superintendent for its rigorous prosecution.

8. The Governor-general has submitted to us the Report of the Committee which was appointed to ascertain by actual inspection the effect of canal irrigation on the health of the people. The Committee have satisfied themselves that the Delbi and Dooab Canals have had some influence in producing disease in the tracts of country through which they pass; they consider, however, that such an effect is much less likely to follow the construction of the Ganges Canal, from the nature and elevation of the country through which it will be conducted, which will generally admit of an efficient system of drainage, and from attention having been given in laying out the line to points which were not so well understood when the others were projected; although there may be portions of the canal on which it may be found impracticable to adopt efficient measures for preventing the development of miasmatic disease, they are of opinion that on others an improvement rather than a deterioration of the general salubrity, may follow the introduction of canal irrigation; on the whole, therefore, we do not think that considerations having reference to the public health are of sufficient weight to overbalance the acknowledged advantage of an abundant and never-failing supply

of water for agricultural purposes. 4. The Governor-general further seems to apprehend, that the navigation of the Ganges below Allahabad will for three or four months in the year be greatly impeded, if not. altogether stopped, in consequence of the obstruction of so large a quantity of water at the canal head at Kunkhul, near Hurdwar. This point has from the first received the consideration which its importance demands; the Committee, consisting of Captains Abbott, Cautley and Baker, who were appointed in 1842 to examine the project for the Ganges Canal, reported that in their opinion, " the navigation of the river would not be injured below Campore; between that point and Ghurmooklisir Ghaut, the navigation for the larger classes of 'river craft will probably be impaired, if not altogether stopped ; therefore, (they add,) it appears to the Committee to be absolutely necessary that the main line of canal from Kunkhul to Cawnpore should be rendered completely efficient for navigation." In his subsequent detailed Report, Captain Cautley examines this question at considerable length, and after showing the effects produced on the Junna River by the abstraction of the whole of its water

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to feed the Delhi and Doob Canals, comes to the conclusion, that " no interruption will arise to the navigation of the Ganges as high up as Futtehgurh," even supposing that the whole body of the river, as it leaves the hills, is taken away for the supply of the Ganges Canal." With these high professional opinions before us, we are not disposed to attach who will be appropriate the appropriate the concurrence of the Concerner of the supply of the dattach and the appropriate the appropriate the appropriate of the Concerner of the supply of the dattach and the appropriate the appropriate of the concerner of the concerner of the supply much weight to the apprehension that the navigation of the Gauges will be impeded below its junction with the Jumna at Allahabad.

5. Before you authorise any increased outlay on the work, we desire that the following points may receive your careful consideration :

First. The practicability of completing the canal for the sum, and within the period named.

Secondly. The extent to which the canal should be made subservient to purposes of navigation.

6. The Governor-general estimates the cost of the canal at one million sterling, and the annual return at 145,000 l. or 144 per cent. This differs from Major Cautley's estimate, who gives 93, 39, 746 rupees for the cost of the line to which he gives the preference, and 10,34,555 rupees as the probable net return.

10,84,668 rupces as the probable net return. 7. There appears to be no doubt of the practicability of the scheme, in the minds of those persons who have been consulted on the subject; Major Cautley's plans and estimates have been printed, and have consequently been open to professional criticism; the only great engineering difficulty seems to be the aqueduct over the Solani River, the cost of which is estimated at 15,80,784 rupces, and which the Governor-general states cannot be completed under five years, and will probably require six or seven; and as the success of the whole index thing is antirally dependent on the satisfactory completion of this work we think is undertaking is entirely dependent on the satisfactory completion of this work, we think it

desirable ....

desirable that the plans and estimates should be subjected to further scrutiny, and that some competent officer (if possible one not previously connected with the work), should be deputed to the spot for that purpose.

Appendix.

8. Major Cautley's original plan was for a canal of irrigation, adapted, as far as could be done consistently with its efficiency in that respect, for navigation also; in 1844, the Government determined, that the Canal should be constructed with a view to navigation in the first instance, and that irrigation should be made a secondary object. We altogether disapprove of this project ; and we are satisfied that its employment as a navigable canal should in any case be made altogether subordinate to its use as a means of irrigation ; the advantage of possessing a good line of water communication through the centre of the Docab is undoubted, more especially if the navigation of the Ganges above Cawnpore should be rendered im-practicable from the abstraction of its water. On the other hand, the efficiency of the Canal for purposes of irrigation may possibly be impaired by specially adapting it to purposes of navigation ; the expense of its construction will certainly be very much increased ; the injury occasioned to the banks by the passage of boats will probably add to the cost of the annual repairs ; and it must not be left out of view, that the Canal, as a means of transit, may be hereafter superseded by the construction of a railway. These considerations must be borne in mind in determining on the expediency of adapting the Canal to purposes of navigation; and we would desire you to consider whether the sum which would be saved out of its cost by making it a canal of irrigation exclusively, might not be better applied in improving the ordinary means of communication through that tract of country, either by clearing the rivers of existing obstructions, by improving the roads, and eventually by the construction of a railway.

9. On the subject of the proposed augmentation to the aps of Engineers at the three Presidencies, alluded to in para. 39 of the Governor-general's letter, we shall bereafter address you in the proper department; in the mean time, we shall take measures for supplying you with the eight additional engineer officers requested in the 38th paragraph, and we shall, at an early period, communicate with Major Cautley relative to the engagement of artisans

required for the Canal works, according to the suggestion contained in the same paragraph,

We are, &c. H. St. George Tucker, (signed) J. L. Lushington, &c. &c.

London, 7 July 1847.

#### PUNJAUB WORKS.

FOREIGN DEPARTMENT, Simla, 30 July (No. 35) 1849.

To the Honourable the Court of Directors of the East India Company.

Honourable Sirs,

I HAVE the honour to transmit to you the accompanying copy of correspondence" with the Board of Administration at Lahore, relative to the adoption of measures for the development of the resources of the Punjab. I have to request your sanction to an annual expenditure of five lacs, which I have undertaken to grant for the construction of Public

Works in that country." 2. You will observe that I have directed the commencement of operations for the formation of canals, but until your sanction is received, they will not be carried on to any great extent, as the season will prevent any active measures involving large outlay

3. I need not expatiate on the advantages, political, social and fiscal, which I expect will be derived from offering an inducement to the people to occupy themselves in agricultural pursuits; they are fully dwelt upon in the Board's letter, and readily acknowledged in my reply.

Simla, 30 July 1849.

I have, &c. Dalhousie. (signed)

## REVENUE DEPARTMENT, 5 December (No. 11) 1849.

, Our Governor-General of India in Council.

