: Parliamentary Papers :

Return of all monies repaid by Her Majesty's Government to the East India Company, on account of the war in China, since the commencement of the War until the present time. (June, 1842) pp.1

X7(MV4):87.2643.M4

2. Return of the number of chargeable letters delivered in the United Kingdom, together with the account of gross and net Post-Office Revenue, from January 1840 to April 1847. (July, 1853) pp.1 --5

X7-31.3.M4 A853

3. Copy of letter from the Junior Secretary to the Board of Revenue, to the Secretary to the Government of Bengal, dated 23th June 1852: (July, 1853) pp.1 --13

X7.2.M5 A853

4. Account of the Public Income and Expenses for the year ended 5th July 1853. pp.1 --3

X7:87.2.M5 A853

5. Return of all sums spent on Public Works (not of a military kind) in India, since April 1834. (August, 1853) pp.1 --173

X7(D):87.2.M5 A85

6. Copies of the report of the Commissioners on Public Works at Bombay, in the year 1851-52. pp.1 --113

D.231.M5 A85

7. Papers respecting Gwalior (March, 1844) pp.1 --21

V2,L:8.2815 A84

8. Reports of the Commission on Public Works at Bombay; together with the report of Commissioners on Public Works at Madras, with Minutes or Reports of the Governor and Members of the Council at Madras. (May, 1854) pp.1 --137

: Parliamentary Papers :

9. Copy of the further correspondence on the subject of the Bonds and Kirvee Booty, between the India Office and the Treasury Board. (February,1864) pp.1 --71

X7(MV4).2.M6 1864

10. Abstract statement of remunerative works in Madras,from 1857-58 to 1862-63. (June,1865) pp.1 --3

X7:87.21.M6 1865

CHINA.

RETURN to an ORDER of the Honourable The House of Commons, dated 6 June 1842;—*for*,

RETURN of all MONIES repaid by HER MAJESTY'S GOVERNMENT to the EAST INDIA COMPANY, on account of the WAR in *China*, since the Commencement of the War until the present Time.

		£.
1840	October 27	150,000
1841	July 2	400,000
1842	February 9	23,442
	TOTAL £.	573,442

East India House,
8 June 1842.

James C. Melvill,
Secretary.

CHINA.

RETURN of all Monies repaid by Her Majesty's Government to the East India Company, on account of the War in *China*, since the Commencement of the War until the present Time.

(Mr. Disraeli.)

Ordered, by The House of Commons, *to be Printed,*
13 *June* 1842.

POST OFFICE.

RETURN to an Order of the Honourable The House of Commons, dated 3 March 1853;—*for*,

A RETURN, "as nearly as can be estimated, of the Number of CHARGEABLE LETTERS delivered in the United Kingdom in the Year immediately preceding the First General REDUCTION of POSTAGE on the 5th day of December 1839, and for each complete Year subsequent thereto; also, for the First Year, the Number of FRANKS, and for the last Year, and up to as late a Period as practicable, the Number of LETTERS for each Week in which they were counted:"

ACCOUNT, "showing the Gross and Net POST-OFFICE REVENUE, and the COST of MANAGEMENT, for the United Kingdom, for the Year ending the 5th day of January 1838, and for each subsequent Year, excluding from the Account, whether of Gross Revenue or Cost of Management, any Advances that may have been made by the ENGLISH to the IRISH POST-OFFICE, and Advances to the MONEY-ORDER OFFICE; also, disregarding in the Return for each Year any Old Debts written off or Postage remitted, or any other Deductions which relate to previous Years:"

RETURNS "of the PAYMENTS made by the POST-OFFICE during the Year ending the 5th day of January 1838, and each subsequent Year, for the Conveyance of the MAILS by RAILWAY in the United Kingdom; distinguishing in each instance the Payments for Work done within the Year from Payments for Work done in previous Years:"

"Of the Number and Amount of MONEY-ORDERS issued and paid in the United Kingdom during the Year ending the 5th day of January 1840, and each subsequent Year:"

"And, of the Expense of the MONEY-ORDER OFFICE, and the Amount received for COMMISSION during the Year ending the 31st day of December 1852."

General Post-Office,
1 July 1853.

W. L. MABERLY,
Secretary.

(*Mr. Charles Villiers.*)

Ordered, by The House of Commons, *to be Printed*,
4 *July* 1853.

RETURN, as nearly as can be estimated, of the Number of CHARGEABLE LETTERS delivered in the United Kingdom, in the Year immediately preceding the First General REDUCTION of POSTAGE on the 5th day of December 1839, and for each complete Year subsequent thereto; also, for the First Year, the Number of FRANKS, and, for the Last Year, and up to as late a Period as practicable, the Number of LETTERS for each Week in which they were counted.

YEAR ENDING 31st DECEMBER.	ENGLAND AND WALES.			TOTAL, England and Wales.	TOTAL, Ireland.	TOTAL, Scotland.	GROSS TOTAL, United Kingdom.
	Country Offices.	London, Inland, Foreign, and Ship.	London District Post.				
Estimated Number of Letters - - 1839	- - -	- -	- -	59,982,520	8,301,904	7,623,148	75,907,572
Estimated Number of Franks - - 1839	- - -	- -	- -	5,172,284	1,054,508	336,232	6,563,024
Estimated Number of Letters - - 1840	88,071,308	23,559,835	20,372,382	132,003,525	18,210,642	18,554,167	168,768,344
„ „ 1841	103,395,677	27,966,722	23,108,722	154,471,121	20,794,297	21,234,772	196,500,191
„ „ 1842	111,115,489	29,385,282	23,389,942	163,890,713	22,328,154	22,215,583	208,434,451
„ „ 1843	117,704,474	30,908,743	24,881,410	173,494,627	23,482,463	23,473,216	220,450,306
„ „ 1844	129,096,023	33,575,936	26,980,460	189,652,419	25,937,188	26,502,077	242,091,684
„ „ 1845	147,227,431	36,097,711	30,828,486	214,153,628	28,587,993	28,669,168	271,410,789
„ „ 1846	162,624,024	39,993,681	33,261,050	235,878,755	32,572,947	31,135,060	299,586,762
„ „ 1847	175,023,407	43,757,540	34,630,817	253,411,764	35,473,316	33,261,163	322,146,243
„ „ 1848	180,716,102	45,991,153	33,672,747	260,380,002	34,887,481	33,563,101	328,830,184
„ „ 1849	187,382,329	45,845,683	33,960,398	267,188,410	35,463,913	34,746,876	337,399,199
„ „ 1850	192,508,628	44,856,170	38,887,844	276,252,642	35,388,895	35,427,534	347,069,071
„ „ 1851	199,746,304	47,819,499	40,585,952	288,151,755	35,982,782	36,512,049	360,647,187
„ „ 1852	212,633,733	51,171,423	40,403,207	304,208,363	37,449,953	37,843,182	379,501,499
Week ending,							
21 January 1852 - -	4,102,553	957,063	812,017	5,871,623	738,488	711,827	7,321,938
21 February „ - -	4,167,245	985,373	871,597	6,024,215	720,674	742,880	7,487,769
21 March „ - -	3,961,060	981,820	797,336	5,740,216	718,055	716,716	7,174,987
21 April „ - -	3,988,992	961,247	807,449	5,757,688	703,554	708,530	7,169,772
21 May „ - -	3,963,400	959,187	813,176	5,735,763	697,077	709,917	7,142,757
21 June „ - -	4,017,278	984,752	824,116	5,826,146	687,703	715,671	7,229,520
21 July „ - -	4,107,359	965,187	813,709	5,886,255	729,220	710,298	7,325,773
21 August „ - -	4,111,876	957,635	664,734	5,734,245	724,188	737,831	7,196,214
21 September „ - -	4,180,370	959,892	660,780	5,801,042	725,230	726,178	7,252,450
21 October „ - -	4,219,277	1,004,630	732,189	5,956,096	722,925	730,468	7,409,489
21 November „ - -	3,991,253	1,062,638	701,122	5,755,013	725,408	742,928	7,223,349
21 December „ - -	4,258,660	1,029,376	825,592	6,113,628	749,825	779,798	7,643,251
21 January 1853 - -	4,404,544	1,021,021	854,914	6,280,479	757,707	758,712	7,796,898
21 February „ - -	4,499,007	1,026,056	901,295	6,426,358	766,813	788,389	7,981,560
21 March „ - -	4,388,133	1,063,690	831,531	6,283,354	747,265	784,012	7,814,631

AN ACCOUNT, showing the Gross and Net Post-Office Revenue and the Cost of Management for the United Kingdom, for the Year ending the 5th January 1838, and for each subsequent Year, excluding from the Account, whether of Gross Revenue or Cost of Management, any Advances that may have been made by the English to the Irish Post-Office, and Advances to the Money-Order Office; also disregarding, in the Return for each Year, any Old Debts written off, or Postage remitted, or any other Deductions which relate to previous Years.

YEAR ENDING.	Gross Revenue. *	Cost of Management. † **	Net Revenue.	Postage Charged on the Government Departments.	Net Revenue, exclusive of Charges on the Government Departments.
	£. s. d.	£. s. d.	£. s. d.	£. s. d.	£. s. d.
5 January 1838 -	2,339,737 18 3¼	687,313 10 7½	1,652,424 7 7¾	38,528 12 –	1,613,895 15 7¾
„ 1839 -	2,346,278 – 9¾	686,768 3 6¾	1,659,509 17 2¾	45,156 – 11	1,614,353 16 3¾
„ 1840 ‡ -	2,390,763 10 1½	756,999 7 4	1,633,764 2 9½	44,277 13 4	1,589,486 9 5½
„ 1841 -	1,359,466 9 2	858,677 – 5¼	500,789 8 8¾	90,761 3 2	410,028 5 6¼
„ 1842 -	1,499,418 10 11¾	938,168 19 7½	561,249 11 4¼	113,255 15 10	447,993 15 6¼
„ 1843 -	1,578,145 16 7½	977,504 10 3	600,641 6 4½	122,161 8 9	478,479 17 7½
„ 1844 -	1,620,867 11 10	980,650 7 5¾	640,217 4 4¼	116,503 1 –	523,714 3 4¼
„ 1845 -	1,705,067 16 4	985,110 13 10¾	719,957 2 5¼	109,232 13 5½	610,724 8 11¼
„ 1846 -	1,887,576 13 11¾	1,125,594 5 –	761,982 8 11¾	101,190 19 –½	660,791 9 11¼
„ 1847 -	1,963,857 9 9½	1,138,745 2 4¼	825,112 7 5	100,354 19 –	724,757 8 5
„ 1848 -	2,181,016 16 –¼	1,196,520 1 6¼	984,496 14 6	121,290 13 9	863,206 – 9
„ 1849 -	2,143,679 19 6	1,403,250 13 2 §	740,429 6 4	115,902 13 7	624,526 12 9
„ 1850 -	2,165,349 17 9½	1,324,562 16 10	840,787 – 11¼	106,923 18 –	733,863 2 11¼
„ 1851 -	2,264,684 5 3¾	1,460,785 13 10½ ‖	803,898 11 5¼	109,523 13 7	694,374 17 10¼
„ 1852 -	2,422,168 4 1¼	1,304,163 12 8¾	1,118,004 11 4½	167,129 3 7¶	950,875 7 9½
„ 1853 ** -	2,434,326 16 7	1,343,907 3 1¾	1,090,419 13 5¼	124,977 11 10	965,442 1 7¼

* Namely, the Gross Receipts, after deducting the Returns for "Refused Letters," &c.

† Including all payments out of the Revenue in its progress to the Exchequer, except advances to the Money-Order Office. Of these sums, 10,307 *l.* 10 *s.* per annum is for Pensions, and forms no part of the Disbursements on account of the service of the Post-Office.

‡ This year includes one month of the Fourpenny Rate.

§ This includes a payment of 196,086 *l.* 5 *s.* 1 *d.*, for the conveyance of Mails by Railway in previous years.

‖ This includes a payment of 192,975 *l.* 13 *s.* 11 *d.*, for the conveyance of Mails by Railway in previous years.

¶ This includes the sum of 31,899 *l.* 16 *s.* 2 *d.*, chargeable against the "Census" Office in the year.

** The revenue and expenditure of the North American provinces, amounting, for the last complete year, to 96,164 *l.* 2 *s.* 2 *d.* and 71,171 *l.* 13 *s.* 4 *d.*, respectively, no longer appear in the accounts of this Department, with the exception that the present year's accounts include one quarter's revenue and expenditure for Canada.

RETURN of the Payments made by the Post-Office during the Year ended the 5th day of January 1838, and each subsequent Year, for the Conveyance of the Mails by Railway in the United Kingdom, distinguishing in each instance the Payments for Work Done within the Year from Payments for Work Done in previous Years.

PAYMENTS made during the Year ended	For Work Done within the Year.	For Work Done in previous Years.	TOTAL PAYMENTS.
	£. s. d.	£. s. d.	£. s. d.
5 January 1838 - - -	1,312 13 11	321 15 –	1,743 19 11 *
„ 1839 - - -	12,623 1 10	240 10 5	13,007 13 9 *
„ 1840 - - -	48,250 6 5	4,479 14 9	52,860 8 8 *
„ 1841 - - -	51,317 19 2	483 7 6	52,362 18 6 *
„ 1842 - - -	86,018 15 7	9,299 12 3	96,190 4 6 *
„ 1843 - - -	75,558 6 8	2,511 18 11	78,464 13 8 *
„ 1844 - - -	82,624 2 2	14,236 8 3	97,526 14 1 *
„ 1845 - - -	63,221 15 3	28,087 19 3	92,493 16 10 *
„ 1846 - - -	71,013 12 9	108,893 13 9	181,111 5 5 *
„ 1847 - - -	75,615 11 –	33,850 3 2	110,430 19 4 *
„ 1848 - - -	82,259 10 9	38,261 2 9	121,859 18 4 *
„ 1849 - - -	120,855 2 –	196,086 5 1	318,631 7 6 *
„ 1850 - - -	128,713 11 2	99,583 11 –	230,079 5 10 *†
„ 1851 - - -	206,357 2 6	192,975 13 11	400,964 3 1 *
„ 1852 - - -	155,575 15 8	87,272 5 5	242,848 1 1
„ 1853 - - -	194,000 9 –	135,963 5 4	329,963 14 4

* The amounts marked (*) include certain sums (being the amounts paid by Postmasters) which do not appear in the preceding columns, as the payments for these services cannot be distinguished; the amounts, however, are not large.

† In addition to this amount, a sum of 25,000 *l.* was paid to the Chester and Holyhead Railway Company on account, but the portion for the work done in previous years cannot be distinguished, the rate of payment not having been then fixed.

RETURN of the Number and Amount of MONEY-ORDERS issued and paid in the United Kingdom during the Year ending the 5th January 1840, and each subsequent Year, the Returns being to a certain extent estimated, as respects *England*, up to the 5th April 1847, inclusive.

MONEY-ORDERS ISSUED.

For the Years ended	ENGLAND AND WALES.		IRELAND.		SCOTLAND.		TOTAL UNITED KINGDOM.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
		£. s. d.		£. s. d.		£. s. d.		£. s. d.
5 January 1840 - -	142,723	240,063 5 4	80,015	47,295 8 4	16,183	25,765 19 4	188,921	313,124 13 -
„ 1841 - -	482,764	802,827 16 8	53,507	77,167 9 2	51,526	80,980 4 5	587,797	960,975 10 3
„ 1842 - -	1,290,115	2,657,969 4 3	125,170	215,382 12 8	137,560	254,155 13 4	1,552,845	3,127,507 10 3
„ 1843 - -	1,767,626	3,709,778 12 2	169,910	295,878 8 11	174,444	331,520 14 3	2,111,980	4,337,177 15 4
„ 1844 - -	2,086,009	4,369,344 4 10	208,179	358,884 5 3	207,335	384,612 7 1	2,501,523	5,112,840 17 2
„ 1845 - -	2,333,693	4,858,885 14 9	232,525	391,692 9 9	240,585	444,817 2 10	2,806,803	5,695,395 7 4
„ 1846 - -	2,627,443	5,463,453 10 7	258,144	435,330 17 3	290,539	514,576 13 4	3,176,126	6,413,361 1 2
„ 1847 - -	2,881,699	5,926,473 13 11	299,521	519,877 1 5	333,859	624,706 - 11	3,515,079	7,071,056 16 3
„ 1848 - -	3,286,375	6,600,658 - 2	343,156	585,464 15 10	401,654	717,064 7 9	4,031,185	7,903,177 3 9
„ 1849 - -	3,463,823	6,861,803 13 -	359,043	604,192 13 8	375,785	685,298 13 -	4,203,651	8,151,294 19 8
From 6 January to 31 December 1849 -	3,515,839	6,880,865 11 2	358,578	592,504 14 3	374,474	679,273 12 1	4,248,891	8,152,643 17 6
From 1 January to 31 December 1850 -	3,677,112	7,173,622 18 11	377,436	623,732 8 6	385,165	697,143 8 2	4,439,713	8,494,498 10 7
From 1 January to 31 December 1851 -	3,878,497	7,518,060 14 1	392,848	653,359 19 5	389,680	709,000 2 7	4,661,025	8,880,420 16 1
From 1 January to 31 December 1852 -	4,156,753	8,061,061 1 11	393,879	656,110 15 1	395,193	721,106 - 2	4,947,825	9,438,277 17 2

MONEY-ORDERS PAID.

For the Years ended	ENGLAND AND WALES.		IRELAND.		SCOTLAND.		TOTAL UNITED KINGDOM.	
	Number.	Amount.	Number.	Amount.	Number.	Amount.	Number.	Amount.
		£. s. d.		£. s. d.		£. s. d.		£. s. d.
5 January 1840 - -	124,004	208,586 2 7	47,022	71,426 5 3	17,609	31,715 1 3	188,615	311,727 9 1
„ 1841 - -	429,600	739,963 18 2	89,388	120,950 11 7	50,900	83,372 17 3	569,888	944,287 7 -
„ 1842 - -	1,268,660	2,638,060 10 11	158,651	245,887 18 8	132,899	256,147 17 1	1,560,210	3,140,096 6 8
„ 1843 - -	1,734,423	3,687,458 10 10	191,172	297,156 12 1	179,501	348,993 9 -	2,104,896	4,333,608 11 11
„ 1844 - -	2,047,605	4,323,820 18 4	232,026	355,973 6 1	216,100	411,664 12 6	2,495,731	5,091,458 16 11
„ 1845 - -	2,271,979	4,822,208 2 5	263,070	398,061 4 11	247,070	469,821 11 5	2,782,119	5,690,090 18 9
„ 1846 - -	2,540,456	5,348,411 4 4	316,814	483,339 11 3	281,757	539,977 14 3	3,139,027	6,371,728 9 10
„ 1847 - -	2,798,682	5,816,084 12 7	395,014	611,320 - 8	316,107	616,692 10 3	3,509,803	7,044,097 3 6
„ 1848 - -	3,138,010	6,425,250 15 -	545,709	806,770 19 1	345,811	666,873 5 10	4,029,530	7,898,894 19 11
„ 1849 - -	3,384,088	6,816,573 10 1	470,842	665,523 8 10	348,508	670,389 10 8	4,203,438	8,152,486 9 7
From 6 January to 31 December 1849 -	3,419,861	6,844,633 5 7	476,259	644,430 10 9	349,232	669,292 17 8	4,245,352	8,158,356 14 -
From 1 January to 31 December 1850 -	3,559,900	7,098,429 7 2	503,980	681,943 4 9	367,355	702,682 9 11	4,431,235	8,483,055 1 10
From 1 January to 31 December 1851 -	3,743,803	7,432,163 6 2	531,514	721,713 5 -	382,126	722,366 17 9	4,657,443	8,876,243 8 11
From 1 January to 31 December 1852 -	4,016,026	7,931,510 13 8	526,233	730,490 3 11	400,600	761,718 5 3	4,942,859	9,423,719 2 10

The Commission on Money-Orders was, on and from the 20th November 1840, reduced as follows:—
For any sum not exceeding 2 *l.*, from 6 *d.* to 3 *d.*
For any sum above 2 *l.* and not exceeding 5 *l.*, from 1 *s.* 6 *d.* to 6 *d.*

Money-Order Office, (signed) *F. R. Jackson*, President.

RETURN

RETURN of the Expense of the Money-Order Office, and the Amount received for Commission during the Year ended the 31st December 1852.

	EXPENSES OF THE METROPOLITAN AND COUNTRY MONEY-ORDER OFFICES.							SHARE OF EXPENSES. (a)				TOTALS.	
	Salaries and Allowances.	Compensation.	Taxes and Rates.	Repairs and Fittings.	Light.	Fuel.	Stationery and Printing.	Secretary's Clerks.	Accountant-General's Office.	Receiver-General's Office.	Solicitor's Expenses.		
ENGLAND AND WALES:	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.	£.
London { Chief Office	21,215	30	110*	50*	90*	74	4,165(b)	757	551*	1,589*	33	28,664	
London { Branch Offices	1,530	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,530	
London Receivers	5,228	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	5,228	
Country Offices*	21,301(c)	292	- -	- -	- -	- -	- -	- -	- -	- -	- -	21,593	
													57,015
Totals	49,274	322	110	50	90	74	4,165	757	551	1,589	33		
IRELAND:													
Dublin Office	4,529	- -	- -	122	4	14	446	140	100	90	64	5,509	
Country Offices	*1,836(c)	6	- -	- -	- -	- -	- -	- -	- -	- -	- -	1,842	
													7,351
Totals	6,365	6	- -	122	4	14	446	140	100	90	64		
SCOTLAND:													
Edinburgh Office	3,098	48	- -	37	5*	10*	161	70	107*	261*	- -	3,797	
Country Offices	*2,506(c)	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	2,506	
													6,303
Totals	5,604	48	- -	37	5	10	161	70	107	261	—		
United Kingdom £.	61,243	376	110	209	99	98	4,772	967	758	1,940	97	- -	70,669

* Expenses marked thus are estimated.

(a) The following expenses are omitted in this Return; viz., expenses of general superintendence by Postmaster-general and Secretaries; expenses of Surveyors, and (except those of prosecutions) of the Solicitor for England. Rent or cost of erecting Money-Order Offices, or interest thereon, and postage of money-order advices, &c. On the other hand, no credit is taken for the addition to the ordinary revenue of the Post-office, caused by the correspondence arising from money orders.

(b) A small part only of the expense of stationery enters into the account of Post-office expenditure, but the whole expense is given in this Return.

(c) Taken at the estimate for the year 1847, with the additional allowances granted since that time to certain Postmasters, at a rate varying from 3 *l.* to 5 *l.* per thousand transactions.

AMOUNT OF COMMISSION.

		£.
England and Wales:		
Offices in London (within a circle of three miles round the General Post-office - -	£. 10,886	
Provincial Offices - - - - - - - - - - - - - -	58,571	
Total for England and Wales - - -		69,475
Ireland -		6,295
Scotland (including 111 *l.* interest on the Bank account) - - - - - - - - -		6,581
Total for the United Kingdom - - - £.		82,333

PROFIT.

	£.
England and Wales - - - - - -	12,442
Scotland - - - - - - - -	278
	12,720
Deduct Loss in Ireland - - - - -	1,056
Total - - - £.	11,664

PROFIT or LOSS in each of the last Five Years.

PROFIT.	£.
1852 - - - - - - - -	11,664
1851 - - - - - - - -	7,437
1850 - - - - - - - -	3,236
1849 - - - - - - - -	322
LOSS.	
1848 - - - - - - - -	5,745

(signed) *Frederic Hill*,
Assistant Secretary to the Postmaster-General.

POST OFFICE.

RETURN of the Number of CHARGEABLE LETTERS delivered in the United Kingdom in the Year immediately preceding the first general Reduction of Postage, on 5th December 1839, and for each complete Year subsequent thereto; ACCOUNT of GROSS and NET POST-OFFICE REVENUE, and COST of MANAGEMENT, with the Payments for CONVEYANCE of MAILS by RAILWAY in the United Kingdom, in each Year from 5 January 1838; Number and Amount of MONEY-ORDERS Issued and Paid in each Year ending 5 January 1840, up to 5 April 1847; and Expense of MONEY-ORDER OFFICE, and Amount received as COMMISSION during the Year 1852.

(*Mr. Charles Villiers.*)

Ordered, by The House of Commons, *to be Printed.*
4 *July* 1853.

707.

Under 1 oz.

BENGAL.

RETURN to an Order of the Honourable The House of Commons, dated 14 July 1853;—*for*,

COPY "of LETTER from the Junior Secretary to the Board of Revenue, to the Secretary to the Government of Bengal, dated Fort William, June 29th, 1852; and, of MINUTE thereupon by the Governor-General, dated September 11th, 1852."

(*Sir John Pakington.*)

Ordered, by The House of Commons, *to be Printed*,
21 *July* 1853.

COPY of LETTER from the Junior Secretary to the Board of Revenue to the Secretary to the Government of Bengal, dated Fort William, 29th June 1852; and, of MINUTE thereupon by the Governor-General, dated 11th September 1852.

(No. 685.)

Salt: E. M. Gordon, H. Ricketts, E. Currie, Esqrs.

LETTER from the Junior Secretary to the Board of Revenue to the Secretary to the Government of *Bengal*.

Sir, Fort William, 29 June 1852.

I AM directed by the Board of Revenue, in continuation of the annual report on the salt revenue of the Lower Provinces, contained in my letter, No. 670, dated the 29th instant, to submit the following observations relative to the comparative advantages under which, on the one hand, salt manufactured in the Presidency on account of Government, and on the other hand, salt imported into Calcutta by sea, is brought to market, and to the measures it may be necessary to take in order to place the two more nearly on a footing of equality than they are at present.

2. It will be remembered that in 1836, a Select Committee of the House of Commons recommended that the Government should keep their golahs at all times open for the sale of salt at the cost price, the purchaser to pay, in addition, a fixed duty on removing the salt from the golahs, and that permission should be given for the import of foreign salt into Calcutta on payment of the same duty as that levied on salt sold by the East India Company. The Committee observed, that if their recommendations (of which those above mentioned are the essential ones) were fully and fairly carried out, the monopoly of the Company would be reduced to one solely of manufacture, and the difficulties that had previously stood in the way of a fair competition between native and imported salt would be removed.

3. So far as respects the importation of foreign salt, the recommendations of the Select Committee have been "fully and fairly carried out;" but it appears to the Board, and they hope to establish the same to the satisfaction of the Government, that in consequence of the meaning hitherto attached to the ambiguous term "cost price," the salt manufactured on account of Government has been offered for sale at much above legitimate rates, and that hence the consumption of the latter has gradually decreased, until it appears not an improbable contingency, that unless measures be taken to ensure for it that fair competition contemplated by the Select Committee, it will eventually be driven out of the market.

4. The erroneous interpretation of the term "cost price," referred to in the preceding paragraph, arises from confounding the position of Government, as it was before the recommendations of the Committee were carried into effect, with that which the Government has since occupied; in other words, from regarding the Government, instead of the molunghee, as the local manufacturer. This may have been a correct view of the case in 1836, when a limited supply of salt was annually brought forward and disposed of by the Government at public auction, when the Government realised a profit from the sale of salt independent of the duty, and when the import of foreign salt was virtually prohibited; but now that the Committee's resolutions have been acted upon, it appears to the Board to be altogether and most mischievously erroneous.

5. When the Government had a monopoly of sale as well as manufacture, and could regulate prices at pleasure, it was in its power, first, by lowering prices, to prevent the importation of foreign salt (which even at that time might legally take place on payment of a fixed duty), and then, by raising them again, to derive a profit far in excess of the fixed duty, and limited only by the repressive effect of exorbitant prices on the consumption; under those circumstances, it was clearly the Government who competed with the foreign importer, and in the teeth of such competition no foreign salt could be imported.

6. But when the Government was restricted in its operations, and compelled to sell its salt at a price equal to the fixed duty added to the cost price, it seems evident, on the least reflection, that the position of Government towards the foreign importer was altogether changed; that it ceased to be a matter of the smallest importance to Government (speaking with reference to the salt revenue) whether that revenue was raised by a duty of 325 rupees the 100 maunds on the import of foreign salt, or by selling home-made salt at a price equal to that duty, plus the cost of production; and that the Government, instead of being any longer a competitor, in fact came to hold the balance between the home and the foreign producer, and was bound to regulate its interference for revenue purposes in such a manner as that both should compete on terms of strict equality.

7. This change in the position of the Government appears to the Board to have been lost sight of. The Government was still regarded as the manufacturer, and the competition as between the Government and the foreign importer; and hence it was determined (properly

(properly enough, on that hypothesis) that the cost price should consist of all charges incurred by Government in connexion with the manufacture, calculated on the average of a certain number of years immediately preceding.

8. Thus the home-manufactured salt, besides being burdened with the expense of a Government management, was also charged with a considerable outlay, which though incurred by Government nominally for manufacture, was really incurred for the purposes of collecting the revenue and preventing smuggling.

9. In the Board's opinion, the correct principle which ought then to have been, and now to be adopted, in calculating the prime cost of home-made salt, is to add to the price actually paid to the molunghees so much of the expense incurred by Government in bringing it to market as would be incurred by private individuals or a joint stock company for the same purpose, on the supposition that the salt were manufactured under an excise system, and subject to the restrictions inseparable from that mode of management, the operations of Government being confined to the collection of the fixed duty, and the prevention of illicit dealings.

10. Before proceeding to explain more fully the grounds upon which this opinion rests, the Board desire to refer to the discussions that took place between the authorities in India and the Court of Directors, relative to the fixation of price, and to show how, in consequence chiefly of the mode in which effect has been given to the recommendations of the Select Committee, the manufacture in Bengal has been affected by the import of foreign salt.

11. The Court of Directors, in their despatch, dated 4th January 1837, explanatory of the views as to the manner in which the recommendations of the Select Committee were to be carried out, observed that, "The duty only should be fixed, the price being variable, in relation to the original cost of the salt to Government," and desired that the plan which the Government might propose to carry into effect should be reported for their final sanction. Mr. Secretary Prinsep's letter, No. 63, dated 9 August 1837.

12. Agreeably to instructions issued by Government on the receipt of this despatch, the accountant prepared a statement, showing the average cost and charges per 100 maunds of salt for 10 years, ending on the 30th April 1836, which was submitted to Government with the letter of the late Board of Customs, Salt and Opium, No. 907, dated the 28th September 1840. The Board on that occasion* (*see* para. 14) questioned the propriety of including among the expenses of manufacture certain charges which would have to be incurred under any system of management, and referred again to the subject in their letter, No. 912, dated 21st September 1843, paragraph 16.†

13. On the 6th November 1843, the Government, addressing the late Board, observed, "It is obviously desirable, as it is in conformity with the views and instructions of the Honourable the Court of Directors, so to arrange the duty on imported salt, in connexion with the monopoly sale prices and the cost of production, that, on the one hand, the importer shall have no ground to complain that he is more heavily taxed than the home producer; and on the other, that the local manufacture and the interests of those engaged in it shall be in no way prejudiced by the admission of foreign salt on more favourable terms."

14. On the 4th December 1843, the Government transmitted to the late Board extracts from the Honourable Court's despatch of the 20th December 1843, in which it was explained, that the duty was to be exclusive of "the charges incidental to the manufacture, such as the price paid to the molunghees, aurung, and transportation charges, &c., all of which would become extinct in the event of the abolition of the present system of manufacture," but to include "all those charges, such as the maintenance of a preventive establishment, payments to the French and Danish Governments, and others, which would have to be incurred under any system whatever, by which a revenue should be derived from the article of salt."

15. This

---

* Extract:

14. This abstract shows the 10 years' average ordinary cost and charges per 100 maunds of Bengal, *i. e.* Pungah[a] salt. We will first select the Hidgellee salt as an example. We find its costs as per statement[b] 92,100, the net sale proceeds are 4,12,610, and the profit 3,20,509. But there is included in the cost certain items which do not appear to us to be chargeable to the manufacture; as for instance, Moshaira proportion of salt office charges and proportion of Chokey charges; all these charges would equally exist if the manufacture on the part of Government was discontinued, and the revenue collected by a pure excise system, or entirely on the importation of salt by sea.

[a] There is an exception, of no moment, in the case of Cuttack Ahora salt.

[b] The figures are Co.'s Rupees and decimal parts of a rupee.

† Extract:

16. Under these impressions, the course we would desire to adopt, is to arrive at what are the cost and aggregate charges of the several descriptions of salt; but we find a difference of opinion prevailed in 1840 what items were to be so regarded, that our Board laid statements before the Government on the 28th September 1840, No. 34, and requested the superior authority to determine, to which no orders have yet been received. Before proceeding therefore beyond the reduction already effected by us, simultaneously with the wishes of your Honor, we would request to be informed whether the opinions expressed by this Board in regard to the cost and charges and net profit have been decided on by Government.

15. This distinction, the Court observed, had been altogether lost sight of by the accountant in the statements prepared for the information of the Board, but as the Board seemed to be fully aware of the importance of maintaining it, the Court expressed their confidence that due care would be taken to distribute the various charges on the salt revenue into the classes to which they properly belonged.

16. In October 1844, the duty on all salt was reduced from 3¼ rupees to 3 rupees a maund, and the Government at the same time pledged itself not to alter for a certain period the wholesale prices then fixed on the various kinds of salt at the several agency-ghats and the Sulkea golahs. These prices were not based on any calculation of cost, but were those which happened to be fixed at the time by the Board, who, until then, regulated prices according to what they conceived to be the relation of supply to demand.

17. Revised statements for the 10 years ending with 1835-36, were furnished by the accountant on the 14th October 1844, and submitted to Government, with the Board's address of the 8th January 1845. In these statements the following items were assumed to be "charges incidental to manufacture," in the sense intended by the Honourable Court, which were to constitute the "cost price" of the salt.

1. Cost paid to the molunghees.
2. Aurung charges
3. Transportation charges.
4. Khalaree rents.
5. Salary of agents.
6. Charges for transporting salt to Sulkea.
7. Charges for receiving and delivering salt at Sulkea.
8. Cost of establishment at Sulkea.
9. Value of salt lost by accident.

There were also three other items included in the statements; viz., bounty to purchasers, charges for refining damaged salt, and proportion of irrecoverable balances; but these being obsolete, it will be unnecessary to consider.

18. On the 18th November 1846, the Government issued orders on the subject. It appears from the Under Secretary's letter of that date, that on the receipt of the Board's despatch of the 8th January 1845, the Government reviewed the several items of charge set forth in the accountant's statements, and was of opinion that the salary of agents ought not to be charged to the manufacture of salt, but to revenue, "as, in all probability, having to be incurred under any system for purposes of prevention." But as the statements then submitted only brought down the accounts to the 30th April 1836, the accountant was required by Government to prepare fresh statements on the same principle as before; first, for 10 years, ending with 1842-43; and afterwards for three years, ending with 1844-45.

19. In the meanwhile the Court of Directors having received the Board's despatch of the 8th January 1845, with the statements first prepared by the accountant, had addressed the Government in the following terms:

The Under Secretary's letter, No. 3050, dated 18 Nov. 1846.

"These statements have been prepared for the purpose of enabling you to carry into effect, as enjoined by us, the recommendation of the Select Committee of the House of Commons, which sat in 1836, that the duty to be imposed should be fixed at the lowest rate consistent with the maintenance of the revenue, and not exceeding the average rate of the net profit of the Company's monopoly for the last 10 years."

"We need only observe, that in these amended statements the salt accountant has rightly understood the principle on which it was our desire that they should be framed; the results above given being arrived at by deducting from the sale proceeds the charges incidental to the manufacture, store, and sale of salt on account of Government, excluding from consideration all charges belonging exclusively to the maintenance of the revenue, which would have to be incurred if the manufacture on the part of the Government were wholly abandoned, and the revenue derived by an excise on manufactured, and a Customs' duty on imported salt."

20. The Government, therefore, considering, apparently, that the Honourable Court had sanctioned not only the principle on which the accountant's statements had been prepared, but also the details, proceeded to fix the prices of the several descriptions of salt then in store, according to the accountant's average of those years, inclusive of the salary of the agents, and upon this footing the "cost price" of the several kinds of salt manufactured on account of Government has been calculated from time to time until now. The Court of Directors reviewing these proceedings in their despatch, dated 18th August 1847, observed,

Mr. Secretary Halliday's letter, No. 436, dated 3 November 1847.

"The Government state (para. 2), that in their opinion the salary and commission of salt agents should be excluded from the cost of manufacturing and storing salt, as it appeared to them more properly chargeable to the collection of revenue, is, in all probability, having to be incurred under any system for purposes of prevention. We differ from the Government in this opinion; for although it may be admitted that some portion of the charge of the salaries of salt agents would have, under any system, to be incurred for preventive purposes, yet those officers are ostensibly and principally employed in superintending and controlling the manufacture of salt, and not in the collection of the revenue derived

derived from it. We consider, therefore, that their salaries are fairly chargeable to the manufacture, and the exclusion of that item from the cost of the Government salt would undoubtedly give rise to cavils and objections on the part of importers."

21. From the following statement it will be seen that the imports of foreign salt, which up to 1844–45 were comparatively small, began to increase largely after the first reduction of duty, and that although the cost prices of Government salt have been intermediately reduced by economical arrangements to the extent noted on the margin,* yet the imports have continued to increase until, in 1851–52, they amounted to 56½ per cent. of the whole Rowannah supply.

	1844.	1852.
*Hidgellee	74	66
Tumlook	85	68
Chittagong	87	76
Arracan	82	80
Sulkea:		
Cuttack	113	88
Balasore	118	75
Khorda	121	85

	WHOLESALE. IMPORTS.	EXCISE.	TOTAL.
	Maunds.	*Maunds.*	*Maunds.*
1842–43	3,870,635	892,740	4,763,375
1843–44	3,907,624	967,013	4,874,637
1844–45	4,150,346	970,595	5,120,941
1845–46	3,399,275	1,581,986	4,981,261
1846–47	3,711,446	1,466,744	5,178,190
1847–48	3,988,541	1,615,084	5,603,625
1848–49	3,316,637	1,610,256 16,450	4,943,343
1849–50	3,383,833	2,103,219 23,630	5,510,682
1850–51	2,825,100	2,601,033 35,000	5,461,133
1851–52	2,239,952	2,926,866 18,600	5,185,418

22. The result of this unexpected increase in the supply of foreign salt has, of course, been to compel the Government to contract the home-manufacture, and, in pursuance of that object, to abolish the agency of the 24 pergunnahs, to suspend the manufacture for an indefinite period in Chittagong, and to limit it in Cuttack to the quantity required for local consumption. The provision in the remaining agencies has also become less than in former years, and is likely, unless measures can be taken to alter the present tendency of affairs, to be still further diminished. No salt is now manufactured along the whole line of coast from the Hooghly to the southernmost point of the Chittagong district.

23. This state of things, so injurious to the home producer and to the industrial interests of the country, appears to the Board to demand close inquiry, and, if possible, the application of a remedy. The discontinuance in any district of a manufacture in which thousands of persons have been engaged all their lives, and from which they have derived a large portion of their subsistence, is a most serious calamity, which the Government is bound to avert by every possible means consistent with the maintenance of the revenue derived from salt, and with fairness to the foreign importers.

24. The Government has long ceased professedly to derive any advantage in the way of profit from the manufacture of salt, the principle upon which wholesale prices are adjusted having been, since 1846, at least to add the fixed duty to the cost of produce, calculated on an average of three years. The system of agency manufacture is therefore pursued, not with a view to make a profit by the manufacture over and above, or otherwise than in the form of the fixed duty, but as the cheapest and most convenient form of collecting the revenue. But, in fact, the Government does unwittingly continue to derive a profit from the home-manufacture of salt, to the great advantage of the foreign trader and the injury of the home-producer, by charging upon the agency salt several items of cost, which, though apparently connected with manufacture alone, are really incurred for the purposes of collecting the revenue and preventing smuggling.

25. That this is really the case will appear clearly, if it be borne in mind, what is undoubtedly the fact, that the Government is not the *manufacturer* of the salt, but the purchaser, collector, and storer of it for revenue purposes, and that the competition is to be regarded not as between the importer and the Government, but as between the foreign manufacturer and the molunghee, between the importer and the dealer, who, in the absence of Government interference, would bring the home-made salt to market.

26. Hence many of the agency charges which, so long as the Government was regarded as the manufacturer appeared to be, and on that hypothesis were no doubt rightly called manufacturing charges, must stand in a very different light when the molunghee is regarded as the manufacturer, and the Government as interfering between him and the wholesale merchant, simply for the purpose of revenue.

 27. If

27. If the salt now made in Bengal, instead of being collected by Government agents and stored in Government golahs, were made under the system of excise, the Government would obviously realise nothing but the fixed duty, and all charges of collection and prevention would fall on the revenue. Wherever persons were permitted to make salt under such a system, it would be necessary to employ additional establishments to supervise the works and prevent frauds on the revenue, and it is probable that the regular preventive service would also have to be augmented, because the mofussil officers of the agencies are now employed in preventing smuggling, as well as in receiving the salt from the manufacturers. All the agency expenses which are now thrown upon salt would be swept away, but instead, there would have to be incurred an outlay in proportion to the number of works licensed, and the whole of this outlay must be a charge upon the revenue.

28. There cannot be a more apposite illustration of the truth of the foregoing observations, and of the disadvantage under which the native manufacturer now labours, than that afforded by a correspondence which has recently passed between the Board and the proprietors of the Narainpore Salt Works, regarding the special establishment maintained there to supervise the manufacture. The Government is aware that salt is made at Narainpore under an excise system, the fixed duty being paid on all salt cleared from the works under Rowannah, and the proprietors disposing of the salt to the best advantage.

29. The expense of this establishment, which it is necessary to maintain, in addition to the regular preventive force of the Barricpore division, has hitherto been borne by Government, but on an application being made by other parties for permission to make salt elsewhere, on similar conditions, it appeared to the Board that the above arrangement placed the proprietors of the Narainpore works in a better position than the molunghees, and the department in a worse position as regards the former than as regards the latter; because, in the case of the Narainpore works, the Government receives nothing but the bare duty, out of which it has to pay the additional establishment, whereas in the case of the molunghees, the Government clears the whole duty, and charges the whole expense of the extra preventive (included in what is termed the manufacturing) establishment to them.

30. But the proprietors, on being called on to say why on these grounds they should not be made to bear the expense of this extra establishment, employed exclusively for the surveillance of the works, protested against being placed in a worse position than importers of foreign salt, who pay the fixed duty and nothing more, all charges of collection and prevention being paid by the Government from the revenue.

31. This objection appeared unanswerable, and hence the Board being placed in the dilemma of either continuing to do injustice to the molunghees, by paying the expense of the Narainpore establishment from the revenue, or doing injustice to the Narainpore proprietors by imposing upon them a charge from which importers are free, were under the necessity of allowing matters to remain as they were; for it it was not in the power of the Board, on the one hand, to charge importers with the expense of collection, or on the other hand to transfer any part of the charges which have hitherto been assumed to constitute the cost price from salt to revenue.

32. It seems, therefore, to the Board, that, in reconsidering each item of the charge, with a view to relieve the agency salt from all charges not borne by imported salt, or by salt made under the excise system, the question to be asked is, whether the charge would be incurred by private individuals, or a joint-stock company engaged in manufacturing salt and bringing it to market, subject only to the restrictions necessary, as in the case of the Narainpore works, for the protection of the revenue. If this question cannot be answered in the affirmative, the charge must necessarily, in the Board's judgment, be one either of prevention or of collection, not of manufacture, and therefore not properly chargeable on salt, but on revenue.

33. The Honourable Court have expressed their opinion that only those charges which would have to be incurred, under any system of management, ought to be debited to revenue; and in this category they include only those charges which are not ostensibly connected with the manufacture. But in the view taken by the Board, this opinion is defective, and its operation injurious to the Bengal manufacturers in two respects; for, in the first place, the revenue ought to be charged not only with the expenses that would be incurred under any system, but with all expenses that, under a different system, would be saved altogether, and, in the next place, many of the charges which are nominally of manufacture, are, in reality, of collection, and consequently debitable to revenue. No charge, in short, which, under a system of excise would either fall on the Government or be saved altogether, ought to be included in the "cost price" of salt. Such charges are incurred for purposes of revenue, and not of manufacture.

34. It is very possible that, even after making all deductions from the cost price of agency salt, which, on the principle above explained, may be found practicable, foreign salt will still continue to compete successfully with the produce of Bengal. This is especially the case with the salt of the United Kingdom, because of the great difference in bulk between the exports and imports, the former consisting entirely of raw produce, and the latter of manufactured goods. The excess tonnage must be filled up, and it is more to the advantage of the shipowner to import salt, at however low a freight, than to send a ship in ballast, for a salt cargo is considered beneficial to the timber of a vessel, and the salt

is

is put on board, and landed free of all charge to him. It cannot, however, be doubted that every reduction in the cost price of home-made salt will have a tendency to remove the disadvantage under which it now suffers, and at all events the native manufacturers will have no ground, as they can now have for complaining that they are ruined, not by fair competition, but in consequence of being burdened with charges incurred by the Government solely for purposes of revenue, and not properly incidental to the manufacture.

35. The Board now proceed to apply the principle laid down in the 32d and 33d paras. to the several items of charge, as shown in the accompanying statement for 1856, S. S. prepared from the accounts furnished by the several agents.

I. Cost paid to the Molunghees.

36. This is no doubt purely a manufacturing charge, and must continue to be borne by salt. At the same time it may be observed, that the cost is somewhat higher than it would be if the trade were in the hands of private dealers, as it is perhaps impossible entirely to suppress extortion and peculation on the part of the petty officers employed in receiving the salt and paying for it, and these unauthorised perquisites must augment the price of the salt. This, however, is only to be remedied by vigilance on the part of the salt agents, and the adoption of the lowest rates consistent with a fair remuneration for the molunghee's labour.

	Rs.	a.	p.
Hidgellee	2,64,252	15	2
Tumlook	3,68,930	3	3
Balasore	1,05,923	4	6
Cuttack	67,124	13	11
Pooree	1,10,363	6	6
	9,16,594	11	4

II. Aurung Charges.

(a). *Fixed Establishment, Sudder and Mofussil.*

37. The cost of the Sudder and that of the Mofussil establishments, though entered as one item in the statement, seem to the Board to rest on different grounds. The former, or something analogous to it, would probably have to be incurred by private individuals, on account of the receipt, storage, and delivery of salt, and therefore it is not proposed to relieve the salt of any part of the expense incurred under that head.* But the Mofussil establishment is employed exclusively for preventive purposes, and the cost of it, under a different system, would either be wholly saved, not to the Government only, but to the producer, whoever he might be, or incurred by the former for the purpose of maintaining an additional preventive force. If, as at Narainpore, the salt were to be made within a limited enclosure, and stored on the spot, nearly the whole of the expense incurred for Mofussil establishments under the existing agency system would be saved; and if it were to be collected from molunghees, within a given extent of country and stored at a convenient ghât, the existing preventive force would not be sufficient to prevent illicit manufacture and removal, and an additional preventive establishment, corresponding to the Mofussil establishment of the agencies, would be required. Under any circumstances, therefore, the charge of Mofussil establishment, as it is not necessarily a manufacturing charge, ought not, in the Board's opinion, to fall upon salt.

	Rs.	a.	p.
Hidgellee	28,169	10	9
Tumlook	24,965	–	–
Balasore	16,157	14	11
Cuttack	11,746	7	1
Pooree	10,036	–	6
	91,075	1	3

(b). *Burkundaz Guard.*

38. This item may fairly be treated on the same principle as the salaries of agents, to be noticed presently, two-thirds being charged to revenue and one-third to salt. The burkundazes are chiefly employed to guard large accumulations of salt collected together for revenue purposes, and the value of which (rendering a guard necessary) is enhanced sixfold by the duty. Under an excise system, a single chowkeedar would suffice to guard the store of a private merchant, so far as his interests were concerned, and any additional force which the Government might require, in order to prevent the removal of the salt without payment of duty, would not be a charge upon the manufacture.

	Rs.	a.	p.
Hidgellee	2,086	2	10
Tumlook	2,014	12	–
Cuttack	192	–	–
	4,292	14	10

(c). *Pensions.*

39. These are clearly chargeable to revenue.

	Rs.	a.	p.
Hidgellee	120	–	–

(d). *Temporary*

* It must not be forgotten, however, that a portion of the time of some of the least paid officers of the Sudder establishment is taken up with the receipt of reports and disposal of cases connected with smuggling. It is not probable that the same amount of expense would be incurred by individuals or a joint stock company.

(*d*). *Temporary Pokhtan Establishments and Dawk Runners.*

	Rs.	a.	p.
Hidgellee -	5,488	–	–
Tumlook -	6,656	8	–
Balasore -	3,462	–	–
Cuttack -	3,432	–	–
	19,038	8	–

40. These expenses appear to the Board to rest precisely on the same footing as the regular Mofussil establishment, and to be incurred only in consequence of the mode in which the Government thinks proper to collect the revenue. Under any other system they would either be saved to all parties, or incurred directly and unquestionably as a revenue charge. They ought therefore to be charged to revenue.

(*e*). *Ferry Establishment.*

	Rs.	a.	p.
Hidgellee -	352	7	2
Balasore -	269	12	11
	622	4	1

41. This is not properly a charge on the salt department. Certain ferries within the limits of the Government fuel lands have been either established or resumed by the agents, and their rents appropriated. If the salt is charged with the expense of maintaining the necessary ferry establishment, it should be credited with the rents, but in fact, neither ought to be taken into account in estimating the prime cost of salt, and this item should therefore be excluded from the calculation.

(*f*). *Building and repairing Golahs, Bridges, Drains, &c. and Cutcherries, and excavating Docks and Canals.*

	Rs.	a.	p.
Hidgellee -	4,484	5	7
Tumlook -	3,234	3	11
Balasore -	303	15	3
Pooree -	81	15	–
	8,104	7	9

42. These the Board think must continue to be charged as expenses of manufacture. They would have to be incurred, perhaps to the same extent, under any system of management, by parties engaged in the trade.

(*g*). *Poonea Charges, Gotcha Salt Compensation, and Birtee Charity.*

	Rs.	a.	p.
Hidgellee -	3,173	8	5½
Tumlook -	1,741	8	–
	4,915	–	5½

43. These are obsolete charges, which have been discontinued, and require no notice.

(*h*). *Temporary Bhangah Establishments, and Baskets, Jute, &c. used for Bhangah Weighment.*

	Rs.	a.	p.
Hidgellee -	4,638	–	1
Tumlook -	6,129	8	8
Balasore -	124	6	6
Pooree -	1,249	12	8
	12,141	11	11

44. There are two weighments at the Hidgellee and Tumlook agencies one in the Mofussil called the "Bhangah," and the other at the golahs, called the "Purtul" or check. If the manufacture were conducted by private persons, one of these weighments would cease, as the salt would only be weighed once, whether it was purchased from the molunghees at the golahs, or at the place of manufacture. In the latter case, an article of such small value as salt would not be weighed a second time by the dealer, though the Government, for revenue purposes, might think it necessary to take measures to ensure the storage of all salt purchased from the molunghees. The Board therefore propose to charge the salt with the expense of the Bhangah weighment, but to debit the cost of the purtul weighment (*see* next paragraph) to the revenue.

(*i*). *Purtul, or Import Weighment.*

	Rs.	a.	p.
Hidgellee -	1,271	9	1½
Tumlook -	2,439	2	2
	3,710	11	3½

45. This item, as stated in the preceding paragraph, the Board propose to debit to revenue.

(*j*). *Cutcherry and Golah Ground-rents.*

	Rs.	a.	p.
Hidgellee -	13	15	10
Tumlook -	600	–	–
Balasore -	20	5	8
	634	5	6

46. This is a manufacturing charge; rent would have to be paid for premises which any private trader might occupy.

(*k*). *Fuel*

(*k*). *Fuel Watchers and Straw for covering Bahir Bandees.*

47. These charges, incurred in the Cuttack agencies only, may be left as manufacturing charges.

	Rs.	a.	p.
Balasore -	1,284	–	–

(*l*). *Zemindars Moshahira.*

48. This, as in the Cuttack province, is a payment of 1½ annas a maund to the zemindars of the province of Cuttack on all salt made within their respective zemindaries, partly as an equivalent for the use of the lands which they might otherwise devote to other purposes, and partly as a compensation to them for the profits they formerly derived from the manufacture of salt. In the former light it is doubtless a manufacturing charge, and the Board are not prepared to recommend that it should be otherwise treated. If the Government were to cease making salt in Cuttack, the payment would naturally cease,* and the fuel lands would revert to the zemindars, but their privilege of manufacturing salt would not revive.

	Rs.	a.	p.
Balasore -	28,246	3	4
Cuttack -	17,899	15	5
Pooree -	25,356	10	1¼
	71,502	12	9¼

(*m*) *Value of Khorakee Salt to Zemindars.*

49. This is clearly a revenue and not a manufacturing charge. It occurs only in the Balasore agency, and appears to be a payment secured to the zemindars by way of compensation for the profits they enjoyed from the manufacture before the Government imposed a duty upon salt. The same amount would have to be paid to them under any circumstances, so long as a revenue continues to be derived from this source.

	Rs.	a.	p.
Balasore -	2,018	12	5

(*n*) *Cost and Revenue of Surruf Salt.*

50. This is a manufacturing charge, and ought properly to be included under the first head, viz., cost paid to the molunghees.

	Rs.	a.	p.
Balasore -	2,508	15	11

(*o*) *Contingencies.*

51. The details of these are not specified in the accounts rendered to the Board, but the amount is small, and the Board would propose to charge one half to manufacture, and the other moiety to revenue; to allot it in any other proportions that, on further inquiry, might be found more accurate.

	Rs.	a.	p.
Hidgellee -	1,452	14	6
Tumlook -	208	2	5
Balasore -	547	11	5
Cuttack -	1,342	–	6
Pooree -	197	6	3
	3,748	3	1

III. TRANSPORTATION CHARGES.

52. These are incurred for conveying the salt from the aurungs, or manufacturing grounds, to the agency gulahs. So far as this operation, as conducted by Government, takes the salt out of the regular course of trade, which it would follow if manufactured under an excise system, the charge must be considered as one of revenue, and not of manufacture. For instance, the whole of the salt produced in the Tumlook agency, say, 700,000 maunds, is for the convenience of Government and the security of the revenue stored at Tumlook, contiguous to the agent's office and residence, and a large proportion of it is brought from the banks of the Huldee river, and other distant aurungs. Supposing the same quantity of salt to be manufactured under an excise system, and the average quantity made at each licensed work to be 50,000 maunds (nearly double the quantity made at the Narainpore works) it is obvious that a considerable proportion of the transportation charges would be saved. The proprietor of each licensed work would store his salt at a place conveniently accessible to merchants, and from thence, as in the case of Narainpore salt, it would be conveyed, under rowannah, direct to its destination. It appears, therefore, to the Board, that only a proportion of these charges should be debited to salt. It is impossible to say exactly what that proportion is, and indeed it must differ in every agency; but on the whole the Board believe that, under an excise system, the cost of transporting the salt to the local depôts would be considerably less than one-half that incurred by Government for the same purpose. At Narainpore, the cost is nearly nominal, as the store is immediately contiguous to the works, and on the banks of a navigable river. To transfer one half of the present charges of transportation from salt to revenue appears therefore to the Board a moderate proposal, and less than in strict justice to the manufacture might be made.

	Rs.	a.	p.
Hidgellee -	14,422	15	10
Tumlook -	23,461	6	10
Balasore -	5,229	2	2
Cuttack -	1,740	5	7
	44,853	14	5

IV. KHALAREE

* It is an open question whether, under such circumstances, the proprietors of the tributary mehals would not be entitled to some compensation.

IV. Khalaree Rents.

	Rs.	a.	p.
Hidgellee	22,753	10	11
Tumlook	3,880	9	8
	26,634	4	7

53. This item ought never to have been included in the cost price of the salt, even on a strict construction of the principle laid down by the honourable Court. The Board presume it to have been supposed by the accountant that these rents, as they are improperly called, were paid to the zemindars for the use of the khalaree lands, and would cease on the discontinuance of the manufacture; but this supposition, if formed, is certainly erroneous. The nature of the khalaree rents, or rather duty, in the agencies of the 24 pergunnahs and Chittagong, was fully investigated by a Committee in 1820; and by a resolution of Government, dated the 8th of September of that year, the amount of these rents was settled on the zemindars in perpetuity. By a subsequent resolution of Government, dated 30th March 1836, the khalaree rents paid to the zemindars of *settled* estates in Hidgellee, were declared to be of the same character, and precisely analogous to the moshaira paid in *unsettled* estates of the same district, which has already been specially excluded from the calculation of the prime cost of salt.

V. Salary of Agents.

	Rs.	a.	p.
Hidgellee	49,200	–	–
Tumlook	32,400	–	–
Balasore	17,422	3	2
Cuttack	16,222	3	3
Pooree	12,333	5	–
	1,27,577	11	5

54. Under this item may also be considered those of deputy and assistant salt agents, civil assistant surgeon and native doctor, and the Commissioner's salary in Cuttack.

55. These charges, it appears to the Board, are purely incidental to a Government system of manufacture, and are incurred solely for the purpose of collecting the revenue and preventing illicit manufacture. Were the manufacture and provision of the salt in private hands, it would either be necessary to employ trustworthy agents or gomashtas to look after the works, or the proprietor of the works must himself superintend the manufacture, and derive from it some remuneration for the time and labour, over and above the profit, with which, as an absentee, he might be satisfied. But the proprietors or their agents would, under those circumstances only, have to see that all salt paid for was brought into store and accounted for. It would be no business of theirs, as it is of the Government agents, to prevent other people from manufacturing salt. And the expense of employing any probable number of native agents on that footing would be very much less than the cost of a single European functionary, such as those to whom the Government find it necessary to entrust the management of an agency, whose duty is not confined to the mere purchase and delivery of salt as an article of merchandise, but comprehends the prevention of illicit manufacture, smuggling, and peculation, the prevention of extortion by the petty officers of the department, and, in short, the monopoly of an article of which the value is raised by the imposition of duty to six times its prime cost. The Board therefore propose to charge only one-third of the Bengal agents' salaries, or 10,000 rupees each to salt, and in Cuttack the difference between the salaries of the agents and those which they would draw if they were collectors only, viz. 5,000 rupees each.

The expense of deputy and assistant agents and medical officers ought, in the Board's opinion, to be borne entirely by the revenue, and no part of the salary of the Commissioner of Revenue in Cuttack (who is not paid differently from Commissioners employed exclusively in land revenue duties) should be charged to salt.

VI. Charges for transporting Salt to Sulkea.

	Rs.	a.	p.
Balasore	48,498	4	–
Cuttack	17,989	2	–
Pooree	54,895	8	7
	1,21,382	14	7

VII. Charges for receiving and delivering Salt at Sulkea.

	Rs.	a.	p.
Balasore	659	–	1
Cuttack	4,609	2	6
Pooree	13,172	5	7
	18,440	8	2

VIII. Cost of Establishment at Sulkea*.

56. These are no doubt manufacturing or rather producing charges, as they would have to be incurred under any circumstances in respect to the salt of Cuttack, and to such portion

* This item does not appear in the annexed statement, not being included in the agency accounts, but it enters into the triennial adjustment prepared by the accountant.

tion of Hidgellee salt as the first-hand dealers might think expedient to bring to market at Calcutta, instead of selling to wholesale merchants on the spot. But it is to be apprehended that these necessarily heavy charges may oblige the Government to discontinue the manufacture, except for local consumption. This indeed has already happened in Cuttack itself; and the same result is likely to follow in Khurdah, the produce of which is for sale at Sulkea, at a higher price than that of Hidgellee.

IX. Value of Salt lost by Accident.

57. Where salt is lost by accident in course of manufacture or transport (provided the latter is in the ordinary route of traffic), or even when stored in heaps in the aurungs, the value of the salt so lost is fairly debitable to the prime cost of the remainder, but when salt is lost in its passage to a central Government depôt, out of the regular course of trade, or after being stored therein, the value of such salt ought to be charged to the revenue. The Government consider it necessary for revenue purposes, and in order to prevent a possible dearth of salt, to keep in store a stock of 40 or 50 lakhs of maunds *in addition* to the ordinary stocks in the hands of the dealers; but under an excise system no such necessity would exist, and the risk attending such a vast accumulation would be incurred neither by the Government nor by the private dealers.

	Maunds
Hidgellee . . -	132,719
Tumlook - -	30,200
	162,919

58. If, of the charges above detailed, those which the Board propose to charge to revenue be deducted from the present cost price of salt, it may be expected that at the next annual revision the wholesale price of the salt of the Bengal agencies may be reduced by about 15 rupees the 100 maunds, and of the Cuttack agencies by somewhat less. Supposing only the same quantity of salt to be sold by wholesale as in 1851–52, the gross proceeds would be diminished thereby by about 282,027 rupees, and as the actual expense would remain the same, the whole would be a net loss to Government, and this loss would increase in proportion to the improvement which the proposed deductions might create in the demand for home-made salt, supposing a corresponding diminution to take place in the import of foreign salt.

	Maunds.		*Rs.*
Bengal salt - -	1,535,260	at 15 p' %	2,30,289
Cuttack salt - -	517,380	at 10 p' %	51,738
Arrakan and Madras Salt - - -	177,840		
Total - -	2,230,480	- -	282,027

59. Upon this a question arises whether the Government is to sustain this loss for the benefit of the molunghees, especially after the diminution which the salt revenue has sustained in consequence of the successive reductions of duty that have taken place since 1844. Undoubtedly, as it appears to the Board, if the measures above advocated are necessary in order to place the salt manufacturers of Bengal on a fair footing of equality with the foreign producer, and to annul the protection which the latter has enjoyed since the change in the system of regulating prices, and in the manner of conducting the sales of Government salt, was introduced, the expense necessary for the accomplishment of this object must be borne by Government. If it be thought that the result of reducing the duty upon salt is not favourable, and that the increase in consumption has not sufficiently compensated for the loss of revenue, the remedy for this is a partial re-imposition of the duty on all kinds of salt, both home and foreign, not the maintenance of an unfair charge upon one for the benefit of the other. The two questions, in fact, have no connexion with each other.

60. It may perhaps be thought, as apprehended by the Court of Directors in 1847, that the foreign producers, especially those of the United Kingdom, may cavil at the measure, and renew those objections to the mode of administering the salt revenue of Bengal, which, since the admission of foreign salt on such eminently favourable terms, have been silenced. The Government, however, as already observed, has no interest whatever, so far as the salt revenue is concerned, in maintaining the home manufacture. It is bound to take care that the industry of its native subjects is not subjected to any burdens which are not equally borne by the foreign importer, and no fear of misrepresentation or of clamour, unfounded in reason, is likely to induce it to swerve from this object when the means of attaining it are satisfactorily made out.

61. If it be asserted that, however the matter be disguised, the Government is actually the manufacturer of salt in Bengal, that it makes advances for the salt, and that, in fact, the molunghees are its labourers and servants, who are paid according to the quantity of salt they produce, instead of by daily wages, the reply must be that this assertion is founded in error. The fact that Government is precluded from deriving profit from the purchase and sale of salt, and that it is not interested in maintaining the manufacture, and the equally certain fact that it is the molunghee alone, and not the Government, who suffers by the discontinuance of the home manufacture, and benefits by its extension, are, in the Board's opinion, altogether inconsistent with the position which, for the sake of argument, has been supposed.

62. Mr. Gordon, I am desired to add, cannot concur in the recommendation of his colleagues; he does not object to the soundness of the reasoning by which it is established that much of what is charged as the cost of home manufactured salt in this country does not belong strictly to cost; but he holds, that as it is found necessary to derive an important revenue from salt, the Government is bound to charge unavoidable expenses either to cost or to duty. If this be not done, the loss, Mr. Gordon observes, will fall inevitably on Government, and that he imagines can be ill afforded at present. The proposed diminution in the price of salt cannot be added to duty, and Mr. Gordon would therefore leave things as they are until the Government is at liberty to re-adjust the rate of duty chargeable on foreign and home salt.

I have, &c.

(signed) *Cecil Beadon*,
Junior Secretary.

Board of Revenue, Fort William,
29 June 1852.

MINUTE by the Most Noble the Governor of *Bengal*.

Salt.

1. THE letter of the Revenue Board is, to my mind, a convincing paper.

I hardly concur in their views that the Government is not the manufacturer of the salt; it is, at all events, the trader in that article, and the argument remains valid.

2. For reasons which are held to be conclusive, the Government of Bengal has long raised a portion of its revenue from salt. Instead of raising this revenue by the machinery of an excise, the Government has itself monopolised the sale of the article, and has thus obtained its return to the public treasury.

3. To warrant the Government of Bengal in continuing this system, I conceive it is essential that the operation of the system should clearly involve no injustice to the importer of salt from without, or to the producer of home salt in India.

The representations of the Revenue Board, in my humble judgment, have established that, under the existing system, no injustice is done to the importer of salt, but that great and growing injustice is inflicted on the native producer of that article.

4. The importer of salt from England or from elsewhere, has a right to expect that he should not be exposed by the determination of the Government of Bengal to retain the monopoly of salt in its own hands, to any greater competition than he would have to contend with if the monopoly were abolished, and the traffic in salt, like the traffic in any other article, were carried on by ordinary traders.

The Government of Bengal, acquiescing in that principle, have long since given effect to it by establishing that the selling price of their native salt shall consist of the amount of the import duty on foreign salt, plus the cost of manufacture and conveyance for sale of the native article.

5. But I think the Revenue Board have conclusively shown, that in "the cost of manufacture and conveyance for sale," the Government have included many items which cannot correctly be classed unde reither of these heads, but which belong to other operations of the Government, such as collection of revenue or charges of preventive service. The selling price of the home salt has thus been enhanced beyond what the selling price would be in the hands of an ordinary trader, by the whole amount of these extraneous items. The direct effect of this has been to enable imported salt to compete with native manufactured salt so successfully, that it is thrusting the latter out of the market, while, if the selling price of native salt were what it would be in the hands of native traders, it might still hold its ground.

6. Thus the Government has unwittingly been doing a great injustice to the native producer. For by raising the selling price of his produce unduly, the Government is destroying its sale, and is thus depriving him of the employment whereby he gains his livelihood, and which he would still have retained under a system of ordinary trading, where the lower prices would probably have kept the article in the market.

7. The Revenue Board have shown that this is not a partial effect, but that it is felt so widely and severely as to call for the close and immediate attention of the Government.

8. If this Government be reproached with endeavouring to unsay its former conclusion as to the selling cost of Government salt, I reply that the conclusion of the Government has been, in my judgment, proved to be erroneous, and its calculations faulty, and that it is the duty of the Government to amend the error now that it has found it out.

The Government, in my opinion, should be far less ashamed of confessing that it has committed a blunder than of showing reluctance to remedy an injustice, lest it should at the same time be convicted of having previously blundered.

Necessity

Necessity may unfortunately compel this Government, for the present, to continue to raise an objectionable impost upon an article of first necessity, but nothing can justify the Government in pursuing, for this purpose, a system which unduly exposes a portion of its people to disadvantages that are rapidly depriving them of their means of livelihood. It is, therefore, I think, the plain duty of the Government to endeavour to remedy this evil at once, in the mode pointed out.

9. If it be objected that to do so will involve a sacrifice of revenue, I reply that, even if it should reduce the revenue, the plea cannot be admitted. This is a question of duty and justice, not one of expediency or profit. If it be admitted, as I think it must, that the people are bearing an unfair burden, it is the duty of the Government to lighten it, at whatever sacrifice.

10. It may be, too, that the imported salt, with the many advantages which it is shown to enjoy in its import over other articles of commerce, may still drive the native salt out of the market, even at its readjusted price. If this should prove to be the case, the Government will have to reconsider the question under that new aspect. Its present duty is obvious.

11. Lastly, if it should be objected that this revisal of the selling price of native salt in India will create remonstrances, and raise clamour among the owners and exporters of salt from England to India, the answer is easy: the act of the Government here can be shown to be founded on justice and necessity; any clamour against it in England, therefore, will have no foundation in justice or reason, and accordingly it ought to be, and safely may be disregarded.

12. So great a change, however, cannot with propriety be carried into effect until a reference shall have been made to the Honourable Court of Directors.

Let this be done by next mail; and, as the case is urgent, an early reply should be requested.

(signed) *Dalhousie.*

11 September 1852.

BENGAL.

COPY of LETTER from the Junior Secretary to the Board of Revenue, to the Secretary to the Government of Bengal, dated Fort William, 29 June 1852; and, of MINUTE thereupon by the Governor-General, dated 11 September 1852.

(*Sir John Pakington.*)

Ordered, by The House of Commons, *to be Printed,*
21 *July* 1853.

Under 2 *oz.*

PUBLIC INCOME AND EXPENDITURE.

RETURN to an Order of the Honourable The House of Commons, dated 15 July 1853;—*for*,

ACCOUNT "of the PUBLIC INCOME and EXPENDITURE for the Year ended the 5th day of July 1853, together with the BALANCES in the EXCHEQUER at the Commencement and at the Termination of the Year, and the Amount of FUNDED or UNFUNDED DEBT created or redeemed in the said Year."

(*Mr. Wilson.*)

Ordered, by The House of Commons, *to be Printed*,
21 *July* 1853.

AN ACCOUNT OF THE NET PUBLIC INCOME OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND,

In the Year ended the 5th day of July 1853 (after abating the Expenditure thereout defrayed by the several Revenue Departments), and of the Actual Issues or Payments within the same Period, exclusive of the Sums applied to the Redemption of Funded or paying off Unfunded Debt, and of the Advances and Repayments for Local Works, &c.

INCOME OR REVENUE.	£.	s.	d.	TOTAL. £.	s.	d.
ORDINARY REVENUE AND RECEIPTS:						
Customs	20,901,397	19	9			
Excise	15,303,732	1	2			
Stamps	6,967,353	7	11			
Taxes (Land and Assessed)	3,201,046	11	–			
Property Tax	5,589,079	7	11			
Post Office	1,066,000	–	–			
Crown Lands	392,888	9	3			
One Shilling and Sixpence, and Four Shillings in the Pound on Pensions and Salaries	4,423	–	4			
Small Branches of the Hereditary Revenues of the Crown	14,652	1	6			
Surplus Fees of Regulated Public Offices	90,126	2	–			
£.	53,530,699	–	10			
OTHER RECEIPTS:						
Produce of the Sale of Old Stores, and other extra Receipts	501,594	9	1			
Imprest and other Monies	156,847	13	9			
Money received from the East India Company	60,000	–	–			
Unclaimed Dividends (more than paid)	—					
£.	54,249,141	3	8			

EXPENDITURE.	£.	s.	d.	£.	s.	d.
FUNDED DEBT:						
Interest and Management of the Permanent Debt	23,656,841	8	3			
Terminable Annuities	3,801,540	6	5			
Total Charge of the Funded Debt, exclusive of £.12,582. 14. 2., the Interest on Donations and Bequests	27,458,381	14	8			
UNFUNDED DEBT:						
Interest on Exchequer Bills	368,344	19	6			
				27,826,726	14	2
Civil List	399,088	15	–			
Annuities and Pensions for Civil, Naval, Military and Judicial Services, &c., charged by various Acts of Parliament on the Consolidated Fund	352,775	8	6			
Salaries and Allowances	275,104	12	–			
Diplomatic Salaries and Pensions	159,344	11	5			
Courts of Justice	1,104,728	14	7			
Miscellaneous Charges on the Consolidated Fund	243,801	–	10			
				2,525,843	2	4
Army	6,723,488	5	1			
Navy	6,450,595	19	6			
Ordnance	2,416,590	11	11			
Civil Services, chargeable on the Annual Grants of Parliament	4,356,746	18	8			
Kafir War	370,000	–	–			
				20,317,421	15	2
£.				50,669,991	11	8
Unclaimed Dividends (more than received)				10,524	15	4
				50,680,516	7	–
Excess of Income over Expenditure				3,568,624	16	8
£.				54,249,141	3	8

AN ACCOUNT OF THE BALANCES OF THE PUBLIC MONEY

Remaining in the Exchequer on the 5th day of July 1852; the Amount of Money raised by the Additions to the Funded or Unfunded Debt in the Year ended the 5th day of July 1853; the Money applied towards the Redemption of the Funded or paying off Unfunded Debt; the Total Amount of Advances and Repayments on account of Local Works, &c., with the Difference accruing thereon, and the Balances in the Exchequer on the 5th day of July 1853.

	£.	s.	d.
Balances in the Exchequer on the 5th day of July 1852 - -	6,492,731	6	10
Money raised in the Year ended 5th day of July 1853, by the creation of Funded or Unfunded Debt:			
FUNDED DEBT:			
—Nil.—			
UNFUNDED DEBT:			
Exchequer Bills, £.17,742,800, per Act 15 Vict. c. 10 - - - - - - - - £.8,477,200 - -			
Ditto - - £.17,742,500, per Act 16 Vict. c. 25 - - - - - - - - 5,890,500 - -			
	14,367,700	-	-
Excess of Income over Expenditure - - - -	3,568,624	16	8
£.	24,429,056	3	6

Issued	£.	s.	d.	£.	s.	d.
To the Commissioners for the Reduction of the National Debt, to be applied to the Redemption of the Public Debt:						
By Issues, per Act 10 Geo. 4, c. 27 - - -	2,061,084	18	9			
By Interest on Donations and Bequests - -	12,582	14	2			
	2,073,667	12	11			
Deduct Sum applied not in redemption of Funded Debt, but of Consolidated Fund Deficiency Bills - - - - - -	540,000	-	-	1,533,667	12	11
To the Paymaster of Exchequer Bills for Payment of Unfunded Debt:						
Money out of Ways and Means Grants applied to payment of Supply Exchequer Bills - -	3,123,800	-	-			
Exchequer Bills for payment of Supply Bills -	14,367,700	-	-			
				17,491,500	-	-
Total Amount of Advances for Local Works, &c., under various Acts of Parliament, including £. 506,304. 15. 5. for Drainage and for Improvement of Landed Property in Great Britain and Ireland - - - - - - - - -	2,099,789	15	5			
Ditto of Repayments of Advances for Local Works	1,808,540	10	7			
Excess of Advances over the Repayments - - -				291,249	4	10
Balances in the Exchequer on the 5th day of July 1853 - - -				5,112,639	5	9
£.				24,429,056	3	6

Whitehall, Treasury Chambers,
15 July 1853.

JAMES WILSON.

PUBLIC INCOME AND EXPENDITURE.

ACCOUNT of the PUBLIC INCOME and EXPENDITURE for the Year ended 5 July 1853, together with the Balances in the EXCHEQUER at the Commencement and Termination of the Year, and the Amount of FUNDED or UNFUNDED DEBT created or redeemed in the said Year.

(*Mr. Wilson.*)

Ordered, by The House of Commons, *to be Printed,*
21 *July* 1853.

795.

Under 1 oz.

PUBLIC WORKS (INDIA).

RETURN to an Order of the Honourable The House of Commons, dated 15 April 1853;—*for*,

A RETURN "of all SUMS spent on PUBLIC WORKS (not of a Military kind) in *India*, since April 1834, keeping distinct the Amounts spent on the REPAIRS of OLD, and on the CONSTRUCTION of NEW WORKS, together with the Objects of the Works newly Constructed; and stating, when remunerative, the Amounts received from such Works."

East India House,
17 August 1858.

JAMES C. MELVILL.

(*Mr. Bright.*)

Ordered, by The House of Commons, *to be Printed*,
20 *August* 1853.

BENGAL - - - - - - - - - - - - - - p. 6

FORT ST. GEORGE - - - - - - - - - - - p. 121

BOMBAY - - - - - - - - - - - - - p. 141

APPENDIX, No. 1 - - - - - - - - - - - p. 159

APPENDIX, No. 2 - - - - - - - - - - - p. 165

MEMORANDUM.

Para. 1. THE Papers Nos. 1, 2, and 3 of the following list of contents will explain the impossibility of a Return being prepared for the exact period embraced, or in the precise form prescribed in the Order of the Honourable the House of Commons.

2. In the printed Return to the Order of the Honourable the House of Commons, dated 4th March 1850, No. 622 of 1851, has been given,

FOR BENGAL.

The particulars of and total expenditure on Public Works in the Civil Department from season 1839-40 to 1848-9 inclusive.

FOR FORT ST. GEORGE.

A digest of a general Report by the Superintendent of Roads, dated the 9th August 1848, on the Road Department, from its establishment to the 1st May 1848; also information in regard to district roads, with a statement of the charges incurred for the years 1838 to 1847 inclusive.

FOR BOMBAY.

As regards the Presidency of Bombay, it was pointed out that 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 formed part of the Return No. 622 of 1851. Page 166 of the Return.

---

3. The whole of the further information which can be supplied from the Reports received in continuation of the foregoing is contained in the present Return, and includes, as regards the Presidency of

BENGAL,

An analysis of a Report of the Military Board, dated the 8th September 1840, setting forth in a tabular form, and in alphabetical arrangement, all the information which the Government of Bengal could obtain on Public Works under the Military Board's general management at the time that the systematic preparation and printing of that Board's annual Reports was first ordered; also a statement compiled from the Reports of the Bengal Military Board for the official year 1849-50 and 1850-51, in continuation of and embodied with the previous statement for the official years 1839-40 to 1848-49.

FORT ST. GEORGE.

A digest of a further Report by the late Superintendent of Roads, dated the 17th October 1851, being in continuation of that dated 9th August 1848, giving information on the works in progress to the 1st May 1851; also a statement of the more important works executed under the Civil Engineer Department for 1848 and 1849, and of expenditure in the Civil Department of Public Works for the years 1848, 1849, and 1850.

BOMBAY.

Particulars of the formation of the Road and Tank Department in 1836; together with a tabular statement of the principal works executed by that department from its formation to the year 1850-51 inclusive, and a statement of expenditure compiled from the annual Reports of the Superintendent of Roads and Tanks, and of the Bombay Engineers.

RETURNS to an Order of the Honourable the House of Commons, dated the 24th February 1853, for "Copies of the Reports of the several Commissioners on Public Works at Bengal, Madras, and Bombay in the year 1851-52; of the Minutes of the Members of the Government thereon; and of any Orders or Despatches of the Court of Directors relating thereto," were presented to the Honourable the House of Commons on the 26th April 1853, for the Presidencies of Bengal and Fort St. George. The Return for the Presidency of Bombay will be presented on the meeting of Parliament in 1854.

LIST OF CONTENTS.

No. 1.—Extract Letter from the Officiating Secretary to the Government of India, in the Military Department to the Military Board, dated 14 October 1839 - - - - - p. 5

No. 2.—Ditto - - ditto - - ditto, dated 22 July 1840 - - - - - p. 5

No. 3.—Note - - - - - - - - - - - - - - - - p. 5

PRESIDENCY OF BENGAL.

No. 4.—Index to Tabular Analysis of the Military Board's Preliminary Statement, dated 8 September 1840 - - - - - - - - - - - - - - - - p. 6

No. 5.—Tabular Analysis of the Military Board's Preliminary Statement, dated 8 September 1840 - - - - - - - - - - - - - - - - p. 7

No. 6.—Statement compiled from the Reports of the Military Board at Bengal, from Season 1839-40 to 1850-51 inclusive - - - - - - - - - - - - p. 17

No. 7.—Statement of Expenditure incurred by the Military Board in the Civil Department of Public Works, from 1839-40 to 1850-51 inclusive - - - - - - - p. 120

PRESIDENCY OF FORT ST. GEORGE.

No. 8.—Statement compiled from the Report of the late Superintendent of Roads at Fort St. George, to the 1st May 1851, dated 17 October 1851 - - - - - p. 121

No. 9.—Ditto - - ditto - - of the Civil Engineer's Department, for the years 1848 and 1849 - - - - - - - - - - - - - - - p. 124

No. 10.—Statement of Expenditure in the Civil Department of Public Works, for the years 1848, 1849, and 1850 - - - - - - - - - - - - - - - p. 139

PRESIDENCY OF BOMBAY.

No. 11.—Particulars of the formation of the Road and Tank Department, in 1836 - p. 141

No. 12.—Tabular Statement of the Principal Works executed by the Road and Tank Department, from 1836 to 1850-51 inclusive, and of the Bombay Engineers, from 1846-47 to 1850-51 inclusive - - - - - - - - - - - - - - p. 143

No. 13.—Statement of Expenditure, compiled from the Annual Reports of the Superintendent of Roads and Tanks, and of the Bombay Engineers - - - - - - - p. 157

APPENDIX, No. 1.

The Ganges Canal: India Revenue Despatches, dated 21 December (No. 17) 1847, 2 June (No. 11) 1852 - - - - - - - - - - - - - p. 159, 160

Roads in the Punjaub: India Public Despatch, dated 4 August (No. 30) 1852 - - p. 162

Kurrachee Mole and Road: Bombay Public Despatch, dated 11 August (No. 28) 1852, p. 163

APPENDIX, No. 2.

Eastern Jumna Canal: India Revenue Despatch, dated 15 June (No. 11) 1853 - - p. 165

Cochrane's Canal: India Public Despatch, dated 31 March (No. 14) 1852 - - - p. 166

Begaree Canal: India Revenue Despatch, dated 25 February (No. 3) 1852 - - - p. 166

Hindoostan and Thibet Road: India Public Despatch, dated 18 May (No. 26) 1853 - p. 167

Pennair Bridge and Annicut: Madras Revenue Despatch, dated 18 February (No. 2) 1852, p. 168

Chetwye Dam: Madras Revenue Despatch, dated 15 December (No. 19) 1852 - - p. 169

Roads in the Broach Collectorate: Extract Bombay Public Despatch, dated 29 June (No. 22) 1853 - - - - - - - - - - - - - - - - p. 170

Preparation of Annual Schemes for the construction of Roads and Bridges by the Governments of Fort St. George and Bombay: India Public Despatch, dated 24 May (No. 32) 1853, p. 170

Memorandum on the Roorkee College: Extract India Public Despatch, 28 March (No. 6) 1849; 2 June (No. 23) 1852; 14 July (No. 27) 1852 - - - - - - - - p. 171

East India House,
17 August 1853.

T. L. Peacock,
Examiner of India Correspondence.

Note:—The Statements for the Presidency of Bengal for the series of years from 1839-40 to 1850-51 inclusive, and for the Presidency of Bombay, are arranged alphabetically. The preliminary Statement of the Military Board at Bengal, dated the 8th September 1840, and the Statements relating to works executed by the Civil Engineer's Department for the years 1848 and 1849, are preceded by an Index.

No. 1.

(No. 10.)

EXTRACT LETTER from the Officiating Secretary to the Government of *India*, in the Military Department, to the Military Board, dated 14 October 1839.

22. BEFORE closing this notice of the proceedings of your Board in the Department of Public Works, I am directed to inform you that, with the view of materially facilitating the object of diffusing correct information as to the principles by which the Government is guided in its appropriation of funds for such purposes, and on the measures of improvement which have been executed or are in progress, with their results, it is intended that the portions of the annual reports of your Board, referring to works which are intended in any degree for the public convenience and advantage, such as roads, bridges, canals, embankments, conservancy of rivers, &c., shall be printed and made public; and I am instructed to request that your Board will keep the ends of such publication particularly in view in drawing your reports. The President in Council hopes that this view may be acted upon with the report which it is probably the intention of your Board to submit to Government at an early period for the year 1838-39; and his Honour in Council deeming it right that the first publication should be preceded by a brief account, showing, as far as possible, the nature, extent, cost in original execution and subsequent maintenance, (and this, whether the outlay be from public or from private funds,) return or profit, and general results of each important public work under the control of your Board, it is the desire of his Honour in Council that your Board will turn your immediate attention to this important subject, and that your annual report for the past year may be accompanied by a preliminary account drawn up in accordance with the instructions above conveyed.

No. 2.

(No. 142.)

EXTRACT LETTER from the Secretary to the Government of *India*, in the Military Department, to the Military Board, dated 22 July 1840.

21. HAVING thus noticed the more important parts of your Board's reports, his Lordship in Council directs me to conclude with observing, that it is understood that provision will be made in future for submitting, in separate reports, the statements of proceedings regarding public works of general interest, and regarding the operations of the more peculiarly military establishment. Such division of your Board's annual reports is consistent with the orders of the Honourable Court, and the Governor-general in Council understands that it is intended so to prepare the former class of reports as to admit of their being printed and circulated, as may be thought advisable for general information.

No. 3.

Note.—As an introduction to the series of annual reports, and in compliance with the instructions given in the latter part of para. 22 of the letter from the Officiating Secretary to the Government of India, in the Military Department, to the Military Board, dated the 14th October 1839, a descriptive outline of works of public utility at the time (8th September 1840) under the Military Board's general management was submitted. In arranging the latter statement the works were classed under the general heads of roads and bridges, canals, embankments, and buildings, commencing with the works situated nearest to the Madras frontier, and proceeding gradually through the four circles of superintendence to the North Western frontier. The following is a brief analysis of this introductory report.

PRESIDENCY OF BENGAL.

No. 4.

INDEX to a TABULAR ANALYSIS of the Statement by the MILITARY BOARD at Bengal, dated 8th September 1840, of Works of public utility then under their general Management.

ROADS.

No. 16. Arrah to Sasseeram.
16. Arrah to Akberpore.
16. Arrah to Brookgunge.
22. Ajmere to Nusseerabad.
8. Burdwan Division.
7. Calcutta to Kishnegur.
15. Calcutta to Benares.
8. Culna to Burdwan.
12. Cachar to Munipore.
16. Chupprah to Mozufferpore.
16. Chupprah to Mootearee.
18. Chunar to Sukroot.
23. Cawnpore to Grand Trunk Road.
24. Cawnpore to Bittoor.
20. Deccan Road from Mirzapore to Jubbulpore.
21. Dhamow to the Deccan Road.
28. Delhi Division.
4. Grand Trunk Road.
10. Gowahattee to Sylhet.
27. Gazeeoodeenuggur to Meerut.
16. Hadjpore to Poosah in Tirhoot.
2. Juggernauth Road.
21. Jubbulpore to Titwarra Ghaut.
21. Jubbulpore to Hansi Ghaut.
21. Jubbulpore to Cullinghee.
28. Kurnaul Division.
29. Kumaon Division.
1. Madras Frontier to Cuttack.
3. Midnapore to Calcutta.
15. Moorshedabad to Benares.
17. Mogul Serai to Allahabad.
19. Mirzapore to Gopeegunge.
20. Mirzapore to Jubbulpore.
2. Poree to Bissenpore (known as the Juggernauth Road).
14. Patna to Gya and Shergotty.
13. Revelgunge to Moozufferpore.
25. Rohilcund Division.
21. Saugor to Jubbulpore.
26. Strand Road.

CANALS.

No. 32.) Balliaghatta.
33.)
41. Beejapore Water-course.
32. Calcutta Canals.
32. Circular Canal.
37. Delhi.
38. Dooab.
32. Entallee.
36. Feroze Shah's.
39. Gangum River.
40. Ganges Canals.
30. Hidjellee Khal.
38. Ishamuttee River.
36. Jumna River.
39. Koh River.
40. Kunkul on the Ganges.
39. Moradabad.
40. Mynpooree.
35. Nuddea Rivers.
37. Nuzufghur Jheel.
31. Oolabariah.
39. Rohilcund.
30. Tumlook Khal.
34. Tolly's Nullah.

EMBANKMENTS.

No. 44. Allahabad
42. Balasore.
42. Burdwan.
42. Berhampore.
43. Behar.
43. Central Provinces.
42. Gunduch River.
44. Ganges River.
42. Hooghly.
44. Jumna River.
42. Midnapore.
42. South-western Provinces.
42. Southern and Northern Cuttack.
43. Sacri Bund.
42. Twenty-four Pergunnahs.

CIVIL BUILDINGS.

No. 52. Bathing Ghaut at Hurdwar.
47. Chittagong Jetty.
50. Churches, &c.
50. Divine Worship.
49. Educational Purposes.
45. False Point Lighthouse.
51. Hospitals.
52. Hurdwar Bathing Ghaut.
47. Jetty at Chittagong.
53. Juma Musjid, or Mosque.
46. Kedjeree Lighthouse.
54. Kotub Minar.
45. Lighthouse at False Point.
46. Lighthouse at Kedjeree.
48. Lighthouse at Point Palmyras.
53. Mosque, or Juma Musjid.
48. Point Palmyras Lighthouse.

No. 5.

TABULAR ANALYSIS of the BENGAL MILITARY BOARD's Preliminary Statement, dated 8 September 1840.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES IN THE SOUTH-EASTERN CIRCLE:				*Rp.*	*Rs. a. p.*		
(1.) New road from the Madras frontier at Chutterghur to Cuttack.	- - To make the Dawk communication between Madras and Bengal more direct and secure than by the circuitous route by the sea coast; as likely to be advantageous for facilitating the march of troops between Cuttack and the northern division of the Madras army, and highly useful to the extensive tract of country known as the Khoordah estate, by affording the means of conveying its produce to the market of Cuttack.	- Measures 73¼ miles; was commenced by the Collector, but transferred to Department of Public Works in 1835.	Cuttack - - -	1,28,957	3,553 5 10	- - This road is open for dry weather communication, but some of the bridges and drains are still wanting, and bungalows and wells have to be constructed.	- - This road has at present 109 bridges; it is likely to be very useful when completed to Ganjam. The expense is borne entirely by the State.
(2.) Road from Pooree, through Cuttack and Midnapore, to Bissenpore, on the Grand Trunk Road.	- - This road is known as the Juggernath road, its construction having originated in a donation by Rajah Sookmoy Roy of 1,50,000 rupees for the construction of a road to the Temple of Juggernath.	- 261 miles in length; was commenced in 1822.	Bissenpore - -	15,21,696 or 5,415 per mile.	- - - -	Completed in 1830 -	- - This road has 816 bridges and drains. The whole of the outlay, with the exception of the 1,50,000 rupees, was borne by the State. Its annual repair, including the value of convict labour, averages 28,166 rupees. The road is almost invaluable as affording the means of communication throughout Orissa, and thence to Bengal.
(3.) Road from Midnapore to Calcutta, crossing the Hooghly at Oolabarriah.	- - Intended for general use, and accordingly employed for the conveyance of the Madras and Bombay mails, and used by parties proceeding to Juggernath from the Eastern Provinces.	Commenced in 1826	Calcutta - - -	*Rs. a. p.* 72,090 13 4	- - - -	Completed in 1830 -	- - The Hooghly, Damoodah, Roopnarain, and Cossye Rivers on this line were (with the exception of the last) extensive tideways, and are all crossed by ferries. The annual repair is about 2,078 rupees.
(4.) Grand Trunk Road from Calcutta to Delhi.	- - Of this road, only a very small portion is in the South Eastern Provinces. It may be considered as the main artery of land communication throughout Bengal and Hindostan.	- - The whole length is 770 ¼ miles; its general breadth is 30 feet, which is increased to 40 when it approaches important towns.	Delhi - - -	- - It has for the most part been constructed by the labour of convicts, but exclusive thereof, it has cost, to the 1st May 1840, 12,28,279 rupees.	About *Rs.* 10,00,000	- - - -	- - This road is raised above the flood level in the rainy season. It has already 1,402 bridges of various sizes up to a waterway of 400 feet, and others have to be completed; it is metalled where the soil requires such protection, and is under the charge of seven executive engineers, and is provided with 47 staging bungalows, towards the cost of which 14,057 rupees have been contributed by Rajahs Seebchunder Roy and Nursingchunder Roy, and the whole of the remaining outlay, which is 20,603 rupees, exclusive of convict labour, is borne by the State.

(*continued*)

No. 5.—Tabular Analysis of the Bengal Military Board's Preliminary Statement, dated 8 September 1840—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES IN THE LOWER PROVINCES: Paras. 7 to 15 of Report.							
(5.) Presidency	- - - - - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - The roads are maintained by the chief magistrate. The Military Board are not aware of their cost, but judging from the expensive nature of the material used, and the heavy traffic on them, it is doubtless large.
(6.) Suburbs of Calcutta	- - - - - - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - The roads are maintained by the civil architect, under the control of the superintending engineer. Of their original construction the Military Board is not cognizant, but their present maintenance costs, on an average, 10,000 rupees a year.
1st Division:							
(7.) Road from Calcutta to Kishnaghur; forms part of the road to Berhampore.	- - - - - - -	57 miles in length -	- - Kishnaghur. It is to be extended 240 miles to the new Sanatarium at Darjeeling.	- Original cost, *Rs.*2,69,630. The cost of the portion between Kishnaghur and Berhampore (51 miles in length) is not known.	- - - -	- - - -	- - It has of late years been kept in repair by the magistrates, but it is now to be repaired by the Department of Public Works; it is to be extended to Darjeeling; the last 30 miles are to be entirely carried through the hills; it is a work of immense labour, and is not yet finished.
Burdwan Division:							
(8.) Road leading to Culna	- - For the personal convenience of the Rajah of Burdwan.	- - - -	Culna - - -	*Rs. a. p.* 42,666 10 8 assigned by the Rajah.	- - - -	- - - -	- - In this division several roads are maintained at the public cost, but of the expense of their original construction the Board can give no account. They are not individually of great importance, though doubtless of much local utility. The average cost of their maintenance amounts to 7,100 rupees, and is defrayed by the State.
Division Eastward of Calcutta; viz., Dacca, Burrisaul, and Arracan Divisions, including the Province of Assam:							
(9.) Iron suspension bridge over the Boorolia Nulla at Gowahatty.	- - - - - - -	- - - -	- - - -	*Rs.* 5,311	- - - -	- - - -	- - In this division the roads are not under charge of the Department of Public Works, but have been constructed and maintained by the civil officers. More bridges are in progress under the executive engineers, which may be noticed in future reports.
(10.) Road over the Cossyah Hills from Gowahatty in Assam viâ Cheera Poonjee to Sylhet.	- - - - - - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - This road was surveyed, and estimated by Lieutenant Sale, of the Engineers. Its construction is in progress by the political officers at Gowhattee and Cherra Poonjee respectively.

Burrisaul Division:							
(11.) Military road from Dacca through Daoodenndy and Chittagong to Teck Naf.	- - - - - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - - - -	- - It is contemplated to complete this road by the substitution of masonry bridges along the whole line for the temporary wooden structures, which would require renewal every year; also to open a navigable communication through the interior of the Chittagong District to Arracan.
(12.) Road from Cachar through the Naga Hills to Munnipore.	- - To facilitate the communication between the Eastern frontier and the Burmese country.	- - Length not stated; the width is to be 10 feet. Commenced in 1837, under the superintendence of Lieutenant Guthrie of the Engineers.	Munnipore - -	- - 30,600 rupees, exclusive of the pay of a detachment of sappers and miners.	Not stated - -	Not stated - -	- - It is intended for foot passengers and laden cattle, and will have several bridges on its line; it is cut almost entirely through a mountainous and extreme'y difficult country.
3d, or Dinapore Division:							
(13.) Road from Revelgunge, near the junction of the Ganges and Gogra, *vid* Chupprah and Rewa Ghaut on the Gunduck, to Mozufferpore, the chief town in Tirhoot.	- - - - - - - -	55 miles in length -	Mozufferpore - -	- - The Department of Public Works is cognizant of an outlay of no more than 89,322 rupees on this road, but much more must have been expended.	- - - - -	- - - - -	- - In this division the roads maintained at the public expense are numerous. That from Revelgunge to Mozufferpore is one of the chief.
(14.) Road from Patna to Gyah and Shergotty.	- - - - - - - -	- - Length 80 miles. This road was not originally constructed by the Department of Public Works.	Shergotty - -	Not known - - -	- - The drainage being imperfect, the road is about being renewed and improved at an estimated cost of 70,222 rupees, under the executive officer.	Not stated - -	- - The repairs made heretofore have been effected by convicts.
(15.) Continuation of the road from Calcutta to Berhampore (*see* previous statement) by a series of district roads through Monghyr, Patna, Dinapore, Arrah, Buxar, and Ghazeepore to Benares.	- - - - - -	Length 430 miles -	Benares - - -	Not known - - -	- - - - -	- - - - -	- - These roads are not generally maintained by the Department of Public Works, but portions of them have been occasionally repaired by the executive engineers, by whom several very useful bridges have been built.
(16.) Other roads in this division, which are under the charge of local agents, such as the road from Arrah to Susseeram; road from Arrah to Akbarpore; road from Arrah to Brookgunge; Hadjpore to Poosah in Tirhoot; Chupprah to Mozufferpore; Chupprah to Mootecaree in Chumparun, &c.	- - - - - - - -	- - - - -	- - - -	Not known - - -	- - The repair of these roads by the Department of Public Works is under discussion, and estimates amounting to *Rs.* 72,880. 13 *a.* 10 *p.* have been sanctioned.	- - - -	These roads are highly useful.
ROADS AND BRIDGES IN THE CENTRAL PROVINCES:							
5th, or Benares Division:							
(17.) Road from Mogul Serai, on the Grand Trunk Road, eight miles from the Ganges at Benares to Allahabad, *vid* Chunar and Mirzapore.	- - Connects the Trunk Road with the great commercial mart of Mirzapore, without crossing the Ganges; and also the Grand Trunk Road with that from Mirzapore through Jubbulpore to the Deccan.	Length 92 miles -	Allahabad - -	Not known - - -	- - The whole line has lately been surveyed. Its completion by the Department of Public Works is now in progress. No detailed estimates have yet been received.	- - - -	- - This is a work of considerable importance, and its cost must, it is presumed, be borne by the State.