Para. 1. WE now reply to the Governor-general's Foreign letter, dated 30 July (No. 35) 1849

2. The measures proposed by the Board of Administration in Lahore for developing the resources of the Punjab by Public Works, principally the construction of a great military road between Lahore and Peshawur, and the enlargement and extension of the Huslee Canal of irrigation, appear to promise highly advantageous results.

S. We gladly give our sanction, as requested by the Governor-general, to the annual outlay of five lacs of rupees (6,00,000 rupees) for these and similar purposes.

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^{*} From the Secretary to the Board of Administration, Labore, dated 28 May 1849 No. 24, to the Board of Administration, Labore, 25 July, No. 1,284.

Appendix.

4. It is proposed to repay this expenditure from the income to be derived from the Ferry Fund, Road Fund, and Canal Rents, amounting to 2,60,000 rupees per annum, and to add to this the Excise Revenue, 2,00,000 rupees. The surplus Ferry Funds being already applicable, in our old possessions, only to purposes of local improvement, and the one per cent. Road Fund being raised with the specific object of being expended in improving the means of communication, may be properly applied in aid of this expenditure ; it being understood, however, that for works undertaken out of these funds, sanction must be obtained in the same manner as for those, the cost of which is defrayed out of the ordinary revenue. We object, as a general principle, to the allotment of any branch of revenue to a particular object. We concur, therefore, with the Governor-general in not approving the appropriation of the Abkaree to the specific object of being expended in improving the public works in the Punjab; and the same objection exists to a similar application of the Canal Rents, which, in fact, form a portion of the land revenue. Whatever sum may be required beyond the proceeds of the Ferry and Road Funds to meet the expenditure now sanctioned, must be. taken out of the general revenue.

5. Major Napier's report on the Huslee Canal, gives a clear, interesting, and highly promising view of the extent to which it now is, and to which it may be made available for irrigation; of the present and prospective revenue; and of the grounds for expecting the . cordial co-operation of the Zemindars.

6. We notice as a strong ground for giving the utmost practicable encouragement to the proposed measures of irrigation, the circumstances remarked by Major Napier, that "Surrounded by the most luxuriant cultivation, the canal villages and their inhabitants bear every appearance of comfort and ease; there is scarcely a discharged soldier to be found in them, as the cultivation affords ample occupation for the population, whilst the poor villages in the dry tracts between Lahore and Kussoor, with their small patches of cultivation,

hardly wrought from wells more than 60 feet deep, were full of the discharged Khalsa." 7. The dishonesty of the native managers, whose exactions of half a rupee per begah, in addition to the Government rate of one rupee, "have grown into a rule," will, we trust, under Major Napier's prohibitory arrangements, be for the future thoroughly checked. There are also serious losses from neglect and mismanagement, which will require careful attention, especially the waste from mill-streams not returning to the canal.

8. We observe that Major Napier states the ordinary supply of water in the canal during the winter months to be about 200 cubic feet per second, which is sufficient to irrigate 70,000 begahs of land.

9. The irrigation of 70,000 begans would yield 70,000 rupees of annual revenue. We think the realization of one rupee per begah from the full capacity of the canal may be fairly anticipated, when the mismanagement and exaction above alluded to shall have been remedied.

We are, &c.

A. Galloway,

J. Shepherd, &c. &c.

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(signed)

London, 5 December 1849.

## FOREIGN DEPARTMENT, Simla, 10 June (No. 15) 1850. .

To the Honourable the Court of Directors of the East India Company. A 1949 A 194 Honourable Sirs,

In your despatch in the Revenue Department, dated the 5th Décember last, No. 11, your Honourable Court remark, "that for works undertaken out of the five lacs allowed for public works in the Punjab, sanction must be obtained in the same manner as for those, the cost of which is defrayed out of the ordinary revenue."

2. This circumstance having been brought to the notice of the Board, I have now the honour to transmit for your information copy of the correspondence noted in the margin," regarding th Lieu

eutenant-colonel Napier, from the func	ns on account of the public works carried on under is set apart for that purpose.
Simla, 10 June 1850.	I have, &c. (signed) Dalhousie.

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## REVENUE DEPARTMENT, 25 April (No. 5) 1851.

### Our Governor-General of India in Council.

Para. 1. THE letters and paragraphs noted in the margin, + report the progress made in the execution of public works in the Punjab, which appears generally to be satisfactory. 2. In

From Secretary to Board, dated 27 May, No. 265; to Board, dated 6 June, No. 810.
 + Governor-general's Foreign Letter, dated 20 December (No. 57) 1849, para 1; Foreign Letter, dated 17 August (No. 23) 1850, para 80; Governor-general's Foreign Letter, dated 10 June (No. 15) 1850; Governor-general's Foreign Letter, dated 13 August (No. 26) 1850; Governor-general's Foreign Letter, dated 7 December (No. 40) 1850.

Sce below.

Sce below.

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2. In the last of the letters under reply, the Governor-general has submitted for our favourable consideration, a plan for the construction of canals of irrigation and navigation in the Baree Doab. The main line will leave the Ravee some miles below the Fort of Shahpore; and, after throwing out two branches, one at Tibberee below Deenanuggur, and the other at Buttala, will again fall into the Ravee, 60 miles above Mooltan, apparently extending from north to south, about 450 miles; it is anticipated that the work will be com-

pleted in four, or at most in five years. 3. The total estimated cost of the work is 50 lacs of rupees, while the expected returns in the shape of water-rent, water-mills, and other sources of revenue, after deducting the expense of establishment and repair, exceed 12 lacs of rupees per annum.

4. We observe that this important work is to be executed under the immediate superintendence of the Civil Engineer of the Punjab, Lieutenant-colonel Napier, and the Governor general has placed at his disposal three lacs of rupees to enable him to commence operations.

5. We have already, in our despatch of the 5th December (No. 11) 1849, shown the importance which we attach to the extension and improvement of public works in the Punjab, and concurring entirely in the view taken by the Governor-general, of the advantages, social, political, and financial, likely to result from the construction of the canal in question, we readily give our cordial assent to the undertaking, in the full confidence that the utmost care will be exercised in selecting officers competent in every respect for designing and carrying into execution with efficiency, and a due regard to economy, a work involving so large an expenditure of the public money. You will, of course, transmit to us periodical reports of the progress of the work, and we shall be glad to receive a copy of the survey of this main line of the canal as soon as it is prepared.

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London, 25 April 1851.

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We are, &c. J. Shepherd, (signed) J. W. Hogg, &c. he.

#### GODAVERY ANNICUT.

#### REVENUE DEPARTMENT, 18 July (No. 6) 1849.

#### Our Governor in Council at Fort St. George.

Para. 1. WE now reply to your letters of the dates noted in the margin," on the subject See below. of the operations in progress for constructing an Annicut across the Godavery River.

2. We have also received from the Government of India the communications referred to in the margin, + on the same subject.

3. In obedience to the orders contained in the concluding paragraph of our despatch of the 20th September (No. 15) 1848, you appointed Captain Buckle, Brevet Captains Bell and Orr, and Mr. Forbes, Sub-collector of Rajahmundry, a Committee to examine and report on the actual condition of the Godavery works, and the plans proposed by Major Cotton to be pursued for completing them.

4. The report of the Committee, who appear to have performed this duty in a most satisfactory manner, was forwarded to you on the 13th January last.
5. We gather from this report, that the main causes of the large excess of the expenditure over the estimate were fairstly, the disproportionate amount of outlay on what is termed the satisfactory is a satisfactory of outlay on what is termed the satisfactory is a satisfactory of outlay on what is termed the satisfactory of the satisfactory of outlay on what is termed the satisfactory of outlay on the satisfactory of outlay on what is termed the satisfactory of outlay on the satisfactory of outlay on the satisfactory of the satisfact <u>`</u>* "Plant," consisting of the machinery, steam-tugs, railroads, &c., provided for the prepara-tion and transportation to the works of the materials required for the construction of the Annicut; and secondly, the great inadequacy of the original estimate in regard both to the rates and the quantity of the materials themselves. With respect to the rates, as deduced from actual expenditure, the Committee observe, "If the total supposed cost of the masonry and loose stone, 4,26,868 rupees, be added to its appropriate plant, 2,00,000 rupees, and the total, 6,26,868 rupees, be divided by the number of 326,825 cubic yards, the rate per cubic yard for masonry and loose stone together will be Rs. 1. 14. 6. per cubic yard including a large proportion of cut stone. The Committee are of opinion, that the above-mentioned rates are singularly low; and that were each of them increased 50 per cent. the Annicut might, even then, be pronounced one of the cheapest works ever constructed, if its immense length and its situation, with the endless difficulties arising therefrom, were duly considered."

6. Considering the opinion of the Committee, that the rates at which the work has been actually performed, although greatly in excess of those estimated, are singularly low, we cannot acquit Major Cotton of blame, in having submitted an estimate for your sanction in which the rates were assumed at an amount at which it is clearly impossible that the work could have been performed; and we are surprised that such an error should have escaped the notice of the Chief Engineer and Secretary to the Board of Revenue in the Department

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Appendix_

See below.

[•] Godavery Annicut.-Letter, dated 14 January (No. 12) 1848, paras. 16 to 18; Letter, dated 12 September (No. 66) 1848; Letter, dated 20 November (No. 83) 1848, paras. 5 and 14; Letter, dated 13 February (No. 6) 1849. Public Letter, dated 10 December (No. 51) 1847, paras. 16 to 18; Public Letter, dated 3 March

⁽No. 7) 1849. 622.

Appendix.

Department of Public Works, whose peculiar duty it is to satisfy themselves, not only that the works which they recommend to Government are properly designed, but that the expenditure is estimated with as near an approach to accuracy as may be possible. The want of care exhibited in this instance must greatly tend to diminish our confidence in the correctness of future estimates.

7. In respect to the plans of the works, the Committee report that "with regard to the most important point, the section of the Annicut, after a most minute consideration of the subject, they are satisfied that the work may be carried forward with safety and success, upon the section hitherto followed, with some improvements recommended by Captain Orr." And they conclude their report, by observing that, "reviewing their inspections and investigations, they are constrained to record their very high opinion of the great work under report. It is scarcely possible to place that officer's qualifications as an engineer of hydraulic works higher than they sold before; but the Godavery Annicut is a new and splendid illustration of the powers of mind and self-devotion, from the exercise of which the country has already so largely benefited."

8. The total amount expended on the Annicut up to the end of November 1848, was 5,03,703 rupees; and, according to the Committee's estimate, a further sum of 4,07,506 rupees will be required to complete the work, making all aggregate expenditure of 9,11,209 rupees, or 4,35,639 rupees in excess of the sum originally sanctioned for that purpose.

9. Under these circumstances, and in pursuance of the instructions contained in the 8th purgraph of our despatch of the 20th September (No. 15) 1848, you have resolved to authorize the work being proceeded with; you state that you are still sanguine that the advantages to be gained by the Godavery Annicut have not been overrated; and you" refer to the opinion expressed by the Committee already quoted, that even artis greatly augmented cost the Annicut will still be a cheaply constructed work.

10. However much we regret the imperfect nature of the information which was submitted to us when our sanction to the undertaking was originally solicited, it is obvious that the whole of the large expenditure already incurred must be entirely lost, unless the works are carried to completion; and the sconer the country begins to derive the expected benefit from the work, the earlier will you receive some compensation for the outlay in the shape v of an increased revenue. We observe that the Committee state, that "the Annicut will, it is expected, be effective for a large supply of water this season, and will next year be in all probability at its full height."

11. We accordingly approve and sanction the course of proceeding which you have adopted, but we would at the same time call your attention to the absolute necessity of requiring from the Board of Revenue in the Department of Public Works, a strict adherence to the instructions communicated to them in para. 10, of your minutes of consultation of the 13th February 1849, with the view of ensuring, as far as possible, a successful issue to the undertaking.

12. We also approve of your having granted to Captain Orr, for the period during which he may be engaged in superintending the construction of the Annicut, the full allowances of a Civil Engineer.

We are, &c.

A. Galloway

J. Shepherd

(signed)

London, 18 July 1849.

#### KISTNAH ANNICUT,

### REVENUE DEPARTMENT, 8 January (No. 1) 1851.

#### Our Governor in Council at Fort St. George.

See below.

Para. 1. The letters and paragraphs referred to in the margin,* relate to a plan for the construction of an Annicut across the river Kistnah, for the purpose of irrigating portions of the Guntoor and Masulipatam districts, which you have submitted for our sanction.