(*continued*)

No. 5.—Tabular Analysis of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Roads and Bridges in the Central Provinces—*continued.*							
5th, or Benares Division—continued.							
(18.) Road from Chunar, southward to Sukroot.	-- To facilitate the traffic with the southern portions of the district.	Length 16 miles -	Sukroot - - -	- - - - - -	6,325 rupees - -	- - - - -	-- This work is intended to form, in the first instance, only a fair-weather road.
(19.) Road from Mirzapore, on the south bank of the Ganges, to Gopeegunge.	-- To join the Grand Trunk Road at Gopeegunge.	Length 16 miles -	Gopeegunge - -	-- The drains only were built by the Department of Public Works, at a cost of 1,495 rupees.	- - - -	- - - -	-- The earth-work was constructed by the magistrate. Other roads in this division, viz., from Benares to Jounpore, from Ghazeepore to Jounpore, and from Jounpore to Azinghur and Goruckpore, are not under the charge of the Department of Public Works.
(20.) Deccan Road from Mirzapore to Jubbulpore.	- - - - - - -	-- Length 239 miles; breadth, 30 ft. Commenced 1824.	Jubbulpore - -	-- A little more than 8,00,000 rupees, including repairs, but exclusive of the labour of from 300 to 500 convicts for 15 years.	- - - -	Lately completed -	-- This road is provided with 479 bridges and drains of masonry, having openings varying in size from 6 to 78 feet, and 213 causeways or pavements of masonry for crossing the more shallow streams; one of these latter, however, is over the Belun river, and is 950 feet in length. The chief obstacle to the construction of this road was the ascent from the plains to the table land of Rewah; this is effected at the Khutra Pass, up an ascent of 600 feet by a winding path 2 ½ miles in length, and nowhere less than 18 feet wide. The slope is 1 in 20, and the work is considered highly creditable to the skill of Major Drummond. The work is extremely valuable as facilitating the traffic of the district near which it runs; but its full value cannot yet be appreciated, as the district roads are as yet seldom passable for carts.
(21.) Other roads in the Saugor and Nerbudda Territories of which the Department of Public Works has cognizance: viz.,							
From Saugor to Jubbulpore, *vid* Putteeree and Dhamow.	- - - - - - -	Length, 48 miles -	- - - -	Nearly 2,00,000 - -	80 rupees per mile - - - - -		-- They are to be completed as fair-weather roads, *i. e.*, roads which are passable at all seasons except in the rains.
From Dhamow to the Deccan Road at Jokeye.	- - - - - - -	„ 65 „ -					
From Jubbulpore to Tilwarra Ghât on the Nerbudda.	- - - - - - -	„ 5 „ -					
From ditto to Jhansi Ghaut.	- - - - - - -	„ 23 „ -					
From ditto to Cuttinghee	- - - - - - -	„ 20 „ -					
(22.) Road connecting Ajmere with Nusseerabad.	- - - - - - -	„ 13½ „ -	Nusseerabad - -	- - - - -	8,000 rupees - -	- - - - -	This road is in progress of construction.
(23.) Road connecting Cawnpore with the Grand Trunk Road.	- - - - - - -	„ 12 „ -	Grand Trunk Road -	- - - - -	26,000 rupees - -	- - - - -	This road is not quite complete.
(24.) Road from Cawnpore to Bithoor, the residence of the ex-Peshwa.	- - - - - - -	- - - -	- - - -	- - - - -	- - - -	- - - -	-- This road is under construction. Its expense is defrayed by the Peshwar, aided by the labour of prisoners supplied by civil authorities.

ROADS AND BRIDGES IN THE NORTH-WESTERN PROVINCES:

8th, or Rohilcund Division:						
(25.) Roads and bridges				-- 27,070 rupees have been allowed by Government for the construction of some bridges. The sum already expended by Government for bridges and drains in this division is 1,29,675 rupees.		-- The subject of the Rohilcund roads generally has been referred to the Home authorities; in the meantime the repair of existing roads is managed by the local committees.
10th, or Agra Division:						
(26.) Strand Road	-- Considered to be of the greatest advantage to the city and station of Agra, both in appearance and utility.	-- Length two miles along the river face of the city. Average breadth 80 feet; raised 11 to 13 feet in height above the natural soil of the river's bank.			3,76,790 rupees	-- Of the sum 3,76,790 rupees, the sum of 3,55,105 rupees was paid to the starving poor, who could give but very inadequate returns in labour for the support they received. The remainder, 21,685 rupees, was expended for tunnels, ghauts, bridges, &c., required for the road. It is stated that the whole road having now had a trial of three rainy seasons, may be considered as safe and permanent. The whole sum expended by Government in the Agra division in employing the pauper population during the season of 1838, is stated at 6,12,491 rupees.
11th, or Meerut Division:						
(27.) Branch from the Grand Trunk Road at Gazeeoodeenuggur, on the west bank of the River Hindun, to Meerut.		Length, 29 miles	Meerut		*Rs.* For earth-work 10,000 For bridges and drains 7,763 For metalling 75,788 TOTAL *Rs.* 93,551 A further expenditure of 94,000 rupees is anticipated; 1,38,813 rupees have been expended on bridges by the Department of Public Works.	-- The earth-work is managed by a local committee. The bridges, drains, and metalling are to be constructed by the executive engineer. This will be a work of great utility, as the old road had, from long use, been worn to a lower level than that of the adjacent fields, and was consequently converted into a ditch in wet weather.
Delhi and Kurnaul Division:						
(28.) Drains and small bridges, exclusive of those on the Grand Trunk Road.				20,571 rupee		-- The roads in this division are under the charge of the civil authorities.
Kumaon Division:						
(29.) Bridges and staging bungalows.				-- 45,688 rupees, and for annual repairs 2,300.		-- In this division the roads are all mountain paths adapted for Hill Coolies, and on one line, viz., that from Bomourie to Almorah, for bullocks and tattoes. Their construction has been effected chiefly by detachments of the pioneer corps; but the bridges and bungalows have been erected by the Department of Public Works. There are 12 iron suspension bridges, four wooden bridges, and four staging bungalows, built by Government in this province.

The total outlay for roads, as above, is 57,34,223 rupees, but this does not include any sums which may have been expended by the civil authorities without the cognizance of the Military Board. In some districts the zemindars have agreed to contribute one per cent. on the land revenue, to form a fund for the improvement of internal communication; the proceeds of the fund are under the management of local committees, of which the executive officer of Public Works is generally a member; but the proceedings of the committees are not under the control of the Board. The profits arising from the farms of Ferries, are generally made available for the construction of roads, &c., "but as this is constituted by Regulation XIX. of 1816, a branch of the revenue," and its employment on roads is believed to be quite optional with the Government. the Ferry funds cannot be regarded as returns for money expended on works of utility.

(continued)

No. 5.—Tabular Analysis of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CANALS IN THE SOUTH-WESTERN PROVINCES:							
(30.) Navigation Khals of Hijellee and Tumlook.	- - Are much used in the Salt Mehals for the transport of this article of trade; are invaluable in the south-west monsoon, as forming a safe line of communication, at a time when the open sea, and even the southern portion of the river Hooghly, is too rough for country craft.	- - - -	- - - -	- - Average cost about 5,000 rupees per annum.	- - Some works have recently been executed on these khals at an estimated expense of 23,138 rupees.	- - - -	- - A toll is levied on boats navigating these khals, on which money is expended, and which it is believed defrays the expense. The tolls are not managed by the Department of Public Works. Some of the Nullahs, such as the Banka Nullah, between the rivers of Hulder and Roopnarain, are under the control of the officers of the Salt Department.
(31.) Oolabariah Canal - -	- - Was formed by the excavation necessary for raising the earth-work of the road from Midnapore to Calcutta, crossing the Hooghly at Oolabariah (alluded to in the fifth paragraph of this report).	Length 15 miles -	- - Extends in a westerly direction to the Damooda at Murreeha, thence to the Roopnarain at Colar Ghaut.	- - As no separate bills were furnished of this canal, its construction may be considered in the cost of the road itself. Its annual clearance costs 1,321 rupees, and the tolls levied on boats using it have averaged 2,092 rupees for the last two years.	- - - -	- - - -	- - It is used only for boats coming down from the Burdwan and Hooghly Districts to Calcutta, and returning. It shortens the distance on the Damooda by about 22 miles, and about 30 by the Roopnarain, besides avoiding those portions of the rivers which are dangerous for country boats in the south-west monsoon.
(32.) Calcutta Canals: viz. 1st. The Circular Canal. 2d. Ballighatta. 3d. Entallee.	- - These canals form an easy and convenient navigable communication round the greater part of Calcutta, and are a source of great convenience to the town.	Length 3 ¾ miles - „ 1 ¾ „ „ 1 „	- - From Chitpore to the junction with the Entallee Canal. From the end of the Circular Canal to the Salt Water Lake. From the Circular Canal to the east end of the Dhurramtollah Straits.	- - 16,45,404 rupees, including six * bridges, and the roads along the bank. The cost of their annual maintenance averages 31,646 rupees, and the tolls levied on boats, &c., for the last three years, 66,225 rupees.	- - - -	- - - -	- - Comprise a line of navigation, extending from the Hooghly at Chitpore to the Salt Water Lake. The amount of tolls realised during the official year 1849–50, was *Rs.* 1,82,989. 2.; the current expenses of the toll department amount to *Rs.* 15,853. 6. 6.; the lands, ferries, and fisheries attached to the canals realised 1,877 rupees. *Koolea Wooden Bridge. Ballighatta Iron Suspension Bridge. Narkuldanga - ditto. Manichtolla - ditto. Barrackpore - ditto. Dum Dum - - ditto
(33.) Canal from the east end of the Ballighatta Canal through the Salt Water Lake, thence by several natural Nullahs, aided by some artificial cutting to the Ishamuttee River.	- - By this route boats proceeding from the eastern ports of Bengal may reach Calcutta without approaching so near to the large estuaries and to the open sea as is done by the ordinary Sunderbund route.	Length 40 miles -	Ishamuttee River -	- - 3,77,186 rupees. Their maintenance involves an average outlay of 2,009 rupees per annum.	- - - -	- - - -	- - They gave no separate returns, as tolls are not levied further eastward than the Salt Water Lake. This passage is only used by boats of light draught, except in the rainy season.
(34.) Tolly's Nullah, to the south of the Esplanade of Fort William.	- - Forms a communication from the Hooghly River to the Sunderbunds, and to the Eastern Canals at Tarda.	Length 16 miles -	Tarda - - -	- - Its original cost is not known; its clearance costs 620 rupees per annum. Seven † bridges have been thrown across it at a cost of 1,79,381 rupees. The cost of the largest, the Hastings Bridge, which has a central opening of 176 feet, was partly defrayed from funds raised by subscription. The tolls amount, on the average of the last three years, to 49,381 rupees per annum.	- - - -	- - - -	- - This is an enlargement of a natural Nullah, which was rendered navigable many years ago by the agency of an officer whose name it bears. † Kidderpore - ditto. Tollygunge - ditto. Gurriahaut - ditto. Hastings - ditto. Allipore - - ditto. Pramath - - ditto.

CANALS IN THE LOWER PROVINCES:							
(35.) No artificial canals. Clearance of the Nuddea Rivers to facilitate the navigation in the dry season.	- - By which a communication between Calcutta and the Ganges is maintained.	- - - - -	- - - - -	- - Average cost of the last 10 years, 32,840 rupees, including salary and establishment; average toll collections for the same period 1,44,858 rupees per annum, after deducting the expense of collection.	- - - - -	- - - - -	- - The balance of the toll collections in hand, to the 30th April 1840, is believed to be considerable, though its exact amount is not known. A hope is expressed that the judicious employment of this balance may ultimately lead to a more effectual opening of the rivers, so as to admit of the inland steamers passing through at all seasons, instead of adopting the circuitous route of Channel Creek and the Sunderbunds.
IN THE CENTRAL PROVINCES THERE ARE NO CANALS.							
CANALS IN THE NORTH-WESTERN PROVINCES:							
(36.) Feroze Shah's Canal from the Jumna.	- - The canals in the North-Western Provinces, though navigable for various portions of their length, and at certain times of the year, were all constructed with a view to irrigation.	- - Length 295 miles. It was originally constructed in the 14th century by the Emperor whose name it bears.	- - Neighbourhood of Hissar.	- - Cost of reconstruction about 10,33,170 rupees. Total amount expended to the end of April 1840, 15,66,502 rupees. The direct return is obtained by water rent paid at the rate of eight annas per biggah for each crop, or one rupee per biggah per annum. The amount levied as water rent in 1839 was *Rs.* 2,58,826. 10. 0.; the total amount realised has been 21,57,731 rupees. The value of the indirect return cannot be stated, as it depends entirely on improved agricultural produce, on the security which artificial irrigation affords against the effect of drought.	- - These three canals form what are called the "Canals west of the Jumna." The original cuts had fallen into disuse and consequent decay during the disturbed period which marked the fall of the Mogul Empire, and their condition having attracted notice soon after the country came into the possession of the British Government, they were surveyed by Lieutenant Blane of the Engineers, in 1817, and the necessary expenditure having been sanctioned, they were opened in 1820.	- - The utility of the Feroze Shah Canal may be conceived from the fact of the wells in the neighbourhood of Hissar being generally 150 feet deep, and the water obtainable from them being all more or less impregnated with salt. The extent of ground irrigated from these canals amounted to 2,58,626 biggahs in 1839.
(37.) Delhi Canal - - -	- - Intended to convey water from Feroza Shah's Canal, near Kurnaul, to the capital city of the empire.	- - Length 85 miles. Was constructed in the 17th century by an opulent nobleman named Ali Murdhun Khan.	Kurnaul - -				
(38.) Branch from Feroze Shah's Canal, near Kurnaul, to Rohtuck.	- - - - - - -	Length 45 miles -	Rohtuck - -				
CANALS IN THE NUJUFGHUR JHEEL COUNTRY:							
Canal from the west end of the Jheel to the Jumna above Delhi.	- - For draining the country, which is over-flooded every rainy season; the land of which, when the waters are dried up, is extremely productive.	- - - - -	Jumna River - -	- - - - - -	58,782 rupees - -	- - The work is now on the eve of completion.	- - It is supposed that the rent of the recovered land will very soon repay the expenditure.
Doosb Canal. Its line runs from where the Jumna leaves the hills.	- - These canals are used for floating timbers, and for the conveyance of lime on small boats, but their employment as navigable communications is insignificant, when compared with their use as channels for the conveyance of streams for irrigation.	- - Length about 130 miles, supposed to have been constructed in the time of Muhomed Shah, one of Aurungzebe's successors. It had been entirely abandoned, and in some places its trace quite lost, when the Seharunpore district came into the possession of the British Government. Examined by Lieutenant Tod in 1810. Complete survey, with plans, sections, &c., made by Lieutenant De Bude, Engineer, in 1822-23. The re-opening of it was entrusted to Captain R. Smith, Engineers. Since its restoration, it has been under charge of Captain Cautley, Artillery; the outlay since he received charge of the works has been 5,79,164 rupees, and the return from water rent, mills, &c., 5,13,150 rupees.	Delhi - - -	- - Cost of restoration 4,67,512 rupees.	- - - -	Restored in 1831-32	- - Captain Cautley has met with many unforeseen difficulties in the efficient maintenance of this valuable work, which have arisen chiefly from the slope of the country, and the sandy nature of its bed. The absence of all measures for providing against this difficulty, is a sufficient proof that the work could scarcely ever have been in full use in former days; but by the construction of locks and falls of masonry, the evil has been remedied, though at considerable cost. When it is considered that the drought of 1837-38 was the occasion not merely of loss of revenue, but of great loss of life from absolute starvation, it must be allowed that the utility of a canal like this, by which full 71,530 biggahs were enabled to give a good average crop, is not easily measured by mere money valuation.

(*continued*)

No. 5.—Tabular Analysis of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	*Estimated* Amount for Completion.	Probable Time of *Completion.*	REMARKS.
MORADABAD CANALS:				*Rs. a. p.*	*Rs. a. p.*		
(39.) Canal between the Koh and Ganjam Rivers.	Irrigation - - - - -	- - This work was sanctioned on the 19th April 1839, after a survey, and on plans, &c. prepared by Lieutenant Anderson, Engineers.	Ganjam River - -	- - - - -	- - Estimated amount of cost, 51,218 rupees.	Not stated - -	- - There appears every reason to hope, that the system of artificial irrigation, so happily exemplified in the Jumna Canal, may be very generally adopted in Rohilcund.
(40.) Proposed Canal from the Ganges to Kunkul, to pass near Meerut and Coel, and finally to join the River Esun, near Mynpooree.	Irrigation - - - - -	- - In 1836, Captain Cautley, Superintendent of the Dooab Canal, suggested the practicability of making the waters of the Ganges available for irrigation on the eastern side of the Dooab, and was instructed to make surveys.	River Esun - -	- - - - -	26,04,749 - -	- - This work is at present under the consideration of Government.	—
(41.) Beejapore water-course in the Dehra Dhoon, between the Touse, the Arsun, and the Bundal Rivers.	Irrigation - - - - -	- - - -	- - - -	15,000 - -	- - - -	- - Not yet quite complete.	- - Its utility is considered likely to be very great, as compared with its cost, and to be the means of bringing an extensive tract of forest land into cultivation.
	The total amount expended *on* Canals, as above, is 49,03,288 rupees; and the returns in water rent, tolls, &c., is now 3,47,386 rupees per annum.						
EMBANKMENTS, SOUTH-WESTERN CIRCLE:							
(42.) Embankments, in—							
Northern Cuttack -	*They are intended*, near the sea, to protect the interior of the country from inundation on occasions of high tides, and in inland tracts, to prevent floods of the rainy season from overflowing the banks of rivers.	- - Aggregate length, 3,459 miles, their *height* and mean thickness varying from 20 feet by 55 feet to the smallest size.	- - - -	- - Came under charge of Military Board in 1831, since which period the amount expended is 16,67,822 rupees, including the charges of superintendence. The annual average outlay is 67,130 rupees.	- - - -	- - - -	- - The system at present followed, is believed to have been in force before the land came under the control of the *British authorities*. All that has since been done, has been to endeavour to introduce a gradual improvement in the dimensions and position of the earth-work, and to establish conjointly with *the Zemindars*, who would more immediately benefit by the change, sluices of masonry in the banks. *These works* are as yet few in number, but are coming by degrees into more general use. As regards returns for the expenditure, the maintenance of the embankments is believed to constitute
Southern Cuttack -							
Balasore - - -							
Midnapore - - -							
Hooghly - - -							
The 24 Pergunnahs -							
Burdwan - -							

EMBANKMENTS, LOWER PROVINCES:						
Embankments on the Hooghly River, in the Berhampore Division.	- - - - - - -	- - - - - - -	- - - -	-- Have cost, since 1831, 1,34,286 rupees; and their annual maintenance costs about 11,000 rupees.	- - - -	- - - -	one of the items of detail on which the gross rent, paid by every ryot, is calculated; in some cases the Government receive this, and in others the Zemindars; on this point no certain information can be given, but it is known that the Rajah of Burdwan pays to Government 33,742 rupees per annum on this account, and that the whole of this sum is not expended; there is no reason to suppose that in any estate throughout the embanked districts, the sum assigned as Pool Bundee falls short of the actual expenditure.
Bunds on the Gunduck River, in the Dinapore Division.	- - - - - - -	- - - -	- - - -	-- Have cost, since 1830, 1,90,826 rupees. Their average annual maintenance costs 19,000 rupees.	- - - -	- - - -	
EMBANKMENTS, CENTRAL PROVINCES:							
(43.) Sacri Bund, in the Behar District.	-- For the purpose of diverting the stream of the Sacri River towards the western portion of the Behar District.	-- Has been lately constructed.	- - - -	18,218 - -	- - - -	- - - -	—
(44.) Bunds on the Ganges and Jumna, at Allahabad.	-- Protect the town, and a considerable extent of land near the junction of the rivers, from inundation.	- - - -	- - - -	-- Have cost 30,190 rupees in the last (10) ten years.	- - - -	- - - -	-- Are of the greatest utility. They were breached in 1838 by a flood of unprecedented height, when a considerable portion of the town and neighbouring country were inundated, and very great loss ensued.

The total amount expended on Embankments, as above, since 1831, has been 20,41,342 rupees; there is no reason to suppose that the assessments under the head of Pool Bundee are not equal to the outlay.

BUILDINGS OF GENERAL UTILITY, CONSTRUCTED UNDER THE DEPARTMENT OF PUBLIC WORKS, IN THE SOUTH-EASTERN, LOWER, CENTRAL, AND NORTH-WESTERN PROVINCES:

(45.) Lighthouse at False Point	- - - - - - -	-- Built in the year 1837–38.	- - - -	-- Cost, including superintendence, 59,245 rupees for the building, and 23,750 rupees for the light-room, or lantern; total, 82,995 rupees. It is presumed, that the pecuniary returns derived from this building, are included in the port dues of Calcutta.	- - - -	- - - -	-- The building contains apartments for the lightkeeper, and has separate rooms for the native establishment.
46.) Lighthouse at Kedjeree	- - - - - - -	- - - -	- - - -	-- Not known. Cost of annual repairs about 450 rupees.	- - - -	- - - -	-- This building is of similar nature as the preceding.
Jetty at Chittagong	For landing goods - - -	-- Projects 115 feet into the tideway.	- - - -	6,706 - -	- - - -	Just completed -	-- Of this work the local officers make very favourable reports.
ghthouse at Point Palmyra.	- - - - - - -	- - - -	- - - -	Not known - - -	- - - -	- - - -	-- This was of a similar construction to the lighthouses at False Point and Kedjeree, but the encroachment of the sea on the sandy soil at its base has caused its abandonment.

(continued)

No. 5.—Tabular Analysis of the Bengal Military Board's Preliminary Statement, dated 8th September 1840—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Buildings of General Utility, constructed under the Department of Public Works, in the South-Eastern, Lower, Central, and North-Western Provinces—*continued.*							
(49.) Buildings for educational purposes.	- - - - - - - -	- - - - -	- - - -	- - 2,20,444 rupees, exclusive of five of small value, of which the cost is not known. Cost of annual repairs about 4,408 rupees.	- - - -	- - - -	- - There are (11) eleven of these buildings under charge of the officers of the Public Works Department.
(50.) Places of Divine worship	- - - - - - - -	- - - - -	- - - -	- Aggregate value, 7,83,361 rupees; cost of annual repairs, 15,667 rupees; some portion of the original cost is believed to have been defrayed by private subscriptions, but to what extent is not known.	- - - -	- - - -	- - There are (22) twenty-two of these on the books of the Public Works Department.
Hospitals - - -	For insane and other sick persons	- - - - -	- - - -	- - Cost of construction, 46,740 rupees; cost of repairs, about 934 rupees per annum.	- - - -	- - - -	- - There are (5) five of these, exclusive of those provided for the military, or for prisoners in gaols.
The total sum expended on public buildings, as above, is 11,40,246 rupees, but there are in addition several miscellaneous works constructed at the expense of the State, regarding which, from their not being included in the Returns of Executive Officers, the information is very imperfect. Thus the following works are known to have been constructed at the expense of Government:							
Stone bathing ghauts at Hurdwar.	- - In consequence of a fatal accident which occurred at the great fair of Koom Mela, in 1820.	Constructed in 1821	- - - -	- - 20,000 rupees, including the cost of superintendence.	—		
Repair of the Great Mosque, or Juma Musjid, at Delhi.	- - In consequence of injury caused by lightning.	- - Constructed in 1820–21.	- - - -	20,000 rupees.	—		
Repair of the Kotub Minar -	- - - - - - -	Constructed in 1823	- - - -	25,000 rupees - -	- - - -	- - - -	- - The adjacent buildings were also cleared.

The Military Board remarked, "while the works of various descriptions of which we have some knowledge appear to have cost in the aggregate 1,39,64,099 rupees, that sum cannot be considered as the total amount expended by Government for works of public utility, nor have we the means of ascertaining what that amount may be."

Report dated Fort William, 8 September 1840.

The following Statements have been prepared from the series of the Board's annual Reports from the official year 1839–40, to that of 1850–51 inclusive.

No. 6.

STATEMENT compiled from the REPORTS of the MILITARY BOARD at BENGAL, from Season 1839-40, to 1850–51 inclusive.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:				*Rs.* *a.* *p.*	*Rs.* *a.* *p.*		
Roads from the Town of Aeng, in Arracan, to Nagatongn and Thorowah, and for the construction of Bridges.	- - - - - - -	Sanctioned 1840–41 -	- - - -	17,823 7 4	- - - -	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.
Akyab:							
Construction of two wooden Bridges over the Peck Tock Kying Nullah.	-- To replace old bridges, which were originally constructed of indifferent materials by the Mughs of the Province.	-- Sanctioned 12th January 1841.	Akyab - - -	5,869 11 1	5,470 11 3	Completed 1842-43 -	-- The breadth of these bridges, as first sanctioned, was 18 feet for both; but, subsequently, the Government authorised the width of one to be increased to 22, and the other to 24 feet. This has consequently increased the expense by *Rs.* 608. 2. 7.
Construction of five masonry bridges over Nullahs.	-- For maintaining an uninterrupted communication at the station.	-- Sanctioned 16th February 1841.	- - - -	6,076 10 7	5,272 - 2	-- Completed season 1842–43.	—
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 18th May 1841.	- - - -	875 - 1	- - - -	-- Constructed season 1842–43.	—
Construction of two Pucka Bridges.	- - - ditto - - - -	-- Sanctioned 27th April 1841.	-- One on the road towards Nagapara, and the other in the town, on the bank of the Peck Sik Kyong.	1,445 12 2	- - - -	- - ditto.	—
Restoration of the Bund and Sluice at Akyab, and clearance of Jungle.	-- For the purpose of drainage, and as essentially necessary to the salubrity of the station.	- - Sanctioned 3d April 1843.	Akyab - - -	3,482 6 10	7,203 9 2	-- Completed season 1843-44.	-- This work, which was sanctioned in 1841-42, at an estimated cost of *Rs.* 6,037. 14. 6., was completed for *Rs.* 7,527. 10. 4.; but it 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 reduction of the rates, and also by the employment of convicts on a portion of the work.
Construction of two Bridges at, in the Arracan Division.	-- Required to keep open the communication between the station and the point bungalows, belonging to the residents.	-- Sanctioned 18th August 1840.	- - - -	4,375 10 2	5,523 3 9	-- Completed season 1842–43.	—
Construction of two Pucka Drain Bridges in the town of Akyab.	- - - - - - -	-- Sanctioned 28th November 1842.	- - - -	351 7 2	- - - -	- - ditto.	—

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Aeng Road and Pass: Construction of a Bridge, and repair of seven others, and of Travellers' Houses.	-- These works are intimately connected with the interests of the trading community.	-- Sanctioned 9th September 1844.	- - - -	- - - - -	1,161 11 1	—	
Agrachour to Baildah: Construction of a Foot Road, connecting the Contar with the Cuttack Road.	-- To facilitate the transmission of the dâks between Contar and Midnapore.	-- Sanctioned 16th April 1845.	Baildah - - -	1,873 0 8½	1,886 8 7	—	
Akyab:							
Repairs to the Phoongaparrah Bridge.	- - - - - - -	-- Sanctioned 28th June 1848.	Akyab - - -	928 14 4	- - - -	Season 1849–50 -	-- The planking, beams, rails, &c., have been renewed.
Construction of a wooden Bridge on the Gaol Road.	-- The necessity for this work was pointed out by the officer commanding at Akyab.	-- Sanctioned 19th October 1850.	ditto - - -	- - - - -	1,371 - -	- - - -	-- The estimate is exclusive of the costs of excavations, which will be performed by convicts.
Construction of a wooden Bridge at Nazerparah.	- - - - - - -	-- Sanctioned 6th November 1850.	ditto - - -	- - - - -	1,672 12 9	- - - -	-- An estimate was passed in 1846 for a masonry bridge, but, owing to the badness of the soil, it was considered preferable to construct a wooden one.
ROADS AND BRIDGES, LOWER PROVINCES:							
Assam Roads:							
Lower Assam:		Length.					
From Rahn to Gobha - -	- - - - - - -	27 miles - -	Assam - - -	- - - - -	981 7 5	- Completed season 1842–43.	-- These are unmetalled roads, and their width is 16 feet; they have been raised where necessary.
From Talia Mhookutta to Lowkhoah.	- - - - - - -	10 " Sanctioned 9th January 1838.	ditto - - -	- - - - -	9,017 7 11		
From Nowgong Division Roads	- - - - - - -	9 "	ditto - - -	- - - - -	972 9 -		
From Borallygong to Soonaree	- - - - - - -	3 "	ditto - - -	- - - - -	297 10 7		
From Nowgong to Demoorooguoree.	- - - - - - -	2 " - -	ditto - - -	- - - - -	533 8 -		
Repair of the Road from Kullung River to Koliabur.	- - - - - - -	72 " Sanctioned 22d August 1842.	- - - -	- - - - -	2,474 1 -	-- Completed season 1842–43.	-- This road will be made 12 feet wide, with 106 wooden bridges and drains. Proposed width, 15 feet.
From Kollabur to the Dunsary	- - - - - - -	60 "	- - - -	- - - - -	- - - -	- - - -	
Repair of Road between Nowgong and Texpore.	- - - - - - -	17 " Sanctioned 26th April 1843.	- - - -	4,924 - 8	4,924 - 8	- - - - Completed 1846–47	-- Width, 12 feet, with 22 bridges and drains.
Repair of Road from Rah to Daboka.	- - - - - - -	23½ "	- - - -	5,152 15 3	6,528 3 6	- - - -	-- Width, 12 feet, with wooden bridges and drains. The saving of *Rs.* 1,375. 14. 3. on the estimate has been effected by the reduction of rates.
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Ajmere and Nusseerabad Road: Metalling of.	-- Metalling of such portions as, from the nature of the soil, may require the construction of a hard artificial surface.	-- Length of road, 18 miles 4 furlongs; aggregate length requiring to be metalled, 6 miles 4 furlongs and 6 yards. Sanctioned 12th January 1848.	- - - -	- - - - -	6,472 15 -	—	

Agra and Bombay Road: Construction of Bridges over the Bubbookee Nuddee and the Bhowkerie Nuddee.	- - - - - - - -	- - Sanctioned 9th September 1849.	- - In the Province of Malwa.	1,749 3 11 {For bridge over the Bubbookee Nuddee} 1,406 12 2 {For bridge over the Bhowkeria Nuddee}	1,802 5 9 / 1,597 - -	- - Completed season 1849–50.	- - Both bridges are on the territory of the Maharajah Scindia.
Construction of a Bridge over the Muddy Nullah.	- - The construction of this bridge is necessary, and is considered to come within the scope of the original intentions in regard to the Agra and Bombay Road.	- - To consist of one arch of 24 feet span. Sanctioned 15th October 1849.	- - The Nullah crosses the main road about one mile north of the Residency at Indore.	- - - - -	2,862 - -	- - - - -	- - In the territory of the Maharajah of Holkar.
Construction of a Bridge over the Mhow Nullah.	- - Commenced under instructions from the Lieutenant-governor, by whom it is considered desirable to bridge over as many of the small muddy nullahs as may be practicable, which abound on this road, and materially obstruct all traffic, and to improve the fords which cross the rocky beds of rivers.	- - The bridge is of one arch, 12 feet span. Sanctioned 28th October 1848.	- - On the Agra and Bombay Road.	739 3 5½	872 - -	—	
Ford on the Parbutty River -	- - To provide for a passage for wheel carriages across the Parbutty River on the general level of the channel during the dry season only.	- - Sanctioned 6th September 1849.	Near Barsud - -	2,910 8 5½	- - - -	Completed - -	This to be a paved ford.
Construction of a Bridge over the Muddy Nullah.	- - Considered necessary for a fair-weather road.	- - The bridge to be of one arch of 30 feet span. Sanctioned 4th February 1850.	At Chuper Kajhora -	- - - - -	4,167 - -	—	
Construction of a Bridge over the Muddy Nullah.	- - With a view to make the line of communication more perfect.	- - The bridge is of seven arches of six feet span each. Sanctioned 2d December 1848.	- - At Dolterin, between Bisura and Puchore.	1,477 2 6½	1,711 13 5	- - - -	In the territory of the Rajgurh Raja.
Construction of Bridges over the Muddy Nullah.	- - ditto - - ditto - -	- - One bridge of two arches, eight feet span; one bridge of three arches, seven feet span; one bridge of eleven arches, six feet span. Sanctioned 12th September 1849.	- - Over the Boranna, the Par Muddy, and Belloda Village Nullahs.	- - - - -	2,706 - 10	—	
Construction of a Bridge over the Kukoobs Jheel.	- - - - - - -	- - This bridge is of three arches each, of 7½ feet span. Sanctioned 4th April 1850.	- - Crosses the main road about 7½ miles south of Agra.	- - - - -	966 - -	—	
Construction of a Bridge over the Gudha Muddy Nullah.	- - - - - - -	- - This bridge is of six bays, each four feet wide. Sanctioned 25th March 1850.	- - Crosses the main road between Sossam and Gohur.	- - - - -	1,338 - -	- - - -	In the territory of Maharajah Scindia.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Agra Strand: Bridging of drains on the.	- - - - - - -	Sanctioned 1848–49.	Agra - - -	7,910 15 -	9,620 7 1	- - Completed season 1842–43.	—
Agra Bridge: Over the Doorukar Ravine.	- - On account of the inconvenience experienced by the public, who have occasion to pass by the bridge and bazar near the Tripolish *viâ* Cauzeepara, owing to there being but one narrow confined road at this entrance of the town.	- - Sanctioned 7th December 1840.	- - - -	910 8 2	1,113 2 4	- - Completed season 1841–42.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES—*continued.*							
Agra to Mynpooree:				*Rs. a. p.*	*Rs. a. p.*		
Construction of Bridges over the Jhera River and Gudduklur Ravine, and over the Peelakar Rivulet.	- - This road is of much importance, being a direct communication between Agra and Futtyghur.	Sanctioned 1840-41 -	Mynpooree - -	Bridge over the Jhera - - 7,063 8 6 Ditto over the Peelakar Rivulet 5,151 10 - *Rs.* 12,215 2 6	13,017 12 5	- - Completed season 1842-43.	—
Construction of a Bridge over the Urind Nuddee.	- - - - - - -	- - Of three arches of 40 feet span. Sanctioned 3d January 1845.	- - Crossing the Agra and Mynpooree Road, 15 miles from Mynpooree, at the village of Kulhore.	17,071 - 1	23,874 3 7	- - Completed season 1846-47.	- - The savings on the sanctioned estimates, viz., *Rs.* 6,803. 3. 6., and *Rs.* 10,681. 15. 8. respectively, are owing to much of the masonry work having been dispensed with, in consequence of the soil being more favourable than was originally expected, and to other judicious deviations from the plan. A reduction of rates has also contributed in effecting these savings.
Construction of a Bridge over the Singar Nullah.	- - - - - - -	- - To consist of two elliptic arches; the centre one of 45 feet, and the two arches on each side of 40 feet respectively. Sanctioned 3d January 1845.	- - Crossing the Agra and Mynpooree Road, 23 miles from Mynpooree, at the village of Nrown.	22,051 5 7	33,633 5 3		
Agra and Bombay Road:							
To the Nerbudda River - (*See* Paras. 13 to 17 of Court's Despatch, 30th January 1850, at page 148 of Parliamentary Return, No. 622, of 1851.)	- - A fair weather road adapted for hackeries or wheel conveyances, being much required between Agra and Bombay, it was determined in 1840 to improve, with occasional diversion, the existing road; the improvement was to comprise the removal of the principal obstructions in the ghauts, jungles, and in the passage of rivers and nullahs, or mountain streams.	Length, 1st portion: *Ms. fs. yds.* Agra to Indore - 370 3 102 Length, 2d portion: Indore to Akberpore on the Nerbudda - - 51 0 167 Length, 3d portion: Akberpore to Sindwa, 43 1 0 Length, 4th portion: Sindwa to Bombay 270 1 179 TOTAL - - - 734 7 8 Commenced in 1840.	Bombay - - -	- - The expenditure within the Bengal Division to November 1847 is stated as follows; viz., *Rs.* New work of road, 1,94,310 Superintendence, 1,13,106 Repairs, &c. - 47,542 3,54,958 The sum expended on two divisions of the road within the Bombay Presidency to 30th April 1848, exclusive of repairs, was - - 9,74,811 There has also been a further sum sanctioned for various useful purposes of about 7,000 Making a Total of *Rs.* 13,30,769	11,00,000 - - (eleven lacs) without metalling.	- - - - -	- - Major Drummond has brought his survey of the portion of the line between Agra and Nerbudda to a close; and with reference to the enormous expense which must be incurred for such a road as would be available throughout the rainy season, the Government has come to the resolution to limit the work to an improvement of the existing roads, and in a great degree to give up the new lines which had been proposed. The Government on the 30th June 1840 sanctioned an estimate of 1,20,000 rupees, exclusive of engineer's salary and establishment, for improving the worst parts of the road between the Chambul River and Suppree, 115 ½ miles; and between Indore and the Nerbudda River, 76 ½ miles; so as to be practicable for wheeled carriages, including a branch road from Suppree to Gwalior. An increase in the width of the Ghauts from 10 to 14 feet was authorised on 3d January 1843. Returns were called for in 1848 with a view to undertaking the improvement of such detached parts along this great line of road as urgently required either construction or repair, when the following estimates were submitted, and recommended for immediate sanction, viz.: For the repair of about 20 miles of the road in Candeish *Rs.* 1,00,000 For completing part of the road under charge of the Civil Engineer, a distance of 93 miles, with bridges and drains - 2,46,514 For bridging a portion of the road between Sooughur and Dhoolia - - - - - - - - - - - 65,000 For completing the unmetalled portion of the line in Kandeish 3,00,000 TOTAL - - - *Rs.* 7,11,514 These works, however desirable, were considered too costly to be undertaken at present. A sum of 4,224 rupees was sanctioned in June 1849 for converting into a fair-weather road the line of 43 miles in length, between Seindwa and the Nerbudda, his Highness Holkar having contributed a moiety. The Court, in January 1850, sanctioned the annual expenditure of 28,700 rupees for the maintenance of this road within the Bengal Presidency.

Construction of a well at the top of the Kilner (Gara) Ghaut.	-- On a representation from the Resident at Indore of the very serious inconvenience experienced by troops and travellers from the want of water at that spot.	-- Sanctioned season 1845–46.	-- Between Deodat and Akberpore.	504 14 8	700 14 5	-- Completed season 1846-47.	—
Agra: Proposed construction of a Suspension Bridge over the River Jumna.	- - - - - - - - - - - -	Agra - - - - - - - - - -		{ 5,33,378 - - / 4,51,749 - - }	- - - - -	-- The first estimate is for a bridge of two spans of 500 feet each, with two half spans of 225 feet each, and a roadway 28 feet broad, supported by three chains; the other, with the same openings, supported by two chains. These estimates, together with others on the taper chain, or Dredgian principle, were held over, awaiting a report of a special committee on the causes of the failure of the Balli Khall Bridge on the Dredgian principle. Subsequent to these proceedings, the construction of bridges on the taper chain, or Dredgian principle, was generally prohibited by the Home Authorities. An estimate for a masonry bridge was then submitted, but the Lieutenant-governor being doubtful whether the same site would suit a railway bridge as would be selected for the ordinary traffic of the country, has suspended any ulterior proceedings. The proper site for a railroad bridge, it is supposed, would approach Agra by Ferozabad, two marches short of Agra.	
CIVIL BUILDINGS, SOUTH EASTERN PROVINCES—JUDICIAL:							
Akyab:							
Construction of a Cutcherry -	-- To replace the existing cutcherry, not worth repairing.	-- Sanctioned 1st August 1839.	Akyab - - -	4,869 8 5	4,742 8 3	-- Completed season 1841–42.	—
Construction of a new Gaol -	-- To replace old buildings which are unserviceable and of repair. unworthy	-- Sanctioned 23d March 1841.	Akyab - - -	12,159 9 4	14,362 7 1	-- Completed season 1843–44.	-- The new gaol is equal to the accommodation of 320 prisoners.
Construction of a Sanitarium Bungalow, with bathing rooms and out-offices.	-- It is not stated for whose use the building is designed.	-- Sanctioned 9th January 1838.	-- Situated at the end of the Farquee's Rocks, two miles from the station of Akyab.	4,813 9 10	- - - -	-- Constructed in 1840–41.	—
Construction of a Treasury Record Room, malkanah, and cash-room, at the civil station.	- - - - - - - -	-- Sanctioned 19th October 1841.	Akyab - - -	5,741 15 6	6,414 15 9	-- Completed season 1843–44.	—
Amherst: Construction of a new Gaol at.	-- In consequence of the insufficient accommodation afforded by the existing gaol.	-- Sanctioned 11th January 1842.	Amherst - - -	3,445 4 4	5,106 14 3	-- Completed season 1843–44.	-- The gaol is intended for the accommodation of 280 convicts. The difference is owing to the employment of convicts, and to a reduction of the accommodation, with the concurrence of the commissioners. The dimensions sanctioned were 240×50, while those of the new gaol are 157×48.
Allipore 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 3d June 1842.	-- Sanctioned 9th January 1843.	Allipore - - -	5,494 12 1	5,776 13 1	-- Completed season 1843–44.	-- These buildings are required for the accommodation of 211 men. The walls will be of masonry, and the roofs of tiles.

(continued)

No. 6.—Statement compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Civil Buildings, South Eastern Provinces—Judicial—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Akyab: Construction of a Gaol Wall, with Sentry-boxes.	-- In consequence of a suggestion by the Commissioners of Arracan that all men sentenced to more than one year's imprisonment should be located at Akyab.	- - Sanctioned 17th May 1838.	Akyab - - -	9,100 14 2	- - - -	Season 1838-39.	—
Construction of Wards within the above Gaol Wall.	- - The existing gaol buildings have become old, and unworthy of further repair.	- - Sanctioned season 1840-41.	ditto - - -	14,362 7 1	14,362 7 1	- - Completed season 1840-41.	- - The new wards will accommodate 120 prisoners.
Construction of a Sudder Hospital at.	- - Rendered necessary by the existence of a military police; the flotilla establishment, crews of vessels, &c., all requiring medical aid, in consequence of the insalubrity of the climate, as well as the ruinous condition of the old hospital.	- - Sanctioned 6th February 1843.	ditto - - -	1,703 1 -	1,397 11 9	- - Completed season 1844-45.	- - The new hospital will be 60 × 24, with a 10 feet verandah all round, the corners of which are to be partitioned off into separate rooms for the native doctor, dispensary, and operating rooms.
Allipore Gaol: Alterations and improvements to.	- - To improve the gaol, as regards cleanliness, salubrity, and discipline.	- - Sanctioned 22d June 1841.	Allipore - - -	20,734 13 10	22,377 15 8	- - Completed season 1843-44.	—
Akyab: Construction of six Drain Bridges.	- - Necessary to the cleanliness and salubrity of the town.	- - Of one arch of six feet, sanctioned 20th August 1845.	- - On the Chowreggya road.	1,042 5 8	2,292 - -	- - Completed season 1846-47.	—
Construction of a Bridge at Talee 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 considered the most important at Akyab, it is considered that they should be of the most durable description.	- - One arch of 20 feet span.	Akyab - - -	- - - - -	6,313 - -	—	
Construction of a Bridge at Nazirpah.		Twenty-four feet span	ditto - - -	- - - - -	4,998 - -	—	
Allipore Gaol: Putting up a Pump.	- - For raising water from the large tank in the gaol to the reservoir above it, to supply the different wards with drinking water.	- - Sanctioned 20th August 1845.	Allipore - - -	402 8 -	402 8 -	- - Completed season 1846-47.	—
Akyab: Construction of the Sudder Mokam Stone Sluice.	- - This sluice, together with the bund at Akyab, was destroyed by a storm on the 15th May 1842.	- - Sanctioned 28th May 1845.	Akyab - - -	1,783 15 8	1,783 15 8	- - Completed season 1846-47.	- - The roadway over the sluice has been made sufficiently large to be safe and practicable for wheel conveyances. The reconstruction of the bund was reported in 1844.

Allipore Gaol:						
Alterations and improvements	-- To improve the gaol as regards cleanliness, salubrity, and discipline.	-- Sanctioned 22d June 1841.	Allipore - - -	20,734 13 10	22,377 15 8	-- Completed season 1843–44.	-- The works sanctioned are as follows: The construction of aqueducts 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 cells to a more airy site, and the construction of an additional ward and working shed.
Construction of a Balagustee Guard-room to the.	-- This building will be of more durable materials than the last, which has been entirely destroyed by white ants.	-- Sanctioned 22d June 1845.	Allipore - - -	606 - -	606 - -	-- Completed season 1845–46.	—
Akyab: Additions and alterations to the Cutcherry at.	-- For the better accommodation of the different civil officers.	-- Sanctioned 3d June 1844.	Akyab - - -	- - - - -	2,306 9 3	- - - -	-- This building has been lengthened about 40 feet.
Allipore Gaol: Construction of a Retiring-room, with Anti-room, to the Cutcherry of the additional Judge.	-- These works were undertaken under a representation from the additional Session Judge of their necessity.	-- Sanctioned 25th May 1848.	Allipore - - -	953 5 3	- - - -	-- Completed season 1849–50.	-- Additions and alterations to the cutcherry itself were also effected.
Allipore:							
Renewing the Roof of the Sepoy Guard-room.	-- In lieu of the old roof, condemned by a committee.	-- Sanctioned 20th June 1850.	Allipore - - -	- - - - -	2,302 1 8	—	
Alterations and Additions to the Gaol Hospital.	-- Under a representation from the superintendent of the gaol, of the necessity for a better classification of the patients.	-- Sanctioned 18th October 1850.	Allipore - - -	- - - - -	3,084 - 1	- - - -	-- The superintendent observed, that in the large gaol at Allipore the different kinds of prisoners are kept as distinct as can be; but in the hospital all the above classes, from the most atrocious and desperate convicted felon to the respectable freeman, male or female, are mingled together.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL.							
Arrah: Sudder Ameen's Cutcherry.	- - - - - - - -	-- G. O. 23d January 1839.	Arrah - - -	1,559 - -	- - - -	Season 1839–40.	—
Akyab: Construction of a Cutcherry at.	- - - - - - - -	-- Sanctioned 1st August 1839.	Akyab - - -	4,742 - -	—		
Arrah: Construction of a Dewanny or Civil Gaol.	-- No separate provision had been made for the confinement of civil prisoners, and, in consequence, persons of this class were mixed up with the common felons of the gaol.	-- Sanctioned 1st November 1842.	Arrah - - -	3,437 12 7	4,649 10 5	-- Completed season 1844–45.	-- In the new gaol, and, at the suggestion of the Judge, separate accommodation is provided for prisoners of rank and caste.
Arrah Gaol: Construction of 60 Ventilators, and lowering Compound Walls.	-- For the better ventilation of the criminal wards.	-- Sanctioned 17th February 1848.	Arrah - - -	402 7 10	412 4 6	Season 1848–49.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:				*Rs. a. p.*	*Rs. a. p.*		
Allahabad: Sudder Ameen's Cutcherry.	- - - - - - - -	- - Sanctioned 28th August 1839.	Allahabad - -	1,273 6 8	1,579 8 -	- - Completed season 1841-42.	—
Ajmere Gaol: Alterations to the.	- - - - - - - -	- - Sanctioned 24th December 1840.	Ajmere - - -	1,700 - -	1,700 - -	Season 1840-41.	—
Azimghur: Construction of a Record Room.	- - For the use of the Collector and Magistrate.	- - Sanctioned 23d March 1844.	- - - -	2,225 7 9	2,238 6 9	- - Completed season 1846-47.	—
Allahabad: Construction of an additional Room to the Judge's Cutcherry.	- - For the accommodation of the records.	- - Sanctioned 7th January 1851.	Allahabad - -	- - - - -	1,908 4 6	- - - -	- - The necessity for this additional accommodation was pointed out by the local civil authority.
CIVIL BUILDINGS, NORTH WESTERN PROVINCES—JUDICIAL:							
Allyghur Gaol: Construction of an additional Ward.	- - In consequence of the insufficiency of space in the gaol.	- - Sanctioned 30th August 1841.	- - - -	1,484 4 10	- - - -	- - Constructed season 1842-43.	—
Agra:							
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 11th September 1842.	Agra - - -	- - - - -	11,956 13 9	Season 1842-43.	—
Erection of Offices for the Court of Sudder Dewanny.	- - - - - - - -	- - Sanctioned April 1843.	- - - -	20,392 9 3	17,501 - -	- - Completed season 1844-45.	- - These new offices will be built near the Secretariat Buildings, and the whole of the public buildings will be enclosed by a low wall.
Erection of Offices for the Board of Revenue.	- - - - - - - -	- - Sanctioned April 1843.	- - - -	- - - - -	11,067 - -	- - - -	- - The excess of expenditure is owing to a rise in the price of timber in the bazaar.
Construction of a Hospital Ward at the Foujdarry Gaol.	For the use of females - -	- - Sanctioned 4th November 1843.	Agra - - -	849 6 7	909 12 9	- - Constructed season 1843-44.	- - The necessity for this work was reported direct by the civil authorities to the Government.
Allyghur: 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 2d March 1844.	Allyghur - -	- - These works suspended in season 1844-45.	66,989 1 -	- - - -	- This gaol is intended to accommodate 1,200 male and 200 female convicts. The whole of the buildings are to be surrounded by a ditch 14 feet broad and 12 feet deep, with a pucka wall 14 feet high in the centre. The slopes are to be secured with masonry revetments, and the bottom of the ditch and a few feet of the bottom of the slope to be substantially faced with masonry, and the ditch to be made considerably wider at top.
Agra: Construction of a Court House.	For the Sessions Judge - -	- - Sanctioned 3d June 1845.	Agra - - -	6,436 10 -	8,558 12 9	- - Completed season 1846-47.	—

Allyghur: Construction of Cutcherries for the Sudder Ameens and Omlahs.	- - During the last rains the old buildings became too dilapidated for use.	- - Sanctioned 25th March 1846.	Allyghur - -	3,355 13 10	3,003 - -	- - Completed season 1846-47.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:							
Akyab: Additions and Alterations to the Treasury and Record-room.	- - - - - - - -	- - Sanctioned 9th September 1844.	Akyab - - -	1,625 - -	1,625 - -	- - Completed season 1845-46.	- - The works executed consisted of an arcaded pucca verandah in lieu of a thatched one; additional alterations to doors and windows, and renewing the terrace roof.
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Allahabad: Pilgrim Hospital, additions to.	- - - - - - - -	20th December 1839	Allahabad - -	1,475 1 -	1,475 1 -	- - Completed season 1840-41.	—
Office of the Sudr Board of Revenue.	- - Repair of injury done by storms on the 2d and 3d May 1838.	18th October 1838 -	- ditto - - -	8,540 - -	8,540 - -	- - Completed season 1839-40.	—
Construction of four Tehsildarry Cutcherries.	- - - - -	- - Sanctioned 27th August 1840.	- - These cutcherries are situated at Menjah Chall, Kurchunna, and Munjeirpore.	19,812 4 5	20,423 2 4	- - Completed season 1842-43.	—
Azimgurh: Construction of a Tehsildarry Cutcherry.	- - - - - - - -	- - Sanctioned 31st March 1838.	At Cheerkote - -	5,730 - 4¼	- - - -	- - Completed season 1841-42.	—
Allahabad: Construction of a Treasury Room to the late Judges' Cutcherry.	- - This cutcherry has been transferred to the Collector of Allahabad.	- - Sanctioned 27th March 1847.	Allahabad - -	- - - - - -	3,809 - -	—	
CIVIL BUILDINGS, NORTH WESTERN PROVINCES—REVENUE:							
Agra: Construction of a Cutcherry for the Commissioner of the Division.	- - - - - - - -	- - Sanctioned 11th August 1846.	Agra - - -	9,561 6 -	10,573 - -	- - Completed season 1846-47.	—
Addition of Outbuildings 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 at once directed the executive officer to commence on the buildings.	- ditto - -	1,206 5 7	1,538 - 3	- - Completed season 1847-48.	—
Allyghur: Construction of a Tehsildarry Cutcherry at Eglass.	- - The Tehsil duties have been carried on with much inconvenience at the Sudder Station, which is a distance of 15 miles.	- - Sanctioned 7th July 1843.	Eglass - - -	- - - - - -	4,092 12 6	—	
CIVIL BUILDINGS, SOUTH EASTERN PROVINCES—GENERAL:							
Akyab: Enclosure of the Burial Ground.	- - - - - - - -	- - Sanctioned 16th May 1842.	- - - -	- - - - - -	1,985 12 3	—	
Allipore: Removing and setting up a Steam-engine in the Iron Bridge Yard.	- - This engine, which has been transferred from Chaund Paul Ghaut, is of 10 horse-power.	- - Sanctioned 23d October 1843.	Allipore - - -	7,249 - -	7,020 - -	- - Completed season 1844-45.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Allipore—continued. Construction of new buildings.	- - For the establishment attached to the Mathematical Instrument Department.	- - Sanctioned 16th January 1844.	Allipore - - -	3,794 12 8	3,794 12. 8	Season 1843-44.	—
Akyab; 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 10th June 1843.	Akyab - - -	10,120 - 7	13,868 11 2	- - Completed season 1845-46.	- - This outlay is to be defrayed from the port dues. The saving on the work is 3,748 rupees, in consequence of 7½ groins having been constructed instead of 10. The pier provided in the sanctioned estimate has not been executed. The above amount has been placed at the disposal of the Commissioner of Arracan for completing the pier or breakwater.
Constructing of a Large Shed with Verandah, to serve as an Exchange.	- - A place of this description is much wanted at Akyab, where merchants, agents, captains, &c. may assemble under shelter from sun or rain.	- - Sanctioned 17th November 1845.	- - - - -	- - - - -	1,500 - -	Season 1845-46 -	- - The shed is to be 66 by 20, with a verandah 12 feet on four sides.
Construction of Three Marine Wells.	- - - - - - -	- - Sanctioned 20th March 1844.	- - - -	767 3 3	- - - -	- - Completed season 1845-46.	—
Allipore: 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 27th May 1846.	Allipore - - -	4,269 2 6	4,199 - -	Season 1848-49.	—
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 detrimental to the public service.	- - Sanctioned 17th May 1845.	- ditto - - -	3,289 15 9	3,289 15 9	- - Constructed season 1846-47.	—
Amherst: Provision of a Pilot Station on the Island off Amherst.	- - - - - - -	- - Sanctioned October 1848.	Amherst - -	487 11 11	500 - -	- - Reported season 1846-47.	—
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Akra: Additions to the Semaphoric Tower.	- - - - - - -	- - Sanctioned 12th August 1846.	Akra - - -	575 10 1½	- - - -	Season 1847-48.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Allahabad: Ghaut on the Jumna, at.	- - - - - - -	- - Sanctioned 1839-40.	- - - -	5,709 12 -	3,500 - -	- - Completed 1840-41.	- - The excess over the estimated amount is owing to the execution of the work on a more complete plan than was intended, in accordance with the advice of the magistrate, who had promised aid to the extent of 2,000 rupees towards the undertaking.

Agra: Provision of accommodation for the Establishment with the Governor-general.	- - - - - - - -	- - Sanctioned season 1843-44.	Agra - - -	2,011 15 11	- - - -	Season 1843-44.	—
Allahabad: Enlargement of the Burial Ground.	- - The ground in the existing cutcherry was completely occupied with graves, and the burial-place required extension.	- - Sanctioned 14th February 1848.	Allahabad - -	529 2 11	564 5 3	- - Completed season 1848-49.	—
Landing-place for Goods and Passengers, and Apparatus for landing Goods, &c.	- - Under a representation from the agent Government steamers of the necessity of the works.	- - Sanctioned 29th December 1849.	Allahabad - - - - - - - -	7,108 4 5	- - - -		- - In consequence of the increased influx of stores to be sent per bullock train, the steam agency is not at all times sufficient to contain the whole of the goods in store. With reference to the Ghaut, &c., it is stated that the crews of the vessels work much harder than the Bandarries or Coolies, so that with the aid of the machinery and works provided for in this estimate, it is expected that a Government vessel may be cleared of the largest cargo ever brought to Allahabad in six or eight hours, which at present occupies 1 ½ to two days.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Agra: Enclosure of the new Burial Ground.	- - - - - - - -	- - Sanctioned 17th October 1842.	Agra - - -	38 1 -	- - - -	- - Completed season 1842-43.	—
Construction of a Record Room.	- - For the accountant North-Western Provinces.	- - Sanctioned 6th October 1845.	Agra - - -	2,181 10 10	2,168 - -	- - Completed season 1846-47.	—
Erection of a new Staging Bungalow.	- - In lieu of the present building, which is not suited for the accommodation of travellers.	- - Sanctioned 14th August 1845.	Agra - -	1,756 5 9	2,102 - -	- - Completed season 1846-47.	—
Construction of a Post Office and Gotown, with Compound Wall.	- - At the instance of the Postmaster-general.	- - Sanctioned 10th July 1849.	Agra - - - - - - - -	5,511 - -	—		
Construction of a Theatre, with Museum attached, as a Wing to the College.	- Under orders of the Lieutenant-governor.	- - Sanctioned 13th July 1850.	Agra - - - - - - - -	13,840 8 -	- - - -		- - The grounds for the preparation of this estimate were not made known to the Military Board.
CIVIL BUILDINGS, LOWER PROVINCES—POLITICAL:							
Assam, Upper: Construction of various Buildings at.	- - At Subsaugor: treasury, record room, magazine, with guard room. At Detroghur: record rooms, treasury, powder magazine, store room.	- - Sanctioned 3d August 1840.	Upper Assam - - - - - - - -	11,913 9 9	Season 1840-41.		—
CIVIL BUILDINGS CENTRAL PROVINCES—POLITICAL:							
Ajmere: Construction of Residency Buildings.	- - - - - - - -	- - Sanctioned 31st August 1840.	- - - -	1,024 3 5	1,160 15 11	- - Completed season 1841-42.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:							
Agra: Construction of additional Buildings.	- - For the accommodation of the records of the office of the Secretary to Government.	- - Sanctioned 13th February 1846.	Agra - - -	2,789 9 10	- - - -	- Constructed season 1846-47.	- - The new record room measures 30 by 18 feet, with two side and one end verandah, 10 feet in the clear.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
MARINE BUILDINGS, LOWER PROVINCES:							
Ahyah: Construction of a Lighthouse on the Great Savage Rock.	- - - - - - - -	- - Sanctioned 9th November 1842.	- - - -	Rs. a. p. Cost of Light-houses - 33,587 10 4 Buildings attached - 1,501 9 6 Lantern - 15,000 - - Rs. 50,089 3 10	Rs. a. p. 33,425 8 7 The cost will be defrayed from the funds of the port, which are believed to amount to 20,000 or 30,000 rupees. The lantern to be used, which is valued at about 21,000 rupees, will be supplied from the marine stores in Calcutta.	- - Completed season 1843-44.	- - Thirty-five feet of the rock downwards has been removed, and a base thus obtained for the superstructure. The rock is now 49½ feet above high-water mark, and the lighthouse will be raised to the height of 50½ feet, so that it will be 100 feet above the highest spring-tides. The lantern was lighted on the 7th March 1844.
EMBANKMENTS, SOUTH-WESTERN PROVINCES:							
Burdwan Division: Restoration of the Kaunee Khal Bunds.	- - - - - - -	- - Sanctioned 15th July 1841.	Burdwan - -	- - - - -	1,075 12 -	Season 1841-42 -	- - The length of embankments in the Burdwan Division is represented, in 1839-40, to be 285 miles, and the estimated cost of annual repairs, 4,619 rupees.
New Bund on the Adjye River.	- - To prevent injuries to lands by the overflows of the river.	Sanctioned 1841-42	- - - -	3,884 11 -	- - - -	- - Completed season 1841-42.	—
EMBANKMENTS, SOUTH-EASTERN PROVINCES:							
Bogree: Construction of a new Bund on the Selin River.	- - To replace the old bunds, which were pronounced to be quite insusceptible of efficient repair.	- Length, 10,460 feet; sanctioned season 1843-44.	Bogree Pergunnah -	2,437 14 1	- - - -	- - Completed season 1843-44.	- - It is expected that about 814 beegahs of land will be fertilised.
Burdwan: Construction of a new line of Bund from Salalpore to the Canna Naddee, and repairs and renewals to the Burdwan Bunds generally.	- - The new bund is proposed for construction at a point where the old one has frequently failed, causing great damage to the country.	- Length of new bund, four miles; sanctioned season 1847-48-49.	Burdwan - -	- - - - -	72,170 12 9 16,460 - - 88,645 12 9	—	
Burdwan Bunds; Repair of a breach at the Rugulpore Bund.	- - This bund was breached during the floods of 1848, nearly opposite to Burdwan, at a point where the whole force of the Damoodah acts upon it.	- - Sanctioned season 1848-49.	Near Burdwan -	7,201 7 10	- - - -	Completed 1849 -	- - The length of the new *dobundy* is 11,600 feet; the centre has an average height of 10 feet; it is 14 feet broad, and has slopes of four to one and three to one. The ends, which are not exposed to the force of the river, 3,140 feet in length, have a height of 10 feet, and a crest of 8 feet.
Balasore Division: Construction of new Bunds, and restoration of others which had been abandoned.	- - Required for the protection of the estate Monzah Sindeeah, Pergunnah Sookut.	- Sanctioned January 1844.	- - - -	- - - - -	230 - -	Season 1843-44 -	- - The average length of embankments in 1839-40, in the Balasore Division, was estimated at [illegible] miles, and the cost of annual repairs, 1,000 rupees. In 1847-48, the estimate for annual repairs was *Rs.* 7,997. 13. 0.

EMBANKMENTS, LOWER PROVINCES:							
Berhampore Division: Bunds at Moorshedabad.	- - - - - - -	- - *Length*, about 74 miles.	- - - - -	- - - - -	- - - - -	- - - - -	- - The cost of annual repairs for 1850–51, amounted to 4,724 rupees.
Banleah Bunds: *New* Bund from Huntanshed to Banleah Ghaut.	For the protection of the town -	- - Length two miles, one furlong, and 180 yards, sanctioned 6th February 1840; 3,100 feet additional sanctioned December 1840	- - - - -	- - - - - 64 8 1¼	4,111 - -	- - This work is in progress.	—
					1,337 - -	- - Completed 1841–42.	- - *Rs.* 1,272. 14. 1¼. less than the original estimate, owing to the employment of convicts on the work.
Buxee Bund: Construction of a Sluice Bridge at the western end of this Bund.	- - To prevent influx of the waters of the Ganges.	- - Sanctioned 22d February 1850.	- - At the village of Chooter Bogree, Allahabad.	- - - - -	2,223 10 3	- - - - -	- - The west end of the Bund was totally detached from the high ground, with which it ought to be connected, and the waters of the Ganges run up a hollow many hundred feet in rear of the left flank of the Bund.
EMBANKMENTS, CENTRAL PROVINCES:							
Behar, Saeri Bund: Reconstruction of.	- - To protect the country on the Western Channel from inundations.	- - Sanctioned season 1838–39.	Behar - - -	12,218 - - Estimate for ordinary repairs, 1,500 rupees.	9,155 2 7	Completed 1840–41	- - The great excess of expenditure beyond the estimate, was occasioned by Lieutenant 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 realising from the Zemindars the amount expended.
CANALS, NORTH-WESTERN PROVINCES:							
Bejapore: Watercourse in the Deyrah Dhoon.	- - For the irrigation of land lying between the Tonse, the Arson, and Bogul Rivers.	Sanctioned 1838–39	Deyrah Dhoon -	15,926 14 7	- - - -	Completed 1840–41	—
Construction of masonry falls	- - To lessen the rapidity of the stream.	Sanctioned 1838–39	- - - -	6,364 2 4	- - - -	- - Completed 1841–42.	—
Brotana Branch Canal: Construction of 50 masonry outlets.	For irrigation - - - -	- - Sanctioned 7th March 1837.	- - - -	4,501 1 4	- - - -	- - Completed season 1842–43.	—
Heejapore Watercourse: Construction of a masonry Tunnel.	In lieu of a wooden tunnel - -	- - Sanctioned 26th September 1843.	- - Near the village of Dakra.	2,996 14 -	2,996 14 -	- - Completed season 1843–44.	- - The wooden tunnel was a source of much trouble and expense, owing to the repairs which it required constantly.
Construction of a Corn Mill at Dakra.	- - - - - - -	- - Sanctioned 1st June 1844.	- ditto - -	682 12 3	—		
CANALS, SOUTH-WESTERN PROVINCES:							
Canal from the Banka Nullah to the New Pertaubkholle Canal at Tumlook.	- - The Banka Nullah Canal forms a navigable communication between the Huldee and Roopnerain River, and is chiefly used for the transport of salt. By the new cut the dangerous route taken by the salt boats of Jangral bolly and Roopnerain Rivers will be avoided.	- - Length of the new cut 8 miles and 145 feet; sanctioned 24th November 1841.	- - - -	- - This project was abandoned under orders of Government 17 August 1842.	- - Estimated for the new cut, 17,619 2 -	- - - -	- - Further inquiry established the fact, that there are no sufficient grounds for entertaining the expectation that it will be possible to locate 300 or 500 Khalins along the sides or in the vicinity of the proposed canal, and that the risk attending the transport of the Gurung salt to Ghat Narampore, as now conducted, ought, with proper precautions, to be quite inconsiderable.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CANALS, SOUTH-WESTERN PROVINCES—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Baliaghatta Canal - - -	- - - - - - - -	- - Sanctioned 13th December 1839.	- - - -	1,611 4 - Sanctioned, for strengthening the south bank by piling.	- - - -	- - Completed season 1843–44.	—
Baliaghatta Canal, repair of a portion of the south bank.	- - To obtain a wider road, and improve the slopes of the bund.	- - Sanctioned season 1849–50.	- - - -	508 13 7½	- - - -	- - Completed season 1849–50.	- - The dock gates were taken out and repaired at a cost of *Rs.* 457. 2. 6.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Construction of a Bridge on the Burdwan and Hooghly Road, at Shaickpore.	- - This bridge is required on a part of the road which is liable to be cut through, whenever the floods of the Damoodah Nullah are brought down the Banka Nullah from the neighbourhood of Burdwan.	- - Sanctioned 22d December 1840.	- - - -	1,588 9 5	1,681 1 10	- - Completed season 1842–43.	- - This is to be a bridge of three (3) arches.
Bancoora and Burdwan Road -	- - 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 14¼ miles; sanctioned 16th February 1841 and 19th May 1842.	- - - -	- - Cost of the bridges, 7,890 rupees.	12,000 - - and 8,880 14 3	- - Completed season 1846–47.	- - The number of drains and bridges to be constructed, amounts to 34. The road is under charge of the Burdwan Local Committee.
Bissenpore Road:							
Construction of a new masonry Bridge on the.	- - Indispensable for the safety of the Bissenpore road, of which, owing to insufficiency of drainage, 2,000 feet were carried away by a flood.	- - Sanctioned 28th August 1843; to consist of two arches of 16 feet span each.	Near Gobroo Bazar -	2,120 1 - ½	2,438 2 10	- - Completed season 1844–45.	- - This is an important line of communication, as it connects the grand trunk road with Midnapore and the Province of Orissa.
Construction of a masonry Bridge over the Doodiah Khall.	- - To supply the place of an old bridge, which was destroyed by inundation.	- - Of four arches, 20 feet span each; sanctioned 26th March 1845.	- - Between Midnapore and Bissenpore.	7,449 - -	8,646 4 -	- - Completed season 1847–48.	—
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 the error in construction of not having raised the pier to a sufficient height.	- - Sanctioned 29th June 1844.	- - On the Raepore mail road, in the Nagpore territory.	4,945 13 -	4,945 13 -	- - Completed season 1846–47.	The bridge consisted of three arches.

Bally 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 3d June 1844.	Situated on the right bank of the Hooghly River, near Howrah, opposite Calcutta.	56,680 4 2	48,447 9 –	Completed in 1845	The inhabitants subscribed 17,800 rupees towards its erection; the requisite disbursement for completing the structure was to be made from the ferry funds of the district. This bridge fell down in June 1845, immediately after its completion, which was attributed to a want of sufficient strength in the central connexion of the chains. The bridge was again put up, greatly strengthened in the central connexion. The Court, in a despatch dated 3d December (No. 9) 1845, disapproved the tension principle, and directed that it should not be further adopted in the construction of suspension bridges.
Restitution of the		Sanctioned 28th October 1845.		12,927 9 8	7,431 – –	Reconstructed season 1846–47.	–
Making the approaches to the		Sanctioned 10th March 1846.		2,445 9 7	—		
Bissenpore Road: Strengthening of the Tamaul Nullah and Sauthancoorah Masonry Bridges.	In consequence of injuries sustained by the floods of season 1844.	Sanctioned 27th August 1845.	Situated in the Midnapore Division.	2,172 1 –	3,572 – –	Completed season 1847–48.	—
Bankipore to Jehannah: Reconstruction of a Bridge and two small Drains.	These works were carried away by a high flood on the 22d August 1844.	Sanctioned 7th May 1845.		1,001 10 1 and 10,000 for drainage.	—		
Behar District: Construction of Drain Bridges on the line of the Grand Trunk Road.	For the drainage of the road	Sanctioned 30th April 1845.		8,177 13 4	8,177 13 4	Constructed season 1846–47.	—
Budge-Budge Road: Construction of four Drain Bridges, and repairs thereon.	With a view to render the road more practicable for mail-carts.	Sanctioned 24th December 1845.		2,440 – 9	2,440 – 9	Season 1845–46.	—
Bissenpore Road: Repair of the Masonry Bridge over the Tamal Nullah.		Sanctioned 9th May 1847.		1,219 15 1	—		
ROADS AND BRIDGES, LOWER PROVINCES:							
Beyalal to Diamond Harbour: Repairs to the Pucka Road and Bridges on.		Length, 24 miles; width, 14 feet; sanctioned 28th July 1845.	Diamond Harbour	35,000 – –	35,000 – –	Completed season 1845–46.	The estimate for annual repairs to the pucca centre of this road amounts to 3,091 rupees.
Berripore to Calpee: Construction of a Cutcha Road.		Length, 32 miles; sanctioned in 1844.	Calpee	19,948 6 6		Completed season 1847–48.	—
Burgatchy to Dinagepore: Raising of the Road.	This line was adopted in lieu of the old road *viâ* Malda, when the settlement at Darjeeling was first formed.	Length, 91 miles and 71 yards; sanctioned 20th October 1847.	Dinagepore	15,224 6 6	16,010 2 9	Completed season 1849–50.	A portion of this road, a distance of 60 miles, has been raised above the level of inundation mark.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Date of Termination, Increase or Reduction.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:				*Rs. a. p.*	*Rs. a. p.*		
Bridge over the Bargool River on the Peelibheet Road, in the district of Rohilcund.	- - - - - - -	- - Sanctioned in season 1839–40.	- - - -	11,298 3 3¾	9,158 8 -	- - Completed season 1841–42.	- - The excess, *Rs.* 2,139. 11. 3., of expenditure beyond the estimate is owing to the difficulties encountered in the execution of the work, and to convict aid to the extent contemplated not having been afforded.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Baraset Gaol: Rebuilding of the Compound Wall.	- - The former wall was pulled down when the alterations to the gaol, for the receptions of the followers of the Ameers of Scinde, were undertaken.	- - Sanctioned 18th July 1844.	- - - -	1,057 9 2¾	- - - -	- - Completed season 1844–45.	- - Government subsequently decided on sending the ex-Ameers to Hazareebaugh.
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—JUDICIAL:							
Balasore Gaol: Construction of additional Wards.	- - Owing to the insufficiency of accommodation.	- - Sanctioned season 1839–40.	Balasore - - -	4,740 - -	4,605 - -	- - Completed season 1841–42.	—
Improvements to the drainage of.	- - - - - - -	- - Sanctioned season 1841–42.	- - - -	1,085 2 1	- - - -	- - Completed season 1841–42.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Baulcah Gaol: Additions to, and Drainage.	- - To provide for better ventilation, &c.	- - Length of drain, 361 feet.	Baulcah - - -	8,027 8 9	7,726 - - for additions.	- - Completed season 1840–41.	—
Behar: Construction of an additional Record-room.	- - For the records of the office of the Judge.	- - Sanctioned 11th September 1843.	Behar - - -	1,239 3 -	1,239 3 -	Season 1843–44 -	- - The necessity for this additional accommodation was brought to notice by the Sudder Dewanny Adawlut.
Burnagore: Construction of a small Gaol, with Out-offices.	- - For the prisoners employed at Burnagore.	- - Sanctioned 12th December 1845.	Burnagore - -	1,396 - -	1,396 - -	Season 1846–47.	—
Baraset Gaol: Additions and alterations to.	- - To render it secure as a place of confinement.	- - Sanctioned 20th April 1846.	Baraset - - -	7,184 14 4¾	6,945 - -	- - Completed season 1847–48.	- - The contemplated works are the substitution of iron for the wood work of the windows, &c., and raising the surrounding wall from nine to 13 feet.
Baulcah: Addition of a Verandah to the Principal and two Sudder Ameens' Cutcherries.	- - In consequence of the crowded state of these cutcherries, and also with a view to make the buildings more comfortable.	- - Sanctioned 9th September 1846.	Baulcah - - -	1,817 1 -	1,959 2 8	- - Completed season 1847–48.	- - The lowness of the wall, only 12 feet 6 inches below the beams, rendered them exceedingly close and hot.
Baraset: Construction of a new Pucca Stable to the Joint Magistrate's Cutcherry.	- - Undertaken under a representation of the joint magistrate.	- - Sanctioned 7th May 1849.	Baraset - - - - - - - - -	575 3 7	- - Completed season 1849–50.	- - The roof of the stabling will be thatched.	
Baulcah: Construction of a Cutcherry for the Sessions Judge, &c.	- - The additional accommodation to be provided was urgently needed.	- - Sanctioned 5th September 1850.	Baulcah - - - - - - - - -	15,388 9 1	- - - -	- - The construction of the new building will enable the Government to give a building which has been rented at 100 rupees per month.	

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:

Bareilly Gaol: Construction of two experimental Wards.	- - - - - - - -	- - Sanctioned 7th October 1842.	Bareilly - - -	11,170 9 1¼ 10,000 rupees have been paid for the site of the building.	12,486 5 8	- - Completed season 1842–43.	—
Construction of additional Public Buildings.	- - For a mill-house, guard-room, and cook-room.	- - Sanctioned 17th February 1843.	Bareilly - - -	2,143 4 10	2,355 10 –	- - Completed season 1844–45.	—
Budaon Gaol - - -	- - - - - - - -	Sanctioned 1838–39	Budaon - - -	13,981 – – And *Rs.* 400. 8. 4. for draining.	- - - -	- - Completed season 1844–45.	- - This gaol consists merely of an enclosure wall, a hospital, guard-room, sentry-boxes, and wells. The convicts to build their own huts.
Bareilly: Construction of a Thowalat, at.	- - For the accommodation of prisoners under trial.	- - Sanctioned 15th November 1851.	- - - -	- - - - -	2,634 5 –	—	
Boolundshuher Gaol: Alterations to.	- - For the improvement of the prison discipline, and for two separate rooms for juvenile offenders.	- - Sanctioned 16th December 1842.	- - - -	602 10 8	1,433 4 4	- - Completed season 1843–44.	- - Two rooms for juvenile offenders have been constructed; the rest of the improvements estimated for were not considered absolutely necessary.
Bowannah: Construction of Tuhsildarry Cutcherry, at.	- - The old cutcherry was in ruins, and inconveniently situated.	- - Sanctioned 22d November 1842.	- - - -	5,641 3 1	5,641 3 1	- - Completed season 1842–43.	—
Bhandaree: Construction of Police Guards and Gaols.	For prisoners under trial - -	- - Sanctioned 27th April 1844.	- - In the districts of Kutchwagur and Bhandaree.	2,200 – –	2 200 – –	Season 1844–45.	—
Boolundshuher Gaol: Construction of Out-buildings and Cook-rooms.	- - - - - - - -	- - Sanctioned 20th August 1844.	Boolundshuher -	1,601 1 1	1,600 5 1	- - Completed season 1844–45.	—
Bhutteeana: Cutcherry for the Superintendent.	- - For the accommodation of the superintendent English officer, Post Office.	- - Sanctioned 1st October 1849.	Bhutteeana - -	3,000 – –	- - - -	Season 1849–50 -	- - This building was purchased from the estate of Lieutenant Mackeson at Sirsa.

CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:

Benares: Additions and Alterations to the Insane Hospital.	- - 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 26th February 1845.	Benares - - -	5,459 6 6	6,173 7 4	Season 1848–49 -	- - In the contemplated alterations part of the compound wall will be taken down, and 29 suitable and commodious cells will be built. Provision has also been made for improving the drainage.
Bedur Gaol: Alterations, &c. -	- - For security of the prisoners, and ventilation of the gaol.	- - Sanctioned 9th May 1843.	Bedur - - -	714 14 2	714 14 2	Season 1843–44.	—
Bandah Gaol: Construction of a Pucca Well.	- - Required to replace an old one, which has failed.	- - Sanctioned 18th August 1846.	Bandah - - -	- - - - -	1,804 1 –	—	
Baitool: Construction of a Pucca Gaol.	- - To replace the gaol constructed by the civil authorities, which was reported to be in a defective state.	- - Sanctioned 29th December 1846.	Baitool - - -	22,582 4 11	26,849 – –	- - Completed season 1850-51.	- - The new gaol was to consist of two ranges, one 160 by 20, and the other 145 by 20; each range being divided into four wards, with hospital houses for native doctor, dispensary, and out offices; the station of Baitool has been transferred to the Madras Presidency.

(*continued*)

No. C.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Bandah: 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 3d April 1847.	Baitool - - -	14,709 11 6	7,164 - -	- - Completed season 1848–49.	- - This cutcherry has been made of permanent materials on a revised plan.
Benares: Construction of a well outside the Gaol Compound.	- - The only well outside the gaol which supplied water to the establishment of the Burkundauzes had fallen in.	- - Sanctioned 17th June 1846.	Benares - - -	830 4 9	571 5 9	- - Completed season 1847–48.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Burrisaul:							
Cutcherry for the Magistrate and Registrar.	- - To replace the cutcherry destroyed by fire in February 1838.	- - Sanctioned 15th January 1839.	Burrisaul - -	7,052 4 7	- - - -	Completed 1840–41.	—
New Cutcherry for the Principal Sudder Ameen.	- - This was rendered necessary in consequence of the existing cutcherry being far removed from that of the Judge, and thus occasioning much inconvenience to suitors and pleaders.	- - Sanctioned 16th November 1841.	- ditto - - -	2,695 13 11	2,804 15 3	- - Completed 1843–44.	- - The old cutcherry has been made over to the local committee of public instruction at Burrisaul, to be used as a school-house.
Piling of the bank of the River	- - In consequence of an encroachment of the Burrisaul River on the town.	- - Sanctioned 12th March 1842.	- ditto - - -	2,330 9 10	2,664 6 -	- - Completed season 1843–44.	- - The labour will be performed by convicts. These measures proved a failure. The executive officer submitted a project for the purpose of turning the current of the river, which, in execution, would cost about 1,80,000 rupees; the Government declined to sanction the work, deeming it inexpedient to incur further expense.
Bograh: Construction of a new Circuit Bungalow, with Out-offices.	- - - - - - - -	- - Sanctioned 20th November 1844.	- - - -	4,682 14 7	4,990 5 -	- - Completed season 1846–47.	—
Burrisaul: Construction of a new Circuit House and Out-offices.	- - On the requisition of the Commissioner of Dacca, who represented that there was no circuit house for his 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.	- - Sanctioned 16th December 1848.	Burrisaul - -	5,446 10 2	- - - -	- - Completed season 1850–51.	—

Burrisaul Gaol: Construction of four Solitary Cells, and Drainage of.	- - The necessity for these works was originally brought to the notice of Government by the local civil authorities.	- - Sanctioned 28th December 1846.	Burrisaul - -	1,716 1 3	1,843 15 11	- - Completed season 1849–50.	—
Burdwan Gaol Hospital: Construction of an additional Ward.	- - - - - - - -	- - Sanctioned 24th November 1847.	Burdwan - - - - - - - -		1,000 - -	- - - - -	- - To be constructed by the convicts, under the immediate superintendence of the magistrate, assisted in respect of plans by the executive officer of the division.
CIVIL BUILDINGS, LOWER PROVINCES—REVENUE:							
Bhaugulpore: Additions to the Collector's Cutcherry.	- - On a representation from the Collector to the Commissioner of the great inconvenience felt from the small size of the cutcherry.	- - Sanctioned 11th August 1847.	Bhaugulpore - -	3,199 5 8½	3,269 4 9½	- - Completed season 1849–50.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:							
Burrisaul: Additions to the Collector's Cutcherry.	- - Required on account of the crowded state of the record-room, and also for the accommodation of two deputy collectors, recently added to the collectorate of Backergunge.	- - Sanctioned 26th November 1845.	Burrisaul - -	5,848 14 10	6,533 - -	- - Completed season 1847–48.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Bundlecund: Enclosure of the Tuhsildarry Cutcherry at Koonch	- - In consequence of an attempt made to plunder the treasury.	- - Sanctioned 29th March 1842.	Koonch - - -	1,173 4 4	1,441 3 11	- - Completed season 1842–43.	—
Benares: Construction of a Verandah to the Collector's Cutcherry.	- - The necessity of this work was brought to the notice of Government by the local civil authorities. These verandahs will make the cutcherries cooler, and afford greater facilities for putting up tatties during the hot season in the upper rooms.	- - Sanctioned 26th April 1846.	Benares - - -	1,683 2 11	1,683 2 11	- - Completed season 1846–47.	—
Banda: Construction of an additional Record-room.	- - For the use of the Collector's office.	- - Sanctioned 14th August 1849.	Banda - - - - - - - -		6,697 - -	—	
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Bullouh: New Salt Cutcherry	- - For the use of the Salt agent	Sanctioned 1839–40 -	At Noacolly - -	2,046 - -	- - - -	- - Completed 1839–40.	- - The former building was altogether unfit for the purpose, for want of sufficient accommodation, and from the dampness of the floors.
Barrackpore, Government House: Construction of new Out-houses.	- - - - - - - -	- - Sanctioned 4th November 1840.	- - - -	4,046 4 3½	- - - -	- - Constructed 1840–41.	—
Bagundee: Construction of a New Guard-house.	For the Sepoy guard - -	- - Sanctioned 3d January 1841.	- - - -	502 11 1	543 2	- - Completed 1841–42.	- - Great sickness and mortality occurred in the Sepoy guard, which, in the general opinion of the officers as well as of the civil surgeon, was owing to the proximity of the old guard-room to the Salt godowns.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Barrackpore: Enlargement of the Burial-ground.	The extension is urgently required.	Sanctioned 6th September 1844.	Barrackpore	1,044 10 5	1,025 7 8	Completed season 1845–46.	The additional space to be included measures 380 × 100 feet.
Conversion of a Building in the Park into an Aviary.		Sanctioned season 1845–46.		7,558 13 4	7,558 13 4	Completed season 1845–46.	—
Baulcah: Construction of a Post-office.	This is a pucca building	Sanctioned 10th February 1847.	Baulcah	1,169 7 11½	1,226 11 1	Completed 1847–48.	—
Bhaugulpore: Repair of the Mausoleum of Mirza Abraham Hoossien.		Sanctioned 6th October 1848.	Bhaugulpore	355 10 10½	355 10 10½	Season 1849–50.	—
Baulcah: Construction of a School-house.		Sanctioned 1st August 1850.	Baulcah	6,336 11 1		Constructed in season 1850–51.	This building measures 81 feet by 61 feet, and is intended to contain 200 children.
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Busar Chapel: Repair of the, and construction of a Verandah.		Sanctioned season 1846–47.	Situated midway between the fort and the buildings occupied by invalids.	1,714 8 11	1,874 11 2	Completed 1847–48	This chapel was assigned over to Government by the Missionary Society; it measures 40 feet by 20 feet (interior dimensions).
Benares: Construction of an additional Godown.	To extend the accommodation of the opium factory premises.	Sanctioned 17th February 1847.	Benares	4,317	3,917 A further sum of 400 rupees sanctioned for alterations to the boundary-wall of the factory.	Season 1847–48.	—
CIVIL BUILDINGS, LOWER PROVINCES—ECCLESIASTICAL:							
Barrackpore Church: Construction of a Wall.	To enclose the church	Sanctioned 9th October 1839.	Barrackpore		1,100 10 7	Season 1839–40.	—
EMBANKMENTS, SOUTH-WESTERN PROVINCES:							
Culmeejole Division		Length, 426 miles; estimated cost of annual repairs, 1839–40, *Rs.* 18,323. 9.					The average cost of annual repairs in the Culmeejole Division was, in 1850–51— To Government bunds, including sluices and inspection bungalows *Rs.* 24,628 6 10; Zemindarry *Rs.* 12,334 8 6; *Rs.* 36,962 15 4
Cuttack		Length, 560 miles					The cost of repairs to the embankments in the Cuttack Division, in 1847–48, was *Rs.* 22,322. 14. 7. In Report 1840–41, para. 19, it is stated that in Central Cuttack alone, during the last 10 years, 11,09,427 rupees have been remitted on account of loss from drought and inundations. A report was received in 1850 on the protective works undertaken as a temporary measure for the safety of the Cuttack Revetment, from which it appeared, that, notwithstanding the occurrence of unusually high floods in the Kutjoree river, the revetment has stood well without sustaining the slightest injury. These works have had the effect of giving the current a favourable direction, by which the station and town of Cuttack have, in all probability, been saved from destruction.

ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:						
Construction of Wooden Bridges on the Road between Chittagong and the Fenny River in Arracan.	- - - - - - - - - - - -	- - - -	- - - - -	3,025 6 8	- - - -	- - The executive engineer will consider the future maintenance of this road as part of his ordinary duty.
Culna Road: Repair of - - - -	- - - - - - - -	- - Length, 35 ½ miles; sanctioned 1841–42.	- - From Burdwan to the Hooghly River.	3,282 12 10 And *Rs.* 1,282. 1. 10. for drain bridges.	- - - -	Completed 1841–42 - - - The expenses will be paid by the Rajah of Burdwan.
Metalling of the - - -	- - - - - - - -	- - Sanctioned 6th June 1844.	- - Ditto - -	12,419 - -	11,937 6 3	- - Completed season 1846–47. —
Chittagong:						
Construction of a Drain Bridge	- - In the place of a bridge destroyed in the rains of 1843.	- - Sanctioned 15th January 1845.	- - - - -	333 11 10	- - - - -	- - Constructed season 1845–46. —
Construction of Ramps in the Nullahs on the Chittagong Road.	- - These ramps are intended for the passage of cattle, with a view to the preservation of the wooden bridges.	- - Sanctioned 28th January 1846.	- - Between Chittagong and the Big Fenny River.	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 road in one month.
Calcutta to Barrackpore: Repair of the road.	- - - - - - - -	- - Sanctioned 2d September 1845.	- - From Shambazur Bridge to Pettah Ghaut.	- - - - -	57,713 15 11 ½	- - - - - - The road is to be repaired with three-inch footing.
Chittagong City: Construction of a Bridge.	- - In lieu of a bridge destroyed by inundation during the rains of 1841.	- - Sanctioned 31st March 1847.	Chittagong - -	- - - - -	1,551 - -	- - - - - - The new bridge will be of two segmental arches of 10 feet span, each versed 1 ½ of span.
Chittagong: Road to the Big Fenny River.	- - Additional flooring to six masonry bridges, to prevent their destruction by undermining.	- - Sanctioned 11th January 1848.	Big Fenny River -	1,212 9 10	1,200 8 7	—
Chittagong and Daood Kandy Road: Improvements by making Slopes.	- - The present road is cutcha, which renders it necessary that a distinct space be allotted as a berme, to serve both as a base to the slopes intervening between them and the side open drain, and as a prevention to encroachment.	- - Sanctioned 19th February 1850.	- - - -	- - - - -	78,281 13 11	- - - - - - This estimate was called for by Government on a recommendation from the Military Board of the necessity of the work.
ROADS AND BRIDGES, LOWER PROVINCES:						
Chupprah to Mootearee -	- - As a means of communication with the new civil station, established in Chumparum in 1837.	- - Length, 61 miles; estimated for in August 1839.	- - Mootearee, in Chumparum.	- - - - -	47,286 7 4	- - Its completion not reported. —
hupprah to Rewah Ghaut -	- - - - - - - -	- - Length, 22 ⅛ miles; estimate dated 4th June 1839.	- - - -	7,448 1 9	6,602 5 7	Season 1841–42. —

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, LOWER PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Colmere Ghaut to Buxar: Construction of Bridges and Drains.	-- For keeping open the communication between Ghazeepore and Dinapore.	- - - - -	Buxar - - -	- - - - - -	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 great military thoroughfare, the communication between them being always open by water; it is, however, of importance to the traffic of one of the richest and most populous districts in India, and should be kept up, if possible, from local resources.
Cachar to Munnipore - -	-- To make the communication between the eastern frontier and the Burmese country comparatively easy.	-- Length, about 93 miles; commenced in 1837.	Paiksandy, in Cachar	Abont 39,947 10 4	- - - -	-- Completed season 1842-43.	—
Chota Nugpore: Bridge over the Nullah at Dorundah.	-- For keeping up the communication in the rainy season between the military and civil stations at Dorundah.	-- Sanctioned 2d May 1842.	Dorundah - -	1,406 18 11	1,406 18 11	Season 1842 43.	—
Comillah Road: Construction of 16 new Jungle Wood Bridges.	- - - - - - -	-- Sanctioned 8th July 1844.	-- Situated between Comillah and the Big Fenny.	- - - - -	886 3 6	Season 1844–45.	—
Cossyah Hills to Assam: Repair of the Road and Bridges over the.	- - - - - -	-- Length, 85 miles; sanctioned 13th November 1844.	-- From Purreeya Ghaut to Panecgong, in Assam.	4,509 - -	4,845 11 6	-- Completed season 1846–47.	—
Circular Canal: Construction of a Paces Road along the eastern bank of the Circular Canal.	-- With a view to facilitate the communication with the Government new rum distillery.	-- Sanctioned 17th April 1850.	-- Situated between the Manicktollah and Ultadanga suspension bridges.	- - - - -	1,883 9 6	- - - -	-- This work was undertaken in furtherance of the strong recommendation of the civil officers, as well as of the Board of Customs, Salt, and Opium.
Construction of Iron Suspension Bridges over the Boga and Budnapee Torrents.	- - - - - - -	-- East Bridge, six feet in width; sanctioned 10th July 1839.	Cossya Hills - -	14,657 11 1½	14,827 14 4	- - - -	-- Although the bridges are defective in some points of construction, they are believed to be, in all essential respects, substantial and suitable. The Bogapanee bridge has one span of 94 feet between the points of suspension, with suspended approaches, one of which is 28 and the other 30 feet long; and the Burpanee consists of two spans, one of 88 feet, and the other 65 feet between the points of suspension.
ROADS AND BRIDGES, CENTRAL PROVINCES;							
Chunar to Seokroot, in the Mirzapore District.	To supersede the old road - -	-- Length, about 19 miles; estimated in September 1839.	Seokroot - - -	6,998 7 9	6,325 - -	-- Completed season 1841–42.	—

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Chanderee: Construction of a small Gaol and Cutcherry Bungalow.	- - - - - - - -	- - Sanctioned 4th January 1845.	Chanderee - -	600 - -	600 - -	- - Constructed season 1844–45.	—
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—JUDICIAL:							
Calcutta House of Correction: Construction of Solitary Cells at the.	- - Twenty-four cells have been constructed, with improved accommodation for prisoners.	- - - - -	Calcutta - - -	9,586 3 10	- - - -	Completed 1839–40 -	- - The cost has been defrayed from funds realised by the prisoners' labour. The chief magistrate considers the cells to have answered their intended object so well, that the construction of 24 additional ones is contemplated.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Cuttack Gaol Hospital: Construction of three Wards.	For insane patients - - -	- Sanctioned 23d July 1840.	Cuttack - - -	646 12 2	495 2 -	- - Completed season 1840–41.	—
Commillah: New Court Room for the Magistrate.	- - - - - - -	- - Sanctioned 5th November 1840.	Commillah - -	2,426 1 7	,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.
Calcutta Penitentiary: Construction of six Wards -	- - - - - - -	Season 1841–42 -	- - - -	30,800 - 7	32,000 8 9	- - Completed season 1842–43.	—
Alterations and additions to -	- - In consequence of defects having been discovered, which rendered the security of the prisoners was compromised.	- - Sanctioned 10th May 1843.	- - - -	2,296 15 8	2,296 15 8	- - Completed season 1844–45.	—
Calcutta Aqueducts: Setting up a Steam-engine, and alterations and enlargement of the Aqueducts, from the Reservoir at Chundpaul Ghaut to the south-west corner of Esplenade-row East.	- - To raise water for filling the aqueducts, the enlargement of the aqueducts was rendered necessary, consequent on the enlarged supply of water to be expected from the substitution of a 20 for a 10-horse power engine.	- - Sanctioned 6th January 1841.	Calcutta - -	- - Cost of setting up the engine, *Rs.* 11,074. 12. 7. Cost of new aqueduct, *Rs.* 8,194. 8. 6.	- For setting up the engine, *Rs.* 11,074. 12. 7. - - For enlarging the aquednct, *Rs.* 9,863. 11. 3.	- - Completed season 1842–43. - - Completed season 1845–46.	- - The engine, which is of 20-horse power, is valued at *Rs.* 11,008. 12. 11½., and was sent to India in 1828–29 with the saw-mill machinery; it is now transferred from the Arsenal of Fort William.
Calcutta Native Hospital: Construction of two additional 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 1841–42 -	Ditto - - -	1,317 2 -	1,317 2 -	Season 1841–42.	—
Construction of a tiled Shed at the Sudder Dewanny.	- - For the convenience of vakeels and others who attend the Court.	- - Sanctioned 19th September 1842.	Ditto - - -	1,340 4 9	1,358 5 3	- - Completed season 1843–44.	—
Calcutta Penitentiary: Construction of six Wards -	- - For civil and criminal Supreme Court prisoners.	- - Sanctioned 16th June 1841.	Ditto - -	30,800 - 7	32,000 8 9	- - Completed season 1842–43.	—
Construction of a new steam-engine house.	- - For a 20-horse power engine, transferred from the Arsenal of Fort William to the town of Calcutta.	- Sanctioned 7th September 1841.	- - Situated at the Chaund Paul Ghaut.	11,074 12 7	11,074 12 7	- - Completed season 1842–43.	