2. This project has been at various times under the consideration of Government since the year 1792, and although circumstances have hitherto prevented its being carried into effect, its feasibility and the great advantages which it would confer on the before-mentioned districts seem never to have been doubted. One of the principal considerations which deterred the Government from carrying the plan into execution was, probably, that both Guntoor and Masulipatum had been permanently settled, and there would have been difficulty in arranging with the zemindars for the reimbursement of the necessarily large outlay. That obstacle is, however, now removed, the whole of Guntoor, and a considerable part of Masulipatum, having reverted to the possession of Government. 8. The present achence is founded on a report by Captain Lake, the Civil Engineer of the

3. The present scheme is founded on a report by Captain Lake, the Civil Engineer of the division, dated the 2d July 1847. It had been examined and approved by Major A. Cotton, whose

 Kistnah Annicut. - Letter, dated 20 November (No. 83) 1846, paras. 15 and 16; Letter, dated 20 July (No. 87) 1849; Letter from the Government of India, dated 18 August (No. 10) 1849. whose experience in such works in Tanjore is very extensive, and who was at the time engaged in superintending the construction of the annicut across the Godavery River.

4. The plans and estimates were submitted to your Government by the Board of Revenue in the Department of Public Works, with a strong expression of opinion in favour of the undertaking. Considering, however, that so important a work should not be commenced without the most rigid scrutiny, you appointed Major A. Cotton, Captain Buckle, Captain Bell, and the Collectors of Masulipatam and Guntoor, a committee for that purpose, directing them to assemble at the site of the proposed Annicut, and there to examine carefully the plans and estimates, both of expenditure and return, and report fully their opinion of them, of the feasibility of the project generally, and of the eligibility of the proposed site, or the advantages over it of any other they might consider preferable. 5. The Report of the Committee is dated the 26th January 1849, and was submitted to you

5. The Report of the Committee is dated the 26th January 1849, and was submitted to you on the 30th April 1849. After having made a most careful examination into the whole question, the Committee close their Beport with the following paragraphs: "58. In conclusion, the Committee desire to record their conviction of the very great

"58. In conclusion, the Committee desire to record their conviction of the very great importance of the proposed work, and of its early sanction. That it would, in all human probability, avert the possibility of a destructive famine in this region, seems an argument of the greatest possible weight, independent of profitable expectations, which are themselves most promising. Again, its early sanction is important to meet the expectations of the ryots, and the contingency of drought, and to hasten the profitable returns; in addition to which, the sooner the valuable experience acquired at the Godavery is brought to bear upon the Kistnah project, the more effective it will be.

" 54. The loss of revenue by the famine of 1832, 1833, is estimated at least at one crore, the loss of property at a far greater amount; of life, at 200,000, or 300,000, and of cattle at 200,000 (at the lowest) in Guntoor alone, besides the ruin of 70,000 houses. These facts will, the Committee believe, bespeak more effectively than the most laboured arguments, the favourable attention of the Honourable Court of Directors to the project now submitted, as one of indispensable and urgent necessity. The famine of the Northern Circars in 1833, and that of the North Western Provinces of India at a later period, prove, with irresistible force, that irrigation in this country is properly a question not of profit but of existence. "The amount of the revised estimate is Rs. 7,49,165. 4. 2."

6. The question has again been carefully considered by your Government, and you have satisfied yourselves that, adding to the estimate of 71 lacs given by the Committee for the Annicut alone, the sum of eight lacs as the probable amount required for "Detail Irrigation Works and Embankments," the total cost of the work when complete, will not exceed 151 lacs. The Committee estimate "the advantages of the work from the two districts" (by which terms, however, they mean the increase of revenue to be gained by the Government alone, without including the benefits to be derived by the ryots), when the Annicut and auxiliary works shall have been brought into full operation, at 7,32,059 rupees per annum, or 48 per cent. on the capital expended, according to the above estimate. Without going the full length of the Committee's expectations, you state that you feel assured that "a permanent increase of revenue will be gained from extended and improved cultivation, which will not be short of 30 per cent. at the least."

7. "The projected work," you observe, "thus promises on the lowest estimate to be a highly profitable one, by creating additional revenue, and it will be still more so probably, by saving the public finances, and the inhabitants, from a recurrence of the enormous losses caused by the dearths which have afflicted the districts of Masulipatam and Guntoor."

saving the pushe mances, and the innotance, non a recurrence of the endinous rosses caused by the dearths which have afflicted the districts of Masulpatam and Guntoor." 8. You accordingly resolved to transmit all the papers to the Government of India, with your earnest recommendation in favour of the project. That authority, in addressing us on the subject, state, that the contemplated work has their entire approval, and submit their strong recommendation that the plan proposed by the Committee should meet with our favourable consideration.

9. The project has thus been submitted to the examination of those whose scientific acquirements, general experience, and local knowledge, render them the most competent to form an opinion as to its merits, and has received the strongest recommendation from those authorities under whose consideration it has passed. We have carefully examined the papers submitted to us, and have satisfied ourselves that every possible means have been adopted to obtain the fullest assurance of the practicability of the proposed undertaking, and that the greatest care has been taken to prevent future disappointment in respect to the estimates, both of cost and returns. Under these circumstances, and concurring fully in the observation of Sir Henry Pottinger, that, independently of the undoubted benefit which must in due time accrue to the State by a great increase of revenue, it is " a positive duty which the British Government owes to the inhabitants of the districts which the Annicut is meant to fertilize, to adopt a measure, which, under God's blessing, will for ever avert the horrors of famine, 'under which they have before so deplorably suffered," we readily give our cordial sanction to the undertaking, and trust that matters will be so arranged, that the establishment employed on the Godvery Annicut may not be broken up and dispersed, but may be made fully available for the works on the Kistnah.

London, 8 January 1851.

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We are, &c.

(signed)

John Shepherd,

&c. &c.

J. W. Hogg,

Appendix.

## MOLE and ROAD at KURRACHEE.

## PUBLIC DEPARTMENT, 13 February (No. 6) 1850.

### Our Governor in Council at Bombay.

See below.

Para. 1. THE letters noted in the margin[®] refer to two public works at Kurrachee : 1st. A Mole from the Town to Kemara Point, a distance of about two miles.

2d. A Road from the Camp to the Mole, also a distance of about two miles.

2. The whole was begun in 1844, without estimate or regular sanction; after 23,736 rupees. had been expended, sanction was asked for \$1,894 rupees, which, as it was in addition to the amount already expended, should have been stated as 75,632 rupees.

3. Sanction was afterwards asked for 1,43,098 rupees, for the completion of the work to Kemara. No orders were passed by the Government of India, but the question was referred to your Government, which on the 31st July 1848, submitted an estimate for the total cost of the work, amounting to 2,75,250 rupees, not including any charge for metalling the road-way.

4. Of this sum, 1,44,739 rupees had been already expended; sanction was requested for the outlay of the remainder, 1,30,711 rupees, with at intimation from the Superintending Engineer, that this sum could not be relied on as being all that would be required; as, "from the liability of the work to be influenced by causes which could not be foreseen, it was most difficult, if not impossible, to arrive at anything like a correct conclusion with regard to the probable expenditure."

5. The Government of India could not undertake, on the very scanty information before . them, to sanction, on their own responsibility, the completion of the work; but were willing to authorize you to do so on your responsibility, if you should think fit to report to them your decision to that effect, rather than postpone the completion of a work which promises great public advantage.

6. You have not illought fit to take this responsibility on yourselves, and the question is referred for our decision.

7. The scantiness of information is remarked by you as well as by the Government of India; but this information, such as it was, has not been transmitted to us. For what was intended to be done, whut has been done, and what remains to be done, the proceedings refer to plans which have not been transmitted; we desire that they may be transmitted without delay.

6. At the same time we request that you will furnish us with information on the following points-

As the Mole will pass entirely over swamps and sands covered at high water, what measures have been taken to ascertain the character of the subsoil, with reference to the probable stability of the foundation?

As the Mole has been carried in a solid mass across the Chinny Creek, instead of by a bridge, as was first proposed, what effect will be produced in regard to access to the town by means of boats at bigh water; or will the completion of the Mole render access by water no longer important?

As the completion of the Mole will exclude the sea from a great expanse of swamp to the south-eastward of the Mole, with the exception of the narrow channel which is now the mouth of the Chinny Creek, what will be the probable effect of the completion of the Mole on the swamp, on the mouth of the creek, and on the health of the town?

As the sea at high-water will press wholly on the north-west side of the Mole, and will beat heavily against it, what measures have been taken to predetermine the slopeand solidity necessary to resist these actions ?

9. On the receipt of the plans and information required, we shall lose no time in communicating to you our decision.

10. The proceedings respecting the Road from the Camp to the Mole, also refer to plans, without which the proposed measure is not intelligible. We desire that these plans also may be transmitted without delay.

11. We cannot forward this despatch without an expression of our extreme displeasure at a work of this magnitude and importance having been commenced without our previous sanction, and still more at the very loose and unsatisfactory manner in which it has been, allowed to proceed to the point it has now reached.

12. However necessary and important this work may have appeared to be, nothing can excuse the commencement of such an undertaking without the most minute and careful surveys, conducted by persons capable of making estimates, which should at all events approximate to the expense, and of ascertaining how far the proposed operations were practicable. Instead of this, the estimates already amount to nearly six times the sum originally stated; and it appears quite uncertain to what further extent the outlay may reach.

13. We

* Public Works.-Mole and Road at Kurrachee; Public Letters, 9 May (No. 46) 1849; 6 August (No. 74) 1849.

13. We are aware that the blame of commencing this work without authority does not attach to your government; but we have not thought it right to pass over so glaring an instance of unauthorized expenditure without remark.

We are, &c.

(signed) A. Galloway, J. Shepherď, kc. kc.

### No. 74, of 1850, GENERAL DEPARTMENT.

To the Honourable the Court of Directors for the Affairs of the Honourable East India Company, London.

Honourable Sirs,

London, 13 February 1850.

WE herewith forward copy of a letter from the Military Board, together with the sketches therein referred to, containing the information called for in your Honourable Court's despatch, No. 6, dated the 13th February 1850, regarding the Mole at Kurrachee. 2. With reference to the 7th paragraph of your despatch, we beg to explain that with the exception of two rough sketches" (which would seem to have been overlooked, but

which are now sent), copy of every paper on record relating to the Mole and Road from the Mole. 8. Longitudin Camp, was forwarded with our despatches of the 4th May and 6th August of last year.

* 1. Sketch of I motion of the M

#### We have, &c.

(signed)

J. P. Willoughby.

D. A. Blane.

Bombay Castle, 31 August 1850.

#### PUBLIC DEPARTMENT, 5 March (No. 4) 1851.

#### MOLE and ROAD at KUBBACHEE.

## Our Governor in Council at Bombay.

Para. 1. WE reply to your letter dated \$1st August 1850, No. 74, transmitting the plans and information required in our despatch of the 13th February 1850, No. 6, respecting the Mole and Road at Kurrachee.

2. The answer to our question respecting the subsoil and foundation is satisfactory.

3. The answer respecting access to the town by boats at high-water is not sufficiently explicit; we understand it to be, that the present access by the creek would be closed, but the beach would be available; it is evident, however, that the beach being dry for a great distance at low-water (the extreme rise of tide being only 91 feet), will afford an inadequate substitute for the creek, which, according to the chart, has always high-water below the lowest tide, and consequently gives, on the line of its channel, a depth at high-water of more than the rise of tide.

4. The answer respecting the probable effect on the mouth of the Chinney Creek, and on the health of the town, are very much open to question ; the Executive Engineer is of opinion that the narrow channel, which is now the mouth of the Chinney Creek, will become considerably deeper and wider. The Superintending Surgeon says that, "even if the quantity of water now flowing over the swamps should be diminished, the surface covered by the tide would only be the smaller, while the uncovered part would get baked and hardened by the sun, and in fact become like a great part of the low ground surrounding Kurrachee, which evidently has at one time been covered by the sea; it would therefore be no more a source of malaria, than the similar ground in the immediate neighbourhood of it now is; I say 'no more' because whatever malaria does exist at and near Kurrachee, must be evolved from the low muddy sandy beach along the coast; but we can only come to the conclusion, that malaria would not under the above circumstances be generated in any great additional quantity, so as materially to affect the health of the town or neighbourhood."

5. It appears to us from an inspection of the chart, that the action of the waves, under the prevalence of southerly winds, has thrown up a long line of low saud-hills through which the scouring action of the Chinney stream has maintained an opening; but when the stream ceases, the most probable result, according to the analogy of similar cases, will be that the waves will throw up a continuation of the same sandy barrier, and perhaps close the opening.

6. The answer respecting the slope of the Mole is satisfactory. 7. The Road from the Camp to the Mole is evidently a work of which the accomplishment is desirable.

8. With these observations, we authorize the completion of these works, provided you fizz. 622. Eе

Appendix.

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We are, &c.

(signed)

John Shepherd,

J. W. Hogg,

&c. &c.