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL—*continued.*							
Calcutta Penitentiary—continued.				*Rs. a. p.*	*Rs. a. p.*		
Construction of other works connected therewith.	- - - - - - -	- - Sanctioned March 1844.	- - Situated at the Chaund Paul Ghaut.	16,252 1 7	16,252 1 7	- - Completed season 1843-44.	—
Chittagong Gaol: Additions and Improvements to.	- - In consequence of the offensive state of the gaol, the want of proper ventilation, and dampness of the floor of the gaol hospital.	- - Sanctioned 17th October 1842.	Chittagong - -	1,288 11 9	1,288 11 9	- - Completed season 1842-43.	—
Calcutta: Construction of Machinery in the House of Correction, and erection of a building.	- - To employ the power of cast-iron treadmill received from England.	- - Sanctioned 16th September 1844.	Calcutta - - -	12,292 12 7	9,674 12 10	- - Completed season 1846-47.	- - The power is intended to be applied in turning a soorkee mill and grinding corn, but neither objects have as yet been efficiently attained. The value of the treadmill made over from the Arsenal in June 1843 to the D. P. Works is 3,406 rupees. The additional machinery has proved an entire failure, the treadmill being complete in itself as an engine for punishment, and having no power to work machinery attached to it.
Filling a Tank in the House of Correction, and sinking Wells.	- - The water of the tank was represented to be in a putrid state, and threatened to affect the health of the prisoners.	- Sanctioned 7th June 1847.	Ditto - - -	- - - - -	2,801 13 -	Season 1849-50 -	- - The wells will supply water for bathing, washing, &c., while the tank can be used as heretofore for drinking and culinary purposes.
Calcutta General Hospital: Excavation of two Tanks.	- - For watering the roads in the vicinity of the General Hospital.	Season 1846-47 -	Ditto - - -	- - - - -	- - An estimate has been called for; in the meantime an annual outlay of 2,248 rupees has been authorised for the payment of bheesties for watering the roads.	- - - -	- - The excavation of the proposed two tanks will reduce the labour and consequently the outlay for the bheesties, to 1,364 rupees per annum.
Chittagong Gaol: Construction of 22 Ventilators.	- - A more thorough ventilation of the gaol being considered necessary by the local and medical authorities for the improvement of its salubrity.	- - Sanctioned 20th May 1840.	Chittagong - -	731 11 8	758 - -	- - Constructed season 1846-47.	—
Calcutta House of Correction: Construction of a Pucca Tiled Shed.	- - To replace a very old shed, which has fallen into ruin.	- - Sanctioned 19th May 1847.	Calcutta - - -	1,174 - -	1,174 6 10	- - Completed season 1847-48.	—
New Residence for the Deputy Superintendent.	- - - - - - -	- - Sanctioned 26th July 1848.	Calcutta - - -	4,437 9 10	- - - -	- - Completed season 1850-51.	—

Calcutta: Construction of Quarters for four Serjeants.	- - In compliance with a recommendation from the Chief Magistrate.	- - Sanctioned 19th May 1847.	- - Situated in the north-west corner of the Police Compound at Calcutta.	5,589 - -	5,714 7 -	- - Completed season 1849–50.	—
Comillah: Additions and Improvements to the Judge's Cutcherry.	- - The necessity of these additions was brought to notice by the Civil and Sessions Judge.	- - Sanctioned 24th September 1850.	- - - - - - - - - -	- - - - - - - - - -	9,524 11 -	- - - - - -	- - The works originally intended to be executed were two additional upper rooms, one of 41½ × 15½ and one 53 × 14½; the raising of the walls of the three old upper rooms, to make them convenient as record-rooms, and the supplying of record racks. It having been found, however, that the walls were not sufficiently strong to admit of a second story being added, it has been found necessary to construct a new Circuit House and additional record-rooms, &c.
Calcutta: Alterations and additions to the Supreme Court's House.	- - For the better accommodation of the prisoners, and separation of those confined for heinous and slight crimes.	- - Sanctioned 11th October 1850.	Calcutta - - -	- - - - - - - - - -	3,172 - 7	- - - - - -	- - The necessity for this work was brought to notice by the acting registrar.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:							
Calcutta: Alterations of a portion of the Audit Office.	To provide for a Stamp Office -	- - Sanctioned 19th May 1841.	Calcutta - - -	4,050 9 5	4,220 5 9	- - Completed season 1841–42.	—
Construction of a Portico to the office of the Sudder Board of Revenue.	- - - - - - - -	- - Sanctioned 28th November 1842,	Calcutta - - -	819 7 6	- - - - - -	- - Completed season 1843–44.	—
Erection of Sheds at the Iron Bridge Yard for 20 additional Forges.	- - In consequence of the heavy demand for iron suspension bridges from all quarters, particularly for the Grand Trunk Road.	- - Sanctioned 3d May 1843.	Calcutta - - -	5,046 1 10	- - - - - -	- - Constructed season 1843–44.	—
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—REVENUE:							
Cuttack: Revenue Survey-office and Record-rooms.	- - For the revenue surveyors and establishment.	- - Sanctioned 16th January 1838.	Cuttack - - -	2,071 9 4	2,071 9 4	- - Completed season 1839–40.	—
Cachar: Construction of a Treasury and Record-room.	- - For the reception of the treasure and records.	- - Sanctioned 16th January 1843.	Cachar - - -	195 6 4	195 6 4	- - Completed season 1839–40.	- - The smallness of the outlay was caused by the employment of convict labour.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Chunpore: Construction of a Tuhsildarry Cutcherry.	- - Rendered necessary with reference to the new settlement of land revenue in the North-Western Provinces.	- - Sanctioned season 1838–39.	In Zillah Bijnore -	3,264 - 6	- - - - - -	- - Completed season 1840–41.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Ceilsa: Repair of the Tuhsildarry Cutcherries at.	- - - - - - - -	- - Sanctioned 27th May 1840.	- - - -	4,894 15 2	- - - - - -	- - Repaired season 1842–43.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:				*Rs. a. p.*	*Rs. a. p.*		
Calcutta Mint: Construction of a Guard-house and Stabling.	To replace buildings destroyed by a storm on the 29th of April 1839.	Sanctioned season 1839-40.	Calcutta	18,850 8 10	20,626 9 1	Completed season 1840-41.	The proposed dimensions and architectural decorations were considered superior to what are usual or necessary for similar works in the place. The work is stated to have been satisfactorily done
Calcutta Treasury: Improvements at the.	To remedy the inconvenience felt for want of office accommodation.	Sanctioned 4th March 1840.			23,138 4 6		The house used for the Savings Bank is altogether removed, and a new building erected on the entire frontage between the Treasury and the Accountant-General's Offices. The new building will be carried up to the full height of the Treasury, and will provide accommodation for the General Treasury, the Accountant-General's Offices, and the Savings Bank.
Chittagong: Repairs to the Breakwater in front of the Salt Golahs.	For the safety of the salt in store during the rains.	Sanctioned 1st April 1842.	Chittagong	12,478 6 7	14,633 1 —	Completed season 1843-44.	A saving of *Rs.* 2,154. 10. 5. occurred on the amount authorised, in consequence of a reduction in the quantity, as well as in the rates of the work.
Calcutta Custom House: Construction of additional Buildings.	To accommodate the increasing trade of the port.	Sanctioned 31st March 1841.	Calcutta	20,954 — —	19,710 1 10	Completed season 1842-43.	—
Reconstructing the Import and Export Godown Sheds.	A committee report stated that the sheds were unserviceable and in a dangerous and tottering condition.	Sanctioned 30th July 1849.	Calcutta	4,756 5 6		Completed season 1850-51.	—
Calcutta General Treasury: Additions to.	To afford additional accommodation.	Sanctioned season 1838-39.		26,021 15 6		Completed season 1841-42.	—
Calcutta: Construction of a House in the Botanical Garden.	For an assistant overseer	Sanctioned 22d September 1841.		1,913 11 4	1,803 2 9	Completed season 1842-43.	—
Construction of a Record-room.	For the General and Financial Departments.	Sanctioned 26th March 1842.		4,289 15 4	4,289 15 4	ditto.	—
Raising the Floors of two Godowns.	They were subject to inundation in heavy rains.	Sanctioned 14th September 1842.		1,325 10 6	1,412 4 8	ditto.	—
New Roofing of the Circular Cottage on Room at the Mint	In consequence of some of the beams having failed.	Sanctioned 8th March 1843.			2,224 11 5½	Completion not reported.	The estimate framed is for a new roof, supported on iron beams.

Quadrennial repairs to the Government House and Out-offices.	- - - - - - - -	- - Sanctioned season 1842–43.	- - - -	26,983 14 –	26,983 14 –	Season 1842–43.	—
Construction of Lecture-rooms and School-rooms at the Hindoo College.	- - For the General Committee of Public Instruction.	- - Sanctioned March 1843.	- - - -	18,152 4 5	19,634 3 –	- - Constructed season 1844–45.	- - The expense will be borne, in nearly equal shares, by Government and the College.
Repairs to the General Treasury premises.	- - - - - - - -	- - Sanctioned 8th March 1843.	- - - -	435 11 –	—		
Calcutta Medical College: Construction of Quarters for the House Surgeon and Staff Serjeant.	- - In consequence of insufficient accommodation.	- - Sanctioned 18th September 1843.	Calcutta - - -	6,071 6 5	6,319 6 11 *Rs.* 2,000 also granted for the purchase of ground required to be added to the Medical College premises.	- - Completed season 1844–45.	—
Construction of a Verandah to the Male Hospital.	- - Under a representation of its necessity from the Council of Education.	- - Sanctioned 14th July 1843.	- ditto - - -	967 14 1	1,019 3 10	- ditto - -	- - This work was necessary to the comfort, efficiency, and internal economy of the establishment.
Calcutta Medical College: Construction of a new Dissecting-room.	- - It was considered necessary to remove the dissecting operations to a distinct building; they had been carried on in a room in close proximity to the Female Hospital and quarters of the Secondary School.	- - Sanctioned 2d October 1843.	- ditto - - -	5,119 5 7	5,119 5 7	Season 1843–44.	—
Calcutta: Additions to St. James' Church.	- - The works consist of a new wooden gallery, laying a marble floor, &c.	- - Sanctioned 15th March 1843.	- ditto - - -	4,007 3 10	- - - -	- - Constructed season 1843–44.	- - Of the amount expended, *Rs.* 2,344. 2. 9. have been recovered from the vestry of the church, such being the engagement under which the work was executed.
Calcutta Government House: Construction of an Entrance Gate.	- - To the gardens south of the building.	- - Sanctioned 14th February 1843.	- ditto - - -	851 15 3	871 10 1	- - Completed season 1844–45.	Ordered by the Governor-General.
New Supreme Court House and Insolvent Court.	- - In consequence of the existing buildings and arrangements not affording the necessary accommodation for the distribution of business.	- - Estimates called for 7th June 1842.	- - - -	- - The proposal was referred to the Home authorities, to whom the necessity for the contemplated arrangements was not apparent.	3,94,530 – –	- - - -	- - The present Court-house is a public building, valued at 80,000 rupees, and the Insolvent Court is held in an adjoining building, rented at 500 rupees per mensem.
Construction of new Salt Golahs on the banks of the creek, between the islands of Kaukra and Kissenpore.	- - - - - - - -	- - - -	- - - - -	- - - - -	16,236 2 6	- - - -	- - The estimate is for ten golahs, each calculated to hold 75,000 maunds of salt, and for a maund raised 7½ feet, 717 × 264 feet for the golahs to be built on. The excavation of the work entrusted to the officers in the Salt Department, there being no officer of the Department of Public Works available for the duty

(*continued*)

No. 6.—Statement compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Civil Buildings, South-Eastern Provinces—General—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Chittagong: 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 inconveniently situated, being separated by a large nullah from the pier at Chittagong.	Sanctioned 8th March 1843.	Chittagong	5,150 1 –	5,448 – 9 Cost of site, *Rs.* 5,000	Completed season 1846–47.	The bridging of the Nullah would have been more expensive than the building the new Custom-house.
Calcutta General Post-office: Additions to.	Represented by the Post-master-general to be indispensable, with reference to the increased business transacted in the Post-office.	Sanctioned 2d July 1845.	Calcutta	The work was suspended, the erection of an entirely new Post-office being contemplated by Government.	9,485 – –		The additions will comprise an upper room 50 × 35, a room 16 × 16.
Calcutta Medical College: Construction of additional Rooms.	For cook-rooms to the Female Hospital.	Sanctioned 28th January 1846.		551 9 1	505 – –	Completed season 1847–48.	—
Construction of a new Coach-house.	Required in lieu of the former one, which had settled and cracked.	Sanctioned 7th November 1845.		1,143 – –	1,143 – –	Season 1845–46.	—
Alterations and additions to the.	For the better accommodation of the Military Class Students.	Sanctioned 26th June 1850.			8,442 5 1		The works contemplated are to make over to the use of the students a portion of the western ward; to construct a new close flat-roofed verandah to be added along the whole of the west side, Military Class Ward, of the Medical College, 289½ × 97; to remove the doors between the proposed verandah and ward.
Calcutta Mint: Building and fitting up an Electrotype Refinery.		Sanctioned 13th December 1844.		3,510 – –		Constructed season 1846–47.	—
Calcutta Stamp-office: Construction 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 20th October 1847.	Calcutta	2,165 1 1	2,176 13 3	Completed season 1849–50.	—
Cuttack: Repairs to the School-house.	Damage was occasioned to the school-house by a fire, which occurred on the 7th of May 1846.	Sanctioned 9th September 1846.	Cuttack	865 1 4		Season 1847–48.	—
Calcutta Post-office: Construction of Sheds in the Compound of the General Post-office.	To provide residences for the distributing peons on the spot, so that their services may be available at all hours.	Sanctioned 19th May 1847.	Calcutta	2,194 11 –	2,199 – –	Completed season 1848–49.	—

Calcutta General Post-office: Construction of a Stable, Cart, and Overland Van Sheds, in the Compound of the Post-office.	- - The Postmaster-general considered the proposed works absolutely necessary for conducting the greatly increased business of the office, and more particularly of the steam branch.	- - Sanctioned 19th July 1847.	Calcutta - - -	2,505 9 11	3,107 8 9	- - Completed season 1848–49.	—
Calcutta Episcopal Residence -	- - A request of the Bishop of Calcutta to change the episcopal residence, for reason assigned by him, was complied with on the understanding that it should not involve the Government in any expense.	- - Sanctioned 31st March 1849.	Calcutta - - -	- - Value of the new palace, *Rs.* 81,718, being the purchase cost, *Rs.* 55,080. 8. 10., added to the sum expended in making alterations to the building.	- - - -	- - - -	- - A house in the Chowringhee road, lately occupied by the Hon. W. W. Bird, Governor of Bengal, has been purchased by the Bishop, and will be brought on the books as a Government building: the old episcopal residence was purchased by Government in 1838 for *Rs.* 80,000: Government, on the 15th September 1849, authorised the title deeds of this building to be placed at the disposal of the Bishop to enable his Lordship to dispose of the premises.
Calcutta: Extension of the Jetty at Bank's Hall.	- - Rendered necessary in consequence of the silting up of the river bank.	- - Sanctioned 24th July 1850.	Calcutta - - -	- - - - -	2,047 2 2	- - - -	- - The silting up of the river bank had removed the low water mark full 15 feet from the crane used by the Marine Department for landing anchors.
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Chinsurah Church: Repairs to	- - The roof, owing to the decayed state of the beams, was reported to be in a dangerous state.	- - Sanctioned 23d February 1842.	- - - -	2,674 7 1¾	2,674 7 1¾	- - Completed season 1842–43.	- - This is an old Dutch building, and is supposed to have been built in the year 1685.
Cheera Coal Mines: Construction of a Roadway.	- - For facilitating the means for the conveyance of coals from the Cheera Hills to the plains.	- - Sanctioned 5th October 1842.	Cheera - - -	- - - - -	66,584 11 -	—	
Chinsurah: Enlargement of the Burial-ground.	- - - - - - -	- - Sanctioned 15th February 1847.	Chinsurah - -	- - - - -	- - The payment of *Rs.* 2,788. 11. was sanctioned, as well as the remission of *Rs.* 25. 4., or Company's *Rs.* 26. 15., on account of annual revenue.	Season 1846–47 -	- - An estimate amounting to 452 rupees was sanctioned on the 28th July 1848, for the enclosure of the newly purchased ground.
Calcutta: Renewing the Crane at the Bank's Hall, and some of the Beams and Posts of the Jetty.	- - The crane gave way whilst an anchor of about 56 cwt. was being towed off from the jetty.	- - Sanctioned 21st July 1849.	Calcutta - - -	- - - - -	1,227 15 6	Season 1849–50.	—
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES; ECCLESIASTICAL:							
Circular Road: Purchase of Land.	For a burial-ground - - -	- - Sanctioned 28th August 1839.	- - - -	1,988 1 10	19,700 - - for grounds, and *Rs.* 2,385. 9. 5. to adapt it for the object intended.	- - Completed season 1840–41.	- - The saving of *Rs.* 397. 7. 7. within the estimated amount, is owing to the material for the pathways having been obtained from certain buildings which it was found necessary to clear off the ground purchased.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—ECCLESIASTICAL:				*Rs. a. p.*	*Rs. a. p.*		
Chittagong Church: Construction of.	- - - - - - - -	- - Sanctioned 9th October 1840.	- - - -	10,335 - -	9,947 3 3	- - Completed season 1843-44.	- - Of the amount, 3,518 rupees has been paid by Government, and the remainder (6,817 rupees) by the community and the Church Building Fund.
MARINE BUILDINGS, SOUTH-WESTERN PROVINCES:							
Calcutta: Construction of a House and Offices for the Master Attendant.	- - Residence for the Master Attendant and offices and godowns for naval stores.	- - - - -	- - - - -	- - - - -	46,000 - -	—	
MARINE BUILDINGS, LOWER PROVINCES:							
Chittagong Pier: Construction of - - - - - - - - - - - - - - - -			- - - -	6,504 14 10	6,504 14 10	Completed 1839-40.	—
Repairs to the - - -	- - In consequence of injuries done to it by marine worms.	- - Sanctioned season 1842-43.	- - - -	1,213 14 10	- - - -	- - Completed season 1842-43.	—
Chittagong: Construction of a tiled-roof Custom-house.	- - To replace a thatched shed, which is out of repair and inconveniently situated.	- - Sanctioned 8th March 1843.	- - - -	- - - - -	5,448 - 9	—	
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Arpprah: Construction of a Hazut Tuzweez Ward.	For the Magistrate of Sarun -	- - Sanctioned 24th May 1843.	Chupprah - -	4,782 - 6½	5,409 1 3	- - Completed season 1846-47.	—
Chitpore: Construction of a Thannah House near the Suspension Bridge.	- - To replace the former thatched building, which was destroyed by fire.	- - Sanctioned 7th July 1847.	Chitpore - -	1,150 15 7	1,150 15 7	- - Completed season 1847-48.	- - As the thannah at this locality has been burnt down three times during twelve years, the present estimate provides for the erection of a pucca building.
CANALS, NORTH-WESTERN PROVINCES:							
Doab Canal: Construction of five additional Falls and Locks.	For irrigation and navigation -	- - Estimates sanctioned in 1839.	- - Doab; the falls are to be at Lerkurrie, Hullalipore, Meg Chupper, Ruree, and Balpore.	52,356 8 1 The conversion of the 11 falls as locks from Belkee to Balpore, in Pergunnah Behut and Saharunpore, has been also effected at a cost of *Rs.* 21,040. 11. 7.	69,171 - - sanctioned for additional falls and locks.	- - Completed season 1840-41.	- - The raising of the banks of the Doab Canal was sanctioned in 1838-39; the cost was *Rs.* 70,644. 8. 6, and the entire length of the work done 385,152 feet; the additional bunding up of the main stream of the Jumna, in order to convey the water to the canal, puts an entire stop to the timber trade from the hills, but when the canal has been made navigable, this inconvenience will cease. The total amount expended on account of the Doab Canal, in 1840-41, amounted to *Rs.* 1,15,156. 12. 1., and the direct return to 1,65,965 rupees.
Introduction of Rajbuhas in the tract between the Canal and the River Hindun.	- - These rajbuhas are water channels, which, diverging from the main stream of the canal, flow to a considerable distance from its line, and serve to extend the irrigation to numerous villages, which could not, without much inconvenience and 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.	- - Estimates sanctioned May 1839.	- - - -	20,000 - -	20,000 - -	Season 1839-40 -	- - This sum of 20,000 rupees was placed at the disposal of Captain Cautley, for the introduction of rajbuhas, or watercourses, on a tract of land lying between the Doab Canal and the River Hindun, a great part of which had fallen to the British Government by the death of her Highness the Begum Sumroo.

Plantations of trees on the banks of the	- - - - - - - -	- - From 1839 to 1840–41.	- - - - -	14,391 12 7 Amount realised from cuttings, 10,435 rupees.	- - - - -	- - - - - - The number of trees on the banks of the Doab Canal, to 30th April 1843, was 235,327, and their value was estimated at 30,000 rupees; a sum of *Rs.* 9,872. 4. 4. had been realised by the sale of timbers.
Connexion of the, with the Dumola River.	- - - - - - - -	14th September 1839	Doab Canal - -	- - - - - -	13,800 - - sanctioned for the construction of aqueducts.	—
Delhi Canal - - - -	- - - - - - - -	- - - - -	- - - - -	- - - - - -	- - The amount of expenditure incurred on account of plantations on the banks of the Delhi Canal to the 30th April 1847, was *Rs.* 27,363. 5. 7.; the amount realised *Rs.* 52,025. 12. 6.; and the estimated value of the trees on the banks of the canal, *Rs.* 5,66,998. 5. 4. Orders, were reported in season 1848–49, for the removal of 5,746 trees; the number remaining amounted to 369,646 of different ages, and their value was estimated at *Rs.* 5,57,828. 2. 8.	—
Deyra Dhoon: Construction of a Masonry Tunnel in lieu of a wooden one on the Beejapore Canal.	- - The wooden tunnel was a source of much trouble and expense, owing to the repairs which it constantly required.	- - Sanctioned 26th September 1843.	Situated near the village of Dakra.	3,358 1 6 *Rs.* 6,244 sanctioned for the construction of falls, or masonry descents, for the passage of the waters.	2,996 14 -	- - Completed season 1844–45. —
Rajpore Watercourse - -	- - To supply pure and wholesome water to the town of Deyra for domestic purposes.	- - Length 7 ½ miles; sanctioned 8th March 1841.	- - From the hills at Rajpore to the town of Deyra.	42,984 11 9	41,207 2 4	- - Constructed season 1844–45. - - The object for which this watercourse was constructed has been fully obtained, the water running in a clear and pure stream.
Setting up of a Saw Mill - -	- - The watercourses in Deyra are stated to be peculiarly applicable to machinery of all kinds.	- - Sanctioned 11th September 1843.	At Dhurrumpore -	3,567 3 7	- - - -	- - Constructed season 1844–45. - - The cost includes the adapting of machinery to the building erected; the machinery to be applicable to vertical as well as circular saws.
Construction of 12 small Reservoirs on the Rajpore Watercourse.	- - Intended for watering the village cattle, and they will relieve the main stream intended for drinking purposes from impurities, of which it could not be kept free so long as cattle resorted to it generally.	- - Sanctioned 14th June 1844.	In the Deyra Dhoon	1,608 - -	1,608 - -	- - Constructed season 1844–45. —
Construction of 4 Corn Mills on the Beejapore Watercourse.	- - The construction of those mills will be advantageous to the Government, as well as to the inhabitants, who now carry their corn to other mills distant between four and five miles.	- - Sanctioned 15th June 1841.	- - ditto - -	2,500 - -	2,500 - -	- - Constructed season 1844–45. —

(*continued*)

No. 6.—Statement compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Canals—North-Western Provinces—*continued*.				*Rs.* *a.* *p.*	*Rs.* *a.* *p.*		
Delhi Canal:							
Masonry bridge over the Bouranee Outlet Nullah, on the Delhi Canal.	In lieu of an old bridge, two arches of which had fallen.	Sanctioned 4th October 1839.	Situated near the village of Shahpore.	2,315 3 10	3,330 9 9	Completed season 1840–41.	The savings are ascribed to the substitution of gratings at the depth of six feet, instead of cylinders, under the wing walls.
New cut for protecting the Channel, and for the security of the Dadoopore Dam.	To protect the Delhi Canal from injury by incursions of the Soance River.	Length 11,200 feet, width 75 feet, average depth 9 feet.	Delhi - - -	1,779 13 2	1,779 13 2	Completed season 1843–44.	The cut has since been widened by the action of the current to twice its original dimensions.
Protection to the west flank of the Dadoopore Dam.	For securing the right bank of the Sombe River from the attacks of the current after it leaves Baker's Cut.	- - - -	- - - -	5,005 4 1	5,632 9 10	Completed season 1849–50.	—
Bridge over the Delhi Canal at Rhudour.	To promote the traffic of the town of Rhudour.	Sanctioned 15th August 1837.	- - - -	9,577 5 2	- - - -	Completed season 1841–42.	The roadway is of timber, and is supported on masonry piers.
Construction of an Iron Suspension Bridge at Indore, over the.	With a view to the maintenance of the communication of the country.	Sanctioned 24th August 1838.	- - - -	13,267 7 5	- - - -	Completed season 1840–41.	—
New channel under the Indore Bridge.	- - - - - -	Sanctioned 24th August 1838.	- - - -	15,717 14 2	18,122 15 5	Completed season 1842–43.	The soil through which the new cut was to be excavated proved to be so saturated with water as to prevent a greater depth of excavation than four feet being attained. The action of the current has however cleared out the channel to the depth of eight or nine feet.
Construction of a Dam Bridge across a ravine at Dadoopore.	In lieu of an overfall drain bridge, which was carried away during heavy rains in 1841.	Sanctioned 15th April 1843.	- - -	- - - - -	548 15 10	—	
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 embankments, and to check the influx of silt, at a point between the pucca tank of Hissar and the village of Solumno Shekspore, where both banks of the canal are interrupted by ravines, which enter the canals at opposite points.	Sanctioned 19th June 1847.	- - - -	- - - - -	1,141 - 10	—	
Deyrah Doon:							
Construction of Corn Mills -	- - - - - -	Sanctioned 6th July 1844, and 30th August 1844.	Under the town of Rajpore.	4,938 2 -	For 8 mills, *Rs.* 5,414 „ 6 „ 3,960 *Rs.* 9,374	Constructed season 1845–46.	—
Compensation to individuals for loss of property and profit.	In consequence of the water from the old Rajpore watercourse having been turned into the masonry channel.	Sanctioned 18th May 1845. Sanctioned 24th July 1845.	- - - -	2,732 15 - 4,205 - -	- - - -	- - - -	Ten miles already constructed by Government on the watercourse, have been rented for upwards of 4,000 rupees per annum.
Reconstruction of the Dakra Aqueduct.	This aqueduct was severely damaged by heavy rain on the 27th July 1844.	Sanctioned 2d December 1844.	- - - -	1,542 10 1	1,480 - -	Completed season 1845–46.	

Repair of 13 Tanks	To making them serviceable as reservoirs for irrigation.	Sanctioned 10th July 1845.		5,004 10 7½	5,004 10 7½	Season 1845–46.	—
Doosb Canal							Total amount expended on account of canal works, including current expenses to 1st May 1847 — *Rs.* 23,20,868 11 7; Deduct value of dead stock — 8,01,983 12 2; 15,18,884 15 5; Amount realised by revenue — 14,63,196 4 11; Deficit, *Co.'s Rs.* — 55,688 — —
							The amount expended on account of plantations on the banks of the Doosb Canal, to 30th April 1847, was *Rs.* 21,182. 12 *a.* 2 *p.* The amount realised, *Rs.* 6,505. 8 *a.* 9 *p.*, and the value of the trees on the canal banks, 1,46,793 rupees.
Restitution of the Newgong Dam, and construction of a Retaining Dam.	Greatly injured by a flood on the 21st June 1841.	Sanctioned 24th March 1843.		36,694 4 5	30,745 — —	—	
Constructing the Outlets of the Head of the Puthine 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.	Sanctioned 20th September 1844.		656 9 —	661 8 8	Completed season 1846–47.	—
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.		1,871 4 6		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 26th July 1845.		6,717 6 9	6,073 — —	Completed season 1846–47.	—
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 the right bank of the Jumna, to the earthen bund on the Sombe.	Sanctioned 19th March 1846.		15,211 — —	14,647 — —	Completed season 1846–47.	—
Delhi Canal: Improvements of the Embankments of the.	With a view to confine the canal within certain limits.	Sanctioned 9th September 1845.	Near Hissar	9,290 — —	9,290 — —		In consequence of too great an economy in the original construction, the canal constantly floods the land in the vicinity of Hissar.
Delhi Canal: Construction of 20 second-class Chowkies, and furnishing Chowkies.	Necessary to enable the superintendent and his establishment to pass with convenience and rapidity along the line.	Sanctioned 1st December 1845.			6,714 — —	Season 1845–46.	—
Delhi Canal: Construction of five first-class and six second-class Chowkies.	Sanctioned, after personal inquiry as to their necessity.	Sanctioned 7th May 1845.			9,133 4 10	Completed season 1845–46.	—

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CANALS, NORTH-WESTERN PROVINCES—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Doosb Canal: Construction of three Bridges on the.	To facilitate the communication of the country. At present the villagers, with difficulty and inconvenience, ford the canals at their respective ghauts.	Sanctioned 3d April 1846.	At Admerpore, Kyampore, and Behlap, in the South Division.	4,004 – 9	4,394 – –	Completed season 1847–48.	—
Alterations to 15 Bridges on the.	With a view to give an increased and less impeded waterway.	Sanctioned 28th March 1846.	In the centre division.	7,270 3 9	8,528 – –	Completed season 1847–48.	—
Digging of the Manti Rajbeeha on the.	To give a supply of drinking water to 33 villages in the district of Seharunpore, and for irrigation.	Sanctioned 22d November 1841.	- - - -	- - - - -	An advance of 19,120 rupees sanctioned on the 22d November 1841.	- - - -	The return to the State will be about 5,500 rupees per annum.
Construction of a Dam with Bridge for.	For securing all the Doosb Canal escape water for the Delhi Canal.	Sanctioned 23d October 1841.	At Fysabad - -	13,881 3 1	13,304 – – for a bridge *Rs.*3,021. 3.	Completed season 1843–44.	This outlay will soon be repaid by the return derived from the employment in irrigation of the quantity of water now lost, and by the annual saving of the expense of temporary bunds.
Construction of Drains for irrigation.	- - - - - - -	Sanctioned 31st May 1831.	- - - -	16,221 8 2	16,376 8 2	Completed season 1841–42.	—
Doosb Canal: 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.	- - - -	20,761 11 –	13,518 5 3	Completed season 1841–42.	The estimate is exceeded by the amount of *Rs.* 7,243. 5. 9., owing to the difficulties which had to be overcome.
Construction of a third Chamber at the Rundole and Bobyla Falls.	- - - - - - -	Sanctioned season 1838–39.	- - - -	7,996 3 1	10,178 – 2	Completed season 1841–42.	There not having been any natural difficulties to overcome in this work, the charge is by *Rs.* 2,181. 13. 1. less than the sanctioned estimate.
Construction of a Fall at Behut, between the Miskarra Dam and Bekia Falls.	To lessen the velocity of the water in that part of the Doosb Canal, and its injurious effects on its bed and sides.	Sanctioned 14th March 1837.	- - - -	22,885 15 6	14,743 – 9	Completed season 1841–42.	Owing to the difficulties met with in the execution of the work, the bill has exceeded the estimate by *Rs.* 8,142. 14. 9., but no blame attaches to the executive officer.
Construction of an additional Tail to the Nowgong Dam.	Necessary for the safety of the dam.	Sanctioned 19th April 1842.	- - - -	16,486 11 9	18,000 – –	Completed season 1842–43.	This dam was almost entirely destroyed by a severe flood on the 21st June 1841.
Dadoopore Dam - -	Repair of breaches made by floods in July 1845.	Sanctioned 18th August 1846.	- - - -	1,756 6 1	- - - -	Completed season 1846–47.	—
Delhi 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 3d September 1846.	- - - -	- - - - -	9,277 – –	—	

Construction of 114 Masonry Outlets on the banks of the Canal.	- - - - - - -	- - Sanctioned season 1846–47.	- - - -	16,059 12 2	- - - -	- - Completed season 1846–47.	- - These are fitted with lever frames, lever sluice and shutters.
Dooab Canal:							
Improvement to the Romalla and Kandrauli Bridges.	- - To remedy the inconvenience experienced in the free transit of boats between Selimpore and Shamli.	- - Sanctioned 8th June 1846.	Dooab Canal - -	2,347 13 5	2,338 - -	- - Completed season 1847–48.	- - The superstructure of these bridges has been raised.
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 rain water, without these drains, would have accumulated on the upper side of the ramps, and noxious swamps have been formed.	- - Sanctioned 5th March 1847.	- - - -	- - - - -	5,174 6 -	—	
Protection of the Gundewar Bridge by a masonry Tail.	- - Considered indispensable to the safety of the bridge, which has been considered for some time past in a precarious state.	- - Sanctioned 17th December 1846.	- - - -	- - - - -	3,021 2 -	—	
Construction of a first-class Chokee at the Kharra or upper head of the Canal.	- - It was considered desirable to have a depôt for tools and stores at the head work, instead of having to depend on that at Nyaskur, the nearest first-class chokee, which is at a distance of 6½ miles from the Kharra head.	- - Sanctioned 10th December 1846.	- - - -	1,191 9 8	1,193 7 4	- - Completed season 1849-50.	—
Delhi Canal: Repair of the Madhilpore Bridge over the.	To increase the waterway - -	- - Sanctioned 23d June 1847.	Madhilpore - -	- - - - -	2,490 - -	- - - - -	- - The eastern abutment of the bridge was turned by the floods of August 1846, and as the Canal is about 20 feet wider than the length of the bridge, it is proposed to reconstruct the abutment as a pier, and to add an arch of 22 feet to the bridge.
Dooab Canal: Reconstruction of Watermill's Range.	Nos. 17 and 18 - - - -	- - Sanctioned 13th March 1847.	Delhi - - -	681 - -	681 - -	- - Re-constructed season 1847–48.	—
Delhi Canal: Formation of Road Embankments.	- - These artificial banks, constructed on low ground, confine the waters of the canal within their limits, and prevent the formation of swamps.	- - Sanctioned 19th September 1845.	- - - -	13,974 6 6	- - - -	- - Completed season 1847-48.	- - The swamps originated in too great an economy in the construction of a canal, which was led through low and broken ground without any measures being adopted to confine its water.
Construction of Buildings -	- - For a dispensary and quarters for the sub-assistant surgeon appointed to the medical charge of the canals at Dadoopore.	- - Sanctioned 17th February 1848.	Dadoopore - -	960 15 9	1,029 - -	- - Completed season 1848–49.	—
Defining the Boundary of Canal property in the city of Delhi.	- - It was impossible to recognize the boundary of the property.	- - Sanctioned 23d October 1849.	Delhi - - -	958 - -	958 - -	Season 1849–50.	—
Construction of new Chokies -	- - For the convenience and efficiency of the canal establishment.	- - Sanctioned 21st February 1850.	- - At Gungatole Narnoand, Landakherra and Kylana.	- - - - -	2,805 - -		

(continued)

No 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CANALS, NORTH-WESTERN PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Delhi Canal—continued.							
Construction of masonry Bridges.	To replace the cross bridges of wood, which were not considered sufficiently strong to bear the heavy traffic of that country.	Sanctioned 8th October 1849.	At Jooah d Chota Thannah.		For Jooah Bridge, 1,978 rupees; Chota Thannah, *Rs.* 1,062. 0. 2.	Season 1849-50	The Jooah bridge to have one arch, with a waterway of 34 feet; the Chota Thanna bridge one arch, 30 feet span.
Alteration of one mile of the Canal, between the Bridges Kuttra and Bolak Begum, near the city of Delhi.	To render the Delhi branch available for rafts and boats up to the walls of the city.	Sanctioned 24th October 1850.	Delhi		*Rs.* 7,730. 5. 2. and 1,200 rupees as compensation for the land.		The canal on its new line, will have open clear banks for inspection or preservation, instead of obstructions by old enclosures, gardens, tombs, &c.; boats and rafts will be enabled to pass down to the city walls and to the Cabul gate, through the removal of old bridges, &c.
Doaab Canal:							
Construction of masonry Heads to nine Rajbuhas.	For the protection of the banks	Sanctioned 5th June 1847.	Doaab Canal		3,631 11 —	—	
Construction of two Flour Mills on the Cardbunna and Madhoopore Rajbuhas.	In order that advantage might be taken of water-power available in these rajbuhas.	Sanctioned 5th August 1847.		2,214 7 7	2,378 2 8	Completed season 1849-50.	There is every reason to believe that the outlay will be turned to good account.
Mangoe Gardens, under the Superintendent of the Doaab Canal.	For supplying the mangoe fruit and grafts of the trees.	Sanctioned 29th November 1849.	The gardens are at Manickmew, Berkherree Dowlah, Surrowlie and Selimpore.		8,040 5 9	Completed season 1849-50.	The only garden which had reached the self-supporting stage was that at Surrowlie, which had paid 8 per cent. on the outlay. The fruit and grafts were in great demand by the natives; notwithstanding the price of the grafts had been raised from 2 annas to 6 annas, there was no diminution of the demand.
Cut to complete the drainage of the country round the town of Shamlie.	To excavate a straight channel for the Shamlie Nullah, from the escape of the Shamlie Mills to the Khern outlet cut.	Sanctioned 22d June 1848.		2,068 13 —	2,260 — —	Completed season 1849-50.	The total length of this cut is 14,476 feet; the expense of this cut, and of its future repairs, is to be charged in equal proportion to the canal and local funds.
Construction of a second Head to the Seharunpore Mill Cut.	To prevent the stoppage of the mills when the supply is cut off from the first head, to enable the workmen to clear away the silt, which is freely deposited in this channel.	Sanctioned 28th August 1847.		1,815 2 4	2,198 — —	Completed season 1849-50.	—
Construction of the Amith Mhaw Cut, with two masonry Bridges.	This cut was made to enable the natural drainage of a large tract of ground to pass freely through the canal embankments.	Sanctioned 30th May 1846.	In Pergunnah Gungo, Zillah Seharunpore.	1,436 3 3		Constructed season 1847-48.	The land thus relieved from standing water is now available for cultivation.
Dewrah Doon:							
Repairs to the Rajpore Watercourse.	The Ruspinnah River has been turned back to its old channel.	Sanctioned 12th May 1847.		1,573 — —	1,573 — —	Completed season 1847-48.	—

ROADS AND BRIDGES, SOUTH-WESTERN PROVINCES:							
Diamond Harbour and Barripore Roads: Repair of the portion between Gurriahaut 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 Calcutta.	- - Sanctioned 6th April 1841.	In the 24 Pergunnahs	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.
ROADS AND BRIDGES, LOWER PROVINCES:							
Daulpore 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 4th June 1839.	Sheerpore - -	1,592 4 –	1,592 4 –	Season 1839–40 -	This new line is taken well inland.
Doudcondy to Mungdo: Construction of 40 wooden Bridges.	- - - - - - - -	- - Sanctioned 27th May 1841.	- - Chittagong to the Ferry near Company Kattath.	3,625 6 8	3,625 6 8	- - Completed season 1841–42.	- - All the masonry bridges on this line are being repaired, great damage having been done by an unusually severe flood.
Darjeeling and Calcutta Road -	- - To perfect the communication between 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 - - -	- - The work has been performed under divisional superintendence. No general return of the amount of advances has been prepared, but so far as can be ascertained, the amount expended for road works, bridges and bungalows, to the period of its completion, has been about 95,957 rupees.	- - - -	- - Completed season 1843–44.	- - The old line of road between Berhampore and Dinagepore *viâ* Malda, has been abandoned, and a new line, 30 miles shorter, adopted. This road was reported to have been put in a perfect state of repair as a dry weather communication, and it would only require ordinary repairs after the rains of each year. It had been intended, when the road was first projected, to employ convicts extensively on it, but, owing to great sickness, the convicts were entirely withdrawn.
Darjeeling: Road from, to the foot of the Hills.	- - This work, when finished, will be eminently useful.	- - Length 33 miles and 181 yards; sanctioned 30th November 1840 and 1841.	- - Hills above Darjeeling.	- - The aggregate cost of this line was 66,829 rupees, including that of bungalows, &c.	28,396 11 2	- - Completed season 1840–41.	- - This road has been opened for foot passengers by Lieutenant Napier, of the Engineers, and is quite practicable to travellers and laden coolies. Of this line 23¾ miles are opened to the full width of 11 feet, 3 miles to 9 feet, and 6½ to 6 feet. The execution of the work has been attended with great labour. The excess of expenditure is owing to the employment of hired labour in lieu of the Sebundy sappers, a sufficient number of whom could not be spared.
Darjeeling Road:							
First Division; construction of three Bridges and six Drains.	- - - - - - -	- - Sanctioned 28th December 1841.	Berhampore - -	7,087 10 2½	7,087 10 2½	- - Completed season 1844–45.	—
Second Division; construction of Wells.	- - For the convenience of travellers.	- - - -	- - Between Burgatchee and Dinagepoor.	436 6 6	436 6 6	- - Constructed season 1842–43.	—
Construction of roads in the neighbourhood of, including the "Auckland Road."	- - For facilitating the means of communication.	- - Length about 4¼ miles; sanctioned season 1844–45.	Darjeeling - -	4,499 8 –	- - - -	- - Completed season 1844–45.	—
Construction of a wooden Bridge.	- - - - - - -	- - Sanctioned 17th September 1849.	- - Over an embanked road across the Jheel, connected with the Barrow Karry, on the south side of the Pransawgor Tank, on the Darjeeling road.	841 8 10¼	756 – –	- - Completed season 1849–50.	- - The bridge is on saul framework, of three openings of 14 feet wide by 7 feet high; the Pransawgor embankment is in length 3,309 feet, and in height 7 feet, and dams up the Barrow Karry on its northern side; the Karry passes through the embankment by a bridge, affording a waterway of 277 feet in length by 12 feet in height, and there are also two small planked drains in the bund, which, at its southern end, is annually inundated, and cut away by the rush of water which tops the embankment, owing to the waterway afforded being insufficient. This can only be prevented by the construction of the bridge.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, LOWER PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Darjeeling Road—continued. Formation of a new piece of road on the Darjeeling route.	- - In lieu of the road between Burgutchy and Godagaree, which was liable to be cut away and inundated.	- - Length 5 miles and 33 yards. Sanctioned 14th March 1848.	- - On the Darjeeling route.	1,136 9 11	- - - -	- - Completed season 1849–50.	—
Dinapore to Bankipore: Reconstructing the Pucka portion of this Road.	- - Leading from the Main Guard Bridge at Dinapore to the Parade at Bankipore.	- - Sanctioned 14th May 1845. Length 7¼ miles.	Bankipore - -	12,775 11 11½	- - - -	Completed.	—
Darjeeling Road: Dinapore to Bankipore; re-metalling of the Pucka portion of this Road.	- - This road connects the city of Patna with the cantonment of Dinapore.	- - Length about 7¼ miles from the Main Guard Bridge at Dinapore to the Parade at Bankipore. Sanctioned 17th February 1851.	Bankipore - -	- - - - -	14,363 8 -	- - - -	- - The width of the metal is 26 and 20 feet.
Repair of the road between Dum Dum and Cossipore.	- - - - - - - -	- - Length 3 miles. Sanctioned 3d December 1839.	Cossipore - -	6,776 - -	6,776 - -	- - Completed season 1839–40.	- - This is a pucka road.
Dinagepoor Bridge, over the Guggrah Nullah at.	- - Required in the place of the Creighton's Pucka Bridge, which was destroyed by an inundation in July 1841.	- - The water-way of this bridge is 191 feet in length. Sanctioned 9th January 1843.	Dinagepore - -	6,601 11 6¼	8,260 11 2	- - Completed season 1847–48.	
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Delhi to Shamlie viâ *Kurnaul*: Estimates for bridging and metalling the Road.	- - - - - - - -	- - Estimate submitted July and August 1840.	Shamlie - -	- - - - -	2,95,056 - -	- - - -	- - The work has been placed in the hands of the local civil officer; the expense to be defrayed from local funds.
Delhi: Projects for a permanent communication across the Jumna at.	- - A permanent communication at the point proposed is important in a military point of view, as it would provide the ready means of access to the city of Delhi, and the arsenal it contains, from the neighbouring cantonment 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 good means of transit for the valuable merchandize which passes through Delhi in either direction, from the east or west.	- - Submitted to the Lieutenant-governor on the 3d April 1846.	Delhi - - -	1st Scheme. By a causeway and bridge of boats: Causeway - - *Rs.* 1,50,000 Bridge of boats - 1,00,000 Total *Rs.* 2,50,000 2d Scheme. By a suspension bridge with causeway: Suspension bridge - *Rs.* 7,00,000 Causeway - - 1,50,000 Total *Rs.* 8,50,000 3d Scheme. By a masonry bridge and causeway: Masonry bridge - *Rs.* 4,50,000 Causeway - - 1,50,000 Total *Rs.* 6,00,000	- - - -	- - - -	- - The Governor-general admitted the importance of the work, but was nevertheless of opinion, that in the present state of the finances, other public works of still greater utility must have the preference.

Construction of a Causeway on both banks of the River Jumna, having two openings, each duly provided with Pucca Bridge Heads, for the passage of the waters of the river.	- - - - - - - -	- - Sanctioned 22d July 1846.	- - From the terminus of the grand trunk road at Selempore to the Negumbode gate of the city.	- - - - -	1,37,481 - -	- - - - -	- - The less expensive project of a causeway with two openings was sanctioned by the Governor-general in July 1846. The main opening having a span of 2,800 feet, the other, immediately below the Negumbode gate, of 200 feet, making a total of 3,000 feet, or allowing for the floating of 80 boats, 24 feet wide, drawing 1. 6. 0. water (assuming the main depth of the river at 8 feet), an uninterrupted waterway of 2,670 feet.
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Deeskullee Bridge over the Gungee Nullah, on the road from Benares to Ghazeepore.	- - This bridge was required in the place of one built in 1820, which, owing to an insufficiency of waterway, fell in the year 1830.	- - - - -	- - - - -	14,097 - 3	- - The immediate space will be filled by a bridge of boats, which will be formed and maintained by the Ferry Fund Committee.	- - Completed season 1841–42.	- - This bridge is of three arches, of 35 feet span each.
Decodee River: Construction of a Causeway across the.	- - To supersede the construction of a bridge which would have cost, by a rough calculation, about 40,000 rupees.	- - Sanctioned 7th October 1846.	- - - - -	7,866 3 5	7,909 - -	- - Completed season 1846–47.	- - The length of the pucca pavement is 201 feet clear roadway, of which 156 feet are level, and raised one foot above the highest dry weather stream.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Dum Dum to Baraset, repairs of the Pucka Road.	- - Forms a part of the road to Darjeeling.	- - Length 7 miles; sanctioned 15th April and 31st May 1844.	Baraset - - -	7,153 9 3	7,153 9 3	- - Completed season 1844–45.	—
Darjeeling Road: Construction of 13 Houses.	- - For the accommodation of dawkbearers, and to prevent their resorting in bad weather to the villages at some distance from the road for protection, and thus occasioning much delay and inconvenience to travellers.	- - Sanctioned 23d May 1843.	- - Between Bargatchee and Tittalya, *vid* Dinagepore.	635 6 6	- - - -	- - Completed season 1845-46.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES:							
Dhullundah Insane Hospital: Construction of Sleeping Sheds for Guards.	- - Constructed by orders to the address of the Sessions Judge of the 24 Pergunnahs.	- - Sanctioned 6th October 1848.	Dhullundah - -	1,455 11 2	1,455 11 2	- - Constructed season 1849–50.	- - This work was executed under a contract.
Construction of additional Verandahs, Cook-rooms, &c.	- - - - - - -	- - Sanctioned 25th May 1848.	- - - - -	2,528 2 10	- - - -	- - Completed season 1850–51.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Dumoh: Construction of a Fortified Gaol at.	- - - - - - - -	- - Sanctioned 16th April 1845.	Dumoh - - -	22,735 9 2	20,460 7 2	- - Completed season 1848–49.	- - Government expressed a desire that the building should be calculated for defence by a small body of men, and that provision should be made within the gaol for the occasional close confinement of all the prisoners. The new gaol has been accordingly made to consist of a centre barrack of two wards, empty bastions, with tower curtains, solitary cell, airing yard, reservoirs, drains, aqueducts, cesspools, &c. &c.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Delhi Gaol: Construction of Gaol Wards, with Cook-rooms and Guard-rooms.	- - - - - - - -	Season 1841–42 -	Delhi - - -	9,542 5 11	9,999 - 3	- - Completed season 1842–43.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Delhi Hospital	For insanes	Sanctioned 9th March 1841.		25,723 – 10 (Exclusive of *Rs.* 399. 5. for clearing and levelling a portion of the site for the asylum.)	26,063 4 1	Completed season 1846-47.	The plan provides for a main building, a separate place for convalescents, and for a garden.
Deyrah Gaol		Sanctioned 1838-39		18,553 11 6	15,808 2 7	Completed season 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 necessity he was under of purchasing bricks from the bazaar, and also to the execution of additional work.
Delhi Gaol Hospital: Construction of a new Roof.		Sanctioned 16th August 1841.		2,586 6 1	2,757 15 –	Completed season 1842-43.	—
Delhi: Construction of a new Kotewallee for the city, and a Lock-up House.	The old Kotewallee is in a dangerous dilapidated state, part having already fallen.	Sanctioned 4th April 1845.	Delhi	For the lock-up house, 2,369 10 10	For the *Rs. a. p.* Kotewallee 5,929 1 4 Lock-up house 2,446 5 – *Rs.* 8,375 6 4	Completed season 1846-47.	The execution of these works devolved on the magistrate.
Delhi Penitentiary: Additions to the.	In compliance with the orders of the Lieutenant-governor for the introduction of a capstan mill, to be worked by the prisoners.	Sanctioned 23d May 1845.	Ditto	934 4 4	1,358 10 6	Completed season 1846-47.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Dinagepore Gaol:							
Drainage and Ventilation of the.	To improve the salubrity	Sanctioned January 1840 and April 1841.	Dinagepore	3,227 10 8	3,780 – –	Completed season 1842-43.	—
Addition of 13 Skylights	Ditto	Sanctioned 28th February 1842.	Ditto	8,149 13 –	8,149 13 –	Season 1842-43.	—
Dacca Insane Hospital:							
Construction of additional Cells.	In consequence of the insufficiency of the accommodation.	Sanctioned 24th July 1843.	Dacca	1,228 5 4	1,228 5 4	Constructed season 1843-44.	—
Construction of quarters for the Native Doctor and Darogah.	Ditto	Sanctioned 26th December 1843.	Ditto			Completed season 1843-44.	—
Durrung: Construction of new Buildings.	In lieu of the existing cutcherry gaol and thannah, which are in a totally decayed state.	Sanctioned 3d November 1841.	Durrung	1,217 11 7	1,158 11 –	Completed season 1844-45.	—

Debrooghur:							
Construction of a Gaol at -	-- For the accommodation of 136 prisoners, males and females.	- Sanctioned 3d April 1843.	- - - -	6,495 1 10	6,506 5 7	-- Completed season 1844–45.	—
Construction of a Circuit Bungalow.	-- In consequence of the inconvenience experienced by the Deputy Commissioner in holding his Court, from the want of proper buildings.	- - Sanctioned 14th August 1843.	Debrooghur - -	1,160 2 11	1,746 2 6	-- Completed season 1845–46.	—
Dumoh: Construction of a new defensive Gaol.	- - - - - - -	- - Sanctioned 27th January 1844.	Dumoh - - -	- - - -	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.
Deebrooghur: Construction of a new Cutcherry.	-- In lieu of a similar one condemned by the annual Survey Committee.	-- Sanctioned 3d February 1846.	Deebrooghur - -	900 - -	5,822 1 7	Season 1847–48 -	- - The purchase of Captain Fagan's bungalow for 900 rupees, for a cutcherry, was authorised on the 9th June 1847, as the site was better than any other that could be obtained.
Dinagepore: Improvements to the Magistrate's Cutcherry, by the construction of a Room with Verandahs.	-- The insufficiency of the existing building was brought to notice by the civil authorities, who preferred the present arrangement for improving the buildings to assigning the upper apartments of the judge's old cutcherry to the magistrate, which would have been difficult of access to the poor.	- - Sanctioned 7th July 1847.	Dinagepore - -	3,766 1 6½	3,927 - -	- - Completed season 1849–50.	-- The room is to be 40 × 24 feet, with a 10 feet verandah on the east, west, and south sides.
Debrooghur: 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 unhealthy.	- - Sanctioned 12th May 1847.	Debrooghur - -	- - - - -	631 1 4	—	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Datagunge, in the District of Budaon: Construction of a Tehsildarry Cutcherry at.	- - - - - - -	- - Sanctioned 13th December 1838.	Datagunge - -	4,360 12 -	4,360 12 -	-- Constructed season 1838–39.	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Delhi:							
Improvements to the Staging Bungalow.	-- The alterations consist in the addition of new dressing and bath rooms, the construction of a verandah, and throwing a thatch roof over the flat one.	- - Sanctioned 9th April 1845.	Delhi - - -	1,849 10 -	1,849 10 -	- - Completed season 1845–46.	—
New College at - - -	-- Altering the residency buildings to adapt them for a college.	-- Sanctioned 26th November 1846.	- - -	5,099 1 3	6,242 8 6	- - Completed season 1847–48.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Dongurtal, on the road between Nagpore and Seonee: Construction of a Staging Bungalow.	For the convenience of travellers	Sanctioned 3d August 1840.	- - - -	1,068 5 6	1,075 6 1	Completed season 1841–42.	This route is much frequented by persons on their way to or from Bombay.
Dumow: Construction of a Dawk Bungalow and Out-offices.	- - - - - - -	Sanctioned 21st June 1842.	Dumow - - -	1,478 14 7	1,478 14 7	Completed season 1843–44.	—
Deares: Enclosure of the Burial-ground.	- - - - - - -	Sanctioned 26th September 1844.	On the Burdwan and Benares road.	552 10 6	612 4 –	Completed season 1846–47.	—
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Dacca College - - -	- - - - - - -	Sanctioned season 1842–43; estimate revised 16th October 1844.	Dacca - - -	33,707 14 – ½	20,568 5 10 The Government contribution not to exceed 17,000 rupees. An additional outlay of 11,874 rupees sanctioned 16th April 1844.	Completed season 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.
Construction of a surrounding Wall and Out-offices.	- - - - - - -	Sanctioned 30th September 1846.	- - - -	- - - - -			
Debrooghur Road to Jaipore: Construction of two Seraees on the.	- - - - - - -	Sanctioned 30th April 1845.	- - - -	3,137 – –	3,137 – – / 500 – –	Constructed season 1846–47.	—
Darjeeling: Construction of Staging Bungalows at Carrogolah Ghaut, Purneah and Kishengunge.	For the use of Europeans and their families proceeding from the Western stations, and from Calcutta to Darjeeling.	Sanctioned season 1846–47.	Darjeeling - -	7,500 – –	7,500 – –	- - - -	The superintendent of Darjeeling represented the very great inconvenience experienced from the want o such accommodation.
New Shingle Roof to the Church.	On the recommendation of a committee, who stated that the church wall threw out a green moss annually, probably owing to the leakage from the roof.	Sanctioned March 1847.	Darjeeling - -	650 – –	650 – –	Completed season 1849–50.	—
Dacca: Rebuilding the Enclosure of the old Burial-ground.	The old wall fell during the rains of 1845.	Sanctioned 23d September 1846.	Dacca - - -	680 – 8	- - - -	Season 1847–48.	—
Dum Dum: Repair of the Roman-catholic Chapel.	The chapel had become greatly dilapidated.	Sanctioned 8th September 1849.	Dum Dum - -	1,167 11 3 ½	- - - -	Season 1850–51 -	This church was built in 1821–22, and re-roofed in 1827–28, in consequence of the timbers having been destroyed by white ants.
Renewing the Roof of the Church.	In consequence of the unsoundness of many of the timbers.	Sanctioned in 1851 -	- - - -	- - - - -	5,681 4 10	- - - -	On the present occasion sal beams will be used instead of teak, which are to be well charred or tarred at the ends; and instead of being built into the walls, they are to be placed with open spaces all round, to facilitate inspection and removal when necessary.

Darjeeling Church: Construction of a Verandah, and repairs.	- - To protect the outer walls from the constant drizzling rain.	- - Sanctioned 7th March 1851.	Darjeeling - -	- - - - - -	2,634 2 7	- - - -	- - This church was built in the year 1844, at a cost of 9,500 rupees.
CIVIL BUILDINGS, LOWER PROVINCES—POLITICAL:							
Debroo Mookh: Grant for Temporary Buildings at the new Station of.	- - This station promises to become a place of considerable trade, being particularly convenient for many of the tea localities, and for the export of grain and cotton from Mattock.	- - Sanctioned 5th February 1840.	- - The site is on the bank of the Debroo River, near its junction with a branch of the Berhampooter River, called the Mechla Gooter, three miles up from the main stream of the Berhampooter.	2,700 - -	- - - -	Season 1839-40.	—
Darjeeling: Construction of Public Buildings at the Civil Station of.	- - These consisted of a magistrate's cutcherry, a hospital, thanah, bazaar, shops, out-offices, tanks.	- - Resolution of Government, Political Department, 23d May 1838.	- - - -	15,087 5 7	- - - -	- - Completion reported season 1843-44.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—POLITICAL:							
Dumoh: Construction of Buildings.	- - As quarters for the adjutant and non-commissioned officers of the 2d Police Battalion.	- - Sanctioned 11th March 1844.	Dumoh - - -	4,605 - 5	4,652 15 5	- - Completed season 1846-47.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:							
Delhi: Excavation of a new Tank.	- - Required in front of the Delhi Palace.	- - Sanctioned 3d February 1845.	- - On the site commonly called the Goolabaee Bagh.	25,117 7 -	22,345 3 -	- - Completed season 1846-47.	—
Delhi Palace: Repairs to -	- - - - - - - -	- Estimate submitted 27th February 1846.	Delhi - - -	6,533 12 4	50,573 - -	- - Completed season 1849-50.	- Repairs to the extent of *Rs.* 6,533.12.4. may have been executed, as the remainder was not considered absolutely necessary.
CANALS, SOUTH-EASTERN PROVINCES:							
Entallee Canal: Excavation of Mud from the bed of the.	- - - - - - -	- - Sanctioned 9th January 1843.	- - - -	3,248 15 8	3,679 15 5	- - Completed season 1844-45.	—
Eastern Canals: Clearance of the Embankments.	- - To complete the tracking communication along them.	- - Sanctioned 25th September 1843.	- - - -	3,726 11 8	4,368 11 8	- - Completed season 1844-45.	—
Entallee Canal: Excavation of Deposit from the bed of the.	- - - - - - -	- - Sanctioned 16th April 1846.	- - - -	4,470 8 -	5,172 - -	- - Completed season 1846-47.	- - The deposits which had silted up the bed of the canal have been removed, and the bed has been deepened.
ROADS AND BRIDGES, LOWER PROVINCES:							
Bridge at Ehtearpore, on the road from Jounpore to Buxar.	- - - - - - -	- - Of five arches of 20 feet span each; sanctioned 6th February 1838	- - - -	4,197 11 6	4,197 11 6	- - Completed season 1840-41.	- - The cost of this bridge will be defrayed from the funds under the management of the local agent at Shalabad.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Etawah New Gaol: New Gaol Buildings.	- - Offices for the Magistrate and Collector.	- - Sanctioned May 1840.	- - - -	26,761 14 4	13,357 5 7	- - Completed season 1841-42.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Etawah: Construction of Staging Bungalows.	- - For the accommodation of travellers.	- - Sanctioned 7th January 1846.	Etawah - - -	4,497 - -	4,647 - -	- - Completed season 1846-47.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, EASTERN SETTLEMENTS—GENERAL:				*Rs. a. p.*	*Rs. a. p.*		
Eastern Settlements: Singapore	Hospital for convicts	Sanctioned June 1837	- - - -	2,670 7 9	—		
	Market at Company Glam	- - Sanctioned January 1836.	- - - -	5,703 2 4			
	Enclosure to gaol	Sanctioned July 1836	- - - -	10,290 5 10			
				Rs. 18,663 15 11			
	New market at the Chinese Town at Singapore.	- - Sanctioned September 1834.	- - - -	23,980 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 settlement.
Fish Market: Construction of a new.	- - In consequence of the present market being liable to inundation.	- - Sanctioned season 1840–41.	- - - -	2,216 2 4	- - - -	Completed 1841–42.	—
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Road from Ferrah to Horal, on the route from Agra to Delhi; Estimate for Drains and Bridges.	- - - - - - - -	- - Length 102½ miles	Horal - - -	- - - - -	14,884 - -	- - - -	- - This work has been placed in the hands of the local civil officer at Agra, and the expense will be provided for from the local funds.
Road from Ferozepore to Shikarpore.	For a military road - - -	- - Sanctioned season 1841–42. Length 415 miles.	Shikarpore - -	11,145 9 6	- - - -	Season 1841–42 -	- - The bill for the work was submitted by Captain Hatton, attached to Shah Soojah's force.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Ferozepore: Construction of a Gaol at.	- - Undertaken in consequence of the necessity of retaining a gang of convicts to supply the place of hired labourers, of whom a sufficient number for carrying on the numerous works in progress could not be obtained.	- - Sanctioned season 1846–47.	Ferozepore - -	1,402 3 5	- - - -	- - Completed season 1846–47.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Furreedpore: Additions and alterations to the Gaol.	- - To improve the salubrity of the building.	- - Sanctioned 9th April 1845.	Furreedpore - -	4,104 10 10	3,623 11 10	Season 1848–49 -	- - The floors will be built on fines four feet from the ground; some division walls, which obstruct the free circulation of air, will be removed.
CIVIL BUILDINGS, 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 destruction.	- - Sanctioned 23d April 1847.	Futtehpore - -	- - - - -	14,009 - -	- - - -	- - The building will be constructed of pucca materials, with flat roof, and consist of nine rooms, with a surrounding verandah.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Furruckabad: Construction of Tehsildarry Cutcherries.	- - - - - - - -	- - Sanctioned 11th April 1843.	- - At Terivah and Ayrwah.	At Ayrwah 3,955 3 5	8,870 4 6	- - Completed season 1846–47.	—

Futtehpore: Enlargement of the Circuit-house to accommodate 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 17th August 1843.	Futtehghur - -	15,807 1 9¼	17,482 5 4	-- Completed season 1844-45.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
False Point Lighthouse - - - - - - - - -		-- Sanctioned season 1839-40.	- - - -	-- The breakwater has been completed at a cost of *Rs.* 2,204. 6., or 296 rupees less than the amount sanctioned.	--*Rs.* 731. 14. 5. sanctioned for plastering the building, and 2,500 rupees for a breakwater of rough stone at the eastern bund.	-- Completed season 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 interior of the lighthouse has been rendered completely habitable. The breakwater was visited by the superintending engineer of the South-eastern Provinces on the 13th March 1843, and was found quite effective in preventing an encroachment of the sea.
Faheer Point: Construction of a Lighthouse. - - - - - -		-- Sanctioned 9th November 1842.	- - - -	7,082 9 10	5,000 - -	-- Completed season 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.
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Futteeabad: Repairs to the staging Bungalow.	--Considered indispensable for the superintendent of the Bhuttana territory, and the residents at Susa.	-- Sanctioned 28th March 1842.	-- Situated between Susa and Hissar.	552 15 1	- - - -	-- Completed season 1843-44.	-- This building was erected by Major Thoresby, at a cost of 2,000 rupees, and made over by him to the Government.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Ferozepore Burial-ground; Enlargement of the. - - - - - - - -		-- Sanctioned 25th March 1846.	Ferozepore - -	- - - - -	3,894 2 -	—	
CANALS, NORTH-WESTERN PROVINCES—GENERAL:							
Ganges Canal - - - (*See* Appendix.)	-- For making the waters of the Ganges available for irrigation on the eastern side of the Dooab.	-- Suggested by Captain Cautley, in the year 1836.	-- To leave the Ganges at Kunkul and pass near to Meerut and Coel, and finally join the river Esau, near Mynpooree.	-- Estimates submitted in season 1841-42. *Miles.* Length of main line 453 „ of Futtehghur Branch 160 „ Boolundshuhur. 70 Etawah - 172 „ Cawnpore - 42½ 898½	-- *Rs.* 66,65,226, or *Rs.* 58,38,018. 10., exclusive of the sum which would be required for an aqueduct over the Solani River, which work may be avoided by taking a more circuitous route, and by crossing the Solani valley at a higher level.	- - - -	-- It will be necessary, first of all, to convey the water from the Ganges at Kunkul to Roorkee, a distance of 20 miles, by an expensive series of works, estimated at *Rs.* 19,64,376. 12., of which sum about 8,63,668 rupees is for the aqueduct over the Solani River. The estimate further provides for carrying the main branch from Roorkee to Chitoora, mean width of canal 150 feet; and thence to Cawnpore, 230 miles, mean width 90 feet, at a cost of *Rs.* 28,36,281. 0. 6.; and for four branch canals; viz., the Futtehghur Branch 160 miles, mean breadth 40½ feet, cost 6,53,667 rupees; the Tuppul Branch 70 miles, mean breadth 26 feet, cost 1,93,746 rupees; the Shekoabad Branch 180 miles, mean breadth 38½ feet, cost 7,10,097 rupees; the Allahabad Branch 100 miles, mean breadth 30 feet, cost 3,06,159 rupees. A sudden stop was put to the progress of the work in 1842, the Governor-general being desirous of applying a further test to the scientific and financial calculations on which the scheme is based. This absolute prohibition was, however, partially withdrawn on the 29th June, Government being apprehensive, that if a total stop were put to the work, the money already laid out, about 1,06,000 rupees, would be to a great degree lost; and Captain Cautley was required to confine his operations from the head to the village of Noorpoor, on a line of about 100 miles. On the 7th October 1842, Government was pleased to limit the expenditure on this canal, until further orders, to two lacs (2,00,000) per annum. In July 1844, the assignment was increased to the amount of three lacs (3,00,000) per annum, to which the Court's sanction was given in their Revenue Despatch to the Government of India, dated 20th May (No. 12) 1844. The Military Board, in their annual report for the season 1850-51, stated the amount expended up to the 30th April 1850, at *Rs.* 49,48,295. 13.
Ganges Canal: Construction of a Hospital.	-- For the native establishment and workmen of the canal.	-- Sanctioned 31st December 1845.	At Roorkie - -	1,286 1 7	873 - -	-- Completed season 1847-48.	—

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CANALS, NORTH-WESTERN PROVINCES—GENERAL—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Ganges Canal: Construction of an Inlet at Ranipore Rao.	- - This work is required at a point where the Ganges Canal crosses the Ranipore Rao, a mountain torrent, and is designed to overcome the difficulties arising from its position.	- - Sanctioned 16th July 1849.	- - Northern Division of the Ganges Canal.	- - - - - - -	16,202 - -	- - - -	- - The plan is to give the water of the Rao admission into the Canal by a masonry overfall. Great advantages are anticipated. The inlet will be built almost entirely of boulder masonry, faced with stone.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Grand Trunk Road between Allahabad and Delhi: (See paras. 3 to 12 of Court's Despatch, 30th January 1850, at pages 146 and 147 of Parliamentary Return, No. 622 of 1851.)	- - 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 through Bengal and Hindostan.	1st Division. *Mls. fgs. ft.* - - Pultah Ghaut on the Hooghly to East Burrakur River - - - - 730 4 - 2d Division. East Burrakur River to the West Burrakur River 96 2 442 3d Division. West Burrakur River to Currumnassa River - 142 - 325 4th Division. Currumnassa River to Allahabad - - - 180 6 462 5th Division. Allahabad to Bhogong, and of the Branch Road from Bhogong to Agra - - 224 7 475 6th Division. Bhogong to Ghazeeoodeennugur, and of Branch Roads from Allyghur to Agra, and from Khoorjah to Meerut - - - 254 5 510 7th Division. Meerut to Delhi, which comprises a portion of the Grand Trunk Road from Ghazeeoodeennugur to Delhi; the Grand Trunk Road prolongation, now under construction from Delhi to Kurnaul, and the new Branch Road from Meerut to Kurnaul - 179 - - From Pultah Ghaut to Kurnaul, with branches - - - 1,208 - -	- - Expenditure to 30th April 1848, 48,01,000 - -	- - The estimated amount for completion in December 1848, was *Rs.* For Roadworks - 33,02,507 For Bridge over the Soane - - - 60,00,000 For Bridge over the Jumna - - - 10,00,000 *Rs.* 103,02,507	- - - -	- - The Court, in a despatch dated 30th January (*No.* 2) 1850, observe, "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-west Provinces is sufficiently near to justify the suspension of any other portion of this great work." In season 1850-51 the formation of a firm roadway over the sandy bed of the Soane, in the 3d Division of the road, was proposed, at an estimated cost of *Rs.* 40,579. 6. 4. The breadth from eastern to western Ghaut in a straight line is 2 miles 3 furlongs and 68 yards, about 1,600 feet of which consists of shifting channels and still water, being about two miles of sandy road to be made practicable for the traffic of the country. This project contemplates a roadway of the best hydraulic concrete 3 feet deep, 12 feet broad at top, and 16 feet at base; the top surface to be level with the bed of sand, and composed of two courses of cut-stone slabs, upon a concrete base, the bed of concrete to have a slope of 2 feet at every 100 feet; an opening covered by a platform of saul wood is to be placed, fastened to longitudinal and cross sleepers, and permanently built into the concrete, to give waterway to the stream percolating through the bed. In December 1850 an outlay of *Rs.* 2,480 was sanctioned for the construction of 150 yards of causeway, on this plan, experimentally.

Continuation of, from Delhi to Kurnaul.	- -	- - In length 70 miles; sanctioned 19th February 1850.	Kurnaul - -	The Earthwork, *Rs.* 32,711 5 2	4,36,076 - -	Completed 1850–51 -	- - The earthwork of the road is estimated at 43,291 rupees, the metalling at 2,51,038 rupees; the construction of 149 drain bridges and 16 masonry bridges, with 31 arches varying from 20 to 40 feet span.
Restoration of the Iron Suspension 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 1st August 1842.	- - Situated 7 miles to the westward of Hooghly.	- - - - - -	1,189 1 7	—	
Metalling of the portion of the, within the Benares Division.	- - - - - - - -	- - Length 4 miles, 7 furlongs; sanctioned 6th October 1846.	- - - -	- - - - - -	11,774 - -	—	
Repairs to the portion from Goopeegunge to Futtehpore.	- - - - - - - -	- - Length 114½ miles; sanctioned season 1846–47.	- - - -	- - - - - -	14,482 - -	—	
Construction of a new Masonry Bridge on the.	- - Required to replace an old one, with reference to the injury done to it by a breach near it during the heavy rains of the last season.	- - Sanctioned 8th July 1846.	- - - -	- - - - - -	2,057 9 10	—	"
Construction of Wells on the	- - These wells are much required, as travellers halting at the bungalows have felt much inconvenience for the want of water.	- - Sanctioned 28th December 1846.	- - At Mirzapore and Futtehpore.	- - - - - -	1,201 6 6	—	
Raising of the Wing Walls and Parapets of Bridges, and Drains, between Futtehpore and Goorshaigunge.	- - - - - - - -	- - Sanctioned season 1846–47.	Goorshaigunge -	9,089 7 5	- - - -	- - Completed season 1846–47.	—
Renewal of a Bridge on the	- - To replace a bridge injured by a breach which occurred on the road near it, during the heavy rains of 1848.	- - Sanctioned 8th July 1846.	Grand Trunk Road -	1,791 11 11	1,791 11 11	- - Completed season 1846–47.	- - This is a bridge of two arches of ten feet span.
Iron Suspension Bridge over the Tomlah Torrent.	- - - - - - - -	Sanctioned in 1843 -	- - Situated 3 miles east of Undall.	9,168 - 10	9,168 - 10	- - Completed season 1844–45.	- - This bridge is to consist of two spans of 30 feet, and one of 90 feet, with a 16 feet roadway; and is to be constructed on the dredgian or tension principle.
Reconstruction of the -	- - - - - - - -	- - Sanctioned 15th September 1847.	- Ditto - -	9,198 12 10	9,198 12 10	- - Completed season 1847–48.	- - The bridge first constructed fell down, owing to a deficiency of waterway, and to a want of depth of foundation to the abutment piers.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES SOUTH-EASTERN PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Grand Trunk Road—continued.							
Construction of an Iron Tension Bridge over the Noonia Nuddee.	- - - - - - - -	- - Sanctioned 31st July 1847.	- - In the district of Beerbhoom.	28,223 13 –	28,223 13 –	- - Completed season 1847–48.	- - This bridge has had some standards of stonemasonry. The centre span is 150 feet, the side spans 63·7½ 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 stonemasonry of five feet span each.
Construction of an Iron Tension Bridge over the Singharra River.	- - - - - - - -	- - Sanctioned 31st July 1847.	- - In the district of Beerbhoom.	29,733 3 6	29,733 3 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.
Laying down Iron Tract Roads over the Noonia, Singharra, and Tomlah Bridges.	- - - - - - - -	- - Sanctioned 21st May 1847.	- - - -	- - - - -	2,062 4 3	- - - -	- - The tracts for each will be 16 inches wide, consisting of four plates three inches broad, with intermediate spaces of 1½ 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.
Construction of a Bridge over the Gowarree Nuddee.	- - - - - - - -	- - Sanctioned 25th September 1843.	- - In the district of Behar.	19,001 12 5½	19,001 12 5½	- - Completed season 1847–48.	- - This is a stonemasonry bridge of five arches, each 36 feet span.
Construction of a Bridge over the Danwah Nullah.	- - - - - - - -	- - Sanctioned 21st August 1843.	- - Ditto - -	16,956 12 1	16,956 12 1	- - Completed season 1847–48.	- - This is a stonemasonry bridge of four arches, each 36 feet span.
Construction of a Drain Bridge.	- - - - - - - -	- - Sanctioned 12th April 1845.	- - Situated between Barah and Muddenpore.	5,804 7 8½	5,804 7 8½	Completed 1847–48 -	- - This is a drain bridge of stonemasonry.
Construction of a Dawk Staging Bungalow.	To replace the old bungalow -	- - Sanctioned 24th March 1848.	At Jehanabad - -	4 8 3 8	1,648 3 8	- - Completed season 1847–48.	—
Metalling of the Road between the Raj Ghaut at Allahabad, and the Raj Ghaut at Benares.	- - - - - - - -	- - Length 75 miles; sanctioned 30th January 1848.	- - - - -	- - - - -	80,258 9 –	- - - -	- - The metal is to be spread of the average depth of 4·75 feet.
Joboolpore: Construction of a new Bridge on the Tension principle over the Kallee Nuddee, at	- - The old bridge was severely injured by floods on the 20th June 1842.	- - Sanctioned season 1844–45.	- - - -	- - - - -	16,517 – –	- - - -	- - The expanse of water in the valley of the Kallee Nuddee during the flood in June 1842, extended over a breadth of 3,630 feet, and the water-way of the bridge proved insufficient for the passage of this large volume of water. The entire bed of the Nullah under the arches was swept away, and the piers of the bridge, being undermined, subsided.

Googree: Construction of a Staging Bungalow at.	- - - - - - - -	- - Sanctioned 27th June 1846.	- - - -	2,403 7 9	2,403 7 0	- - Completed season 1846–47.	—
ROADS AND BRIDGES, 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 communication, being a continuation of the road from Bengal, by Gowalparrah and the Cossyah Hills, to this Province.	- Length 32¾ miles; sanctioned 10th August 1842.	Kulling River - -	6,585 2 3	9,962 1 –	- - Completed season 1844–45.	- - In this estimate provision is made for 32 bridges of masonry, and 118 of wood. The saving on the estimate is owing to a reduction in the rate, and also in the quantity of work contemplated.
Gya Roads: Annual repairs, 1842–43.	- - - - - - - -	*Miles.* - From Gya to Jehanabad on the Patna road 30 From Gya to Shergatty on the Trunk road 22 From Gya to Surwah on the Trunk road - 20 *Miles* 72	- - - -	2,132 5 7½	1,911 6 7	- - - - -	- - Of this extent of road, 15 miles are kept in repair by the Gya convicts, and accordingly provision is not made in the estimate for repairing the same.
Golar Ghaut to Bor Pathor, through Nagara.	- - The opening of this road will, it is considered, afford the most effectual means of opening an intercourse with and controlling the Nagas.	- - Length, about 30 miles; sanctioned 24th August 1844.	Bor Pathor - -	800 – –	800 – –	- - Season 1844-45.	—
Gyah Roads:							
Construction of a new line from Doobeen to Gyah.	- - It is contemplated to abandon the two existing lines of road which branch off from the Grand Trunk Road towards Gyah, the one from Shergotty, and the other from Surwah. 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 considerable cost.	- - Length, about 21 miles; sanctioned 20th August 1845.	Doobeen - - - - - - - -	89,895 – –	- - Completion not reported.	- - The old line of communication from Gyah to Jenahabad (29 miles), and from Jenahabad to Patna (about 30 miles), will not be changed.
Construction of two Drain Bridges.	- In lieu of two others destroyed by floods in August 1848.	- - Sanctioned 10th October 1849.	- - On the road leading from Patna to Jehanabad.	- - - - - -	1,080 3 10	- - - - -	- - The estimate for annual repairs, and repairing the damage done by the floods of June and August 1848, amounted to *Rs.* 3,057. 12.
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Great Deccan Road:							
Metalling of the - - -	- - In consequence of the great wear and tear on the.	- Length, 245 miles; sanctioned 28th September 1840.	- - From Telwarra Ghaut, between Jubbulpore on the Nerbudda, and Mirzapore on the Ganges.	83,924 10 5	86,820 15 4	- - Completed season 1843-44.	- - This road was originally constructed by Major Drummond. A sum of 8,180 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: on the 4th January 1850 an estimate of 25,703 rupees was sanctioned for raising and metalling the Kutchee portion of the road. (*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, CENTRAL PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Great Deccan Road—continued. Construction of a Bridge over the Karoundah Nullah.	- - In consequence of the traffic of the country being much obstructed by the bed of the nullah, which is almost impassable during the rainy season.	- - Sanctioned 19th January 1849.	- - - -	846 6 7	521 0 8	- - Completed season 1849–50.	This bridge is of 10 feet span.
Construction of a Stone-masonry Bridge.	- - - - - - - -	- - Sanctioned 3d August 1848.	- - Across the Harzong Nullah.	630 2 9	630 2 9	- - Completed from 1849–50.	This is a bridge of 12 feet span.
Construction of a line of Road from the top of the Lohagee Pass to its junction with the Great Deccan Road.	- This line of road is the shortest route from Allahabad to the Saugor and Nerbudda Territories, and it appears that whatever traffic exists between Allahabad and the above territories is carried on *viâ* Mirzapore, which route increases the natural distance some 70 miles.	- - Sanctioned 8th February 1850.	- - At a village called Mungowah.	- - - - - -	36,828 9 -	- - - - -	- - The whole distance from the Great Deccan Road, near Mungowah, to the river Jumna is 58 miles, 7 furlongs, and 167 yards. Of this length 34 ½ miles have been already constructed, that is, from the Jumna to the top of the Lohagee Pass; the remaining portion is now sanctioned, including 19 viaducts.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL.							
Gyah: Construction of two Record Rooms.	- - For the records of the officers of the judge and of the collector.	- - Sanctioned 2d April 1837.	- - - -	6,750 12 3	- - - -	- - Completed 1840–41.	—
Gowhatty: Construction of Buildings -	- - For a cutcherry for the collector and magistrate.	- - Sanctioned 4th January 1842.	- - - -	6,705 3 6	6,036 5 10	- - Completed season 1843–44.	—
Construction of temporary Gaol Buildings.	- - To replace buildings burnt down on 4th April 1840.	- - Sanctioned 12th February 1841.	- - - -	1,150 8 5	1,301 10 10	- - Completed season 1841–42.	—
Construction of a Record Room	- - For the records of the Commissioners' office.	- - Length 50 feet by 20 feet; sanctioned 16th January 1838.	- - - -	- - - - -	2,526 5 7	—	
Construction of a Treasury Room.	- - For the use of the Commissioners' office.	- - Sanctioned 4th January 1841.	- - - -	902 6 6	- - - -	- - Completed season 1841–42.	—
Goralparrah (Lower Assam): Construction of a Cutcherry for the Magistrate.	- - To replace an old cutcherry of temporary materials, which was in a dilapidated state.	- - Sanctioned 5th December 1837.	- - - -	3,506 9 -	- - - -	- - Completed season 1841–42.	—
Reconstruction of the Gaol Buildings.	- - In consequence of the decayed state of the present temporary gaol buildings.	- - Sanctioned 29th December 1842.	- - - -	3,015 3 4	3,425 3 6	- - Completed season 1844–45.	—
Gowahatty: Erection of a Wall round the Gaol.	- Proposed by the Commissioners, to save the expense of keeping the bamboo fences in good order.	- - Sanctioned 20th May 1844.	Gowahatty - -	2,166 6 9	2,210 10 -	- - Completed season 1845–46.	—
Gyah: Construction of an additional Room to the Judge's Record Office.	- - - - - - - -	- - Sanctioned 11th September 1844.	Gyah - - -	1,141 - 8	1,141 - 8	- - Completed season 1845–46.	—

Gowalparrah Gaol: Construction of Cook-rooms of masonry.	- For the convicts and their guards, in lieu of similar buildings of inflammable materials.	- - Sanctioned 6th August 1845.	Gowalparrah - -	2,812 14 3	2,812 14 3	- - Completed season 1845–46.	
Gowahatty: Addition to the Commissioners' Cutcherry.	- - To afford shelter to the people attending court.	- - Sanctioned 5th November 1845.	Gowahatty - -	602 4 4	602 4 4	- - Completed season 1846–47.	—
Construction of a new Record Room for the Collector and Magistrate.	- - The necessity for this work was brought to notice by the civil authorities, who suggested that a room be built over the existing treasury and record room.	- - Sanctioned 19th May 1847.	Gowahatty - -	3,527 12 5	3,454 7 3	- - Completed season 1849–50.	- - The estimate provides for a new building, as the house would not have borne the weight of an upper story.
Gowahatty Gaol: Construction of a Criminal Ward.	- - To replace an existing ward reported by the Commissioners of Assam to be dilapidated beyond repair.	- - Sanctioned 12th May 1847.	Gowahatty - -	- - - - - -	1,768 7 6	—	
Gyah: Construction of a Cutcherry.	- For the Principal Sudder Ameen and additional Moonsiff of Behar.	- - Sanctioned 22d March 1848.	Gyah - - -	- - - - - -	1,618 - -	—	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Goorgaon: Construction of a Cutcherry with Out-offices.	- - For the collector and magistrate; the construction of this cutcherry will do away with the renting of buildings, stated by the local officer to be inconvenient and ill-adapted.	- - Sanctioned 27th November 1847.	Goorgaon - -	11,188 15 8	11,465 5 8	- - Completed season 1849–50.	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Gunour: Construction of a Tuhsildarry Cutcherry.	- - - - - - - -	- - Sanctioned season 1838–39.	In Zillah Budaon -	4,581 15 3	- - - -	- - Completed season 1841–42.	—
CIVIL BUILDINGS, LOWER PROVINCES—REVENUE:							
Gya: Construction of a Covered Passage from the Collector's Cutcherry to the Record Office.	- - On a representation of the Sudder Board of Revenue, to the effect that the room in which the treasurer transacted his business was inconveniently small, and that the treasury was at a considerable distance from the record office, in going to and fro, by which the Collector and his officers were exposed to rain and snow.	- - Sanctioned 5th January 1850.	Gya - - -	- - - - - -	887 4 2	- - Completed season 1849–50.	- - The new passage is 340 feet by 8 feet, with wooden posts and tiled roof.
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Ghazeepore: Construction of a Guard-room to the Collector's Cutcherry.	- - In consequence of the insufficiency of accommodation for the guard.	- - Sanctioned 25th May 1844.	Ghazeepore - -	575 4 2	575 4 2	- - Completed season 1844–45.	—
CIVIL BUILDINGS, CENTRAL PROVINCES--GENERAL:							
Ghazeepore: Extension of the Godown accommodation in the Opium Factory, and Bungalow for the use of the First Assistant.	- - - - - - - -	- - Sanctioned 1st May May 1839.	- Ditto - - -	11,884 - -	- - - -	- - Completed season 1841–42.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL—*continued.*							
Ghazeepore—continued.				*Rs. a. p.*	*Rs. a. p.*		
Construction of an Opium Godown at.	- - Required in lieu of one built in 1835-36, which was reported to be in ruins.	- - Sanctioned 10th September 1845.	Ghazeepore - -	2,357 8 3	2,314 14 11½	- - Completed season 1846-47.	- In 1850-51 a sum of *Co.'s Rs.* 091. 5. 8. was expended in renewing the terrace of the caking godown.
Construction of a Bungalow and Out-offices at the Opium Factory.	- - For the second assistant to the superintendent at the factory.	- - Sanctioned 17th September 1845.	- Ditto - - -	- - - - - -	1,275 - -	Season 1845-46.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Great Savage Rock: Construction of a Lighthouse on the.	- - This lighthouse will enable vessels of a certain draught of water to cross the bar of the river during the night.	- - Sanctioned 9th November 1842.	- - -	33,587 10 4	33,425 8 7	- - Completed season 1843-44.	- - The lantern was first lighted on the night of the 7th March 1844: *Rs. a. p.* Cost of lighthouse - - 33,587 10 4 Buildings attached - 1,501 9 6 Lantern - - - - - 15,000 - - *Rs.* 50,089 3 10 The total cost of the structure, including a building for establishment and stores, has been *Rs.* 50,089. 3. 10.
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Ghazeepore: Enlargement of the Burial-ground.	- - The necessity of its enlargement was brought to the notice of Government by the local authorities at Ghazeepore, through the Archdeacon.	- - Sanctioned August 1843.	Ghazeepore - -	1,527 3 4	1,527 3 4	Season 1843-44 -	- - A space of 300 by 330 has been added.
Goolzarbaugh: Construction of a Boundary Wall to the Opium Godown.	- - Considered necessary for the security of much valuable property from fires and plunderers.	- - Sanctioned 3d December 1845.	Goolzarbaugh - -	4,882 14 3	5,170 - -	- - Completed season 1846-47.	—
Gyah 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 3d September 1845.	Gyah Road - -	611 - -	611 - -	- - Completed season 1845-46.	—
Gowahatty:							
Rebuilding the top of the Spire of Christ's Church.	- - Fractured by a shock of earthquake on the 18th June 1846.	- - Sanctioned 12th February 1847.	Gowahatty - -	187 7 10	200 - -	- - Completed season 1847-48.	- - Twelve zinc pipes, 2½ inches in diameter, were put up in season 1849-50, to carry the water off the roof to the ground outside the building.
Rebuilding of the Gaol Hospital.	- - Ditto - - -	Ditto - - -	- Ditto - - -	151 1 3	- - - -	- - Completed season 1847-48.	—
Gyah: Construction of an additional Opium Godown.	- - In compliance with the opinion of the Board of Customs, Salt and Opium, in regard to the necessity of the proposed outlay.	- - Sanctioned 13th March 1848.	Gyah - - -	3,907 15 7	2,776 10 3	- - Completed season 1849-50.	- - A supplementary estimate was sanctioned on the 5th February 1850, in consequence of the insufficiency of the rates assumed in the first estimate.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:							
Gwalior Hospital	For the sick of the escort of the Resident.	Sanctioned 6th April 1840.	Gwalior	2,128 2 8½	2,638 15 7	Completed season 1843–44.	—
EMBANKMENTS, SOUTH-EASTERN PROVINCES:							
Hidgellee:							
				Rough estimate for renewing and strengthening the embankments	2,93,039		On the 27th April 1850, whilst measures were in progress for the improvement of the embankments, Hidgellee was visited by a severe storm; the whole of the sea bunds were overtopped and extensively damaged, the country being inundated. The reconstruction of the embankments on a proper scale is being carried on (1851) with the utmost vigour under Captain Fagan, of the Engineers.
Re-construction of the Sea Bunds.	To protect the country from inundation.	Sanctioned 10th January 1851.		General estimate, embracing embankments of larger section, and assuming a very low rate for the work to be executed	5,54,255		
Embankments in the Russulpore River Frontage.	For the protection of large tracts of resumed lands in Hidgellee.	Length 56 miles; sanctioned 6th November 1841.			11,648 11		The length of the embankments in the Hidgellee division in 1839–40 was 1,046 miles, and the estimated cost of annual repairs in 1850–51 amounted to upwards of 24,500 rupees. In this division 12 sluices have been sanctioned in the Soojamote Pergunnah, which is under the management of the Court of Wards.
Construction of a new Line of Bunds in Pergunnah Khadar.	For the protection of the Government estate of Bolakeepore.	Length 2½ miles; sanctioned 25th April 1842.		3,314 5 8	3,163 7 6	Completed season 1843–44.	—
Excavation of the Koonjpore and Mirzapore Khalls.		Length 8 miles; sanctioned season 1843–44.		3,645 5 9	3,680 6 2½	Completed season 1847–48.	The width of these khalls varies from 72 feet to 30 feet throughout.
Excavation of Patgoda Canal		Sanctioned season 1843–44.			4,030 10 —	—	
Drainage of the Jellamootah Pergunnah.	The work is stated to be indispensable to the prosperity of the cultivation of the Pergunnah.	Sanctioned 6th 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 two miles and 495 feet, and its average height is nine feet; sanctioned 20th September 1844.	At Kusbah		3,300 3 2½	Its completion not reported.	—
Construction of new Bunds	For the protection of the resumed mehals of Ustiacool and Bunderbooriah.	Length, four miles and five furlongs; sanctioned 15th January 1845.	Situated at Pergunnah Paharpore.	1,003 2 5¾	1,003 2 5¾	Completed season 1845–46.	—
Construction and repair of Bunds on resumed estates.	For the protection of resumed estates, and with a view to increased cultivation.	Length, three miles and one furlong; sanctioned 13th January 1845.	In Pergunnah Nurroomootah.	1,352 13 —	1,389 6 —	Completed season 1846–47.	—

(continued)

No. 6.—STATEMENT *compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
EMBANKMENTS, SOUTH-EASTERN PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Hidgellee—continued.							
Construction of five Inspection Bungalows.	For the use of inspecting officers	- - Sanctioned season 1849–50.	- - In the Hidgellee Division.	- - - - -	3,533 6 7	- - - -	- - *The inspecting officers will be required to be constantly on the embankments, checking the works in progress, and seeing that it is fairly and efficiently executed.*
CANALS, SOUTH-WESTERN PROVINCES:							
Hidgellee Canals: Deepening of a Khall leading from Tauropukeriah to Kullynuggur, on the Huldee 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 15th May 1839.	- - - -	- - - - -	23,138 - -	—	
CANALS, NORTH-WESTERN PROVINCES:							
Hallalpore and Moy Chupper: Repairs of the Falls and Bridges.	- - With a view to the Doab Canal being hereafter used both for irrigation and navigation.	- - Sanctioned season 1838–39.	On the Doab Canal -	20,725 - -	17,479 - -	Completed 1840–41 -	- - *An excess of Rs. 3,247. 15. 11. has been incurred in their execution, owing to the renewal of the old bridges entirely, and a greater depth and solidity having been given to the foundations, with reference to the unfavourable nature of the soil.*
ROADS AND BRIDGES, LOWER PROVINCES:							
Hajeepore to Kurrunjah, on the Mozufferpore Road.	- - To supersede the old road to Mozufferpore *vid* Persa Ghaut.	- - Estimated January 1840.	Kurrinjah - -	- - - - -	40,686 12 1	- - - -	- - *This work does not appear to have been carried out.*
Hazareebaugh: Construction of Drains, &c., on the Road from, to the Grand Trunk Road.	- - This road connects the military station of *Hazareebaugh* with the Grand Trunk Road at Barria.	- - Sanctioned 2d April 1841.	Grand Trunk Road -	3,707 14 8	3,753 15 5	- - Completed season 1841–42.	—
Hazareebaugh and Dorundah: Construction of a new Line.	- - To improve the facilities of communication, and will prove a great convenience to the men of the Ramghur battalion.	- - Sanctioned 30th August 1850; length, 62 miles, 2 furlongs, and 500 feet.	Dorundah - -	- - - - -	21,910 - -	- - - -	*This is to be made a fair-weather road.*
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Hazareebaugh: Construction of a Stone Bridge over the Aurah Nuddee.	- - - - - - - -	- - Sanctioned 16th October 1843.	- - - -	5,029 - 7	5,029 - 7	- - Completed season 1846–47.	- - *This bridge has three arches of 20 feet span.*
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Hindun Bridge:							
Proposal for converting it into a Suspension Bridge.	- - - - - - - -	- - - - -	- - - -	- - - - -	1,45,577 10 2 Including the expense of metalling the portion of the Grand Trunk Road between the bridge and Sehinpore, near Delhi.	- - Completed season 1845–46.	- - *This bridge was thrown open to the public on the 26th August 1845.*

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 28th May 1847.	- - - - -	- - - - -	546 3 2	-- Completed season 1847-48.	-- The pooling appears to have arisen from the set of the current having turned against the eastern abutment of the bridge, and the outlay was necessary to prevent further damage.
Hydramal Bridge, over the Kallee Nuddee: Metalling the Causeway of.	-- The metalling had worn out, and the roadway surface had sunk generally so much as 9 inches below the mouth of the drain.	-- Sanctioned 14th May 1844.	- - - -	3,620 15 -	- - - -	-- Completed season 1844-45.	-- The expenditure was incurred for carting kunkur. The labour was performed by convicts.
Hindun Causeway: Construction 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.	- - - -	- - - - -	702 9 11	—	
Hurreepore: Construction of an Iron Suspension Bridge over the Gumbheer River.	-- To replace a Shakespearian Bridge, reported unworthy of further repair.	-- Sanctioned 26th July 1844.	-- To be one span of 120 feet, with breadth of roadway 7 feet; situated about 6¼ miles from Subathoo.	21,712 13 3	10,721 10 6	-- Completed season 1847-48.	-- This sum exceeds the authorised estimate by about 10,000 rupees, in consequence of the necessity of restoring certain parts of the abutments and revetments, which were injured by the floods; also, in part, by carrying the foundations of the abutments to a greater depth than was originally intended, and by the construction of an additional wing wall, up-stream.
Hurdwar viâ *Roorkie to Seharunpore*, Construction of a Road.	-- For the good of the trading community, and for the benefit of the Ganges Canal. By the proposed road, lime, timber and bricks may be conveyed to the works on the canal.	Length, 42 miles -	Seharunpore - -	- - - - -	14,700 - -	- - - -	-- The Seharunpore Local Committee have assented to bear the whole cost; the money will be advanced by Government, the committee returning it by instalments of 2,000 rupees per annum. This work was projected by Lieutenant Strachey, an executive officer of the Ganges Canal, and its execution will be entrusted to him.
Hindun Bridge: Completion of the Causeway leading to the.	- - - - - - - -	-- Sanctioned 16th March 1847.	- - - -	5,862 6 11	5,862 6 11	-- Completed season 1847-48.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Hyderabad: Conversion of an inclosure into a temporary Civil Gaol.	-- At the recommendation of the Governor of Scinde.	-- Sanctioned 8th August 1844.	Hyderabad - -	- - - - -	1,598 13 4	Not reported - -	-- The gaol will consist of three flat roofed wards, with guard rooms and out offices.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Hazareebaugh:							
Purchase of an Estate, the property of Major Bird, for a Cutcherry for the Principal Assistant Commissioner.	-- The existing cutcherry was represented to be quite inadequate for the accumulated records, and to be too confined for the large number of persons constantly in attendance.	-- Sanctioned 25th January 1841.	Hazareebaugh -	3,500 - -	- - - -	Season 1841-42 -	-- The estate is beyond the limits of cantonments.
Construction of a Gaol at Hazareebaugh.	For civil and criminal prisoners -	- Sanctioned 8th May 1838.	- Ditto - -	4,609 7 - ½	4,609 7 - ½	-- Completed season 1842-43.	-- The buildings of this gaol are of a temporary nature. A hospital and wards for females are included amongst the buildings which have been constructed.
Purchase and alteration of a Bungalow as a Cutcherry for the Principal Agent, Governor-general.	-- Rendered necessary in consequence of the Government cutcherry bungalow having been appropriated to the use of the ex-Ameers of Scinde.	-- Sanctioned 24th January 1845.	- Ditto - -	3,772 8 0	3,772 8 0	Season 1845-46.	—

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL—*continued*.				*Rs. a. p*	*Rs. a. p.*		
Hooghly Gaol:							
Supply of Water to the -	For the use of the prisoners -	-- Sanctioned 25th February 1846.	Hooghly - - -	2,082 9 4	2,184 - -	-- Completed season 1846–47.	—
Construction of two Cooking Sheds and Ventilators.	-- The removal of the present cooking sheds was necessary to prevent the escape of the prisoners; and the other sanitary works were considered essential.	- Sanctioned 21st July 1847.	- Ditto - - -	1,725 5 8	1,602 10 8	—	
Judicial Buildings - -	-- The necessity for new buildings was brought to notice by the superintending engineer.	- Sanctioned 2d September 1850.	- Ditto - - -	- - - - -	5,256 5 4	—	
Hazareebaugh: Transfer of the European Hospital to the Judicial Department.	For the confinement of prisoners	-- Sanctioned 1st December 1847.	Hazareebaugh -	- - - - -	1,889 2 11¼	- - - -	-- This arrangement will obviate the necessity there would otherwise have been to enlarge the Kishenpore Gaol.
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Hoshungabad Gaol:							
Construction of additional Wards.	-- The existing buildings, for want of space, admit of no classification or internal goal discipline.	-- Sanctioned 9th March 1846.	Hoshungabad - -	6,411 3 2	6,094 - -	Completed in 1849.	—
Construction of a Hospital and additional Wards.	-- To provide additional space in consequence of frequent complaints of over-crowding.	-- Sanctioned 3d July 1847.	- Ditto - -	11,589 - -	14,073 - -	-- Completed in season 1850–51.	-- Notwithstanding the accommodation afforded by the two new wards, completed in 1849, the increase of number above accommodation had been such that scurvy and other gaol diseases had been generated, and had occasioned a heavy monthly mortality.
Hoshungabad: Restoration of the Peshkarree Cutcherry.	-- This cutcherry was destroyed by fire on the 27th May 1846.	-- Sanctioned 2d February 1847.	- Ditto - -	580 - -	- - - -	Season 1847–48.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Hoshungabad: Construction of a Peeskar's Cutcherry.	- - - - - - -	- Sanctioned 26th December 1838.	- Ditto - -	1,074 8 6	- - - -	-- Completed season 1841–42.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Howrah: Extension of the Burial-ground.	- - - - - - -	-- Sanctioned 14th March 1842.	Howrah - - -	855 - 6	- - - -	-- Completed season 1842–43.	-- A space of about 175 × 170 has been taken in and enclosed.

CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Hooghly River: Construction of two Obelisks on the.	-- The actual necessity of these beacons was pointed out by the marine authorities.	-- Sanctioned 20th May 1844.	-- One at Canterbury Point, the other at the mouth of the Hog River Creek.	1,237 4 10½	2,003 12 5	-- Completed season 1845–46.	-- The obelisk at Canterbury Point is to be 50 feet, and that at Hog River Creek 40 feet in height.
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Hattrass: Repairs and improvements to Hardingunge.	- - - - - - - -	-- Sanctioned 26th July 1841.	Hattrass - - -	3,339 15 7	4,006 1 7	-- Completed season 1843–44.	—
CIVIL BUILDINGS, LOWER PROVINCES, POLITICAL:							
Hazureebaugh: Repair of Buildings.	-- Purchased for the accommodation of the ex-Ameers of Scinde.	-- Sanctioned 17th January 1845.	- - - -	529 5 8	529 5 8	-- Completed season 1845–46.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:							
Hawalleagh: Purchase of three Bungalows.	For exiled Hill Ryots - -	--Sanctioned 23d August 1849.	Hawalleagh - -	2,700 - -	—		
CANALS, NORTH-WESTERN PROVINCES:							
Intally Canal: Excavation and clearance of.	- - - - - - -	-- Sanctioned 14th April 1840.	- - - -	3,406 9 5	-- An estimate for its clearance, amounting to *Rs.* 5,151. 12. –, sanctioned 20th February 1851.	-- Completed season 1840–41.	—
EMBANKMENTS, SOUTH-EASTERN PROVINCES:							
Jeekoorkhally: Construction of a New Line of Dobundy in the Dooroo Pergunnah.	-- For the safety and protection of the country, the existing bund having been encroached on by the sea.	-- Length, 1 mile and 400 feet; sanctioned 15th May 1849.	- - - -	- - - - -	863 4 3	- - - -	-- It would seem advisable to throw the embankments back at least 1,000 yards from Kumarpore or Joonpoot to a point north of Singaree.
Jumna River - - - -	-- Improvements to the navigation of the.	—					
Plantations on the Banks of the Canals west of the Jumna River.	- - - - - - -	-- From 1830 to 1st January 1841.	Jumna Canals - -	4,10,626 - -	-- Since 1830 an average yearly outlay of 2,000 rupees has been incurred in rearing plantations. The amount realised by the sale of cuttings from these trees has been 19,966 rupees, and the amount expended, 22,426 rupees.	- - - -	-- They consist chiefly of baboul, toon, saul, and sissoo, which, when they arrive at maturity, will yield a very profitable return.
Plantations on the Banks of the Eastern Jumna Canals.	- - - - - - -	-- Sanctioned 14th November 1849.	Jumna Canals - -	3,000 - -	3,000 - -	Season 1849–50 -	-- The total amount of expenditure up to the 30th April 1849 was *Rs.* 27,865. 5. 9., and the amount realised from the sale of the produce, *Rs.* 20,646. 15. 9.; the estimated value of the trees on the banks of these canals was *Rs.* 1,48,408. 8. –, the number of trees, 206,817, of different ages.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
EMBANKMENTS, SOUTH-EASTERN PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Jumna Bund: Repair and extension of the.	For the purpose of relieving the Jumna New Cut and Bund from a portion of the flood-water, and clearing out the mouth of Blanc's Cut.	Sanctioned 3d April 1837.	- - - -	Not reported - - -	10,363 11 1	—	
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Juggernauth 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.	- - - - - - - -	Built by Lieutenant Schalch many years ago; repairs sanctioned 20th July 1841.	In the Balasore Division.	3,088 14 6¼	2,773 - -	Completed season 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 forward, or to the ground links not having been firmly built into the masonry at first.
Repairs to the Foolnackra Bridge, in the Cuttack Division of this road.	Damaged by a flood on the 2d October 1842.	Sanctioned 5th June 1843.	- - - -	1,399 11 9	1,399 11 9	Completed season 1843-44.	—
Construction of a Drain Bridge in the Balasore Division at Ummerrah.	To supply the place of a four feet drain, which was carried away by a flood in September 1841.	The new drain is of 8 feet span.	- - - -	579 10 7	- - - -	Completed season 1842-43.	—
Renewal of the wood-work of the Iron Suspension Bridge at Kuddum Khandee.	- - - - - - - -	Sanctioned 3d October 1842.	- - - -	886 11 5	902 2 1	Completed season 1843-44.	—
Construction of a new Drain Bridge on the.	This drain is much required at the spot, which is cut every year by the ryots to let off the water from their fields.	Sanctioned 23d October 1843. This bridge is to be of 8 feet span.	At Dysurrah - -	313 3 3	313 3 3	Completed season 1843-44.	—
Construction of a New Bridge near the present Noonajoory Bridge.	With a view to the preservation of the Juggernauth Road, which, at the site fixed on for the new bridge, was constantly liable to be cut through by the floods of the country.	Sanctioned 27th August 1844.	- - - -	11,094 2 4	16,856 4 9	Completed season 1846-47.	This is a bridge of five arches, viz., two of 22 feet, two of 24 feet, and one of 26 feet span. A saving of *Rs.* 5,762. 2. 5. has been effected by a reduction in the quantity of masonry, as well as in the rates assumed in the estimate.

Repairs to, in the Balasore Division.	In consequence of heavy damage sustained by floods.	Length about 3½ miles; sanctioned 27th February 1845.	Between Goreekhnol and Rajghaut.	1,404 9 11	1,404 9 11	Season 1845-46.	—
Construction of a Drain Bridge on the.	The road was every year cut through by the ryots, to let the water off their fields; this practice, it is hoped, will be put a stop to.	Of eight feet span; sanctioned 23d October 1843.	At Dysurrah	302 8 5	302 8 5	Constructed season 1843-44.	—
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 direction.	Sanctioned 26th April 1844.	At Khurruckpore	243 5 11	243 5 11	Season 1844-45.	—
Construction of two Bridges	For drainage	Sanctioned 8th September 1847.	At Rajghaut	777 15 10	Not stated	Completed season 1849-50.	Each of two arches of 10 feet span.
Annual repairs from Pooree to Rajghaut, and the Cross Road towards Jehajpore; also for Bridges, Drains, and Serais.	The preservation of the road	Length 183 miles 3 furlongs and 100 yards; and of the cross road 4 miles and 6 furlongs.			5,826 3 3	Annual repairs for season 1849-50.	These bridges, &c., will be on the south side of the Soobunrukah River.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Joah Bridge, under the city of Bareilly, on the road to Moradabad.					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 engineers.
Jyaree: Construction of an Iron Suspension Bridge on the taper chain principle, over the Kossillah River, at.	In lieu of a bridge which was carried away in September 1840, by a sudden rise of the river.	Sanctioned 5th April 1842.	Jyaree	10,543	8,581 8 3	Completed season 1846-47.	This bridge is to consist of five arches of 20 feet span each, with piers 20 feet high.
ROADS AND BRIDGES, LOWER PROVINCES:							
Jamalpore: Construction of Drain Bridges at.		Sanctioned 10th May 1844.	Jamalpore	950 9 9		Completed season 1844-45.	—
Jaipore to Ningroo: Opening of a Road.	Military posts having been established at these places, it has been found necessary to open a temporary communication between them.	Length 27 miles; sanctioned season 1844-45.	Ningroo	1,075 8 5	989	Constructed season 1845.	The road has been merely cleared of the jungle, so as to admit the passage of troops.
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Jubbulpore to Mirzapore, or the Great Deccan Road:							
Metalling of the	In consequence of the great wear and tear on this road.	Length 245 miles; sanctioned 28th September 1840.	From Tilwarra Ghaut, between Jubbulpore on the Nerbudda, and Mirzapore on the Ganges.	83,924 10 5	86,826 15 4	Completed season 1846-47.	This road was originally constructed by Major Drummond.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, CENTRAL PROVINCES—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Jubbulpore to Mirzapore, or the Great Deccan Road—continued.							
Annual repair to the metalled portion of.	- - - Also for making wooden bridges, &c.	- - Sanctioned 30th November 1842.	Mirzapore. - -	For bridges - *Rs.* 2,448 For repairs - 2,708 *Rs.* 5,156	5,168 3 8½	- - Completed season 1846–47.	- - This sanction provides for the construction of 15 wooden bridges on the road connecting Jokehia and Dumoh, and clearing the Nuddee Ghauts.
Jubbulpore viâ *Seonee to Kamptee*: Proposed metalling and partial bridging of the road.	- - To continue the great road from Mirzapore to Jubbulpore (or Great Deccan Road).	Length: *M. f. yds.* Jubbulpore to Seonee } 83 . 7 32 Seonee to Kamptee } 63 7 00 *Miles* 148 0 0 With reference to the magnitude of the outlay contemplated, its commencement has been deferred until the estimates have been reported on by the superintending engineer, after personal inspection.	Kamptee - -	- - - - -	1,76,246 - - 61,500 - - *Rs.* 2,37,746 - - Exclusive of the item of bridges.	- - - -	- - *Rs.* 20,010. 5. 6½. were expended in season 1847–48 in cutting jungle, making proper inclined ghauts, and clearing and smoothing the surface of the ghauts; an advance of 16,000 Company's rupees was sanctioned for the earthwork of the portion of the road in the Nagpore territory, and *Rs.* 24,180. 8. 10. for earthwork between Jubbulpore and Seonee.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Intally: Purchase of Ground -	- - For the sheds of the conservancy department.	- Sanctioned 2d April 1839, and 23d June 1840.	Intally - - -	7,000 - -	- - - -	Season 1840–41.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Jessore: 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 Magistrate.	- - Sanctioned 2d May 1842.	Jessore - - -	2,696 5 3½	2,880 14 5	- - Completed season 1844–45.	- - The cutcherry is to be flat-roofed, with tiled verandahs.
Jessore Gaol: Construction of 12 Necessaries.	- - - - - - -	- - Sanctioned 25th January 1843.	Jessore - - -	1,234 8 1	1,113 12 6	- - Completed season 1844–45.	—
Jessore: Cutcherry for the Sudder Ameen.	- - - - - - -	- - Sanctioned 27th February 1843.	Jessore - - -	2,696 5 3½	3,657 10 9	- - Completed season 1844–45.	—

Construction of a Selakhana	-- For the reception of property recovered in cases of dacoity, burglary, &c., and in lieu of an old building inconveniently situated.	-- Sanctioned 28th February 1844.	-- The new building will be erected close to the magistrate's cutcherry.	764 3 5	823 11 10	-- Completed season 1844–45.	—
Jessore Gaol: Construction of a Dead-house and Dispensary.	- - - - - - -	-- Sanctioned 27th May 1846.	Jessore - - -	588 4 5½	- - - -	-- Completed season 1847–48.	—
Jamalpore: Alterations to the Deputy Magistrate's Cutcherry.	-- In consequence of the wood work of the roof having become entirely decayed.	-- Sanctioned 22d December 1849.	Jamalpore - -	1,459 1 -	- - - -	-- Completed season 1849–50.	-- The cutcherry has been put into thorough repair.
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Jubbulpore:							
Construction of a new Gaol -	-- For the accommodation of 300 prisoners.	-- Sanctioned 10th March 1841.	Jubbulpore - -	16,044 11 9	15,541 11 1	-- Completed season 1842–43.	—
Construction of Public Buildings.	-- For the 1st battalion of military police.	-- Sanctioned 14th August and 13th October 1843.	- - - -	2,411 7 -¼	2,805 8 7	-- Completed season 1844–45.	—
Construction of a new Gaol Hospital.	-- Under a representation that the gaol hospital was not a fit receptacle for the united Thug and Zillah sick prisoners.	-- Sanctioned season 1844–45.	- - - -	8,765 5 3	8,676 7 5	-- Completed season 1846–47.	—
Jaunpore: Construction of a Court-house.	-- For the Collector and Magistrate.	-- Sanctioned 25th November 1850.	Jaunpore - - -	- - - - -	6,904 - -	—	
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
James Prinsep Ghaut: Contributions 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	-- To be erected in a situation highly useful for the embarkation or disembarkation of European troops.	Donation, season 1840–41 23 Nov. 1842, flag-stones contributed towards its erection to the value of 3 July 1843, a further grant authorised of -	10,000 - - 600 - - 2,756 - - *Rs.* 13,356 - -	- - - -	-- 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 sufficient for that purpose.
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
James and Mary's Anchorage Creek: Construction of an Obelisk at the.	-- The spot is most dangerous for navigation; the obelisk is intended as a day beacon.	- Sanctioned 25th March 1843.	-- Situated below Fultah, on the Hooghly River.	2,642 10 4¼	1,861 - 10	-- Completed season 1843–44.	Its height will be 80 feet.
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Inathowna: Construction of a Staging Bungalow at.	- - - - - - -	-- Sanctioned 7th May 1843.	-- Situated between Sultanpore and Benares.	- - - - -	1,881 4 8	Season 1843-44 -	-- This bungalow will be constructed from the funds originally granted for the bungalow at Benares, a bungalow at the latter place being under construction from funds collected by private subscription.
Jugadaree: Erection of a Staging Bungalow and Out-offices.	- - - - - - -	-- Sanctioned 9th September 1843.	-- Situated between Umballah and Kheree.	3,244 10 6	2,243 10 9	-- Completed season 1846–47.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, JHULLUNDHUR DIVISION—GENERAL:				*Rs. a. p.*	*Rs. a. p.*		
Jullundur:							
Construction of a Cutcherry and Guard-room.	- - For the deputy commissioner of the station.	- - Sanctioned 31st August 1847.	Jullundhur - -	26,729 11 -	- - - -	- - Completed season 1850-51.	- - The old fort at Jullundur, formerly used as a cutcherry, has been sold for 40,000 Company's rupees.
Construction of a Dâk Bungalow and Offices.	- - On the recommendation of the Postmaster-general, North-Western Provinces.	- - Sanctioned 4th January 1850.	- - - - -	- - - - -	3,869 15 3	Season 1849-50 -	- - The expense will be defrayed from the North-Western Provinces Staging Bungalow Fund.
CANALS, SOUTH-WESTERN PROVINCES:							
Kamapookreah Khal: Repair of the Dam across the mouth of the.	- - - - - - -	Sanctioned 1840-41	- - - -	813 15 6	825 - -	- Repairs completed 1841-42.	- - The total sum expended for this work since its commencement is 2,945 rupees.
CANALS, SOUTH-EASTERN PROVINCES:							
Kotakhally Nullah, in Chittagong: Excavation of the.	- - - - - - -	- - Sanctioned 29th May 1838.	- - - -	1,224 9 11	- - - -	- - Completed season 1841-42.	—
Khattee Canal: Repair and Improvement of.	- In consequence of the abandonment of the Oolabarreah Canal.	- - Sanctioned 12th February 1845.	- - This canal is a communication between the Damoodah and Hooghly Rivers.	2,000 - -	2,000 - -	- - Completed season 1845-46.	—
Khattee Bund: Raising of the, two feet.	- - To bring it above the level of the inundations which occurred in August 1844.	- - Sanctioned 27th May 1845.	- - - -	- - - - -	2,568 3 6	- - - -	- - The greatest part of the earth for this work will be dug out from the Khattee Canal, the improvement of which will thus be effected at little or no expense.
CANALS, NORTH-WESTERN PROVINCES:							
Kunjnoon Escape Nullah -	- - Construction of a masonry bridge across the.	- - Sanctioned 4th April 1836.	- - Near the village of Nakroon.	2,142 - -	2,142 - -	- Constructed season 1846-47.	- - This bridge has timber road-way on masonry piers and abutments.
Kutta Puther Canal - -	- - For the purpose of irrigating a tract of country bounded by the Jumna 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 Raos.	- - Sanctioned 4th February 1848.	- - - -	- - - - -	88,902 11 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 cultivation.
Kallee Nuddee: Iron Suspension Bridge at Khoolgunge, between Cawnpore and Furruckabad.	- - - - - - -	- - - - -	- - - -	- - - - -	- - - -	- - - -	- - Was built by the late Nuwab Mehindie Allee Khan Bahadoor, but having been made over to Government by his nephew, Ahmed Allee Khan Bahadoor, orders have been given to provide for its future repair.

Kumaon: Construction of a Bridge on the taper chain principle over the Kosilah River.	The old bridge was injured by a sudden and unusual high rise of the river in September 1840.	Sanctioned 5th April 1842.	At Jyaree	5,909 4 8	9,170 13 1	Completed season 1842–43.	—
Kathar Nuddee: Bridge near Subathoo.	To replace an old bridge which was represented to be unsafe for travellers.	Sanctioned season 1841-42; a revised estimate sanctioned 19th July 1844.	On the road from Subathoo and Simla.	940 11 6	420 5 7	Completed season 1844–45.	This bridge was totally destroyed by the storms which occurred between the 17th and 20th July 1844. It will not be restored.
ROADS AND BRIDGES, LOWER PROVINCES:							
Kubbadduck River: Suspension Bridge over the, on the tension principle of Mr. Dredge, of London.	- - - - - - -	Sanctioned 28th February 1841.	Near Jessore	21,056 – 3	22,818 13 4	Completed in 1846	A wealthy native gentleman, by name Kallee Podar, has made an offer to Government to defray half the cost of this bridge. This bridge had been but recently constructed and reported upon (on the 26th August 1846) by a special committee, and while their report was under consideration, accounts were received of its failure on the 30th September 1846, with a loss of 150 lives, in consequence of the whole structure having been thronged with natives witnessing the passage of the Doorgah under the bridge. The estimate for the restoration of the bridge amounts to 5,426 rupees. The Court, in their despatch to the Government of India, dated the 29th September (No. 25) 1847, reiterated their orders of 1845, forbidding the further adoption of the tension principle in the construction of suspension bridges. *See* Ballee Khal Bridge. This bridge was reconstructed at a cost of *Rs.* 7,722. 1. 10.; the total expenditure incurred, including the cost of testing the bridge, had been *Rs.* 31,044. 9. 8. A committee of engineer officers was assembled to report on the bridge after its reconstruction; and their report, dated the 24th February 1849, shows that the bridge had been fully tested, and that it is capable of bearing, with perfect safety, the traffic of the country. The bridge has been opened to the public and to the passage of all traffic, excepting elephants. On the 27th June 1849 a report was received from the officiating superintending engineer, Lower Provinces, of the partial failure of the structure, on which Captain Guthrie, of the Engineers, was ordered to inspect the bridge and report the causes of the failure. The following paragraph is extracted from his report, para. 14.:—"I await further orders regarding this bridge. I have issued no orders regarding closing it; having stood the test of 70 lbs. to the square foot, it must be fully equal to all ordinary traffic. I have, however, directed the chowkeedar to prevent crowds from assembling, and trains of carts from passing both ways at the same time."
Kamroop: Construction of Bridges on the Mofussil roads in the district of Kamroop, and the town of Gowahatty.	- - - - - - -	Sanctioned 12th September 1842.	- - - -	1,830 14 5	- - - -	Completed season 1842–43.	The amount will be charged partly to the Town Improvement Committee funds, and partly to the Mofussil Road funds.
Koliabar to the Dunsurry River	The construction of this road will complete the direct communication between Upper and Lower Assam.	Length 67 miles 1 furlong; sanctioned 4th December 1844.	Dunsurry River	Not reported	24,500 2 2	- - - -	The construction of 240 drain bridges on the line is provided for in the estimate.
Kulling River to Koliabar: Repair of the Road.	This road follows the course of the river, and forms a bund to keep out inundation.	Length 72 miles	Koliabar	6,212 – –	6,212 – –	Completed season 1844–45.	—
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Khoorda Road; Repairs to, and clearance of jungle on.	- - - - - - -	Length of road 69 miles, 5 furlongs and 115 feet; repairs sanctioned 24th November 1840.	Extends from the Madras frontier to Cuttack.	- - - - -	11,459 10 – ½	—	
Construction of 129 Bridges and Drains on the.	To facilitate the means of communication.	Sanctioned season 1839–40.	- - - -	49,702 8 5	60,673 3 6	Completed season 1845–46.	The saving of *Rs.* 10,970. 11. 1. is owing to a reduction of rates, and also to the quantity of masonry.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Kyook Phyoo: Construction of five first-class masonry Bridges.	- - - - - - -	- - Sanctioned 18th September 1841.	Kyouk Phyoo - -	10,518 14 10	11,356 7 1	- - Completed season 1842-43.	—
Khoorda Road: Construction of large Bridges on the.	- - Required over rivers that intersect the road.	- - The length of the Khoorda Road is 69 miles, 5 furlongs and 115 feet; sanctioned 25th September 1844.	- - One over the Coosmy River; one over the Sahal River; one over the Consail River.	- - - - - - - - No report of the final completion of these bridges has been received - - - - - -	6,970 14 1 9,663 9 2 30,333 - -	- - - -	- - For a bridge of seven arches and 20 feet span over the Coosan River. - - For an iron suspension bridge of eight feet span over the Sahah River. - - For a bridge on the tension principle over the Consail River.
Kyook Phyoo: Construction of two Sluices with self-acting gates to bunds.	- - For keeping out the salt water from the station.	- - Sanctioned 15th April 1846.	Khyook Phyoo -	1,828 4 -	1,451 - -	- - Completed season 1845-46.	—
Construction of 12 pucca Drain Bridges.	- - These works were undertaken at the requisition of the Commissioner of Arracan.	- - ditto - -	At Mugh Bazar -	- *Rs.* 1,217. 15. 7. for nine bridges in 1847-48; the three remaining bridges of the 12 authorised were completed in season 1849-50.	1,361 - -	—	
Construction of four Drain Bridges.	- - - - - - -	- - ditto - -	At Khyook Phyoo -	- - - - - -	1,348 - -	—	
Kedgeree Dâk Road: Renewal of Wooden Bridges over the Kolah Khallee and Tangoonh Khalls.	- - To replace the present structures, which are in a decayed and dangerous condition.	- - Sanctioned 17th March 1847.	Kedgeree Dâk Road	4,009 7 10	2,230 1 1 1,779 6 9 *Rs.* 4,009 7 10	- - Completed season 1847-48.	- - The bridge over the Kolah Khallee is to be of 70 feet span; that on the Tangoah Khall of 60 feet span.
Kyook Phyoo: Construction of a masonry Sluice.	- - - - - - -	- Sanctioned season 1849-50.	- - The sluice is constructed in Jopphoe's Bund.	570 10 7	- - - -	- Constructed season 1849-50.	This sluice has a self-acting gate.
Kyook Phyoo: Construction of a new masonry Bridge called Budder Mokane Bridge.	- - Constructed on the requisition of the local authorities, the old bridge having fallen down.	- - ditto - -	- - - -	567 - -	- - - -	- - ditto - -	This bridge is of 8 ½ feet span.
ROADS AND BRIDGES, UMBALLA DIVISION:							
Kalka to Dugshye - - -	- - 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 to Dugshye.	- - Length 18¼ miles; sanctioned 28th April 1847.	Dugshye - -	- - - - -	1,20,250 - -	- - - -	- - Up to the 1st April 1848, a sum of *Rs.* 45,068. 1. 3. had been expended on the work, the progress of which has also been assisted by three or four companies of the corps of Sappers and Miners.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Kyouk Phyoo: Construction of a Cutcherry Bungalow at.	- - To be used either by the assistant at Aeng, or by the commissioner.	- - G. O., 26th September 1839.	Kyouk Phyoo -	7,426 5 8	5,335 9 8	- - Completed season 1842-43.	- - The whole, or nearly so, of this excess has been expended on works not included in the original estimate.

Koosbaugh, near Moorshedabad: Repairs to buildings at the Mausoleum of Mobabut Jung.	- - - - - - - -	- - Sanctioned seasons 1840-41 and 1841-42.	Koosbaugh - -	2,308 10 6	2,308 10 6	Season 1841-42.	—
Kishenagur Gaol: Erection of a Dead-house.	- - - - - - - -	- - Sanctioned 23d November 1846.	Kishenagur - -	417 11 4	- - - -	- - Constructed season 1847-48.	—
Khoolna: Construction of a Cutcherry and Dwelling-house for the Joint Magistrate.	- - The construction of the building was rendered unavoidable in consequence of a tendency to outrage and disturbance existing in that quarter, which called for the constant presence of a joint magistrate.	- - Sanctioned 3d June 1844.	Khoolna - - -	6,796 11 10	7,150 8 9	- - Completed season 1845-46.	—
Kissenpore Gaol: New Tile Roofing to the.	- - The gaol had heretofore been thatched, but a thatched roof, from its liability to take fire, was considered particularly objectionable for a gaol.	- - Sanctioned 16th September 1844.	Kissenpore - -	2,066 5 11	2,616 4 3	- - Completed season 1846-47.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Kyouk Phyoo:							
Addition of Out-offices to the New Circuit-house.	- - - - - - - -	- - Sanctioned 5th October 1841.	- - - -	1,082 3 3	1,082 - 3	- - Completed season 1842-43.	—
Construction of new Gaol Buildings.	- - The old gaol wards were quite unworthy of further repairs.	- - Sanctioned 31st July 1843.	Kyouk Phyoo - - - - - - -		20,867 5 2	—	
Construction of a Sudder Hospital.	- - Indispensably necessary for the accommodation of the sick of the police, the flotilla, and other civil establishments.	- - Sanctioned 24th June 1844.	- - - -	1,753 10 6	1760 5 -	- - Completed season 1845-46.	—
Construction of two new Wells for the gaol.	- - - - - - - -	- - Sanctioned 31st July 1843.	- - - -	517 5 9	517 5 9	- - Constructed season 1845-46.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Kumaon: Construction of a Cutcherry.	- - For the accommodation of the junior Assistant Commissioner and Suddur Ameen.	- - Sanctioned 7th July 1841.	- - - -	685 1 3	779 15 -	- - Completed season 1841-42.	—
Kuchwagur: Construction of Police Guards.	For prisoners under trial - -	- - Sanctioned 27th April 1844.	Kuchwagur - -	2,200 - -	2,200 - -	- - Constructed season 1844-45.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:							
Kyouk Phyoo:							
Construction of masonry Sluices with self-acting gates.	- - In compliance with the recommendation of the Commissioner of Arracan.	- - Sanctioned 4th March, and 20th May 1846.	- - In Freeman's Bund, at Kyouk Phyoo.	2,577 2 11	2,577 2 11	- - Completed season 1847-48.	—
Construction of a masonry Sluice with self-acting gate.	- ditto - - - - -	- - Sanctioned 15th April 1846.	- - In Hopkinson's Bund, at Kyouk Phyoo.	982 1 11	982 1 11	- - Completed season 1847-48.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Kyouk Phyoo—continued.							
Construction of a masonry Sluice with self-acting gate.	-- In compliance with the recommendation of the Commissioner of Arracan.	-- Sanctioned 4th March 1846.	-- In the Fish Village Bund.	598 14 9	598 14 9	-- Completed season 1847-48.	—
Construction of a Sluice Bridge called Chota Nemuch Gollah.	-- With the view of improving the salubrity of the station.	-- Sanctioned May 1847.	Kyouk Phyoo - -	860 - 4	860 - 4	-- Constructed season 1849-50.	-- This work was projected by the Commissioner of Arracan.
New Sluice in Freeman's Bund - - - - - - -		-- Sanctioned season 1849-50.	- - - -	949 9 4	949 9 4	-- Constructed season 1849-50.	-- The sanction for this work was obtained from the Government, direct by the Commissioner at Arracan.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Kedgeree Tripod - - -	-- For the security of the establishments at Kedgeree, as well as of the inhabitants, in the event of a gale occurring similar to that in 1833.	-- The fabric will be 50 feet high, and of four stories; sanctioned 27th January 1840.	Kedgeree - -	4,189 11 -	4,214 9 9	-- Completed season 1841-42.	-- Three of the stories will be for places of refuge in times of inundation, and the fourth may be used by the Semaphore establishment, and also for the purpose of exhibiting a light, if necessary, for the use of the shipping.
Kidderpore: New Fitting Shop in the Steam Dockyard.	- - - - - - -	-- Sanctioned season 1838-39.	- - - -	19,945 - 1	- - - -	-- Completed season 1841-42.	-- The work has been satisfactorily executed.
Kedgeree: Enclosure of the Burial-ground.	-- The place was represented to be a perfect jungle, without any surrounding wall, hedge, or fence of any kind whatever.	-- Sanctioned 20th April 1842.	- - - -	754 12 11½	796 5 -	-- Completed season 1843-44.	—
Kyouk Phyoo:							
Construction of Godowns -	For marine stores - - -	-- By order of the Commissioner of Arracan, dated 17 February 1840.	Kyouk Phyoo - -	2,550 3 10	- - - -	-- Completed season 1841-42.	-- These buildings replaced two others which had been pulled down.
Construction of a new Marine Magazine.	-- The old building has been in a state of dilapidation since 1838.	-- Sanctioned season 1842-43.	Kyouk Phyoo - -	1,798 9 2	- - - -	-- Completed season 1842-43.	—
Kootubdea Island: Construction of a Lighthouse, &c.	- - - - - - -	-- Sanctioned 11th January 1843.	Kootubdea Island -	35,511 - -	29,235 6 5	-- Completed 21st February 1846.	-- The light will be exhibited 100 feet above high water spring-tides, and the lantern is to be 12 feet in diameter.
Kidderpore:							
Additional accommodation in the Steam Department.	- For a new store room, offices and model room.	-- Sanctioned 20th July 1842.	Kidderpore - -	40,036 12	45,376 4 6	-- Completed season 1844-45.	-- The saving of *Rs.* 5,339. 0. 8. is ascribed to modifications from the original design.

Construction of Pucca Dry Dock.	-- In lieu of the existing catcha dock.	-- Sanctioned 19th October 1842, and 5th February 1844.	- - - -	92,043 7 9½	87,788 7 1	-- Completed season 1844–1845.	-- In consequence of the difficult nature of the undertaking, the floor of the dock resting on a mass of springs, it became necessary to change the mode of laying the foundation.
Completion of the River Wall, piling and filling up the old Mud Dock and Tank.	- - - - - - -	- - - - -	- - - - -	- - - - - - -	- - - - -	- - - - -	
Kidderpore:							
Renewing a Store-room, constructing a Coal-tar Tank, &c., in the Naval Storekeeper's Department.	-- At the request of the Superintendent of the Marine.	-- Sanctioned 9th April 1844.	Kidderpore - -	6,507 6 9	6,564 4 1	-- Completed season 1844–45.	—
Construction of Buildings -	-- For the reception of the pump and punching machine.	-- Sanctioned 17th June 1844.	- - - -	8,429 8 9	7,005 3 6	-- Completed season 1845–46.	—
Kidderpore:							
Construction of a Shed -	As a receptacle for coals - -	-- Sanctioned 28th February 1844.	- - - -	477 - -	477 - -	-- Constructed season 1844–45.	—
Dockyard; renewal of a portion of the Retaining Wall.	-- The old retaining wall is in a dangerous state, and the foundations are supposed to be defective.	-- Sanctioned 22d July 1846.	- - - -	-- This work was suspended in 1845–46, as the entrance to a projected wet dock for steamers will be made on part of the intended site; the revetment wall was reconstructed in season 1849–50, at a cost of *Rs.* 11,272. 15. 11.	33,557 1 10	- - - -	-- The section of the new wall will be similar to that of the wharf wall at Sheerness, where the soil somewhat resembles that at Kidderpore.
Kyouk Phyoo: Construction of three Jetties or Piers.	-- For the convenience of the salt traders frequenting the port.	-- Sanctioned 16th September 1844.	Kyouk Phyoo - -	- - - - -	3,748 8 -	—	
Kidderpore Dockyard: Construction of a masonry Platform.	-- For setting up an iron crane, shipped by the Court of Directors.	- - - -	- - - -	20,240 - -	17,375 - -	—	
Kootubdea: Lighthouse Buildings.	-- For a lighthouse tower and lantern, with buildings for the establishment of overseers and Lascars, on the island of Kootubdea.	-- Sanctioned 8th October 1845.	Kootubdea Island -	35,289 - 5	20,235 - -	-- Completed February 1846.	-- The excess over the original estimate was occasioned by the rates assumed by the executive engineer being purely conjectural, in consequence of the isolated spot at which the work was to be carried on.
Kidderpore:							
Proposed construction of a Basin or Wet Dock.	For inland steamers - - -	-- Submitted for sanction 19th June 1846.	Kidderpore - -	- - - - -	1,97,911 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 still remain available for the purposes of its original construction, whenever required.
Dockyard; 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 21st June 1847.	- Ditto - -	- - - - -	16,057 7 6	—	

(continued)

No. 8.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Kidderpore—continued.							
Dockyard; construction of Dwelling-houses.	- - For the Naval Storekeeper and Marine Surveyor and Builder.	- - Sanctioned 29th April 1848.	Kidderpore - -	- - - - -	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.
Additions and Alterations to the Marine Superintendent's house.	- - Most of the beams and burgahs were in a decayed state.	- - Sanctioned 7th May 1849.	- Ditto - -	7,803 14 -	7,803 14 -	- - Completed season 1849-50.	- - It was at first contemplated, on account of the almost ruinous state of the building, to substitute a new one at an estimated cost of *Rs.* 27,808. 2., but a committee of civil architects were favourable to the retention of the old building.
Kyouk Phyoo:							
New Office for the Salt Superintendent.	- - On a representation from the Board of Customs, Salt and Opium, of the necessity for such an office, in lieu of the old dilapidated building previously used.	- - Sanctioned 24th March 1847.	Kyouk Phyoo - -	11,006 6 10	- - - -	- - Constructed season 1849-50.	—
Erection of a New Treasury, Record Room, and Guard Room.	- - Under a representation from the Commissioner of Arracan, that the existing buildings were unsafe, having been several times actually on fire.	- - Sanctioned 12th December 1849.	- Ditto - - -	- - - - -	3,656 - -	Season 1849-50.	—
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Kursong: 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 state.	- - Sanctioned 5th August 1844.	Kursong - -	3,190 11 6	3,107 15 4	- - Constructed season 1846-47.	- - At the suggestion of the superintendent of Darjeeling, the site of the bungalow has been removed to Kursong, 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.
Kishenagur: Construction of a Post-office at.	- - The accommodation heretofore afforded to the records of the Post-office in the Collector's office, is no longer available.	- - Sanctioned 6th March 1846.	Kishenagur - -	733 9 5	722 - -	- - Completed season 1847-48.	- - This building is to be of pucca, on account of the great destruction of woodwork at the station.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Kurnaul: New Roof to the Roman Catholic Chapel.	- - - - - - - -	- - Sanctioned 6th April 1842.	Kurnaul - - -	577 15 11	- - - -	- - Completed season 1842–43.	—
Kussowlee:							
Construction of a Protestant Church at.	- - - - - - - -	- - Sanctioned 17th January 1845.	Kussowlee - - -	- - This work was suspended in season 1845–46.	25,734 12 6	—	
Construction of a Staging Bungalow.	- - The necessity for this bungalow appears to have been brought to notice by the Post-master, North-Western Provinces.	- - Sanctioned 23d November 1844.	- - - -	3,806 12 8	3,913 12 5	- - Completed season 1845–46.	—
Enclosure of the Burying-ground.	- - On a representation from the Archdeacon of Calcutta.	- - Sanctioned 6th November 1848.	- - - -	2,356 6 6	3,555 6 6	- - Completed season 1849–50.	- - The total length of the enclosure wall is 816 feet.
Kurrachee: Erection of a Post-office.	- - Sanctioned by Government in the Foreign Department.	- - Sanctioned 13th July 1844.	- - - -	849 8 —	- - - -	- - Constructed season 1844–45.	—
Kumaon: Alterations to four Staging Bungalows.	- - The necessity for these alterations was brought to notice by the Postmaster-general.	- - Sanctioned 10th November 1848.	- - These bungalows are situated at Peura, Ramgar, Bhumtal and Bamouri.	1,909 9 3	1,909 9 3	- - Completed season 1849–50.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Kheree: Construction of a Staging Bungalow.	- - The existing buildings, owing to the inefficiency of accommodation, did not meet the public wants.	- - Sanctioned 9th September 1843.	Kheree - - -	1,947 1 2	2,037 10 2 and *Rs.* 136. 7. 3. for the requisite furniture.	- - Completed season 1844–45.	—
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—MARINE:							
Kidderpore: Construction of a Workshop for the Comptroller of Steam Machinery.	- - - - - - - -	- - Sanctioned 22d May 1839.	- - - -	6,601 12 —	6,893 4 8	- - Completed season 1839–40.	—
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Lucknow Canal: Bridge over the, on the road from the City to Constantia, and Bridging of the Watercourses 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 apprehended that this privilege would not be extended to all classes of persons proceeding to and from Constantia, after it shall have become a public college.	- - Estimate submitted 26th February 1842.	- - - -	Not reported - - -	12,565 3 6 and *Rs.* 682. 7. 10., for bridges.	Not reported - -	- - The bridge over the Lucknow Canal is to be of three arches; the cost will, it is believed, be defrayed from the Maritime Fund.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Loharee Bridge, over the Urll River.	- - Increase of the waterway in consequence of the approaches to it being flooded in the rains.	- - Sanctioned 3d June 1842.	Loharee - - -	11,322 3 5½	11,393 15 1	- - Completed season 1842–43.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Lucknow Bridge, and repair of the Causeway.	- - Two lengths of the causeway, measuring 551 and 307 feet respectively, were entirely destroyed by a violent flood on the 20th June 1842.	- - - - -	Near Seharunpore -	- - - - -	- - - -	- - - -	- - The causeway of the Lucknow Bridge is constructed on land arches traversing a plain of deep sand, and extends to a length of 2,224 feet. The bridges and causeway were constructed in the year 1827, at a cost of 36,000 rupees. The piers of the main arches of the bridge are carried down 26 feet below the bed of the river to solid soil. Two of the arches having been choked up, and shown symptoms of settlement in 1847–48, a sum of *Co.'s Rs.* 536. 6. 6. was expended in flooring the spaces between the piers with rough wooden caissons. An estimate, amounting to *Rs* 1,907, for metalling the roadway of the bridge, was sanctioned on the 1st May 1850; the traffic over the bridge was represented to be incessant.
Landour Roads:							
Reconstruction of several portions of the Embankment Walls.	- - These roads were greatly injured by heavy rains in August 1842.	- - Sanctioned 6th January 1843.	- - - -	5,548 3 6	5,832 7 11	- - Completed season 1843–44.	—
Repair of, and Enclosure of parts of the Road leading from the Barracks to the Hospital, with a rough Railing.	- - These roads were again injured by the heavy rains of August and September 1843.	- - Sanctioned 1st December 1843.	- - - -	2,131 5 3	3,444 5 3	- - Completed season 1844–45.	- - A railing has been erected along the road.
Lohoo Ghaut: Construction of an Iron Suspension Bridge over the Lohoo River, at.	- - This bridge is intended to replace an old wooden bridge, which is considered by the local authorities to be no longer safe.	- - Sanctioned 26th September 1846.	Lohoo Ghaut - -	- - - - -	2,455 9 7	—	
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Landour: Enclosure of the Burial-ground at.	- - - - - - - -	- - Sanctioned 1st October 1842.	- - - -	781 12 9	781 12 9	- - Completed season 1844–45.	—
Lohoo Ghaut: Construction of a Wall around the Burial-ground.	- - - - - - - -	- - Sanctioned 21st July 1843.	- - - -	261 1 2	261 1 2	- - Completed season 1844–45.	—
Loodiana Church: Addition to	- - In consequence of the accommodation being insufficient for the increased number of European troops.	- - Sanctioned 3d April 1844.	- - - -	4,043 11 2	- - - -	- - Completed season 1845–46.	- - An addition of 40 feet has been made to the length of the church.
CIVIL BUILDINGS, CENTRAL PROVINCES—ECCLESIASTICAL:							
Lucknow Church - - -	- - - - - - - -	- - Sanctioned in August 1838.	- - - -	5,400 - - of which, 1,900 rupees were by private subscription.	- - - -	- - Completed season 1840–41.	- - The future repairs of the church will be repaid by the State.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—ECCLESIASTICAL:							
Landour Church: Construction of.	- - - - - - - -	Sanctioned in 1838 -	- - - -	6,493 7 6	5,000 - -	- - Completed season 1840–41.	—
Landour Burial-ground: Construction of a Wooden Railing.	To inclose the burial-ground -	- - Sanctioned 29th November 1839.	- - - -	- - - - -	937 11 7	—	
CIVIL BUILDINGS, CENTRAL PROVINCES—POLITICAL:							
Lucknow: Completion and repairs of the Constantia House Buildings.	- - - - - - - -	- - Estimates submitted 13th July 1843.	- - - -	- - - - -	1,96,650 4 4	- - - - -	- - The estimates were returned with an opinion that the design appeared good and the rates moderate.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:							
Lahore: Conversion of the Anarkuller House into a Residency.	For the Political Resident -	- - Sanctioned 6th October 1847.	Lahore - - -	- - - - -	24,900 - -	- - - - -	- - The Resident is to be permitted to occupy the building rent-free, on the condition that he shall keep it in tenantable repair at his own cost, after the additions and repairs provided for have been completed.
CIVIL BUILDINGS, PUNJAUB CIRCLE—GENERAL:							
Lahore:							
Fitting up of a large Hall in Dyan Sing's House.	- - To serve as a place of Divine worship.	- - Sanctioned season 1849–50.	Lahore - - -	1,837 9 2	- - - -	Season 1849-50.	—
Fitting up a Residence in Suchet Sing's House.	- - For the use of the Civil Department.	- - Ditto - -	- Ditto - - -	703 6 2	—		
Erection of a Staging Bungalow, with Offices.	- - On a representation from the Postmaster-general, North-Western Provinces.	- - Sanctioned 29th November 1849.	- Ditto - - -	- - - - -	Not stated - -	Season 1849–50 -	- - The bungalow is to consist of one large room 30 × 18, with two rooms on each side 16 × 14, the whole to be surrounded by a verandah 10 feet high; this will be enclosed on two sides, forming four rooms 10 × 14, with four bathing rooms each 10 × 10.
Construction of a Chapel for the Roman-catholics.	- - - - - - - -	- - Sanctioned 27th October 1849.	- - - -	- - - - -	4,891 9 -	- - - -	- - With reference to the removal of the cantonment from Anarkullee to Mean Meer, this chapel will be constructed at the latter place.
Repairs, &c. of General Ventura's House at.	- - To adapt it for the residence of the Resident and his assistants.	- - Sanctioned October 1847.	- - - -	12,408 7 8	- - - -	Season 1850-51 -	- - The house is situated in the Anarkullee cantonment.
EMBANKMENTS, SOUTH-EASTERN PROVINCES:							
Midnapore Division - -	- - - - - - - -	Length 657 miles -	- - - -	- - - - -	- - - -	- - - -	- - Estimate for annual repairs of 1850–51, including repairs to sluices and inspection bungalows, amounts to *Rs.* 35,411. 9 1.
Construction of a new line in lieu of the old Zemindary Khattee Bund, in Pergunnah Mingleghaut.	- - For the protection of the Oolabareah mail road.	- - Length, 3 miles 1 furlong; sanctioned 14th February 1842.	- - - -	7,717 5 9	7,717 5	- - Completed season 1843–44.	- - Large plains, heretofore totally unproductive, have been brought under cultivation. Estimate for repairs to the Zemindary embankments for 1850–51, amounts to *Rs.* 12,334. 8. 6.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
EMBANKMENTS, SOUTH-EASTERN PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Construction of two Irrigation 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 10,000 feet in length, the other 765 feet in length, from the Cossye River, with two sluice-gates; sanctioned 8th October 1845.	Midnapore - -	2,078 - -	2,078 - -	Season 1845–46.	—
Construction of two Inspection Bungalows.	- - To enable the executive officer to exercise a vigilant superintendence over the works in progress.	Sanctioned in 1847 -	- - Bheetcool and Itchapore.	593 - 5	593 - 5	- - Completion reported in 1849.	—
Middleton 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 17th February 1847.	- - - -	1,625 - -	1,625 - -	—	
CANALS, SOUTH-EASTERN PROVINCES:							
Mofussil Canals: Improvement of the.	- - By cutting down jungle, repairing and making tow-paths, &c.	- - Sanctioned 28th September 1843.	- - - -	- - - - -	4,368 4 6	- - - -	- - These works will materially facilitate the inland communication.
CANALS, NORTH-WESTERN PROVINCES:							
Muskurra 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 2d March 1842.	- - - -	10,400 5 -	13,530 - -	- - Completed season 1843–44.	- - This work has fully answered the expectations entertained of it.
Prolongation of the Boxwork Tail of this Dam.	- - Considered indispensable for the safety of the dam.	- - Sanctioned 29th January 1844.	- - - -	5,398 13 10	6,102 8 5	- - Completed season 1844–45.	—
Muskurra Dam: Repair of damage occasioned by floods.	- - The Muskurra River, by the breaking of the bunds at the Kolawalla Pass, and at the Dawalooka, received all the mountain supply which usually passes off down the Hindun.	- - Sanctioned 20th March 1845.	- - - -	- - - - -	6,222 - -	—	
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Midnapore: Construction of a new Masonry Bridge.	- - In lieu of an unserviceable bridge.	- - Sanctioned 28th February 1842.	- - - -	781 8 10	- - - -	- - Constructed season 1843–44.	—
Maggra to Chotekund, on the Grand Trunk Road, metalling of.	- - - - - - -	- - Sanctioned 22d April 1847.	Chotekund - -	- - - - -	76,186 10 5	- - - -	- - 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.

Maumbhoom: Construction of a Bridge over the Jailgarrah Nuddee.	- - - - - - - -	- - Sanctioned 16th October 1843.	Maumbhoom - -	5,929 9 3	8,861 7 1	- - Completed season 1846–47.	- - 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 masonry in the foundations, and of a great reduction of rates.
Midnapore to Bissenpore: Construction of 12 Masonry Bridges and Drains.	- - To replace the old dilapidated works.	- - Sanctioned 8th September 1847.	Bissenpore - -	1,418 15 7	1,480 - -	- - Completed season 1849–50.	—
Midnapore: Construction of a new Line of Road, and five Masonry Bridges.	- - - - - - - -	- - Sanctioned 30th May 1849.	Midnapore Division -	1,743 2 4¼	2,094 - 6	- - Completed season 1849–50.	- - One of the bridges is of two arches, 12 feet span, at Bagdooby Shole; two of one arch, 10 feet span, at Kathee-pottah Khaul, and Kunkabeetha Shole; and two of one arch, 10 feet span, at Ranga Jhore, and Lodhasoh.
ROADS AND BRIDGES, LOWER PROVINCES:							
Munipore Road - - -	- - To make the communication between the Eastern frontier and the Burmese country comparatively easy.	- - Length, 99 miles and 6 furlongs.	- - Bunksandy, in Cachar, to the village of Munipore.	92,427 9 1	1,26,340 4 4	- - Completed season 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.
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Mogul Serai to Allahabad -	- - The project is highly advocated, as forming a direct communication between the Grand Trunk Road, East of Benares and Mirzapore, without crossing the Ganges at Benares, and recrossing it at Mirzapore, as at present.	- - Length, about 93 miles; estimates submitted 28th February 1840.	Allahabad - -	- - - - -	- - Estimate for the portion of the road from Mogul Serai to Mirzapore, 113¼ miles, 1,08,940 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 Benares Division, with instructions to apply all available resources for the advancement of the project.
Mirzapore to Jubbulpore - -	- - For opening a communication with the Saugor and Nurbudda territories, and with a view to its ultimate continuation to Nagpore and Oomraotee.	Commenced in 1824.	- - Jubbulpore (this is a portion of the Great Deccan Road).	7,60,302 - -	60,000 - - also, *Rs.* 3,573. 7. 2. for the reconstruction of bridges carried away by hill floods in 1839.	- Completion reported season 1839–40.	—
Metalling the remaining Kutcha portion of the road.	- - - - - - - -	- - Length, 18 miles, 6 furlongs, 25 yards.	- - - -	24,944 8 5	- - - -	Completed - -	- - The entire line of this road, measuring 239 miles, is now metalled.
Construction of three Bridges on this Road, between Mylma and Sewagunge.	- - In lieu of bridges carried away by floods in 1839.	- - Sanctioned season 1839–40.	- - - -	3,506 14 -	3,573 7 2½	- - Completed season 1842–43.	—

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:				*Rs. a. p.*	*Rs. a. p.*		
Meerut to Ghazeeoodennuggur: Improvement of the Road.	- - - - - - - -	- - Sanctioned season 1848–49; length, 28 miles, 7 furlongs.	Ghazeeoodennuggur -	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.	- - Completed season 1842–43.	- - The construction of this road was first undertaken by the Meerut Road Fund Committee, by whom it was abandoned, after eight miles had been completed, owing to insufficient means; the Committee pledges itself to execute the earthwork, leaving the metalling and bridges to Government. This line of road has been transferred from the Meerut to the 7th division of the Grand Trunk Road; the annual repairs are estimated at 6,825 rupees.
Construction of a Bridge over a Nullah.	For drainage - - - - -	- - Sanctioned 27th October 1842.	- - - -	620 4 4	620 4 4	- - Constructed season 1843–44.	—
Meerut to Kurnaul - - -	- - Represented to be useful both for commercial and military purposes.	—					
Mohana: Construction of a Paved Causeway across the River Peorbattee.	- - This work is considered absolutely necessary on account of the roughness of the present crossing, at which vehicles frequently break down, or are so much shaken as to render them almost useless.	- - Sanctioned 16th January 1847.	- - On the road between Gwalior and Seepree.	- - - - -	9,490 3 6	- - - -	- - The causeway is of rough stone, dressed with chisel.
Moozuffernuggur: Restoration of the Bridge over the Kallee Nuddee.	- - Carried away by a flood on the 20th June 1842.	- - Sanctioned 17th November 1843.	At Mulleerah - -	14,404 12 9	11,205 8 2	- - Completed season 1844–45.	- - This bridge was constructed in 1826 by Captain M'Mullin, at a cost of 52,000 rupees. 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 span of the arches, the failure is in a great measure to be ascribed. The piers are to be raised to 14½ instead of nine feet.
Meerut to Khanja: Construction of a Road.	- - - - - -	- - Length, 50 miles; sanctioned 24th January 1843.	Koorja - - -	1,48,919 3 8	93,645 3 8	- - Completed season 1846–47.	- - Twenty bridges will be constructed on the line, and four dâk bungalows, viz., Karkhonda, Hauppera, Gallowtee, and opposite to Boolundshur. The three former bungalows, it was subsequently found, would not be required. The formation and metalling of the portion of this road between Gallowtee and Khoorja (22 miles), which had been left to the Boolundshur Road Fund Committee, was so imperfectly done in the first instance by that committee that a supplementary estimate of *Rs. 56,274. 10.* was sanctioned on the 27th August 1846, for repairing ruts and restoring the metalling.

Mullick Chund Serai, to the boundary of the cantonments at Agra: Construction of a raised Metal Road.	- - - - - - - -	- - Length, 1¼ miles; sanctioned 20th April 1846.	Agra cantonments -	5,235 4 -	5,235 4 -	- - Completed season 1846–47.	—
Malwa: Construction of a Bridge over the Nullah at Chittrokheree.	- - The Nullah is bounded for irrigation 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 sufficiently obvious.	- - Sanctioned 5th December 1846.	- - - - - - - - -	2,879 - -	- - - - - -	- - This bridge is to be of three arches, with raised approaches.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Moulmein: Alterations to the Gaol, and construction of Buildings.	- - - - - - - -	- - Sanctioned 9th May 1837.	Moulmein - -	- - - - - -	9,398 6 -	Completed 1841–42.	—
Midnapore: Construction of an additional Room to the Magistrate's Cutcherry.	- - Owing to the small size of the room in which the magistrate's court is held, it has been found necessary to exclude all persons except those whose cases were actually being heard.	- - Sanctioned 18th July 1844.	- - - -	2,348 5 -½	2,349 5 6½	- - Completed season 1847–48.	- - The existing buildings were inadequate for the proper custody of the numerous valuable papers connected with the survey, resumptions and settlement proceedings, recently brought to a close.
Maumbhom: Construction of a Cutcherry for the Native Judge.	- - - - - - - -	- - Sanctioned 20th June 1842.	Maumbhoom - -	1,264 11 -	- - - -	- - Completed season 1844-45.	—
Moulmein Gaol: Alterations to	- - - - - - - -	- - Sanctioned 22d June 1844.	- - - -	2,084 2 9	- - - -	- - Completed season 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.
Moulmein Court-house: Alterations to.	- - With a view to improve the interior arrangements.	- - Sanctioned 5th August 1844.	- - - -	1,611 10 2	- - - -	- - Completed season 1844–45.	—
Construction of Night Privies to the Gaol.	- - - - - - - -	- - Sanctioned 23d April 1845.	- - - -	426 3 9	426 3 9	- - Constructed season 1845–46.	—
Construction of seven Police Watch-houses.	- - Constructed on the emergent requisition of the Commissioner of the Tenasserim provinces.	- - Sanctioned 23d May 1845.	- - - -	621 - -	621 - -	- - Constructed season 1845–46.	—
Moulmein: Construction of Offices and Sessions Court.	- - For the Commissioner of the Tenasserim Provinces and his principal assistant.	- - Sanctioned 17th October 1845.	Moulmein - -	13,877 3 7	10,569 - -	- - Completed season 1847–48.	- - The excess over the estimate is owing to difference of rates, and the execution of much work which was not provided for.
Mergui: Purchase and Repair of a Building.	For a Circuit-house - - -	- - Sanctioned 2d June 1847.	Mergui - -	1,863 14 9	- - - -	Season 1847–48 -	—

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Midnapore Gaol: Construction of improved Ventilators, and additional accommodation.	- - Fifty-seven ventilators were constructed in 1841–42, which only partially succeeded, in consequence of their inadequate size, being only 1½ feet square, in improving the salubrity of the gaol.	- - Sanctioned season 1840–47.	Midnapore - -	4,483 1 9	4,010 6 –	- Completion reported season 1849–50.	- - The new ventilators are of a larger description, being 8 × 2 in the clear.
Midnapore: Additions to the Collector's and Magistrate's Cutcherries.	- - The construction of seven additional rooms, of pucca masonry, with flat roofs, is required.	- - Sanctioned 16th June 1847.	- - - -	9,612 11 –	9,111 3 –	- - Completed season 1849–50.	—
Mergui Gaol: Construction of a Gaoler's House and Cook-houses.	- - - - - - -	- - Sanctioned 3d November 1847.	- - - -	1,647 4 1	1,647 4 1	- - - -	- - The cook-houses were in lieu of others considered to be too near to the compound wall; the house for the gaoler was built in consequence of it being deemed necessary that the gaoler should be lodged within the premises, especially at night.
Moulmein Gaol: Construction of a new Granary.	- - Undertaken on the recommendation of a special committee of survey.	- - Sanctioned 15th February 1849.	Moulmein - -	3,420 4 10	- - - -	Season 1849–50 -	- - The old granary was composed entirely of wood, and covered with thatch, and was reported to be in a very dilapidated and unsafe state.
Moulmein Gaol: Additions to the Gaol Buildings.	- - The Commissioner of the Tenasserim Provinces represented the works to be indispensably necessary with reference to the discreditable and unsafe state of the gaol.	- - Sanctioned 5th February 1851.	Ditto - - -	- - - - -	38,545 14 –	- - - -	- - The required buildings consist of additions to the main ward, a hospital, deputy gaoler's house, solitary cells, dead-house, dissecting room, with out-offices.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Moorshedabad: Construction of four experimental Penitentiary Wards.	- - - - - - -	- - Sanctioned 8th February 1842.	Moorshedabad - -	23,962 - -	23,962 - -	- - - -	These four wards are for 120 men.
Moozufferpore: House of Correction.	- - - - - - -	- - Sanctioned 7th December 1841.	Moozufferpore - -	14,947 4 1¾	13,000 - -	- - Completed season 1842–43.	- - The gaol of this place, in consequence of the encroachments of the river, must ere long be entirely given up. The prisoners of this district sentenced to longer periods of confinement than one year, will be sent to the Patna Penitentiary.
Moorshedabad Imaumbarrah -	- - To replace an old imambarrah in a state of great decay, and which was considered too close to the palace.	- - Sanctioned 7th December 1840.	Moorshedabad -	Not reported - - -	90,000 - -	Not reported - -	- - This work will be paid for from the Nizamut Deposit Fund.
Monghyr Gaol: Construction of additional Wards.	- - For the accommodation of the prisoners, the existing space being insufficient.	- - Sanctioned 17th November 1840.	Monghyr - -	885 6 4½	695 8 9	- - Completed season 1841–42.	—

Monghyr: Construction of a Cutcherry for the Magistrate.	- - Called for with reference to the appointment of a separate officer to the magistracy.	- - Sanctioned 29th July 1844.	Ditto - - -	4,931 - 6	5,190 13 10	- - Completed season 1846-47.	—
Construction of a Circuit House.	- - - - - - -	- - Sanctioned 20th November 1844.	- - - -	4,572 9 3½	4,999 5 -	Season 1847-48 -	- - A private house was purchased and converted into a circuit house, in accordance with an estimate sanctioned on the 7th October 1845.
Mooteearee: Construction of a Circuit House and Out-offices.	- - - - - - -	- - Sanctioned 20th November 1844.	Mooteearee - -	5,072 10 5	4,999 5 -	- - Completed season 1847-48.	—
Maldah: Purchase of a House, and its adaptation for the purposes of a Circuit House.	- - - - - - -	- - Sanctioned 20th November 1844.	Maldah - - -	5,761 13 11	5,761 13 11	Season 1844-45.	—
Moozufferpore: Purchase of a private Building at.	- - For a cutcherry for the Sessions Judge.	- - Sanctioned 28th December 1838.	- - - -	1,700 - -	- - - -	Season 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 than two years' rent.
Monghyr: Additions to the Magistrate's and Collector's Cutcherry.	To afford more accommodation -	- - Sanctioned 2d November 1841.	—				
Mymensing: Addition of a pucka tiled verandah to the Judicial Cutcherry.	- - For the accommodation and convenience of suitors.	- - Sanctioned 6th July 1841.	- - - -	883 4 10	- - - -	- - Constructed season 1842-43.	—
Construction of Cutcherries 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 reception of documents of great importance, which are now lodged in it.	- - Sanctioned 30th July 1845.	Mymensing - -	- - - - -	5,038 - -	—	
Mymensing Gaol: Construction of seven Night Privies.	- - - - - - -	- - Sanctioned season 1844-45.	Ditto - - -	667 13 9½	- - - -	- - Completed season 1845-46.	—
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 considerable distance from other public offices, which are all within the fort.	- - Sanctioned 16th April 1846.	Monghyr - -	998 13 1½	1,097 - -	- - Completed season 1847-48.	—
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 30th April 1845.	Moozufferpore - -	1,541 13 6	1,541 13 6	- - Completed season 1846-47.	—
Construction of a House of Correction.	- - For 562 prisoners, including patients in hospital at Moozufferpore.	- - Sanctioned 17th November 1847.	- - - -	- - - - -	20,601 9 8	—	

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:				*Rs. a. p.*	*Rs. a. p.*		
Muttra Gaol: Improvements to the.	To increase the accommodation -	- - Sanctioned 29th April 1840.	- - - -	3,238 15 9	4,041 - -	- - Completed season 1841-42.	—
Malhout in the Bhuttee Territory: Construction of a well.	- - - - - - -	- - Sanctioned season 1839-40.	- - - -	1,408 6 4	1,000 - -	- - Completed season 1840-41.	- - The excess of 408 rupees was owing to the necessity for making the well 168 feet deep, instead of 90 feet, as contemplated by the estimate.
Meerut: Construction of houses	- - For the non-commissioned officers of the police battalion.	- - Sanctioned 31st March 1845.	- - - -	3,677 - -	3,658 2 10	- - Completed season 1845-46.	—
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 22d August 1845.	Mooradabad - -	5,238 11 4	5,235 - -	- - Completed season 1847-48.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Mirzapore:							
Construction of a new Gaol Hospital.	- - On account of the confined and unhealthy site of the existing hospital.	- - Sanctioned 10th August 1841.	- - - -	12,405 6 2	12,698 8 2	- - Completed season 1843-44.	—
Construction of a bridge near Wellesley's Thannah.	- - - - - - -	- - Sanctioned 23d March 1841.	- - - -	610 - 6	- - - -	- - Completed season 1841-42.	- - This work was represented to be very much required.
Construction of a Cutcherry for the Collector and Magistrate.	- - In consequence of the sale of the Custom-house.	- - Sanctioned season 1839-40.	- - - -	15,622 4 5½	- - - -	- - Completed season 1841-42.	—
Mundlaiser Gaol: Additions to	- - - - - - -	- - Sanctioned 27th November 1841.	- - - -	3,771 - 3	2,941 5 - ½	- - Completed season 1842-43.	- - The new building is capable of holding 60 or 70 convicts.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:							
Midnapore: Additional accommodation to the Collector's Cutcherry.	- - - - - - -	- - Sanctioned 6th April 1841.	- - - -	2,843 8 5	2,762 6 -	- - Completed season 1842-43.	—
CIVIL BUILDINGS, LOWER PROVINCES—REVENUE:							
Muzufferpore: Construction of two dams in the River Little Gunduck.	- - For the protection of the station.	- - Sanctioned 25th April 1842.	- - - -	682 7 11	- - - -	- - Constructed season 1842-43.	- - This work was proposed by the civil officer and the Durbungah Rajah.
Moorshedabad: Record-room for the Collector's Cutcherry.	- - - - - - -	- - Sanctioned 16th June 1840.	- - - -	1,085 2 9½	- - - -	- - Completed season 1841-42.	—

Mymensing: Construction of tiled Cutcherry for the Deputy Collector and Law Officer, and rooms for records of the Magistrate and Collector.	Rendered necessary in consequence of the crowded state of the collector's cutcherry.	Sanctioned 21st September 1846.	Mymensing	4,948 1 5	35,75 1 2		As very indifferent roofs are made from tiles at the station, a revised estimate was passed, providing for the substitution of flat roof and pucca superstructure walls, in lieu of tiled roofs and kutcha pucca walls.
Moozufferpore: Construction of two pucca Verandahs.		Sanctioned 1st July 1846.	To the east and west sides of the collector's cutcherry.	408 4 3	408 4 3	Constructed season 1847-48.	—
CIVIL BUILDINGS, SOUTH WESTERN PROVINCES—REVENUE:							
Midnapore: Enlargement of the Collector's Cutcherry.	To provide accommodation for the joint magistrate and the assistant.	Sanctioned 13th September 1836.		7,054 10 2			The additions made were four rooms, and verandahs on three sides of the cutcherry.
House for the Revenue Surveyors and Establishment.		Sanctioned 16th January 1838.		2,913 11 4	—		
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Mynpooree: Construction of a Tehsildarry Cutcherry.	For the collector and magistrate	Sanctioned 3d March 1842.	At Ghirole	4,009 11 6	4,174 7 2	Completed season 1843-44.	—
Alterations and additions to the Sirpoorah Cutcherry.	To adapt for the Tehsil establishment of the Lukat Eytah Division.	Sanctioned 7th October 1842.	Sirpoorah	1,728 2 6½		Completed season 1843-44.	—
Mahur: Construction of a Bungalow.	For the deputy collector	Sanctioned 18th June 1846.	Scinde Division	1,964 5 2	1,964 5 2	Completed season 1846-47.	—
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Moorshedabad College: Construction of.		Sanctioned 6th April 1840.	Moorshedabad	76,500 5 4	73,000 — —	Completed season 1843-44.	In the amount expended is included *Rs.* 2,400. 5. 4., for the purchase of land, &c. for a site, which was not included in the estimate.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Mohun Chowkee; New Staging Bungalow at.	In the substitution of one previously existing at Rajpore.	Sanctioned 14th November 1840.		1,477 7 3	1,189 13 5	Completed season 1840-41.	It is expected that the convenience of travellers will be much increased by this arrangement.
Mussooree Church: Construction of a new Roof, and repairs of.		Sanctioned 21st September 1841.		1,359 —		Completed season 1843-44.	The cost of furniture is included in the expenditure.
Mozuffernuggur: Construction of Staging Bungalows at Scharunpoor.	The executive engineer was directed to commence upon the buildings without delay, as they were urgently required for the accommodation of travellers.	Sanctioned 18th November 1844.	Seharunpoor	4,122 — —	4,390 3 2	Completed season 1845-46.	—
Meerut: Purchase of a House for a Post-office.	Provided on the representation of the Postmaster-general North-western Provinces.	Sanctioned 25th September 1849.	Meerut	4,500 — —		Season 1849-50	This house was the property of Mr. Charde; the executive engineer considered it well worth the sum asked by the proprietor, and sanctioned by Government for its purchase.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:				*Rs. a. p.*	*Rs. a. p.*		
Midnapore:							
Construction of a Staging Bungalow.	As a resting-place for travellers	- - Sanctioned 14th July 1841.	Midnapore - -	1,442 8 9½	1,403 - 4	- - Completed season 1842–43.	—
Construction of a new School-house.	- - To replace a building which is stated to have been accidentally burnt down.	- - Sanctioned 1st December 1841.	- ditto - - -	3,217 6 7	3,400 - 7	- - Completed season 1843–44.	—
Addition to the Collector's Cutcherry.	For a post-office - - -	- - - - -	- - - - -	- - - - -	1,042 2 1¼	—	
Moulmein: Construction of a new Wharf.	For the principal bazaar - -	- - Sanctioned 17th July 1843.	Moulmein - -	- - - - -	2,672 1 9	- - - -	- - The suspension of the works was ordered on the 23d September 1843, as some changes were stated to be in contemplation, which might render the construction of the wharf unsuitable at the place originally intended.
Middleton Point: Renewal of the Stockade, with saal posts.	- - This stockade must be maintained for the protection of the Government establishment from tigers.	- - Sanctioned 20th November 1844.	Middleton Point -	2,576 2 3	2,665 13 -	- - Completed season 1845–46.	—
Moulmein: Substitution of tiled for thatched Roofs to certain Marine Buildings.	- - For the protection of naval stores.	- - Sanctioned 11th March 1846.	Moulmein - -	719 9 9	736 - 9	- - Completed season 1847–48.	—
Repair of the Roof of St. Matthew's Church.	- - In consequence of the leakage of the old thatch roof.	- - Sanctioned 4th November 1848.	Moulmein - -	1,138 11 11	1,138 11 11	- - Completed season 1849–50.	The new roof is shingled.
CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Mirzapore: Construction of a Staging Bungalow.	- - For connecting the line of bungalows on the Deccan road towards Nagpore with those on the Grand Trunk Road from Calcutta to Delhi.	- - Sanctioned 25th September 1843.	Mirzapore - -	2,340 9 2	2,340 9 2	- - Completed season 1844–45.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—MARINE:							
Moulmein:							
Construction of a Hospital Ward within the compound of the European Infantry Hospital.	- - For the reception of sick men of Her Majesty's ships on the river.	- - Sanctioned 24th January 1842.	Moulmein - -	758 8 10	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.
Construction of a Post-office and five Sheds.	For marine stores - - -	- - Sanctioned 27th April 1842.	- - - -	4,004 6 3	3,221 5 7	- - Completed season 1842–43.	—

POLITICAL BUILDINGS, LOWER PROVINCES:						
Moorshedabad: Repairs to the Mausoleum of Mahobat Jung.	- - - - - - - -	- - Sanctioned season 1840–41.	At Kooshbang - -	1,914 - -	- - - -	- - Completed season 1842–43.	—
CANALS, NORTH-WESTERN PROVINCES:						
Nyashur Watercourse - -	For irrigation - - - - -	- - Sanctiond 21st November 1835.	- - This watercourse leaves the main channel just under the village of Tanda, and passes to the east of Nyashur.	4,030 11 3	- - - -	- - Completed season 1841–42.	—
Nuggeenah Canal:							
At Moradabad - - -	For irrigation - - - - -	- - Length, 23 miles; sanctioned in 1839–40	- - - -	33,369 5 7	- - - -	- - Completed season 1841–42.	- - It is expected that 5,000 rupees will be ultimately realised by water rent.
Raising of the banks of the -	- - In order to admit a sufficient quantity of water.	- - Sanctioned 16th March 1841.	- - - -	1,049 11 -	- - - -	Season 1842–43.	—
Nujufghur Jheel Canal: Formation of a Channel for draining the.	- - To enable the people to cultivate such land which in past seasons has been submerged.	Sanctioned 1846–47 -	- - - -	- - - - -	58,077 2 -	- - - -	- - The complete drainage of the Jheel has this year brought a large quantity of land into cultivation.
Nuggeenah Canal:							
Construction of a first-class Chowkee.	- - - - - - - -	- - Sanctioned 3d March 1843.	- - Situated near the regulating dam on the Kurcola Nuddee.	932 7 3	932 7 3	- - Completed season 1843–44.	—
Construction of a second-class Chowkee.	- - - - - - - -	- - Sanctioned 3d March 1842.	- - Situated near Jogeepara.	131 6 3	131 6 3	- - Completed season 1843–44.	—
Nyashur Dam: Increase to the Waterway of the.	- - In consequence of the excessive body of water thrown on the dam during the rains.	- - Sanctioned 31st March 1845.	- - - -	- - - - -	2,040 - -	—	
Nujufghur Jheel Drain; Annual clearance of the.	- - - - - - - -	- - Santioned 3d February 1848.	- - - -	711 14 4	—		
CANALS AND RIVERS, LOWER PROVINCES:							
Nuddea Rivers: Toll Collections.	- - - - - - - -	- - Length of rivers, 420 miles.	- - - -	- - - - -	- - - -	- - - -	- - The toll collections on these rivers, viz., the Blaigerutty, Muttabhangah, and Jellinghy, during the year 1847–48, amount to *Rs.* 2,38,729. 2. 9. The total expenditure 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.* 1,91,466. 3. 3.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Nuddea: Construction of an Iron Suspension Bridge over the Ishamuttee River.	- - - - - - - -	- - Sanctioned 24th February 1847.	- - At the village of Bungong.	- - - - -	48,000 8 - Of which 20,000 rupees will be subscribed by Baboo Kalleepersaud Podlar.	- - - -	- - The project for this bridge contemplates two spans of 180 feet each, with a roadway 16 feet wide, including the thickness of the half drop bars on each side; the angle of suspension will be 15°. (*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
ROADS AND BRIDGES, LOWER PROVINCES:				*Rs. a. p.*	*Rs. a. p.*		
Nowgong District: Construction of Two Roads: viz., from Nowgong to Sumoogooding, *vid* Deemapore, and from the Golah Ghaut to Deemapore.	- - In consequence of the contemplated operations against the Aagumi Nagas.	- - Sanctioned 18th October 1850.	- Nowgong District	- - - - - -	For the former road *Rs.* 1,080 For the latter road, *Rs.* 1,000		
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Nusseerabad and Ajmere: Improvement of the Road between.	- - To remove the difficulties attending the passage of wheel carriages between these two places, the one a chief military station, the other a depôt for military stores.	- Length 13 ½ miles; estimate sanctioned 13th November 1840.	- - - -	5,773 14 10	7,979 2 9	- Completed season 1842–43.	- This road has been made practicable for wheeled carriages.
Further Improvements to -	- - By constructing pucka revetments over watercourses which intersect this line.	- Length 13 ½ miles; sanctioned 5th November 1842.	- - - -	2,259 4 3	2,204 3 10	- Completed season 1843–44.	—
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Newabgunge: Construction of an Iron Suspension Bridge over the Pangyle.	- - In consideration of the great traffic on the line of road, and of the importance of the bridge to the good of the country.	- Sanctioned season 1844–45.	- - On the road between Bareilly and Perlibheet.	25,943 - -	27,471 11 2 ½	- Completed season 1847–48.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Noacolly: Construction of a wall around the Gaol Hospital, and one separating the female wards.	- - - - - - - -	- - Sanctioned 15th January 1838.	- - Noacolly - -	1,021 7 11	- - - -	- - - -	- - The works were executed a considerable time back, but there has been delay in the submission of the bill.
Noakallee Gaol: Construction of two additional wards.	- - For the Hazut and Dewanny prisoners; to effect a better classification of the prisoners.	- - Sanctioned 4th November 1846.	- - Noakallee - -	1,746 - 2	1,064 - -	- Completed season 1847–48.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Nowgong: Temporary Buildings, Roads, &c.	- - The Civil Station of Bungagarah has been removed to Nowgong.	- - - - -	- - - - -	2,948 6 6	—		
Construction of additional Buildings.	- - As a treasury and record-rooms.	- - Sanctioned 23d June 1841.	- - - - -	6,417 - -	4,950 8 6	- Constructed season 1846–47.	- - The buildings are to be of pucca materials, with a terraced roof. There has been an excess of *Rs.* 1,466. 2. 6. over the sanctioned amount; and as the executive officer has been able to account satisfactorily for this to the extent of *Rs.* 752. 10. 1. only, he has been held responsible for the balance.

Construction of an additional Gaol Ward and other Works.	- - - - - - - -	- - Sanctioned 30th March 1841.	- - - -	906 10 7	- - - -	- Completed season 1841-42.	—
Construction of 20 Drain Bridges.	For drainage purposes - -	- - Sanctioned 12th September 1842.	- - - -	1,722 13 10	1,722 13 10	—	
Construction of a Cutcherry	- - To replace an old cutcherry, built originally of inferior materials, and now in a decayed state.	- - Sanctioned 23d October 1844.	- - - -	7,033 5 11	4,354 9 5	- Completed season 1848-49.	- - The amount includes the cost of an additional wing, not provided for in the estimate, but commenced on, in compliance with a requisition by the Commissioner in Assam.
Construction of a new Circuit Bungalow.	- - In lieu of the present circuit bungalow, which is in an unsafe state.	- Sanctioned December 1845.	Nowgong - -	- - - - -	2,752 - -	—	
Erection of a Wall around the Gaol Buildings.	- - In accordance with the views of the civil officers.	- - Sanctioned 28th October 1846.	- - - -	3,302 1 10½	3,302 1 10½	- - - -	- - - An estimate amounting to *Rs.* 3,188. 10. 2., for the construction of a new gaol in 1848, to consist of a criminal ward 160 × 36, a civil ward 72 × 36, hospital 72 × 36, guard-room and malakana 70 × 20 feet, with six ranges of cooking sheds; the buildings to be thatched over, supported on saul posts and walls of whole bamboo. The new buildings are to be constructed within the walls erected, agreeably to the estimate sanctioned in 1847.
Nattore: New Roofing the south end of the Judge and Magistrate's Cutcherry.	- - - - - - - -	- - Sanctioned 20th May 1846.	Nattore - - -	1,732 5 -½	- - - -	- Completed season 1847-48.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Nursingpore: Construction of a Malkana, and additions to the Cutcherry at.	- - - - - - - -	- - Sanctioned 1st April 1844.	- - - -	4,094 10 5	4,739 9 -	- Completed season 1846-47.	- - The necessity for these works was brought to notice by the Commissioner of the Saugor Division.
Newabgunge: Addition of a Record-room to the Collector's Cutcherry.	- - - Great inconvenience was experienced from the distance between the cutcherries of the Magistrate and Collector; the new record-room was to be connected by a covered passage.	- - Sanctioned 14th January 1846.	- - - -	7,407 3 2	7,164 - -	- Completed season 1847-48.	—
Neemuck: Construction of a Gaol at.	- - The outlay is chargeable to the revenues of the district of Jawud Neemuck, transferred by Scindia to the British Government.	- - Sanctioned 10th October 1846.	Neemuck - - -	14,100 10 10	17,860 3 6	- Completed season 1848-49.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Nuronl: Construction of a new Tehsildarry Cutcherry at.	- - To supersede the old cutcherry at Sorb, which will be sold.	Sanctioned in 1843 -	- - Situated in the Cawnpore District at Soosulampore.	5,687 4 1½	5,674 - 7	- Completed season 1844-45.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—REVENUE:				*Rs. a. p.*	*Rs. a. p.*		
Noakhally: Construction of a Record-room over the Collector's Cutcherry.	- - The necessity for this work was brought to notice by Mr. Commissioner Ricketts, who stated that all useless papers among the Bullooah records had been destroyed, and that the remaining papers had been arranged with all practicable economy of space, but that there was no accommodation for them.	- - Sanctioned 29th December 1847.	Noakhally - -	3,157 3 1	- - - -	- - Completed season 1850–51.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Noakhally: Enlargement of the Burial-ground.	- - - - - - - -	- - Sanctioned 28th September 1842.	Noakhally - -	307 14 3	307 14 3	- - Completed season 1843–44.	- - The space enclosed measures 92 × 63.
Nurrungahad; Construction of a Dâk Bungalow at.	- - In lieu of the existing bungalow, which is in a ruinous state and not worthy of repairing.	- - Sanctioned 16th September 1846.	- - - -	3,021 - -	3,021 - -	Season 1846–47.	—
CANALS, SOUTH-EASTERN PROVINCES:							
Oolabareah Canal - - -	- - - - - - - -	- - - -	- - - -	- - - - -	- - - -	- - - -	- - The abandonment of this canal was determined on, on the 12th February 1845, owing to its encroachment on the road along its side, and the Khuttee Canal, which is also a communication between the Damoorda and Hooghly Rivers, was repaired and improved.
Ooltadanga:							
Iron Suspension Bridge -	- - - - - - - -	- Estimates submitted 19th May 1840.	- - - -	12,658 6 5¼	12,040 2 6	- Constructed season 1843–44.	- - Under instruction from the Court of Directors.
Construction of Roads to the East and West of the Bridge.	- - - - - - - -	- - Sanctioned 25th July 1844.	- - - -	1,598 5 7	- - - -	- - Completed season 1845–46.	—
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Oolabareah Road:							
Construction of a Bridge on, at Sirrerampore.	- - - - - - - -	- - Length 51 miles; sanctioned in March 1841.	- - From the Cossye River to the Hooghly River.	1,619 12 3	2,000 - -	- - Completed season 1841–42.	- - Through this road the communication is at present maintained with Bombay vid the Raepore Road.
Renewal of a portion of the -	- - This road, owing to the mistake, in its first formation, of placing the canal to the south or lowest side, instead 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 1¼ miles, and a new and more retired line was adopted.	- - Length 13¼ miles; sanctioned in March 1841.	Ditto - - -	6,504 8 3	6,343 12 3	- - Completed season 1842–43.	- - This new line is at a safe distance from the Canal.

Bridge at Jorehuttee on the -	- - Required for purpose of general drainage.	- - Of one arch of six feet span; sanctioned 26th November 1842.	Ditto - - -	390 10 6	390 10 6	Season 1842–43.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Gorai Gaol: Construction of -	- - A statement was received from the local officers, showing the necessity of the work.	- - Sanctioned 9th May 1846.	- In the Gwalior Ceded District of Kuchmarghur, or Bhindaree.	10,813 10 7½	- - - -	- - Completed season 1847–48.	—
CANALS AND RIVERS, NORTH-WESTERN PROVINCES:							
Phoulock Bridge: Repairs to the.	- - The renewal of the east abutment, which failed during the rains of 1844.	- - Sanctioned 22d August 1846.	- - - -	644 - -	- - - -	- - Completed season 1846–47.	—
ROADS AND BRIDGES, LOWER PROVINCES:							
Patna to Gyah: Raising of the Road.	- - - - - - -	- - Sanctioned season 1838–39.	Gyah - - -	51,292 18 7	70,822 10 7½	- - Completed season 1841–42.	—
Patna City Road: Reconstruction of the.	- - - - - - -	Length 7½ miles -	- - - -	15,765 11 8	- - - -	- - Completed season 1845–46.	—
Purneah: Construction of four Pucca Arched Drains across the Station Roads.	- - These drains are required to prevent in future the cutting of the 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.	- - Sanctioned 5th June 1843.	Purneah - - -	983 11 -	- - - -	- Constructed season 1843–44.	—
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Putteereah and Dumow: Construction of Drains on the Roads between.	- - This road is crossed by many nullahs, liable to temporary flood.	- - Length of road, 16 miles 6 furlongs.	Dumow - - -	1,484 1 8½	- - - -	Completed 1840–41.	—
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Pangyla Nuddee: Construction of an Iron Suspension Bridge over the, at Newabgunge, on the road between Barelly and Peelibheet.	- - - - - - -	- - Sanctioned 1st February 1842.	Newabgunge - -	- - This work was suspended in season 1842–43.	22,000 - -	—	—
Pinjore vid *Khalka and Kussowlee to Subathoo*: Construction of a Road.	- - - - - - -	- - Length 21 miles 6 furlongs; sanctioned 22d March 1845.	Length. M. fgs. / Width. ft. - 1st Portion, from Pinjore to Khalka - 3 5½ / 48 2d Portion, from Khalka to Kussowlee - 8 5 / from 16 to 12 3d Portion, from Kussowlee to Subathoo 9 4 - / 12	60,787 15 6	67,307 6 11	- - Completed season 1845–46.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Place of Termination, or of Intended Termination.	Length, and Date of Commencement.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:				*Rs. a. p.*	*Rs. a. p.*		
Penitentiary: Plan for a Central one.	To contain 2,004 prisoners - -	- - - - -	- - - -	- - - - -	4,41,564 8 5	—	
Pooree: Construction of a Circuit House.	- - For the use of the Commissioner. The temporary building was destroyed by a gale, on the 30th April 1840.	- - Sanctioned 29th September 1840.	Pooree - - -	7,596 8 6½	5,751 8 5	- - Completed season 1842–43.	—
Poorce Gaol: Additional Hospital.	For sick and insane prisoners -	- - The gaol was constructed in the year 1838; the addition of a hospital sanctioned in season 1840–41.	- - - -	1,332 13 7	1,190 11 3	- - Completed season 1841–42.	—
Pooree:							
Reconstruction of the Dispensary.	- - In lieu of a building which was blown down by a gale on the 30th April 1840.	- - Sanctioned 21st February 1843.	Pooree - - -	5,250 15 5	5,437 9 1	- - Completed season 1846–47.	—
Buildings for the use of the Treasury Guard.	- - - - - - -	- - Sanctioned 27th March 1843.	Ditto - - -	2,030 8 4	2,030 8 4	Season 1843–44.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Patna Penitentiary: Construction of four Wards.	- - To supersede the present places of confinement situated in different parts of the station and its vicinity, each at an inconvenient distance from the magistrate's office.	- - Sanctioned 27th October 1845.	Patna - - -	36,251 15 3½	23,677 - -	- - Completed season 1846–47.	- - The plan approved is for the accommodation of 240 prisoners.
Purellia Temporary Gaol, Chota Nagpore.	- - - - - - -	- - Sanctioned 11th October 1836.	- - - -	- - - - -	2,924 7 6	—	
Purneah Gaol: Estimate for flueing the floors.	- - Owing to the dampness in the existing floors.	- - Sanctioned 17th November 1840.	- - - -	1,151 13 1	1,220 10 -½	- - Completed season 1841–42.	—
Purneah Gaol Hospital; Additions to.	- - Additional wards for medicine rooms, &c.	- - Sanctioned 12th October 1841.	Purneah - - -	4,825 7 2	5,096 4 5½	- - Completed season 1845–46.	—
Pubna:							
Construction of a Circuit House.	- - - - - - -	- - Sanctioned 20th November 1844.	Pubnah - - -	4,414 - -	4,099 5 -	- - Completed season 1845–46.	—
Construction of a Guard-room for the Burkundauzes attached to the Judge's Cutcherry.	- - - - - - -	- - Sanctioned 28th December 1846.	Ditto - - -	334 13 3½	- - - -	- - Constructed season 1847–48.	—

Purneah Outer Guol: Construction of Guard-rooms and Sentry-boxes.	For the security of the guards over the convicts.	Sanctioned 10th February 1851.	Purneah		1,270		It was considered desirable to allow the convicts a free resort to the inner compound, as at Gyah and Furreedpore; but in order to carry out this plan, it was necessary that the guards should be placed in greater security.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Pooree:							
Construction of a Wall around the Burial-ground.		Sanctioned 28th August 1843.	Pooree	945 2 7	1,108 4 –	Completed season 1843–44.	The necessity for this work was brought to notice by the magistrate of the Southern District of Cuttack.
Reconstruction of the Pucka Treasury and Collector's Cutcherry.	These buildings were injured by a storm.	Sanctioned 17th April 1843.	Pooree	2,720 5 8½		Completed season 1844–45.	—
Puchim Bamney Khall: Construction of an Iron Suspension Bridge over the.		Sanctioned 20th January 1847.	On the road from Calcutta to Nullooah and Calpee.	15,800 9 4	15,715 4 5	Completed season 1849–50.	The span of the suspended roadway is 100 feet between the centres of the standards, with 16 feet width of roadway, or 14 feet clear traffic way. The soil of the khall is good; the piers will therefore be built merely of gratings of saul wood, without piles below them.
CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:							
Purneah: Construction of a Cutcherry.	For the sub-deputy opium agent.	Sanctioned 16th July 1838.			2,048 12 ' 5½	Completed season 1840–41.	The foundation and plinth of the building are of pucka masonry, the superstructure of cutcha pucka, and the roof of tiles.
Patna:							
Donation towards the construction of a new Church.		Sanctioned 15th December 1840.		Government donation of	*Rs.* 16,072 – –		For this edifice the Protestant residents at Patna have subscribed 5,500 rupees. It is the intention of the Lord Bishop to make up the deficiency from the Church Building Fund.
Construction of tiled Verandah to the Cutcherry of the sub-deputy opium agent.	In lieu of an old verandah, which no longer affords the required protection.	Sanctioned 17th March 1843.	Patna	1,113 11 9½	1,338 10 11	Completed season 1844–45.	—
Punkabarree: Construction of a new Staging Bungalow and Out-offices.	To replace a similar building constructed by the Darjeeling Committee, which was condemned as totally unserviceable.	Sanctioned 18th June 1845.	Punkabarree		3,221 13 1	—	
Patna: New Buildings at the Insane Hospital.	For increasing the accommodation.	Sanctioned 8th July 1850.	Patna		5,381 14 9		This work was undertaken on the requisition of the magistrate of Patna.
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—REVENUE:							
Pooree Pilgrim Hospital: Rebuilt.		Sanctioned 1838–39	Pooree	1,386 4 2	—		

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-WESTERN PROVINCES—REVENUE—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Patna: Provision of a Circuit Bungalow.	- - The Special Commissioners' cutcherry has been converted for the reception of the office of the Commissioner of Revenue, in order that that officer's cutcherry may be given over for a circuit bungalow.	- - Sanctioned 25th May 1845.	Patna - - -	861 14 8½	- - - -	- - Completed season 1846–47.	—
CIVIL BUILDINGS, SOUTH-EAST PROVINCES—REVENUE:							
Pooree: Construction of a Treasury Guard-house for the Collector's Cutcherry.	- - - - - - -	- - Sanctioned season 1839–40.	- - - -	643 7 5½	1,060 8 4	- - Completed season 1841–42.	- - The difference is owing to its having been found practicable to dispense with eight iron gratings, for which provision had been made in the estimate.
EMBANKMENTS, SOUTH EASTERN PROVINCES:							
Ragulpore Bund: Repairs -	- - The bund was breached to a considerable extent in 1848.	—					
CANALS, LOWER PROVINCES:							
Rajmehal Canal: Construction of.	- - For irrigation, and to supersede the changeableness and uncertainty of the channels of the Nudden Rivers, any permanent improvement of the navigation of which cannot be reckoned on.	- - Length 130 miles; breadth 50 feet, and carrying at the lowest depth five feet water.	- - - -	- - The scheme 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 Hooghly to one near Monghyr on the Ganges.	38,47,437 - -	- - - -	- - The boats proceeding through the canal would reach Rajmehal on the great river by traversing 202 miles instead of 528 miles, as by the Soonderbund route, saving 326 miles in distance, and from 15 to 20 days in time; an impetus would be given by it to the working of the iron mines and coal fields. The income from it is calculated at 5,80,000 rupees per annum, or 14½ per cent. on the gross expenditure, assumed at 40 lacs, to be raised by a toll of two rupees per 100 maunds on all boats.
CANALS, NORTH-WESTERN PROVINCES:							
Rohilcund Canal - - -	Irrigation - - - - -	- - Length 48 miles; estimates submitted in 1840.	- - From a point on the Ramgunga to Shahpore, on the banks of the Dhela, near Moradabad, with a series of branches for irrigation.	- - - - -	4,50,000 - -	- - - -	- - It is probable that 291 square miles will be susceptible of irrigation when the whole of the waters of the Ramgunga are turned into it; the revenue to be derived from it is assumed at *Rs.* 87,531. 4. per annum. The Revenue Board suggested to Government to postpone this scheme until it can be ascertained with greater certainty what advantages it holds out, and whether the undertaking may not interfere with the completion of works of higher importance.
Rajpore Watercourse: Repairs to the.	- - Owing to the unusual height of the floods of the year, some injury had been sustained.	- - Sanctioned season 1846–47.	- - - -	- - - - -	1,88 7 7	—	

ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Raepore Road: From Calcutta to Bombay.	- - For rendering the overland communication with England easy to travellers, and rapid for the conveyance of the mails.	- - Length from Bombay to Calcutta about 1,200 miles; suggested by the Bombay Government in season 1837-38.	Bombay - - -		From 30,00,000 - - To 50,00,000 - - (30 to 50 lacs.)	- - - - -	- - In 1838-39 the Court were advised of measures adopted for improving the communication between Calcutta and Bombay, but the information supplied was too incomplete to enable them to decide on the line of transit, or the nature of the road which should be constructed. The Resident at Nagpore reported the willingness of the Rajah to contribute 20,000 rupees towards the road, which he was authorised to accept with suitable acknowledgments. Two plans were submitted; first for the construction of a road to be at all times practicable for wheel carriages, for travellers, and for transit of trade between Bombay and Calcutta; second, to facilitate the conveyance of mails between the capitals, by rendering the line of communication practicable for horsemen or foot-runners. Of the 1,200 miles, 232 had been made practicable for horsemen or dawk runners, by means of a grant of 20,360 rupees, which had been already authorised, and 968 miles remained. As the plans involved a very large outlay, the Court were desirous that no portion of that which remained should be commenced until a more satisfactory survey of the line was made, and an estimate of the expense submitted to them; but as the main road on to Bombay could not be completed for some years, the Government were authorised to take immediate measures for forming a road for horsemen and dawk runners from Ahmednuggur to Midnapore, which would be practicable throughout the year. The Court subsequently (under date the 3d January 1845) informed the Government that they could not sanction the construction of an expensive road, and directed that their exertions be confined to the discovery of the best route, on which such improvements only should be made as the transit of the mails imperatively required.
Construction of four large Bridges on the Third Division of this Road.	- - - - - - -	Of 3 arches, 30 feet span each.	At Sukelie River - - - - - -		10,074 7 4	*Rs. a. p.* 48,023 2 8	—
		Of 3 arches, 36 feet span each.	At Sandrawapat - - - - - -		9,957 4 6		
		Of 5 arches, 45 feet span each.	At Choolbund - - - - - -		19,888 13 2		
		Of 2 arches, 45½ feet span each; sanctioned 15th January 1845.	At Cheekala - - - - - -		7,942 10 8		
Cutting and rooting out Jungle between Sacra and Soharspallee.	Clearing the road - - -	- - Length 43½ miles; sanctioned 3d April 1850.	Soharopallee - - - - - -		7,159 - -	—	
Ruttenpoorul Nullah, on the Grand Trunk Road: Construction of a masonry Bridge over the.	- - - - - - -	- - Length 222 feet; sanctioned 2d October 1843.	- - - -	11,325 11 3	11,325 11 3	- - Completed season 1846-47.	- - This bridge is stated to be a handsome and durable structure, leading the road over two very awkward nullahs, and bringing it up to a horizontal level with the heights east and west.
ROADS AND BRIDGES, LOWER PROVINCES:							
Rewhar Ghat to Mozufferpore & Tirhoot.	- - - - - - -	- - Length 23 miles 7 furloogs; sanctioned 22d November 1836.	Mozufferpore - -	63,291 - -	- - - -	- - Completed season 1839-40.	—
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Rajpore Dhoodlee: Widening of the Road.	- - - - - - -	- - Length 14 miles; sanctioned 12th January 1842.	Dhoodlee - -	1,485 11 1	- - - -	- - Completed season 1843-44.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:				*Rs. a. p.*	*Rs. a. p.*		
Ramree: Construction of a New Gaol.	To replace the old gaol, which was represented to be in a dangerous state of decay.	Sanctioned 14th August 1843.	Ramree	7,056 8 5	6,739 10 6	Completed season 1844-45.	The new goal will be surrounded by a pucka wall 18 feet high, and will consist of one dewanny ward and three foujdaree wards, a hospital, guard-room, &c. The walls of these buildings will be composed of planks, and the roof of thatch.
Ramree: New Circuit Bungalow.		Length 80 feet; breadth 64 feet; sanctioned 1st August 1839.	Ramree	5,064 16 9	6,071 6 8	Completed season 1841-42.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Rungpore Gaol: Additions to	To improve the salubrity of the gaol.	Sanctioned season 1841-42.		819 6 2	819 6 2	Completed season 1841-42.	Much sickness had existed at this gaol.
Rungpore: Conversion of an old Judicial Cutcherry into a Gaol Hospital.		Sanctioned 28th December 1842.		3,493 6 9	11,228 5 5	Season 1849-50	The estimate provides for new roofing part of the building, removing partition walls, and dividing the hospital for the separate accommodation of male and female patients; it also provides a place for the native doctor, and medicines, and for a guard-house, cook-room, and well.
Construction of a Circuit House, Sudder Ameens' Cutcherry, &c.	To provide accommodation for the Judges' records, and the property of persons dying intestate at Rungpore.	Sanctioned 3d April 1843.	Rungpore	7,728 — —	6,791 2 3	Completed season 1845-46.	Owing to the porous nature of the tiles made at Dacca, and the consequent leakiness of the roof, it has been found necessary to replace the tiled roof with a flat roof; the excess of *Rs.* 1,403. 5. 3. has been disallowed by Government.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Rhotuck: New Gaol		Sanctioned 7th December 1839.		7,790 15 7¼	6,742 2 8	Completed season 1839-40.	This gaol is capable of accommodating 350 prisoners: the walls are of cutcha pucka materials, and the roof is of thatch.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Roorkhee: Construction of Buildings.	For a civil engineering college	Sanctioned December 1847.	Roorkhee		10,000 — —	—	
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Russapuglah: Additions and alterations to the Building occupied as the Office of the Superintendent of the Mysore Princes.	To convert it into a school-room.	Sanctioned 15th February 1843.	Russapuglah	It was decided by Government, on the 5th July 1848, not to sanction the proposed outlay on this account.	8,851 6 1		The Board solicited the orders of Government to be allowed to call for tenders for the execution of the work by contract.

CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Ranea in the Bhuttee Territory; Construction of a Tehsildary Cutcherry.	- - - - - - - -	- - Sanctioned 7th November 1840.	- - - -	6,014 14 -	5,853 15 1	- Completed season 1842–43.	—
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 23 ¼ miles; sanctioned October 1841.	- - - -	4,877 4 5	5,031 4 9	- - Completed season 1842–43.	- - The length of these bunds is 140 miles, and the estimate for their annual repair, *Rs.* 26,205. 11. 2.; the executive officer has been directed to adopt the standard section, making the bunds three feet above the highest known rise of the river, three feet wide at the top, and giving a slope of three to one towards the river, and two to one in the rear.
Construction of some new inner Bunds at Sarun, and strengthening of part of the main Bund.	- - Owing to encroachments of the River Gunduck.	- Length four miles; sanctioned 4th April 1845.	- - - -	6,512 7 -	9,151 4 2 ½	- - Completed season 1848–49.	—
Construction of new Bunds -	- - In parts where the main bund is encroached on by the River Gunduck.	- - Sanctioned 29th April 1846.	- - - -	2,781 9 2	3,351 - -	- - Completed season 1848–49.	—
CANALS, NORTH-WESTERN PROVINCES:							
Seharunpore: Construction of a Corn-mill House.	- To replace the former building, set of mills which were destroyed by the failure of the foundations in December 1844.	—					
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Sandoway: Reconstruction of the Thoo's Bridge at - -	- - To keep open the communication between his cutcherry and the most populous part of the Sandoway Valley below the village.	- - Sanctioned 30th October 1844.	Sandoway - -	643 6 -	1,111 11 -	- - Completed season 1845–46.	- A saving of *Rs.* 468. 2. 6. was effected by a reduction in the rate for carpenters' work.
Sowrah Bridge: Repairs to -	- This bridge crosses the Sowrah River.	- - Length of the bridge 300 feet, width 20 feet; repairs sanctioned seasons 1845–46 and 1848–49.	- - Crosses the public road between the station and town of Purneah.	1,594 -	- - - -	- - Completed season 1845–46.	- - This bridge was built in the year 1822, and the woodwork had become decayed, and required to be replaced.
Shaihpore; Construction of two Bridges on the Grand Trunk Road.	- - - - - - - -	- - Sanctioned 1st July 1846.	- Between Burdwan and Gyretty.	- - - - -	18,458 15 8	- - - -	- - One bridge of three openings of 36 ½ feet each, and arches to be segments of a circle, rising 14 feet; the other of three openings 20 feet each, with similar arches, five feet in height.
Satgong to Muggra, on the Grand Trunk Road; Widening of the Road.	- - The metalled portion has been widened and the road straightened.	- - Length two miles and 100 yards; sanctioned 24th March 1847.	Muggra - - -	7,113 10 -	7,490 11 1	- - Completed season 1847–48	- - Both khud and gooting have been used in the repairs and extension of the metal.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs.* a. p.		
ROADS AND BRIDGES, LOWER PROVINCES:							
Seebsaugor to Jypore in Upper Assam.	- - - - - - -	Length 56 ½ miles -	—				
Seebsaugor to Borahaut, in Upper Assam; Repair of an Old Road.	- - - - - - -	Length 50 miles.	Borahaut - -	- - - - -	3,765 - -	- - - -	- - This work has been executed by the political officers of Government.
Seebsaugor to Debroghur -	- - - - - - -	Length 17 ¾ miles.	—				
Seebsaugor to Chokey Haut, on the Booree Dehing River.	- - - - - - -	- - Sanctioned 21st June 1841.	Chokey Haut.	—			
Saikwah to Runyagorah in Assam; Opening of part of the Road.	- - - - - - -	- - Sanctioned 14th December 1844.	Runyagorah - -	2,145 13 -	2,145 13 -	Season 1844–45.	—
ROADS AND BRIDGES, CENTRAL PROVINCES:							
Saugor 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 the old line presented obstacles.	- - Sanctioned 22d October 1840.	- - - -	1,031 4 2½	1,199 9 10	- - Completed season 1842–43.	- - The ascents over the ghauts on the old line were as steep as 1 in 10 or 1 in 12.
Saugor: Erection of an Iron Suspension Bridge over the Beose River.	- - - - - - -	- - - -	- 10 miles east from Saugor.	38,177 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.* 3,448. 5. 9.
Bridge over the Surjoo River at Lot Ghaut, in the District of Azimghur.	- - For the promotion of the traffic between the districts of Goruckpore and Azimghur.	- - Sanctioned 24th January 1848.	Lot Ghaut - -	8,752 5 11	- - - -	- - Completed season 1841–42.	- - This bridge is of masonry and of three arches; the centre arch 34 feet span, and the side ones 28 feet each.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Sehagur River: Bridge over the	- - To keep open the communication between Futtyghur and Etawah.	- - Sanctioned 25th July 1840.	Sehagur River -	2,513 - -	2,513 - -	Season 1840–41.	—
Seharunpore: Bridge over the Dholla Khallat.	- - In lieu of a bridge of two arches, which was destroyed by a high flood on the 27th September 1841.	- Sanctioned season 1841–42.	Shrunpore - -	2,753 4 9	2,753 4 9	Season 1841–42.	—
Singapore Bridge - - -	- - - - - - -	- Sanctioned season 1838–39.	- Over the Singapore River.	19,511 5 2	- - - -	- - Completed season 1841–42.	- - This bridge was constructed under contract, and it is reported to be of a permanent and substantial order.