Appendix.

shall be satisfied that the estimates * submitted for that purpose will not be materially exceeded, and that the officer in charge is fully competent to superintend and complete the works in the most efficient manner. To these conditions of our acquiescence we particularly direct your attention. For the sake of the economy as well as the stability of such a work, it is of great importance that it should be entrusted to a superintendence in which you have entire confidence. Rather than that it should be under doubtful management, it would be worth while that the late Major Peat's suggestion should be adopted, who observed that "it would be highly advisable to employ an Engineer Officer upon this work alone;" an able officer so deputed might first satisfy himself that the estimates you have had before you will not be materially exceeded, a conclusion at which we cannot but think that an officer of experience and sound judgment may arrive with more certainty than has hitherto been experience and sound judgment may arrive whit more certainty han his that you refer attained. If the excess of expenditure is likely to be very large, we desire that you refer for our previous consideration the question of the continuance of the work.

9. With respect to the explanation in the 2d para. of your letter under reply, we have to observe that several plans, without which the proceedings were unintelligible, were referred to in the papers transmitted with your former letters, in relation both to the Road and the Mole, and that not one of them was among the documents received by us; this may have arisen from official oversight at your Presidency, but in future it is desirable that every plan, chart, map, drawing or diagram transmitted with your letters, should be distinctly specified in the list of packet. 10. As the Military Board, in reporting the answers above noticed on the 29th June 1860,

stated the urgency of the sanction being received by September, it is to be regretted that your letter, transmitting their report, was delayed till the 31st August. a signal a

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* London, 5 March 1851.

#### PHOONDA GHAT ROAD.

#### PUBLIC DEPARTMENT, 21 August (No. 27) 1850.

#### Our Governor in Council at Bombay.

See below

Para 1. We have had under our consideration your letters noted in the margin,+ respecting a projected line of communication between the sea-port of Viziadroog and the country to the east of the ghauts, by the line of the Phoonda Ghat.
 You have, with the concurrence of the Government of India, requested our sanction

to the expenditure requisite for the effectual accomplishment of these works; and, pending the receipt of this sanction, you have permitted Captain Del Hoste to complete part of the work he was engaged in, on an amended estimate, for reasons which you have fully detailed; we approve of these proceedings, and we observe with satisfaction the increase of traffic in the year succeeding the partial improvement of the Ghaut.

3. There cannot be a question that the proposed works are of great public importance, nor that its full and successful accomplishment would be well worthy of a considerable outlay; great pains have been evidently taken to select the best port on the western coast, and the most practicable Ghaut for the connecting road into the eastern country.

4. The estimate originally submitted for our approval, but which appears to be capable of considerable

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In the former proceedings the expense of the Mole was or	mpute	eg e	a fo	llow	na : ˈ		Rs.	
Expended to 31 August 1848 - Estimate for completion, given as probable, but not con	- nelusiv		vith	the	follo	wing	1,52,833	
remark from the Superintending Engineer		7		•	-		1,22,417	
Estimate for metalling the road-way (20 fect wide)	•		•	• • •	-	•	2,75,250 20,000	
	1.1	•			• •	• • •	2,95,250	•

rupoos, but it was subsequently stated that it would be probably completed for 2,000 rupees less, leaving 14,360

"From the liability of this work to be influenced by causes which cannot be foreseen, it is most difficult, if not impossible, to arrive at anything like a correct conclusion with regard to the probable expenditure, which can be depended upon, especially with reference to the part not yet commenced, which is the most trouble-some portion of the whole line."

+ Public Works: Road over the Phoenda Ghaut:-Indian Letter, dated 2 September (No. 45) 1848; Foreign Letter, dated 7 August (No. 15) 1843, p. 44; Bombay Letter, dated 14 September (No. 75) 1849; Bombay Letter, dated 13 May (No. 49) 1840; Bombay Letter, dated 17 October (No. 87) 1849; Bombay Letter, dated 3 November (No. 01) 1849; Bombay Letter, dated 28 February (No. 16) 1850.

considerable modification, is for four-and-a-half lacs of rupees," but we cannot consider the proposal as having yet been brought before us in a form sufficiently definitive for our final sanction. In your last received letter, dated 28th February 1850, you informed us, that in consequence of doubts expressed by the Military Board and the Chief Engineer (in which however you do not concur), of the efficiency of Captain Del Hosts to carry out the works which he has originated, you have directed the Military Beard to instruct the Superintending Engineer of the Southern Provinces to proceed to the Phoonds Ghaut, for the purpose of sur-veying and reporting on the state of the work accomplished, and the plans of the work proposed.

5. We trust that no time will be lost in transmitting this report to us, with all necessary plans and estimates, and with a distinct statement of the amount of expenditure to which you may then think proper to request our sanction.

			11.6	ire, occ.			
ondon, 21 August 1850.			(signed)	John Shepherd, J. W Hogg,			
		•	•	&c. &c.			
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## EXTRACT Political Letter from Bombay, dated 15 February (No. 17) 1851.

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5. In continuation of our despatch as mentioned in the margin, + we beg to forward in See below. Collection (No. 4), copies of reports from Mr. Anderson and from Captain Del Hoste, of the further proceedings of the latter officer in the construction of roads from the town of Kolhapoor to the Phonda Ghaf, and from Dajeepoor to Belgaum, and in other portions of the Kolhapoor territory.

6. The proceedings which form collections Nos. 5 and 6 relate to the contemplated construction of a road from the town of Nepance to the Phonda Ghat, and of one down to Parpolee Ghat, to be effected under the superintendence of Captain Phayre, Assistant Quartermaster-general, Southern Division of the army, who in conformity with the resolu-tion in the General Department) has been appointed in succession to Captain Del Hoste to the duty of completing the Phonda Ghaut, and roads connected therewith.

#### SUPPLY of WATER to BOMBAY.

#### PUBLIC DEPARTMENT, 12 January (No. 1) 1848)

#### Out Governor in Council at Bombay.

Para. 1. YOUR letters now under notice, report the temporary measures you adopted in . anticipation of a failure of water at Bombay at the end of the hot season of 1846, and the

steps taken for the permanent prevention of that evil. 2. The proceedings authorized by you to prevent the mis-appropriation of the water in the public tanks and wells, and to secure as far as possible new sources of supply, have our entire approval.

3. With the second and more difficult object of providing a permanent remedy, you deputed Captain Goodfellow to the Island of Salsette, to report whether supplies of water could be procured from that Island for the town of Bombay.

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Road branc	hing off	from	. Phu	ralla,	and	runs	ung s	s far	as Ye	nker	mand	u, in	the			
direction	of Belga	.um. 8	dista	nce of	E abo	ut 41	3 mile	5 -	-	•	-	·	-	63,877	- 4	3
Bridges on	this line		-	-			-						-	1,21,795	-	-
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Some changes of detail have been made in the plans since the estimate was formed.