Saharunpore: Repairs to the Dumoolah Bridge.	-- Injured by the floods of 20th June 1842.	-- Sanctioned 17th November 1843.	- - - -	1,582 3 9	1,645 14 9	-- Completed season 1843-44.	
Sukkur and Shikarpore: Construction of a Road.	-- To be passable throughout the year for troops and wheel carriages.	-- Length 24 miles; width 40 feet; sanctioned 21st February 1845.	Shikarpore - -	- - - - -	52,008 2 8	—	
Sombre River: Works on the	-- For the protection of the right bank of the river.	-- Sanctioned 5th July 1846.	- - - -	3,459 8 10	4,561 3 4	-- Completed season 1849-50.	-- The works consisted in diverting the river from its tortuous course by directing the stream into the cut formerly excavated by Major Baker, and in grooving a new splay mouth to the old channel, and throwing out a spur at its head, formed of clay rivetted in front with cribs, also loaded with clay.
Subathoo to Hurripore Road: Construction of a Revetment Wall.	-- To prevent land slips near the Koujar Nuddie.	-- Sanctioned 28th December 1849.	At the Konjer Nuddie - - - - -	4,940 3 11		Season 1849-50.	—

CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:

Soory: Construction of a Cutcherry for the Native Judge.	-- The accommodation afforded in the magistrate's cutcherry being quite unfit for holding his court.	-- Sanctioned 20th June 1842.	- - - -	959 - 11	1,176 7 7	-- Completed season 1843-44.	—
Sandoway: Construction of a Treasury Record-room and Guard-room of masonry.	-- In lieu of others of a like nature, which were condemned in the annual survey report of the 26th November 1841.	-- Sanctioned 19th June 1843.	Sandoway - -	2,600 6 2	2,243 6 5	-- Completed season 1845-46.	—
Sulkea: Construction of a Thannah of Pucca Materials.	-- Intended to replace the existing thatch and bamboo houses, which being situated in the heart of Sulkea, are liable to be burnt down.	-- Sanctioned 11th March 1846.	Sulkea - - -	1,126 12 10	1,055 - -	-- Completed season 1847-48.	—
Soory Gaol: Construction of a new Hospital.	-- In consequence of the crowded 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 17th June 1846.	Soory - - -	4,248 1 10	4,334 2 8	-- Completed season 1849-50.	-- The enlargement of the area of the gaol, by building a new surrounding wall on the north side, and the elevation of the outer surrounding wall to the uniform height of 15 feet, is intended.

CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:

Sandoway:						
New Thana House in Arracan	- - - - - -	-- Measurement 60 feet by 30; sanctioned 14th April 1840.	- - - -	810 3 10	844 13 2	-- Completed season 1841-42.	-- The wall will be of mat, the roof thatched, but the floor will be well raised and planked.
New Circuit House - -	For the use of the Commissioner	-- Sanctioned season 1838-39.	Sandoway - -	2,347 9 6	2,406 9 -	-- Completed season 1842-43.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Seibpore, in Assam		Cutcherry, 100 by 40 feet; 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 thanah house, 35 by 22 feet; sanctioned 20th February 1839.			2,535 2 10	—	
Shahabad: Purchase of a School-house.	For a cutcherry for the magistrate.	Sanctioned 4th February 1841.		8,000		Season 1842	This building had been newly constructed.
Improvement of the Drainage of the Gaol.		Sanctioned 20th January 1842.		1,195 12 6¼	1,246 6 6	Completed season 1842–43.	—
Seebsaugor, in Upper Assam: Construction of a Cutcherry.	For the magistrate, in lieu of a cutcherry which was destroyed by fire on the 25th August 1840.	Sanctioned 26th January 1841.		1,516 15 10¾	1,329 9 —	Completed season 1842–43.	The building consists of a room 80×20 feet, with a wing 30×20, and a 10 feet verandah all round.
Seebsaugor: Construction of a new Gaol Hospital, with a new Bamboo Stockade to the Gaol.		Sanctioned 18th February 1840.		887 13 3		Constructed season 1842–43.	The building consists of one centre room 84×20, with an eight feet verandah all round.
Seebsaugor, Lower Assam: Construction of a Gaol at.	For 204 prisoners, males and females.	Sanctioned 3d April 1843.	Seebsaugor	This work was suspended in season 1843–44.	9,008 14 4		The foundation and plinth of the gaol wards will be of masonry, and the remainder of the building will be composed of temporary materials.
Silchar: Construction of a new Mohafez Thanna and Treasurer's Room.	For the security of the records and treasure.	Sanctioned 6th November 1844.	Silchar	2,072 1 7	2,239 4 7	Completed season 1846–47.	—
Seebsaugor:							
Construction of a new Treasury and Thannah.	In lieu of similar buildings blown down in a storm in May 1843.	Sanctioned 21st August 1843.	Seebsaugor	618 3 1	—		
Provision of a new Gaol	The permanent hospital constructed for the light infantry is to be converted into a gaol.	Sanctioned 3d April 1843.	Seebsaugor	17,884 10 4	17,308 2 1	Completed season 1845–46.	—
Sylhet: Improvements to the Gaol Hospital.	This hospital, which was originally a mosque, is considered by the medical officer, from its extreme lowness, an unfit habitation for the sick.	Sanctioned 15th March 1847.	Sylhet	1,821 1 4	1,885 — —	Completed season 1849–50.	The estimate provides for raising the roof 6½ feet higher; and with a view to improve the ventilation, the surrounding wall, with the guard-room, will be removed to a proper distance.

Seebsaugor:							
Rebuilding of the Circuit House.	- - This work was necessary, in consequence of the damage sustained by the old circuit-house during a storm on the 28th April 1840, when the walls were so forced out of the perpendicular as to make the building in imminent danger of falling.	- - Sanctioned season 1847-48.	Seebsaugor - -	- - - - -	- - - -	- - Completed season 1847-48.	—
Renewal of the Gaol Stockade	- - The necessity for this work was reported by the civil authorities.	- - Sanctioned 8th December 1847.	Seebsaugor - -	485 4 1	483 6 9	- - Completed season 1848-49.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:							
Shajehanpore: Construction of a new Pucca Gaol Hospital and Buildings.	- - In lieu of inferior buildings built by the civil officer.	- - Sanctioned 15th September 1843.	Shajehanpore - -	5,276 8 7	5,207 13 3½	- - Completed season 1845-46.	—
Sirsa: Construction of a Well at	- - For the use of the Judicial Department.	- - Depth 113 feet, diameter 8 feet; sanctioned 20th March 1841.	Sirsa - - -	1,193 10 10	1,193 10 10	Season 1841-42.	—
Seharunpore: Construction of a Pucka Guard-room at the Gaol.	- - Owing to the insufficiency of the existing guard-rooms.	- Sanctioned 8th December 1843.	Seharunpore - -	930 1 10	930 1 10	Season 1843-44 -	- - The new building is to accommodate 30 men.
Shikarpore: Conversion of the Fort into a Gaol.	- - - - - - -	- Sanctioned 3d April 1845.	Shikarpore - -	4,531 8 2	4,531 8 2	Season 1845-46.	—
Shikarpore Gaol: Construction of a Hospital, Cook-room, &c., to the.	- - - - - - -	- - Sanctioned 24th January 1846.	Shikarpore - -	1,521 - -	1,521 - -	—	
CIVIL BUILDINGS, CENTRAL PROVINCES—JUDICIAL:							
Saugor Gaol: Enlargement of the.	- - In consequence of the removal of 100 prisoners from the district of Dumoh.	- - Sanctioned 16th April 1845.	- - - -	47,386 - -	45,528 9 8	- - Completed season 1847-48.	- - Government was of opinion that occasions might arise in which this gaol might aid the military defence of the place, and expressed a desire that the building should be calculated for defence by a small body of men; and that provision should be made 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.
Seeonee, Gaol: Additions and Alterations.	- - Under a representation from the Sessions Judge of the want of accommodation for the ordinary number of prisoners of the district.	- - Sanctioned 30th August 1849.	Seeonee - - -	9,134 4 2	- - - -	- - Completed season 1850-51.	- - The gaol accommodation had become quite inadequate, as Government refused to allow the surplus prisoners to be employed in out-gangs.

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, EASTERN SETTLEMENTS—JUDICIAL:				*Rs. a. p.*	*Rs. a. p.*		
Singapore:							
New Police-office - -	- - - - - - - -	- - Sanctioned 13th November 1839.	Singapore - -	4,041 9 7	- - - -	Constructed 1840–41.	—
Construction of a Police Thannah at Campong Clang.	- - - - - - - -	- - Sanctioned 25th March 1840.	Singapore - -	3,143 7 6	- - - -	Constructed 1840–41.	—
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Saugor Island: Construction of a Lighthouse on Middleton Point.	- - With a view of replacing the present tripod, which the Superintendent of Marine, after a personal inspection, reported to be in a ricketty condition, and accordingly recommended a masonry tower in preference to the reconstruction of a tripod, on the score of ultimate economy, as well as superior efficiency.	- - Sanctioned 18th January 1847.	Middleton Point -	- - - - -	25,938 9 4	- - - -	- - The new lighthouse will be a taper column, divided into five vaulted storys, and surmounted by a lantern of copper and plate glass. Total height of the beacon terrace 102 feet; the shaft 82 feet in height, tapering from 20 feet at bottom to 12 feet diameter at top, and surmounted with stone coping and battlement. In season 1847–48 the Military Board reported that the encroachment was so great, that it was feared that the masonry lighthouse must be abandoned, and an iron lighthouse substituted, the rough estimate for which, amounting to 44,130 rupees, had been referred to the Home Authorities. Court, on referring to parties experienced in the construction of iron lighthouses, for their opinions as to the relative merits of Colonel Irvine's, Major Godwyn's, or some other plan, were satisfied that preference was due, on several accounts, to the shell or iron plate mode of construction; they accordingly accepted an offer made by Messrs. Fox, Henderson and Co., to furnish an iron plate lighthouse, with iron staircase, gun metal lantern, glazed with plate glass, and covered with copper, reciprocating light, with silvered parabolic reflectors, together with certain stores and lighting materials, for the sum of 2,164 *l.*, or about 400 *l.* less than the estimated cost of a structure of masonry.

CIVIL BUILDINGS, CENTRAL PROVINCES—GENERAL:							
Sulkea:							
Construction of New Salt Golahs.	-- Orders of Government, 5th July 1837.	Sulkea - - -	50,901 5 10	57,244 8 4	-- Completed season 1838-39.	-- These golahs, 11 in number, are of pucca masonry, and have been well constructed by Captain Fitzgerald at a cost of *Rs.* 6,343. 2. 6. less than the sanctioned estimate.	
Construction of Division Walls in 27 Salt Golahs.	-- In consequence of the loss resulting from the present plan of separating salt of different qualities by mats, in these golahs, as the mats frequently rot, and the salt becomes mixed.	- Sanctioned 19th August 1840.	Sulkea - - -	7,879 4 3	8,606 9 -½	-- Completed season 1841-42.	—
Renewal of the roofs and Improvements to some of the Salt Golahs.	-- In consequence of the great wastage of salt occasioned by leakage.	- Sanctioned 23d December 1840.	- - - - -	- - - - -	16,470 3 -	—	
Secundrabad: Erection of a Staging Bungalow and Out-offices.	- - - - - - -	- Sanctioned 19th August 1843.	-- Situated on the Grand Trunk Road between Allyghur and Delhi.	2,072 13 5	2,133 4 4	-- Completed season 1843-44.	—
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:							
Shekoabad: Erection of a Staging Bungalow.	-- For the accommodation of travellers proceeding to or from Agra.	- Sanctioned 5th September 1840.	40 miles from Agra -	794 10 6 and 50 13 7 for furniture.	844 13 9	-- Completed season 1841-42.	—
Syree, in the Hill District of Subathoo: Construction of a Staging Bungalow.	-- To replace an old bungalow, which did not afford sufficient accommodation to travellers.	Sanctioned 1839-40	- - - -	- - - - -	1,282 6 9	—	
Simlah: Construction of Public Offices.	-- For the civil officers of the station.	-- Sanctioned season 1840 41.	Simlah - - -	6,053 4 4	4,643 14 -	-- Completed season 1842-43.	-- The excess was owing chiefly to the erection of out-offices, which were not included in the estimate.
Subathoo:							
Construction of a Protestant Church.	-- This building is to be calculated to hold 500 persons.	- Sanctioned 7th February 1845.	Subathoo - -	-- This work was suspended; *vide* paragraphs 322 and 323 of Report of 1845-46.	16,798 7 6	- - - -	-- The masonry throughout to be of dressed stone, with lime cement, but without plaster, and the roof to be formed of shingles on battens, rafters, purlins, and trusses.
Proposed construction of a House.	-- To serve for the performance of Divine Service on the Sabbath, and for a school-room on other days.	- - - -	- - - -	- - - - -	5,491 15 6	—	

(*continued*)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839-40, to 1850-51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL—*continued.*							
Syree: Construction of additional rooms to the Staging Bungalow.	-- The necessity for additional accommodation was brought to the notice of Government by the Postmaster-general.	- Sanctioned 23d August 1850.	Syree - - -	- - - - -	1,276 12 4	—	
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:							
Seconee: Construction of a Tuhsildarry Cutcherry.	- - - - - - -	-- Sanctioned season 1839-40.	- - - -	986 14 8	1,304 13 9	-- Completed season 1841-42.	—
Sumeerpore: Construction of a Bungalow and Out-offices at he Cotton Farm.	- - - - - - -	Sanctioned July 1842	- - - -	- - - - -	9,944 10 7	- - - -	-- The execution of this work was subsequently entrusted to the Civil Department, not however before an outlay of *Rs.* 1,587. 12. —. had been incurred by the executive engineer in the collection of materials.
Secundra, in Zillah Cawnpore: Construction of a Tuhsildarry Cutcherry at.	-- In consequence of the lapse of the Secundra Jagheer, and the annexation of the Pergunnah to the Cawnpore District.	- Sanctioned 4th November 1842.	Secundra - -	5,491 2 -½	5,139 13 8	-- Completed season 1844-45.	—
Sheorajpore: Construction of a Tuhsildarry Cutcherry at.	-- To replace the present cutcherry, which is represented to be very confined and insecure, being surrounded by and connected with the houses of the village.	- Sanctioned 9th May 1844.	-- Sheorajpore, in the Cawnpore District.	5,624 2 1	5,679 15 -	-- Completed season 1846-47.	—
CIVIL BUILDINGS, CENTRAL PROVINCES—ECCLESIASTICAL:							
Saugor Church - - -	-- For the benefit of the Christian community and the European soldiery.	-- Sanctioned 30th December 1835.	Saugor - - -	10,272 14 5	- - - -	-- Completed season 1840-41.	-- This church was surrounded by a wall in 1842-43; the cost, *Rs.* 1,568. 14. 10., was paid by subscription.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:							
Sonepat, in the Northern Division of the Delhi District: 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 18th December 1838.	- - -	6,405 1 4	—		

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 16th September 1845.	Shahjehanpore - -	7,364 11 6	7,700 - -	-- Completed season 1844-45.	-- The old cutcherry was disposed of, for a sum of 3,100 rupees, to Captain Ludlow.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—POLITICAL:							
Shikarpore: Repairs to the Old Agency Buildings.	- - - - - - - -	- Sanctioned 22d July 1844.	Shikarpore - -	7,000 - -	7,000 - -	Season 1844-45.	—
Scinde: Construction of an Office.	-- For the Secretary to the Government of Scinde.	- Sanctioned 9th November 1844.	Scinde - - -	- - - - -	2,169 4 3	- - - -	-- The walls will be of brick and mud, and the roof tiled.
EMBANKMENTS, SOUTH-EASTERN PROVINCES:							
Twenty-four Pergunnahs:							
Construction of a new line of Bunds from Kalkapore towards Moneergong, and back to Barreeabaugh, to include the Village of Gillarchut.	- - - - - - - -	- Sanctioned 1st June 1841.	-- Twenty-four Pergunnahs.	5,398 14 -	8,333 14 4	- Completion reported season 1844-45.	-- A considerable saving on the estimate was effected by dispensing with a portion of bund where the damming of a khall had sufficed. The estimate for annual repairs of 1850-51 amounts to *Rs.* 15,642. 14. 2.
Construction of 11 Bungalows on these Embankments.	-- For the use of the superintending engineer and the superintendent while on inspection duty.	-- Sanctioned 24th May 1843.	- Ditto - - -	1,070 1 -	- - - -	- Constructed season 1844-45.	-- The inspection bungalows on the embankments 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.
EMBANKMENTS, LOWER PROVINCES:							
Twenty-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.	- - - -	1,30,000 - -	95,160 14 9½	-- Completed season 1843-44.	-- The estimate for effecting annual repairs of these embankments for season 1849-50 amounted to *Rs.* 14,328. 0. 7.
Ditto - - - - -	-- The construction of a bund has been authorised for the protection of an estate situated on the verge of the Soonderbund Forest, near the Channel Creek.	-- Length 11 miles; commenced in season 1839-40.	- - - -	6,068 - -	6,068 - -	Season 1840-41 -	-- This estate ought, it is stated, to yield at least 20,000 rupees, if properly cultivated; whereas, in its present neglected state, it does not pay to Government one-fourth of that sum.

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
EMBANKMENTS, LOWER PROVINCES—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Twenty-four Pergunnahs—continued.							
New Line of Bunds from Calcutta towards Moneergong, and back to Boreebangh Khal, to include the Village of Gillarchat.	- - - - - - -	- - Length 14 miles, 3 furlongs; sanctioned 1st June 1841.	- - - -	8,333 14 4	8,333 14 4	Season 1841–42.	—
Construction of Hussea Bunds, and Dam across the Khas Mehal Nunnoraj.	- - With a view to the improvement of the mehal.	- - The Bhoorda Khall has been excavated to the length of 3,000 feet, and Hussea three feet in height, with a dam, has been constructed, under orders 19th October 1841.	- - - -	1,248 6 3	- - - -	- - Completed season 1843–44.	- - It is expected that the returns from this estate (8,000 rupees per annum) will be almost doubled, when a proper system of drainage has been established.
CANALS, SOUTH-WESTERN PROVINCES:							
Tully's Nullah: Strengthening Banks opposite to the Kidderpore Tollhouse.	- - - - - - -	- Sanctioned 10th May 1847.	Kidderpore - -	317 10 -	501 5 -	- - Completed season 1847–48.	- - The banks have been protected by piling, and with stone ballast.
CANALS, NORTH-WESTERN PROVINCES:							
Tajpurulla New Cut: Enlargement of the.	- - The width, 40 feet at the base, was found to be insufficient to pass the water accumulated at its mouth.	- - Length about 900 feet, the width at the base to be increased from 40 to 50 feet; sanctioned 24th April 1844.	- - - -	Not reported - - -	1,930 1 2	Season 1844–45 -	- - This cut was originally excavated by Colonel Colvin, immediately below the junction of the two canal heads.
ROADS AND BRIDGES, SOUTH-EASTERN PROVINCES:							
Tumlook Road: Construction of Drain Bridges.	- - The road interfered with the natural drainage of the country.	- - Length 18 miles; sanctioned 27th March and 24th July 1843.	- - From Paunchcoorah to Narrainpore Khaul.	3,126 8 1	3,002 11 8	- - Completed season 1844–45.	- - Such of these drains as it may be desirable to adapt to purposes of irrigation, will have sluice-gates attached to them at the cost of the landholders.

Topechanchee:							
Construction of a Bridge two miles east of.	- - - - - -	- - Sanctioned 16th October 1843.	- - - - -	3,983 11 7	6,009 7 3	- - Completed season 1846–47.	The bridge has two semicircular arches, 22 feet in span. The saving is owing to a great reduction in the quantity of masonry-work, and in the rates generally.
Construction of two Masonry Bridges, one three miles and one four miles east of.	- - - - - - -	- - Sanctioned 16th October 1843.	- - - - -	- - - - -	7,013 1 2	- - - - -	
ROADS AND BRIDGES, LOWER PROVINCES:							
Tezpore Bridge, in Lower Assam	- - To complete the communication between the station and the gaol.	- - Sanctioned 12th January 1841.	- - - -	716 12 7	841 - -	- - Completed season 1843–44.	—
Titillya Ghaut: Across the Cossyah Hills to Pancegong, in Assam.	- - - - - - -	- - Length 44 miles; sanctioned in season 1838–39.	Pancegong - -	8,888 1 6	- - - -	- - Completed in season 1841–42.	- - The whole line, as it exists now, may be traversed in every part by troops and laden cattle. The bridges are of wood, and being built of large trees, they will answer even for laden elephants.
ROADS AND BRIDGES, NORTH-WESTERN PROVINCES:							
Tongra to Goona: Straightening the Road from, and Construction of a Bridge across a Nullah at Lockwas.	- - - - - - -	- - Sanctioned 1st August 1845.	Goona - - -	1,993 13 11	1,993 13 11	- - Completed season 1846–47.	—
Umbella to Pinjore: Construction of a Military Road.	- - With reference to Government general orders of 17th November 1842, relating to the opening of roads adapted for all military purposes in the North-western frontier.	- - Length 34 miles and 7 furlongs; sanctioned 29th November 1844.	Pinjore - - -	- - - - -	91,801 8 6	- - - - -	- - The estimate provides for the construction of two bridges across the Labrew Nullah and the Choar, near Moobambpore, and 75 drain bridges of shorts.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL:							
Twenty-four Pergunnahs: Construction of a New Insane Hospital.	- - - - - - -	- - Sanctioned 26th January 1844.	- - Situated between the Sudder Dewannee Court-house, and the Iron Bridge-yard.	47,847 15 5	47,322 5 10	- - Completed season 1848-49.	—

(continued)

No. 6.—STATEMENT compiled from the Reports of the Military Board at Bengal, from Season 1839–40, to 1850–51 inclusive—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.*	Probable Time of Completion.	REMARKS.
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—JUDICIAL—*continued*.				*Rs. a. p.*	*Rs. a. p.*		
Tavoy: Construction of New Buildings.	- - A new house for the gaoler and gaol cooking-sheds; the former required to replace the gaoler's house, which had decayed; the latter in lieu of the present sheds, which, from their objectionable position, affords means of escape to prisoners.	- - Sanctioned 26th March 1845.	Tavoy - - -	1,253 10 9	1,751 3 –	- - Completed season 1846–47.	—
Construction of Circuit-houses and Out-offices.	- - - - - - - -	- - Sanctioned 17th September 1845.	Tavoy - - -	- - *Rs.* 3,893. 6. 8. was incurred in the construction of the Circuit-house.	7,527 13 6	- - The completion of the Circuit-house was reported in season 1847–48.	—
CIVIL BUILDINGS, LOWER PROVINCES—JUDICIAL:							
Tëzpore, in Lower Assam:							
Construction of a Treasury and Record-rooms.	- - To secure the records of the magistrate's office.	- - Sanctioned 30th March 1841.	Tëzpore - - -	4,589 14 4	2,563 2 4 Exclusive of convict labour.	- - Completed season 1846–47.	—
New Gaol - - - -	- The existing gaol building being in a very dilapidated state.	- - Sanctioned February 1841.	Tëzpore - - -	13,023 1 5	13,805 12 6 This amount, it is expected, will be considerably reduced by the employment of convict labour.	- - Completed season 1846–47.	- - This consists of four criminal, one nazut, one civil, one female, and one hospital ward, with dead-house and out-offices. The whole of the buildings are of kutcha pucca masonry, with thatch roof, with the exception of the cook-rooms, which have tiled roofs.
Construction of a Thatched Roof Cutcherry.	- - At the requisition of the Commissioner of Assam, in lieu of the present cutcherry, which is in a dilapidated state.	- - Sanctioned 24th June 1846.	Tëzpore - - -	4,299 15 4	4,402 - -	—	
Additions of Cutcha Pucca Walls to the Circuit Bungalow.	- - In lieu of the present temporary walls, which are liable to be destroyed by storms.	- - Sanctioned December 1845.	Tëzpore - - -	- - - - - -	2,008 - -	—	
CIVIL BUILDINGS, SOUTH-EASTERN PROVINCES—GENERAL:							
Tavoy: Construction of a New Wharf.	- - In lieu of the old wharf, which is in a decayed state, and of little use except at high water, owing to there being a space of 73 feet of soft mud between it and the stream.	- - Sanctioned 9th September 1844.	Tavoy - - -	1,778 11 2	1,778 11 2	Season 1844–45.	—

CIVIL BUILDINGS, LOWER PROVINCES—GENERAL:						
Titalya: Construction of a Staging Bungalow and Out-offices.	To provide accommodation to travellers to and from Darjeeling.	22d September 1847	Titalya	3,317 4 9	An advance of 2,000 rupees was made. An estimate, amounting to *Rs.* 3,230. 14. 8. was subsequently (5th September 1848) sanctioned.	Will supply the place of an hotel which existed at the spot, but was burnt down in 1847. In season 1849–50 a sum of *Rs.* 148. 7. 7. was expended in furnishing this bungalow.
CIVIL BUILDINGS, CENTRAL PROVINCES—REVENUE:						
Toshaum, in the District of Hissar: Construction of a Tuhseeldarry Cutcherry at.	- - - - - - - -	Sanctioned 1839–40	Toshaum	3,568 3 7	3,568 3 7	Season 1839–40. —
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—REVENUE:						
Tirwah: Construction of Buildings.	For the accommodation of the Tuhseel and Thannah establishments.	Sanctioned 18th February 1846.	- - - -	7,127 - -	- - - -	The execution of this work was entrusted to the civil officer.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—GENERAL:						
Umballah: Staging Bungalow at	For the convenience of travellers proceeding to or from Simla.	Sanctioned 1839–40	Umballah	1,645 4 5	1,645 4 5	Season 1840–41. —
Umballah Church: Purchase of the Private Church.	- - - - - - - -	Sanctioned 8th December 1846.	Umballah	3,000 - -	- - - -	Purchased season 1846–47. The sum of 3,000 rupees provides also for alterations and purchase of church furniture.
Umballah:						
Construction of a Dawk Bungalow.	To provide good accommodation for travellers at the station, through which many of the servants of Government are continually passing.	Sanctioned 3d October 1848.	Umballah	8,201 4 9	9,806 10 7	Completed season 1849–50. The contemplated outlay, although large, is not considered incommensurate with the object in view.
Construction of Bathing-houses and Pucka Well.	For the accommodation of travellers passing through Umballah.	Sanctioned 20th October 1849.	Umballah	1,158 13 6	- - - -	Completed season 1850–51. The number of travellers passing through Umballah is very great, and the private accommodation is limited to four suites of apartments.
CIVIL BUILDINGS, NORTH-WESTERN PROVINCES—JUDICIAL:						
Umballah: Construction of Buildings.	For the police battalion - -	Sanctioned 12th June 1844.	Umballah	8,634 14 10	- - - -	Completed season 1846–47. These buildings consist of a bungalow, with out-offices for the adjutant, a magazine, eight bells of arms and a rear-guard, and are constructed of permanent materials.

No. 7.

A STATEMENT exhibiting the EXPENDITURE incurred under the Presidency of *Bengal* on WORKS, SALARIES, ESTABLISHMENTS, &c. in the CIVIL DEPARTMENT of PUBLIC WORKS within the Ten (10) Years from Season 1839-40 to Seasen 1848-49 inclusive, from the Military Board Office Bill Books, will be found at Page 154 of the Printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851, the Total Amount being—

		Rs.	*a.*	*p.*
		2,23,65,343	15	1
The Expenditure for Season 1849-50 was - -		29,29,480	-	10
Ditto - - - ditto 1850-51 was - -		32,10,067	7	6
TOTAL for Season 1839-40 to Season 1850-51 inclusive - - - -	*Rs.*	2,85,04,891	7	5

PRESIDENCY OF FORT ST. GEORGE.

No. 8.

In the printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851, pages 154 to 158, particulars are given of the formation of the Department of the Superintendent of Roads, of the arrangements adopted for the management and classification of the trunk roads, and of their condition, to the 1st May 1848. The following additional information has since been furnished in a General Report on the Road Department, to the 1st May 1851, dated 17th October 1851, in which year a new line from Madras to Cuddapah by the Goolcherroo Pass from Garampilly, was classed as Trunk Road No. 12; the old direct road to Cuddapah from Kankaloor, by the Valley of Chitwail, was thenceforth to be classed as a minor branch road.

Trunk Roads.

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

The traffic on this road is so great as to make it of primary importance in a commercial point of view; the portion of it which lies between Madras and Waniambaddy, 121 miles, was reported in January 1852 to be perfectly made and bridged throughout, with the exception of the Palaur River, 2,440 yards wide, between Arcot and Vellore, its two branches near Waniambaddy, respectively 180 yards and 130 yards, and the Agarum River, 850 yards wide, between Pulliconda and Amboor; a new road four miles in extent, and partly in the town of Waniambaddy, has been opened for use, while a road for carts, between the 18th and 60th miles, with improvements of the road between Waniumbaddy and Bangalore, are the further works proposed to be undertaken; 352 carts per day, on the average, pass on 125 miles on this road, and in consequence of this great traffic 57,496 rupees were expended on repairs in 1851; and a sum of *Rs.* 31,179. 14. was demanded for the following season. The amount laid out on the Western Road from May 1845 to May 1851 was *Rs.* 3,30,655. 9. There are altogether 566 bridges, with an aggregate of 668 arches, and 3,984 feet of water-way, besides 78 road dams, over which water runs occasionally.

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

The portion between Mangalore and Frazerpett, a distance of 101 miles, has been much improved throughout. A bridge of an oblique arch of 42 feet has been constructed in lieu of one of two arches of 18 feet span, carried away in 1847, estimated at *Rs.* 2,024. 9. 9., but only cost *Rs.* 1,245. 14. 9.; and another of one arch of 45 feet is being rebuilt at Feringypett, at an estimated cost of *Rs.* 5,620. 3. 9. A branch road, practicable for carts, has been opened from Pootoor to Oopinungady, the object of which is to enable "carts that travel between Buntwall and the Munzerabad Ghaut to avoid the difficulty between the former place and Oopinungady, by following the Road No. 2 as far as Pootoor."

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

This road extends from Mangalore to Bangalore, by the Munzerabad Pass, and is now nearly completed from Mysore to Oopinungady, a distance of 112 miles. An estimate of 30,000 rupees for carrying it 18 miles further on from Oopinungady to Buntwall is under revision.

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

Advances to the amount of *Rs.* 1,83,135. 5. 2. were made up to 1st May 1851. In March 1851 this road was reported nearly completed from Cannanore to the Mysore frontier. The road by this Ghaut has been in continual use since May 1848. It is considered that an expenditure of 100 rupees per mile, per year, will be required to keep the road in order.

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

Between Walliaur and Ponany, a distance of 70 miles, a bridge of five arches of 39 feet, over the Nurgumpully, and another of one arch of 36 feet, over the Yettaditooloo, have been built; a bridge of 10 arches of 45 feet, over the Parlakadow, will be completed in 1852. A new road from Coimbatore to Waliaur, a distance of 15 miles, has been completed, and a bridge of 26 arches of 47½ feet span, over the Cauvery, between Bowany and Comarpollium, has been opened for use. A new direct line of road between Avernashy and Bowany, and further improvement of the road between Waniambaddy and Comarpollium, are proposed.

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

The portion of road between Goomdipoondy, in the district of Chingleput, and Ulloor in that of Nellore, is far from being complete; the portion between Nellore and Ulloor will be superseded by a more favourable line through Mocherla to Tungatoor. The road from Madras to Goomdipoondy will be bridged, also three streams between Goomdipoondy and Nellore. From Nellore to Ongle the road has been re-surveyed throughout, and a new line marked out between Covoor and Tungatoor. An excellent road has been made from Vizianagarum to Bimlipatam, at the expense of the Zemindar of Vizianagarum, and a bridge over the Bimlipatam River is being constructed at the expense of Government.

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

The traffic on this road is exceedingly trifling, and the road is only of importance as being on the route by which troops march from Madras to Hydrabad.

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

The portion of road from Chingleput to Ooloondoorpett (95 miles) was reported in 1851 to be constructed, and would be metalled in the next year; the road from the north bank of the Cauvery to Samiaverem has been completed, and a beautiful and convenient approach made to Trichinopoly. A bridge of 32 arches of 45 feet span has been built over the Cauvery, and another of 32 arches of 60 feet span, over the Coleroon, is under construction. A road has been surveyed between Toramungalum and Sirooganoor, and estimates have been sanctioned for a bridge over the Chinaur, and a causeway over the Oopaur. When these works are completed, the Palar at Chingleput will form the only obstacle to rapid travelling between Madras and Trichinopoly.

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.*

The principal works executed are, a road south of the Coleroon Annicut, and a bridge of 19 arches of 31 feet, built above the Annicut, over the Vellaur; the road from the lower Coleroon Annicut to Vikravandy, 64 miles, has been cleared of jungle, and marked out, and a bridge over the surplus channel from the Toollajah Tank, and another over the Vuddavaur, with a new head sluice to the South Rajah Voikal, will be far advanced, if not finished, in 1852.

No. 10.—*Proposed Road from Madras through Chittoor, Palmanar, Balsamoodram, to Bellary.*

The principal works under construction are, roads from Raneepett to Punautoor, from Punautoor to Chittoor, and from Chittoor to Palmanair; these roads would be opened and the bridges finished in June 1852.

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

The line from Madras to Codairy has been surveyed, and the portion of it from Madras to Cavetrajpett, near Poinay, has been marked out and estimated. Improvements are suggested to bring this road into general use, and to relieve the road from Madras to Poonamallee of a large number of carts carrying Bungalore, Cuddapah, and Bellary goods; thus reducing the wear and tear, and diminishing the expense of maintaining that portion of Trunk Road No. 1.

No. 12.—*From Madras to Cuddapah, by the Goolcherroo Pass from Garampilly.*

The principal work done on this line, has been the improvement of the Goolcherroo Ghaut, on the road from Roychoty to Cuddapah; improvements have also been made to the old direct road to Cuddapah from Kankaloor by the valley of Chitwail, which it is proposed should henceforth be classed as a minor branch road.

No. 9.

MADRAS DISTRICT ROADS.

PARTICULARS as to the state of these roads, compiled from reports of the collectors, submitted by the Government of Fort St. George to the Honourable the Court of Directors, under date 6th May 1850, will be found at pages 158 to 165 of the printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851. The following is a statement of the more important works executed under the Civil Engineers' Department in the years 1848 and 1849.

No. 9.

INDEX to STATEMENTS of WORKS Executed by the CIVIL ENGINEERS DEPARTMENT during the Years 1848 and 1849.

NAME OF WORK.

No. 16. Absanagrum Tank, repair of the Bank of.
24. Arbyle Ghaut, and line of Road from Yellapoor to Meerjan.
32. Agoomby Ghaut, Road from the foot of the, at Somaishwar to Bujjay.
33. Agoomby Ghaut, Road from the foot of the, at Somaishwar, to Halandee.
41. Araselaur River, Bridge over.
82. Annamullay Teak Forest, examination of.
94. Ambasamooduram Bridge, flooring to six of the Arches of.
7. Cocanada, Lattice Bridge at.
18. Construction of Sluices to different Tanks.
23. Coloor Ghaut.
27. Cassergode and Solea Road.
35. Caurvery Pauk Tank repairs.
38. Calavaye Tank Calingulah.
47. Corayaur River, Bridge over the.
48. Cuddaveyaur River, Bridge over the.
59. Covellay Surplus Channel, extending the.
67. Cauvery River, Bridge over, at Trichinopoly.
72. Colcroon River, repairs of the Banks of.
76. Calicut Canal (Malabar).
89. Coonoor Annicut, restoration of the.
100. Cunnadien Channel, from an Annicut across the Tambrapoorny.
5. Dhowlaisweram, permanent Railroad to.
22. Davamunny Ghaut and Road.
87. Dindigul and Pulney, repairs to Road No. 2, between.
11. Ellore and Masulipatam, Road and Bridges on the Road between.
1. Godavery Annicut.
8. Godavery Guttoo Annicut.
36. Goonamadee Calingulah.
31. Honore Jetty.
80. Hassanoor Ghaut.
12. Kristnavarem Limekiln.
14. Kundlairoo, Annicut across the.
75. Khansaibs Channel, Bridge across the.
74. Laulpett, improving the Road from, through Munargoody, to Womampillioor.
21. Munjerabad Ghaut and Road.
25. Mangalore and Agoomby Road.
45. Mercalcurray River, improvement of.
51. Moodecondaun River, Bridge over.
73. Manargoody and Chellumbrum, improving the Road between.
83. Madura, New Sepoy Lines in the Town of.
84. Madura, improvement of Drainage in Town of.
95. Madras to Quilon, repairing High Road, No. 4, from.
104. Madras to Quilon, repairs on the High Road from, in several Talooks.
105. Mailacul Channel, from the Murdoor Annicut.
6. Narsipoor, Road from, to Cakarapurroo.
19. Nellore Tank, completion of new Channel of supply to.
37. Notairy Otairy Calingulah.
40. Narasinga Cauvery River, improving the.
49. Nundalam River, Bridge over the.
50. Negapatam, improving the Port of.
60. Nadookurray Main Channel, improving the.
76. Nundimungulum Oopenaur River, Bridge across the.
93. Nully Oday, Bridge across the.
99. Nenmany Annicut Channel and Tank.
98. Oopenungady and Pootoor Junction Road.

NAME OF WORK.

No. 85. Oopaur River, improvement of Road to, and construction of Bridge over the.
9. Poolapurty Annicut.
10. Pedda Oopalem Channel, Annicut across the.
15. Pennair, opening of a new Channel from the.
52. Pootaur, Bridge over the.
53. Paumany River, Bridge over the.
54. Point Calimere, Beacon Column at.
64. Peravully Channel, improving the.
65. Pungoony Channel, improving the.
77. Perambaddy Pass, Line from the frontiers of Coorg to the Coast at Cannanore.
86. Panlaur River Wagganies.
106. Paupanaul Channel, from the Carapanuddee.
61. Rettenagoody Annicut, extending the, and widening the Nuttud Nullah Channel.
3. Samulcottah Channel.
13. Survapully Channel.
17. Survapully Talook and Bodelingumpaud Cutcherries.
26. Sircy and Darwar Road Bridges.
44. Shembu Cauvery River, head Sluice of the.
92. Shevacausee, Cotton Gin House at.
103. Streevigoontum, Talook Revenue and Police Cutcherry in.
2. Thoolia Bagah Channel.
42. Trimulrajen, Bridge over the.
50. Trimulrajen, Bridge over, on the road from Combaconum to Negapatam.
55. Tranquebar, Beach Defences at.
62. Trichinopoly, improving the Road from, along the right bank of the Cauvery.
63. Trichinopoly, Gaol at.
68. Trichinopoly, new Road from, to Towagoody, the first stage to Tanjore.
69. Trichinopoly, constructing part of Road from, to Arrialnor.
70. Trichinopoly, improving the Road from, to Laulgoody.
81. Teppacandoo Bridge.
86. Thiroopoovanum Channel, Bridge across head of.
96. Thimmarajasamoodrum Cooticaul Annicut, reconstruction of.
97. Thirtangul Pereacolum, restoration of the.
98. Thentherapairee Head Sluice, repair of the.
101. Tinnevelly Channel from the Sootamullay Annicut across the Tambrapoorny.
102. Teutacorin, New Sea Custom-house and Maste. Attendant's Office at.
39. Vuddavaur River, improving the.
43. Veerasholen River, Bridge over the.
46. Valavanaur River, improvement of the.
66. Vitticutty Main Channel, improving the.
71. Vuddavaur River, widening the, and forming a Dike on its left bank.
90. Vigay River, rebuilding Causeway across.
91. Vaddakurray Tank, supplying Channel of.
20. Wullabapoor Annicut, reconstruction of.
34. Wotairy Nullah, Embankment Channel and Bridge across the.
57. Weyacondaun Channel, improvement of the.
58. Weyacondaun Channel, rebuilding of Dark's Bridge across.
4. Yanam Embankment.
29. Yellapore and Moondagode Road.
30. Yellapore and Hallaul Road.
79. Yenudmuckle Apron.

No. 9.—PARTICULARS of some of the more important of the WORKS executed under the MADRAS CIVIL ENGINEERS' DEPARTMENT, in the Years 1848 and 1849; extracted from the Divisional Reports.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
FIRST DIVISION.							
Rajahmundry District:				*Rs. a. p.*			
(1.) Godavery Annicut	For irrigation			Total expenditure to end of 1849, 6,59,344			The opening of the quarries, laying railroads, building stone dams, construction of the Dhowlaisweram and Muddoor Branch annicuts, and lock and sluices at various places.
(2.) Thoolia Bagh Channel	Clearing the old channel, and embanking.	Commenced in 1846	Cocanada River	16,929			Average collections: 1840 to 1845 - 34,541 rupees. 1849 - 52,232 " Increase - 17,691 "
(3.) Samulcottah Channel	For irrigation	27 miles in length		4,644			Chiefly for sluices. This is an entirely new line, carried through a tract of country almost without water, excepting some tanks dependent on the local rains: it is a striking proof of the value of water, the average collections having risen from 25,280 rupees to 30,486 rupees in 1846–47, and 36,093 rupees in 1847–48, and 47,910 rupees in 1849.
(4.) Yanam Embankment				8,120			This embankment, carried along the eastern side of the Godavery, was utterly inefficient previous to 1848.
(5.) Permanent Railroad to Dhowlaisweram.	For the permanent use of the district.			5,410			Leading from the Quarry Hill to the bank of the river.
(6.) Road from Narsipoor to Cakarapurroo.	To connect Narsipoor with Rajahmundry.	Length, 24 miles	Cakarapurroo	9,407			Expenditure incurred in the erection of bridges and tunnels, and repairs to the roadway.
(7.) Lattice Bridge at Cocanada		Length, 240 feet between the abutments, in three bays of 50 feet each, and two of 40 feet.		1,065 balance of a contract of 2,400 rupees.		Finished in 1848	This was a first experiment to ascertain the cost and efficiency of a mode of construction so extensively used in America, and which has also been adopted in England. It has been of the greatest use, many thousands of people passing over it daily.
Vizagapatam District:							
(8.) Godavery Guttoo Annicut	For damming up the water which flows down the river, to supply irrigation to a tract of country paying revenue to the amount of 15,000 rupees.	Length, 324 feet		3,187		Completed; date not given.	Constructed across the Shadah Nuddee, near Cassimcottah.
(9.) Poolapurty Annicut	To cause the water which comes down the river, instead of running waste into the sea, to be stored up in several tanks or reservoirs for irrigating lands in the Survasiddy Talook, assessed at 11,600 rupees.			1,712			Constructed across the Pundaroo River.

(continued)

No. 9.—Particulars of some of the more Important of the Works executed under the Madras Civil Engineers' Department, in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
First Division—*continued.*							
Vizagapatam District—continued.				*Rs. a. p.*			
(10.) Annicut across the Pedda Oopalam Channel.	For turning the River Pundaroo into its right course.			830	—		
Masulipatam District:							
(11.) Road and Bridges on the Road between Ellore and Masulipatam.	For making the passage of irrigating channels practicable for bandies at all seasons.			4,029			Nearly 40,000 bullocks pass over them yearly with salt alone, to the Hyderabad territories, which before were weeks in the monsoon, waiting till the water fell to ford the rapid streams.
(12.) Kristnavarem Lime Kiln	For supplying lime for all the contemplated bridges on No. 6 Trunk Road.			143	—		
SECOND DIVISION:							
Nellore District:							
(13.) Survapully Channel				1,751			Leads off from the Pennair River, and after running a course of nearly three miles, branches into three channels. Passes on the western side of the town of Nellore, and is spanned by three bridges and an aqueduct built of laterite stone. The revenue derived, in 1848–49, from the tanks depending upon the Survapully River channel for their supply of water, was 12,506 rupees.
(14.) Annicut across the Kundairoo.	To afford a better supply of water to the tanks of Buolvole, Collecoodooroo and Cutwapully, of the Survapully talook.	Length, 90 feet; commenced, May 1849.		3,090		Completed, July 1849	The body of this work is 90 feet long by 4 ½ wide on the average, and six feet high, of laterite stone. Standing on a foundation 8 feet deep and 8 ½ feet broad on the average, supported by wing walls of brick in chunam 19 feet high, with buttresses, and further strengthened by an apron of rubble stone, 33 feet wide, which was secured by a retaining wall sunk 9 feet deep in the bed of the river.
(15.) Opening of a new Channel from the Pennair.	For the better supply of the Nellore tank.	Rather more than five miles in length.		6,512			This is a capacious reservoir, capable of irrigating 2,143 goortoos of land, the ayacut revenue of which is 32,167 rupees, but of late years the average revenue derived from it is only about 18,000 rupees.
(16.) Repair of the bank of the Abeanagram Tank in the Calagherry Talook.				2,965			In 1847, this tank was breached in several places; this expenditure was therefore necessary to protect existing revenue.
(17.) Survapully Talook and Bedillingumpaud Cutcherries.				4,194			Constructed of brick in chunam, with beams of teak wood, and palmyrah rafters and reepers.

(18.) Construction of sluices and calinguiahs to different tanks.	- - - - - - - -	- - - -	- - - -	6,234 - -	—	
(19.) Completion of the new channel of supply to the Nellore tank.	- - - - - - - -	- - - -	- - - -	2,315 - -	- - - - Completed 1849 -	- - The revenue, which in 1844–45 was 10,882 rupees, was, in the season of its completion, 1848–49, 18,234 rupees.
THIRD DIVISION.						
Bellary:						
(20.) Reconstruction of the Wullabapoor Annicut.	- - - - - - - -	Commenced 1846–47	- - - -	Not stated - -	- - - - - - Completed in May 1848.	- - This work is a dam across the Toombudra River, 44 miles west of the town of Bellary. The chief executive difficulty was to keep the work free from sudden freshes, as also from the water above, which throughout the dry season stands from 8 to 12 feet above some of the rocks on which the foundations of the work are laid.
Canara:						
(21.) Munjerabad Ghaut and Road.	- - Constructed in lieu of the Bissly Ghaut Road.	- - Length, 30 miles; commenced 1842–43.	- - - -	62,461 - -	- - - - - - Expected to be completed in June 1852.	- - This line leads from Munjerabad, in the Mysore country, towards Mangalore *viâ* Oopenungady. A few carts only have yet been on the line, owing to a part of it being impracticable for cart traffic.
North Canara:						
(22.) Davamunny Ghaut and Road.	- - - - - - - -	Length, 30 miles -	- - - -	42,619 - -	- - - - - June 1851 - -	- - This line leaves the old Sircee and Neelcoond road in the Baldghat of North Canara, about nine miles from Sircee, and passed over the ghauts at Davamunny, a few miles to the north of Neelcoond; early in 1848 it was first passable for carriages, but as a number of rivers and nullahs still required bridging, it was not until the end of 1849 that it was much used by carts conveying cotton from the interior. Numbers of these vehicles, as well as bullocks, were met with at every turn of the road. One large bridge and several of minor importance are still required.
(23.) Colour Ghaut - - -	- - - - - - - -	- - Length, 8 miles; commenced 1847.	- - - -	8,000 - -	- - - - - Completed 1848–49 -	- - Nearly midway between the Munjerabad and Davamunny Ghauts. When complet d, the roads above the ghaut will lead to it from Anantapoor, Shikarpoor, and Shemoga, and below; junction lines are in progress from the foot of the ghaut to Coondapoor and to Byndoor, a small port nearly due west of the ghaut. The general course of the old line of road has been selected, and though not very easily practicable for carts, it is considered very easy for bullocks and horses.
(24.) Arbyle Ghaut and line of road from Yellapoor to Meerjan.	- - - - - - - -	Length, 45 miles -	- - - -	3,091 - -	- - - - - - - - -	- - The slope of this road is very gentle, and easily practicable for bandies; it is being carried on from between Soonksal and the River Gurgawully. A branch line to Aucola, about 15 miles in length, is being surveyed.
(25.) Mangalore and Agoomby Road.	- - - - - - - -	Length, 60 miles -	- - Southern parts of the Nugger district of Mysore.	5,691 - -	- - - - - - - - -	- - Leads through Goorpoor, by the foot of the Agoomby Pass, to the southern parts of the Nugger district of Mysore. This road has been made practicable for carts as far as Yenna, Nolay, Mutt, and will probably be made so throughout, during the next working season.
(26.) Sircy and Darwar road bridges.	- - - - - - - -	- - - -	- - - -	15,608 - -	15,724 rupees - - - - Completed, season 1849-50.	- - To complete the line of road from Sircy to Darwar district frontier with substantial bridges. The span of the largest of these bridges, the Jhendagherry bridge, rebuilt in 1848–49, is 42 feet; the road beyond the frontier is under the superintendence of the Bombay officers. It is expected by season 1850–51 that from the sea coast at Coompta to Darwar the road will be practicable throughout the year for wheeled carriages.

(*continued*)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department, in the Years 1848 and 1849, &c.—*continued*.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
THIRD DIVISION—*continued*.							
North Canara—continued.				*Rs. a. p.*	*Rs. a. p.*		
(27.) Cassergode and Soolea Road.	- - - - - - - -	- - Length, 29 miles; commenced 1849–50.	Jaulsoor - - -	1,645 - -	- - - -	Next working season	- - This is a branch line from the sea coast at Cassergode to Jaulsoor, near Soolea, about 12 miles from the foot of the Sirmpajee Ghaut; nearly half the road work has been completed. Like most of the other lines leading from the coast towards the ghauts, a good deal of thick jungle has to be cleared away, and many precipitous hills surmounted.
(28.) Oopenungady and Pootoor Junction Road.	- - - - - - - -	- - Length, 8 miles; commenced 1849–50.	- - - -	1,175 - -	- - - -	- - - -	- - The estimate does not provide for any masonry works, with the exception of a few small tunnels; the larger nullahs have been temporarily bridged with trees, cut down in the neighbourhood. Owing to the depth of water at the ferry at Oopenungady, and the rocky bed at other parts, carts will not be able to cross without being unloaded.
(29.) Yellapoor and Moondagode Road.	- - To connect the Darwar and Sircy line with the top of the Arbyle Ghaut.	- - Length, 25 miles; commenced season 1849–50.	- - - -	1,269 - -	- - - -	- - - -	- - The main obstacle on this line is the Baldti nullah, which will be bridged.
(30.) Yellapoor and Halliaul Road.	- - To connect the northern parts of the Soopan Talook with the head of the Arbyle Ghaut.	Length, 30 miles -	- - - -	- - -	4,625 - -	- - Expected time of completion, end of April 1851.	- - The line twice crosses a large nullah, over which wooden bridges will be erected.
(31.) Honore Jetty - - -	- - As a breakwater to protect the custom-house and adjoining warehouses from encroachments of the sea.	- - - -	- - - -	1,706 - -	- - - -	Completed 1848–49 -	- - Appears to have fully answered the purpose. The wharf, walls, and other conveniences for shipping and landing goods have been much improved.
(32.) Road from the foot of the Agoomby Ghaut at Somaishwar to Bujjay.	- - Completed for the purpose of connecting the Agoomby Ghaut with the head of the navigation of the Nullah (Savourna Nuddy) which runs into the backwater two miles south of Bramahwar.	Length, 18 miles -	Bujjay - - -	4,479 - -	4,483 - -	- - Completed; date not given.	Estimates for bridges are being prepared.
(33.) Road from the foot of the Agoomby Ghaut, at Somaishwar, to Halandee.	- - For the purpose of connecting the foot of the Agoomby Ghaut with the head of the navigation of the large nullahs running into the broad backwater east of Coondapoor.	Length, 15 miles -	Halandee - -	2,274 - -	2,239 - -	- - Completed; date not given.	- - This road has been made practicable for carts throughout.
FOURTH DIVISION.							
Chingleput:							
(34.) Embankment, channel, and bridge across the Wotairy Nullah.	- - To divert the waters of the nullah into the Coum River, to prevent them, as hitherto, overflowing the Perambore lines, near Madras.	Length, 492 yards -	- - - -	1,441 11 -	- - - -	Completed 1849 -	- - The work is considered a great boon to persons in Perambore.

North Arcot:							
(35.) Cauvery Pauk Tank repairs.	- - - - - - -	Length, 3¼ miles -	- - - - -	- - - - -	- - - - -	- - - - -	- - The bank of the tank is 3¼ miles in length, reveted throughout, and is 22 feet high in the inside. The revenue collected from cultivation for the last 20 years amounts to 804,398 rupees; the repairs to 97,805 rupees.
(36.) Goonamadee Calingulah -	- - Built in the supply channel of the Cauvery Pauk Tank, at a place where it was continually being breached.	- - - - -	- - - - -	2,516 - -	- - - - -	- - - - -	- - This is a satisfactory work. This work was very necessary; the Cauvery Pauk supply channel is now in good order.
(37.) Notairy Otairy Calingulah.	- - - - - - -	- - - - -	- - - - -	2,069 - -	2,460 - -	- - Completed; date not stated.	- - The work has been almost entirely rebuilt; the wing walls are 23 feet high; the apron is entirely of dressed granite.
(38.) Calavaye Tank Calingulah.	- - - - - - -	- - - - -	- - - - -	1,589 - -	- - - - -	- - - - -	- - The surplus water from the calingulah of this tank has an overfall of 11 feet; the apron, which is 5 feet thick of solid stone and chunam, with a good rear retaining wall, and covered with dressed granite, has been rebuilt in a most substantial manner.
SIXTH DIVISION.							
Tanjore:							
(39.) Improving the Vuddavaur River in the Paupanassam and Manargoody Talooks.	For irrigation - - - -	- - - - -	- - - - -	5,965 - -	6,403 - -	- - Completed; date not stated.	- - The Vuddavaur branches from the Vennaur River about 10 miles west of Tanjore, and irrigates an extent of land equal to 7,014 acres, bearing a revenue of 35,060 rupees. The lower part of the river course has been enlarged, and several sharp bends cut, the result of which has been highly satisfactory.
(40.) Improving the Narasinga Cauvery River in the Puttacottah Talook.	For irrigation purposes - -	- - - - -	- - - - -	2,196 - -	2,196 - -	Completed - -	- - This river branches from the Vellaur, and irrigates a great extent of land, principally on shrotrium tenure, but of which 1,183 acres yield a revenue to Government of 5,102 rupees. Owing to freshes throwing sand into the branch, the cultivation had suffered greatly for want of water, and the bed was deepened and widened to increase the supply.
(41.) Bridge over the Araselaur River, on the road from Madras to Negapatam, *viâ* Mayaveram and Shealey.	- - - - - - -	- - - - -	- - - - -	5,632 - -	6,595 - -	Finished 1848-49 -	- - The bridge is of five oval arches of 30 feet span. The foundations are of wells filled in with cubes of brick masonry, and resting on sand; the rest of the work is formed of brick in chunam. The road is 24 feet wide, including the parapets.
(42.) Bridge over the River Trimulrajen on the same road.	- - - - - - -	- - - - -	- - - - -	6,765 - -	7,644 - -	- - Completed; date not given.	- - This bridge is of five oval arches of 38 feet span, and resembles the Arcselaur bridge in all respects, excepting the foundations, which consist in solid blocks of brickwork resting on a firm bed of clay.
(43.) Bridge over the Veerasholen River, on the road from Combaconum to Tranquebar.	- - - - - - -	Commenced 1848 -	- - - - -	2,217 - -	2,510 - -	Completed 1848 -	- - This work was commenced and finished in 1848. The foundations are of solid brick masonry, and the superstructure of the same material. The width of roadway, including parapets, is 24 feet. The utility of this bridge has been very great in facilitating the export of grain from Tranquebar.

(*continued*)

No. 9.—Particulars of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Sixth Division—*continued.*							
Tanjore—continued.				*Rs. a. p.*	*Rs. a. p.*		
(44.) Head sluice of the River Shombu Cauvery.	To regulate the supply of water -	Commenced 1849 -	- - - -	3,106 - -	3,143 - -	Completed 1849 -	- - The Shembu Cauvery branches from the left bank of the Vennaur, four miles from Tanjore, and irrigates 3,983 acres of land, yielding a revenue of 25,795 rupees. To regulate the supply of water, the sluice was built, consisting of five vents each six feet wide, divided by piers seven feet high, flanked by ample wing-walls, and secured by broad aprons in front and rear; the piers are faced with cut granite, and the aprons covered with granite; the foundations and superstructure are of brick in chunam.
(45.) Improvement of the Mercalcurray River.	- - To prevent the overflow of its banks in the rainy weather.	Commenced 1846 -	- - - -	8,398 - -	9,500 - -	- - Completed; date not given.	- - The Mercalcurry is a stream in the south part of the Cauvery Delta, carrying off the drainage of 15,074 acres of irrigated land, bearing a revenue of 53,476 rupees; it had never been fully embanked, but overflowed the lands west of its channel. The bed of the river has been widened and deepened, and a dike formed. The best results have been obtained.
(46.) Improvement of the Valavanaur River.	- - For deepening and embanking its channel.	- - - -	- - - -	3,672 - -	- - - -	- - - -	- - The Valavanaur is another great draining channel of the Tritrapoondy Talook, and discharges the surplus water from 12,641 acres of irrigated land, bearing a revenue of 42,609 rupees, into the great southern swamp lying between Point Calimere and Adrampatam. This river had never been embanked, and the lands were exposed to constant inundation, and the crops to destruction. The estimate was sanctioned for deepening and embanking the channel, and cutting a new and direct course for its discharge into the swamp. The part completed in 1849 was very efficiently performed.
(47.) Bridge over the River Corayaur, on the road between Tritrapoondy and Mootoopettah.	- - To facilitate the export of grain from Tritrapoondy Talook by the seaport of Mootoopettah, on the southern coast.	- - - -	- - - -	6,341 - -	6,400 - -	- - Completed; date not given.	- - This bridge is of five segmental arches of 32 feet span. This bridge has proved a valuable addition to the means of communication.
(48.) Bridge over the River Cuddaveyaur, on the road from Negapatam to Point Calimere, in the Keevalore Talook.	- - To connect the villages south of Negapatam with the port of Negapatam, as well as to facilitate the communication with Ceylon by the coast road.	Commenced 1848 -	- - - -	7,530 - -	7,807 - -	Completed 1849 -	- - The bridge is of three segmental arches of 35 and 30 feet span across a tidal river. The bridge was finished in a satisfactory manner, and has proved a most important improvement.
(49.) Bridge over the Nundalam River, on the road between Tranquebar and Negapatam, in the Tranquebar Talook.	- - Was built in consequence of the great increase of traffic between Tranquebar and the ports to the southward of it.	Commenced 1849 -	- - - -	10,179 - -	10,631 - -	Completed 1849 -	- - The bridge is of five segmental arches of 38, 35, and 32 feet span; the roadway is 24 feet wide. The construction of this bridge was conducted with the utmost vigour and efficiency, and its completion has conduced greatly to the comfort of a large trading population.
(50.) Bridge over the River Trimulrajen, on the road from Combaconum to Negapatam.	- - Built to open the communication between the large town of Combaconum and the chief seaport of the province.	- - - -	- - - -	5,292 - -	6,458 - -	Completed - -	- - This bridge is of five segmental arches of 30 feet span; the foundations consist of solid brick masonry; the piers and the arches of the same material; the entire work was completed within five months in a perfectly satisfactory manner. The width of roadway is 24 feet, including parapets.

(51.) Bridge over the River Moodecondaun, on the same road.	- - - - - - -	- - - -	- - - -	3,841 - -	4,384 - -	Completed - -	- - Of similar construction with the former bridge, except that it is partly founded on wells.
(52.) Bridge over the River Pootaur, in the Cadavasel Talook, on the same road.	- - - - - - -	- - - -	- - - -	3,936 - -	3,944 - -	Completed - -	- - This bridge is similar in construction to the above. The advantages resulting from the construction of these three last-mentioned bridges are fully appreciated by the traders and landholders along this important line.
(53.) Bridge over the Paumany River, on the road from Combaconum to Manargoody.	- - Constructed to complete the communication between these two very large towns.	Commenced 1849 -	- - - -	5,842 - -	6,286 - -	Completed 1849 -	- - This bridge is of five oval arches of 30 feet span; the foundations are of solid brick masonry, and the piers and arches, of similar material, were finished in a style of great efficiency. The work proves of the utmost convenience to the people, and being on one of the Salt roads, subserves materially to the convenience of Government.
(54.) Beacon Column at Point Calimere.	- - To distinguish this important position, where the shoals render navigation peculiarly unsafe.	Commenced in 1848 -	- - - -	2,733 - -	2,758 - -	Completed 1849 -	- - At this point the shoals render navigation peculiarly unsafe. The structure consists of a plain Doric shaft 60 feet high, but hollow, in order to be converted, if necessary, into a lighthouse; the foundations are of wells, and the material is brick in chunam, carefully plastered with a fine white surface; the base is faced with stone to a height of three feet, to secure it from the action of salt.
(55.) Beach defences at Tranquebar.	- - To protect the town of Tranquebar from encroachments of the sea.	- - - -	- - - -	5,058 - -	5,185 - -	Completed - -	- - This work is effected by means of grojns and planking and pile work.
(56.) Improving the Port of Negapatam.	- - - - - - -	Commenced in 1846 -	- - - -	9,009 - -	9,500 - -	Completed 1849 -	- - The work consisted of the excavation of a new channel for the Cuddavagur River to bring its whole volume of water to the sea at Negapatam, and the construction of a small and rude jetty to restrain the mouth of the river and facilitate the shipment and landing of goods. The result has been great increase in the trade of the port.
Trichinopoly:							
(57.) Improvement of the Weyacondaun Channel.	- - Clearing 28 miles of the bed of the channel.	Length, 33 ½ miles -	- - 17 ½ miles eastward of Trichinopoly.	13,748 - -	14,000 - -	Completed - -	- - The channel is led off from the River Cauvery, 16 miles west of Trichinopoly, and flows, including sinuosities, 33½ miles; it irrigates land to the extent of 9,281 acres. The channel has been deepened and widened, and the result is highly satisfactory.
(58.) Rebuilding of Dark's Bridge across the Weyacondaun Channel.	- - In lieu of old bridge, destroyed.	- - - -	Trichinopoly - -	2,656 - -	3,110 - -	Completed - -	- - This channel was crossed near the town of Trichinopoly by an ancient native bridge, or causeway, which caused great obstruction to the free flow of the water, and was most injurious to the cultivation dependent on the channel to the eastward of the town; the old work was demolished, and a new bridge constructed of three segmental arches of 27 and 26 feet span; the width of the roadway is 40 feet. The effect on the channel has been highly beneficial.
(59.) Extending the Covellay Surplus Channel.	- - For increasing the facility of irrigation.	Commenced in 1848 -	- - - -	2,718 - -	2,990 - -	Completed 1849 -	- - The drainage of 1,455 acres of irrigated land was much impeded by the high level at which it was discharged through the Covellay Channel into the Vennaur. The channel was prolonged a mile and a half, by which a fall of nearly four feet was gained; a dam was also constructed for the irrigation of the lands of Killiour.

(*continued*)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
SIXTH DIVISION—*continued.*							
Trichinopoly—continued.				*Rs. a. p.*	*Rs. a. p.*		
(60.) Improving the Nadookurray Main Channel.	-- To prevent its being over-supplied from the Cauvery River.	- - - -	- - - -	8,701 - -	9,258 - -	Completed - -	-- This channel, branching from the Cauvery on its north side, irrigates the Island of Seringam. The head of the main channel has been extended 3 ¾ miles higher up the course of the Cauvery, and a head sluice built there for regulating the supply of water. The sluice is a work of four vents of five feet each. The irrigation of 4,021 acres of the Seringam island will be materially benefited.
(61.) Extending the Rettenagoody Annicut, and widening the Nuttud Nullah Channel.	-- To facilitate the flow of water for irrigation.	- - - -	- - - -	10,948 - -	11,278 - -	Completed - -	-- This annicut is a work of native construction, which serves to carry the Peravully channel (issuing from the Cauvery) across the Oopaur, a large and violent torrent which rises in the neighbouring hills; beyond the Oopaur the channel is called the Nuttud Nullah, and this, after a course of 10 miles, in which it irrigates a large extent of land, finally terminates in the Shengundy Tank. The annicut was much too confined and the nullah too narrow for the vast flood of water that occasionally passed. The addition to the annicut is a solid brick in chunam wall 11 feet high, 12 feet thick at the base, 4 feet at the crown, and 108 feet long, secured by an apron of stone 40 feet wide, and a wing wall of ample dimensions.
(62.) Improving the road from Trichinopoly along the right bank of the Cauvery.	-- For making the road suitable for traffic at all seasons of the year.	Commenced in 1847	- - - -	8,683 - -	8,683 - -	Completed 1849 -	-- The chief masonry works consisted of nine bridges, with an aggregate of 14 arches, varying from 9 to 18 feet, viz., of a bridge of one arch of 18 feet span across the Kistnarayapoorum irrigating channel; another of one arch, 12 feet span, across the Chintelwady surplus channel; a bridge of three arches, 10 feet span, across the Pillapolliam surplus; and one arch of 12 feet span across the irrigating channel of the same village; a bridge of one arch, 18 feet, across the Murdoor channel, near Wuddium; another, of 14 feet, over the same channel near Kootitullay; one of two arches, 11 feet, across the Nunga Voikal irrigating channel; one of two arches, 18 feet, across a surplus stream. The roadway of the head sluice was widened by 31 ½ feet by the construction of three arches of 12 feet average span. Other additional channels, and 24 road tunnels have been constructed. This road is available for cart traffic throughout the year.
(63.) Gaol at Trichinopoly -	-- To provide space for more prisoners, the old gaol being inadequate in space, and defective in arrangement.	- - - -	Trichinopoly - -	14,441 - -	15,975 - -	Completed - -	-- The old gaol was inadequate in space, and defective in arrangement. The new building is calculated for 500 prisoners, including sick. The buildings are arranged in a double row, with a central passage 50 feet wide. The gaol is surrounded by a boundary wall 15 feet high. The drainage and water supply are complete. This gaol has been very favourably reported on by the judicial and medical officers of the station.
(64.) Improving the Peravully Channel.	-- For clearing the bed and strengthening the banks of this great channel for about 15 miles.	- - - -	- - - -	4,604 - -	5,113 - -	Completed - -	-- This channel branches from the north side of the Cauvery above the upper Coleroon Annicut, and its main stream irrigates 6,737 acres, yielding 34,552 rupees. The bed has been cleared, and the banks, for 15 miles, strengthened.

(65.) Improving the Pungoony Channel.	- - For widening and deepening its channel.	Commenced in 1849 -	- - - - -	2,535 - -	2,581 - -	Completed 1849 -	- - The Pungoony Channel is a branch of the Peravully, and acts both as a draining and irrigating channel. The land dependent on it is about 6,201 acres, producing a revenue of 32,182 rupees. The result of the improvements has been a great improvement in the state of the cultivation affected by it.
(66.) Improving the Vittientty Main Channel.	- - - - - - -	Commenced in 1847 -	- - - - -	2,077 - -	2,424 - -	Completed in 1849 -	- - The land irrigated is a comparatively narrow strip, about a mile and a half in width, but its means of supply are abundant. A new branch channel from the Cauvery has been cut, and the main channel for 9,000 yards widened and embanked. An old sluice has been enlarged, and a new one constructed; the new sluice has two vents of five feet each.
(67.) Bridge over the Cauvery at Trichinopoly.	- - - - - - -	- - February 1846; length, 1,882 feet.	- - - - -	97,414 - -	99,146 - -	Completed 1849 -	- - This bridge is of 32 elliptical arches of 49 feet span. The work was commenced in February 1846; in February and April 1847 the works were destroyed by floods. In 1849 the bridge was opened for use. The foundations are on wells sunk nine feet below the bed, which is sand. The piers are 7 ½ feet average thickness, 8 ½ feet high, and the rise of the arch 12 ½ feet; the width of roadway, including parapets (one foot thick) 27 feet; the total length, from wing to wing, is 1,882 feet; the material throughout is brick in chunam. Average daily traffic in October 1850, foot passengers, 9,061; carts and carriages, 223; bullocks and cows, 484; horses, 20.
(68.) New road from Trichinopoly to Towagoody, the first stage to Tanjore.	- - - - - - -	- - April 1849; length, nine miles.	Towagoody - -	17,578 - -	- - - - -	- - - - -	- - The old line was very circuitous, and in bad order; a considerable extent of the land to be traversed is under irrigation; and the Wayacondaun channel crosses the line three times, besides other unfordable irrigating streams. Operations commenced in April 1849, and by the end of that year the following masonry works had been completed: Two bridges, each of three arches of 26 feet span, across the Wayacondaun; one bridge, of three arches, 20 feet span; one of three arches, of 16 feet, across the Covelly surplus channel; one bridge of three arches, of 12 feet, over the Killy Voikal (irrigating channel); a single arch of 24 feet span over the Retta Voikal; an arch of 12 feet over the Tadenvyal surplus channel; besides 27 tunnels, varying from one and a half to eight feet span. The length of road raised and gravelled through paddy fields is three miles, and through dry lands six miles. The road was opened and used in 1849 (though not quite finished); it facilitates the access to many villages surrounded by wet cultivation and watercourses, which previously cut them off from the great local market for their produce.
(69.) Constructing part of road from Trichinopoly to Arrialoor.	- - - - - - -	- - - -	- - - - -	2,188 - -	- - - - -	- - - - -	- - The portion of road extends for 1 ¼ mile across a sheet of irrigated land; and the masonry works include a bridge of five arches across the Coolyaur, and one of three arches over the Pungoony. In 1849 the earthwork of the road was finished and covered with sand; seven tunnels and three small bridges of various dimensions were built.
(70.) Improving the road from Trichinopoly to Laulgoody.	- - For raising low inundated parts, and building eight tunnels and three bridges.	- - - -	Laulgoody - -	1,347 - -	- - - - -	- - - - -	- - This road extends for 10 miles through one of the richest tracts of irrigated land in the district, and being quite neglected for a long period, and unprovided with any bridges or tunnels, it was impassable for carts.

(continued)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
SIXTH DIVISION—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
Trichinopoly—continued.							
(71.) Widening the Vuddavaur River, and forming a dike on its left bank in Manargoody Talook.	To improve the means of irrigation.			3,050	3,056	Completed	The Vuddavaur River branching from the Coleroon, supplies the great Veeranum tank, and irrigates about 40,000 acres, yielding a revenue of 2,00,000 rupees. The channel has been widened for a distance of 3¼ miles, and a dike constructed; the result has been the resumption of cultivation on 85 acres of land previously abandoned, and the far more abundant supply of water to the irrigated tract.
(72.) Repair of the banks of the Coleroon in the limits of Goodelapaudy, in Chellumbrum Talook.	To force back a due proportion of the current into the southern branch.			3,230	3,284	Completed	The Coleroon divides into two branches a short distance below the ferry on the road from Madras to Tanjore, the southern branch of which had been greatly filled up with sand. It became necessary to check the great draught of the northern arm by forcing a due proportion of the current into the southern branch, for which purpose an embankment 480 yards in length and five yards in height was thrown across the northern stream, with a view of the additional stream thrown into the southern channel clearing out the sand by which it was obstructed. The embankment remained firm until the extreme freshes in July, when, as was expected, it was breached; after having had the most decided effect in restoring the proportions of the two streams, but the operations could not be considered final.
(73.) Improving the road between Manargoody and Chellumbrum.	For completing the road as far as Laulpett.	Length, 12¼ miles	Laulpett	4,696	5,981	Completed in 1850	The road lying across an alluvial plain, subject in many places to inundation, was impracticable for all wheeled carriages, and very difficult even for bullocks. The distance formed under this expenditure is 12¼ miles in both talooks. There are 16 masonry tunnels varying from one to three feet.
(74.) Improving the road from Laulpett, through Manargoody to Womampillioor.	Raising and forming the road for six miles, and constructing seven tunnels.			2,717	2,799	Completed	This is a much frequented road between the district of Tanjore and South Arcot. The road has been raised for six miles, and seven tunnels of three feet span constructed.
(75.) Bridge across the Khansaib's channel, on the road between Manargoody and Chellumbrum.	To enlarge the waterway	Commenced in 1849		3,233	3,244	Completed in 1849	The bridge was injured by a flood in 1847, while unfinished, and it was found necessary to enlarge the water-way. It has one segmental arch of 40 feet span, and was completed in 1849, in a very satisfactory manner. The foundations and superstructure are of solid brick masonry, breadth of roadway 19 feet.
(76.) Bridge across the Nundimungalum Ooyenaur River, on the road between Chellumbrum and Sheaiiy.	To obviate the difficulty caused to the traffic.	Commenced in 1848		16,077	16,170	Completed in 1849	This is a great draining stream which falls into the Coleroon; it always caused most serious difficulties to the traffic. The bridge, which is of three elliptic arches of 49 feet span, was finished in 1849, height of the piers 10 feet; rise of the arch 12 feet; breadth of roadway 24 feet, including parapet. The greatest possible advantage has resulted to the extensive traffic on the line.

SEVENTH DIVISION.

(77.) Perambaddy Pass. Line from the frontiers of Coorg to the Coast at Cannanore.	-- To connect the great western trunk road from Madras with Cannanore, with a branch to Tellicherry, on the western coast.	- - - -	- - - -	- - - - -	2,00,376 - -	- - - -	-- It is stated that, in 1842, there was no tolerable road from the interior to the great trading town of Tellicherry, or to Cannanore; the only road practicable for wheels being by the Periah Pass, which from its steepness could not be kept in such condition as to be used by bandies during the rainy months, a season in that part of India occupying a third of the year. The roads on this part are most dangerous, from the fevers which infest them, and in consequence of which no inducement will keep the people to their work, and the Ghaut is so situated in a narrow gorge, that it could not be remodelled. The Perambaddy Ghaut makes a descent from the level of Coorg to the plain of Malabar of 3,000 feet in 10 miles, the inclination varying from 1 in 18 to 1 in 24, with a very short grade, 1 in 16. There is no counterslope in any part of the line, and only a few yards of level. Besides the Ghaut, the estimate covers the cost of the road above and below from the frontiers of Coorg to the station of Cannanore, a distance of 80 miles. There is a year's work at least to be done. Besides the value of the line in a military point of view, as an approach to Cannanore, which is not only the principal cantonment and arsenal on the Western Coast, but the port at which a force could be best collected for embarkation on steamers, the trade will be very great, and the benefit accruing will be felt, both by the Astagan division of Mysore and the town of Tellicherry.
(78.) The Calicut Canal (Malabar).	-- 1st Work. The Pyolee Canal, to enable boats passing down the Cottiaddy River to land their cargo at the port of Vuddagherry. 2d. To connect the Ellatoor and Beypoor backwater by a cutting, six miles. One great object of the navigation is to take the rice of Southern Malabar to the talooks in the north, where pepper is the produce. No. 4. To unite the Beypoor River with Ponany, and that town will have an inland water communication with Calicut and all the coast towns as far as Vuddagherry, within 12 miles of Tellicherry, a distance of 60 miles.	- - - -	- - - -	No. 3 Work - - 18,429 - -	No. 2 Work - - 15,333 - -	No. 1 Work - - Completed in 1848.	- - 3d. Calicut Canal. The executive difficulties were a rapid and destructive stream, that in the freshes left the Tambercherry River, and flowed into a small lake through which the navigation had to pass. The cutting was through two parambas, or high laterite ridges. The forcible stream from the Tambercherry threatened to turn the whole current, should it be allowed to flow into the lake, and make its exit by the northern entrance of the canal. This breach was therefore closed, since which much of the lake has been reclaimed for cultivation. No. 4. Tannoor Canal. The work is progressing, but has been delayed by a bed of sand of the finest description, 30½ feet in depth, having been met with.
(79.) The Yenudmuckle Apron	-- To fit a great portion of the bed of the lake for cultivation, which would otherwise be under salt water for six months in the year.	- - - -	- - - -	about 40,500 - -	- - - -	- - - -	-- The works consist of an earthen embankment 550 yards in length, and a calinguiah 110 yards from wing wall to wing wall; their effect is to exclude the tide water while the drainage of the country has a free passage to the sea. The dam was destroyed in 1849, in consequence of the piles having been in many cases cut six feet shorter than was planned; the loss by this failure is estimated at 8,758 rupees. A new project has since been sent in for a dam near the sea, on a more secure section and advantageous site.
(80.) Hassanoor Ghaut - -	-- Originally traced as a substitute for the Guzzlehutty, an ancient pass between Mysore and Coimbatore, too steep for wheels.	- - - -	- - - -	23,271 - -	- - - -	September 1849 -	-- This work was left for two years untouched, in consequence of the great loss of life fever had occasioned among the work-people. This road will be of value to the towns of Mysore, Coimbatore, Trichinopoly, and perhaps Modura, by giving them an easy communication suitable for carts.

(*continued*)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
SEVENTH DIVISION—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
81.) The Teppacandoo Bridge				3,000			Over the River Moydur, a main branch of the Bowany, and tributary of the Cavary, having its source on the Neilgherries, its course follows the line of the mountains, its bed at Teppacandoo being nearly on a level with the country, while a few miles lower down it forms a deep and precipitous ravine 1,000 feet deep, the opposite sides of which are not more than from 2,000 to 3,000 feet apart. This curious feature in the plain is known by the name of the Mysore Ditch. In consequence of the loss of life from fever when the bridge was first erected, the new bridge was made of the simplest form, and prepared of teak timber at Hoonsoor, to be put together with the greatest rapidity. The centring was of the rudest kind; a few small straight trees were cut for uprights, and a scaffolding of bamboos lashed together did all that was required. Span of the bridge, 69 feet; height above the bed of the river, 98 feet.
(82.) Examination of the Annamullay Teak Forest.		Commenced 1849					This forest was begun to be worked on account of Government in 1849; it is stated that such wood could be stored at Ponany, on the western coast, for half a rupee per cubic foot, as has cost the Bombay Government hitherto 2 ½ rupees. The only difficulty anticipated in 1849, was the collection of men sufficient to cut the 100,000 cubic feet required to furnish the several departments in Bombay and Madras.
EIGHTH DIVISION. *Madura.*							
(83.) New Sepoy Lines in the town of Madura.		Commenced in 1847		6,090	6,090	Completed in 1848	It was deemed advisable to substitute for the thatched huts formerly occupied by the detachment of Native Infantry at Madura, a superior description of house with tiled roof and yard in rear, to be in keeping with other parts of the town, also for the prevention of fires, which were of common occurrence. The new lines have a very neat appearance, and are exceedingly airy and healthy.
(84.) Improvement of the drainage of the town of Madura.		Commenced in 1848		2,586			The drains are constructed of old fort stones (granite), backed and covered with brick in chunam.
(85.) Improvement of road to, and construction of a bridge over the Oopaur River on Road No. 5.		Commenced 1846-47.			2,903		The bridge is of three arches; centre arch 15 feet, and side arches each 12 feet.
(86.) Bridge across the Head of Thiroopoovanum Channel.		Commenced 1846			2,315		This bridge is of three arches, but was not quite completed.
(87.) Repairs to Road No. 2, between Dindigul and Pulney.				6,492	6,519	Completed in 1849	The repairs provided for in the estimate, are confined principally to 4 ½ miles of black cotton soil, between the villages of Chuttrapatty and Cannacumputty. The road is put in very good order.
(88.) Panlaur River Waggonies.	With a view of straightening the course of the stream, and thereby preserving the topes and cultivation on the right bank of the Panlaur from injury during high freshes.	Commenced in 1847		1,090	—		

(89.) Restoration of the Coonor Annicut.	- - For restoring the annicut to an efficient state.	Commenced in 1847 - - - - -	1,975 - -	2,050 8 -	Completed - -	- - The cultivation under this annicut had fallen off to a considerable extent for want of sufficient water, the body of the annicut being in a leaky state, and the head of the channel too confined. The materials and workmanship were of good quality.
(90.) Rebuilding Causeway across the Vigay River.	- - - - - - -	Length, 1,095 feet - - - - -	1,173 15 -	- - - -	- - - -	- - The method pursued has been to place three lines of stone endwise, to serve as retaining walls to the pavement, and prevent the stand being removed from under it; the spaces filled up with rubble in cement.
(91.) Supplying channel of Vaddakurray Tank from the Perennai on the Vigay River.	- - - - - - -	Commenced in 1849 - - - - -	1,726 - -	- - - -	- - - -	- - The estimate provided for raising and widening the right bank and for repairing six sluices of irrigation in the same, besides sundry other items for masonry work.
(92.) Cotton Gin-house at Shevacaussee, in the Sautoor Talook.	- - To accommodate two (2) 60 saw-gins worked by cattle, and three (3) hand-gins.	- - - - - - - -	2,685 - -	2,699 - -	Completed - -	- - The materials and workmanship were favourably reported on.
(93.) Bridge across Nully Oday, on the high road from Madras to Quilon.	- - - - - - -	Commenced in 1846 - - - - -	2,987 - -	4,691 - -	Completed in 1848 -	- - The bridge is of three arches of 30 feet span each, and its construction has been of great service to the traffic of the district, particularly to the cotton bandies.
(94.) Floorings to six of the arches of the Ambasamooduram bridge across the Tambrapoorney river.	- - - - - - -	- - - - - - - -	1,222 - -	1,295 - -	Completed in 1848 -	- - The dip or versed sine of the flooring is three feet, and the span of the arches 45½ feet. The work was carried into effect in a satisfactory manner.
(95.) Repairing high road No. 4, from Madras to Quilon, in the Ootapadarum Talook.	- - - - - - -	Commenced in 1848 - - - - -	5,311 - -	5,311 - -	Completed in 1849 -	- - The natural soil of the road is "black cotton." The principle of construction is, first, to raise the road half a yard or more above the level of the country with soil from the side trenches, and to place thereon a foundation of broken stones nine inches in thickness, and over them a coating of gravel of the same thickness. This plan is found to answer well.
(96.) Reconstruction of the Thimmarajasamoodrum Cooteecaul annicut across the Monneemoolaur.	- - Its reconstruction appeared likely to be less expensive in the long run than partial repairs.	- - - - - - - -	2,486 - -	2,538 - -	Completed - -	- - The body of this annicut was in a very leaky state, and the foundations undermined. The foundations were of brick in chunam laid on rock, at the depth of 2¼ yards, and the body of the annicut above of the same material, faced with cut stone.
(97.) Restoration of the Thirtangul Peteacolum, in Sautoor Talook.	- - - - - - -	- - - - - - - -	1,427 - -	1,525 - -	Completed 1847-48 -	- - The tank bund has been raised, and a breach closed at the south end by a wall of rough stones in chunam. Since the repairs, the tank has been yielding a revenue to Government.
(98.) Repair of the Thentherapairee Head Sluice, in Streevigoontum Talook.	- - - - - - -	- - - - - - - -	2,709 - -	2,709 - -	- - Completed; date not given.	- - This work serves to supply water from the Tamtrapoor River to 1,070 cotays of land, yielding a revenue of 23,031 rupees annually. The foundations are of brick in chunam, laid at the depth of nine feet on stiff clay.
(99.) Nenmany annicut channel and tank in Sautoor Talook.	- - - - - - -	- - - - - - - -	1,070 - -	1,272 - -	- - Completed; date not given.	- - The annicut was breached by freshes in 1847, to close which effectually it was necessary to extend the annicut for a distance of 44 yards, and to connect it by a wing-wall with the head of the channel; a further portion of 16 yards required to be raised, also the channel and tank banks and revetments required raising. The body of the annicut is of rough stone in chunam, floored on top with brick in chunam.

(continued)

No. 9.—PARTICULARS of some of the more Important of the Works executed under the Madras Civil Engineers' Department in the Years 1848 and 1849, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
EIGHTH DIVISION—*continued.*							
Madura—continued.				*Rs. a. p.*	*Rs. a. p.*		
(100.) Cunnadien Channel, from an annicut across the Tambrapoorny, in Shairmadevy Talook.	- - - - - - -	- - - -	- - - -	2,135 - -	2,231 - -	Completed - -	- - The banks were raised, and the bed of the channel cleared, several sluices repaired, &c. The channel is one of the most, if not the most valuable work in Tinnevelly, yielding nearly two lacs of rupees annually to Government.
(101.) Tinnevelly Channel, from the Sootamullay Annicut, across the Tambrapoorny.	- - With the view to the preservation of existing revenue, which, in Fusly 1258, amounted to 68,942 rupees.	- - - - -	- - - -	1,118 - -	1,123 - -	Completed, 1848 -	The repairs were similar to the above.
Tinnevelly:							
(102.) New Sea Custom house and Master Attendant's Office, at Teutacorin.	- - The former Sea Custom-house having been found insufficient for the wants of the port of Teutacorin.	- - - -	- - - -	2,338 - -	2,339 - -	Completed - -	- The former Sea Custom-house having been found insufficient for the wants of the port of Teutacorin, has been transferred to the post-office department. The master attendant's office and the customs and salt department are under one roof, with verandahs front and rear. The material is sandstone in chunam.
(103.) Talook Revenue and Police Cutcherry, in Streevigoontum.	- - The want of a good cutcherry at Streevigoontum was very much felt.	- - - -	- - - -	2,521 - -	2,782 - -	Completed - -	- - Constructed throughout of burnt brick in chunam, with tiled roof, in the form of a parallelogram; length, outside, 91½ feet, and breadth, 53 feet; contains one room for Tamil and another for Hindooee records, with a room for prisoners under examination. The treasury room is a separate building, in the centre of the inner court, with flat terraced roof, and iron-barred door.
(104.) Repairs on the high road from Madras to Quilon, in several Talooks.	- - - - - - -	- - - -	- - - -	- - - -	1,704 - - 7,786 - - 5,868 - -	- - - -	- - The estimates provided for constructing pavements, open drains, and tunnels. Their construction has been of great service to the traffic on lines, of which a part has been made available thereby for wheeled conveyances during the rains.
(105.) Mullacul Channel, from the Murdoor Annicut, on the Tambrapoorny River.	- - - - - - -	- - - -	- - - -	1,946 - -	- - - -	- - - -	- - This is one of the most important irrigating channels in the Tinnevelly district, the annual revenue derived from it being about 1¾ lacs of rupees. The breadth of this channel was insufficient; the first 4 miles 4 furlongs and 170 yards of the channel's course had been widened to an average breadth of 14 yards, and the bed cleared of rock.
(106.) Paupancaul Channel, from the Carapanuddee.	- - - - - - -	- - - -	- - - -	1,017 - -	1,156 - -	Completed - -	- - The bed of this channel has been widened, and cleared of rocks and deposit. The numerous tanks dependant on it have been rendered more effective, especially the large tank of Veersakanaeer, in the Sankeranainar Talook, the crops under which frequently suffered from drought, owing to the bad state of the channel.

No. 10.

A STATEMENT of Expenditure on Works of Irrigation, Roads, Bridges, and Ghauts in the Collectorates under the Presidency of Fort St. George, for the years ending 1838 to 1847 inclusive, will be found at Page 166 of the Printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851, the total amount being 82,51,187 rupees.

The expenditure in the Civil Engineer's Department, and by that of the Superintendent of Roads, for the years 1848 and 1849, was as follows:

YEAR.	BY CIVIL ENGINEER'S DEPARTMENT.	BY DEPARTMENT OF SUPERINTENDENT OF ROADS.	TOTAL.
	Rs.	*Rs.*	*Rs.*
1848 - - - -	* 13,17,192	1,54,627	14,71,819
1849 - - - -	* 9,94,603	2,57,519	12,52,122

* Exclusive of expenditure on the Godavery Annicut.

In a Report from the Board of Revenue, in the Department of Public Works, the total disbursement during the year 1850, on Public Works is shown to have been

Fort St. George Public Works Letter, 18 May (No. 2) 1853.

YEAR.	FOR WORKS OF IRRIGATION.	FOR BUILDINGS.	FOR ROADS.	FOR TRUNK ROADS.	TOTAL.
	Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*
1850 - -	9,60,960	1,05,516	1,62,165	3,52,523	15,81,165

	Rs.
Total Expenditure for the year 1838 to 1847 inclusive - -	82,51,187
" " 1848 " - -	14,71,819
" " 1849 " - -	12,52,122
" " 1850 " - -	15,81,165
Total Expenditure for the year 1838 to 1850 inclusive - *Rs.*	1,25,56,293

PRESIDENCY OF BOMBAY.

No. 11.

Formation of the Road and Tank Department at Bombay.

In 1836, the Government of Bombay represented to the Court the bad state of the roads at that Presidency; that the tanks and bunds also were under no effective supervision, and reported that they had instituted the Department of Roads and Tanks, which measure was approved of by the Honourable the Court of Directors in 1837, as will be seen from the following extract from their despatch to the Government of Bombay, dated the 2d of June in that year.

Answer to Letters dated 28th February (No. 6) 1836, and 18th March (No. 10) 1836.

Reporting the adoption of a new system for the improvement of the roads, tanks, and bunds of the Presidency, and various measures commenced or proposed.

Although these measures were not altogether approved of by the Bengal Government, the Court's sanction is nevertheless requested, as they will prove of immense benefit to the inhabitants, and greatly increase the revenue. The construction of a causeway to connect Salsette with the Continent, at an estimated expense of 20,000 rupees, is also earnestly recommended for the Court's sanction.

Para. 8. "The bad state of the principal roads in your Presidency is attributed to the absence of systematic supervision, and to the employment of many persons on the same line, who are frequently without knowledge of road making, and have not time to look after the portion under their charge. The tanks and bunds are also stated to have been under no effectual supervision.

9. "The measures recently adopted to remedy these defects, consist of the appointment of one engineer officer as superintendent of roads and tanks in the Concan, Poonah and Ahmednuggur collectorates, to act in concurrence with the Collectors of Poonah, Ahmednuggur and the Concan, having under him two junior engineer officers, as assistants in each collectorate; and you propose eventually to place other districts under similar superintendence. There will, as you state, be some increase of expense occasioned by this plan, but no additional appointments will be required; the officers employed will not be diverted from their usual duties, their operations will merely become more systematic and combined."

2. Under date the 10th August 1836, the superintendent of roads submitted his first progress report under the new system, with a short description of the roads of the Presidency, from which it appeared, that there existed 449 miles of old roads, the repair of 211 miles only of which had been provided for, at a sanctioned charge of 36,449 rupees per annum. The only metalled road was that from Poona to Panwell (88 miles), being the only made road up the ghauts between the Tull Ghaut on the north and the Parr Ghaut on the south, both of which are nearly 100 miles distant, and both exceedingly difficult, indeed almost impassable for laden carts; so that all the wheel traffic from the Deccan might be said to be dependent on this line. In continuation of this line to the northern stations was the road to Ahmednuggur, but this had never been constructed on any regular system, cheaply patched in parts, and expensively though imperfectly built in others, partly under civilians, partly under contract, partly under engineers. The next in importance was the Great Northern Road, leading by Tannah and Bhewndy to Nassick; this "was constructed several years ago, but the line chosen presents so many difficulties, in the want of forage and water, and the extraordinary steepness of its ascents and descents, sometimes exceeding one in four, that it has become absolutely necessary for the furtherance of trade to improve the old, or construct a new route for the introduction of carts."

Tanks. Of the old tanks, it was stated in 1836, "few are now in use for the purposes of irrigation, * * * they are choked with the yearly accumulation of mud; one, however (the Paste), has to be partially cleared out for the purpose of affording drinking water; and one (the Goreygaum) has been thoroughly cleared, and its sides built up to the height of several feet."

Bundaras. On the subject of bundaras, it was stated, that "in the Ahmednuggur collectorate, particularly towards Nassick, every stream appears to have been most carefully husbanded in former days, not by damming it up in large sheets of water, but by merely throwing low walls across them, at distances of three or four miles asunder, and diverting the channel into watercourses for the purposes of irrigation after the close of the rainy season; of these bundaras many are in ruins, and very few complete."

On the receipt of the annual report for 1846–47, Sir G. Clerk recorded a minute concurred in by the Commander-in-Chief, proposing to abolish the Department of Roads and Tanks, and by incorporating its members with the Military Engineer Establishment, to provide a concentrated and general system of supervision and control over the entire Department of Public Works. The plan proposed to provide each district with a superior professional executive officer, in whom should be vested exclusively (subject to the general control of the superintending engineer of the division) the duty of originating and personally planning all public works of importance, he alone being responsible for their proper execution, his subordinates being merely required to work out the details under his instructions.

Sir George Clerk did not, however, remain long enough in India to carry out the scheme, and the Government of Lord Falkland deferred the proposed reforms until the Court's sentiments thereon had been declared. The Court's instructions were communicated to the Government of India in their despatch,* dated the 30th January (No. 2) of 1850.

---

* *See* printed Parliamentary Return of the Honourable the House of Commons, No. 622 of 1851, pp. 149, 150, and 153.

No. 12.

TABULAR STATEMENT of the PRINCIPAL WORKS executed by the BOMBAY ROAD and TANK DEPARTMENT, from 1836 to 1850–51 inclusive, and by the BOMBAY ENGINEERS in the Civil Branch of Public Works, from 1846–47 to 1850–51 inclusive.

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Ahmednugger to Seeroor	- - - - - - -	Length, 16 miles	Seeroor	- - Executed by convict labour.	- - - -	- - Formed prior to the year 1840.	- - This line was excellently completed in two seasons, under the superintendence of the Road and Tank Department.
Ahmednugger to Malligaum	- - - - - - -	Length, about 10 miles	Malligaum	- - Executed by convict labour.	- - - -	- - Finished in 1839, with the exception of drains and bridges, but including a very difficult and extended ghaut.	- - Constructed under the superintendence of the Road and Tank Department.
Akoordie New Road and Junction Lines.	- - The Ounde and Panowlie and Bhojapoor lines will be abandoned on the completion of the Akoordie road, and the saving in repairs will amount to no less than 4,800 rupees per annum.	- - Length, 8 ½ miles; sanctioned 25th November 1847.	- - - -	- - Executed under contract.	*Rs.* For Roadway, 18,432 For Bridges and Nullahs } 28,426 *Rs.* 46,858 Or, 5,512 rupees per mile.	- - - -	- - The rate of cost of this road may be accounted moderate 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. This road, commencing at the Dapooree Bridge, was stated to be in very good repair in December 1849, but the traffic increasing, it became dreadfully broken up during the hot weather, and it has subsequently been put into good order. In 1851 an expenditure of 8,938 rupees was sanctioned for increasing the width of the road from 20 to 25 feet, in consequence of the increase of carriage and cotton cart traffic.
Agra and Bombay Road	- - *See* paras. 13 to 17 and 66 of Court's Despatch to the Government of India, dated 30 January (No. 2) 1850, at pages 147, 148 and 153 of the printed Paper of the Honourable House of Commons, No. 622 of 1851.						
The Wakee Nullah Bridge, No. 1.	- - - - - - -	Commenced 1845–46	- - - -	3,744 5 6	- - - -	Completed 1846–47 -	- - This bridge consists of a semi-elliptical rubble masonry arch, 30 feet span and 8 feet rise, with two side semi-circular arches of 5 feet span each. The work throughout is constructed of rubble masonry, on a pitched foundation of the same; the breadth of roadway between the parapets is 18 feet; the roadway is embanked on the north side 250 feet in length, and on the south side 450 feet, at an average height of 5½ or 6 feet. The parapet is 3½ feet high, and the length of parapet from end to end, 71 feet. The top is coped with chunam plaster.

(*continued*)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850–51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
Agra and Bombay Road—*continued.*				*Rs. a. p.*	*Rs. a. p.*		
The Wakoo Nullah Bridge, No. 2.	- - - - - - -	- - - -	- - - -	4,120 - -	- - - -	Completed 1846-47 -	- - This bridge is composed of two wooden trusses, each 54 feet in length, firmly fixed in rubble masonry abutments. The road being laid on the lower beams of the trusses, it has a water-way of 46 feet in the clear, the road crossing the nullah somewhat obliquely. The trusses are composed of pieces of teak, none exceeding 10 feet in length, taken out of the ruins of the fort of Malligaum. The embankment on the south approach is about 530 feet, filled in to an average height of 6½ feet; that on the north approach is 500 feet.
Walwarree Nullah Bridge	- - - - - - -	Commenced 1845-46	- - - -	3,004 10 8	- - - -	- - Completed season 1846-47.	- - This bridge is composed of two semi-elliptical arches of 13 feet span each, and 6 feet rise. The breadth of the roadway between the parapets is 18 feet, and length of parapet, from end to end, 60 feet. The roadway is 22 feet broad, and embanked on the north side of the bridge 420 feet in length, and on the south side 530 feet, and an average height of 5½ feet. The work throughout is constructed on a pitched foundation of an uncoursed rubble masonry to a depth of 4 feet.
Kussara to Kurdee, proposed New Line.	To supersede the old line of road	- - Sanctioned 18th March 1849.	Kurdee - - -	- - - -	1,33,391 - -	- - - - -	- - 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.
Bridge over the Pharasherry River.	- - The post was occasionally delayed as much as eight hours.	- - - - -	At Pimpulgaom.	—			
Agra Road, between Scindwal Fort and the River Nerbudda, through the Nimar Territory.	- - Converting it into a fair-weather road.	- - Length, 43 miles; commenced 1849.	Nerbudda River -	3,705 13 9	- - - -	Completed 1850 -	- - The nature of the work is the removal of obstructions, the cutting of side drains, and the sloping the approaches into rivers and nullahs. This has been an useful piece of work. The amount here expended is said to be required to be spent annually on this piece of road, to make it a clearly marked fair-weather road during the proper season.
Akheira: Repairing Bhundarrah and Watercourse.	- - - - - - -	- - - -	- - - -	1,183 6 7	- - - -	Completed 1849 -	- - It was satisfactorily completed shortly after the commencement of the past official year.

Bombay, *vid* Tannah and Bhewndy, to Nassick, *vid* Tully Ghaut, on the Great Northern Road.	- - For the furtherance of trade with Candeish.	- Length, Bombay to Bhewndy, 33 miles; Bhewndy to Nassick, 78 miles. This road was constructed previously to 1836, and provision made for annual repairs.	Nassick - - -	Not known - -	Not known - -	Not known - -	- - The line chosen presented so many difficulties, in the want of forage and water, and from the extraordinary steepness of its ascents and descents, sometimes exceeding one in four, that a new route was ordered to be surveyed in 1836.
Bombay: Continuation from Nassick to Chandore.	- - Ditto - - ditto - -	- - Length, 40 miles, which completes the line as far as the Candeish Collectorate. Sanctioned season 1835-36.	Chandore - -	- - - *See* Nassick and Chandore Road, Letter N.			—
Bassein: Construction of the Gerridge Bund.	- - For the recovery of land from the sea.	- - - -	- - In the neighbourhood of Bassein.	- - - -	- - Two estimates, *Rs.* 9,354. 12. 8.	- - - -	- - In 1841 the Superintendent reported that the estimates would be considerably exceeded before the works could be completed, if, with reference to the violent ebbing and flowing of the Tide, that end could ever be accomplished. Report of 1839, page 19. Letter 61, of 1840.
Bassein: Construction of the Kullum Bund.	- - Ditto - - ditto - -	- - Sanctioned 15th February 1838.	- - ditto - -	- - - -	9,122 11 -	- - Completion not reported.	—
Bhore Ghaut Road - - -	- - - - - - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - This road runs in a single line as far as Poona, where it receives, as in a centre, the diverging lines from Ahmednugger, Sholapore, and the Neera Bridge, the prolongation of which extends the communication to the centre of the Peninsula.
Bombay: The Bombay Pier; the Tannah Causeway and Bridge; the road from Trombay to Chimboor; the Chimboor Causeway, and the junction of this work with the causeway at Sion.	- - Connecting the former islands of Bombay, Salsette and Trombay into one, and these again with the main continent of India.	- - - -	- - These works are all within 23 miles of the capital.	- - These works were undertaken by convict labour, and are all of such a costly and extensive description that it was considered that they could not possibly have been undertaken by other means.	- - - -	- - Completion of the Chimboor Causeway, and of the Trombay and Chimboor Road, reported in season 1840-41.	- - These works open two more lines of ingress for the traffic of the port, which owing to its chief export (cotton), and the one particular season at which it all crowds into the harbour, are particularly wanted, giving a very greatly increased value to all property in the island of Trombay, and leading to the reclaiming of many thousands of acres of ground from the sea.
Bhadne, repairing the Bundarrah and Watercourse of.	For Irrigation - - - -	Season 1847-48	Bhadne - - -	*Rs.* 2,903. 1. 11.	- - - -	- - Completed season 1849.	- - The work was completed satisfactorily shortly after the commencement of the official year.
Bazar, Peera, Sattara: constructing a tunnel at.	- - To connect the town of Sattara with the valley of the Oomooree River, a high ridge having previously interposed an effectual barrier to communication between them without a long detour.	Length, 192 feet -	Oomooree Valley -	- - - -	- - *Rs.* 31,500. 14. 9., of which *Rs.* 13,709. 14. 9. were to be subscribed by the natives.	- - - -	- - This tunnel was completely driven through the range joining Enteshwar and the port of Sattara into the Oomooree valley, in January last. Length, 192 feet; breadth at base, 30 feet; at top, 24 feet; height from bottom to roof, 24 feet.

(*continued*)

No. 12.—Tabular Statement of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850–51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Chandore Ghaut Road		Length, 5 miles; was laid out, and provision made for annual repairs, previously to the formation of the Road and Tank Department in 1836.		8,069			This ghaut into the plain of Candeish had a descent of 1 in 5 and a third, but the worst portion is only about 500 feet in length. In November 1841 the Government ordered the slope of this ghaut to be reduced to 1 in 18. This ghaut has been passable for carriages since May 1843.
Chowk on the Great Northern Road to Callian, to be continued to join the Thull Ghaut Road.	This road will open up some of the most productive districts in the Northern Concan.	Season 1838–39	Callian	33 miles finished to 1840–41, at an expense of 22,191 rupees.			This line, when finished, with the exception of a few miles between Perm and Nagota, for which sanction is anticipated, will open a line of road through the Northern Concan, from Mahabaleshwar to the Thull Ghaut.
Chiploon, in the Southern Concan, over the Koombarlee Ghaut.	With the view of facilitating intercourse and traffic.	Length, 17 miles; season 1838–39.		3,340 7 3	This line was originally constructed at a considerable cost, but for many years was left without any repairs; a supplementary estimate of 3,119 rupees was passed in 1844–45.		This line was, for the most part, obliterated, and required to be constructed "de novo."
Cooly Bridge, repairs of the	To facilitate communication	Sanctioned 26th December 1845.	Situated on the west of the town of Bapeiu.	569	569	Completed season 1845–46.	
Curringa: Construction of a Mamlutdar's Cutcherry.		Sanctioned 30th April 1847.	At Oorun		1,367 rupees by contract.	—	
Chowdanah Bundarrah, improvements to the.	For irrigation	Sanctioned 1845–46	Chowdanah	1,503 9 9		Completed season, 1848–49.	A large body of water now occupies the place of a mass of sand and deposit, previously choking up the rear of the bundarrah wall, and the supply of water has enabled the villagers to bring under wet cultivation land previously yielding monsoon crops only.
Cunnassee Watercourse, improvements to the.	For purposes of irrigation	Sanctioned 1848–49	Cunnassee	4,981		Completed 1849	On the 22d of July, and on the 4th October 1849, the parapets of the aqueducts were injured by floods, owing to the steep slopes to the sides of the cutting of the watercourse.
Churrygaum Khind, constructing a road over the.		Sanctioned in March 1850.	Churrygaum	3,168 3 2	4,000	—	

Chineh Khind, constructing a Bullock Track over the.	- - - - - - -	Length about 2¼ miles	- - - - -	- - - - -	7,146 - -	- - - - -	- - This khind is situated on the direct line of road between Neera and Wace; and a line was marked out with a slope of 1 in 21, the line being about 2¼ miles in length: for the greater part, the cuttings being through solid rock.
Dapoorie and Hofkar Bridge Junction Road.	- - To perfect the communication between Bombay and Nuggur, when the Bhogapoor line shall have been abandoned.	- - Sanctioned 25th November 1847.	- - - - -	- - - - -	- - Under contract for 6,350 rupees.	- - - - -	- - It is believed that during the fair season the greater portion of the traffic between these places will proceed by Poona and Kurradee.
Dabaree Patna Bundarrah, improvement of the.	- - For a supply of water to the villagers.	Sanctioned in 1847–48	- On the Girna River bank.	3,712 9 11	- - - - -	Completed 1848–49 -	- - The monsoon of 1848 did not injure this work, but the shifting of the deposit in rear of this bundarrah, consequent on the construction of four sluices on the left bank, and the prolongation of the wall on the right bank, had not given satisfaction to the villagers of Dhabaree and Patna, on the opposite banks of the river, who were constantly quarrelling about the supply of water. It is remarked by the Superintendent of Roads and Tanks, "in a river having low banks, like the Girna River, at the point where this bundarrah is constructed, it does not appear possible to modify an old existing bundarrah so as to supply water in the required proportions to land on both sides of the river; all that can be done is to render the bundarrah and watercourses so efficient that there may be as little loss as possible of the water supplied by the river, leaving it to the villagers, under the superintendence of the proper revenue authorities, to divide the water proportionally to their requirements on either side of the river."
Ghorabunder, New Pier at, and Causeway between Bendora and Muhim.	- - To enable the traffic from Surat to reach Bombay by the direct route of the Muhim Causeway, without incurring the delay often attendant upon the navigation around the southern extremity of the island.	- - - -	- - - - -	- - - - -	84,230 9 3	- - - - -	- - All intention of building the new wharf was abandoned, for the time, in 1845–46, in consequence of the traffic being considered too slight to warrant the extensive outlay.
Ghoreygaum Tank, reconstruction of.	- - To afford supplies of water to travellers.	- Commenced in season 1835–36.	- - In the Northern Concan.	6,958 3 4 of which sum 3,000 rupees were subscribed by the inhabitants.	- - - -	- - Completed, season 1836–37.	- - This work was undertaken on petition of the inhabitants.
Gokhirwa Bridge, repair of the	- - Connects the island of Bassein with the main land.	- Sanctioned 31st March 1846.	- - - -	- - - - -	- - - 5,702 Supplementary Estimate - } 976 *Rs.* 6,678	- - - - -	- - This bridge was represented 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 into the interior of the country; the supplementary estimate was rendered necessary from the timbers of the old bridge being in so bad a state as to preclude the possibility of their being used to the extent allowed for; the progress of the work was likewise much retarded by the tides by which, at the springs, the piers and abutments were covered for several days.

(*continued*)

No. 12.—Tabular Statement of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850–51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Jhorgah and Nusseerabad, completing the road between.	- - - - - - -	- - Length, 63 miles; sanctioned season 1847–48.	Nusseerabad - -	15,151 - 4	- - - -	Completed 1849–50 -	- - The sum of *Rs.* 172. 15. 6. out of the total cost was incurred for repairs to the embankments and roadways of the bridges, in consequence of the country people having cut them up with their carts before the earthwork had had time to consolidate. It runs somewhat parallel to the Boree and Geema Rivers.
Kosseylee Bunder - - -	- - - - - - -	- - Completed prior to 1840.	Kesseylee - -	- - Actual cost of materials, and all the labour executed by convicts in 1839, *Rs.* 10,904. -. 6.	- - By free labour, *Rs.* 45,653. 12.	- - Completed prior to 1840.	—
Kessoordee Tank, in the Poonah Collectorate.	For irrigation - - - -	- - Estimated in season 1835–36. Length about 1,409 feet, of which 190 feet are solid masonry, 1,170 feet earthen embankment, and 100 feet excavation, for an escape channel for floods.	- - Within 24 miles of Poona.	11,824 - -	- - Two estimates, *Rs.* 7,045. 3. 11., and *Rs.* 9,043. 11. 1.	Completed in 1837 -	- - Lying across the gorge of a long valley, and to form, when completed, a sheet of water, below which there are upwards of 1,000 acres of fine land lying waste, which by the agreements taken from the natives will be brought under cultivation. The greatest depth of water, when full, will be 38 feet, the greatest breadth nearly half a mile, and the greatest length nearly three-quarters of a mile; this work failed during season 1843–44, from the water rising above the top of the embankment, which was of earth, and carrying away a great portion of it; it is remarked, by the Superintendent of Roads and Tanks, "results such as these, from works designed by officers of acknowledged talent, must impress extreme caution in all future projects of the kind, and I think it will be found that the most profitable method of extending irrigation will be, in the first place, to restore the boundaries which formerly existed in the richer districts, and gradually to extend this system as far as appears practicable, instead of attempting to form immense reservoirs of water in less productive parts of the country."
Khandalla Tank, additions to -	- - To render it efficient and complete for the supply of water to travellers.	Sanctioned in 1845 -	Khandalla - -	1,421 - -	- - - -	Completed in 1845–46	- - The retaining wall has been raised to an 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.
Kesseylee: Protection of the village of Kurrud from inundation.	- - The village had been endangered by encroachments of the Kurra River.	Sanctioned May 1845	Village of Kurrud -	- - - -	715 - -	- - - -	- - The villagers consented to be assessed for the sum of 200 rupees.
Kirkee: Construction of a piece of road.	- - For shortening the communication between the hospital and burial-ground.	- - Length about 3,000 feet.	At Kirkee - -	- - To be constructed under a contract of 1,920 rupees.	- - - -	- - - -	- - In the event of the junction between the new line by Akoordie and the Nuggur Road being effected across the Dapoorie and Holkar bridges, the newly constructed piece now reported on will also form part of the connecting line.

Korgaon: Construction of a foot suspension bridge over the Wyturnee River.	- - A bridge has long been required, the river being of a remarkably peculiar section, very confined in breadth, and extremely deep.	- - Sanctioned season 1844-45.	Korgaon - - -	- - - -	951 - -	- - -	- - The amount is probably higher than it may be deemed expedient to lay out on a work off any of the main lines, and for the use of foot passengers only; but no bridge could be built in the locality for less amount.
Khandalla: Erection of a small tiled building.	- - For the purposes of a post-office.	- - Sanctioned season 1845-46.	Khandalla - -	286 - -	256 - -	- - Completed season 1845-46.	- - The outlay exceeded the estimate by 30 rupees, chiefly in consequence of teak having been used instead of junglewood in the construction of the doors and windows.
Karlee, on the Panwell and Poona Mail Road: construction of new works.	- - For a travellers' bungalow, and a public well.	- - Sanctioned season 1845-46.	Karlee - - -	- - For bungalow, 2,289 rupees; for well, 770 rupees.	- - - -	- - Completed season 1845-46.	- - The bungalow was entirely new, and includes out-houses; the well is a complete construction of cut stone masonry.
Kundanah Bundarrah, improvements to the.	For irrigation - - - -	Sanctioned 1847-48 -	Kundanah - -	1,139 - 1	- - - -	- - Completed season 1848-49.	- - This outlay has been lost to Government, as it appears that no water occupies the place of previously accumulated deposit, or at least in quantities too trifling to be of any service; it would have been difficult, if not impossible, to have anticipated such a failure.
Khutghur Watercourse, improvements to the.	- - - - - - -	- - - - -	In Candeish - -	1,226 7	- - - -	- - Completed season 1848-49.	—
Moral Bunder to Carangah -	- - - - - - -	Length, five miles -	- - - -	- - - -	- - - -	- - - -	- - This line existed previously to the formation of the Road and Tank Department in 1836, but no regular provision had been made for annual repairs.
Mulligaum and Surat Road -	- - - - - - -	- - Made by the Pioneer Corps, 1823 or 1824.	- - - -	- - - -	- - - -	- - - -	- - This line never appears to have received any regular repairs; the largest ghaut on the line is the Koondalbharree Ghaut, between Dhywell and Beersurwarree, the slopes of which are in some parts 1 in 5.
Mhar: Clearing out of the Chowdar Tank.	For supply of water - - -	- - Commenced season 1845-46.	Chowdar - -	4,433 - -	6,407 - -	- - Completed season 1846-47.	- - The mud in the bed of the tank was found, after the water was drawn off, to be but 4½ feet in depth, instead of 5½ feet, as had been estimated for; the balance was to be expended in repairing portions of the retaining wall.
Moodee Bundarrah, improvement to the.	For supply of water - - -	- - Commenced season 1846-47.	In Candeish - -	2,903 5 9	2,628 5 9	- - Completed season 1848-49.	- - The excess of expenditure was occasioned by modifications of the original plan.
Memadapoor Tank, prolongation of the retaining wall to the.	To strengthen it - - -	Length, 639 feet -	In Sattara - -	- - - -	8,540 - -	- - - -	- - This will complete the retaining wall to a length of 630 feet, averaging from 6 to 43 feet high, and with the other repairs tend to the preservation of this old Mohamedan work.
Nagitora to Mahbleshwar Road	- - - - - - -	- - Length, 71 miles: this line of road existed previous to the formation of the Road and Tank Department in 1836, but no provision had been made for annual repairs.	- - - -	5,325 - -	- - - -	- - - -	- - In season 1842-43 it was reported that a contract had been entered into for keeping this line in repair for 5,325 rupees annually, which plan had hitherto succeeded very well, as the road was reported to be in a much better state than in former years. (*continued*)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850-51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Chowderaure Tank, at Mhar		Sanctioned season 1844-45.			7,234 rupees, of which 2,000 rupees are to be defrayed by the inhabitants; the remainder by Government.	—	
Nassick to Chandore, on the Great Northern Road.	Undertaken in continuation of the road which already existed from Bombay to Nassick, to open the flourishing district of Candeish.	Length, 43 miles, 2 furlongs, 91 yards; commenced in season 1837-38.		*Rs.*37,884. —. 10., viz. *Rs. a. p.* Road - 27,512 13 2 Bridges, 10,371 3 8 Average, per mile - 874 14 2		Com in 1839	This road, in connexion with the one constructing through Candeish, reaches from Bombay to the Sindwar Pass in the Sautpoora range, and forms the whole Bombay portion of the road to Agra, while the traffic of Berar flows into it by the line of Oomerawutty and Mulkapoor; in 1847 it was reported that it would be difficult to find a half mile in any portion of this line which could be justly characterised as in indifferent order.
Nassick and Sinnur Road	To connect the towns of Nassick and Sinnur.		Sinnur	Expended on the road, *Rs.* 15,832. 11. 11.			The portion between Sinnur and Sinda is by no means well laid out; no survey was made of this line before commencing it, as the country appeared to present little or no difficulty to the formation of a cleared road; the result has proved that even in the most easy cases it is impossible to produce any satisfactory road without going through all the preliminary details. The road was reported in 1844-45 to be in fair order; paved dips were ordered to be constructed across the four principal nullahs, as the traffic was not of sufficient importance to warrant the outlay for bridges.
Narrungaon: Repairs to a Bridge across a nullah, between Seroor and Soopah.		Erected in 1842	Narrungaon				This bridge was designed by Major Peat; some deflexion is observable in the joists which will render supports necessary; this is ascribed to no fault in workmanship, but solely to deficiency in the scantling of the timber.
Poona to Panwell Road, *viâ* Dhaporee, with old Branch, *viâ* Cund and Panowlee.	For traffic over the ghauts	Length, 88 miles; constructed, and provision made for annual repairs, previous to the formation of the Road and Tank Department in 1836.	Panwell	Not known	Not known	This road was constructed previously to the formation of the Road and Tank Department in 1836.	This is the only made road up the ghauts between the Tull Ghaut on the north and the Parr Ghaut on the south, both of which are nearly one hundred miles (100 miles) distant, and both exceedingly difficult, and indeed almost impassable for laden carts, so that all the wheel traffic from the Deccan may be said to be dependent on this line (in 1850-51); the present ghaut in several places is still somewhat steep, being in some places about 1 in 10, which renders it necessary for carts to drag their wheels in descending. The toll returns of 1839-40 amounted to 18,629 rupees, and of 1840-41 to 27,741 rupees, being an increase of 9,112 rupees. On this line is the Dapooree bridge, 30 feet in breadth and 470 feet in length, with a raised approach on the right bank 540 feet in length: this bridge is of timber, with waterways of 35 feet, and the roadway supported by three trusses, each composed of a straining-beam and three struts; its completion was reported in season 1842-43, the cost having been *Rs.* 68,867. 1*s.* 10.

Poonah to Ahmednuggur	-- In continuation of the Poona and Panwell lines to the northern stations.	Miles. Poona to Seroor, 44; Seroor to Ahmednuggur, 31 ½; Miles - 75 ½. This line had been laid out previously to 1836, but no provision had been made for annual repairs.	Ahmednuggur	-- 30,161 rupees had been laid out on about 17 ½ miles of the road prior to 1836, but the total expenditure on the line is not known.		-- By the employment of convict labour it was hoped that the completion of this line would be effected in season 1846–47, at a trifling cost to Government.	-- Partly to 1836 this line had been laid out and kept up, partly under civilians, partly under contract, and partly under engineers; the Shikrapore bridge was completed in season 1842–43, at an expenditure of *Rs.* 22,433. 2. 5.; the Muragaon bridge, which had been washed away, was rebuilt in season 1843–44, at a cost of 1,700 rupees; it has four waterways, 12 feet each.
Penn to Kussoolee Road, at the bottom of the Bore Ghaut.	-- Is expected to advance in an extraordinary degree the salt trade carried on from Penn with the interior of India, by introducing the use of carts instead of bullock commerce.	-- Length 17 ½; commenced in October 1836.	-- From Penn, in the Northern Concan, to Kussoolee, at the foot of the Bore Ghaut.	6,700 9 5	8,025 - -	-- Completed in June 1837.	—
Poona to Sholapoor	-- To open out the valuable Barsee cotton trade, and to insure communication for troops and guns with that military station during the rainy season.	-- Length, 149 miles; surveyed in season 1835–36.	- - - -	- - - -	1,27,805 8 6	- - - -	-- The portion of this road through the cantonment of Poona was specially, in 1845–46, repaired by contract, for 8,236 rupees; estimates were also prepared for extending this road for some distance towards Hunseeseer, crossing the Nulla which flows past the horse artillery lines by a bridge.
Petus and Indapoor Road	-- Undertaken for the purpose of furnishing food and employment to the distressed population of the Bheemturry and Indapoor districts, who were represented to be suffering severely, in consequence of a succession of unfavourable seasons.	-- Length, 44 miles, 6 furlongs; sanctioned season 1845–46.	- - - -	-- 1,42,284 rupees expended to 1847, of which 1,23,208 rupees solely on labour and its superintendence.	- - - -	- - - -	-- The superintendence of this work was entrusted to Serjeant Overseer Armistead, whose constant and severe attacks of ill-health at the Thull Ghaut had incapacitated him from further employment in that neighbourhood, except at the risk of life; the number of people daily employed on the line averaged, in June 1846, six thousand four hundred and seventy (6,470); the workmanship on this line was reported in 1847 to be inferior to none in the Bombay Presidency.
Poona to the Neera Bridge	- - - - - - -	-- Length, 40 miles 6 furlongs; this line was in existence previously to the formation of the Road and Tank Department in 1836, but no provision had been made for annual repairs.	- - - -	-- The expenditure of *Rs.* 2,075. 12*a.* 10*p.* was reported to season 1843–44.	- - - -	- - - -	-- (1839). The Bapdeo Ghaut, near Poona, is the great obstacle on this line, being almost impracticable for carts, and in some parts dangerous from want of parapet walls; the traffic on this ghaut, however, is stated (in 1847) not to be so important as to render the construction of a new ghaut advisable.
Poona to Narrangaum	- - - - - - -	-- Length, 45 miles 7 furlongs; this road existed previously to the formation of the Road and Tank Department in 1836, but no provision had been made for annual repairs.	Narrangaum	- - - -	- - - -	- - - -	-- In 1840–41 this road was represented to be in good repair, but as it crossed so many unbridged rivers, it was of little use during the monsoon, and could only be considered as a good-weather road; it will form a portion of the central line between Belgaum and Nassick.

(*continued*)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850–51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Panwell to Penn	For the accommodation of the salt trade.			148 9 –			Improvements were made to the Aptah Ghaut in season 1843–44, much to the convenience of the Bringarees, considerable numbers of whom proceed from Panwell to Penn, to take salt from the latter place.
Paste Tank, repairs to	For purposes of irrigation	Sanctioned, season 1835–36; length 1,680 feet; greatest breadth 125 feet, and greatest depth 9 feet.	At the village of Paste, in the Sinnur Pergunnah.	Cost to Government, 250 rupees, an equal amount having been given by the villagers in money, materials and labour.		Completed in season 1836–37.	This work, in addition to securing the former baghayet revenue of the village, is to return to Government an additional 30 per cent. on the capital expended.
Panwell Port to the Salt Panee of the Island of Carranjah.	This road was undertaken by Government, not only with a view to its general usefulness, but also to furnish employment to the Kattywar emigrants.	Length, 40 miles 4 furlongs.		13,188 14 8	—		
Poona New Bridge	The old bridge has been removed, it having been in a very unsafe state.	Commenced on the 1st November 1845.		*Rs.* 29,564, of which *Rs.* 10,382 were subscribed by the inhabitants of the town.	Commenced by contract, under Lieutenant Cowper's superintendence, for 26,975 rupees.	Completed in December 1846.	This bridge was designed by Major Peat. The excess over the contract amount was expense allowed by Government for removing the centreings, &c. of the old bridge.
Panwell Bunder	Raising the platform on which the custom-house is situated, together with the reconstruction of masonry revetments.	Sanctioned 2 January 1846.	Panwell	5,725 – –	Under contract for 5,725 rupees.	Completed season 1846–47.	—
Poona to Ahmednuggur Road	Estimates for constructing stone and foot bridges over the Hung Nullee for 21,704 rupees, and over the Seena River for 6,358 rupees, were submitted in 1843–44; a second flying bridge was constructed at Karringaon, at a cost of 980 rupees. Bridges were sanctioned on the 30th January 1846, over the Kondapoor and Nusudwady Nullahs, the streams of which had hitherto, at flood, invariably impeded the dawk. Both bridges to be built by contract, on designs by Major Peat; that over the Kondapoor Nullah for 6,985 rupees, that over the Nusudwady Nullah for 4,305 rupees.						
Poona and Wangoolie, new line of road.	To avoid the present circuitous route by Holkar's Bridge and Lowgaon, as far as traffic and communication between Poona and Nuggur are concerned.	—					

Ratnagherry Collectorate: Construction of road leading into Chiploon.	To perfect the communication between the town of Chiploon and the Koombarlee Ghaut.	Length, 3 miles; sanctioned season 1845–46.	Chiploon	2,700	Completed season 1845–46.	This cross road was very defective.
Rawere and Dhurungaum Road	- - - - - - -	Length, 54 miles	- - - -	- - - -	- - - -	This is a fair-weather road, passing mostly over black soil; it crosses the Taptee and Geerna, both large rivers with very high banks.
Ratraz Tank, clearance and improvement of the.	The tank is for the supply of the inhabitants of Poona with water; the additional quantity of water which it was calculated would become available through the intended improvements, amounted to 30 days' supply.	Season 1846–47	Poona	46,765		The work to be performed includes the removal of 2,900,000 cubic feet of earth, also 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.
Salsette, roads in the island of	- - - - - - -	40 miles of road existed previously to the formation of the Road and Tank Department in 1836, for the annual repairs of which provision had been made.	Salsette	- - - -	- - - -	These roads consist of 17½ miles of the Agra Road, between Sion Causeway and and Colsette Bunder, of 21½ miles between Bandora and Gherabunder and Sauksee, and an area of 5½ miles between Trombay and Sion Chowkie; their aggregate annual cost for repairs is 12,000 rupees, or 270 rupees per mile.
Salsette: Road connecting Sion with Trombay.	Opens up a fertile district in the vicinity of Trombay, to the Bombay market, and also affords facilities for the transit of the mail from Panwell during the monsoon.	Length of road, five miles.	Trombay	- - - -	Completion reported in 1840–41.	This work was performed entirely by convict labour.
Salsette: Girridge Bund	- - - - - - -	- - - -	- - - -	- - - -	- - - -	The slope of this bund is 1½ to 1, with a surface of turf; whereas with such material, the inclination should have been as much as 5 to 1 to ensure stability.
Salsette: Construction of a bridge across a nullah near the 21st mile on the road to the Chimboor Causeway.	In lieu of an old wooden bridge reported to be in a dilapidated and ruinous state.	Sanctioned season 1844–45.	- - - -	1,310	- - - -	This bridge has masonry abutments and wooden superstructure.
Salsette: Proposed new bridge at Erla Parla.	In lieu of one which was represented by Sir Jamsetjee Jeejeebhoy to be inconveniently shaped and situated, so as to impede the increased traffic which the new causeway was calculated to attract; the old bridge had been built at right angles with the course of the stream, while the direction of the road is very oblique.	Sanctioned season 1845–46.	About five miles from Bandora.	5,224 of which Sir Jamsetjee Jeejeebhoy expressed his readiness to furnish 4,000 rupees.	- - - -	The new work will be a skew bridge, consisting of two brick arches, of 20 feet span, with a stone pier and abutments.

(continued)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850–51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Shada: Repairs to a Bundarrah and Watercourse.	For irrigation - - - -	Season 1848–49 -	- - At the town of Shada, in Candeish.	683 3 5	- - - -	- - Completed season 1848–49.	- - The repairs consisted of stopping a considerable leak in the rear of the bundarrah wall, by backing the wall with new masonry near the leaky point, and constructing four breast walls on the line of the watercourse.
Seerwarra: Repairs, &c. to the centre Bundarrah and Watercourses.	For irrigation purposes - -	Season 1848–49 -	In Candeish - -	- - - -	- - - -	Completed 1848–49	- - The works consisted of breaking two scouring sluices in the main bundarrah wall, building a screen wall with an arched opening at the mouth of the watercourse, and breaking a small open-headed scouring sluice below this screen wall. The parapets of an old aqueduct on the line of watercourse had to be renewed.
Seerusmeenee Bundarrah, constructing the.	For purposes of irrigation - -	Season 1847–48 -	In Candeish - -	9,647 12 2	- - - -	Completed May 1849	- - It is the first bundarrah constructed entirely by the Engineer Department. The arrangement of the masonry work, &c. was much the same as in modifications of old existing bundarrahs, with the addition of a reservoir and sluice apparatus at the mouth of the watercourse. During the monsoon of 1849, the floods being unusually high, inflicted some slight injuries to the bed of the river and the pointing, but the work had borne the violence of the monsoon as well as could have been wished. The pointing was repaired and the excavation in the river begun to be filled in with dry stone work, protected by a "pukka" masonry apron above, and supported by a retaining wall.
Sattara and the Limb Khind: Road with continuation for 3 ½ miles.	- - This is a part of the Sattara and Waee Road, a direct Sattara and Poona Road.	- - Season 1850–51; length from Sattara to the Limb Khind four miles, beyond the Limb Khind 3 ½ miles.	Sattara - - -	8,000 - -	- For the bridge over the Kodally River, 8,748 rupees.	- - - -	- - Of the first portion of four miles, two were completed by the prisoners, the remaining two miles were made by Ballajee Punt Nathoo, Inamdar of Panchwar, at his own expense; the second part has been bridged and drained, the Inamdars of the Waee Valley giving 4,000 rupees, and Government another 4,000. A bridge across the Kodally River has also been sanctioned. The following serious obstacles on these lines have to be overcome: The Yenna River, the Khrisna River, the Kamalkee Ghaut, the Neera River, the Katraj Ghaut. Travellers' bungalows have been erected and finished at Punderpoor, Wangi, Poosuasolee, and Kurar; other bungalows are much required, and will be constructed.
Sattara, improvements in the town of.	- - The road in the Prutab Gunj Petta in the town was reported, in season 1850–51, to have been completed by the prisoners, with the aid of a few free labourers, and the following improvements to have been effected, viz., improvements in the market, including a line of road carried through it, joining the Sumvar and Prutab Gunj Peth roads; a large arched drain constructed on the southern approach to the tunnel; an approach lined out, and executed in the rough by the prisoners, from the town to the tunnel entrance, south side; this approach partly extended into the town by the Imaumpoora tank by the prisoners. A new line of road, 2,740 feet long, made, running at the back of the palace joining the Shukurwar Petta and the Gerula Mall lines. A vegetable market formed out of the old engineers' stores, yielding a yearly rent of 375 rupees, and every stall rented and occupied.						

Tannah Causeway - - -	- - To unite the island of Salsette to the continent of India.	Suggested 1836–37 -	- - - - -	- - - - -	- - Original estimate, 20,000 rupees.	- - - - -	- - 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 (5) feet deep. The greater portion of the ramps is consequently submersed at high water, and the guns, erected along the sides for the purpose of fastening vessels to, were complained of as causing, while thus invisible, much damage to the native craft; they were consequently removed in 1845–46, and mooring rings substituted.
Trombay Pier (*see* Bombay) -	- - - - - - - -	Commenced in 1837 -	- - - -	- - - - -	- - - -	- - Completed season 1843–44.	—
Tull Ghaut Road: Survey and Improvement.	- - - - - - -	Length, 78 miles -	- - - -	- - The sum of 1,16,783 rupees was expended on its construction; the balance, 21,723 rupees, was to be laid out in metalling the road; also an additional sum of 7,386 rupees, for further improvements, recommended by the committee appointed to examine the line.	1,38,506 - -	Completed in 1850 -	- - This road was carefully inspected by a committee of engineer officers, who reported that with reference to the amount expended on it, "the construction is very perfect."
Tull Ghaut: Experimental Line	- - - - - - -	- - Commenced December 1845. Length, 1¼ miles.	- - - -	70,256 - -	- - - -	- - Completed 27th December 1847.	- - The construction of a masonry parapet, until the whole of the Ghaut should have been in other respects completed, was not originally contemplated; whereas, for unanswerable reasons, it has been judged advisable to proceed with the parapet simultaneously with the rest, and the consequence is, that a well-built wall, three feet in height, and 4,445 feet in length, had been completed up to 1845–46. It has been found that the entire distance requiring to be so defended is about 3 miles, 4 furlongs, and 24 yards. The unusually tardy progress of the works is stated to have been caused by several circumstances: first, the position of the work, far removed from any town, and in a remarkably thinly populated country; secondly, the unhealthy climate, which is deservedly shunned; thirdly, the scarcity of water, which at the close of the hot season occasionally fails *in toto*, and the neighbourhood is consequently partially deserted; building materials are also expensive, and have to be brought from a distance.
Tannah Church, repairs to the roof of.	- - Some of the timbers were discovered to be in a state of decay.	- Sanctioned 10 April 1845.	Tannah - - -	5,070 - -	5,070 - -	- - Completed in March 1846.	—
Toka: Construction of a new rafter, or decked double boat.	- - For crossing the Godavery River.	- - Sanctioned season 1845–46.	- - Toka on the Nagpoor dawk line.	2,434 - -	2,112 - -	- - Completed season 1845–46.	—

(*continued*)

No. 12.—TABULAR STATEMENT of the Principal Works executed by the Bombay Road and Tank Department, from 1836 to 1850–51 inclusive, and by the Bombay Engineers, &c.—*continued.*

NAME OF WORK.	Object of Construction.	Length, and Date of Commencement.	Place of Termination, or of Intended Termination.	Amount of Expense Incurred.	Estimated Amount for Completion.	Probable Time of Completion.	REMARKS.
				Rs. a. p.	*Rs. a. p.*		
Tannah: Construction of a new hospital.	For a detachment hospital -	- - Sanctioned 12th March 1847.	- - - -	- - - -	4,340 - -	- - - -	- - 56 ½ feet in length, by 18 feet in breadth, with dispense rooms and out-offices.
Wurgaon Bundarrahs in the Ahmednuggur district.	For irrigation - - - -	- - These bundarrahs are three in number; sanctioned 1836–37.	- - In the Sunnur Pergunnah.	- - Two bundarrahs, 54 rupees.	236 - - The Gaom was to contribute 150 rupees, and a jagheerdar 100 rupees.	- - - -	- - 377 beegahs and four pauls are watered from these bunds, assisted by a few wells.
Wurrunder Ghaut to Mhar, constructing a bullock track over the.	- - - - - - -	Commenced 1850–51	Mhar - - -	- - - -	17,500 - - has been raised for the purpose of this work.	- - - -	- - As a great part of the proposed line would pass through the Suchew Punt's territory, at a visit from Mr. Frere, the Punt expressed his willingness to subscribe a sum of 8,750 rupees; the Government granted a like sum.
Zeykhaira Bundarrah, completing the, &c.	For purposes of Irrigation -	- - - -	- - - -	35,451 15 11	- - - -	- - Completed season 1848–49.	- - The magnificent old bundarrah, which for some portion of its length is from 20 to 30 feet in height, and 10 feet thickness at top, has been raised and strongly coped for securing a larger supply of water in its rear. The water-course is carried over five miles of most difficult ground, and in its course is carried through three tunnels of considerable length; over three nullahs, by means of arched aqueducts; four nullahs are carried clear over it, and is crossed by roads in three places. The work thus completed affords a fine specimen of the application of the resources of the Engineer department to the restoration and improvement of an old work of irrigation. It is only to be hoped that a work on which upwards of 35,000 rupees have been expended by Government may not suffer injury from the notorious inattention of the villagers (in whose charge it now is) to the care of all permanent works on the line of their water-courses.

No. 13.

In the Printed Parliamentary Paper of the Honourable the House of Commons, No. 622 of 1851 (Pages 206 and 207), Statements have been given of the Expenditure incurred under the Presidency of Bombay, on Works of Irrigation, and in the Construction of Roads and Bridges, for the Ten Years from 1836-37 to 1845-46 inclusive. The following Statement exhibits the Amount of Expenditure reported by the Road and Tank Department, from its formation to the year 1850-51 inclusive; and in the Civil Branch by Superintending Engineers from 1845-46 to 1850-51 inclusive.

YEAR	Road and Tank Department.	Civil Architect's Department.	By Superintending Engineer, Southern Provinces.	By Superintending Engineer, Northern Provinces.	By Superintending Engineer, Scinde.	By Civil Engineer, Candeish.	By Civil Engineer, Sattara.	TOTAL.
	Rs. a. p.	*Rs.* a. p.	*Rs.* a. p.	*Rs.* a. p.	*Rs.* a. p.	*Rs.* a. p.	*Rs.* a. p.	*Rs.* a. p.
Total expenditure to 30 June 1839 -	4,58,702 11 1	- - - -	- - - -	- - - -	- - -	- - -	- - - -	4,58,702 11 1
From 30th June 1839 to end of Season 1840-41 - -	2,70,815 14 -	- - - -	- - - -	- - - -	- - -	- - -	- - - -	2,70,815 14 -
Season 1841-42 -	1,76,118 - -	- - - -	- - - -	- - - -	- - -	- - -	- - - -	1,76,118 - -
Season 1842-43 -	1,24,914 14 2	- - - -	- - - -	- - - -	- - -	- - -	- - - -	1,24,914 14 2
Season 1843-44 -	1,27,814 6 -	- - - -	- - - -	- - - -	- - -	- - -	- - - -	1,27,814 6 -
Season 1844-45 -	1,27,044 7 -	- - - -	- - - -	- - - -	- - -	- - -	- - - -	1,27,044 7 -
Season 1845-46 -	No Report* - -	1,07,037 8 10	1,64,991 14 6	64,799 5 5	3,76,290 5 3	54,439 11 2	- - - -	10,82,354 10 5
Season 1846-47 -	3,14,795 13 3							
Season 1847-48 -	3,09,179 15 8	- - - -	- - - -	- - - -	- - -	- - -	- - - -	3,09,179 15 8
Season 1848-49 -	2,83,158 8 1	42,582 15 8	1,60,466 12 -	51,002 10 11	- - -	- - -	- - - -	5,87,210 14 8
Season 1849-50 -	3,58,788 1 7	33,316 11 2	1,56,957 - 3	35,855 13 9	- - -	58,000 9 -	42,205 15 8	6,80,124 3 5
Season 1850-51 -	3,61,893 4 4	59,315 10 2	3,99,559 11 5	43,293 10 7	4,619 13 6	- - -	2,25,314 13 4	10,93,996 15 4
							Total Expenditure reported from the formation of the Road and Tank Department to the year 1850-51 inclusive -	49,88,276 15 9

* *Note.*—The practice of printing the Reports of the Superintending and Executive Engineers, in connexion with those of the Road and Tank Department, appears to have been first adopted in Season 1846-47, and to have originated from the plan proposed by the Chief Engineer and the Military Board in 1844, for the abolition of the Road and Tank Department.

SUMMARY.

SUMMARY of EXPENDITURE Incurred under the several PRESIDENCIES of *India*, as follows: viz.,

PRESIDENCY.	DESCRIPTION.	AMOUNT.
		Rs.
Bengal - - - - - - -	- - Known expenditure on works under the general management of the Military Board, as per Preparatory Report, dated 8th September 1840 - -	1,39,64,009
Ditto - - - - - - -	- - Amount expended from season 1839–40 to season 1850–51, inclusive - - - - - -	2,85,04,891*
Fort St. George - - - -	- - On repair and construction of works of irrigation, and on roads, bridges and ghauts, from 1838 to 1850, inclusive -	1,25,56,293
Bombay - - - - -	- - Amount of expenditure reported by the Road and Tank Department, from its formation in 1836–37 to 1850–51, inclusive - - - -	49,88,277
	Rs.	6,00,13,560
The amount thus far expended under special grants (which exceed two crores) for the Ganges Canal, and for Works in the Punjab, has been about - -		1,00,00,000
	Making a Total, still exclusive of other items noted below, of - *Rs.*	7,00,13,560

While the total of ascertained expenditure, as above, amounts to the sum of 7,00,13,560 rupees in the aggregate, that sum cannot be considered as the total amount expended by Government on Works of public utility, the outlay incurred in public improvements under the control of Local Committees, from the proceeds of the One per Cent. Fund in the North-Western Provinces, from the Ferry Funds and from other sources, not being included, nor the value of convict labour employed on Public Works.

* Exclusive of Expenditure on the Godavery Annicut.

Considerable progress has been made in the several works alluded to at page 208 of the Printed Parliamentary Paper, No. 622 of 1851, for which special grants had been sanctioned, as will be seen from the Court's more recent despatches, given in Appendix No. 1.

Copies of Despatches to the Governments of the respective Presidencies on certain subjects which have of late engaged the attention of the Court of Directors, and a Memorandum on the Roorkee College, form Appendix No. 2.

APPENDIX.

Appendix No. 1.

Ganges Canal.

India Revenue Despatch, 21 December (No. 17) 1847.

Our Governor-General of India in Council.

Ganges Canal.

1. We have received two letters from our Governor-general, dated 3d and 20th September last (Nos. 16 and 17), transmitting further proceedings relative to the Ganges Canal, consequent on the receipt of our despatch of the 7th July (No. 9) 1847.

2. His Lordship had communicated extracts of that despatch to Major Baker, director of the canal, and to Lieutenant-colonel Abbott, Superintending Engineer in the North-Western Provinces, and now forwards copies of the observations which they have submitted to him.

3. Major Baker is of opinion that the estimate of 93 lacs, as given by Major Cautley, is not likely to be exceeded beyond the sum of four lacs, which he considers will be required to give greater strength to the works of the Solani Aqueduct. The period within which the whole work can be completed will be regulated by that occupied in the construction of the aqueduct, and he is confident that this may be accomplished within six years. Lieutenant-colonel Abbott confirms Major Baker's opinion with regard to the Solani Aqueduct, adding a recommendation for increasing the strength of some of the abutments, which it appears Major Baker had already effected by an alteration in Major Cautley's original plans.

4. With respect to the expediency of making the canal subservient to purposes of navigation, Major Baker estimates the total additional expense which will have to be incurred for that object, at 2,23,770 rupees. He says, "It has been shown in reports already before Government, that the navigation of the Ganges below Cawnpore will not be impaired by the abstraction of the canal supply at Hardwar, but that during a few months of the year some hinderance may occur in the higher course of the river. The inconvenience thus arising would be practically small, and is easily remediable by the substitution of a safe and expeditious route for the tedious, and often dangerous, passage now afforded by the river." Major Baker adds, "The sum of money which might be saved by leaving navigation entirely out of account, is thus seen to bear a small proportion to the whole estimate, and the additional expenditure of 2¼ lacs will be well bestowed on the provision of a navigable communication through the centre of the Doab, especially as the river steamers will be enabled to approach by the Jumna to the canal terminus, and there to deliver their freight at once into the canal boats."

5. Major Baker estimates the net revenue from the canal at 10 lacs, or 10 per cent. on the outlay, observing that "the rates of irrigation rent have been purposely fixed below the real value of the water, and therefore that the amount of direct revenue cannot be looked upon as a fair measure of the work of the canal."

6. The Governor-general informs us that he has applied to the President in Council for the services of Mr. Simms, the civil engineer, being of opinion that "it will be satisfactory to all parties that this gentleman should in person make an inspection of the Solani Aqueduct, assuming that his experience in this description of work justifies the reference."

7. We shall be glad to be furnished with Mr. Simms's opinion with regard to the Solani Aqueduct, and he may also be able to afford information respecting the suggestion of Lieutenant-colonel Abbott, for the construction of galvanic telegraphs on the line of the canal, "so that in case of accident at any part of the works the immense flow of water might be instantly stopped, and let off at the places prepared for its escape."

8. We trust that the Earl of Dalhousie will apply himself to the consideration of the question in all its bearings, with the same zeal and judgment which have been evinced by his predecessor in the Government of India.

We are, &c.

London, 21 December 1847. (signed) *H. S. G. Tucker.*
J. L. Lushington,
&c. &c.

India Revenue Despatch, 2 June (No. 11) 1852.

Our Governor-General of India in Council.

1. WITH his letter dated 28th July last (No. 1), our Governor-general has forwarded to us a revised estimate, prepared by Lieutenant-colonel Cautley, of the probable expense to be incurred in constructing the Ganges Canal works. His Lordship observes, that although the increase of cost which is contemplated in this estimate is undoubtedly large, he conceives that Lieutenant-colonel Cautley has satisfactorily accounted for it in the paper submitted by him to Government, and he accordingly trusts that we shall see cause to bestow our approval on what has already been done, and to give our sanction to the revised estimate now submitted.

2. The former estimate, as sanctioned in our despatch of the 7th July (No. 9) 1847, amounted to 93,39,746 rupees. In the estimate now before us the probable cost (including establishment and current repairs, which were omitted in the former one,) is given at 1,55,55,481 rupees. Of this sum the total amount actually expended up to the 30th April 1851 is stated to be 72,45,560 rupees.

3. This estimate has been prepared under instructions dated the 12th June 1850, addressed to Lieutenant-colonel Cautley by the Lieutenant-governor, who observed that it had occurred to him that sufficient progress had then been made in the construction of the Ganges Canal to enable a proximate estimate of its entire cost to be formed. "It is obvious," he remarked, "that in all great undertakings of this nature, the first estimate of the cost can only be a rough approximation towards the truth. It is impossible to foresee all the difficulties that arise from a new and large demand for labour and materials, which have hitherto been required only in small quantities or at places favourable for their production. It is also well known that during the progress of this, as of all other similarly large undertakings, important modifications of the original plan suggest themselves, which, though at first more expensive, add greatly to the stability and efficiency of the work, and will save future expense.

"But it is of importance that the earliest possible period should be seized for correcting the unavoidable errors of the first estimate, and for accurately appreciating the real expenditure involved in the undertaking. It is believed that

that this period has now arrived in the progress of your works on the Ganges Canal, and that you will find little difficulty in forming a revised estimate of the whole, which will be a near approximation to the truth."

4. The causes which have led to the increase in the estimated cost of the canal are given in detail in Lieutenant-colonel Cautley's report, and are briefly summed up as follows:

"There are three points which have greatly influenced the designs of the works now estimated for; viz.:

1st. "The results of the proceedings of a medical committee, which determined that the high-water mark of the canal should be kept as much as possible below the surface of the country.

2d. "The results of excavation in the upper division, showing that the supersoil only was clay, with an uninterrupted substratum of sand.

3d. "The change of design in the distribution of the supply below the 110th mile, which, in connexion with the results above referred to, have in fact led, with few exceptions, to the total reprojection, not only of the masonry works, but of the capacity of the canal channel.

"In referring, therefore, to the papers already printed, the present may rather be considered a fourth in succession to the three projects formerly submitted, than a revised estimate of what has gone before."

5. The excess of the revised over the original estimate is doubtless large, but considering that the latter was framed on data which were necessarily, to a great extent, imperfect or conjectural, we agree in the opinion expressed by the Governor-general, that Lieutenant-colonel Cautley has satisfactorily accounted for it. With full confidence, accordingly, in the zeal, ability, and high professional attainments of that distinguished officer, we give our sanction to the revised estimate now submitted to us, and we trust that every means will be taken for carrying on the construction of the canal with all practicable speed.

6. We take this opportunity of acknowledging the receipt of the letters and paragraphs referred to in the margin,* by which we have been kept informed of

---

* India Revenue Letter, 26th June (No. 6) 1847, paras. 24, 25.
India Revenue Letter (Governor-general's), 6th December (No. 25) 1847, whole.
India Revenue Letter, 24th December (No. 21), whole.
Bengal Military Letter, 17th March (No. 36) 1848, p. 111 to 114.
Bengal Military Letter, 14th July (No. 110) 1848, p. 43 and 90.
India Public Letter, 14th August (No. 41) 1848, paras. 16 and 19.
India Revenue Letter (Governor-general's), 17th November (No. 4) 1849, whole.
Bengal Military Letter, 19th November (No. 185) 1850, p. 45, 46.
India Foreign Letter (Governor-general's), 26th February (No. 14) 1851, whole.
Bengal Military Letter, 26th September (No. 152) 1851, para. 38.
India Public Letter, 28th November (No. 37) 1851, para. 32.
Agra Revenue Narrative, 15th March (No. 1) 1847, paras. 12 to 46.
Agra Revenue Narrative, 12th May (No. 2) 1847, paras. 11 to 42.

Agra Revenue Narrative, dated—

29th June	(No. 3)	1847	p. 13 to 38	10th October	(No. 3)	1849	p. 17 to 38
15th October	(No. 4)	„	p. 8 to 47	26th December	(No. 4)	„	p. 23 to 42
20th December	(No. 5)	„	p. 22 to 58	27th April	(No. 1)	1850	p. 18 to 45
16th February	(No. 1)	1848	p. 14 to 38	15th June	(No. 2)	„	p. 21 to 59
30th May	(No. 2)	„	p. 15 to 46	16th September	(No. 3)	„	p. 23 to 61
24th October	(No. 3)	„	p. 22 to 70	13th November	(No. 4)	„	p. 21 to 51
30th December	(No. 4)	„	p. 41 to 85	11th April	(No. 1)	1851	p. 20 to 62
10th May	(No. 1)	1849	p. 22 to 53	29th July	(No. 2)	„	p. 28 to 66
9th July	(No. 2)	„	p. 18 to 43				

of the details of progress in the works of the Ganges Canal, and of other less important works of irrigation and drainage in the North-Western Provinces. It does not appear to us that they contain any particular points on which our observations are required, but we cannot pass them over without expressing our gratification at the evidence they offer of the zealous services rendered by the late and present Governors-general, no less than by the Lieutenant-governor, in the efficient prosecution of these important works, in which the best interests of the country are involved, and which has been ably and actively responded to by the officers of all grades attached to the Canal Department.

We are, &c.

London, 2 June 1852. (signed) *J. W. Hogg.*
R. Ellice,
&c. &c.

Roads in the Punjaub.

India Public Despatch, 4 August (No. 30) 1852.

Our Governor-General of India in Council.

Foreign letters from the Government of India, dated 7th December (No. 29) 1850, paras. 232 A, and 247; 7th March (No. 10) 1851, para. 190; 7th November (No. 34), para. 83.
Foreign letters from the Governor-general, dated 18th January (No. 4) 1851; 5th April (No. 26) 1851.

1. We now reply to the letters and paragraphs noted in the margin, relating to the construction of various lines of road in the Punjaub, the expense of which will be chargeable to the five lacs of rupees annually set apart under our sanction for public improvements in that territory.

2. The following are the works which, as here reported, have received your sanction: 1st. A fair-weather road from Lahore to Mooltan, the cost of which, at 200 rupees per mile for 224 miles, is estimated at 44,800 rupees. 2d. A road from Dera Ismael Khan to Shahpoor, a distance of 104 miles, the formation of which for ordinary traffic, with the necessary wells, is estimated to cost 3,000 rupees.

3d. A good but unmetalled road from Sheikapoora (between which place and Lahore a road was previously in course of construction) to meet the above road at Shahpoor, and thus complete the communication between Lahore and Dera Ismael Khan. The distance is 100 miles, and the estimated cost, including all expenses, is *Rs.* 21,651. 4.

4th. Two roads, from Mozuffurgurh, in the Khangurh district, one to Mooltan, a distance of 13 miles, and the other to Dera Ghazee Khan, a distance of 20 miles, at a cost of 1,000 rupees.

5th. The completion, as a second class road, of a line on which 20,000 rupees have already been expended, from Rawul Pindee to Kalabagh on the Indus; the distance is 107 miles, and the additional expenditure was estimated at 13,775 rupees.

3. All these lines of road are severally recommended by their greater or less importance in a military, a political, or a commercial point of view, and we approve the sanction given to their formation.

4. The most important work referred to in the letters under reply is, the proposed new road from Lahore to Peshawur, the formation of which was recognised in our despatch in the Revenue Department, dated the 5th December 1849, as a highly desirable object. The Governor-general has now forwarded to us plans and estimates for the construction of this road, to which he requests our sanction;

tion; and, pending the receipt of our orders, his Lordship has authorised the commencement of operations and an advance of 3,00,000 rupees for the needful preliminary expenses.

5. The proposed line has been carefully surveyed by Lieutenant Tayler, the executive officer, with the personal assistance, in some parts, of Lieutenant-colonel Napier; and while it adheres generally to the direction of the existing road, deviates from it in those places where a more favourable course could be selected. It is proposed that the road shall be of the width of 40 feet; that it shall be metalled throughout; that the numerous small rivers and nullahs shall be crossed by timber bridges; and that across the four great rivers, the Ravee, the Chenab, the Jelum, and the Indus, bridges of boats shall be thrown, which, in the case of the last, will be maintained throughout the year, while those over the other rivers will, during the rainy season, be disconnected, and the boats used for the purposes of a ferry.

6. The length of the road will be 275 miles, and the estimated cost, including the floating bridges and establishment and superintendence for two and a half years, is *Rs.* 15,48,841. 2.

7. We concur with the Governor-general in regarding the formation of an efficient road to Peshawur as a work not simply of importance, but of absolute necessity. It is most desirable for military purposes that the road should be passable at all seasons, and that there should be no danger of a stoppage at any point. On these grounds it is necessary that the road should be metalled, and that adequate means of crossing the great rivers on the line should be constantly kept up. We accordingly give our sanction to the entire scheme for the formation of the proposed road, which will join the grand trunk road at Lahore, and by means of which a direct line of communication will thus be opened between Calcutta and the extreme boundary of our territory on the north-west frontier.

8. The estimates submitted to us for this road are not of so detailed a character as is usually required, but they are stated to be "as near the truth as the most detailed estimate could be in the present knowledge of the resources of the country." The work will, of course, not be finally proceeded with till the fuller estimates called for by the Governor-general shall have been submitted for sanction.

9. We take this opportunity of repeating our orders that when sketch and survey maps accompany the estimates for roads submitted for sanction, a copy be invariably forwarded to us with the papers relating to the case.

We are, &c.

(signed) *J. W. Hogg.*
Russell Ellice,
&c. &c.

London, 4 August 1852.

KURRACHEE MOLE AND ROAD.

Bombay Public Despatch, 11th August (No. 28) 1852.

Our Governor in Council at Bombay.

Para. 1. YOUR letter, dated the 16th February (No. 9) 1852, informs us with reference to our despatch No. 4 of 1851, that the Military Board has reported that the mole and road at Kurrachee can certainly be completed within the estimates; that, in their opinion, the exclusive attendance of an engineer officer

Further proceedings respecting the Mole and Road at Kurrachee.

is not necessary for the superintendence of the work, and that you have therefore authorised its completion, and have placed it under the superintendence of Captain Hill, providing that officer with an assistant to aid him in the performance of general duties as executive engineer in Lower Scinde.

2. These proceedings do not require any other notice than the expression of our approbation.

3. We are glad to observe that the Military Board has been directed to furnish quarterly reports of the progress of the works, by which your Government will be enabled to judge whether they are proceeding within the estimates.

4. With regard to the opinions of Lieutenant-colonel Scott and the Military Board respecting the probable effect of the mole on the Chinny Creek, we do not think it necessary at present to offer any remark.

We are, &c.

(signed) *J. W. Hogg.*
R. Ellice,
&c. &c.

London, 11 August 1852.

Appendix, No. 2.

Copy of Despatch to the Government of India,—Works on the Eastern Jumna Canal. The improvement and extension of Cochrane's Canal. The improvement of the Begaree Canal in Upper Scinde. Progress of the Hindoostan and Thibet Road.

Copy of Despatch to the Government of Fort St. George,—The construction of the Pennair Bridge and Annicut; the proposed construction of a Dam at Chetwye.

Copy of Despatch to the Government of Bombay,—Improvement of the roads in the Broach Collectorate.

Copy of Despatch to the Government of India,—Preparation of annual schemes for the construction of roads and bridges by the Governments of Fort St. George and Bombay.

Memorandum on the Roorkee College.

Eastern Jumna Canal.

India Revenue Despatch, 15th June (No. 11) 1853.

Our Governor-General of India in Council.

Para. 1. In your letter in the Home Department, dated the 11th March last (No. 16), you have submitted for our sanction a plan for remodelling the central division of the Eastern Jumna Canal, the estimated expense of which is *Rs.* 1,52,760. 5. 1.

2. The necessity which would ultimately arise for straightening the tortuous course of this portion of the canal has long been recognised by the officers employed on it, and the time seems now to have arrived when it is most desirable that the work should be commenced. The mode in which it is proposed to carry it out is clearly shown in the printed memorandum prepared by Lieutenant Morton, the superintendent of the Eastern Jumna Canal, and has received the entire approval of Lieutenant-colonel Cautley, of the Military Board, and of the Lieutenant-governor of the North-Western Provinces.

3. The main advantages which are anticipated from the work consist in greatly economising the water and facilitating its distribution for purposes of cultivation. In addition to this, the high embankments which now exist on this part of the canal, and which occasionally give way, and thereby cause much loss and injury, will be dispensed with, and the sanitary condition of the country near its banks, which now suffers materially from the swamps which are formed by the leakage of the water, will be largely improved.

4. We observe that Colonel Cautley states the clear profit to the Government from this canal, after allowing 5 per cent. interest on the receipts and disbursements, to have amounted on the 1st May 1852 to 97,595 rupees.

5. Under these circumstances we have no hesitation in acceding to your recommendation, and willingly accord our sanction to the expenditure proposed.

We are, &c.

(signed) *R. Ellice.*
J. Oliphant.

London, 13 June 1853.

Cochrane's Canal.

India Public Despatch, 31 March (No. 14) 1852.

Our Governor-General of India in Council.

Public Letter, dated 20 September (No. 36) 1850.

Cochrane's Canal.

Public letter (Public Works Department), dated 24th January (No. 2) 1849.
Revenue letter, 6th June (No. 30) 1850, para. 10; Revenue letter, 4th July (No. 33) 1851.

Para. 1. In this letter you request our orders on the measures proposed by the Madras Government for the improvement of Cochrane's Canal and for the extension of the line of canal communication through the Pulicat Lake to Doogoorauzepatam. The subject is placed more fully before us in the letters from the Government of Fort St. George, noted in the margin.

2. In our despatch to the Madras Government, dated 31 May (No. 12) 1848, we expressed our approval of the proposed expenditure of *Rs.* 22,047. 7. 9. for the improvement of the water communication between Madras and Sooloorpet, by means of Cochrane's Canal. This portion of the work, it would appear, has not been carried into execution, in consequence of the wish of the Madras Government to give their previous consideration to the recommendation conveyed in our despatch of the 22d July 1846, in favour of Colonel de Havilland's proposition for the extension of the canal. As the work appears to be desirable, it is unnecessary here to do more than renew our sanction to its adoption.

3. The extension of the line of water communication to Doogoorauzepatam, at the northern extremity of the Pulicat Lake, was recommended by us to the consideration of the Madras Government in our despatch above referred to of the 22d July 1846. All the officers consulted appear to concur in opinion as to the practicability of this measure. It is proposed to carry it out by means of a channel, to be formed by a dredging machine in the bed of the Pulicat Lake, between Sooloorpett and Doogoorauzepatam, and the expense is estimated, after a careful survey by Captain de Butts, the executive engineer, at *Rs.* 47,274. 15.

4. We are willing to give our sanction to this expenditure, provided that you adhere to the opinion that the proposed measure will not only be of great advantage to the trade of the district, but will also lead to a considerable increase in the traffic and revenue of the existing canal.

5. As the work in question is intended to occupy two years in completion, a considerable time must elapse before it will be possible to judge of its results, but we desire to be kept duly informed of the proceedings of the Madras Government on the subject.

We are, &c.

(signed) *J. Sheppard.*
J. W. Hogg,
&c. &c.

London, 31 March 1852.

Begaree Canal.

India Revenue Despatch, 25 February (No. 3) 1852.

Our Governor-General of India in Council.

Begaree Canal.

Para. 1. In a letter dated the 26th of September last (No. 2), the Governor-general has solicited our favourable consideration of a project which had been submitted to him by the Government of Bombay, for widening and deepening the Begaree Canal in Upper Sinde. The cost of the work is estimated at 1,30,094 rupees, and the probable return at 1,19,000 rupees per annum. The canal flows partly through territory which belonged to Meer Ali Moorad, and it was proposed that that chief should be called on to defray a portion of the cost, but in the peculiar state of our relations with him, it was deemed unadvisable

advisable to enter into any negotiation on the subject. Under the decision communicated to you in our Political Despatch, dated the 24th September (No. 33) 1851, no difficulty will probably be found in making the needful arrangements, or perhaps in dispensing altogether with his co-operation.

2. The account given by Mr. Frere, in his letter of the 10th June 1851, of the greatly improved condition of that portion of Upper Sinde which is under the charge of Major Jacob (with whom the project under consideration originated), is highly satisfactory. Besides the anticipated increase of revenue, advantages of various kinds, tending to the prosperity of the people, to be expected from the execution of this work, are pointed out by the Commissioner, and we readily accord the sanction solicited.

3. We observe with satisfaction the praise bestowed by the Commissioner in Sinde, Mr. Frere, on Major Jacob, for the part he has taken in bringing this project to the notice of Government, and that that recommendation is fully concurred in by the Governor of Bombay.

4. We shall forward a copy of this despatch to the Government of Bombay.

We are, &c.

(signed) *J. Sheppard.*
J. W. Hogg,
&c. &c.

London, 25 February 1852.

Progress of the Hindoostan and Thibet Road.

Public Department, 18th May (No. 26) 1853.

Our Governor-General of India in Council.

Foreign Letter from, dated 7 December (No. 74) 1852.

With reference to paras. 16 to 19 of Public Despatch, dated 15 September (No. 35) 1852, transmit copy of a report, by Lieutenant Briggs, on the Hindoostan and Thibet Road, with the accompanying minute and correspondence, and solicit sanction to the further works required for the completion of the road, as well as to the construction of a branch road from Kussowlee to Buddee.

Para. 1. The plan for the construction of this road was regarded by us with great interest when it first came under our notice. Not only did we warmly approve the Governor-general's object of putting an end to the "Begaree system," by the formation of that portion of the line lying between Kalka and Simla, and look with interest to the political and commercial advantages likely to result from the opening of a line of communication with Thibet by way of Chini, but we regarded as highly important the solution of the question raised by Major Kennedy, when he laid out the line, viz., the possibility of constructing, through such a region as the Himalayas, a road which, while formed on correct and scientific principles, might yet be executed at a moderate cost.

2. The results, as exhibited in the highly interesting report of Lieutenant Briggs, must be considered to be eminently satisfactory, so far as the work has yet proceeded. "Within little more than two years," observes the Governor-general, "a road of more than 50 miles long, 12 feet broad, and with a ruling gradient of three in 100 feet (temporarily departed from in two places where it will hereafter be rectified), will have been constructed from the Plains to Simla. One half of the road from Simla to Chini, that is 70 miles in length and six feet in breadth, with the same ruling gradient of three feet in 100, has been constructed, and a tunnel of 200 yards in length has been excavated through solid rock. By the aid of the tribute labour due by the hill chiefs, the road of 12 feet in width has cost only 1,237 rupees a mile, and the road of six feet 690 rupees." The leading principle of Major Kennedy's plan, adherence to the ruling level, has thus, as more fully shown by Lieutenant Briggs, been departed from in two or three unimportant instances only; and though the former officer's sanguine expectations as to cost and rapidity of execution, have not perhaps been altogether realised, the experiment has been fully as successful in these respects as could have been expected, had the formidable nature of the country and the difficulty of procuring labour been more accurately known.

It appears desirable that this example of the successful working out of an important principle in road-making should be made generally known, and the printing of Lieutenant Briggs' report and its communication, not only to the officers of your Government, but also to the Governments of the other Presidencies, would seem to be the best means of accomplishing this object.

3. Additional works are still required on the Kalka and Simla road, at a cost of 10,000 rupees, in order to make it thoroughly complete, and 71 miles of the road between the latter place and Chini still remain to be finished, the cost of which will probably not exceed that of the completed portion. In addition to these works, Lieutenant Briggs proposed the formation of a branch road from Kussowlee to Buddee, at an estimated cost of 15,000 rupees, which would open a way from the Hill Stations to the Punjab, and the Governor-general is desirous that a branch road should be constructed from Dugshai to Subathoo, for the purpose of connecting all the stations in the hills with each other and with the plains. We give our cordial sanction to the expenditure required for the execution of these works.

4. We have, in conclusion, to express our concurrence in the commendation bestowed by the Governor-general on Lieutenant Briggs, the perusal of whose report has impressed us with a very high opinion of his general intelligence, as well as of his professional qualifications.

We are, &c.
(signed) *R. Ellice.*
J. Oliphant,
&c. &c.

London, 18 May 1853.

Pennair Bridge and Annicut.

Madras Revenue Despatch, 18th February (No. 2) 1852.

Our Governor in Council at Fort St. George.

Pennair Bridge and Annicut.

Para. 1. In a letter dated the 12th August last (No. 10), the Government of India have submitted for our favourable consideration a project laid before them by your Government for the construction of an annicut (to serve likewise as a bridge) across the Pennair River, in the Nellore district, at a cost of *Rs.* 85,547. 4. 6.

2. This work is intended to secure and extend the cultivation of a large tract of country. It is stated that on the average of the last five years, land bearing an assessment of 13,094 rupees has been annually abandoned, solely from the want of water to irrigate it. This amount would be at once secured by the execution of the proposed work; but it is further confidently anticipated that by increased cultivation, the ultimate gain to the revenue would not fall short of 20,000 rupees.

3. Relying on the correctness of your estimates, both of expenditure and return, we accord the sanction solicited by you and by the Government of India. Although in authorising expenditure on works of this description, we of course look to the direct return which they are calculated to produce in the shape of an increase to the land revenue, we are also mainly influenced by a consideration of the great advantages which they afford to the cultivators by extending the field of their labour, securing to them its fruits, and adding to its productiveness.

We are, &c.
(signed) *J. Sheppard.*
J. W. Hogg,
&c. &c.

London, 18 February 1853.

Chetwye Dam.

Madras Revenue Despatch, 15th December (No. 19) 1852.

Our Governor in Council at Fort St. George.

Chetwye Dam. Letters dated 10th September (No. 53) 1851; 25th June (No. 30) 1852.

Para. 1. We now reply to your letters of the dates noted in the margin, forwarding for our sanction a proposal of Major Cotton to construct a dam at Chetwye, in lieu of that which failed at Yennamaikal, in the district of Malabar.

2. Chetwye is some miles further down the stream than Yennamaikal, and before finally determining on the new site, the question seems to have received a very careful investigation, and no effort seems to have been spared to arrive at an accurate view of the comparative advantages of the former and proposed position of the dam. The discussion which preceded the decision of the question being of an exclusively professional character, it is not our intention to enter into a review of it. It is sufficient to observe in this place, that Major Cotton appears not only to have effectually disposed of the objections which were urged against the work so far as to carry the opinion of his official superiors with him, but to have obtained the acquiescence of his opponents in the correctness of his views.

3. We observe also that the opposition originally offered by the Cochin Sirkar to the removal of the bund from Yennamaikal to Chetwye was based on an erroneous view of the subject, and was subsequently withdrawn.

4. In a financial point of view, the proposal of Major Cotton appears to possess many great advantages. The expense of restoring the dam at Yennamaikul is estimated at *Rs.* 34,814. 13., and that of constructing a new dam at that place at *Rs.* 74,214. 4.; while the total expense of a dam at Chetwye is estimated at *Rs.* 36,215. 14. The revenue derived from the bund at Yennamaikul is 2,500 rupees per annum, and the annual revenue to be expected from the erection of the bund at Chetwye is, at the lowest estimate, 7,500 rupees. If, therefore, the cost of erecting a bund, and the return to be expected from it at these two positions, be compared, it appears on a rough computation that the work might be executed at Chetwye at half the cost, while the return would be trebled, showing a return of 3 ½ per cent.* on the outlay in one case, and of 21 per cent. in the other.

* Cost.	Return.	Return.			
Rs.	*Rs.*	*Dec.*		*Rs.* *a.*	*p.*
74,000	2,500	3·24	or	3 3	11
36,000	7,500	20·83	or	20 13	4

5. Relying, therefore, on the accuracy of the information and estimates submitted to us, we have no hesitation in according our sanction to Major Cotton's proposal.

6. You solicit our orders on another question in connexion with this work, viz., the portion of expense that the Cochin Government should bear in its construction and subsequent maintenance in repair. As the Cochin State will participate in the benefits accruing from the work, it seems but reasonable that that State should contribute towards the expense of constructing it. But the dewan of Cochin, and the Resident, Major-general Cullen, object to such contribution, the former on general grounds, and the latter on the ground that the Cochin Government was in no way responsible for the failure of the bund, and is in consequence of its poverty entitled to liberal consideration. The force of these objections is recognised by your President, while Mr. Thomas does not wholly concur in them.

7. Under all the circumstances of the case, we are disposed to concur in the opinion expressed by your President in his minute, dated 12th June 1852, that the Cochin Durbar having intimated its readiness "to contribute to the preservation of the dam so soon as it shall be built, this is as much as ought to be required."

We are, &c.

London, 15 December 1852. (signed) *J. W. Hogg.*
R. Ellice,
&c. &c.

Repair of Roads in the Broach Collectorate.

Extract Public Letter to Bombay, dated 29th June (No. 22) 1853.

Letter from, dated 15th February (No. 13) 1851.

(Paras. 24, 25; also letter dated 27th January (No. 5) 1852, p. 28.)

Expenditure of 2,000 rupees, out of certain fines imposed on account of the adulteration of cotton, on the repair of roads in the Broach Collectorate, sanctioned, in addition to 1,000 rupees from the annual repair fund, which it was intended to appropriate to the object. An estimate was subsequently sanctioned for the construction, at a cost of 879 rupees, of a causeway over the Dhadur Creek, which had long been a serious obstacle to the traffic between the different parts of the Broach Collectorate. The causeway was to be made by driving in two rows of piles across the river, at the distance of 12 feet apart, the inner sides being boarded with coarse planks, and the centre being filled in with stones and rubbish, which would form the roadway.

Para. 30. It appears to be the decided opinion of Mr. Davies, the Collector, that no expensive measures for the improvement of the roads in the Broach Collectorate are required, and that the removal of the obstacles, arising principally from their narrowness, which at present impede traffic on "the rough though practicable roads," by which the district is intersected in "all directions," may be accomplished without much difficulty. It is highly satisfactory that Mr. Davies finds the inhabitants ready to assist him in these works, and that he expects to be able to carry out his objects as regards the improvement of the roads, without the aid of the engineers' department.

31. The want of the means of crossing the numerous streams within the collectorate, appears far more pressing than even that of the repair of the roads, and should receive your early attention. The simple method employed at the Dadur Creek, where it is crossed by the road leading to the port of Tunkaria, may, if successful there, be applicable probably to other places of the same character; but we are desirous of learning whether the suggestion of Mr. Davies to Captain Goodfellow for the construction of "a strong, simple, wooden bridge" over the Kharree, between Khutpoor Sumlee and Hansote, and which he thought might serve as a model for others, if it should be found to answer, has yet been acted on.

32. We observe that, in this instance, the Collector of Broach, finding the amount assigned for the repair of the roads in his district insufficient, applied for an additional amount (2,000 rupees) out of the sums realised from fines levied under a recent law upon persons guilty of the offence of adulterating cotton. You are aware of our objection to any special appropriation of assets of this description to local purposes, but we should have entirely approved of your having sanctioned the additional grant out of the general revenues for an object of public benefit, such as that in question.

Public Department, 24th May (No. 32) 1853.

Our Governor-General of India in Council.

Preparation of annual schemes for the construction of roads and bridges by the Governments of Fort St. George and Bombay.

1. We have been anxiously awaiting the result of the inquiries which, in accordance with our orders of the 30th January 1850, have been instituted by the Governments of Fort St. George and Bombay, with regard to the superintendence and execution of public works at those Presidencies.

2. In our consideration of the proceedings of the above-named Governments with regard to various proposed works of public improvement, and especially in the case of roads, we have often, and in that despatch especially, noticed the irregular and unsystematic manner in which the plans laid before them have been disposed of. The sanction given to the several schemes by the local governments, or the recommendations made to your Government in favour of them, appear to have been grounded too frequently on considerations limited to each particular project, and having no reference to the general wants of the country. The natural consequence of such a mode of proceeding, as regards roads, has been that large expenditure has not unfrequently been incurred on lines of inferior importance, while the trunk lines have remained in an imperfect state, on the ground that the necessary funds could not be spared to complete them.

3. In

3. In the despatch above referred to, we showed ourselves strongly impressed with the evils arising from so imperfect and inadequate a mode of considering the subject, and referred to your consideration not only the best mode of departmental management to be adopted with regard to public works, but also the importance of taking into view all such works, and especially trunk and branch roads, as portions of one connected system. While we shall await the information referred to in the first paragraph of this despatch, before entering on a consideration of the general subject, we are desirous that no time should be lost in applying a remedy for the particular evil we have pointed out.

4. It is our opinion that the object in view may best be attained by the adoption of a plan of the following description. Each of the local governments should require, annually, from the officers who, in the respective Presidencies, may be vested with the general charge of the roads, a statement of the new works most urgently required for the purposes of inter-communication, and the execution of which, within the ensuing year, he may be prepared to undertake. On receiving this statement, it would be the duty of the Government to decide, after a careful consideration of the circumstances of the Presidency at the time, whether the works proposed had been properly selected, in preference to others, for immediate execution; and having come to a conclusion on this point, the whole scheme involving the proposed expenditure on new roads and bridges for the coming year, should be submitted for your final sanction and approval.

5. The plan above indicated, though peculiarly required with reference to the means of internal communication, ought also to be applied to public works of every description; and believing that much benefit would arise from the means it would afford of bringing annually under review the wants of each Presidency, as regards buildings, works of irrigation, and other works of a miscellaneous character, we direct that its operations be extended accordingly. It is desirable that, with respect to these works, as in the case of roads, the statements should exhibit the entire expenditure proposed to be incurred on new works, whatever may be the amount of the estimate for each; and we forward to you a number in the packet, a copy of the Ordnance Estimate, as annually laid before Parliament. You will find in that portion of them which relates to the public works, the form giving the estimated expense of new works, and the past as well as probable expense of those in progress, and we should recommend that this form should be adopted so far as it is applicable to the circumstances in India.

6. We wish it to be distinctly understood, that in issuing these orders, it is far from our desire either to place any further restriction on the amount heretofore expended on works of public improvement, or to deprive the Governments of Fort St. George and Bombay of any of the power they have hitherto possessed of authorising expenditure on such works. Our object is primarily to secure the application of the money to be expended in such a way as to produce the greatest possible benefit to the country and to the community; but the proposed plan, while preserving to your government that general control over the finances of India, which it is intended that you should possess, will have the advantage of relieving your government from that unnecessary distraction of attention and waste of time, which arise from a number of separate projects, relating to objects of a kindred nature, being brought under your consideration at different periods.

We are, &c.
(signed) *R. Ellice.*
J. Oliphant,
&c. &c.

London, 24 May 1853.

Memorandum on the Roorkee College.

For years there had existed a large demand for skill in every branch of civil engineering, to supply which efforts were for some time made by providing the means of special training in institutions which were then existing. In January 1845, Lieutenant Baird Smith, of the Engineers, superintendent of the Eastern Jumna Canal, undertook to conduct, at Saharunpoor, the education and train-

ing of native youths in civil engineering; and two of the most advanced scholars in the Agra and Delhi Colleges were placed under Lieutenant Smith's care. Towards the close of the same year masters were appointed to the Delhi and Agra Colleges for the special purpose of teaching architectural drawing and surveying; a class of "sub-assistant engineers" was also formed, with fixed allowances and a recognised standing in the public service.

The number of sub-assistant executive engineers was at first limited to four, but was subsequently (22d December 1846) increased to 20. One of Lieutenant Baird Smith's pupils, named Mannoo Lall, was immediately examined, and found qualified for an appointment of this nature; he has since rendered valuable services as a teacher in the Roorkee College. Three other native youths passed the required examination and obtained appointments as sub-assistant executive engineers. The chief benefit of the measure had been, to hold out definite expectations to the educated youth in the Government colleges. The standard of mathematical attainments had been designedly fixed high, and there were many who were making great exertions to reach the mark.

In 1847 Lord Hardinge determined on the vigorous prosecution of the Ganges Canal. The science that was necessary to construct a work of this magnitude would also be constantly kept in exercise for its maintenance, improvement and extension; immediate measures were necessary to meet the emergency, and to provide a constant supply of well-trained, experienced civil engineers. Out of this emergency Roorkee College had its rise.

The proposal for its institution obtained the immediate and cordial support of the Governor-general of India. On October 19th, 1847, Lieutenant R. Maclagan, of the Bengal Engineers, was appointed principal of the college, and on November 25th of the same year the Prospectus was issued:—

No. 949.

General Department, North-Western Provinces. Head Quarters, the 25th November 1847.

NOTIFICATION.

"The Lieutenant-governor directs the publication, for general information, of the following* Prospectus of a college for instruction in civil engineering, which is now established at Roorkee, and of which Lieutenant R. Maclagan, Engineers, has been appointed principal."

* See Report printed by order of the Honourable the Lieut.-Governor of the North-Western Provinces, 1851.

It was reported in 1851 that, though little more than three years have passed since the first opening of the college, and during part of that time the exigencies of the public service in the Punjab war caused a temporary suspension of operations, yet a considerable number of well-trained men had been furnished to the service of the state, and the institution had obtained a standing and organization which afforded promise of much future usefulness.

The following measures were proposed, in 1851, for the further development of the scheme which was contemplated in the first design of the institution; viz.,—

1st. The admission of officers, both of the Royal and East India Company's armies, to study at Roorkee College.

2d. The improvement and superintendence of the village schools in a circle of 40 or 50 miles round Roorkee.

3d. The establishment, in connexion with the college, of a depôt of mathematical and scientific instruments, and of a workshop for their manufacture and repair.

4th. The formation of a museum of economic geology.

5th. The erection of an observatory for instruction.

6th. The maintenance of metal and stone printing presses, with a bookbinder's establishment, and all that is necessary for the publication of scientific works, with appropriate drawings and illustrations.

7th. The

7th. The enlargement of the college building and establishment to meet all the purposes.

The applications for admission into the several departments of the college had been very great.

The following are Extracts from the Court's Despatches on the subject of the College.

EXTRACT Public Letter to India, dated 28 March (No. 6) 1849.

Para. 2. WE concur in the view taken by the Lieutenant-governor of the North-Western Provinces, of the advantages which may reasonably be expected from an institution of this nature, and we therefore approve of its establishment.

EXTRACT Public Letter to India, dated 2 June (No. 23) 1852.

Para. 7. WE accordingly give our sanction to the expenditure which will be necessary to carry out the plan of the Lieutenant-governor.

8. While we have been mainly influenced in authorising this large outlay by the considerations placed before us by the Lieutenant-governor, arising from the advantages to the public service, and the general benefits to the people which may be expected from placing the college on a thoroughly efficient footing, we hail with much satisfaction the means which the institution, on its extended plan, will afford to the native youth of qualifying themselves for the service of Government in a way which is, to a great extent, new to them, but for which, so far as they have been tried, they have manifested a perfect aptitude.

EXTRACT Public Letter to India, dated 14 July (No. 27) 1852.

68. WE notice with much satisfaction the additional evidence afforded in these papers of the successful working of this important institution, and we approve the measures which you have sanctioned for the further extension of its usefulness.

Letter from, dated 21 December (No. 47) 1850.

(7 to 9.) The establishment of a class in the Roorkee College for imparting the rudiments of civil engineering in the vernacular language having proved very successful, the number of the class increased from 16 to 24. At the same time, the allowance of one-third of the whole number was fixed at 10 rupees instead of 5 rupees per mensem, and as it was thought desirable to encourage the resort to the college of youths from the Punjab, sanction was given for the payment of travelling allowance to a limited number of young men from Lahore.

(True copies.)

(signed) *T. L. Peacock*,
Examiner of India Correspondence.

East India House,
17 August 1853.

PUBLIC WORKS (INDIA).

A RETURN of all Sums spent on Public Works (not of a Military kind) in *India*, since April 1834, keeping distinct the Amounts spent on the Repairs of Old, and on the Construction of New Works, together with the Objects of the Works newly Constructed; and stating, when remunerative, the Amounts received from such Works.

(*Mr. Bright.*)

Ordered, by The House of Commons, *to be Printed,*
20 *August* 1853.

[*Price* 1*s.* 10*d.*]

PUBLIC WORKS (BENGAL, &c.)

Duplicate
Lee 3187

RETURN to an Order of the Honourable The House of Commons, dated 24 February 1853;—*for*,

COPIES "of the REPORTS of the several COMMISSIONERS on PUBLIC WORKS at *Bengal*, *Madras*, and *Bombay*, in the Year 1851–2; of the MINUTES of the Members of the Government thereon; and of any Orders or Despatches of the COURT of DIRECTORS relating thereto."

East India House,
17 January 1854.

JAMES C. MELVILL.

BOMBAY.

[*Note.*— The Return from the Presidency of BENGAL was presented to the Honourable the House of Commons on the 26th April 1853; and that for the Presidency of FORT SAINT GEORGE on the 27th May 1853.]

(*Mr. Hume.*)

Ordered, by The House of Commons, *to be Printed*,
6 *February* 1854.

LIST.

	Page
(Extract.) Military Letter from the Government of Bengal to Court of Directors; dated 9 September (No. 231) 1853	3
Letter from the Secretary to the Government of India to Officiating Secretary, Government of India, dated 10 November 1851	3
Report from the Commission of Public Works, dated 1 September 1851	4
Khandeish Division of Public Works, Estimate No. 1 of 1849–50	35
Letter from Superintending Engineer to Superintendent of Roads, Poonah, dated 12 July 1851	43
Distribution Report of Labour and Materials, with Rates of Works performed, (Undwell Bridge), dated February 1851	48
Undwell Bridge; Balance Sheet of Stock for February 1851, dated Nassick, 1 March 1851	62
Bill of Payment of Workpeople employed, and Materials used, during the month of February 1851, dated Undwell, 14 March 1851	67
Receipt of Materials supplied, No. 1 to 39 & 47 (Undwell Bridge), February 1851	70
Store Bill, No. 1 (or Vouchers), from 40 to 46; Stores entered in Stock (Undwell Bridge), February 1851	86
Stock of Materials received and issued during the month of February 1851 (Undwell Bridge)	90
Day-book of Labour, Nos. 7 & 8, daily (or figured) Abstract	91
Minute by the Chief Engineer, dated 6 May 1846	104
Letter from the Secretary to Government to the Secretary to the Government of India, dated 11 November 1851	107
Letter from Captain Thomas Gaisford to Secretary to the Government of Bombay, dated 4 September 1851	107
Report by the Auditor General, No. 348, dated 23 September 1851	107
Minute of the Commission, dated 5 August	108
Letter from the Secretary to the Government of India, Military Department, with the Governor General, to the Officiating Secretary to the Government of India, dated 3 January 1852	108
Letter from the Officiating Secretary to the Government of India, Military Department, to Secretary to Government of India, Military Department, with the Governor General, dated 16 December 1851	108
Letter from the Secretary to Government to the Officiating Secretary to the Government of India, dated 25 March 1852	109
Letter from the Secretary to Government, Bombay, to Secretary to the Government of India, dated 9 August 1852	111
Letter from Lieutenant-colonel C. Waddington, Commandant, Chief Engineer, and J. Swanson, Major, Bombay, to the Governor and President in Council, dated 22 July 1852	112
Letter from Superintending Engineer, S. P., to Secretary, Military Board, Bombay, dated 26 June 1852	112
Letter from the Secretary to the Government of India, Military Department, to Secretary to the Government of Bombay, dated 2 October 1852	113
Letter from the Officiating Secretary to the Government of India, Military Department, to the Secretary, Government of Bombay, dated 28 May 1853	113

East India House,
17 January 1854.

T. L. Peacock,
Examiner of India Correspondence.

BOMBAY

EXTRACT MILITARY LETTER from *Bengal*, dated 9 September 1853.

(No. 231.)

IN transmitting to you the accompanying Report of the Commission on Public Works in the Bombay Presidency, called for by your Honourable Court's letter to the Government of India, in the Public Department, No. 47, of the 20th July 1853, we beg to observe, that we were not aware that the Government of Bombay had omitted to forward a copy for your information.

Considered—
3 June 1853, Nos. 19/32.
19 Dec. 1851, No. 46.
8 Oct. 1852, Nos. 25/27.
28 May, No. 21.
Received in the Military Department, with Extract, Home Department, No. 867, dated 2 Sept. 1853.

2. We take this opportunity to state, that we are not prepared to pronounce any opinion on the Report in question; but we trust before long to be able to communicate to your Honourable Court the result of our deliberations on the whole question.

(No. 2961.)

From Lieutenant-colonel *P. M. Melvill*, Secretary to Government, to Lieutenant-colonel *R. J. H. Birch*, C.B., Officiating Secretary to the Government of India in the Military Department, dated 10 November 1851.

Sir,

I AM directed by the Right honourable the Governor in Council to forward, for submission to the Government of India, the Report of the Commission appointed to inquire into the existing system of Public Works, in conformity with the instructions conveyed in your despatch of the 21st of December, No. 584.

As the Appendices to the Report are voluminous, the Governor in Council has directed such as appeared to be required for the correct understanding of the text to be extracted, and forwarded herewith; but should the Government of India desire to have the whole laid before them, the volumes, I am to state, will be immediately despatched, either in original or in copy, as may be deemed most convenient and useful.

I have, &c.

(signed) *P. M. Melvill*,
Lieut.-colonel, Secretary to Government.

Bombay Castle,
10 November 1851.

(True copy)

(signed) *R. J. H. Birch*,
Lieut.-colonel, Officiating Secretary to the Government of India in the Military Department.

Report.

REPORT FROM THE COMMISSION ON PUBLIC WORKS, 1 September 1851.

EXTRACT from GENERAL ORDERS by the Right honourable the Governor in Council, Military Department, Bombay Castle, the 26th of March 1851.

(Nos. 180 of 1851.)

THE Right honourable the Governor in Council has been pleased to appoint Colonel G. Moore, Mr. J. D. Inverarity, C. S., Captain H. B. Turner, Engineers, and Captain J. Gaisford, Artillery, a Commission to inquire into the existing system of Public Works, both as regards superintendence and execution; Captain Gaisford will act also as Secretary.

All departments in any way connected with Public Works are hereby required to correspond with the Commission, and to comply with any requisition for papers, or any information which the Commissioners may make.

By order of the Right honourable the Governor in Council,

(signed) *J. G. Lumsden*,
Secretary to Government.

INDEX TO PARAGRAPHS.

SECTION I.

The present System of conducting Public Works described.

1. How a Public Work originates.
2. How the Plan and Estimate are prepared.
3. How in the Military Department they go on for sanction.
4. Considerations which influence the Military Board in approving a Civil Work.
5. Course by which sanction is obtained for Civil Works.
6. The same rules apply to the Department of Roads and Tanks.
7. Exceptions at the Presidency.
8. The exception at Sattara, why cancelled.
9. How a work is prosecuted.
10. How its completion is certified, and how the bill is made and audited.
11. Occasional Works under non-professional officers, how conducted.
12. And how charged for.
13. Power of Revenue Officers to sanction certain outlays without the process above described.

SECTION II.

The System of Accounts described and considered.

14. Derivation of the present method of accounting.
15. Defects of the antecedent practice.
16. Outline of the existing system.
17. How Works executed without an estimate are accounted for.
18. Checks upon negligence and fraud.
19. Points in which the Bombay practice differs from that of Bengal.
20. Forms in which the Accounts are kept.
21. Opinions of Engineers upon the present system.
22. Our own conclusion on the same.
23. Uses of the "Figured Abstracts."
24. Its necessity.
25. Particularly on a change of officers.
26. Further improvements suggested.

SECTION III.

The Provisions regarding minor Works.

27. "Emergent Works," in what respect exempt from the rules foregoing.
28. "Annual repairs," rules for.
29. Petty repairs, rules for.
30. How bills for the above are prepared.

SECTION IV.

The Effects of the present System examined.

31. Foundation of the views taken by this Commission.
32. The present system is fraught with delay.
33. Delays of projection distinguished.
34. Delays of sanction, how investigated.
35. Analysis of the causes for this delay.
36. Results of the scrutiny.
37. Remarks in the delay with Government.
38. Ditto - - ditto - Military Board.
39. Ditto - - ditto - Engineers.
40. Extensive correspondence attendant.
41. Attributed to excessive centralization.
42. Necessity for retrenching paper-work.
43. How this may be done.
44. Extract from Captain Wingate's letter.
45. Effect of the Military Board's intervention to save delay.
46. Unison of the Board with Government.
47. Recommendation to increase the frequency of the Board's intervention.
48. And to allot a definite sum annually for Public Works.
49. Injuriousness of delay in Tank Works.
50. Extent of such delay at present.
51. Partially accounted for; still not necessary.
52. Instances of extreme delay.
53. Delays after receipt of sanction.
54. Aggregate delay until the work commences.
55. Example related by Captain Wingate.
56. Consequence of these procrastinations.
57. Want of local interest in Village Tanks.
58. Our recommendation to create such an interest.
59. Waived in favour of a plan prepared by Captain Wingate.
60. Remarks on the working of the emergent rules.
61. Official interpretation of the term "emergent."

Cancelled.
62. Example of its misapprehension.
63. Another example.
64. The present definition seems clear enough.

65. Precaution suggested against misuse of these rules.
66. Another suggestion.
67. How the course of obtaining Government sanction may be accelerated.
68. Proposal to make concurrent the action of the Civil authority and Military Board.
69. A probable objection anticipated.
70. Another suggestion in amendment.
71. Delays of execution, to what cause attributable.

SECTION IV.—*The Effects of the present System examined*—continued.

72. Delays of audit not complained of.
73. Cash balances outstanding against Engineers.
74. Present rules regarding cash advances.
75. Inconvenience thence arising.
76. Amendment proposed.
77. Another amendment regarding cash indents for monthly current expenses.
78. Check proposed to suit such new arrangements.

SECTION V.

Subordinate Branches of the Public Works Department.

79. General complaint of deficiency in these branches.
80. Necessity for a larger body of Assistants.
81. Consisting of Overseers, Builders and Mistries.
82. The European Branch; its numbers and sources of supply.
83. Its former and present strength; the increase now desired.
84. Addition of two higher grades desirable.
85. Character and usefulness of this branch.
86. Our concurrence in the views of the Bengal and Bombay Military Boards.
87. Native Surveyors and Builders; their present numbers.
88. Failure of the expected source for their further supply.
89. Cause of the failure in Colonel Jervis's opinion.
90. Opinion of the Board of Education.
91. The Honourable Court's dilemma.
92. Solution of the difficulty.
93. How youths were selected for the Engineering Class of the Elphinstone College.
94. The terms on which they were to serve.
95. Their present position in the service.
96. Colonel Jervis's scheme for augmenting the number of Surveyors.
97. Conclusion that it ought now to be adopted.
98. Temporary Establishments, their indifferency.
99. How far a temporary Establishment may be blended with a permanent.
100. Classes from which temporary Overseers are drawn.
101. Instance at Satara.
102. Usefulness of pensioned Sappers.
103. Efficiency of the Railway Contractor's Staff.
104. Contrasted with that usual on Government Works.
105. The number of native Builders not fixed.
106. Principle by which the Military Board propose to regulate their numbers.
107. One hundred and twenty now required in all.

SECTION VI.

Schools for Instruction in Civil Engineering.

108. The Regimental School of the Engineer Corps remodelled in 1840.
109. To train recruit boys for the Guide Corps.
110. Numbers now attending the School.
111. Subjects taught, and allowances to the boys.
112. The Quartermaster General's opinion of these lads.
113. How Mistries may be obtained.
114. Attainments of the European Overseers.
115. Ditto - - - Native Scholars.
116. English and Mahratta teaching compared.
117. Both languages may be required as a qualification of candidates for Surveyors.
118. Proposal to modify Colonel Jervis's scheme in this respect.
119. Ability of the Poonah College to supply candidates thus qualified.
120. In what respect Poonah lads are preferable to those bred in Bombay.
121. Rate of subsistence proposed for Students in the Upper School.
122. Necessity for a large School-room.
123. Proposed arrangement for training Classes of Surveyors and Mistries.

SECTION VII.

Qualification of young Officers as Linguists, and as Civil Engineers.

124. Importance of the Native Languages to Engineer Officers.
125. Means of enforcing the acquirement.
126. The home education of Company's Engineers defective for Civil Works.
127. Exposition of this defect by an Officer of the Bombay Engineers.

SECTION VIII.

Style of Work.

128. Should there not be a standard style.
129. To restrain the fancy of individuals.
130. Unwillingness of Engineers to do cheap work.
131. Check on extravagance.
132. Uncertainty as to the views of Government.
133. Works executed by Civil authorities.
134. How superintended and inspected.
135. Style and cost of such Works.
136. Care of district buildings should be left to the Civil Officers.
137. Statement of Expenditure by Collectors in 1850–51.
138. How the money at their disposal is applied.
139. Suggestion on this subject.
140. Beneficial effects of co-operation between the Collector and Engineer.
141. Whence unpaid agency is sometimes obtained.
142. Kind of work suitable to such agency.
143. Here again the views of Government are not clearly understood.
144. Durability and correctness of design more important than cheapness of execution.
145. The report of a competent Engineer should always precede the sanction of a new Line of Road.
146. The Phonda Ghaut Roads an example of the consequences of not observing this precaution.
147. Promulgation of a standard suggested.

SECTION IX.

Estimates for Public Works.

148. One cause of extravagant estimates stated.
149. Opinions of several Officers.
150. Suggestion thereupon.

SECTION X.

Contracts.

151. How far Contracts are advantageous.
152. Contractors require close supervision.
153. Contracts seldom resorted to, except at the Presidency and at Poona.
154. Opinion of Captain Hibbert on Contracts.
155. Captain Estridge's opinion.
156. Remark by the Executive Engineer, Surat.
157. Employment of European Contractors.
158. Causes of the present dissatisfaction with Contracts.
159. Extract from "The Builder" on this subject.
160. Our conclusion.

SECTION XI.

Security.

161. Security is taken in Bengal from non-military subordinates.
162. Appropriate for this Presidency as well.

SECTION XII.

How Office Work and the non-professional Employment of Engineers can be diminished.

163. Present Office-work a hindrance to efficiency.
164. Pecuniary responsibilities take the first place.
165. Barrack Furniture not a proper charge for Engineers.
166. The figured Abstract may be dispensed with in certain cases.
167. Survey Committees may be abolished.
168. Works appropriate to the Civil authority.
169. Part in these which the Engineer should take.
170. Personal conference recommended.
171. Example where it would have reduced work.

Report.

SECTION XIII.

Strength and Distribution of the Engineer Corps.

172. Further improvement how practicable.
173. Principles for a new arrangement.
174. Division of Works into Civil and Military not recommended.
175. Origin of the Road and Tank Department.
176. How such Works were carried on before.
177. Its basis.
178. Funds set apart for it.
179. Working of the experiment.
180. Its result.
181. Consequent relinquishment of Tank Works.
182. Present duties of the Department.
183. Its transfer, in 1844, to the Military Board, and proposed abolition.
184. Suspended for certain reasons.
185. Subsequent improvement.
186. Reasons why the scheme of 1848, for re-distributing the Engineer Corps, is not suitable now.
187. Proposed re-distribution.
188. Travelling allowance to Engineers.
189. To defray their necessary expenses.
190. Superintending Engineers' duty.

SECTION XIII.—*Strength and Distribution of the Engineer Corps*—continued.

191. Duties of Executive Officers.
192. Recourse to the Line for Engineers deprecated.
193. The present scheme even insufficient.
194. The Divisions of Country being still too large.
195. Sufficiency of the present number of Engineers considered.
196. Many Works now in abeyance for want of Officers.
197. Selection impracticable in the present state of the Corps.
198. Appeals have frequently been made for an augmentation.
199. Present neglect of Engineering improvements throughout India.

SECTION XIV.

Department of Control and Audit.

200. No change in this particular advised.
201. Nature of the Public Works Department in the Military Board.
202. Or no change beyond change of name.
203. Our reasons for this opinion.

APPENDIX.

(A.)—Statement of Sums placed annually at the disposal of Collectors, Sub-Collectors and their Assistants, for repairs of Wells, Tanks, Bunds and Village Chowrees.

(B.)—Forms of the Estimate figured Abstract of Expenditure of Labour and Materials; Abstract of Daily Totals, the Bill, and the completion Certificate for a Work of moderate size.

(C.)—Accounts for the month of February 1851, kept by Lieutenant Chapman for the Undwell Bridge, on the Agra Road.

(D.)—Statement of Proceedings in Ninety-six (96) examples of Public Works in 1850.

(E.)—Statement of Works rejected or postponed for Three Years, ending the 30th April 1851.

(F.)—Statement of the Expenditure in the Department of Public Works for the Years 1850–51.

(G.)—Colonel Jervis's Scheme for educating a Class of Native Engineer Assistants.

(H.)—The Honourable Court's Despatch to the Governor-general of India, No. 2, of 1850.

(J.)—Mr. Secretary Lumsden's Letter, No. 852, dated the 26th of March 1851, to the Commission.

(K.)—Present state of the Establishment of Surveyors and Builders.