.+ Political Despatch, dated 31 August (No. 87) 1849, pars. 29; Political Despatch, dated 15 December (No. 130) 1849, paras. 1 and 2. ‡ Supply of Water to Bombay.—Letter, dated 29 January (No. 7) 1846, para. 42; Letter, dated 28 Jan. (No. 9) 1846, entire; Letter, dated 13 April (No. 42) 1846, para. 39; From Government of India, 6 March No. 9) 1846, entire; Letter, dated 13 April (No. 42) 1846, para. 39; From Government of India, 6 March

(No. 8) 1847. 622. Fr

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4. His report was submitted to your Government, and we regret that the information it contained was so vague and unsatisfactory, as to leave the question much as it stood before the inquiry was commenced.

6. You, therefore, called on the Military Board to give an opinion whether further investigation should take place on the island of Salsette, or whether it would be advisable to test the practicability of a plan suggested by the Chief Engineer, for collecting water in reservoirs in different parts of the island of Bombay.

6. Your Secretary's letter of the 12th February last to the Government of India, informs us of the result of this reference.

7. The plan proposed by the Military Board is, the construction of a reservoir, with feeding tanks, &c. immediately below Malabar Hill, the cost of which is estimated at 3,00,040 rupecs, exclusive of the cost of 1,006 pieces of iron pipe to be procured from England, and the amount that it may be necessary to pay to parties who may be entitled to compensation.

8. We regret that we are under the necessity of referring back this proposition to you for further information, before we pronounce a decision upon it.

9. The object which you have in view is stated by your Secretary to be, "to secure for the use of the population," of the island of Bombay, "an adequate supply of wholesome water at all seasons of the year."

10. The plan proposed by your Military Board professes to provide a supply of rain-water sufficient for one-fourth of the population of the island, for two months only, upon which a sum of between three and four lacs of rupees is to be expended, besides an annual charge of some amount for the working of a steam-engine, which is not included in the estimates. We are not satisfied that such an undertaking will accomplish the object you have in view, and if other reservoirs are required, it will neither prove effectual nor economical. The other projects which were before you appear designed to supply all parts of the island, the northern as well as the southern, with wholesome water, but upon these no sufficient information is communicated. The plan of the Chief Engineer, is not particularly explained, and no estimate of its cost is submitted. With this we desire to be furnished, unless the proposition, has been abandoned as altogether too expensive.

has been abandoned as altogether too expensive. 11. A proposition by Captain Crawford, for obtaining water from Salsette, is indeed transmitted, but that officer's report having been hastily prepared, and at the commencement of the rains, did not contain all the needful information, nor could he frame an accurate estimate. The approximate estimate submitted rather exceeded five lacs of rupees.

estimate. The approximate estimate submitted nature exceeded involves of rupees.
12. Captain Crawford also referred to a plan for drawing a supply of water from the hills between Koorlee and Tanna, which seems distinct from that of bringing it from a nullah near Vehor. A plan, moreover, has been suggested by the clerk to the court of petty sessions, for forming a reservoir on a part of Salsette called the "Neat's Tongue."
13. We desire that you will direct an accurate investigation of these several schemes as a superstimule, and the user will direct the set of the constraint the fully set.

13. We desire that you will direct an accurate investigation of these several schemes as soon as practicable, and that you will transmit to us, at the earliest opportunity, the fuller information which we require, in order that as little time as possible may be lost in providing in the most economical manner consistent with efficiency, for an adequate supply of wholesome water to the large population of Bombay and its vicinity.

	•••		We	are, &c.	
London, 12 January 1848.	· " ·		(signed)	H. St. George J. L. Lushing &c. &c.	ton,
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## PUBLIC DEPARTMENT, 12 May (No. 48) 1849.

To the Honourable the Court of Directors for the Affairs of the Honourable East India Company, London.

Honourable Sirs,

Ws have the honour to acknowledge the receipt of your Honourable Court's despatch in the Public Department, dated the 12th January, No. 1, of 1848, calling for further and more detailed information upon the various schemes which have been proposed for providing a supply of water sufficient for the wants, at all seasons of the year, of the inhabit ants of Bombay.

2. In reply, we beg to forward to your Honourable Court, an extract from our proceedings recorded under the dates noted in the margin, amongst which will be found a minute by the Chief Engineer, dated the 26th December last, submitted to Government by the Military Board in answer to a call made upon them for the additional information required by your Honourable Court.

3. To this minute is appended copy of a report, not previously furnished to Government, which was drawn up in March 1846, by the late Captain T. M. B. Turner, descriptive of the reservoir with feeding tanks, which in their letter of the 20th April 1846 the Military Board proposed should be constructed at the foot of Malabar Hill.

4. The additional information now furnished by the Military Board, although it supplies some details which were not previously laid before your Honourable Court, is still defective, inasmuch

1848: V. 4,521 to 4,524. 1049: V. \$,244 to 2,253; V. 2,277 to 2,278 A.; V. 1,978 to,1,976 D.; V.2,368, 2,369, A.

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masmuch as it is unaccompanied by an estimate of the probable entire cost of the proposed scheme.

5. Such an estimate cannot be framed with any degree of accuracy, until it is ascertained whether Government will have to purchase the site of the proposed reservoir and of the feeding tanks, and if so, at what cost. Lieutenant-colonel Jervis seems, indeed, to anticipate that the liberality and public spirit of individuals will render the expense of this portion of the scheme very trifling. But we doubt whether much aid will be forthcoming from this source. We are apprehensive, that unless a site can be reserved under the general arrangements for the settlement of the long-pending disputes relative to the resumption of Foras Lands, we shall have to purchase the ground, and that the purchase-money will con-stitute a considerable item in the estimate of the expense.

6. The possibility of our being able to reserve a site without payment, will be ascertained in the Revenue Department, where all proceedings connected with the Foras Lands have been conducted, and we have in the meantime called upon the Military Board to determine what the ground would cost, in the event of our having eventually to purchase it. On this point we will, hereafter, address your Honourable Court.

7, Pending a decision on the above scheme, and with reference to the 5th para. of your Honourable Court's despatch under reply, Lieutenant-colonel Jervis suggested the experiment of constructing on a small scale a reservoir, with diverging tunnels, on the esplanade. Into these he believed that the water lodged in the red sandstone would filter, and so fill the reservoir. The cost of this experiment would have amounted to 8.450 rupees. but we declined to sunction this outlay without the previous consent of your Honourable Court.