(L.)—Letters from Government to the Commission.

(M.)—Letters from the Military Board.

(N.)—Letters from Revenue Officers.

(O.)—Letters from Engineer Officers.

(P.)—Miscellaneous Letters to the Commission.

SECTION I.

The present System of conducting Public Works described.

IT is indispensable to the method and clearness of this Report, that we be permitted to introduce our subject with a description of the system on which Public Works in this Presidency are now conducted; this we shall endeavour to do in the briefest terms.

1. The proposal for a Public Work may originate with any Government functionary who is in a position to judge of the wants of the country, or of his own particular department; at military stations new works may not be applied for without permission of his Excellency the Commander-in-Chief.

2. The plan and estimate are prepared by the Executive Engineer, and proceed from him to the Superintending Engineer of the Province, who examines the design, the calculations, the rates, and all such details, and, if he thinks proper, suggests to the executive officer alterations.

3. From the Superintending Engineer the papers pass on to the Military Board, for approval, and also for their decision, in case of any difference of opinion between the Engineers. If in the Military Department, the Board finally submit the plan and estimate to Government, by whom the work is sanctioned or not, as the case may be.

4. But

Report.

4. But in Civil Works, whose utility hinges upon considerations of which the Military Board is not officially cognizant, such, for instance, as works of irrigation, which depend upon the increased revenue derivable, or cases which have reference to the increased efficiency of departments not controlled by the Board, as, for example, if a judge or collector should require additional accommodation in his adawlut or cutcherry, the plan and estimate is considered by the Superintending Engineer and Military Board with sole reference to its fitness for the objects desired by the Civil Department: accordingly, on receiving a plan and estimate for a bundara dam, the Board would not consider whether the work were likely to be profitable; they would only consider the construction with regard to the immediate object, and the cost with reference to that construction; neither would the Board inquire whether the additions to the adawlut or cutcherry were necessary; they would only consider the construction and cost, with a view to providing economically and efficiently whatever the Judge or Collector demanded.

5. Such plans and estimates are not forwarded by the Military Board to Government, but are returned, with their approval, to the Judge or Collector, who submits them to Government through the Revenue Commissioner or Sudder Adawlut, with full information of the advantage expected from the work. The sanction, if accorded, is communicated to them, and to the Military Board, and by the latter through the Superintending to the Executive Engineer.

6. The same course is followed in the Road and Tank Department, where the assistants stand in nearly the same position as other executive officers, and the Superintendent in nearly the same position as a Superintending Engineer.

7. No Superintending Engineer intervenes between the Military Board and the Garrison and Dockyard Engineers at the Presidency. The professional member of the Board having an opportunity of seeing, with his own eyes, everything connected with their executive duties, it is assumed that the office of Superintending Engineer would be superfluous.

8. The Civil Engineer at Satara also was exempt from superintendence; but occasions having arisen for deputing a superior officer to inspect works in that Province, he has lately been placed under the Superintending Engineer of the Southern Division.

9. The course of further proceeding is the same for all works. The Engineer executes them as soon as he can, either by contract or departmentally, furnishing quarterly reports of progress. When ready to commence work, he draws from the disbursing officer of the Department chargeable an advance of money; and in prosecuting an extensive work, he obtains from time to time further advances within the limits sanctioned. His cash indents are first countersigned by the Superintending Engineer, who is supposed to see, by the progress reports, that no unnecessary delay occurs, and that inordinate advances of cash are not drawn. The fixed salaries of the establishment are obtained on a monthly bill.

10. When the work is finished, its audit takes place on a bill comprising the entire outlay, supported by a certificate from the Superintending Engineer, if present, otherwise from the head of the Department concerned, that the work has been completed satisfactorily in accordance with the sanctioned plan and estimate, or with exceptions, as the case may be. This bill exhibits the total expenditure of labour and materials; attached to it is a schedule of rates derived from that expenditure as per the "figured Abstract," described farther on, which thus tests the accuracy of the estimate, and affords practical data for future use. If the work is unfinished at the close of an official year, and a portion of the estimated cost still remains unspent, a bill for the outlay up to the 30th April is preferred, containing only two items, namely, the amount spent for labour and materials respectively, and this supported by a certificate, on honour, that it has been spent, is passed. But any item that may be deemed objectionable, though passed in the annual bill, may still be checked on the final audit; for the object of the annual bill is not so much to relieve the executive officer of his responsibility, as to prevent large outstanding balances against him, and to simplify the accounts of Government by debiting the expenditure of every year appropriately to the period in which that expenditure was incurred.

11. Besides the work thus executed by the regular establishments, undertakings

Report.

are occasionally committed to extraneous management. The procedure in these works is various, according to whether they are conducted under orders of the Military Board or not.

12. When Civil, or other than Departmental Officers execute works under the general control of the Board, bills for the actual amount of labour and materials expended are usually rendered, with a certificate, on honour, that such charges have been incurred, and these bills are passed by the Military Board.

13. The Revenue Officers are vested with authority to lay out annually certain sums in effecting improvements, without making previous reference for sanction, reporting, however, half-yearly to the Revenue Commissioner how those sums have been expended.

In the Collectorates of Tanna, Rutnagherry, Poona and Ahmednuggur, the sums thus disposable were reduced in 1835, on the creation of a separate agency, for roads and tanks, to *Rs.* 1,600 (sixteen hundred) for a Collector, *Rs.* 600 (six hundred) for his first, and *Rs.* 400 (four hundred) for his second assistant. In the other parts of this Presidency Collectors may disburse the amounts stated in Appendix (A.): works specially sanctioned by Government, and executed under the Revenue Officers, are accounted for separately in detail, with bills and receipts for vouchers.

Section II.

The System of Accounts.

14. The system of accounts in the Public Works Department was modified in 1846–47 to embrace certain forms which appeared preferable on a comparison with the methods followed in Bengal. Previously to this, the practice was for Engineers to render monthly bills of their actual expenditure, vouched by the receipted dealers' bills for materials, and by muster-rolls of the workmen entertained.

15. The fault of this practice was a deficient check upon the disposal of labour and materials when purchased; while in works executed without an estimate, there was the utmost facility for misapplication.

* Except the annual bills.—*Vide* para. 16.

16. The present system admits no bills* until the completion of a work, or of an integral and easily measured portion of it, which may be treated as a separate work; and the engineer is required to register the daily expenditure of labour and materials on each part of the work, rendering, at its completion, a bill in detail for every item of the estimate. If any considerable difference has arisen between the cost as per estimate and the cost per bill, it is explained at the foot of the latter.

17. When a work has for any reason been performed without an estimate, the bill is nevertheless drawn out in the same detail; so that if the cost appears extravagant, the register of daily expenditure shall afford the means of thorough investigation.

18. It might be objected against this system, that, supposing the amount of an estimate to be *Rs.* 1,000 (one thousand), and the actual cost *Rs.* 900 (nine hundred), there would be no check if the officer should charge the larger sum. The answer is, that then his book of daily expenditure of labour and materials must be forged, or there would always be good chance of the discrepancy attracting notice, besides a likelihood of exposure by the persons who kept the accounts. Further, the Military Board consider the criterion of a system to be, that it shall direct its checks rather against an executive officer's negligence than against fraud; for there is every reason to believe that fraud on part of the officers practically does not exist.

19. The above is believed to differ from the Bengal mode of accounting in the following particulars only, viz.:—

1st. In passing bills for the expenditure of each year on works unfinished at the close of the official year.

2d. In the substitution of a daily cash account and ledger kept by double entry, for the journal or day-book, stock-book, and book of accounts current, with suppliers of materials.

3d. In

3d. In monthly, instead of daily payments to labourers.

4th. In permitting the figured Abstract to be kept in the language of the overseer who prepares it.

Report.

20. In order that we might judge of the completeness of the accounts kept by Executive Engineers, and whether it would be possible to alleviate, by any simplifications, the clerical labour of their officer, we have examined three sets of accounts, obtained for us by the Superintending Engineer, Southern Provinces, as being respectively fair examples of the mode of estimating, accounting and charging for what might be termed a small work, a work of moderate extent, and a large work, viz.:—

No. 1. The estimate.
No. 2. The figured Abstract of daily expenditure of labour and materials.
No. 3. Abstract of daily cash totals.
No. 4. The bill.
No. 5. The certificate of completion.

The forms are the same for all.

The estimate, bill and completion certificate, which are in English, are as succinct, and, at the same time, as explicit as can be desired. The two other papers are usually kept in some native language, and, by daily repetitions, they swell in the course of protracted works to considerable bulk [*see* Appendix (B.)]. The estimate includes contingencies, and that portion of superintendence which is paid for extra to the fixed establishment. The cost of superintendence by the officer and his permanent subordinate is not charged, because they are usually engaged on various works, proceeding simultaneously, and subject to constant variation.

21. We have collected from the records of the Military Board Office, and from numerous other sources, opinions upon the merits of the present system of accounts. The majority regard it as a decided improvement upon the old, while some object to the figured abstract as not being universally applicable; not, for instance, to cutting roads through rock along the irregular surface of a hill-side, and as involving an extent of paper-work disproportionate to its utility. They represent, that although this abstract, if faithfully kept, is valuable, there is difficulty in getting qualified and trustworthy persons to fill it in, and that there is a temptation to make up for neglect by fabricated entries: moreover, they question whether it is worth while perpetually to record such elaborate details of the expenditure on every work, when the rates ought, after a few trials, to be accurately known.

22. Considering the circumstances under which Government Works are carried on in India, we think it is quite credible that a paper professing to record every minute item of expenditure on a large and heterogeneous work, would not, in all cases, bear the test of a searching examination; still, the executive officer is accountable for the degree of inaccuracy that may exist, and with due existence* on his part, the theory may be carried out to an extent most useful, and for practical ends sufficient.

* *Sic orig.*

23. The "figured Abstract," however formidable, from its expansiveness, is in its nature clear, and level to the ability of ordinary karkoons. The labour of native writers being cheap, its cost cannot often countervail its usefulness, and if the officer is conversant with the native written characters, it will present continually before his eyes, in a shape readable almost at a glance, the information he chiefly requires; it will enable him to tell daily the rate at which his work is progressing, and effectually to check negligence and fraud on the part of his subordinates.

24. Indeed, this document is admitted, even by oppugners, to be the only means whereby the expenditure on the various divisions of a work can be developed, and wasteful outlay be detected; and since Government will always demand an explanation of excesses, such accounts must be kept as will admit, in most cases, of explanations exactly true, and in exceptional cases, true approximately.

25. When works are transferred in an unfinished state from one executive officer to the charge of another, this document is all-important, because, combined with the abstract of daily totals, it at once shows the quantity of work

Report.

completed, its rate, and its entire cost up to the date of transfer: as there are, however, cases where the figured Abstract entails more trouble than is equivalent to its worth, we shall again notice it in our suggestions for reducing office-labour. —[*See* Section 166.]

26. We have received from Lieutenant Chapman, an officer of considerable experience in the Road Department, a complete set of office documents of the form in which he has been in the habit of keeping his accounts of labour and materials. These appear to us so clear and perfect, that we think it worth consideration by the authority that is to review the general system how far Lieutenant Chapman's method is an improvement upon the ordinary figured Abstract. For works such as Lieutenant Chapman has been engaged on, we have no hesitation in recording our favourable opinion of it; and although in other than Road Works the advantage may not be so apparent, the forms are perfectly adapted to work of any description. We have appended these papers accordingly —[Appendix (C.)].

Section III.

The Rules for Minor Works and Repairs described.

Thus far we have spoken of new works and important alterations. We now come to the minor works, styled "emergent," and to the customary repairs of public buildings.

27. Emergent works are commenced at once, on requisition of any competent authority, or by the executive officer on his own responsibility, if he judges the occasion to be urgent. Special report is made to the Military Board of the circumstances, and, if possible, of the expenditure required. This discretion on part of the Engineer refers to works in the general department only. The Engineer would repair a bridge, for instance, or a traveller's bungalow, but he would not repair a bund, without a requisition from the Collector.

28. Annual repair estimates are limited to preserving the structure of buildings. They are prepared at the close of every rainy season, and used to be sanctioned conditionally by the Military Board.

The Court of Directors ordered this rule to cease in 1850.

29. Other repairs, such as colouring, plastering, repairing floors, ceilings and fixtures, are styled "petty repairs," and can be made at any time, on requisition of commanding officers, or of the civil authorities, being charged for in the executive officer's monthly bill.

30. The expenditure for emergent repairs is also charged if under *Rs.* 400 (four hundred) in the Engineer's monthly bill, to which the authority and completion certificate must be attached. If beyond this limit of the Military Board's power to sanction, or if the emergent work come under the head of "additions, alterations, or new works," a separate Bill must be passed by Government. The money for prosecuting an emergent work can be obtained by the executive officer direct on a cash indent, supported by copy of his instructions from an authority competent to order the work.

Section IV.

Effects of the present System.

31. Respecting the practical operation of the rules above described, we have consulted the experience of numerous officers, civil and military, upon whose aggregate opinions and our own judgment the following view is founded.

32. Foremost, by the consent of all, stands the censure, that unreasonable delays are a pervading and most pregnant evil of the present system.

33. First are delays of projections. The needful portion of these arises in drafting plans and estimates with that minuteness of specification which the rules demand, and reason, we think, requires. The casual part occurs when subjects are referred

referred back for clearer reports, and from the necessity of correcting faults found by Superintending Engineers and the Military Board. The needless portion consists in much time of highly paid officers consumed in doing inferior work, on which lower abilities might be employed. The remedy for this belongs to the separate division of our Report, headed "Subordinates."

34. Next come the delays of sanction. In order to know the amount of correspondence and inquiry ordinarily incurred between the proposal and sanction of works, great and small, we obtained from the Military Board a statement of actual proceedings, tracing step by step the progress in 96 examples of works taken as they came from the records of one quarter in 1850. This enabled us to see where the longest and most frequent stoppages intervene. The statement will be found in Appendix (D.)

35. The statement itself needs to be examined, case by case, before one can fully comprehend how wearisome is the process of carrying projected works through the offices of control. But since few can pause to examine a record so bulky, we shall give for illustration the results only of a scrutiny, to which we subjected its contents. It is obvious that the analysis of such a return can only be exact enough to separate its more tractable elements, and that it would have been curious rather than useful to have investigated particulars not apparent on the face of the statement itself. Rejecting, therefore, the abnormal and incomplete cases, but without eliminating those which had the advantage of ready-prepared plans, or of having been partially discussed at some former time of proposal, we have dealt with the remainder only.

36. And we find that on an average of 64 examples, taken casually as aforesaid, 106 days elapse between the call for "Plan and Estimate" of a work, and the date of its being sanctioned. In the quickest case, that of sanctioning a *Rs.* 12 (twelve) drain for the General Hospital in Bombay, the whole course was run in 24 days. In the slowest case, that of repairs to a channel for irrigation at Wurneir, it took 436 days.

These 64 cases occupied in all 6,823 days; we estimate the consumption of this time to have been as follows, viz.:—

	Days.	Per Cent.
1. Delays in transit per post, estimated at - - -	472, or	6·92
2. Days consumed between the call for, and transmission of, plan and estimate by the Engineer Department,	2,938, or	43·06
3. Stoppages while under consideration by the Military Board - - - - - - - - - -	1,400, or	20·52
4. Further interval until sanctioned by Government -	2,013, or	29·5
TOTAL - - -	6,823, or	100·

The courses which make up the last-named interval are separable into two species, the one when the project goes on direct from the Military Board to Government; the other when it proceeds through the channel of the civil authorities. In the 64 cases examined, 49 belong to the first kind, and received sanction of Government in 27 days' average, after leaving the Board; 15 belong to the second kind, in which the delay was increased to 45 days.

37. In the stoppage with Government is included the time occupied by inquiries. That these, although perhaps indispensable by rule, were often supererogatory in themselves, may be presumed from the constancy with which projects seem to have received approval as originally designed. It remains for Government to pronounce how much the delay in the more important cases may have been aggravated by their procrastination in favour of works equally claimant, although so trivial that, but for the law compelling them, they really needed not to have come before the Government at all.

38. The Military Board is likewise made to bear its own references. The longest delay thus charged is 170 days, consumed in discussions between the Board, the Commodore and Government about a railway in the Bombay Dockyard. In another case the Board's correspondence with the Engineer and Quartermaster-general, regarding shelves for some staging* pendals, prolonged the stoppage to 142 days. These cases are both exceptional, and materially affect the average.

* Sheds for Troops.

39. Under

Report.

39. Under the head of delays with the Engineers, is included the time occupied in preparing plans and estimates for works probably far distant from the spot where the officer received the call, perhaps asked for at a season where travelling was impracticable, or when officers were in course of relief, and also the time occupied in references rendered necessary by the duties alluded to in para. 2. The longest stoppages thus debited against the Engineers are 245, 216, 215, and 180 days.

40. The bare outline of proceedings serving as an index to the above collection of cases, fills 28 close foolscap sheets: 59 letters are indicated as having been written about two boats (value *Rs.* 975—nine hundred and seventy-five) for the Colsette Ferry, and 88 about repairing a tank at Pendoor. When it is remembered that there is yet a catalogue of works rejected or postponed [*see* Appendix (E.)], and an unknown amount of collateral correspondence between Superintending and Executive Engineers, Collectors, Revenue Commissioners and others, additional to that above stated, and all belonging to the same period of gestation, we may reach to some conception of the bulk to which mere papers swell.

41. This is no place for dwelling on the thought how circuitous, troublesome and obstructive is a system of centralized control over petty matters; how unproductively it wastes the energies of its men of action, who have not only to do, but to write down what they do, have done, and intend to do, with the why and the how, and the when, in all their multitudinous particulars.

42. A large amount of writing being inseparable from our Indian methods of business, it is especially requisite to free the action of executive men from the trammels of superfluous office work, and the needless reduplication of checks, while the necessity is evidently not less for abating the congestion in the Secretary's office that is now caused by the flood of reference to Government, which produce this complaint, delay.

43. Both would be relieved by restoring authority in minor cases to those local centres which report to the Revenue Commissioners, and by enlarging the provisional authority of the Military Board, the same unity of procedure as now, and the same subservience to the general policy of Government being securable through reviewing the administration of those authorities in the gross, as by sanctioning beforehand petty cases in detail. Thus the central interference of Government would regulate, not supersede, the functions of those officers who ought to be responsible for managing the minor circles of the system; all functionaries would save time and labour, while the State would get more work for its money:

44. We have met with some remarks by Captain Wingate, Superintendent of the Revenue Survey in the Southern Mahratta country, upon the impediment of official forms, which are so forcible, that we here transcribe them from a letter addressed to the Collector of Dharwar on the 21st December 1848.

"It is without doubt very desirable that no needless expenditure should be incurred; but in guarding against this, by requiring every proposition to receive, in the first instance, the sanction of Government, it may be well to consider whether we do not run into the very error we strive to avoid. Under the existing plan, a portion of the valuable time of the Collector of the Revenue Commissioner and of Government is unavoidably consumed in the consideration of every reference, however insignificant, and very often in addition that of the Executive and Superintending Engineers, and of the Military Board. The value of the time of these officers and authorities may be readily deduced from the amount of pay received by them respectively; and in making due allowance for this, I think it will appear incontestable that the briefest proposition and estimate submitted for sanction could not, under the most favourable circumstances, pass the round of them all under a cost of *Rs.* 300 (three hundred), and I believe it very rarely does so without costing very much more; in the case of all works under this amount, then, it is clear to me that their actual cost is more than doubled by the process required for obtaining sanction, and that, even on the almost impossible supposition of a work being wholly useless, it would be better to empower the Collector to order its construction without reference, rather than consume the valuable time of so many high functionaries of the State as the present method requires.

But it may be argued, that as these functionaries must be paid upon either plan, no saving would be effected by transferring the power of sanctioning such expenditure

ture from the head of the Government to the Collector; and the reasoning would be sound if they all have leisure for the consideration of such trifling matters without detriment to more important business: such a position will, I believe, be at once admitted to be quite untenable, as in all departments of the State the pressure of an overwhelming mass of business is keenly felt. The most active feel themselves in danger of being swamped amidst the never-ending streams of routine business pouring in upon them, and their best energies are expended merely in keeping the cumbrous machinery of their departments moving. The state of things here described is clearly traceable to the gradual appropriation by the central authority of much of the supervisive and executive functions previously exercised by the local officers; and though the change may have led to greater system and uniformity of practice in public affairs, it has, in my humble opinion, been pushed greatly too far into details, and has had the effect of so increasing the mass of business in all departments, that it becomes a task of yearly increasing difficulty to prevent it falling into arrears.

45. In three cases out of the first 36 on the statement (§ 34), the Military Board expedited the work 55, 15, 82, in all 152 days, by authorizing the Engineer to proceed at once, the Board reporting to Government that they had done so: looking to the character of the 96 cases before us, there appear to be not less than 37 which might have been treated similarly, if the regulations reposed more responsibility in the Board, or in other authority short of Government.

46. We observe that Government hardly ever find occasion to dissent from the Military Board's recommendations, where the question is not whether a work shall or shall not be done, but one merely of the amount it ought to cost.

47. In all cases, therefore, of repairs, reconstruction, and inevitable additions in which all authorities short of Government and the Board have agreed, we think the Military Board, if also concurring, might, as a rule, let the works proceed, making a periodical return to Government of their nature and expected cost: the State must pay in the end, and this course would save one-third of the delay.

48. And if Government would every year acquaint the Board of the sum prospectively available for improvement of the country, that body, possessing the general views of Government, might proceed to apply the funds, and to employ the executive corps to much better advantage than is possible under the present arrangements.

49. The Superintending Engineer, S. P., has represented to us the injuriousness of delay in the particular case of tanks for irrigation. In the Dharwar Collectorate there are about 2,000 such tanks: they are formed by earthen embankments, faced with dry stone-work, to prevent injury from the ripple, a species of construction which obviously needs frequent slight repair, and where a trifling dilapidation, if not attended to, often ends in a serious breach.

50. Yet so great has been the delay in that Collectorate, that, on an average of 18 cases, in a statement before us, 11 months elapsed from the date of the Collector's requisition to the date when the estimates were sent in.

51. It seems to have been considered indispensable, before furnishing a plan and estimate, that the Engineer should personally visit every tank. This officer having various calls upon his time at Dharwar, could not attend simultaneously to several tanks dispersed over the Collectorate; but the Superintending Engineer considers that, although two or even three months may often elapse, and in the rains more, the above delay was exorbitant.

52. In 13 of the above estimates which were sanctioned, eight months were consumed in passing the ordeal described in paras. 2 to 3.

53. The sanction having at length arrived, it might be supposed that the work would begin; but no; other difficulties have still to be overcome. First, the ryots' contribution towards the work has to be collected—no easy matter; then wuddars* have to be got together, and then, if the Executive Engineer has a builder available, the work commences.

* A wuddar is a camp of a gipsy tribe, which, on this side of India, performs the kind of work undertaken by "navigators" in England.

54. Thus, from the first call for an estimate, long perhaps after the repair was needed, up to the time when the work begins, according to the average of nine of the above works, omitting those commenced without sanction, 26 months passed away.

Report.

55. We again extract from Captain Wingate's letter already quoted—

"An estimate for repairing the Chickeroor Tank was sanctioned so long ago as 1835, and a portion of the sum placed at the Engineer's disposal expended. From some cause, the repairs were not immediately proceeded with, and in 1841 the Engineer would appear to have informed the Collector that the sum sanctioned was insufficient, when the latter officer directed the Mamlutdar to ascertain how much the villagers would contribute in addition. They agreed to contribute *Rs.* 390 (three hundred and ninety), and of this sum about *Rs.* 380 (three hundred and eighty) were immediately collected, and placed in deposit in the district treasury. The sum available was probably still found insufficient, for time passed on without any repairs being made, until at length the contributions of the villagers were finally passed to the credit of Government, under the operation of some general instructions regarding the disposal of sums placed in deposit."

56. In parts of this Collectorate the villagers have refused to pay towards their tank repairs, if to be done by the Engineer Department, although ready to do so if executed under the Mamlutdar. This is easily accounted for without attaching blame to the Engineer, because the delay that takes place in obtaining sanction through his department frequently adds heavily to the expense, and deprives the villagers for a long period of their means of irrigation, as is forcibly exemplified in the paragraphs foregoing.

57. The petty repairs of irrigating tanks should be executed on the instant; and, to create in them a local interest, which alone can be effectual, we think that means, by legislative enactment, if necessary, ought to be taken for compelling villagers to repair slight damages as they arise, and that a responsible person should annually report that every tank has been properly maintained.

58. Petty repairs at the expense of villagers should be managed entirely by the district civil authority. All emergent repairs of damage, proceeding from accidental causes, and not from neglect of the villagers, should be executed at once by the Collector, with the Engineer's advice, at the expense of Government; and for all other works of irrigation, whether new projects, additions, improvements or general repairs, plans and estimates should be made and submitted, as at present, Government contributing towards the cost, but superintendence of the work, and payment of the wuddars, resting with the Mamlutdar.

59. Since the foregoing conclusion was entered on our proceedings, we have seen a draft Act, sketched by Captain Wingate, on the 30th January last, to provide funds for the construction and maintenance of works for irrigation.

It sets forth the justice and expediency of the several parties who may benefit by such works contributing thereto, and it defines rules for regulating and enforcing contributions in aid of these objects by the parties concerned.

It also provides that petty repairs to such works shall be effected by the owners and occupiers of the land capable of being watered by them.

In the opinion of the Collectors, whose minutes on this draft we have perused, Captain Wingate's proposals are well adapted to the purpose in view: we understand that the same officer has also drafted rules for executing the works for which funds are thus to be procured.

The attention of Captain Wingate and of the Revenue officers of Dharwar having been specially devoted to these measures, we think it our most judicious course to relinquish, in favour of their plans, the further pursuance of this particular subject, assuming that the rules they have propounded will, if passed into an Act, be made applicable to the entire Presidency.

60. We have next to recommend that local authorities should be required and encouraged to make due use of those clauses in the code which refer to emergent works. We say encouraged, because since every officer who accepts responsibility incurs some risk of blame, we think that even when his zeal may have misled his judgment, and he has authorized a work of which the real emergency may be questioned, the admonition he deserves should rarely pass into reproof, lest the officer should thereafter shrink from using a power with which, on the whole, the public good requires him to be vested. That this power is not sufficiently exercised at present is evident, from last year's emergent expenditure in the Territorial Department having been only *Rs.* 1,532 (one-thousand five hundred and thirty-two) [Appendix (F.)]. Indeed the present inquiry has constrained us to notice in too many officers what at first sight seems to be either inertness to use the little power

power that has been left to them, or else a timid evasion of responsibility, which each endeavours to shift upwards. But it must be confessed that the system is, more than they, to blame. Some Collectors, besides the great extent of business transacted by them in the native language, have occasion to write about 4,000 English letters per annum, two-thirds of which require to be drafted by themselves. The apprehension of drawing upon themselves troublesome inquiries must naturally deter many from doing what they otherwise would be ready to do. The microscopic investigation of their acts, not the trouble of the acts themselves, is the real hindrance.

61. We have been desired to frame some rules to avert in future the hesitation which Collectors feel in making emergent requisitions.

The code defines a work to be emergent only when there would be "certain loss or inconvenience to the public service," by referring to higher authority. Whether a work falls or not into this category, must be left to an officer's judgment. It seems to us inexpedient to clog with definitions the present simple rule; its benefits must depend on the judgment and exactitude of those who are to use it, and its misinterpretation can only be corrected by admonitions *pro re natâ* on the part of the authorities.

* * *

65. But we advise that an Engineer, when he can promptly inspect a work, and doubts its real emergency, be directed to state his opinion to the requiring officer, and, in event of the requisition being still adhered to, to report to the Superintending Engineer, without, however, delaying the work.

66. There is said to be some uncertainty on the part of revenue officers as to whether the emergent rules properly apply to works of irrigation. We recommend that they be declared applicable to all Public Works, of what nature soever.

And we are led in this place to suggest that a compendium of rules for the guidance of all persons concerned in Public Works should, as soon as the Reports now called for from the three Presidencies have been received, be compiled in such a shape as to allow civil officers to see at once what their powers are, without wading through irrelevant matter. To the contents of Section XXIII. of Jameson's Code, otherwise arranged, might be added rules for the guidance of young Engineer Officers in the management of working parties; and it would greatly assist all concerned with Public Works if this digest were to be prefaced with a descriptive statement of the entire system. Officers in general, who might be expected to know the rules, we find know them very imperfectly indeed, and their unacquaintance is ascribable partly to the repulsive shape in which a code presents them. A descriptive outline, on the contrary, might be made attractive, and would be easily comprehended.

67. Lastly, in cases of such importance as Government may reserve for their own decision, we propose the following mode of acceleration, viz.:

Before a plan, prepared at the requisition of a civil authority, is committed to the channels described in paras. 3, 4, 5, it is shown by the Engineer to the requiring officer, who signs it, in token of his approval. (This does not exactly accord with Act 119, s. 23, Military Code.) Now, as the Revenue Commissioner or Sudder Adawlut offer no professional opinion upon the plan, but merely notice its fitness with reference to their wants, it appears to us that the civil officer, having once seen the plan, possesses, and might communicate to the controlling authority, all the particulars requisite to a decision on the subject.

68. We therefore propose that the project, with its plan and estimate, if to go before Government, be submitted direct by the Military Board, instead of going back to the civil officer, and that the latter hand up his statement of the matter through his ordinary channel of communication to the Government, which would thus receive the requisite documents from both parties concurrently.

69. The sole objection to which this course seems liable is, that if the Superintending Engineer, or Military Board, make in the plan alterations materially increasing its cost, the Revenue Commissioner might see reason to change his opinion; but such cases are rare, and even in them no delay greater than at present would arise; for the Collector would receive the altered plan as soon as he would do under the practice existing.

70. It has been suggested to us, that the members of Government very seldom require to see the "detailed estimate and plan" of a work, being ordinarily satisfied as to these with the professional opinions that accompany the project before them.

Report.

them. If so, it would relieve the mail, and otherwise be more convenient, that the project should go up to Government without these accompaniments; if wanted, they could be called for.

71. Delays of execution arise mainly from the want of subordinates, of which more hereafter; also from the areas assigned to executive officers exceeding their power of superintendence.

72. Delays of audit only so far hinder work that large unsettled balances are a source of anxiety to executive officers. This subject has had much attention from the Military Board, and the rules appear to be as perfect as circumstances admit. It is desirable that executive officers should make bills for each successively completed portion of large works; but it would increase labour, and might be found troublesome, if such a rule were made imperative.—[*See* para. 16.]

73. The balances outstanding against the Executive Engineers serving under this Presidency have for the last six years been as follows.—It will be observed, that the discontinuance of monthly bills under the new system of accounts has largely swelled these balances.

The Accounts for 1850-51 have not yet been made up.

Against Executive Engineers in	Under the Old System.		Under the New System.			
	1844-45.	1845-46.	1846-47.	1847-48.	1848-49.	1849-50.
	Rs.	*Rs.*	*Rs.*	*Rs.*	*Rs.*	*Rs.*
India - - -	9,479	2,269	21,312	1,85,860	2,43,498	2,36,482
Sinde - - -	53,729	53,729	8,71,101	7,09,056	7,72,710	7,57,106
Aden - - -	- -	- -	96,586	3,00,189	5,84,069	3,04,283
TOTAL - *Rupees*	63,208	55,998	9,88,999	11,95,105	16,00,277	12,97,941

74. The next change we have to recommend aims at the threefold object of saving time, saving labour, and simplifying accounts, while it will afford to Superintending Engineers better means than they now possess of checking cash advances. Under the existing practice, every indent for cash is sent for the Superintending Engineer's counter-signature, with the view of enabling him to check unnecessary drafts. Practically, this course is useless; for the Superintending Engineer can only judge whether the money asked for is necessary by examining the quarterly Progress Reports; but, these Reports rarely reaching him until some weeks after, and generally three or four months after, the cash indent has passed through his office, he is compelled, as a matter of course, to countersign every indent that comes, provided the sanctioned amount is not overdrawn.

75. Again, when Superintending Engineers are on their tours of inspection, frequently off post-roads for weeks together, the delay is inconvenient, and obliges executive officers to keep in hand a larger stock of cash than would otherwise be necessary. Now, as cash indents are forwarded and returned with letters or memoranda, which all have to be registered and copied, separate often for each work, always so for each department, the number of such documents that pass through his office creating work, and loading the mail, is very great, and we are not aware of a single useful object that is thereby attained.

76. We therefore suggest, that cash indents be sent direct by Executive Engineers to the disbursing officers, to whom the sanction and audits are always communicated, and who already are bound not to advance money beyond the amount sanctioned.

77. Cash indents for monthly current expenses might always be passed on the executive officers' responsibility, for these amounts are not large, and their audit is generally received within two months.

78. Instead, then, of submitting his cash indents, as now, we propose that on the 1st of each month every executive officer shall render to the Superintending Engineer

Engineer a single memorandum of cash balances, showing the following particulars, viz.: Report.

1. Names of the works he has in hand.
2. Amount of the estimate for each.
3. Amount drawn in advance.
4. Amount expended as per ledger.
5. Balance in hand.

All this information is, or ought to be, available in every Engineer's Office, on the 1st of each month, from his book alone: it would at once show the Superintending Engineer whether money is unnecessarily asked for by the executive officer, and would oblige the latter to keep up his office accounts to the latest date.

Section V.

Subordinate Branch of the Public Works Department.

79. Our inquiries under this head have been answered by one general and loud complaint, so that we cannot doubt that the want of subordinates of all classes neutralizes, to a great extent, the advantages that might otherwise be derivable from the present inadequate number of Engineer Officers, while it wastes public money, both directly in bad work, and indirectly in restraining those officers from working up to their full powers of superintendence.

80. The difficulties which in this country arise from the relative distances of the several works under one officer's control, can only be met by maintaining a body of men who may be trusted to carry out the Engineer's instructions between his periodical visits.

81. It seems agreed that this body should consist, besides European overseers, of two classes of natives, the one trained as surveyors and builders, the other as practical mistries, capable of keeping clear accounts in their native language, and of working from a plan.

The European Branch.

82. By direction of the Honourable Court, the source of supply for European subordinates is limited to the military class. Their number at this Presidency was originally 30; but in July 1847, on account of the annexation of Sinde, it was increased by 10; and in April last, to meet demands at Satara and elsewhere, Government permitted the appointment of six supernumerary Sub-Assistant Overseers.

83. We subjoin Table of the establishment as it now stands, as it stood before the above changes, and as the Board, in their letter to Government, No. 2,169, of 1847, desire that it should prospectively be fixed. The Military Board inform us, in reply to our inquiries, that 60 Europeans are required to meet the present wants of the establishment.

	Prior to Annexation of Sinde.	After Annexation of Sinde.	After Annexation of Satara.	Further Increase now required.	
				Plan of the Bengal Military Board.	Plan of the Bombay Military Board.
Executive officer -	- -	- -	- -	-- Numbers to vary according to demands.	The proportional number of the several grades to be fixed; but the actual numbers of the whole to vary according to eventual demands.
Assistant ditto - -	- -	- -	- -		
Supervisor - -	1	1	1	To be fixed numbers.	
Assistant ditto - -	3	4	4		
Overseers - - -	6	8	8		
Assistant ditto - -	9	12	12	Unlimited.	
Sub-Assistant ditto -	11	15	21	Not proposed.	
Total - -	30	40	46	- - - -	Sixty.

Report.

84. The addition of two superior grades forms a principal feature of the scheme for improving the European branch; and we consider it to be of the highest importance.

85. We have inquired what is the general report from the Engineer Officers upon the character and usefulness of the European subordinates, and are informed by the Military Board, that it must be considered, on the whole, to be highly favourable. There is a constant demand for their services; and were their prospects somewhat better and their numbers greater, so as to allow of more selection for important works, they would be a most efficient body.

86. Having read the documents containing the concurrent views of the Bengal and Bombay Military Boards on this subject, and entirely agreeing in the same, we are left nothing to suggest.

Surveyors and Builders.

87. Excepting a remnant, now 60, of the Surveyors and Builders educated a quarter of a century ago in the Government Institution, and who have proved on the whole an useful body, no qualified class of native subordinate now exists, nor are any measures yet working to create one.

88. The theoretical class in the Elphinstone College, projected some years ago by Colonel Dickinson, has contributed only nine members to the Public Service.

89. In the opinion of Colonel Jervis, late Chief Engineer, this class was deserted, because every student's reception depended on his possessing such a knowledge of English as would allow of his being instructed by a Professor ignorant of the native languages.

90. The Board of Education inform us, that the object was not to produce a class of Surveyors and Builders trained according to the rule of thumb, but scientific Civil Engineers, fully grounded in the theory of their profession, and that, therefore, it was determined by Government that instruction should be given through the medium of English, as in the kindred institution of the Grant Medical College. The same Board are of opinion that sufficient encouragement has not been given to those students, and that the same proportionate reward should be extended to the native Civil Engineer, as to the native Judge and the native Medical Practitioner.

91. The Honourable Court of Directors, in para. 44 of their despatch, express the difficulty they found in reconciling this urgent demand for subordinates, with the alleged absence of inducement for native youths to enter the engineering class, and accept a gratuitous education for the numerous vacancies supposed to be awaiting them.

92. We, being convinced that the outcry is fully justified, shall proceed to show what we believe to be the real cause of the inconsistency noticed by the Court.

93. The 11 young men selected to fill this class were the pick of the whole College, not only for general ability, but also for their proficiency in the English language. The expectations of such students naturally ran high; they passed examinations for the service in November 1847. About three months thereafter these pupils, not having been enrolled in the Public Service, as they expected, memorialized the Military Board on the 6th April 1848; that Board recommended the employment of the whole number, but on terms inferior to those enjoyed by the old Surveyors and Builders; and it was not until the 23d June following that Government permitted the engagement of six only to fill vacancies, which we now find to have been really 15, still omitting to settle the terms of their entertainment.

94. On the 6th September 1848 these lads were required to sign an agreement to serve wherever ordered, and were sent to Sinde and elsewhere, all knowledge of the terms on which they were to serve being still withheld. They proceeded to their destinations, but drew no pay from the time of passing until the end of September 1848, when the Military Board, still in ignorance of Government's intentions, took upon themselves to authorize temporary rates.

95. Thus

95. Thus we find that these young men were for months kept in suspense whether they would be employed at all; that when their employment was permitted, several of them were sent at once to Sinde, a quarter extremely distasteful; and that up to this time those who remain in the service have no fixed position, and are receiving, contrary to hopes they had been led at college to entertain, a lower rate of pay than their comrades of the same denomination; since then, this class has found no favour at the college.

96. On the 13th June 1846 the Military Board of this Presidency laid before Government a scheme, proposed by the Chief Engineer, for admitting into the Public Service a class of native assistants. This scheme, which will be found in Appendix (G.), was accompanied with a scale of qualifications for each grade, and with rules for examination of candidates for their promotion, furlough, &c. The Military Board strongly recommended that these should be the rules under which from time to time individuals might be entertained according to the demands of the service. The Board have since frequently inquired whether there are any hopes of Colonel Jervis's scheme being adopted, and Government's last answer refers the Board to the Honourable Court's despatch, now before this Commission —[Appendix (H.)].

97. We observe that the Military Board's views accord closely with those of the Board at Calcutta, as expressed in the reports from the latter body to the President of the Council of India, dated 28th October 1845 and September 1846; also, that the Honourable Court of Directors, so long ago as 1846, were prepared to approve one arrangement for the same object at the three Presidencies. Our plan in supplement to Colonel Jervis's, will be found in Section VI. of this Report.

98. A great drawback to efficiency in the Public Works Department seems to be the too exclusive use of temporary clerks and overseers, who have no claim to pension after any length of service, however meritorious: whether, in the end, the State gains by this, is doubtful; for, apart from other considerations, the prospective pension, and its possible loss, operates in checking misconduct more powerfully than penal enactments, however stringent. Security of service seems essential to the *morale* of all such bodies, and service in the Public Works Department should, therefore, in regard to permanence and eventual provision for old age, be rendered as attractive as service elsewhere.

99. We do not say that the entire subordinate establishment should be permanent, but that the permanent proportion should be large enough to excite and reasonably to fulfil the hopes of a large probationary class of assistants, the worthiest of whom should be transferable to the fixed establishment.

100. At present temporary employ has no allurement for qualified persons, and for mistries the Engineer must choose among a set who have never been properly apprenticed to their trades. Hence work goes on, year after year, in the old way, without a thought or a care for the numerous improvements and devices constantly adopted at home.

101. As an instance, the Superintending Engineer, S. P., informs us, that in the Satara district an extensive work is going on,* the Passurnee Ghaut, which will cost a lac of rupees. The superintending officer, Captain Hart, cannot hope to visit this work above twice in the year: the native who conducts it, the only man Captain Hart could get, receives 15 rupees a month, and his sole qualification previously to this undertaking was, having been employed under the late Rajah in repairing the town roads of Satara: we have not inquired why this man, if fit to be so far trusted, is not better paid; if unfit, why the work should proceed.

* The work has been suspended.

102. Pensioned sappers are found very useful as Macadums. For a small addition to their pensions, they are willing to render services which their previous training makes very valuable. Information as to the characters and ability of pensioned Sappers should, we think, be furnished to the Military Board for circulation among Engineers, who might induce good men to accept such service as they might still be able to perform.

Extent of the Deficiency in the subordinate Branches.

103. Captain Crawford, the Superintending Railway Engineer, contrasts the number and efficiency of the persons now employed by the contractor in superintending

Report.

tending the Bombay Railway with the assistance which would probably be allowed to a Government Engineer conducting the same work. In the one case for executing simple cuttings, embankments and bridges of small size, there are two European contractors present on the spot, and taking an active part in the operations. They have engaged the services of a Civil Engineer, and have several English workmen and overseers, in all 16 persons, over and above any Native Superintendents they may have engaged.

104. In the other case Captain Crawford judges, from past experience, that if a Government Engineer similarly employed could obtain, in addition to native assistants, the aid of one European warrant officer or serjeant, whose highest qualification might be that of a fair writer or accountant, it is as much as would be granted; as for his getting the help of another officer, it would rather be judged that he himself had too little to do, and calls would soon be made upon him to attend to any other work that might occur in the neighbourhood. The work would no doubt go on, and in time be completed; but it would lag along in the old way, and the introduction of new and economical methods of labour would not be dreamt of.

105. At present there is no fixed establishment of native subordinates. The original number of Surveyors and Builders seems to have been about 78, and to have at first exceeded the wants of the service. It now falls short of the demand; but the original number was assumed as the standard in admitting the six pupils alluded to in our 93d para. It appears, however, that at that very time, and for a long while previously, the Military Board was pressing Government for an increase. A present state of the Establishment of Surveyors and Builders is annexed to this Report, Appendix (K.)

106. The Military Board have proposed to allow the exigencies of the service to regulate a gradual increase in the establishment of all subordinates. It is certain that the number exactly sufficient now will not suffice a few years hence; every year the wants of the country press harder, and the advantages of Public Works, in extending commercial intercourse, and improving the condition of the people and the revenue, become more apparent. Every year something more is done by the department than before. To take the present demand, therefore, as the prospective limit, would be in unreasonable opposition to past experience, while it would be wasteful to make some uncertain guess at eventual demands, and propose an immediate establishment to meet them.

107. But as it is requisite that we should value the present deficiency, we have ascertained from the Military Board that, instead of 66, the number of Surveyors now remaining, not less than 120 will fulfil the actual demands of the present time.

Section VI.

Engineers' Schools.

108. After the Government Institution had been some years abolished, the Quartermaster-general's Department felt the want of qualified persons as Draftsmen and Surveyors. To remedy this, Government, in 1840, sanctioned a plan by Lieutenant Wemyss, who then commanded at head quarters of the Engineers Corps (now called the Sappers and Miners), for remodelling the Regimental School, so as to qualify recruit boys for filling those situations.

109. The number was fixed at 40 boys, of whom the best were to be appointed to the corps of guides, and the remainder, if eligible, were to be permitted to enlist into the ranks on attaining the age of 18 years.

110. At present 27 boys attend this school, 10 of whom belong to the Sappers, and 17 to other native corps. They are instructed by an English teacher, a sapper, and two Mahratta Pundits, on stipends of *Rs.* 30, *Rs.* 15 and *Rs.* 3 respectively.

111. The

111. The subjects of instruction, and the students' allowances, are as follows: Report.

CLASS.	NUMBER of BOYS. Established.	NUMBER of BOYS. Actual.	Monthly Allowance.	SUBJECTS TAUGHT.
			Rs.	
First -	10	- -	6	Plane Trigonometry and Surveying.
Second -	10	5	5	Geometry, Mensuration, Plan drawing.
Third -	20	22	3½	- - Geometry, Mahratta and English Reading, Writing, &c.

112. The Quartermaster-general informs us, that the lads entertained in his department from this school have all been found capable, on joining, of carrying on an ordinary road survey with perambulator and compass, keeping a field-book, and plotting neatly.

Thirteen of these young men are now employed, whereof five have been promoted to draftsmen, on salaries varying from *Rs.* 30 to *Rs.* 50, all of them drawing with neatness and correctness, able to read and write English with tolerable facility, and to use the plane table and theodolite. Lieut.-colonel Holland considers that this Engineer School adequately fulfils the purpose for which his predecessor supported, in 1840, the late Captain Wemyss's plan.

113. The East Indian youths, permitted by Article 64, p. 311, Jameson's Code, to be entertained as apprentices to the European artificers, seem to be tacitly declined. The Regimental School, when enlarged, may supply lads more suitable for apprenticeship to Mistries; but we are diffident of Engineer Mistries being thus produced from any class: they should rather spring from among the operatives of the country: we prefer, therefore, to advise that young workmen approving themselves by skill in handicraft already attained, and by superior intelligence, should be recommended by Executive Engineers for instruction in the Sapper School, and there allowed ordinary wages for a certain period, with a view to their acquiring practice in accounts, and ability to work from a plan, or where, from distance, this would be inconvenient, we recommend their being attached to the Engineer's own office for instruction by the officer himself, or by his establishment, as circumstances might admit, on the same terms.

114. We have visited the Sapper Schools; the Europeans have a creditable knowledge of plan drawing, writing and accounts; they are all instructed in surveying, levelling and estimating.

115. We found the older native boys tolerably instructed in English reading, writing and accounts. Reflecting on what we had thus far seen, we were all disposed to question whether it was not a mistake to give up so much time to English instructions, particularly as a correct knowledge of the vernacular is commonly found wanting in lads who from an early age have been taught through the medium of a foreign tongue.

116. Considering the Public Work Department only, and not that of the Quartermaster-general, we were at first inclined to think that, instead of teaching the many natives a difficult language, like English, the few Europeans should rather have instruction in Mahratta, whereby, and only, might all the subordinates communicate one with another; but the Europeans, as overseers, would become a far more efficient body.

117. However, having since consulted Major Candy, Superintendent of the Poona College, and having witnessed what the scholars at that institution can do, we are satisfied that a competent knowledge of English may be required from candidates for the Public Works Department without the slightest apprehension of deficient numbers offering, or that this additional qualification will at all impair their fitness for that portion of engineering business which is conducted in Mahratta.

118. We would, therefore, expunge the 6th clause from Colonel Jervis's

Report.

scheme, and require from every grade of Surveyors and Builders a thorough acquaintance with English. There are various institutions, all deserving a share of such encouragement, from which competitors for employment will come forward.

119. We find that the Poona College alone is capable of supplying, in any numbers likely to be wanted, young men, mostly Brahmins, thoroughly grounded in mathematics and English, and needing only the superstructure of engineering knowledge to become qualified as Surveyors and Builders.

120. From these sources the present deficiencies of the branch may be replenished, without long delay, and its future wants may certainly be supplied at Poona from a class of willing lads, preferable to those bred in Bombay, from their moderate expectations, hardier training, and better fitness, as Deccanies, to fare abroad in the districts.

121. Major Candy is of opinion that 7 rupees per mensem would be a sufficient rate of subsistence for students while under instruction in the Sapper School.

122. Colonel Jervis's rules, in the Appendix, containing all the main provisions that will not be better left to the officer who will direct the Engineering Institution than attempted by us, the only arrangements remaining for us to name, as requisite for improving the present means of instructing Engineer subordinates, are as follows:—

123. To accommodate classes of European Overseers, Native Surveyors and Mistries, an appropriate building must be erected: the present school-rooms are not more than sufficient for the recruit boys. A competent English teacher, not liable to be moved, for the upper classes, with a native assistant, drawn, perhaps, from among the present Surveyors, must be appointed: general supervision of the whole will appropriately rest with the commanding officer of the Sappers. Before determining his scheme, that officer should communicate with the Principal of the Civil Engineering College at Roorkee, whence may probably be obtained a course of instruction made ready to his hand.

Section VII.

Qualification of Young Officers.

124. The Honourable Court's Despatch, para. 48, notices the importance to Engineer Officers of conversancy with the native languages, and we quite concur in its necessity. Beyond their use as a medium of communication with the people, the native languages are the cheapest vehicle for ordinary correspondence and accounts, and are extensively used as such whenever the officers know them competently.

125. So important do we consider this acquirement, that we think it should be made obligatory. Some years ago the salary of Engineer Officers was subject to a certain deduction until they passed an examination in Hindoostanee. The demand for their services is now so urgent, that this qualification cannot be waited for; and, as an officer once employed has scarcely time for study, present circumstances hardly warrant the revival of such a rule. But hereafter, if the strength of the corps shall admit of selection, study of the languages may be enforced by withholding employ from every young officer who fails to pass.

126. Useful as is the education given for a ground-work to the Company's Engineers at Addiscombe and Chatham, the Honourable Court of Directors must be aware that their officers bring to India no practical knowledge of Civil Engineering, beyond what little some acquire by employing in its pursuit their leisure after quitting Addiscombe.

127. The consequent deficiency is, we know, acutely felt by many officers during their early career. One of the ablest in this service, writing to our Commission, has thus expressed himself:—

"It seems hard to blame us for the want of that skill, for the acquisition of which there

there is no provision made in our professional education under the present system; an Engineer Officer, shortly after his arrival in India, is placed in charge of Public Works. His previous education has not provided for the slightest practical knowledge of Civil Engineering in any one of its branches; so far from being qualified to teach the departmental subordinates over whom he is placed, he has to acquire from them the little they know."

With all of us, from the top to the bottom of the Department of Public Works the case is, I believe, the same; we all acquire our practical knowledge by failures, more or less frequent, at the expense of Government: the same remarks apply, of course, to officers selected from the line to superintend the construction of Public Works, while their failures are frequently and indiscriminately attributed to the Engineer Department.

Section VIII.

Style of Work.

128. In a country where every thing is done by the Government, it may be worth considering whether expenditure on Public Works might not advantageously be regulated with regard to some fixed standard of quality and style, so as to leave as little as possible to individual tastes and fancies.

129. One man deems not even a branch road complete unless it be expensively kerbed, while another thinks it needless to kerb even trunk lines; one man rejects cut stone for drains and minor bridges as needlessly expensive, another uses nothing else.

130. A high officer of the corps remarks to us, that Engineers generally are not willing to do any thing, except in the most approved way, consequently at greater expense than the object is worth, or than is absolutely necessary; thus, projects of first importance to the country are set aside, and civil officers are found unwilling to call in an Engineer if they can make a shift without him.

131. It rests with the Military Board and with Superintending Engineers to restrain tendencies to ambitious estimating for objects of humble pretension; but probably some general rules might in the case of roads and ordinary buildings be laid down with advantage.

132. In para. 68 of the Report made by a Committee in February 1851 on the Phonda Ghaut, we see incidental mention of a resolution by Government not to sanction, in the present state of the finances, expensive roads under any circumstances, and that roads which have cost between *Rs.* 5,000 (five thousand) and *Rs.* 6,000 (six thousand) a mile, are out of the question. Possibly these instructions had only local application; but we find the Superintendent of Roads even now proposing roads as costly as are above interdicted; and we have frequently had occasion to reflect, that as it would materially profit the Military Board to know beforehand what expenditure on Public Works Government is annually prepared to meet, so would it reduce the labour of Engineers to possess definite instructions regarding the style of work to which their designs should consequently be accommodated.

133. The Collector of Rutnagiree informs us, that when new works or repairs are wanted at his Sudder or District Stations, there being no local Engineer, his native officers draw out as well as they can the requisite papers, which are translated and submitted through the Superintending Engineer for approval of the Military Board.

134. On arrival of the sanction, the work is given out on contract, and its execution is superintended by the native revenue officer, and subsequently inspected by the Collector or his assistants in their annual tour.

135. Since 1830, several alterations and additions have thus been made to existing buildings, and many new structures, as kutcherries, have been erected; so far as the Collector is able to judge, the work has been well done, and at less outlay, though perhaps with less finish, than would be given to it by an Engineer.

Report.

136. We think it may be conceded, that the State often gains by leaving the care of his own district buildings to the Civil Officer; and we have all heard of instances where a Collector, interesting himself in local improvements, and making such his recreation, has effected works of public utility with like economical results.

137. To ascertain whether Collectors and their Assistants fully use the authority they possess under the rules quoted in our 13th para., we have obtained the following statement of their expenditure for 1850–51.

The return from Ahmedabad Dharwar and Surat has only been received for the first half of the year.

RETURN of Sums expended by COLLECTORS and ASSISTANT COLLECTORS IN 1850–51:

Sums at disposal of the under-mentioned Revenue Officers for 1850-51.

	Rs.		Amount disbursed by them collectively for Public Works. *Rs.*	*a.*	*p.*
		Surat	2,776	9	4
Collector	3,000	Ahmedabad	918	12	–
First Assistant	1,800	Khandish	5,108	3	3
Other Assistants	1,200	Broach	7,929	11	2
		Kaira	2,450	5	3
		Tanna	2,811	12	–
		Rutnagiree	907	8	11
Collector	1,000	Poona	1,716	–	–
First Assistant	600	Ahmednuggur	2,537	1	3
Other Assistant	400	Belgaum	1,883	7	8
		Dharwar	2,117	7	10
		Shalapoor	1,386	5	–
	600	Nassick, Sub-Collector	—		
	1,000	Colaba Agent	973	1	–
	1,300	Collector of Customs	—		
	700	Deputy ditto	—		

138. Collectors exercised their discretion in disposing of these allowances in the construction and repair of wells, tanks, chowries, &c., the villagers, who benefit generally, we believe, contributing equally or partly to the same. But this money is not intended to be spent on works for which separate sanction is solicited.

139. It depends apparently on the degree of interest taken in such beneficial works by individual Collectors whether the entire allowance is disbursed or not; but as we are certain that the trouble of obtaining funds deters the most willing from applying to Government in numerous cases locally important, which a trifling aid from public funds would dispose of, we strongly advise that the zillahs of the Southern Province be restored to equal privileges with those of the Northern Division. When our 13th para. was penned, we were under the impression that only four Collectorates had been reduced in this respect, on account of the Road and Tank Establishment being created for them especially, and we are still at a loss to conjecture how Sholapoor, Belgaum and Dharwar have been deprived of the benefits of Government Letter, dated 11 October 1832.

140. In the Belgaum Collectorate there appears to have been a happy co-operation between the Collector and the Engineer, the Department of each being ready to take any work that it could perform more conveniently than the other.

141. When

141. When a revenue or other officer undertakes a Public Work for his recreation, the charm depends, of course, on his immunity from control, and any comparative cheapness in his work may be ascribed to its being a labour, not of duty, but of choice, and to the simple arrangements that can be made for single undertakings, conducted independently of the rules laid down for works in general, and which constitute the system to which professional Engineers in this service are bound.

142. But between works of the simple kind just instanced and those high branches of engineering to which few amateurs pretend, lies a class of works largely demanded throughout India; namely, roads of three kinds, the cleared country cart-way, the branch road made of mooroom, and the perfect trunk line, metalled, kerbed and bridged. For the first of these, engineering skill is needless; for the second it is desirable, and for the third indispensable.

143. It is extensively believed that Government will refuse a heavy estimate while it may be induced to do the same work cheaply: many whose position permits them to be improvers argue from this general persuasion, that the present financial circumstances must be met by devices to do much cheaply, in a manner sufficient for the day, rather than to do a little in the perfect style which Engineers approve.

144. But it is not with a State as with a private individual, to whom an object may be attainable solely because it is cheap, and to whom durability is secondarily important. In road works, on the contrary, their permanence must be contemplated. In America, indeed, there are special reasons for constructing cheap thoroughfares for the present alone; but in an old settled country, like India, the directions of intercourse are ascertained and permanent. A road positively cheap can here be made serviceable in an inferior degree for the present, and yet capable, at a further moderate outlay, of becoming thoroughly serviceable for all future time; and since experience shows how seldom a bad line once taken is relinquished, a judicious direction, easy gradients, and sound principles of construction, held steadily in view from the first, are cheapest for the public in the end. Notwithstanding this, it is certain that, unless the highways of India are seen to extend according to true principles, by a settled purpose of the Government, their servants will continually strive to meet the necessity in any way they can; so prevalent and so strong is the conviction that roads are the prime wants of this country.

145. Unless the controlling authority has the assurance of an amateur's ability, we think that no outlay should be permitted on road works beyond the mere clearance of a country cart-way until a competent engineer, cost what it may, has reported on the line proposed.

146. A very instructive caution against the opposite course appears in the above-cited Report on the Phonda Ghaut, and the roads leading from it to Kolapoor and Belgaum.

147. In promulgating the oft-neglected principles affirmed on that occasion by the committee, and admitted by Government, it might be useful that a general standard should be appointed for the style of execution to which in similar countries road works of the first and second class should respectively conform; and the precision of these only rules to which volunteer agency needs be bound should be such as to insure that the earliest small improvement shall be preparatory to future steps in keeping with the first; so that all progress, however tardy, shall tend directly to the ultimate standard which, on wide and comprehensive views, may for all Government works be adopted.

Section IX.

Estimates for Public Works.

148. To our inquiries regarding rates and estimates, some observations were made by Lieut.-colonel Scott, which, coming from an Engineer of his experience, merit consideration. Lieut.-colonel Scott believes, that—

"The mischief of extravagant rates arises in some degree from the strictness of the rule about excesses: when an estimate is high, the rates will be high also: an

Report.

officer dares not write down a price which he could only keep to by the strictest supervision and perfect faithfulness on part of his subordinates: if the estimate is not exceeded above 10 per cent., I can scarcely see what inconvenience would be caused, and I am certain the work could be done for less money if the estimate was 10 per cent. below the cost than if it was 10 per cent. above it."

149. The Superintendent of Roads likewise comments on the detriment produced by the displeasure with which an excess is viewed by Government, and the unwillingness evinced to accord a second sanction for the same work. He views this as tending to induce, on the part of officers, a practice of over-estimating as the only means to save themselves from blame.

150. We think that an estimate ought to represent the cost truly expected, and that, for the reasons above, it would be advantageous to leave with the Department of Audit a discretion of admitting 10 per cent. above the estimate without obligation to refer to Government.

Section X.

Contracts.

151. Performance of Public Works by contract, although it saves an officer much trouble in accounts, releases him from money payments in detail, and when contractors do not fail, protects Government against excesses over the calculated outlay, is not looked upon by Engineer officers here as advantageous or economical.

152. Vigilant superintendence of the persons usually contracting is even more necessary than in the departmental work, or it will be badly done; defects undiscoverable at first appear in after years, and the work remains a constant source of trouble and expense.

153. At the Presidency, and at Poona, almost all works are executed by contract. At both places natives of capital occasionally come forward; yet the advantage derived is said to consist solely in the power it gives the Engineer, by simplifying his accounts to superintend a much greater number of works than he otherwise could do.

154. The Executive Engineer at Poona tells us, "I could not do my work except on the contract system: I am bound to accept the lowest tender, unless I can assign good reason. So systematic is the use of bad materials, so incessant the endeavour to slur through work, so great the ordinary chances of success at large stations where many works are at the same time going on under very few responsible subordinates, that contract work is almost invariably tendered far below the estimates for best work.

"At Kirkee I have contracted at liberal prices: the work there, two barracks, is excellent: I have not had to impose a single fine.

"I view the contract system favourably only when men of some capital are engaged. The poor contractor's only saving is in employing his own and his family's labour; for most materials he must pay more than the Engineer himself. A rich man who makes a trade of contracting can do fair work under an Engineer's average, because he can lay in his stock with foresight; while the Engineer must defer all arrangements for supplies until the sanction comes.

"At Poona the average saving on all works done by contract is about 32 per cent."

155. In the opinion of the Garrison Engineer at Bombay, where works are done almost exclusively by contract, the saving is only what might fairly be expected from the inferiority of the work.

156. The Executive Engineer, Surat Division, tells us, that "the moment a work is given out on contract, a scene of actual warfare commences between the contractor and the executive officer, in which the latter, from having many other things to do, while his adversary can concentrate all his attention and cunning upon me,* generally gets the worst of it."

* *Sic orig.*

157. The

157. The case will be altered when English contractors with capital, and provided with European appliances, become competitors for employment in India. We think that then there will be no question upon the advantage of using their agency as largely as is the practice in England.

158. Even now, if in the case of the experienced and judicious the relaxation of rules ordinarily necessary were to leave the Engineer such freedom that he could inspire confidence by his proceedings, the advantages of contracting might be expected to bear proportion to his tact. To produce all the evils now complained of, faults must be mutual between the contractor and the system. Often on the employer's side is the sufferance of a competition, in which no honest man can live; he is thrust aside by the low bidder, who pretermits legitimate profits, in order to secure a contract, trusting to knavery for his gain: thus redounds discredit on a method which itself is good. In promise it is the very aid which a weak superintendency should employ, and to the well working of which there seems nothing wanted but liberal terms to leave contractors their due profit, and circumstances to favour the independence which would secure that profit from interception. Such is the character of native officials, as we commonly see them, that without great vigilance, even liberality would be futile. An old hand alone could work the contract system beneficially.

159. Vol. IX., No. 427, of "The Builder" contains a paper on the effects of this system in England. The writer says, "It is not building by contract that is so objectionable, but building by competition. The very nature of competition is to deprave the character and harden the conscience, and those who thus suffer by the world's cupidity, are by that same world called dishonest and fraudulent. When a contract is required, why not obtain a tender from one man? There are many ways of preventing him from making his estimate unfairly high. He can be brought to take work as low as he ought to do in justice to himself. It is, moreover, satisfactory to be able to choose one's own man, and give him first chance. The probability is that he will not, for any fault of his own, let you go to another. The system of public tenders admits all sorts of men to an equal chance with the fair and honest, and, moreover, gives the worst man the best chance."

160. Native contractors are named to us who have worked fairly for private persons during a long course of years, and we think, notwithstanding the short-sightedness attributed to contractors for Government, that it would be economical to empower Engineers to make liberal contracts whenever they can find a worthy man to reciprocate fair dealing; but this requires full confidence to be reposed in the Engineer, who is now bound by Art. 149, sect. 23, of the Military Code.

And in this difficulty we can discern no better expedient than for the controlling authority to regard rules less, and specialities more: "personal individualities may from time to time be of such moment as to make it well worth while to set aside the general rule on account of them."

Section XI.

Security.

161. It appears that in Bengal every non-military overseer of Public Works is required to lodge security to the extent of *Rs.* 500 (five hundred) before he can enter the department even in the lowest grade; and from enlisted men, security is required before they are entrusted with separate executive charge.

162. Considering that security is by legislative enactment exacted from native subordinates in the Civil Departments of the service, whenever entrusted with the charge and disposal of public money, we think that similar provisions should be extended to non-military subordinates in the Department of Public Works.

Report.

Section XII.

How Office Work and the Non-professional Employment of Engineers may be diminished.

163. We adverted in para. 39 to the excessive clerical labour with which Engineer officers are encumbered: viewing this kind of labour as a serious hindrance to the efficiency of Engineers, having a wide range of country to superintend, and many simultaneous works to look after, we have sought in the course of our investigations to discover in what particulars it might be alleviated.

164. The proper office of an Engineer is, 1st, to design; 2d, to estimate; 3d, to superintend. Under the present system, pecuniary responsibilities press so heavily upon him, that they have become, practically, those he most attains to.

165. The time of an Engineer officer appears to us entirely misapplied when taken up by the repair, charge and supply of barrack furniture, which belonged formerly to the Commissary of Stores; by the tinning of cooking pots and supplying lights, which are more appropriate to the Commissariat, and to drawing the pay of Punkah pullers, and the like, which might be left to commanding officers, or the station staff.

166. There are some works and petty repairs of which it is scarcely possible to measure with any degree of accuracy the quantities daily executed. In such, it is clear that the "figured abstract" is useless. We therefore suggest that the Audit Department use their discretion in dispensing with its being kept in all such cases.

167. The committees now assembled to survey the annual repairs of public buildings appear to us to be of no real use; practically, they do not form even a check, and only render an executive officer less responsible. Such committees, according to the evidence of Engineer officers, and to our own experience generally, write on their proceedings whatever is dictated to them, and very often without looking at the work they are assembled to report on. If this arose from removable causes, it might be remedied; but since it proceeds from the inability of unprofessional men to do what these committees are supposed to do, we would relieve the Engineer from all the trouble connected with the present regulations on this head, and substitute a simple certificate by the Executive Engineer, that the annual repairs estimated for are absolutely necessary. This might be countersigned by commanding officers, or heads of departments.

168. The erection and repair of district kutcherries, the opening of country cart tracks, clearance of tanks, repairs of wells and embankments, and the performance generally of work requiring no professional skill, should be executed by the civil authorities.

169. To profit fully by the services of the Executive Engineer and his surveyors, plans and estimates for such works might be prepared by them. The description and measurement by a surveyor of simple work would generally enable the former to make his estimate without personally visiting every distant tank. On sanction arriving, and the Mamledar being ready to commence the execution, a surveyor should attend and remain on the work until portions of the revetment, say of a tank, have been erected, the levels determined, and the Mamledar's karkoon made acquainted with what is to be done. The surveyor might then go away to other work, returning at intervals of about 10 days, and on the completion the Engineer should certify that the work has been executed according to the plan and estimate.

170. We have observed that at present much unsatisfactory correspondence takes place in maturing schemes of which the main difficulties might all be cleared away by two hours' personal conference. In the course of their tours, and while at head-quarter stations, the Superintending Engineer and Revenue Commissioner must often meet, and as, by the plan proposed further on, the Executive Engineer's range will become co-extensive with the range of the Collector, the latter officers might meet on the scene of any important project, and report on it conjointly.

We

We would not create fresh excuses for delay by making it imperative to put off the discussion of important schemes until a meeting could take place; but we advise that a free resort to personal communication be enjoined upon the parties whose concurrent opinion usually guides Government to a decision.

171. As an example of the want of such conference and co-operation to expedite a very simple and important work, for the last 20 years, to the knowledge of this Commission, there has been an acknowledged necessity for a branch road to connect Poona with the Ahmednuggur line at Wagholee, a place only eight miles distant. The Superintendent of Roads informs us, that on the 12th of September last he submitted a plan for approval; hearing nothing about it, he addressed the Revenue Commissioner, S. D., on the 11th June last, to learn what had been done, and was informed that the matter was still under consideration.

Pursuing the inquiry, we found that the project was—

Received by the Revenue Commissioner - -	7 January 1851.
Referred by him to Collector - - - -	3 February ,,
Collector's reply came on the - - - -	11 March ,,
Revenue Commissioner asked the Superintendent of Roads for the plan - - - - - -	10 April ,,
And was by him referred to Government - -	21 April ,,
To whom Revenue Commissioner applied on - -	30 April ,,
And obtained it on - - - - - -	24 May ,,

Since when, the case has remained with the Revenue Commissioner to be disposed of simultaneously with another reference from the Military Board relative to proposed lines leading out of Poona to the Katrug and Devee Ghauts. What has been done thus far might surely have been more easily, pleasantly, and effectually disposed of in the course of a morning's ride over the ground, without recalling the plan, and without letter-writing, except to put the project into an official form. We believe that more money has been spent in repeatedly surveying and writing about this insignificant bit of road than would have sufficed to complete it altogether in a substantial manner.

Section XIII.

Strength and Distribution of the Corps of Engineers.

172. The improvement thus far proposed, comprehends all the expedients we are able to devise for economising and reclaiming to their legitimate sphere the services of engineer officers, so as to render the present establishment more capable of extending its superintendence over a large breadth of work. The system had already been so well matured, that we can discern no other remedy of importance likely to arise from improved modes of working. Any increased efficiency beyond what these measures can yield must, we think, be sought in a revised organization.

173. In considering what our further recommendations should be, we have found ourselves mainly in accord with the Government plan of 1849, for re-uniting all the officers available for Public Works in one general department, and instituting a new arrangement, under which the services of an Executive Engineer in every Collectorate, controlled by a Superintending Engineer in each of three Provinces, will be applied to improve the country; while the juniors, after short service and preliminary instruction in the corps of Sappers, will be variously employed under the executive officers, gaining day by day, from this training in the best of schools, experience to fit them for an independent charge.

174. Any division of Public Works into Civil and Military, seems unsuited to the circumstances of this service: the executive officers, unless similarly divided —which they cannot be, because the expanse over which a few men are to be

Report.

scattered, divides them too far already—would have two masters giving them different orders: and if it be said that the Chief Engineer would be the principal person in each department, there would, in fact, be no real division at all.

175. The department, which in this Presidency exists specially for roads and tanks, was organized, A.D. 1835, in four Collectorates, for the purpose of improving the communications of the country, and to extend the benefits of irrigation, by constructing new tanks, and preserving those of former Governments from decay.

176. Prior to its organization there had been no special provision for civil works, except at the Presidency, in the Southern Mahratta Country and Khandeish; all engineering operations elsewhere being conducted by the executive officers at military stations, and by the corps of Pioneers.

177. The new scheme was based upon the principle of severing the civil from the military branches of engineering. It was believed that a distinct department for the former would hasten improvement of the country, and that its constitution, as a separate body, under a superintendent, controlled entirely by the Revenue Commissioner, would remedy a want of good management, which was then felt to prevail in all departments of the Public Works.

178. A fund, affording at first about a lac of rupees annually, was placed at the disposal of the Revenue Commissioner, whence he was to sanction such sums as might appear to him expedient for the objects contemplated, reporting the same to Government.

179. If the department had answered expectations, another superintendent was to have been appointed for Guzerat and Khandeish: however, its earlier operations were unfortunate. The superintendency extended over four large Collectorates, a range through which the first incumbent failed to make practicable his duty of inspecting the sites of projected works prior to submitting for sanction his assistants' plans: and these assistants being generally young officers, appointed regardlessly of professional qualifications, were trusted to originate plans, and execute important works.

180. The sequel proved that, while the cost of superintendence had been excessive for a quantity of work altogether inconsiderable, the money sunk in projecting works never likely to be sanctioned, and in undertakings which turned out abortive, far exceeded the proportion spent on works of real utility. One principal object of the department, namely, improvements of irrigation, was almost entirely missed. The most signal failures were in tanks.

181. In reviewing the annual Report of this department for 1841, Government resolved that the whole attention of the establishment should thenceforward be directed to making roads.

182. Its duties now comprise the charge of tanks and bunds in the Poona and Tanna Collectorates, and of all works on the Deccan and Concan lines of communication. It takes care also of such other public buildings and works as the department can look after at those Civil and Military stations within the circuit which are without an Executive Engineer. Ahmednuggur and Rutnagherry are also nominally within its range, but in effect have been almost excluded from its operations by distance, and the want of assistants.

183. In 1844, the performance of the department still continuing unsatisfactory, Government began to consider what other measures should be taken to carry out the objects for which it had been created. Its control was in the same year transferred to the Military Board, who shortly afterwards gave their opinion that the management of roads and tanks should be made over to Provincial Engineers, with assistants specially allotted for such duties.

184. Notwithstanding the strong reasons then adduced, Government resolved to suspend its abolition. The department was thought capable of becoming more efficient under improved arrangements and better experience, and there was apprehension lest its sudden cessation should throw works then in progress upon the corps

corps of Engineers, which the latter, from its numerical deficiency, and the pressure of actual duties, could not undertake. Report.

185. These expectations have, to a certain extent, been realized: so far as our inquiry enables us to judge, there have been no failures or errors of late; indeed, we believe the management almost from the first to have been zealous and able; but upon the main question on which the continuance or abolition of the department has been suspended, namely, the policy of separating Military Works from Civil, and maintaining a superintendent, with eight assistants, for the roads of two Collectorates, and a few minor works, we have no doubt at all; and since Government now views those improvements for which the Road Department has been a tentative and partial agency, or the settled object to which, in peaceful times, the main energies of the corps should be addressed, we think that the double machinery of superintendence should henceforth cease.

186. The extension of territory which has taken place since 1848, and other changes, together with the necessity, in our opinion, of allotting the entire services of one officer to the camp and city of Poona, require some departures from the original scheme. The distribution to suit present circumstances might, we think, be arranged as follows:—

187. PROPOSED RE-DISTRIBUTION of ENGINEERS.

No.	OFFICERS.	SALARY.
	Northern Division:	*Rs.*
1	Superintending Engineer	700
2	Civil Engineer, Surat Branch, Gogo	450
3	Ditto - - Ahmedabad, Kaira, and Territory North of Cambay	450
4	Assistant to ditto	—
	Central Division:	
5	Superintending Engineer	700
6	Civil Engineer, Khandeish Collectorate	450
7	First Assistant to ditto	200
8	Second ditto	200
9	Civil Engineer, Nuggur Collectorate	450
10	Ditto - - Nassick, Sub-Collectorate	450
11	Executive Engineer, Poona Camp as now	—
12	Civil Engineer, Poona Collectorate	450
13	Assistant to ditto	200
14	Civil Engineer, Tanna Collectorate	450
15	Ditto - - Rutnagherry Collectorate	450
	Southern Division:	
16	Superintending Engineer	700
17	Civil Engineer, Satara	450
18	Ditto - - Kolapoor	450
19	Ditto - - Sholapoor	450
20	Ditto - - Belgaum	450
21	Ditto - - Dharwar	450

Report.

188. To ensure cheerful exertion, to make work in the country preferable to loitering in camp, and to leave no pretext for inactivity to the Executive Engineers, who ought to be constantly moving about their districts, and to be required by the Superintending Engineers to travel in the most expeditious way, we think that their travelling allowance, while actually afield, should be commensurate with their necessary expenses.

189. Accordingly in this respect we would depart from the scale originally proposed, in substituting for the fixed office tent allowance such a scale of remuneration for travelling as will cover the officers' actual expenses, including office carriage, without trenching upon their staff-pay. In making this suggestion, we would particularly bring to notice that the expense of travelling in this Presidency is considerably greater than in Bengal and Madras.

190. We agree with the Chief Engineer's Minute (29 August 1848), that to give efficiency to these changes, the several Superintending Engineers should pass at least six months of the year actually and *bonâ fide* in traversing their districts, and communicating personally with their subordinates, with the Collector and the Revenue Commissioner, so as to become thoroughly conversant with the wants and resources of the country; to visit works finished or progressing, and the sites of works contemplated; also to advance, in concert with the revenue authorities and the executive officer, new measures of improvement.

191. As regards executive officers, upon whom the devising of new projects will ordinarily devolve, the ability of the corps will, under the above arrangement, be distributed throughout the Presidency, in position of emolument more or less according to the efficiency displayed by each; and although there is not now, nor can be, without augmenting the corps, even one officer of adequate experience for every Collectorate, time, with additional numbers, will rectify this, and there will no longer be the present constitutional liability of important works falling to the youngest officers and to warrant officers, while men of greater experience are left comparatively idle.

192. The State has suffered so much from unprofessional officers being employed on Public Works, that, although extraneous assistance is for the moment indispensable, we see the strongest reason for deprecating a continued recourse to other branches of the service. In a country where so much is to be done, we would not, however, exclude from employment any officer of peculiar turn and talent for civil engineering, merely on the score of his not belonging to the professional corps.

193. The arrangements proposed in 1849 were made rather to fall within the compass of former expenditure in the Public Work Department, than to fulfil the necessities of the country; but the recent extensions of this Presidency, its growing wants, and the Home Government's intention, declared in Parliament to enlarge their engineering operations, required provision for a much larger establishment than we, taking the scheme of 1849 for our basis, venture to propose as perfect.

194. Although, by redistributing the corps, more and better work may be expected, we believe that the divisions of country under each executive officer will still be too large for perfect efficiency, and that when any great work, such as a line of road, or extensive bundhara, is required, it would be true economy to employ an officer specially upon it.

195. The scheme now proposed, excluding Sind, Aden, Rajpootana and the Presidency, requires three superintending and 18 executive officers; although unusually few are away on furlough, we find that, after deducting a commanding officer, an adjutant, and two second lieutenants, for the corps of Sappers, only 14 officers are now available to fill 21 situations; but if the average number of absentees, which we understand exceeds 10, be deducted, there would be available but 10, even including the junior second Lieutenant.

—	Absent.	Available.
Colonels - -	2	—
Lieut.-col. -	1	Majr 1
Captains - -	1	3
Lieutenants -	1	9
2d Lieutenants -	1	1
TOTAL - -	6	14

196. It

196. It is represented to us that many demands for professional reports cannot be met, and that many important projects are in abeyance for want of Engineer Officers to carry them out.

197. Beyond the fact that officers must be employed, whether qualified or not as linguists, and whether instructed or not in practical engineering for this country, there is in the present exigency no power of rejecting from employ an officer who has degenerated into indolent habits, or who cares not to keep pace with the times; all are alike absorbed in the general demand, and engaged, fit or unfit, upon an extent of work that demands the maximum of exertion which the ablest and best can put forth.

198. We have reason to believe that the Government of India have made repeated appeals to the Honourable Court of Directors to increase their Engineer corps at all the Presidencies; but although the Bengal corps has been doubled since 1827, no addition beyond four subalterns has been made to that of Bombay, notwithstanding the great increase of territory, and the far greater attention that is now paid to its improvement.

199. Although irrigation has been extended in Dharwar and Khandeish, we are told that the number of tanks in the former district might be doubled with advantage; while in the rest of the Presidency, including Guzerat, our most fertile Province, nothing has been done; and although the facilities for road-making exceed those of any country we have heard of, insomuch that a cart-road without ghauts and bridges can be made all over the Deccan and Southern Mahratta country at a minimum of *Rs.* 500 to *Rs.* 1,000 per mile, vast areas of territory, whose intersection by highways would be vital to all interests, lie to this day as impervious as we found them at the conquest.

Section XIV.

Control and Audit.

200. By the regulations of this Presidency, the Superintending Engineerships are held by the senior officers next below the Chief Engineer. These officers are the channel of communication between the executive officers and the Military Board; their duties are those of check and control, for the due exercise of which they are responsible to the Military Board; they are answerable that every document transmitted by them is correct and complete, and they are to record their opinion on every design. They are specially responsible for the correctness of rates; they make an annual tour through their Province to inspect the Public Works of all kinds, to scrutinize the operations of the executive officers, and to make an inspection report to the Military Board.

With respect to the chief superintending authorities alluded to in para. 62 of the Honourable Court's despatch, we have perceived no reason at all for recommending change.

201. The Public Works of this Presidency are controlled in a department of the Military Board entirely distinct from all others, with its own secretary; and the stipendiary member, who would otherwise have insufficient occupation, aids the professional member of the Board.

202. Even were it necessary, for purposes of assimilation at the three Presidencies, to have a separate controlling authority over Public Works, we still think that no alteration would be requisite beyond a change of name.

Report.

203. We have been led to this opinion from having observed the promptness with which the Board disposes of the current business of the department, together with the audit of its accounts. The Board's efficiency for controlling Public Works must depend greatly on the qualifications of the Secretary in this department, who ought always to be an Engineer.

(signed) *G. Moore*, Colonel.
J. D. Inverarity, C. S.
H. B. Turner, Captain Engineers.
T. Gaisford, Captain Artillery,
Member and Secretary.

(True copy.)

(signed) *P. M. Melvill*, Lieut.-colonel,
Secretary to Government.

(True copy.)

(signed) *R. H. Birch*, Lieut.-colonel,
Officiating Secretary to the Government of India
in the Military Department.

Poona, 1 September 1851.

APPENDIX.

APPENDIX.

Appendix (B.)

TERRITORIAL DEPARTMENT.—*Khandeish* Division of PUBLIC WORKS.

ESTIMATE No. 1, of 1849–50.

ESTIMATE, framed by Lieutenant *H. W. B. Bell*, Civil Engineer in *Khandeish*, of the probable Expense of constructing a new Bundarah across the Mushar Nuddee, for the Village of Wuzzur, in the Baglan Talooka, agreeably to the Collector's Memorandum, No. 1,351, dated 5th September 1848, and Accompaniment.

Civil Engineer's Office, Mallegaum, 2 May 1849.

GENERAL DESCRIPTION.

Excavators' Work.—The bed and banks of the Nullah being rock, will have to be properly levelled, to form a secure footing for the Bundarah walls.

Masons' Work.—All the walls to be built of coursed rubble masonry and chunam, hammer-dressed one side, and to be of the respective widths and heights figured on Plan and Sections.

Stonecutters' Work.—That portion of the Bundarah wall from G to C and Waste Weir Ghaut to be coped with 3d sort cut stone; the grooves for the sluice-gates and soles of scouring-sluices are also to be of 3d sort cut stone.

Carpenters' Work.—The sluice-gates are to be made of teak timber, three inches thick, and one of such a height and width as to properly fit the two scouring sluices in the Bundarah wall and the arched openings into the water-courses.

[Sanctioned by Government in Mr. Secretary Goldsmid's letter to Mr. Revenue Commissioner (S. D.) Shaw, No. 6,814, dated 13 November 1849, per Military Board's memorandum, No. 7,925, of 17th, and Superintending Engineer's (S. P.) endorsement, No. 2,734, of 19th idem, for *Rs.* 1,047.]

MEASUREMENTS.

DESCRIPTION.	Length.	Breadth.	Height or Depth.	Number.	QUANTITIES.	
Excavators' Work:	*C. t in.*	*C. ft. in.*	*C. ft. in.*		*C. ft. in.*	
Bundarah, 1st Portion -	129 0	4 0	0 6 m.	–	258 0	*N. B.*—Exclusive of thickness of curtain wall.
Ditto - 2d ditto -	140 0	3 0	0 6 m.	–	210 0	
Ditto - 3d ditto -	177 0	2 6	0 6 m.	–	221 3	
Curtain Wall on right Bank.	40 0	3 0	0 9 m.	–	90 0	
Curtain Wall on left Bank.	30 0	3 0	1 0	–	157 6	
					936 9	--Cubic feet levelling found in rock.
Masonry:						
Bundarah, 1st Portion:						
No. 1 Piece -	3 0	4 0	1 6	–	18 0	*N. B.*—Exclusive of 6 coping.
No. 2 ditto -	10 0	4 0	1 0	–	40 0	
No. 3 ditto -	6 0	4 0	2 0	–	48 0	
No. 4 ditto -	4 0	4 0	2 9	–	44 0	
No. 5 ditto -	10 0	4 0	4 0	–	160 0	
No. 6 ditto -	20 0	4 0	3 6	–	280 0	
No. 7 ditto -	30 0	4 0	3 3	–	390 0	
No. 8 ditto -	20 0	4 0	4 0	–	320 0	
No. 9 ditto -	5 0	4 0	3 0	–	60 0	
No. 10 ditto -	5 0	4 0	2 3	–	45 0	
No. 11 ditto -	5 0	4 0	1 9	–	36 0	
No. 12 ditto -	11 0	4 0	1 3	–	55 0	

(*continued*)

Appendix (B.)

MEASUREMENTS—*continued.*

DESCRIPTION.	Length.	Breadth.	Height or Depth.	Number.	QUANTITIES.	
Masonry—continued.	*C. ft. in.*	*C. ft. in.*	*C. ft. in.*		*C. ft. in.*	
Bundarah, 2d Portion:						
No. 1 Piece - -	10 0	3 0	1 9	–	52 6	
No. 2 ditto - -	40 0	3 0	1 8	–	150 0	
No. 3 ditto - -	10 0	3 0	2 0	–	60 0	
No. 4 ditto - -	30 0	3 0	2 9	–	247 0	
No. 5 ditto - -	35 0	3 0	4 0	–	420 0	
No. 6 ditto - -	10 0	3 0	3 6	–	105 0	
No. 7 ditto - -	5 0	3 0	2 6	–	37 6	
Bundarah, 3d Portion:						
No. 1 Piece - -	7 0	2 6	4 0	–	70 0	*N.B.*—This part has No. 3 sort cut stone coping.
No. 2 ditto - -	10 0	2 0	4 9	–	118 9	
No. 3 ditto - -	10 0	2 6	5 6	–	137 6	
No. 4 ditto - -	40 0	2 6	6 0	–	600 0	
No. 5 ditto - -	70 0	2 6	5 0	–	875 0	
No. 6 ditto - -	40 0	2 6	5 9	–	575 0	
Curtain Wall, right Bank:						
No. 1 Piece - -	10 0	3 0	6 6	–	195 0	
No. 2 ditto - -	5 0	3 0	5 6	–	82 0	
No. 3 ditto - -	5 0	3 0	4 0	–	60 0	
No. 4 ditto - -	5 0	3 0	3 0	–	45 0	
No. 5 ditto - -	10 0	3 0	2 0	–	60 0	
No. 6 ditto - -	5 0	3 0	1 6	–	22 6	
Curtain Wall, left Bank						
No. 1 Piece - -	5 0	3 0	3 3	–	48 9	
No. 2 ditto - -	14 0	3 0	5 9	–	141 6	
No. 3 ditto - -	2 0	3 0	4 3	–	25 6	
No. 4 ditto - -	2 0	3 0	3 0	–	22 6	
No. 5 ditto - -	7 0	3 0	3 0	–	63 0	
					5,810 0	
Deduct,—						
Sluices in Bundarah -	3 0	4 0	3 6	2	84 0	*N.B.*—Including 6 of sole cut stone.
Arch openings in Curtain Walls.	3 0	3 0	2 5	2	45 0	
Waste Weir - - -	30 0	2 6	1 6	–	112 6	*N.B.*—Including 6 of cut stone sole.
Scouring Sluice - -	3 0	2 6	2 6	–	18 9	Ditto - ditto.
					260 3	
					5,549 9	- Cubic feet coursed rubble masonry, hammer-dressed one side.

Appendix (B.)

MEASUREMENTS—*continued.*

DESCRIPTION.	Length.	Breadth.	Height or Depth.	Number.	QUANTITIES.	
Stone-cutters' Work:	*S. ft. in.*	*S. ft. in.*	*S. ft. in.*		*S. ft. in.*	
Coping to Bandara, 1st Portion, and Sole of Sluices.	129 0	4 6	- -	-	580 6	
Grooves - - -	3 0	0 9	- -	4	9 0	
Coping to 2d Portion of Bandara.	140 0	3 6	- -	-	490 0	
Waste Weir and Sole of Sluices	30 0	3 0	- -	-	90 0	
Grooves - - -	4 0	0 9	- -	-	3 0	
Grooves to openings to Curtain.	2 6	0 9	- -	4	7 6	
Ditto - - -	4 0	2 3	- -	4	36 0	
					1,216 0	Sup. at rough cut stone.
Carpenters' Work:	*C. ft. in.*	*C. ft. in.*	*C. ft. in.*		*C. ft. in.*	
Sluice-gate - - -	3 6	3 9	0 3	2	6 6	
Gate to openings in Curtain.	3 6	5 9	0 3	2	10 0	
					16 6	C. ft. teaktimber.

ABSTRACT.

		Rs. a. p.	*Rs. a. p.*
937	Cubic feet levelling Rock for foundation, at *Rs.* 3 per 100 cubic feet.	28 1 9	
5,550	Cubic feet coursed rubble Masonry, hammer-dressed one side, at *Rs.* 12. 4 *a.* per 100 cubic feet.	679 14 -	
1,216	Square feet 3d sort cut-stone coping, at *Rs.* 18 per 100.	218 14 1	
16½	Cubic feet teak timber Sluice-gates, at *R.* 1. 8 *a.* per cubic foot.	24 12 -	
			951 9 10
	Contingencies, at 5 per cent. - - -	47 9 3½	
	Extra Establishment, at 5 per cent. - -	47 9 3½	
			95 2 7
	TOTAL *Company's Rupees*, One thousand and forty-seven		1,047 - -

(signed) *H. Barthorn*, Captain,
Acting Superintending Engineer, S. D.

H. W. B. Bell, Lieutenant,
Civil Engineer, Candeish.

A. Elphinstone, Collector.

FIGURED ABSTRACT of Daily EXPENDITURE of LABOUR and MATERIALS, for making Alterations - -

SQUARE FEET ROOFS - - - - - - - - - - -

Number of Feet.	October 1850.	Carpenters.							Bricklayers.		Muccadums.	Biggaries.	Naigueries.	Women.	Boys.			Tile Turners.	Bullocks, pair.	TOTAL.	Sawyers' Work. (nil.)	TOTAL EXPENSE of LABOUR.
	Date.	8 a.	7 a. 3 p.	7 a. 1 p.	7 a.	6 a. 6 p.	6 a.	5 a.	5 a.	4 a.	2 a. 6 p.	2 a.	3 a.	1 a. 6 p.	1 a. 9 p.	1 a. 6 p.	1 a.	2 a. 6 p.	6 a.		Rs. As. p. (nil.)	Rs. a. p.
	October 12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	16	–	–	1	1	–	–	–	–	–	–	–	–	–	1	1	–	–	–	4	–	1 1 4
	17	–	–	1	1	–	–	–	–	–	–	–	–	–	1	1	–	–	–	4	–	1 1 4
	19	–	–	1	1	–	–	–	–	–	–	–	–	–	1	1	–	–	–	4	–	1 1 4
	21	–	–	1	1	–	1	–	–	–	–	1	–	–	1	2	–	–	–	7	–	1 10 10
	22	–	–	1	1	1	1	1	–	–	–	3	–	–	1	2	–	–	–	11	–	2 10 1
	23	½	–	1	1	–	–	–	–	–	–	4	–	–	1	2	–	–	–	9½	–	1 14 10
	26	½	–	1	–	–	–	1	2	–	–	7	–	–	–	2	1	–	1	15½	–	3 2 1
	28	½	–	1	–	–	–	1	2	–	–	7	–	–	–	2	1	–	1	14½	–	3 2 1
	29	½	–	1	–	–	–	1	–	–	–	3	–	–	–	1	1	–	–	7½	–	1 8 7
	30	½	–	1	–	–	–	1	–	–	–	3	–	–	–	1	1	–	–	7½	160	8 [illegible] 4
	31	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	– 7 1
		2½	–	11	6	1	2	5	4	–	–	28	–	–	6	15	4	–	2	86½	160	26 1 2
	Nov. 1	–	1	–	–	–	–	2	–	–	–	4	–	–	–	2	–	–	–	9	–	1 12 5
	2	–	1	–	–	–	–	2	–	–	–	5	–	–	–	2	–	–	1	11	–	2 4 5
	4	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	– 7 5
	5	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	– 7 5
	6	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	– 7 5
	7	–	1	–	–	–	–	2	1	–	–	4	–	–	–	2	–	–	–	10	–	2 1 5
	8	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	–	–	2	–	– 7 –
	9	–	–	–	–	–	–	1	–	–	–	1	–	–	–	–	–	–	–	2	–	– 7 –
	11	–	–	–	–	–	–	–	2	–	–	1	–	2	–	–	–	–	–	5	–	– 15 –
	14	–	–	–	1	–	1	1	–	–	–	2	–	–	1	–	–	–	–	6	–	1 7 0
	15	–	1	–	–½	–	–½	–½	–	–	–	–½	–	–	–½	1	–	–	–	4½	–	1 3 [illegible]
	16	–	1	–	1	–	1	1	–	–	–	2	–	–	1	2	–	–	–	9	–	2 2 3
	18	–	1	–	1	–	1	1	1	–	–	4	–	1	1	2	–	–	–	13	–	2 12 8
	19	–	1	–	1	–	1	1	1	–	–	4	–	1	1	2	1	–	–	14	–	2 13 8
	20	–	1	–	1	–	1	1	2	–	–	4	–	1	1	5	1	6	–	24	–	4 6 2
	21	–	–	–	–	–	–	–	3	–	–	3	–	–	–	1	2	1½	–	10½	–	1 12 3
	22	–	–	–	–	–	–	–	–	–	–	2	–	2	–	–	–	–	3	7	–	1 9 –
	23	–	–	–	–	–	–	–	–	–	–	2	–	2	–	–	–	–	3	7	–	1 9 –
		–	11	–	5½	–	5½	13½	10	–	–	39½	–	9	5½	19	4	7½	7	137	–	20 1 11
	Dec. 2	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	2	–	– 7 –
	3	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	1	–	–	2	–	– 7 –
	4	–	–	–	–	–	1	–	–	–	–	1	–	–	–	–	1	–	–	3	–	– 9 –
	5	–	–	–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	3	–	– 10 –
	6	–	–	–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	3	–	– 10 –
	7	–	–	–	–	–	1	–	–	–	–	2	–	–	–	–	–	–	–	3	–	– 10 –
	9	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	1	–	3	–	– 9 –
646	10	–	–	–	–	–	–	–	1	–	–	–	–	–	–	1	–	1	–	3	–	– 9 –
		–	–	–	–	–	6	–	2	–	–	7	–	–	–	2	3	2	–	22	–	4 7 –

GRAND TOTAL - - - *Rs.* 59 10 1

- - and Additions to the PLUNGE BATH of the European Artillery at *Ahmednuggur*.

- - - - - - - - - - - - SQUARE FEET ROOFS.

Timber, Teak. Cubic Feet.	Chooam, 2d Sort, Maunds.	Hemp, lbs.	Goond.	Cauth.	Goor.	Heerdah.	Nails, 3 inches.	Oil.	Cotton Rope.	Chalk.*	Rafters.	Nails, 1½ inches.	Nails, 2½ inches.	Tiles.	White Stone, lbs.	Amberee Rope.	Glue.	Rafters.	TOTAL EXPENSE of MATERIALS.	TOTAL of LABOUR and MATERIALS.
1-1 foot.	*Rs.* 4 Candy.	25 lbs. per Rupee.	14.	16.	32.	80.	3.	12.	4.	16.	*Rs.* 11 Cargo.	4 lbs.	6.	1-15 1,000.	8 lbs.	16 lbs.	4.	*Rs.* 6. 10a. Cargo.		
																			Rs. a. p.	*Rs. a. p.*
10½	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20 11 6	20 11 6
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 1 4
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 1 4
8½	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9 - 6	10 1 10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 10 10
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	2 10 4
8¼	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8 12 4	10 11 2
-	19	2	2	2	2	10	4	-	-	-	-	-	-	-	-	-	-	-	4 13 4	7 15 5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	3 2 1
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 8 7
-	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	- 2 8	8 8 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 7 1
36½	19	2	2	2	2	10	4	2	-	-	-	-	-	-	-	-	-	-	43 8 4	60 9 6
-	-	-	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	- 8 -	2 4 5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	2 4 5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 7 5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 7 5
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 7 5
-	-	-	-	-	-	-	1½	-	2	1	-	-	-	-	-	-	-	-	- 3 6	2 4 11
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- 9 -	1 - -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 7 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 15 -
-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	1 - -	2 7 9
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 3 9½
-	-	-	-	-	-	-	4	-	-	-	60	10	2½	-	-	-	-	-	36 8 -	38 10 2
-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	- 4 -	3 - 8
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	2 13 8
-	12	2	2	2	2	10	-	-	-	-	-	-	2½	6,000	-	-	-	-	14 14 6½	19 4 8½
-	20	2	2	2	2	10	-	-	-	-	-	-	-	4,000	8	-	-	-	18 - 6½	14 12 9½
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 9 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	1 9 -
-	32	4	4	4	4	20	19½	-	2	1	60	10	5	10,000	8	-	-	-	66 15 6	96 1 5
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 7 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8 8 -	8 15 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 9 -
-	-	-	-	-	-	-	4	-	-	-	-	2	-	-	-	8	½	-	1 10 -	2 4 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 10 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	- - -	- 10 -
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1 5 2½	1 14 2½
-	-	-	-	-	-	-	-	-	-	-	-	-	-	500	-	-	-	-	- 15 6	1 8 6
8	-	-	-	-	-	-	4	-	-	-	-	2	-	500	-	8	½	4	12 6 8½	16 13 8½
																			GRAND TOTAL - - - *Rs.*	122 14 6½ / 182 8 7½

(continued)

Figured Abstract of Daily Expenditure of Labour and Materials for the Plunge Bath at *Ahmednuggur*—continued.

TEAKWOOD POSTS.

Number of Feet.	October 1850. Date.	Carpenters. 8 a.	7 a. 1 p.	7 a.	6 a. 6 p.	6 a.	5 a.	Bricklayers. 5 a.	4 a.	Biggaries. 2 a.	Women. 1 a. 6 p.	Boys. 1 a. 9 p.	1 a. 6 p.	1 a.	Bullocks, Pair. 6 a.	TOTAL.	Sawyers' Work, Gm. 4½ Rs. 100.	TOTAL EXPENSE of LABOUR.	Chunnam, 2d Sort Maunds. 4 Rs. Candy.	TOTAL of MATERIAL S.	TOTAL.
																		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*
	7	–	–	1	–	–	–	–	–	–	–	1	–	–	–	2	–	– 8 9	–	– –	– 8 9
	8	–	–	1	–	–	–	–	–	–	–	1	–	–	–	2	–	– 8 9	–	– –	– 8 9
	9	–	–	1	–	–	–	–	–	–	–	1	–	–	–	2	–	– 8 9	–	– –	– 8 9
	11	–	1	–	–	–	–	–	–	–	–	1	–	–	–	2	–	– 8 10	–	– –	– 8 10
	24	½	1	–	–	–	1	2	–	5	–	1	–	1	1	12½	–	2 12 7	–	– –	2 12 7
	26	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	– –	5	1 – –	1 – –
8	30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	100	4 4 –	–	– –	4 4 –
		½	2	3	–	–	1	2	–	5	–	5	–	1	1	20½	100	9 3 8	5	1 – –	10 3 8

Running Feet TEAKWOOD POST PLATE.