. S. At the Chief Engineer's suggestion, we have since sanctioned the experiment on a much smaller scale, two channels will be cut into the sandstone formation of the esplanade, each 300 feet in length, and a couple of the existing wells will serve as reservoirs. The cost of this experiment, 3,241 rupees, will be defrayed from a balance in hand of the Esplanade Fund.* Should it succeed, we presume that the necessity for the larger and more expensive experiment alluded to in the preceding para. will be obviated.

9. We do not consider it necessary to trouble your Honourable Court with any comments upon the other plans alluded to in your Honourable Court's despatch, as we conceive that Lieutenant-colonel Jervis has satisfactorily disposed of them in his minute now transmitted.

10, Accompanying this despatch are Returns showing the depth of water in the public tanks on the island up to the 15th ultimo. We regret to observe, that the water appe be getting so low as to threaten a scarcity, and its attendant distress. We have directed the police to adopt every precaution for preventing a needless expenditure.

11. We have just given authority through the Board of Conservancy to have the silt and sediment removed from all the tanks and wells on the island, which may dry up sufficiently to admit of their being so cleaned out during the present hot season.

We have, &c. J. P. Willoughby. (signed) D. A. Blane.

#### PUBLIC DEPARTMENT, 15 November (No. 98) 1850.

To the Honourable the Court of Directors for the Affairs of the Honourable East India Company, London.

Honourable Sirs,

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Bombay Castle, 12 May 1849.

N 26 9 9

WE regret to state, that the fall of rain during the past monsoon has been so scenty as to 1850; V. 7.881 to we regret to state, that the last of this during the plant includes the experienced by the large popu- 7,984; V. 8,036 to lation of this island, from a scarcity of drinking water during the ensuing hot season. 8,046; V. 8,210, includes the scarcity of drinking water during the ensuing hot season. 8,245; V. 8,296 to

2. To show that these apprehensions are not groundless, we subjoin a statement of the 8,300. total quantity of rain which has annually fallen up to the 1st .October during the past five years.

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,			1848		1 <b>`</b> •	-	-	-		73	42	
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			1850			. •	-	-	-	47	78	
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3. We have issued orders for all practicable precautions being immediately resorted to for the purpose of husbanding the supply of water collected in the different tanks and wells on the island, and have instructed the Senior Magistrate of Police, should he at any time consider



[•] This is formed of fees levied on cattle which graze on the explanade, and from dyers, for the privilege of using the ground to dry their cloths, &c.; the fund is under the control of the Chief Engineer, who expends it at his discretion in improving the esplanade, and submits for our information an annual account of the receipts and expenditure.

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Vide despatch from this Governent, No. 6. of 16 June 1845.

consider it necessary to have recourse to the measures adopted * in the hot season of 1846, to provide water for the public, independently of the supplies in the public tanks and wells, immediately to report the necessity to Government in view to their adoption.

4. At the present juncture our attention has again been turned to the several projects which a. At the present juncture our attention has again been turned to the several projects which have already been laid before your Honourable Court, for making some permanent provision against the great scarcity of drinking water, which is invariably experienced in Bombay when the fall of rain during the monsoon does not reach the average supply.
5. Of these plans it appears to us (and your Honourable Court would seem to be of the same opinion) that the one which was submitted by Captain Crawford, of the Engineers, for the induction of selection is the most promising and most reach the average supply.

obtaining a supply of water from the island of Salsette, is the most promising, and merits more attention than it has yet received.

6. It will be recollected, that Captain Crawford proposed to dam up at its mouth a stream which runs into the sea at Coorla in Salsette (and which drains 18 square miles of country) and to construct & reservoir on the adjacent hill, more than 80 feet above the level of the sea, into which the water should be pumped by means of a steam-engine to be thence con-ducted into the principal tanks at Bombay by a main of 14-inch pipe. The immediate-expenditure necessary to carry, this proposal into effect was roughly estimated at 5,20,630 rupees, besides an annual charge for working (exclusive of repairs) of 46,464 гирвев.

7. Captain Crawford has again addressed Government in favour of this scheme, with this important modification, however, that he now proposes to ascend the stream to the height of 80 feet above the level of the sea, and there construct a dam and reservoir, from which the water would be carried first to the reservoir on the hill at Coorla, and thence by similar means to another reservoir on some convenient site in Bombay, from whence it might be distributed by smaller pipes to the principal tanks on the island. Captain, Crawford states that this plan is capable of gradual extensions hereafter, to the degree of supplying, if required, every private dwelling-house in the island with a sufficient supply of water throughout the year.

. 8. A serious objection to Captain Crawford's present proposal, although it may be in other respects feasible, is its enormous expense; instead of the principal main being constructed of 14-inch pipe, he now recommends that a pipe of at least 24 inches in diameter be employed, and this he estimates would cost about 6,160 l. per mile. The cost of the iron

... pipe alone, exclusive of the expense of laying it down, would therefore, according to his calculation, be 98,360%.

9. But, on the other hand, the present modification has this advantage in a pecuniary point of view over the original plan, that there will be no necessity for the large annual outlay, estimated at 46,464 rupees, which would have to be incurred in working the steam-engine for pumping up the water, if the dam were to be constructed at Coorla. 10. It will be seen that Captain Crawford, in estimating the cost of his plan, makes no protocoling to compare the constructed at coorla.

pretensions to accuracy. As a preliminary step, therefore, to a correct appreciation of the merits of the scheme, we have, on the recommendation of the Chief Engineer, appointed Lieutenant De Lisle, of the Engineers, to the duty of preparing the necessary surveys, and framing an estimate of the cost. On receiving Lieutenant De Lisle's report we shall immediately address your Honourable Court on the subject.

11. Colonel Jervis having again advocated the experiment suggested by him last year for obtaining water from the explanade, noticed in para. 7 of our despatch to your Honourable Court, No. 49, dated the 12th May 1849, we have sanctioned its being carried out on the extended scale originally proposed, and at the estimated cost of 8,450 rupees. If this plan for obtaining drinking water prove successful, much of the anxiety in respect of the future supply of water will be relieved, and the necessity for more extensive measures may perhaps be obviated.

12. For further details of our proceedings, we would particularly solicit your Honourable Court's attention to our Right honourable President's Minute, dated the 14th ultimo, and to our Secretary's Memorandum annexed to it, both of which accompany this despatch.

Bombay Castle, 15 November 1850.

We have, &c. ed) J. P. Willoughby. - (signed) D. A. Blane.

(True copies.) -

East India House

T: L. Peacock, Examiner of India Correspondence.

26 July 1851.