	12	–	1	1	–	–	–	–	–	–	–	1	1	–	–	4	–	1 1 4	–	– –	1 1 4
	14	–	1	1	–	–	–	–	–	–	–	1	1	–	–	4	–	1 1 4	–	– –	1 1 4
	15	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1	–	– 7 1	–	– –	– 7 1
	18	–	1	1	–	–	–	–	–	–	–	1	1	–	–	4	–	1 1 4	–	– –	1 1 4
	25	½	1	–	–	–	1	2	–	7	–	2	1	–	–	14½	–	2 12 1	–	– –	2 12 1
48	30	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	100	4 4 –	–	– –	4 4 –
		½	5	3	–	–	1	2	–	7	–	5	4	–	–	27½	100	10 11 2	–	– –	10 11 2

Cubic Feet TEAKWOOD DOORS, to be shut up with Stone and Lime Masonry.

Number of Feet.	November 1850. Date.	Carpenters. 7 a.	6 a.	5 a.	Bricklayers. 5 a.	4 a.	Biggaries. 2 a.	Women. 1 a. 6 p.	Boys. 1 a. 9 p.	1 a. 6 p.	1 a.	Bullocks, Pair. 6 a.	TOTAL.	TOTAL EXPENSE of LABOUR.	Chunnam 2d Sort Maunds. 3½ Rs. Candy.	Baskets. 2½ Rs. 100.	TOTAL EXPENSE of MATERIALS.	TOTAL.
														Rs. a. p.			*Rs. a.*	*Rs. a. p.*
	8	–	–	–	2	–	1	2	–	–	–	–	5	– 5 –	–	–	– –	– 15 –
	9	–	–	–	2	–	1	2	–	–	–	–	5	– 15 –	–	–	– –	– 15 –
	20	–	–	–	–	–	–	–	–	–	–	–	–	– –	8	–	1 8 –	1 8 –
	21	–	–	–	2	–	2½	2	–	2	–	1	9½	1 11 –	–	–	– –	1 11 –
72	22	–	–	–	–	–	–	–	–	–	–	–	–	– –	–	10	– 4 –	– 4 –
		–	–	–	6	–	4½	6	–	2	–	1	19½	3 9 –	8	10	1 12 –	5 5 –

Appendix (B.)

Figured Abstract of Daily Expenditure of Labour and Materials, &c.—*continued.*

TERRITORIAL DEPARTMENT.—*Khandeish* Division of PUBLIC WORKS.

BILL, No. 29, of 1850–51.

The Honourable Company - - - - - - - - - - - - *Dr.*

To expense incurred by Lieutenant *H. W. B. Bell*, Civil Engineer in Candeish, in constructing a new Bundarrah across the Mushar River, at the village of Wuzzar, in the Baghan Talooka of the Khandeish Collectorate, agreeably to Estimate No. 1 of 1849–50, dated 2 May 1849, sanctioned by Government in Mr. Secretary Goldsmid's letter, No. 6,814, dated 13th, per Military Board Memorandum, No. 7,025, of 17th, and Superintending Engineer's endorsement, No. 2,734, of 19th November 1849.—*Vide* also accompanying Completion Certificate.

Civil Engineer's Office, Mallegaum, 29 June 1850.

	Rs.	*a.*	*p.*
Amount of Labour expended on the above Works, per Office Books - -	593	5	4
Ditto of Materials - - ditto - - - - - - - -	435	3	4
GRAND TOTAL *Company's Rupees* Expenditure - - -	1,028	8	8

ABSTRACT OF RATES.

	Rs.	*a.*	*p.*		*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*
937 cubic feet Rock levelled for foundation - - -	- 3	13	8 $\frac{230}{937}$	per 100 -	36	2	–			
6,612 cubic feet Walls, built of coursed rubbled masonry, hammer-dressed one side	- 9	1	7 $\frac{2204}{6612}$	ditto -	655	7	7			
1,216 square feet third sort cut-stone work - - -	- 18	–	3 $\frac{656}{1216}$	ditto -	219	1	8			
11½ cubic feet teak timber in Sluice Gates - -	- –	13	– $\frac{12}{23}$	per foot -	9	6	–			
								920	1	3
Contingencies - - -	4	3	5 $\frac{30105}{176635}$	per cent. - - -				38	12	5
Extra Establishment	7	9	2 $\frac{196610}{176635}$	per cent. - - -				69	11	–
GRAND TOTAL Cost for constructing a new Bar at Wuzzur - *Rs.*								1,028	8	8
Estimated Cost - - - - - - - - - - *Rs.*								1,047	–	–
Amount received - - - - - - - - - *Rs.*								1,047	–	–

I do hereby declare, upon my honour, that the sums contained in this bill have actually been expended by me for the purposes set forth.

(signed) *H. W. B. Bell,*
Lieutenant, Civil Engineer.

To the Secretary Military Board, Bombay.

Appendix (B.)

Figured Abstract of Daily Expenditure of Labour and Materials, &c.—*continued.*

TERRITORIAL DEPARTMENT.—*Khandeish* Division of PUBLIC WORKS.

CERTIFICATE of Completion by *Alexander Elphinstone*, Esq., Collector of Candeish, upon the construction of a new Bhundarrah across the Musher River, at the village of Wuzzur, in the Bagla Talooka of the Candeish Collectorate, agreeably to Estimate, No. 1 of 1849–50, dated 2 May 1849, sanctioned by Government in Mr. Secretary Goldsmid's letter, No. 6,014, dated 13th, per Military Board Memorandum, No. 7,925, of 17th, and Superintending Engineer's endorsement, No. 2,734, of 19th November 1849.

Civil Engineer's Office, Candeish, Mallegaum, 1 June 1850.

Number.	NAME OF WORK.	REMARKS BY THE CIVIL ENGINEERS.	REMARKS BY THE COLLECTOR.
1	Bundharah -	- - The bed and banks of the nullah, being rock, have been properly levelled, to form a secure footing for the bundhara walls, which have been built of coursed rubble masonry, and chunam, hammer-dressed one side, and the bundharah proper, and waste weir have been coped with third-sort cut-stone. The scouring sluices have third-sort cut-stone soles and grooves, fitted with three teak planks. The two arched openings at the mouth of the watercourse on each bank of the river have also cut-stone grooves and teak planks fitted in similar to the scouring sluices. The whole of the above works have been completed satisfactorily, in accordance with the sanctioned plan and estimate; but it was found necessary to increase the depth of the foundation of that portion of the bundhara which rests on the right bank of the river. *Rs. a. p.* Estimated cost - 1,047 – – Executed - - - 1,028 8 8 Saving - - *Rs.* 18 7 4	(signed) *A. Elphinstone*, Collector.

(signed) *H. W. B. Bell*,
Lieutenant, Civil Engineer.

(True copies.)
(signed) *P. M. Melvill*, Lieut.-col.,
Secy. to Govt.

(True copies.)
(signed) *R. J. H. Birch*, Lieut. Colonel,
Offg. Secy. to the Govt. of India, Military Department.

Appendix (C.)

6. Abstract of monthly totals of labour, &c. &c.

As the monthly Distribution Reports contain all the information required to draw up a yearly or compilation bill, so nothing more need be kept in the Head-quarter Office than an abstract of these office books as checks.

7. Day-book of labour in the present form taken from the Muster-rolls.

8. Daily Abstract, or figured Abstract of each description of labour taken from the above. The daily total of this should agree with the additions of the daily totals of labour in the Distribution Report, and the check is complete.

A continual check on material is found in the Stock Balance-sheet itself.

I have, &c.

Nassick, 12 July 1851. (signed) *W. Chapman*, Superintending Engineer.

(True copy.)
(signed) *P. M. Melvill*, Lieut.-col., Secy. to Government.

(True copy.)
(signed) *R. J. H. Birch*,
Offieg. Secy. to the Govt. of India in the Military Depart.

No. 1.

Distribution Report of Labour and Materials,

Date.	Excavating Foundation.				Filling in Foundation.			
	Cubic Feet.	Expenditure.			Cubic Feet.	Expenditure.		
		Labour.	Materials.	Total.		Labour.	Materials.	Total.
1851:		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
February 1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
Total								
Expenditure to end of last month	59,140	612 12 7	72 2 10	684 15 5	29,035	890 2 3	2,443 3 10	3,333 6 1
Grand Total	59,140	612 12 7	72 2 10	684 15 5	29,035	890 2 3	2,443 3 10	3,333 6 1

Appendix (C.)

No. 538, of 1851.

From *W. Chapman*, Esq., Superintending Engineer, to Captain *Graham*, Superintendent of Road, *Poonah*, dated the 12th of July 1851.

Sir,

According to instructions received from you, I have the honour to forward herewith the Accounts, for the month of February last, for the Undwell Bridge. I have selected this month as the one embracing the most numerous heads of work, and as being well adapted to exemplify the extended use of the Stock sheet, to which I would beg particularly to direct your attention. The documents received in Maratha I have had translated, in order that they may be clearly understood.

2. In again revising and considering the modified system of accounts which has been introduced in this office, it appears to me to be so simple, at the same time ensuring all the accuracy and minuteness that can possibly be required, that I beg to submit an outline of the documents and returns connected with it, which, in case of their meeting your approval, I would beg to suggest should be laid before the Public Work Commission for their consideration.

3. I would, however, in the first instance, premise, that the "daily payments" and "daily measurements" are not, in my opinion, applicable to works of an extensive nature, such as those with which this department has been of late occupied: it may doubtless be carried out where works are in the immediate neighbourhood of the Head-quarter Office, and when the measurements are of so simple a nature that it may be ascertained at the end of each day that a proper quantity of work has been done, and that no risk is run in at once making payments accordingly; but in works of a complicated nature, and situated in remote parts of the district, I am persuaded, from an experience of seven years' active executive duty, that the system, whatever might in appearance be done, could not fairly and really be carried out without having recourse to shroffs as paymasters, and entailing so considerable an expense in superintendence as would counterbalance any advantage supposed to be derived from it.

4. The great and only advantage of daily payments, which alone render daily measurements necessary, appears to be the doing away with the supposed hardship endured by labourers in being kept a month and upwards in arrears of pay. This advantage, when considered in all its bearings, is rather imaginary than real. Were all the labourers employed upon any work inhabitants of its immediate neighbourhood, the daily payment would enable such as were so inclined, to work one day and idle two, a waywardness in which the generality of labourers are most prone to indulge, to the great hindrance of the work on which they may be employed; but as this is by no means the case, and the greater number by far of the workpeople engaged in extensive works are collected by muccadums, in whom they have confidence, and with whom they make agreements, from distances varying from 100 to 200 miles, and they assemble with their whole families, not with the view of eating from hand to mouth, but of making money during the months of the working season to support themselves and their families during the remainder of the year, I much doubt whether the daily payment system would be even acceptable to them, and, consequently, to the bulk of native labourers.

5. The arrangements now made to obviate the difficulty of procuring food or credit, on their first arriving empty handed at the commencement of the working season, consists of making an advance of a sum of money to the muccadum (of a known man), for which he is held responsible, sufficient to give, say *Rs.* 100 to each family. This provides for their immediate wants, which are further provided for, after they have worked some days, and have, consequently, money due, by an order to the Government banian to supply the party with grain in proportion to the pay to be received. The banian himself is protected from imposition by being allowed, in any doubtful case, to inquire of the person in charge of the work as to the amount of pay due to any labourer employed on it; and in consideration of the permission to open a shop in the lines, the large and regular custom secured him, the banian is always willing to allow his prices being revised, and kept at or below the nearest bazaar rates; so that, if a proper supervision is exercised, the best interests of the workpeople are by this means also secured.

6. Having these advantages afforded them under the monthly system, and being thus placed above want, the question only remains whether the bulk of the labourers, with

Appendix (C.)

reference to saving for their future subsistence, would prefer receiving their payments in daily driblets of copper coins, or at the end of the month in silver. Some doubtless would be found, especially those of the class above alluded to (whose loss could, however, be borne), who would prefer what they would consider present advantage; but any one knowing his inherent dislike to "breaking a rupee," would not scruple to claim for the provident man the advantage of monthly payment.

7. A very serious objection to general daily payments, and one which affects Government more particularly, is, that it in many cases virtually deprives the executive officer of all due control in money payments, and transfers it into the hands of his subordinates. This statement, however improbable it may appear at first sight, is not difficult of proof.

Suppose, for instance, a work in progress at a distance from head quarters, with an expenditure at the rate (a common occurrence) of *Rs.* 2,000 monthly: at its commencement the executive officer lays out the work, explains all that has to be done, makes arrangements for a supply of money, which must of necessity be entirely entrusted to the subordinate, and leaves to attend to other calls, and to do similar work elsewhere. At the end of, say 15 days, he returns to inspect the work, and, after having learnt the expenditure, has every reason to be greatly dissatisfied with its progress. He eventually measures portions of the work himself, finds that idleness has been the order of the day, and that the rates, consequently, exceed the estimate. In answer to his questions as to why a proper quantity of work has not been enforced, the subordinate's reply is, "Sir, I trusted to the maistrees' and charkoons' measurements being correct; it is impossible that I can myself measure daily every part of so extensive a work; I can fine but to a small amount, and have still orders to pay daily, and this, in fact, takes up all my time, which I might otherwise employ in assuring myself, without recording nice dimensions, that a fair average of work had been performed."

A statement of this kind, the proof afforded by his own knowledge, the officer cannot gainsay; nevertheless, to make a fresh trial, the subordinate is admonished, the maistrees and carcoons fined, the muccadums are reduced, but the money is paid, and not to be recovered. The estimate is exceeded, and the executive officer is involved in an excess, and its many troubles, which no foresight or arrangement on his part could have prevented.

The only means of avoiding such a difficulty would be to leave to the subordinate entire discretion in fining and discharging, and with that, in effect, the entire control of money payments, a most dangerous alternative.

8. In the monthly system, on the other hand, all money allowed for the use of the work, is for materials mostly, and is paid under the name of an advance, which remains, in every case, to be accounted for by the subordinate, when the monthly report of the works is forwarded. The Distribution Report and Rate-table (to be afterwards described) then enable the executive officer to detect any overcharges or excessive rates, and at once to make such arrangements for reducing the payments as circumstances may call for.

9. The monthly payment system has another advantage over daily payments, the value of which the executive officer can fully appreciate, and that is, that by its means an inducement can be held out to the workpeople calculated to secure constant attendance, which is, the payments on Sundays being made only to those who have worked the six days of the week.

10. I have entered thus fully into the respective advantages of daily and monthly payments, the former of which I understand as embracing daily measurements, with a view to strongly recommending that a minutely detailed monthly system "should be again adopted, in the place of a nominal daily one, which I am convinced, if minutely scrutinized in its working, would not bear out its supposed character."

11. Daily payments have their peculiar difficulties, and have not, as I have endeavoured to show above, the great advantages generally assigned to them.

12. Daily measurements, as a check to daily payments, even I have in practice no confidence in; and, with reference to their fallacy, I may here mention a practical case which occurred during the last season, when I was in immediate charge of the Undwell Bridge. I had the masons' work measured every evening before them, and generally in my own presence; the number of cubic feet per man was 18 to 20; I was dissatisfied, and in many cases fined: From my own calculation at the end of the month, taking the work *en masse*, I found that on an average 30 feet had been done per man. A large number of masons was employed, it is true, and the marks were difficult to preserve when the work was proceeding rapidly. But if such a result as this is obtained, certainly under more than ordinary care, and in tolerably plain work, what may not be expected from indifference, complication and hurry?

13. I will now proceed to explain what returns and documents I think it necessary should be kept for every district work, from its commencement to its last stage, which is that of making out

out the bill for sanction, explaining the use of each in order, and not of course touching upon the general money accounts of the office, which must but with few exceptions be kept as at present. It will be observed that the figured Abstract, in so far as its only troublesome portion is concerned, has been entirely done away with, by the extended use of the Stock sheet.

The report of the Undwell Bridge for February being drawn up from actual work done, will serve practically to illustrate the whole. An European subordinate is supposed to be employed.

The monthly documents to be furnished to the Executive Office in English, are for any work three, being all that is required to enable the officer to check the rates, and make the payment of work. They are—

1. The monthly Distribution Report of labour and materials, with rates of work performed.

2. Monthly Stock Balance-sheet.

3. Bills of payment of labour and materials, with vouchers for materials and stores' bills. Returns in Marratha, or the language of the district.

4. (Not sent). A general muster-roll, with a separate muster-roll, for store bills.

5. Receipts and issues of materials and stores to the general works, showing the balance both in money and kind.

Books to be kept in the Head-quarter Office.

6. (Not sent). Abstract of monthly totals of labour and materials, and rates of work performed, arranged under the estimate heads.

7. Office books, a check day-book of form, at present used for labour.

8. Daily or figured abstract of each description of labour.

Uses of the above Returns.

1. Monthly Distribution Report.

In this document is shown the daily expenditure and distribution of labour, and the distribution of materials, and stores from stock, during the month on each portion of the work, arranged under the general and minor heads of the estimate. The number of labourers with the rates of each description of labour, are given in detail; but to save writing (to the European subordinate), the materials used are shown in one sum only, at the foot of the material column; and with regard to these, the Stock Balance-sheet affords every necessary detail.

A second total column is added at the bottom of the report, giving the amount expended "up to the end of the last month" on each item, so that the total expenditure on each different head may be at once compared with the estimate.

A Rate-table is also appended, and forms a very important part of this document, the "total" of which, by adding contingencies and establishment, is made to agree with the "total" of monthly expenditure shown in the report, and thus forms a check upon its accuracy. A certificate below, signed by the subordinate in charge, to the effect that he has himself made the measurements from which the above rates have been deduced, renders him personally responsible for their correctness.

N. B.—This return alone, if kept correctly, contains in itself all the information necessary for making the bill in its present form. I would beg to remark, that the form of the above document, which is almost identical with that received under the Military Board Circular, No. 5,932 of 1850, of the 6th of August, was originated in this office, and was in use in the Thul Ghaut accounts four years ago.

2. The Stock Balance Sheet.

In the first portion of this return, which has reference more particularly to the money balance of stock on hand (for which the subordinate is responsible), and which is very useful for expeditious transfer, is first shown: the money balance of materials and stores according to the last month's Stock Balance-sheet; to this the materials and stores received during the month are added in detail.

In the second portion of the return, the materials and stores used during the month, with the prices affixed, as taken out of the stock of the previous month, are given, having all the different portions of the work upon which they have been used arranged under the heads of the materials themselves. The amount of the total issues deducted from the total of the receipt side gives at once the balance of stock in hand at the end of any month in money. And the addition of all the sums under any head of materials for the same portion of the work, gives the materials and stores used on it, both in kind and money, the amount of the latter agreeing with that entered in the material column under the same portion of work in the Distribution Report.

Appendix (C.)

I would beg particularly to draw your attention to the extensive use to which the Stock sheet has been applied by the introduction of what have above been denominated "Store Bills." This application is most satisfactory as a means of systematising, and consequently, to a very great degree, simplifying the examination of the accounts, and bringing out clearly the subordinate rates of minor heads for work, such as, for example, in masonry, "grinding chunam," "collecting stone," preparing "cut-stone copings," &c., which, with all other stores combined of labour and materials (though once issued), are again in a composite form ready for use, put into the stock, to be once more issued for use in the body of the work: "separate bills similar to vouchers," as being stores supplied, are furnished for these.—[*Vide* "Store Bills," Nos. 40, 41, 42, 43, 45 and 46, at the foot of each of which the rate of the usually estimated quantity is taken out; and, according to these bills, the expenditure, measurement and rate are entered into the Stock sheet, under the proper head.—[*Vide* Entries.]

The rates of "chunam ground," "stone collected," &c., must, of necessity, vary in a slight degree each month; but no confusion can possibly arise, if the quantity first prepared or collected is always first used from the stock.

In addition to the advantage these bills offer in showing clearly the rates of the subordinate heads of the work, another improvement effected by their use is, that when made stores, "and issued as such," the exact quantity only of "chunam" or "stone" which has actually entered into the composition of the number of cubic feet of masonry reported to have been completed during the month, is charged to it, and consequently the rate of masonry must always be true for the month. Whereas, according to the old system, from a considerable quantity of materials being collected and charged to the head of masonry at once, a nearly constant rate was difficult of attainment.

The use of Store Bills is again very advantageously applied in the case of Government carts, when, instead of distributing it here and there at random, or guess-work, the whole of the expenditure relating to them, whether for cartmen, food, repairs or oil, are entered into one bill, entitled the "Cart Stone Bill;" the rate of each cart or pair of bullocks is correctly taken out at its foot, and by this rate they are eventually charged under the head of work, on which they may have been mustered. Donkeys, puchals, and all similarly combined labour, were at the Thul Ghaut treated in the same manner.

Nothing can, in my own opinion, tend more to the systematising of the accounts of the work than the full development of the Store Bills and Stock sheet, as above described, as by their means only the great principle, attention to which can alone make every thing clear, *i. e.* "that neither materials or labour of any description should be shown in the pucka monthly expenditure, which does not enter into and form part and parcel of some completed portion of the work," can be effectually carried out.

To keep up this principle more clearly, the separate Muster-roll is required for the labour employed in the Store Bills, and the expenditure on these, as well as that on all the materials, &c. borne on the Stock Balance-sheet, though paid for at the end of each month, under the name of an advance, is denominated "kutcha," in contradistinction to the "pucka" expenditure, which has actually entered into the body of the work.—[*Vide* Abstract at the end of Bill of Payment for Materials, &c.]

3. Bills of Payment for Labour and Materials.

These are of the same form as those of the old system, and answer the same purpose. In the Bill of Payment of Materials the whole expenditure is shown in the first total. In the abstract below, the "hulcha" expenditure, *i. e.* that on the "Store Bills," is then deducted, and the "pucka" expenditure, the items being shown in detail, and agreeing with the material column of the Distribution Report, then remains.

Maratha Returns.

4. One general nominal Muster-roll, with the addition to the ordinary columns of one showing the village of each labourer, which will always be found very useful, and even at times invaluable for identification, and the settlement of disputes regarding pay.

One separate Muster-roll for Store Bills.

5. Receipts and issue of Materials and Store to general Work.

This document is kept by the storekeeper, and forwarded with the accounts: it contains an entry, in a tabular form, of all materials and stores received during the month. The numbers the left-hand column contain agree with those of the suppliers' bills or vouchers to which they refer. The last two horizontal columns below give the balance of materials and stock and their prices, and from this the Stock Balance-sheet is prepared.

Books to be kept in the Head-quarter Office.

6. Abstract

- - - - - - - - - - No. 1.

- - - - with Rates of Work performed, *Undwell* Bridge, for February 1851.

Abutments.				Abutment Stones.				
Cubic Feet.	EXPENDITURE.			Nos.	Cubic Feet.	EXPENDITURE.		
	Labour.	Materials.	Total.			Labour.	Materials.	Total.
	Rs. a. p.	*Rs. a. p.*	*Rs. a. p.*			*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
8,894	354 8 5	814 10 7	1,169 3 –	75	75	- - -	85 14 –	85 14 –
8,894	354 8 5	814 10 7	1,169 3 –	75	75	- - -	85 14 –	85 14 –

No. 1.—Distribution Report of Labour and Materials, - - - - - -

DATE.	Building Facing Walls above Abutment.																							
	Cubic Feet.	No. of Coigns.	Biggaries.	Women.	Boys.	Masons.						Stone Cutters.						EXPENDITURE.					
			2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	7 a.	6 a. 11 p.	6 a. 6 p.	6 a. 3 p.	6 a.	5 a.	4 a.	Labour.			Materials.			Total.		
1851:																			Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
February - 1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	4	3	2	2	1	-	-	-	-	-	1	1	-	-	-	-	2	15	8	-	-	-	2	15	8
4	-	-	2	1	1	1	-	-	-	1	-	1	2	1	-	-	-	-	2	13	7	-	-	-	2	13	7
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	5	3	-	1	2	-	-	-	-	1	2	1	-	1	1	-	4	8	1	-	-	-	4	8	1
7	-	-	5	6	4	2	-	-	2	-	3	1	1	-	-	-	-	-	4	11	5	-	-	-	4	11	5
8	-	-	8	6	4	2	2	-	-	-	2	1	-	-	-	-	-	-	4	4	6	-	-	-	4	4	6
9	-	-	-	-	-	2	-	-	4	1	1	1	2	1	-	-	1	-	4	15	4	-	-	-	4	15	4
10	-	-	12	5	2	-	-	1	2	-	-	1	-	-	-	-	-	1	3	13	7	-	-	-	3	13	7
11	-	-	5	2	-	-	-	2	-	-	-	2	-	-	-	-	-	-	2	7	2	-	-	-	2	7	2
12	-	-	14	5	2	-	-	2	-	2	-	-	-	-	-	4	-	-	5	2	11	-	-	-	5	2	11
13	-	-	14	7	2	2	-	-	2	4	-	-	4	1	-	4	-	-	9	1	11	-	-	-	9	1	11
14	-	-	21	8	4	-	-	4	2	-	-	-	4	1	-	2	-	-	9	1	9	-	-	-	9	1	9
15	-	-	16	10	4	-	-	-	4	2	-	-	-	-	1	3	2	-	7	4	9	-	-	-	7	4	9
16	-	-	-	-	-	-	-	-	4	2	-	-	2	1	1	-	-	-	3	12	7	-	-	-	3	12	7
17	-	-	15	9	1	-	-	1	1	2	1	3	-	-	-	3	1	-	7	-	7	-	-	-	7	-	7
18	-	-	20	9	4	3	-	-	4	2	-	3	-	-	-	3	1	-	9	10	3	-	-	-	9	10	3
19	-	-	7	4	2	-	2	-	-	-	-	3	-	-	1	-	-	-	3	13	3	-	-	-	3	13	3
20	-	-	11	6	2	-	-	2	2	-	-	1	2	1	-	-	-	-	5	3	6	-	-	-	5	3	6
21	-	-	18	5	2	1	-	4	-	1	-	4	-	-	-	-	-	-	6	13	7	-	-	-	6	13	7
22	-	-	12	3	1	3	-	1	-	-	-	1	1	1	-	-	-	-	4	12	6	-	-	-	4	12	6
23																											
24	-	-	6	4	1	-	-	2	-	-	-	-	-	-	-	-	5	-	2	8	8	-	-	-	2	8	8
25	-	-	5	2	2	-	-	-	2	-	1	3	-	-	-	1	-	-	3	9	6	-	-	-	3	9	6
26	-	-	11	7	2	2	1	1	-	-	-	-	-	1	1	-	-	-	4	8	4	-	-	-	4	8	1
27	-	-	20	6	2	2	-	-	2	1	1	2	1	-	-	1	-	-	6	15	5	-	-	-	6	15	5
28	-	-	16	9	2	1	-	-	3	2	-	1	-	-	-	2	-	-	6	3	3	252	3	9	258	7	-
Total - -	2,775	64	247	120	49	24	8	20	34	20	4	32	22	10	5	24	8	1	126	4	1	252	3	9	378	7	10
Expenditure to end of last Month -	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grand Total	2,775	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	126	4	1	252	3	9	378	7	10

- - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

Foundation for Centering.							Centering.																	
	EXPENDITURE.							Bigaries.	Women.	Boys.	Carpenters.	Masons.						EXPENDITURE.					
Cubic Feet.	Labour.			Materials.			Total.	Cubic Feet.	2 a.	1 a. 8 p.	1 a.	6 a.	7 a.	6 a. 0 p.	6 a. 4 p	6 a.	5 a.	4 a.	Labour.			Materials.			Total.		
	Rs.	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*											*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*
-	-	-		-	-		-	-	60	23	8	1	1	2	7	7	4	1	18	5	1	-	-	-	18	5	1
-	-	-		-	-		-	-	33	11	4	1	2	2	5	7	-	1	12	2	5	-	-	-	12	2	5
-	-	-		-	-		-	-	55	26	9	-	-	-	-	7	4	1	16	5	10	-	-	-	16	5	10
-	-	-		-	-		-	-	50	26	6	-	-	2	7	7	4	1	16	5	10	-	-	-	16	5	10
-	-	-		-	-		-	-	53	34	8	1	1	7	-	7	5	1	17	13	4	-	-	-	17	13	4
-	-	-		-	-		-	-	15	12	4	-	-	-	-	-	5	4	4	14	-	-	-	-	4	14	-
-	-	-		-	-		-	-	16	12	2	-	-	-	-	-	5	1	4	14	-	-	-	-	4	14	-
-	-	-		-	-		-	-	10	10	2	-	-	6	6	-	-	-	6	2	6	-	-	-	6	2	6
-	-	-		-	-		-	-	8	4	2	-	-	-	1	1	-	1	2	7	4	-	-	-	2	7	4
-	-	-		-	-		-	-	4	3	2	-	-	-	-	-	3	-	1	12	9	322	7	2	324	3	11
-	-	-		-	-		-	3,321	304	161	47	2	4	7	40	42	30	8	101	13	1	322	7	2	424	4	3
2,798	14	9	4½	-	-		14	9	4½	33,387	-	-	-	-	-	-	-	-	-	-	586	7	4	1,070	12	9	1,657	4	1
2,798	14	9	4½	-	-		14	9	4½	46,708	-	-	-	-	-	-	-	-	-	-	688	4	5	1,393	3	11	2,081	8	4

No. 1.—Distribution Report of Labour and Materials, - - - - - - - - -

DATE.	Foundation for Wing Wall.									Filling in Foundation.										
	Cubic Feet.	EXPENDITURE.								Cubic Feet.	EXPENDITURE.								Cubic Feet.	Number of Cooyas.
		Labour.			Materials.			Total.			Labour.			Materials.			Total.			
1851:		Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.		Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.		
February - 1	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
2	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
3	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
4	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
5	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
6	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
7	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
8	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
9	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
10	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
11	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
12	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
13	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
14	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
15	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
16	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
17	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
18	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
19	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
20	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
21	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
22	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
23																						
24	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
25	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
26	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
27	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
28	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	–	-
Total - -	–	-	-	-	-	-		-	-	-	–	-	-		-	-	-	-	-	-	6,651	20
Expenditure to end of last Month -	33,639	186	10	1½	22	15	9	209	9	10½	11,167	244	3	9	1,008	12	1	1,252	15	10	942	10
Grand Total	33,639	186	10	1½	22	15	9	209	9	10½	11,167	244	3	9	1,008	12	1	1,252	15	10	7,593	30

- - - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

Building Wing Walls.

Biggaries.	Women.	Boys.	Masons.						Stonecutters.								EXPENDITURE.		
2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a. 8 p.	5 a.	4 a.	7 a.	6 a. 11 p.	6 a. 6 p.	6 a. 2 p.	6 a.	5 a.	4 a.	5 a. 3 p.	Labour.	Materials.	Total.
																	Rs. a. p.	*Rs. a. p.*	*Rs. a. p.*
9	6	4	3	–	–	–	–	–	1	–	1	–	1	–	–	–	4 6 –	– – –	4 6 –
18	10	2	2	–	1	–	3	–	1	–	1	–	–	–	–	–	6 3 4	– – –	6 3 4
6	5	4	2	1	–	–	–	–	2	1	–	–	–	–	–	–	3 15 8	– – –	3 15 8
10	6	4	3	–	–	–	–	–	2	–	–	–	–	–	–	–	4 2 6	– – –	4 2 6
8	4	2	2	1	–	–	–	–	3	2	1	–	1	–	–	–	5 10 10	– – –	5 10 10
47	20	6	4	–	7	7	–	–	3	–	–	–	–	–	1	–	16 8 4	– – –	16 8 4
46	13	4	3	–	7	4	–	–	1	1	1	1	3	–	–	–	15 6 3	– – –	15 6 3
35	15	3	–	–	–	–	5	1	1	2	1	1	–	–	–	–	8 6 4	– – –	8 6 4
–	–	–	–	–	4	3	2	–	2	–	–	1	2	–	–	–	5 5 7	– – –	5 5 7
11	3	1	–	2	–	–	2	–	–	2	1	–	–	–	–	–	4 6 1	– – –	4 6 1
10	5	2	2	–	–	2	2	–	–	2	–	1	2	–	–	–	6 – 4	– – –	6 – 4
15	7	5	3	2	–	–	–	–	3	4	–	–	–	–	–	–	7 14 5	– – –	7 14 5
6	2	1	–	–	2	–	–	–	3	–	–	–	–	–	–	–	3 1 2	– – –	3 1 2
6	2	1	–	2	–	–	–	–	3	–	–	–	–	1	–	–	3 6 6	– – –	3 6 6
25	11	4	4	2	6	–	–	1	2	4	–	–	–	–	–	–	12 – 5	– – –	12 – 5
–	–	–	–	–	–	–	–	–	–	–	–	–	2	1	–	–	1 1 –	– – –	1 1 –
22	10	4	1	–	5	3	2	–	–	4	1	–	–	–	–	–	10 1 4	– – –	10 1 4
20	8	–	–	2	6	–	–	–	–	4	–	–	–	–	–	–	8 – 8	– – –	8 – 8
32	10	5	–	–	7	5	–	–	–	4	1	–	2	–	–	–	12 10 –	– – –	12 10 –
22	8	3	4	2	2	–	–	–	2	2	–	–	–	–	–	–	8 10 6	– – –	8 10 6
15	9	2	3	2	–	–	–	–	–	4	1	–	–	–	–	–	6 15 5	– – –	6 15 5
21	8	4	2	2	1	4½	–	–	3	3	–	–	2	–	–	–	10 10 1	– – –	10 10 1
17	6	4	3	2	4	–	–	–	2	4	1	2	–	–	–	–	10 5 6	– – –	10 5 6
26	9	–	4	–	5	–	–	–	–	4	–	2	–	–	–	–	10 3 1	– – –	10 3 1
15	5	2	3	–	3	–	–	–	4	3	–	–	–	–	–	–	7 15 –	– – –	7 15 –
35	10	2	1	2	4	2	3	–	–	3	1	2	1	–	–	1	12 15 10	– – –	12 15 10
26	8	2	3	1½	5	4	–	–	2	4	1	1	–	–	–	1	13 2 1	480 6 2	493 8 3
493	200	71	52	23½	69	34½	19	2	40	57	12	11	16	2	1	2	219 8 3	480 6 2	699 14 5
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	19 1 6	83 4 4	102 5 10
–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	238 9 9	563 10 6	802 4 3

No. 1.—Distribution Report of Labour and Materials, - - - - - - - -

DATE.	Filling in with Earth.										Pointing Facing									
	Cubic Feet.	Biggaries.	Women.	Boys.	EXPENDITURE.						Square Feet.	Biggaries.	Women.	Boys.	Masons.					
		2 a.	1 a. 3 p.	1 a.	Labour.			Materials.			Total.				6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	3 a.
					Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.									
1851:																				
February - 1	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
2	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
3	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
4	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
5	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
6																						
7																						
8	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
9	–	–	–	–	-	-	-	-	-	-	-	-	-	–	–	–	–	–	–	–	–	–
10	–	10	15	1	2	7	9	-	-	-	2	7	9	–	2	2	1	–	1	2	–	–
11	–	8	10	–	1	12	6	-	-	-	1	12	6	–	1	4	1	–	–	2	–	1
12	–	5	12	–	1	9	–	-	-	-	1	9	–	–	1	2	1	–	–	1	2	1
13	–	8	17	–	2	5	3	-	-	-	2	5	3	–	2	2	1	–	1	2	–	1
14	–	12	17	–	2	13	3	-	-	-	2	13	3	–	2	2	1	–	2	1	–	–
15	–	10	15	–	2	6	9	-	-	-	2	6	9	–	2	2	1	–	3	–	–	–
16	17	10	11	–	2	1	9	-	-	-	2	1	9	–	–	–	–	2	3	–	1	–
17	18	9	15	–	2	4	9	-	-	-	2	4	9	–	2	3	1	–	–	3	–	–
18	19	11	21	–	3	–	3	-	-	-	3	–	3	–	4	3	1	–	1	3	–	–
19	20	11	16	–	2	10	–	-	-	-	2	10	–	–	1	3	1	–	–	–	3	–
20	21	11	17	3	2	14	3	-	-	-	2	14	3	–	2	2	2	–	2	1	–	–
21	22	10	16	2	2	10	–	-	-	-	2	10	–	–	2	2	1	–	–	–	1	1
22	16	–	–	–	-	-	-	-	-	-	-	-	-	–	1	2	1	–	–	–	–	1
23	–	–	–	–	-	-	-	-	-	-	-	-	-	–	1	–	–	–	–	–	–	–
24	–	10	15	3	2	9	9	-	-	-	2	9	9	–	1	3	–	–	–	1	–	–
25	–	9	14	5	2	8	6	-	-	-	2	8	6	–	–	2	1	–	–	1	–	–
26	–	7	–¼	4	2	7	3	-	-	-	2	7	3	–	1	2	1	–	–	1	–	–
27	–	10	16	4	2	12	–	-	-	-	2	12	–	–	2	2	1	–	–	1	–	–
28	–	14	17	3	3	4	3	3	9	3	6	13	6	–	2	2	2	–	–	1	–	–
Total - -	12,308	165	261	25	42	9	3	3	9	3	46	2	6	1,450	29	40	18	2	13	20	7	5
Expenditure to end of last Month -																						
Grand Total	12,308	–	–	–	42	9	3	3	9	3	46	2	6	1,450	–	–	–	–	–	–	–	–

- - - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

V Walls.						Laying Arch Facing Stones.											
EXPENDITURE.						Number of Stones.	Bigguies.	Women.	Boys.	Masons.	Stonecutters.		EXPENDITURE.				
Labour.			Materials.			Total.											
							2 a.	1 a. 3 p.	1 a.	7 a.	7 a.	6 a. 6 p.					
Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.									
-	-	-	-	-	-	-	-	-	-	21	4	-	1	2	-	4	4	-	-	-	-	4	4	-
-	-	-	-	-	-	-	-	-	-	10	2	1	1	1	-	2	5	6	-	-	-	2	5	6
-	-	-	-	-	-	-	-	-	-	16	1	-	1	1	-	2	15	3	-	-	-	2	15	3
-	-	-	-	-	-	-	-	-	-	20	2	1	1	1	-	3	9	6	-	-	-	3	9	6
-	-	-	-	-	-	-	-	-	-	21	2	2	2	1	-	4	3	6	-	-	-	4	3	6
-	-	-	-	-	-	-	-	-	-	25	2	1	1	1	-	4	3	6	-	-	-	4	3	6
-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	14	-	-	-	-	-	14	-
1	2	10	-	-	-	1	9	10	-	18	3	1	1	1	-	3	6	9	-	-	-	3	6	9
1	8	-	-	-	-	1	8	-	-	21	2	-	1	1	-	3	10	6	-	-	-	3	10	6
1	9	6	-	-	-	1	9	6	-	13	2	1	1	1	1	3	2	-	-	-	-	3	2	-
1	13	10	-	-	-	1	13	10	-	18	1	1	1	1	-	3	4	3	-	-	-	3	4	3
1	10	2	-	-	-	1	10	2	-	18	1	1	1	1	-	3	4	3	-	-	-	3	4	3
1	10	6	-	-	-	1	10	6	-	18	-	-	-	-	-	2	4	-	-	-	-	2	4	-
2	5	-	-	-	-	2	5	-	-	-	-	-	1	1	-	-	14	-	-	-	-	-	14	-
1	10	9	-	-	-	1	10	9	-	21	1	1	-	-	-	2	12	3	-	-	-	2	12	3
2	8	1	-	-	-	2	8	1	-	19	2	1	2	1	1	4	5	-	-	-	-	4	5	-
1	8	9	-	-	-	1	8	9	-	12	-	-	-	-	-	1	8	-	-	-	-	1	8	-
1	14	2	-	-	-	1	14	2	-	7	-	-	-	-	-	-	14	-	-	-	-	-	14	-
1	3	6	-	-	-	1	3	6																
-	12	6	-	-	-	-	12	6	-	10	-	-	-	-	-	1	4	-	-	-	-	1	4	-
-	2	-	-	-	-	-	2	-																
-	14	9	-	-	-	-	14	9	-	14	-	-	-	-	-	1	12	-	-	-	-	1	12	-
-	12	6	-	-	-	-	12	6	-	8	-	-	-	-	-	1	-	-	46	11	1	47	11	1
-	14	6	-	-	-	-	14	6																
1	-	6	-	-	-	1	-	6																
1	1	6	1	13	9	2	15	3																
26	10	4	1	18	9	28	8	1	42	310	25	11	16	15	2	55	12	3	46	11	1	102	7	4
26	10	4	1	18	9	28	8	1	42	310	25	11	16	15	2	55	12	3	46	11	1	102	7	4

No. 1.—Distribution Report of Labour and Materials, - - - - - - -

DATE.	Building of Chip-work of Arch.																				
	Number of Chips.	Cubic Feet.	Beggaries.	Women.	Boys.	Masons.						Stone Cutters.						EXPENDITURE.			
			2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	7 a.	6 a. 6 p.	6 a. 3 p.	6 a.	5 a.	4 a.	Labour.	Materials.	Total.
1851:																		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
February - 1																				
2																				
3																				
4																				
5																				
6																				
7	–	–	10	5	2	–	2	–	1	–	–	–	–	–	–	2	1	3 13 3	- - -	3 13 3
8	–	–	15	3	2	2	–	–	1	–	–	–	–	–	3	2	1	5 7 9	- - -	5 7 9
9	–	–	–	–	–	2	2	1	–	–	–	–	–	–	–	–	–	2 1 4	- - -	2 1 4
10	–	–	13	6	3	4	–	–	–	2	–	2	–	1	2	2	–	7 4 9	- - -	7 4 9
11	–	–	21	9	3	2	–	2	4	–	–	1	1	–	–	2	1	8 6 5	- - -	8 6 5
12	–	–	15	3	2	–	–	3	–	–	–	–	–	1	–	2	1	4 11 –	- - -	4 11 –
13	–	–	19	7	1	–	2	4	–	–	–	–	–	1	–	2	1	6 10 4	- - -	6 10 4
14	–	–	20	10	2	–	–	1	5	4	–	–	–	–	–	–	–	6 14 10	- - -	6 14 10
15	–	–	12	4	1	1	–	–	4	2	–	2	1	–	–	–	–	5 11 6	- - -	5 11 6
16	–	–	–	–	–	3	–	–	3	–	–	3	–	–	–	–	–	3 12 –	- - -	3 12 –
17	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	- - -	- - -
18	–	–	3	1	1	–	–	–	–	1	–	–	–	–	–	1	–	1 2 3	- - -	1 2 3
19	–	–	17	6	2	5	–	–	–	–	1	1	–	–	–	2	–	6 3 6	- - -	6 3 6
20	–	–	19	7	2	–	–	2	4	–	–	–	–	1	1	2	–	6 11 8	- - -	6 11 8
21	–	–	26	6	2	–	–	–	7	1	–	–	–	1	1	2	–	8 2 9	- - -	8 2 9
22	–	–	14	6	2	–	–	4	1	–	–	–	–	1	–	2	–	5 5 1	- - -	5 5 1
23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	- - -	- - -	- - -
24	–	–	14	5	2	–	–	–	3	2	1	–	–	–	4	–	–	5 12 3	- - -	5 12 3
25	–	–	9	2	2	–	1	2	–	–	–	1	1	–	–	2	–	4 1 2	- - -	4 1 2
26	–	–	16	8	1	–	–	–	3	–	–	–	–	–	1	–	–	4 3 –	164 13 5	169 – 5
27	–	–																		
28	–	–																		
Total - -	265	1,592	243	88	30	19	7	19	36	12	2	10	3	6	12	23	5	96 6 10	164 13 5	261 4 3
Expended up to last month -																				
Grand Total -	265	1,592	243	88	30	19	7	19	36	12	2	10	3	6	12	23	5	96 6 10	164 13 5	261 4 3

- - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

Loading Arch.

Cubic Feet.	Beggaries.	Women.	Boys.	Masons.						EXPENDITURE.		
	2 a.	1 a. 3 p.	1 a.	7 a.	6 a. 6 p.	6 a. 4 p.	6 a.	5 a.	4 a.	Labour.	Material.	Total.
										Rs. a. p.	*Rs. a. p.*	*Rs. a. p.*
- -	6	-	-	-	-	-	2	-	-	1 8 -	- - -	1 8 -
- -	12	4	3	-	2	2	-	-	-	3 9 8	- - -	3 9 8
- -	20	10	-	1	-	7	7	-	-	7 2 2	- - -	7 2 2
- -	18	6	2	2	-	-	3½	-	-	5 - 6	- - -	5 - 6
- -	6	3	1	4	-	-	-	-	1	3 - 9	- - -	3 - 9
- -	-	-	-	1	-	2	-	-	1	1 7 8	- - -	1 7 8
- -	15	5	1	2	2	1	-	-	-	4 6 7	- - -	4 6 7
- -	9	3	1	-	-	-	-	1	1	1 15 9	- - -	1 15 9
- -	4	1	1	-	-	-	1	-	-	1 - 3	- - -	1 - 3
- -	9	3	1	-	-	-	-	3	-	2 5 9	- - -	2 5 9
- -	12	4	2	-	-	4	-	1	-	3 13 4	- - -	3 13 4
- -	11	5	2	-	-	2	4	2	-	4 12 11	- - -	4 12 11
- -	16	8	1	-	-	2	4	2	-	5 9 8	- - -	5 9 8
- -	22	10	1	1	1	-	5	2	-	6 15 -	- - -	6 15 -
- -	11	-	1	-	-	-	3	1	-	2 14 -	143 13 5	146 11 5
2,038	171	62	17	11	5	15	29½	12	3	55 10 -	143 13	199 7 5
2,038	-	-	-	-	-	-	-	-	-	55 10 -	143 13 5	199 7 5

No. 1.—Distribution Report of Labour and Materials, - - - - - - - - -

DATE.	Spandril facing Wall.														Laying or			
	Cubic Feet.	Riggaries.	Women.	Boys.	Masons.				Stonecutters.			EXPENDITURE.			Number of Bond Stones.	Riggaries	Women.	Boys.
		2 a.	1 a. 3 p.	1 a.	7 a.	6 a.	5 a.	4 a.	7 a.	6 a.	5 a.	Labour.	Materials.	Total.		2 a.	1 a. 3 p.	6 a. 6 p.
1861:												*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*				
February - 1																		
2																		
3	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
4	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
5	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
6	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
7	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
8	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
9	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
10	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
11	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
12	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
13	–	–	–	–	–	–	–	–	–	–	–	– –	– –	6 –	–	–	–	–
14	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
15	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
16	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
17	–	5	3	–	2	–	–	–	1	–	1	2 7 9	– –	2 7 9	–	–	–	–
18	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
19	–	2	1	1	–	1	–	–	–	1	–	1 2 3	– –	1 2 3	–	–	–	–
20	–	5	2	2	1	1	–	1	1	2	–	3 2 6	– –	3 2 6	–	–	–	–
21	–	2	–	–	1	–	–	–	–	2	–	1 7 –	– –	1 7 –	–	–	–	–
22	–	5	2	–	–	–	2	–	–	2	–	2 2 6	– –	2 2 6	–	–	–	–
23	–	–	–	–	–	–	–	–	–	–	–	– –	– –	– –	–	–	–	–
24	–	4	2	1	2	–	–	–	2	–	–	2 7 6	– –	2 7 6	–	–	–	–
25	–	5	2	1	–	–	2	–	–	3	–	2 9 6	– –	2 9 6				
26	–	8	–	1	–	–	2	1	–	4	–	3 7 –	– –	3 7 –	–	16	3	
27	–	3	3	3	2	–	–	–	2	2	–	3 4 9	– –	3 4 9	–	16	4	
28	–	9	3	2	1	–	1½	1	–	2	–	3 6 3	43 13 2	47 13 5	–	19	3	
Total - -	630	48	18	11	9	2	7½	3	6	18	1	25 9 –	43 13 2	69 6 2	15	51	10	
Expended up to last month -																		
Grand Total -	630	–	–	–	–	–	–	–	–	–	–	25 9 –	43 13 2	69 6 2	15	–	–	

- - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

- - - - fixing Bond Stones.									Artificers' Work at Centering.								
Masons.		Stone-cutters.		EXPENDITURE.					Riggers.	Carpenters.		Smith.	EXPENDITURE.				
6 a.	5 a.	6 a.	5 a.	Labour.			Material.		Total.	2 a.	6 a. 3 p.	2 a.	6 a.	Labour.		Material.	Total.
				Rs.	a.	p.	Rs.	a. p.	Rs. a. p.					Rs.	a. p.	Rs. a. p.	Rs. a. p.
-	-	-	-	-	-	-	-	- -	- - -	-	1	-	-	-	6 -	- - -	- 6 -
-	-	-	-	-	-	-	-	- -	- - -	1	2	-	1	1	4 -	- - -	1 4 -
-	-	-	-	-	-	-	-	- -	- - -	2	3	1	1	1	14 -	- - -	1 14 -
-	-	-	-	-	-	-	-	- -	- - -	3	3	1	1	2	- -	- - -	2 - -
-	-	-	-	-	-	-	-	- -	- - -	5	3	2	1	2	6 -	- - -	2 6 -
-	-	-	-	-	-	-	-	- -	- - -	4	3	2	1	2	4 -	- - -	2 4 -
-	-	-	-	-	-	-	-	- -	- - -	2	1	-	1	1	- -	- - -	1 - -
-	-	-	-	-	-	-	-	- -	- - -	4	3	2	1	2	4 -	- - -	2 4 -
-	-	-	-	-	-	-	-	- -	- - -	3	3	1	1	2	- -	- - -	2 - -
-	-	-	-	-	-	-	-	- -	- - -	3	2	1	1	1	10 -	- - -	1 10 -
-	-	-	-	-	-	-	-	- -	- - -	1	1	1	1	1	- -	- - -	1 - -
-	-	-	-	-	-	-	-	- -	- - -	-	2	1	-	-	14 -	- - -	- 14 -
-	-	-	-	-	-	-	-	- -	- - -	2	1	-	-	-	10 -	- - -	- 10 -
-	-	-	-	-	-	-	-	- -	- - -	2	1	-	-	-	10 -	- - -	- 10 -
-	-	-	-	-	-	-	-	- -	- - -	-	1	-	-	-	6 -	- - -	- 6 -
-	-	-	-	-	-	-	-	- -	- - -	1	1	-	-	-	8 -	- - -	- 8 -
-	-	-	-	-	-	-	-	- -	- - -	1	2	-	-	-	14 -	- - -	- 14 -
-	-	-	-	-	-	-	-	- -	- - -	1	2	-	-	-	14 -	- - -	- 14 -
-	-	-	-	-	-	-	-	- -	- - -	1	2	-	-	-	14 -	- - -	- 14 -
-	-	-	-	-	-	-	-	- -	- - -	-	2	-	-	-	12 -	- - -	- 12 -
-	-	-	-	-	-	-	-	- -	- - -	2	1	-	-	-	10 -	- - -	- 10 -
-	-	-	-	-	-	-	-	- -	- - -	1	1	-	-	-	8 -	- - -	- 8 -
1	1	-	2	4	11	9	-	- -	4 11 9								
3	-	2	2	6	-	-	-	- -	6 - -								
-	-	2	2	4	12	5	67	9 5	72 5 10								
4	1	4	6	15	8	2	67	9 5	83 1 7	39	41	12	10	25	8 -	- - -	25 8 -
-	-	-	-	15	8	2	67	9 5	83 1 7	39	41	12	10	25	8 -	- - -	25 8 -

No. 1.—Distribution Report of Labour and Materials, - - - - - - - -

Date.	Contingencies.								Establishment.						Grand Total.
	Biggaries.	Smiths.	Hammer Men.	Bellows Boys.	Carpenters.	Expenditure.			Corkuns.	Chowkedars.	Maistry.	Maistry.	Muckadum.	Total.	
	2 a.	6 a. 6 p.	2 a. 6 p.	2 a. 6 p.	6 a.	Labour.	Material.	Total.	5 a. 9 p.	2 a. 3 p.	11 a. 5 p.	6 a. 5 p.	2 a. 10 p.		
1851:						Rs. a. p.	Rs. a. p.	Rs. a. p.						Rs. a. p.	Rs. a. p.
February - 1	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
2	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
3	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
4	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
5	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
6	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
7	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
8	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
9	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
10	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
11	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
12	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
13	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
14	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
15	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
16	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
17	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
18	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
19	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	1	2	2 1 6	
20	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
21	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
22	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
23	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
24	–	1	1	1	–	– 11 6	- - -	– 11 6	1	1	1	2	2	2 9 11	
25	–	1	1	1	1	1 1 6	- - -	1 1 6	1	1	1	2	2	2 9 11	
26	2	1	1	1	1	1 5 6	- - -	1 5 6	1	1	1	1	2	2 1 6	
27	1	1	1	1	1	1 1 6	- - -	1 1 6	1	1	1	2	2	2 9 11	
28	1	1	1	1	1	1 1 6	- - -	19 6 6	1	1	1	2	2	2 9 11	
Total - -	4	28	28	28	4	21 14 –	18 5 –	40 3 –	28	28	28	47	56	68 9 11	2,427 4 9
Expenditure up to last Month	–	–	–	–	–	87 7 4	72 2 9	159 10 1	–	–	–	–	–	279 13 4	8,949 10 11
Grand Total	–	–	–	–	–	109 5 4	90 7 9	199 13 1	–	–	–	–	–	348 7 3	11,376 15 8

- - - - with Rates of Work performed, *Undwell* Bridge, for February 1851—*continued.*

Rates for the foregoing Work.

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	GRAND TOTAL.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
Centering (mud-rubble Masonry) - - *cub. ft.*	13,321	3 2 11 $\frac{656}{13321}$	100 cubic feet	424 4 3		
Facing Wall above Abutment - - „	2,775	13 10 2 $\frac{2440}{2775}$	ditto - -	378 7 10		
Wing Walls - - „	6,651	10 8 4 $\frac{3460}{6651}$	ditto - -	609 14 5		
Arch Facing Stones laid - - - *No.*	42	2 7 – $\frac{16}{42}$	one - -	102 7 4		
Arch Chips Buildings, *cub. ft.*	1,502	16 6 6 $\frac{1502}{1502}$	100 cubic feet	261 4 3		
Lodding Arch - - „	2,038	9 12 7 $\frac{2038}{2038}$	ditto - -	199 7 5		
Spandril Facing Walls „	630	11 – 2 $\frac{459}{630}$	ditto - -	69 6 2		
Arch Bond Stones - *No.*	15	5 8 7 $\frac{10}{15}$	one - -	83 1 7		
Carpenters' Work at Centering - -	- - -	- - -	- - -	25 8 –		
Pointing - - - *sq. ft.*	1,450	1 15 5 $\frac{650}{1450}$	100 square feet	28 8 1		
Filling in with Earth - *cub. ft.*	12,308	6 –	100 cubic feet	46 2 6		
Contingencies - - -	- - -	- - -	- - -	40 3 1		
Establishment - - -	- - -	- - -	- - -	68 9 11		
					2,427 4 9	
				Total *Rupees* - - -		2,427 4 9

I do hereby certify that I have measured the above Work.

(signed) *M. M'Nally*, Overseer.
W. Chapman, Superintending Engineer.

(True copy.)

(signed) *J. M. Melvill*, Lieut.-col., Secretary to Gov^{t}.

(True copy.)

(signed) *R. J. H. Birch*, Lieut.-col.,
Offg Secy. to the Gov^{t}. of India, in the Military Department.

No. 2.

UNDWELL BRIDGE.

Cr. BALANCE SHEET of Stock for February 1851. Cr.

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	Grand Total.
		Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.
Balance on Bond, 1st February 1851 - - -						1,533 15 11
Heirday	20	1 – –	10 pielies	2 – –		
Carriage of Materials, Cart	9	1 – –	cart	9 – –		
Grass	2,000	2 8 –	1,000	5 – –		
Goor	120	7 8 –	120 seers	7 8 –		
Hemp	120	7 12 –	ditto	7 12 –		
Kanth	60	23 – –	ditto	11 8 –		
Gond	60	25 – –	ditto	12 8 –		
Gunny Bags	2	– 3 6	one	– 7 –		
Iron	87⅛	12 8 –	120 seers	9 1 10		
Powder	240	20 – –	ditto	40 – –		
Charcoal	80	9 8 –	20 maunds	38 – –		
Rope Coir	122½	1 – –	8 seers	15 5 –		
Ditto	25½	1 – –	8½ ditto	3 – 11		
Oil	12	1 – –	6 seers	2 – –		
Mahratta Paper	–½	5 – –	ream	2 8 –		
Ditto	–½	1 10 –	ditto	– 13 –		
Twine	10	1 – –	4¾ seers	2 1 8		
Iron	81	12 12 –	120 ditto	8 9 8		
Biggaries	1	– 1 –	one	– 1 –		
Carriage of Materials, Carts	15	– 12 –	ditto	11 4 –		
Bill of Truck Carts	–	165 10 10	lot	165 10 10		
Sealing Wax	–½	– 8 –	seer	– 4 –		
Pencil, Black Lead	1	1 – –	dozen	1 – –		
Steel Pens	½	– 4 –	ditto	– 2 –		
Babool Wood Sheives	6	– 15 9	6	– 15 9		
Iron, Swedish	11⅜	1 – –	4¾ seers	2 6 4		
Ditto, English flat Bar	11⅝	1 – –	6 seers	1 15 –		
Screws	6	– 2 –	dozen	– 12 –		
Babool Sheives	6	1 – –	6 ditto	1 – –		
Brass Sockets for Sheives	1 2/16	3 – –	seer	4 11 –		
Hemp	120	8 8 –	120 ditto	8 8 –		
Rubber	1	– 8 –	piece	– 8 –		
Wafer	1	– 2 6	box	– 2 6		
Foolscap Paper	–½	– 9 6	quire	– 4 9		
French Paper	–½	– 3 –	ditto	– 1 6		
Chalk, White	1	1 – –	5 seers	– 3 2		
Black Ink	1	– 3 –	bottle	– 3 –		
Red Ink	1	– 3 –	ditto	– 3 –		
Hemp	60	8 10 –	120 seers	4 5 –		
Baskets, Rattan	175	34 5 4	240 ditto	25 – 7		
Stationery Bill for Storekeeper	1	– 4 9	lot	– 4 9		
Gram Pielies	133	1 – –	6 pielies	22 2 8		
Oil	11½	1 – –	5¾ seers	2 – –		
Gond	80	1 – –	7 ditto	11 6 10		
Heerday	25	1 – –	10 pielies	2 8 –		
Kanth	89	1 – –	6 seers	14 13 4		
Goor	183	1 – –	18 ditto	10 2 4		
Hemp	36	1 – –	12 ditto	3 – –		
Ditto	42	1 – –	14 ditto	3 – –		
Carriage of Wood from Thulghat	52	– 8 –	each cart	26 – –		
Steel Blister	41¾	48 – –	56 seers	35 12 6		
Serjeant Brocks, four Bills for cutting large Wood	– –	– – –	– –	6 5 6		
Babool Wood	2	– 12 –	each	1 8 –		
Repairing Puckal	– –	– – –	– –	– 3 –		
Making Ropes	3	– 6 –	ditto	1 2 –		
Earthen Pots	23	– – 7	each	– 13 5		
Ditto Vessel	3	– – 8	ditto	– 2 –		
Dry Chunam	49½	4 – –	candies	198 – –		
Ditto	5	3 – –	ditto	15 – –		
Government Iron	17	1 – –	8 seers	2 2 –		
Old Pickaxes	2	1 – –	ditto	– 4 –		
					763 7 2	
			Carried forward - - - Rs.		763 7 2	1,533 15 11

Cr. No. 2.—Undwell Bridge.—Balance Sheet of Stock for February 1851—*continued.* *Cr.*

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	GRAND TOTAL.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
Brought forward - - - *Rs.*				- - -	763 7 2	1,538 15 11
Coigns - - - - - - -	63	58 9 —	63	58 9 —		
Chips - - - - - - -	441½	132 13 9	441	132 13 9		
Stones collected - - - -	20,952	588 — 10	20,952	588 — 10		
Chunam, ground - - - -	94	350 — 9	94 candies -	350 — 9		
Government Bullocks, Pairs - -	140	58 7 2	140	58 7 2		
Arch Bond Stones, rough - -	21	60 9 2	21	60 9 2		
Ditto - - - dressed - -	36	125 2 10	36	125 2 10		
					1,373 11 6	
						2,137 2 8
						3,671 2 7
				Total Expense - - - *Rs.*		2,327 14 11
				Balance in hand - - - - *Rs.*		1,343 3 8

Dr. BALANCE SHEET of Stock for February 1851. *Dr.*

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	GRAND TOTAL.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
Dry Chunam - - - - -	49½	4 — —	candy -	198 — —		
Ditto - - - - - -	5	3 — —	ditto -	15 — —		
					213 — —	
Hemp:						
Preparing Chunam - - -	180	8 — —	120 seers -	12 — —		
Ditto - - - - - -	92	7 12 —	ditto -	5 15 1		
Blasting Stones - - - -	17	7 12 —	ditto -	1 1 7		
Abutment Facing Walls - -	7	7 12 —	ditto -	— 7 3		
Wing Walls - - - - -	4	7 12 —	ditto -	— 4 1		
Arch Facing Stones - - -	5	8 10 —	ditto -	— 5 9		
Arch Chips - - - - -	12	8 10 —	ditto -	— 13 9		
Arch Facing Stones - - -	36	1 — —	12 seers -	3 — —		
Ditto - - - - - -	42	1 — —	14 seers -	3 — —		
					26 15 6	
Gum:						
Preparing Chunam - - -	80	1 — —	7 seers -	11 6 10		
Ditto - - - - - -	26	26 — —	120 ditto -	5 10 1		
					17 — 11	
Kanth:						
Preparing Chunam - - -	89	1 — —	6 seers -	14 13 4		
Ditto - - - - - -	19	24 — —	120 ditto -	2 6 5		
					17 3 9	
Goor:						
Preparing Chunam - - -	170	1 — —	18 seers -	9 7 1		
					9 7 1	
Heerdah:						
Preparing Chunam - - -	59	1 — —	10 pielies -	5 14 5		
					5 14 5	
Carriage of Materials:						
Preparing Chunam - - -	5	1 — —	cart - -	5 — —		
Stones - - - - - -	4	1 — —	ditto - -	4 — —		
Arch Bond Stones - - - -	52	— 8 —	ditto - -	26 — —		
Contingencies - - - -	15	— 12 —	ditto - -	11 4 —		
					47 4 —	
Gunney Bags:						
Preparing Chunam - - -	2	— 3 6	one - -	— 7 —		
					— 7 —	
Government Bullocks:						
Preparing Chunam - - -	14	58 7 2	140	5 13 6		
Bringing Stones - - - -	112	58 7 2	ditto -	46 12 2		
Arch Chips - - - - - -	14	58 7 2	ditto -	5 13 6		
					58 7 2	
			Carried forward - - - *Rs.*		395 11 10	

Dr. No. 2.—Undwell Bridge.—Balance Sheet of Stock for February 1851—*continued.* *Dr.*

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	Grand Total.
		Rs. a. p.		Rs. a. p.	Rs. a. p.	
Gharras:			Brought forward - - -		805 11 10	
Preparing Chunam - - -	6	– – 7	one - -	– 3 6		
Wing Walls - - - - - -	7	– – 7	ditto - -	– 4 1		
Stones - - - - - - -	10	– – 7	ditto - -	– 5 10		
					13 5 –	
Repairing Packals:						
Preparing Chunam - - -	1	3 – –	one - -	– 3 –		
					– 3 –	
Oil:						
Preparing Chunam - - -	5¾	1 – –	5¾ seers -	1 – –		
Contingencies - - - -	5¾	1 – –	ditto - -	1 – –		
Use of Bullocks - - - -	12	1 – –	6 ditto -	2 – –		
					4 – –	
Powder:						
Blasting Stones - - - -	120	15 – –	120 seers -	15 – –		
Ditto - - - - -	97	20 – –	ditto - -	16 2 8		
					31 2 8	
Iron:						
Stones - - - - - - -	9	13 8 –	120 seers -	1 – 2		
Arch Bond Stones, rough - -	5	13 8 –	ditto -	– 9 –		
Ditto - - - dressed - -	5	13 8 –	ditto -	– 9 –		
Arch Chips, rough - - -	15	13 8 –	ditto -	1 11 –		
Coigns - - - - - - -	10	12 8 –	ditto -	1 – 8		
Wing Walls - - - - - -	12	12 8 –	ditto -	1 4 –		
Arch Bond Stones, rough - -	2½	1 – –	8 seers -	– 5 –		
Facing Walls above Abutment -	9	12 8 –	120 seers -	– 15 –		
Bond Stones - - - - -	18	12 8 –	ditto -	1 14 –		
Spandril - - - - -]	3	12 8 –	ditto -	– 5 –		
Facing Walls - - -]						
Arch Facing Stones - - -	6½	12 12 –	ditto -	– 11 –		
Arch Bond Stones, rough - -	2¼	1 – –	4 seers -	– 9 –		
Stones - - - - - - -	1⅞	1 – –	4¼ ditto -	– 6 4		
Arch Facing Stones - - -	17	1 – –	8 ditto -	2 2 –		
Arch Chips (built in) - - -	6	12 8 –	120 ditto -	– 10 –		
Arch Facing Stones - - -	20¼	12 8 –	ditto -	3 1 2		
					17 – 4	
Steel:						
Stones (rough building) - - -	12¾	48 – –	56 seers -	10 14 10		
Arch Bond Stones (preparing at Quarry) - - - - - -	3½	1 – –	3½ ditto -	1 – –		
					11 14 10	
Bill from Lieut. Chapman's Office for Truck Carts:						
Stones - - - - - - -	- -	- - -	- - -	165 10 10	165 10 10	
Arch Bond Stones, rough - -	25	206 5 3	73	70 10 7		
Ditto - - - - - - -	11	69 9 2	21	31 11 8		
					102 6 3	
Charcoal:						
Stones - - - - Maunds	20	9 8 –	candy -	9 8 –		
Arch Bond Stones, rough - -	5	9 8 –	20 maunds	2 0 –		
Ditto - - - prepared - -	2½	9 8 –	ditto -	1 8 –		
Coigns, prepared - - - -	2½	9 8 –	ditto -	1 8 –		
Arch Chips, prepared - - -	10	9 8 –	ditto -	4 12 –		
Facing Walls Abutment - - -	2½	9 8 –	ditto -	1 8 –		
Arch Facing Stones - - -	15	9 8 –	ditto -	7 2 –		
Arch Bond Stones - - -	2½	9 8 –	ditto -	1 8 –		
					28 8 –	
Coir Rope:						
Abutment Facing Walls - -	2	1 – –	8 seers -	– 4 –		
Stones, rough - - - - -	6	1 – –	ditto -	– 12 –		
Arch Bond Stones - - -	8	1 – –	ditto -	1 – –		
Arch Facing Stones - - -	67½	1 – –	ditto -	8 7 –		
Arch Chips - - - - - -	9	1 – –	ditto -	1 2 –		
					11 9 –	
Chips:						
Chips - - - - - - -	265	261 2 5	778	88 15 3		
					88 15 3	
			Carried forward - - -	Rs.	857 15 5	

Dr. No. 2.—UNDWELL BRIDGE.—Balance Sheet of Stock for February 1851—*continued.* *Dr.*

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	GRAND TOTAL.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
Stones:			Brought forward - - -		857 15 5	
Arch Chips (preparing at Quarry) -	997	588 – 10	20,952	27 15 9		
Coigns - - - - - - -	100	588 – 10	ditto -	2 12 10		
Wing Walls - - - - - -	6,651	588 – 10	ditto -	186 10 9		
Facing Walls above Abutment -	2,775	588 – 10	ditto -	77 14 2		
Arch Chips (built in) - - -	711	588 – 10	ditto -	19 15 4		
Arch loading - - - - - -	2,038	588 – 10	ditto -	57 3 2		
Spandril Facing Walls - - -	630	588 – 10	ditto -	17 10 11		
Centering - - - - - -	5,661	588 – 10	ditto -	158 14 2		
Ditto - - - - - -	5,488	588 – 10	ditto -	162 7 7		
					711 8 8	
Baskets Rattan:						
Abutment Facing Walls - - -	25	34 5 4	240	8 9 2		
Filling in with Earth - - -	25	34 5 4	ditto -	8 9 8		
					7 2 5	
Prepared Chunam:						
Wing Walls - - - - - -	83	446 8 5	134 candies	276 9 3		
Arch Facing Stones - - -	15	446 8 5	ditto -	2 7 11		
Arch Chips Work - - - -	16	446 8 5	ditto -	53 5 1		
Arch loading - - - -	26	446 8 5	ditto -	86 10 3		
Spandril Facing Walls - - -	7¾	446 8 5	ditto -	25 13 3		
Bond Stones (built in) - - -	–½	446 8 5	ditto -	1 10 8		
Abutment Facing Walls - - -	27	3 6 11 34/164	candy -	92 11 3		
Ditto - - - - - -	7	350 – 9	94 ditto -	26 1 1		
Pointing - - - - - -	–½	350 – 9	ditto -	1 13 9		
					567 2 6	
Coigns:						
Facing Walls above Abutment -	61	76 9 7	101	46 4 3		
Wing Walls - - - - - -	20	76 9 7	ditto -	15 2 8		
Facing Walls above Abutment -	3	58 9 –	68	2 12 7		
					64 3 6	
Grass:						
Government Bullocks - - -	4,400	2 8 –	1,000	11 – –		
					11 – –	
Gram:						
Government Bullocks - - -	133	1 – –	6 pielies -	22 2 8		
					22 2 8	
Twine:						
Wing Walls - - - - - -	1	1 – –	4½ seers -	– 3 4		
					– 3 4	
Earthen Vessels:						
Facing Walls above Abutment -	3	– – 8	each - -	– 2 –		
					– 2 –	
Nails:						
Centering - - - - - -	6	1 – –	5⅛ seers -	1 1 5		
					1 1 5	
Lead:						
Arch Bond Stones - - - -	6½	1 – –	3⅝ ditto -	1 10 10		
					1 10 10	
Babool Shieves:						
Facing Stones - - -	6	– 15 9	6	– 15 9		
Ditto - - - - - -	6	1 – –	ditto -	1 – –		
					1 15 9	
Screws:						
Arch Facing Stones - - -	6	– 2 –	dozen -	– 12 –		
					– 12 –	
Brass Sockets for Shieves:						
Arch Facing Stones - - -	1 9/16	3 – –	seer - -	4 11 –		
					4 11 –	
			Carried forward - - - *Rs.*		2,251 11 6	

Dr. No. 2.—Undwell Bridge.—Balance Sheet of Stock for February 1851—*continued.* Dr.

ITEMS.	Quantity.	Rate.	Per	Amount.	Total.	GRAND TOTAL.
		Rs. a. p.		Rs. a. p.	Rs. a. p.	Rs. a. p.
Babool Wood:			Brought forward - - -		2,251 11 6	
Arch Facing Stones - - -	2	- 12 -	piece -	1 8 -	1 8 -	
Making Ropes:						
Arch Facing Stones - - -	3	- 6 -	one - -	1 2 -	1 2 -	
Wood brought from Thul Ghat for Triangles:						
Arch Facing Stones - - Bills	4	6 5 6	lot - -	6 5 6	6 5 6	
Mahratta Paper:						
Contingencies - - - - -	½	5 - -	ream - -	2 8 -		
Ditto - - - - -	½	1 10 -	ditto -	- 13 -	3 5 -	
Carriage of Materials:						
Contingencies - - - - -	1	- 1 -	biggary -	- 1 -	- 1 -	
Black Lead Pencils:						
Contingencies - - - - -	1	1 - -	dozen -	1 - -	1 - -	
Steel Pens:						
Contingencies - - - - -	½	- 4 -	ditto -	- 2 -	- 2 -	
Indian Rubber:						
Contingencies - - - - -	1	- 8 -	piece -	- 8 -	- 8 -	
Foolscap Paper:						
Contingencies - - - - -	½	- 9 6	quire -	- 4 9	- 4 9	
French Paper:						
Contingencies - - - - -	½	- 3 -	ditto -	- 1 6	- 1 6	
Black Ink:						
Contingencies - - - - -	1	- 3 -	bottle -	- 3 -	- 3 -	
Red Ink:						
Contingencies - - - - -	1	- 3 -	ditto -	- 3 -	- 3 -	
Storekeeper's Stationery Bill:						
Contingencies - - - - -	1	- 4 9	lot - -	- 4 9	- 4 9	
Arch Bond Stones, dressed:						
Arch - - - - - - - -	15	305 14 8	75	61 2 11	61 2 11	
				Total Expense - - -	*Rs.*	2,327 14 11

(signed) *M. M'Nally*, Engineer.

Nassick, 1st March 1851. *W. Chapman*, Superintending Overseer.

(True copy.)
(signed) *P. M. Melvill*, Lieut.-col., Secy. to Govt.

(True copy.)
(signed) *R. J. H. Birch*, Lieut.-col.
Offg. Secy. to the Govt. of India in the Military Department.

Appendix (C.)

No. 3.

UNDWELL BRIDGE.

Bill of Payment of Workpeople employed, and Materials used during the Month of February 1851.

ITEMS.	Numbers.	Rate.	Per	Amount.	Total.
Labour:		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*
Carkoon	28	– 5 9	each	10 1 –	
Muckadums	56	– 2 10	„	9 14 8	
Chowkedar	28	– 2 3	„	3 15 –	
Mistry	28	– 11 5	„	19 15 8	
Ditto	47	– 8 5	„	24 11 7	
Smith	28	– 6 6	„	11 6 –	
Ditto	10	– 6 –	„	3 12 –	
Carpenter	47	– 6 –	„	17 10 –	
Ditto	12	– 2 –	„	1 8 –	
Hammerman	28	– 2 6	„	4 6 –	
Bellows Boy	28	– 2 6	„	4 6 –	
Biggaries	2,102	– 2 –	„	262 12 –	
Women	985	– 1 3	„	76 15 3	
Boys	279	– 1 –	„	17 7 –	
Masons	135	– 7 –	„	59 1 –	
Ditto	52½	– 6 6	„	21 5 3	
Ditto	184	– 6 4	„	72 13 4	
Ditto	202	– 6 –	„	75 12 –	
Ditto	108½	– 5 –	„	33 14 6	
Ditto	27	– 4 –	„	6 12 –	
Ditto	10	– 3 –	„	1 14 –	
Stonecutters	103	– 7 –	„	45 1 –	
Ditto	79	– 6 11	„	34 2 5	
Ditto	27	– 6 6	„	10 15 6	
Ditto	22	– 6 3	„	8 9 6	
Ditto	74	– 6 –	„	27 12 –	
Ditto	40	– 5 –	„	12 8 –	
Ditto	7	– 4 –	„	1 12 –	
Ditto	2	– 5 3	„	– 10 6	
					881 11 2
Materials:					
Material Bill					1,545 9 7
Total Company's Rupees, two thousand four hundred and twenty-seven, annas four, and pies nine					2,427 4 9

(signed) *M. M'Nally*, Overseer.

W. Chapman, Supg. Engineer.

Camp, Undwell, 14 March 1851.

Appendix (C.)

No. 3.—Undwell Bridge—*continued.*

MATERIAL BILL.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of Undwell Bridge during the month of February 1851:

ITEMS.	Quantity or Number.	Rate.	Per	Amount.	Total.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*
Chunam	49½	4 – –	Candee	198 – –	
Ditto	5	3 – –	„	15 – –	
Hemp	180	8 – –	120	12 – –	
Ditto	120	7 12 –	120	7 12 –	
Ditto	17	6 10 –	120	1 8 6	
Ditto	36	1 – –	12	3 – –	
Ditto	42	1 – –	14	3 – –	
Goand	26	26 – –	120	5 10 1	
Ditto	80	1 – –	7	11 6 10	
Kath	12	24 – –	120	2 6 5	
Ditto	89	1 – –	6 seers	14 13 4	
Goor	170	1 – –	18	9 7 1	
Heerday	59	1 – –	10	5 14 5	
Carts hired	10	1 – –	each	10 – –	
Ditto	52	– 8 –	„	26 – –	
Ditto	15	– 12 –	„	11 4 –	
Bags	2	– 3 6	„	– 7 –	
Bullocks, Pairs, Government	140	58 7 2	140	58 7 2	
Earthen Pots	23	– – 7	each	– 13 5	
Puckal repaired	1	– 3 –	„	– 3 –	
Oil	11½	1 – –	5½	2 – –	
Ditto	12	1 – –	6	2 – –	
Gunpowder	120	15 – –	120	15 – –	
Ditto	97	20 – –	120	16 2 8	
Iron	34	13 8 –	120	3 13 2	
Ditto	19½	1 – –	8 seers	2 7 –	
Steel	12¾	48 – –	56	10 14 10	
Iron	87½	12 8 –	120	9 1 10	
Ditto	6½	12 12 –	120	– 11 –	
Ditto	2¼	1 – –	4	– 9 –	
Ditto	1¾ ⅛	1 – –	4¾	– 6 4	
Steel	3¼	1 – –	3¼	1 – –	
Hoozoor Bill for Truck-carts	1	165 10 10	each	165 10 10	
Bond Stone	25	206 5 3	78	70 10 7	
Ditto	11	60 9 2	21	31 11 8	
Charcoal *maunds*	60	9 8 –	20 maunds	28 8 –	
Coir Rope	92½	1 – –	8 seers	11 9 –	
Stones *cub. ft.*	19,563	588 – 10	20,952	549 1 1	
Ditto *cub. ft.*	5,488	977 4 9	33,011	162 7 7	
Cane Baskets	50	34 5 4	240	7 2 5	
Chunam, grinding	27	3 6 11 $\frac{14}{144}$	candie	92 11 3	
Ditto	134	446 8 5	134	446 8 5	
Ditto	7½	350 – 9	94	27 14 10	
Preparing Corgus	81	76 9 7	101	61 6 11	
Ditto	3	58 9 –	63	2 12 7	
Chips, prepared	265	261 2 5	778	88 15 3	
Grass (bundles)	4,400	2 8 –	1,000	11 – –	
Gram (pielies)	133	1 – –	6	22 2 8	
Twine (seers)	1	1 – –	4¾	– 3 4	
Earthen Pots	3	– – 8	each	– 2 –	
Nails (seers)	6	1 – –	5½	1 1 5	
Lead (seers)	6½	1 – –	33½ ⅛	1 10 10	
Bablee Shilves	6	– 15 9	6	– 15 9	
Ditto	6	1 – –	6	1 – –	
		Carried forward - - - *Rs.*		2,246 4 6	

No. 3.—Undwell Bridge.—Material Bill—*continued.* Appendix (C.)

ITEMS.	Quantity or Number.	Rate.	Per	Amount.	Total.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*
		Brought forward - - -		2,246 4 6	
Screws (dozens) - - -	6	— 2 —	dozen -	— 12 —	
Socket Brass - - -	1 1/3 1/16	3 — —	each - -	4 11 —	
Bablee Wood - - -	2	— 12 —	„ - -	1 8 —	
Hempen Ropes - - -	3	— 6 —	„ - -	1 2 —	
Common Paper - *ream*	1/2	5 — —	ream -	2 8 —	
Ditto - - *gudee*	1/2	1 10 —	gudee -	— 13 —	
Biggaries - - - -	1	— 1 —	each - -	— 1 —	
Pencils (dozen) - - -	1	1 — —	dozen -	1 — —	
Steel Pens (dozen) - -	1/2	— 4 —	„ - -	— 2 —	
Rubber Piece - - -	1	— 8 —	each - -	— 8 —	
Foolscap Paper (quire) -	1/2	— 9 6	quire -	— 4 9	
French Paper (quire) - -	1/2	— 3 6	„ - -	— 1 6	
Pint of Red Ink - - -	1	— 3 —	each - -	— 3 —	
Pint of Black Ink - -	1	— 3 —	„ - -	— 3 —	
Stationery of Stores Bills -	1	— 4 9	„ - -	— 4 9	
Bond Stone, preparing -	15	305 14 8	75	61 2 11	
Wood conveyed from Thul Ghat, as per Bill - -	4	6 5 6	4	6 5 6	2,327 14 11
Deduct for the below (*vide* Bills No. 40 to 46)—					
Grinding Chunam - - - - - - - - - -				293 4 3	
Stones - - - - - - - - - - -				297 10 5	
Bond Cut Stones - - - - - - - - -				6 13 —	
Repairing Bond Stones - - - - - - - -				104 2 3	
Ditto Coigns - - - - - - - - -				5 — 6	
Repairing Chips - - - - - - - - -				40 4 3	
Government Bullock Pairs - - - - - - - -				35 2 6	782 5 4
ABSTRACT of Materials in different Works in Monthly Report.					
Wing Wall Facing - - - - - - - - -				480 6 2	
Abutment ditto - - - - - - - - -				252 3 9	
Wing Wall, filling in Earth - - - - - - - -				3 9 3	
Pointing - - - - - - - - - -				1 13 9	
Arch Stone laid - - - - - - - - -				46 11 1	
Loading - - - - - - - - - -				143 13 5	
Chips laid - - - - - - - - - -				164 13 5	
Arch Facing - - - - - - - - - -				43 13 2	
Bond Stones laid - - - - - - - - -				67 9 5	
Centering - - - - - - - - - -				322 7 2	
Contingencies - - - - - - - - - -				18 5 —	1,545 9 7
			Total - - - *Rupees*		1,545 9 7

(signed) *M. M'Nally*, Overseer.
W. Chapman, Superintending Engineer.

(True copies)
(signed) *P. M. Melvill*, Lieut.-col., Secty. to Govt.

(True copies)
(signed) *R. J. H. Birch*, Lieut.-col.,
Offig.-Secty. to the Govt. of India in the Military Department.

Camp, Undwell, 14 March 1851.

No. 5.

RECEIPT of MATERIALS supplied.—Nos. 1 to 39, and No. 47.

UNDWELL BRIDGE, February 1851.

(No 1.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of First Assistant Superintendent Roads, &c., during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
120 seers -	Goor - -	7 8 –	120 seers -	7 8 –	- - -	(signed) Ramchunder Marwarree.
120 „ -	Hemp - -	7 12 –	- „ -	7 12 –	- - -	
20 piclies -	Hurdy - -	1 – –	10 piclies -	2 – –	- - -	
60 seers -	Coir Rope -	23 – –	120 seers -	11 8 –	- - -	
60 „ -	Goand - -	25 – –	- „ -	12 8 –	- - -	
2 - -	Bags - -	– 3 6	each - -	– 7 –	- - -	
1 - -	Cart hired -	1 – –	- „ -	1 – –	- - -	The mark of Pandoo Tailee.
					42 11 –	
			TOTAL - - -	*Rs.*	42 11 –	

Nassick, 1 March 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

(signed) *Rowjee Wd. Cachoojee*, Seersa.
(signed) *Nursoo Venhoo*, Overseer.
(signed) *Malapar Wd. Bappoo*, Kondee.
(signed) *Dajee Sucharam*, Carkoon.
(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 2.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles shipped for the use of *Undwell* Bridge, under First Assistant Superintendent Roads, &c., during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
87½ seers -	Iron - -	12 8 –	120 seers -	9 1 10	- - -	(signed) Guzrathee.
					9 1 10	
			TOTAL - - -	*Rs.*	9 1 10	

Nassick, 1 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Khundoo Wd. Sumbajee Majraj.*
The mark of *Rama Wd. Mavajee Sootar.*
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venhoo*, Overseer.
(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 3.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 3.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the Month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1 pulla -	Gunpowder -	20 – –	120 seers -	20 – –	- - -	The mark of Futtay Mahomed.
					20 – –	
			TOTAL - - - *Rs.*		20 – –	

Nassick, 1 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Hurry Wd. Vaghojee.*
(signed) *Nursoo Venkoo*, Overseer.

(signed) *Ronjee Wd. Cuchoojee*, Peon.
(signed) *Dajee Suckaram*, Carkoon.
(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 4.)

Lieutenant Engineers, *W. Chapman*, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1 candee -	Charcoal -	9 8 –	candee -	9 8 –	- - -	The mark of Subbee Wd. Khuteeb.
1	Cart, hired -	1 – –	each - -	1 – –	- - -	The mark of Appoe Tarbe.
1	- ditto - -	1 – –	„ - -	1 – –		
					11 8 –	
			TOTAL - - - *Rs.*		11 8 –	

Nassick, 1 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Hurry Wd. Vaghojee.*
(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Ronjee Wd. Cuchoo*, Peon.
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 5.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1 pullah -	Gunpowder -	20 – –	120 seers -	20 – –	- - -	The mark of Tutty Mahomed.
					20 – –	
			TOTAL - - - *Rs.*		20 – –	

Nassick, 1st February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Kadeerkha Wd. Mahamedkha.*
(signed) *M. M'Nally*, Serjeant, Overseer.

The mark of *Narrayen Wd. Hurry Lohary.*
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 6.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
30¼ seers -	Coir Rope -	1 – –	8 seers -	3 12 6	- - -	(signed) Goomathee.
16 „ -	- ditto -	1 – –	8¼ „ -	1 15 –	- - -	
9¼ „ -	- ditto -	1 – –	8¼ „ -	1 1 11	- - -	
					6 13 5	
			TOTAL - - - -	*Rs.*	6 13 5	

Nassick, 1 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Guttoo Wd. Bhewjee*, Peon. (signed) *Rowjee Wd. Cuchoo*, Peon.
(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 7.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
12 seers -	Oil - -	1 – –	6 seers -	2 – –	2 – –	——
			TOTAL - - - -	*Rs.*	2 – –	

Nassick, 2 January 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Vittoo Wd. Mahadoo*, Washerman. (signed) *Rowjee Wd. Cuchoo*, Peon.
(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharman*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 8.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a p.		*Rs. a. p.*	*Rs. a. p.*	
½ ream -	Paper - -	5 – –	ream -	2 8 –	- - -	The mark of Salamon Bhoree.
½ „ - -	- ditto - -	1 10 –	- ditto -	– 13 –	- - -	
					3 5 –	
			TOTAL - - - -	*Rs.*	3 5 –	

Nassick, 2 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Burjajee Majraj*. (signed) *Rowjee Wd. Cuchoo.*
(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 9.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 9.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a p.*	
16¾ seers -	Coir Rope -	1 – –	8 seers -	2 1 6	- - -	(signed)
10 „ -	Twine - -	1 – –	43 seers -	2 1 8	- - -	Guzerathee.
					4 3 2	
			TOTAL - - -	*Rs.*	4 3 2	

Nassick, 6 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Narryen Wd. Hurry.* The mark of *Burjojee Wd. Subajee.*

(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 10.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
81 - -	Iron - -	12 12 –	120 seers -	8 9 8	- - -	(signed)
1 - -	--Conveyance Iron from Bazar to in Store.	- -	- - -	– 1 –	- - -	Guzerathee.
					8 10 8	
			TOTAL - - -	*Rs.*	8 10 8	

Nassick, 6 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Kadeerkha Wd. Mahomedkha.* The mark of *Nuthoo Wd. Hurry Bhayee.*
(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 11.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Carts supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1 - -	--Government Cart.	– 12 –	each - -	– 12 –	- - -	(signed) Abbajee Ruggonath.
					– 12 –	
			TOTAL - - -	*Rs.*	– 12 –	

Nassick, 6 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 12.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	(signed)
1	Charcoal -	9 8 –	candee -	9 8 –	- - -	Apa Wd. Crustria Taily.
1	Cart hired -	1 – –	each - -	2 – –	- - -	Essup Wd. Khurallee (marked).
					11 8 –	
			TOTAL - - -	*Rs.*	11 8 –	

Nassick, 7 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Vittoo Wd. Ball Moollee.*

The mark of *Guttoo Wd. Bhenjee.*

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venkoo*, Overseer.

(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

RECEIPT, No. 1.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Materials for preparing new Wheel Carts for the use of *Undwell* Bridge, during the month of November 1850.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
Mds.		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*	
115	Charcoal - -	10 – –	candee -	57 8 –	- - -	supplied articles.
3	Bablee Wood -	3 8 –	lot - -	3 8 –		
1	Ditto - -	1 – –	lot - -	1 – –	- - -	by stock.
17	Iron - - -	1 – –	4 seers -	4 4 –		
¾	Gairoo - -	1 – –	8 seers -	– – 6		
49	Iron - - -	1 – –	9 seers -	3 7 1	- - -	(signed) Abbajee Ruggoonath.
25	Ditto - -	1 – –	4 seers -	6 4 –		
3	Oil - - -	1 – –	6 seers -	– 8 –	- - -	suppliers.
500	Cakes Dung, Cow	1 – –	100 - -	– 8 –		
	Sawajee - -	- -	lot - -	– 8 –		
3	Cart Poles - -	– 12 –	each - -	2 4 –		
1	Common Paper -	– 7 –	dusta -	– 7 –		
	Ink - - -	- -	- - -	– – 6		
60	Iron, for Iron Rings	1 – –	13 seers -	4 9 10	- - -	Government articles.
80	Iron - - -	1 – –	12 seers -	6 10 8		
160	Ditto - -	1 – –	12 seers -	13 5 4	- - -	(signed) Abbajee.
					106 12 11	
			TOTAL - - -	*Rs.*	106 12 11	

Nassick, 1 September 1850. (signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Dajee Sucharam*, Carkoon.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

RECEIPT

No. 5.—Receipt of Materials supplied—*continued.*

RECEIPT, No. 2.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Labour for preparing new Trucks for the use of *Undwell* Bridge, during the month of December 1850.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	The marks of—
4	Smiths - -	– 7 –	each - -	1 12 –	- - -	Tookaram.
4	Hammermen -	– 2 –	„ - -	– 8 –	- - -	Gunnor Wd. Luxamon.
4	Ditto - -	– 2 –	„ - -	– 8 –	- - -	Toolia Wd. Bhad Seerka.
2	Bellows Boys -	– 2 –	„ - -	– 4 –	- - -	Sucknram Wd. Khundoo.
2	Carpenters - -	– 5 –	„ - -	– 10 –	- - -	Rowjee Wd. Suckara.
2	Ditto - -	– 5 –	„ - -	– 10 –	- - -	Suckaram Wd. Luxamon.
4	Ditto - -	– 5 –	„ - -	1 4 –		
					5 8 –	
			TOTAL - - -	*Rs.*	5 8 –	

Nassick, 6 December 1850.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.
(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 13.)

BILL of PAYMENT of WORKPEOPLE employed and STORES used for the *Undwell* Bridge, under First Assistant Superintendent of Roads and Tanks, during the month of November 1850.

PREPARING WHEEL CARTS.

Quantity or Number.		Rates.	Per	Amount.	TOTAL.	GRAND TOTAL.
	Labour:	*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
27	Smith - - - - -	– 7 –	each - -	11 13 –		
30	Ditto - - - - -	– 6 –	„ - -	11 4 –		
44	Hammermen - - - -	– 2 6	„ - -	6 14 –		
36	Ditto - - - - -	– 2 –	„ - -	4 8 –		
43	Bellows Boys - - - -	– 2 –	„ - -	5 6 –		
13	Ditto - - - - -	– 1 10	„ - -	1 7 10		
25	Ditto - - - - -	– 1 6	„ - -	2 5 6		
11	Carpenter - - - -	– 6 3	„ - -	4 4 9		
4	Ditto - - - - -	– 5 4	„ - -	1 5 4		
9	Ditto - - - - -	– 5 –	„ - -	2 13 –		
2½	Ditto - - - - -	– 5 3	„ - -	– 13 2		
4	Biggaries - - - -	– 1 10	„ - -	– 7 4		
					53 5 11	
	Materials:					
	Materials and Labour Receipts, Nos. 1 & 2, herewith attached -	- -	- - -	112 4 11	112 4 11	
						165 10 10
			TOTAL - - -	*Rs.*		165 10 10

Nassick, 1 December 1850.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Nursoo Venkoo*, Overseer.
(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 14.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
½ seer -	Iron - -	– 8 –	Seer - -	– 4 –		
1 dozen -	Pencils -	1 – –	1 dozen -	1 – –	- - -	(signed) Goozerathee.
½ „ -	Steel Pens -	– 4 –	1 dozen -	– 2 –		
					1 6 –	
			TOTAL - - -	*Rs.*	1 6 –	

Nassick, 8 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Kadeerbhoyee Wd. Ahmedkha.*

(signed) *M. M'Nally*, Serjeant, Overseer.

The mark of *Guttoo Wd. Bhemjee.*

(signed) *Dajee Sucharam* Carkoon.

(signed) *Nursoo Venhoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 15.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied, and for Labour for preparing Six Bablee Blocks for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1	Bablee Wood	– 4 –	each -	– 4 –	- - -	(signed) Abbajee.
2	Carpenter -	– 2 6	„ -	– 5 –	- - -	The mark of Rowjee.
6	Catarys' Work	– 1 –	„ -	– 6 –	- - -	The mark of Babjee, Katary.
	Oil - -	- -	- - -	– – 9	- - -	The mark of Kadeerkha.
					– 15 9	
			TOTAL - - -	*Rs.*	– 15 9	

Nassick, 10 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venhoo*, Overseer.

(signed) *M. M'Nally*, Serjeant Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 16.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied, and Conveyance for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1 candee -	Charcoal -	9 8 –	candee -	9 8 –	- - -	- - The mark of Essub Wd. Khuteeb.
2	Carts, conveyance Charcoal.	1 – –	each - -	2 – –	- - -	- - The mark of Pandoo Tarlee.
					11 8 –	
			TOTAL - - -	*Rs.*	11 8 –	

Nassick, 14 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Narryen Wd. Hurry.*

(signed) *M. M'Nally*, Serjeant, Overseer.

The mark of *Bugajee Sunbajee Mujray.*

(signed) *Dajee Sucharam*, Carkoon.

(signed) *Nursoo Venhoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 17.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 17.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Carts for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1	Cart, Government articles, Conveyance.	– 12 –	each - -	– 12 –	- - -	(signed) Abbajee.
					– 12 –	
			TOTAL - - -	*Rs.*	– 12 –	

Nassick, 16 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 18.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
11¼ seers -	Iron - -	1 – –	4¾ seers -	2 6 4	- - -	(signed) Goozerathee.
11½ seers -	ditto - -	1 – –	6 seers -	1 15 –	- - -	(signed) ditto.
6 dozen -	Screws - -	– 2 –	dozen -	– 12 –		
					5 1 4	
			TOTAL - - -	*Rs.*	5 1 4	

Nassick, 16 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Buyajee Wd. Sumbajee Majray.*
(signed) *M. M'Nally*, Serjeant, Overseer.

The mark of *Nuthoo Wd. Hurry Bhayee.*
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 19.)

Lieutenant *W. Chapman*, Engineers, Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of the *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1	Carpenter, making Wheels.	– 5 –	each - -	– 5 –	- - -	The mark of Bhowanee.
1	Bablee Wood for Wheels.	– 5 –	each - -	– 5 –	- - -	- ditto - Amboo.
6	Wheels repaired by Kataree.	– 1 –	each - -	– 6 –	- - -	(signed) Babjee Katary.
					1 – –	
			TOTAL - - -	*Rs.*	1 – –	

Nassick, 16 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 20.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Quantity or Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1⅛ ⅛ seers.	Socket Brass -	3 - -	seer - -	4 11 -	- - -	(signed) Crustnajee.
					4 11 -	
			TOTAL - - -	*Rs.*	4 11 -	

Nassick, 16 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Guttoo Bhenjee.* The mark of *Kadurkha Wd. Ahmedkha.*

(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Suckaram*, Carkoon.
(signed) *Narsoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 21.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
½ pulla -	Hemp - -	8 8 -	pulla -	4 4 -	- - -	(signed) Baluram.
					4 4 -	
			TOTAL - - -	*Rs.*	4 4 -	

Nassick, 16 February 1851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

The mark of *Khundia Ragho Mahar.* The mark of *Narrayen Wd. Hurry.*

(signed) *Dajee Suckaram*, Carkoon.
(signed) *M. M'Nally*, Serjeant, Overseer.
(signed) *Narsoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1 candee -	Charcoal -	0 8 -	each - -	0 8 -	- - -	(signed)
1	Cart hired -	1 - -	each - -	2 - -	- - -	Essub Wd. Kunnatee.
					11 8 -	Pandoo Taily (marked.)
			TOTAL - - -	*Rs.*	11 8 -	

Nassick, 19 February 851. (signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

Marked *Pandoo Wd. Kondoo Tailee.* The marked *Hurry Wd. Vaghajee.*
(signed) *M. M'Nally*, Serjeant, Overseer. (signed) *Dajee Suckaram*, Carkoon.
(signed) *Narsoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 23.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1	Rubber, piece	– 8 –	each - -	– 8 –	- - -	(signed) Goozrathee.
1	Box Wafers -	– 2 6	- - -	– 2 6	- - -	
¾	Foolscap Paper	– 9 6	each - -	– 4 9	- - -	
¼	French Paper	– 3 –	- - -	– 1 6	- - -	
20 seers -	Coir Rope -	1 – –	8 seers -	3 10 –	- - -	
					4 10 9	
			TOTAL - - - *Rs.*		4 10 9	

Nassick, 19 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:

Mark of *Guttoo Wd. Bhewjee.*
(signed) *M. M'Nally*, Serjeant, Overseer.

Dhondee Wd. Rayajee, marked.
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 24.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1	Chalk - -	1 – –	5 seers -	– 3 2	- - -	(signed) Guzarathee.
					– 3 2	
			TOTAL - - - *Rs.*		– 3 2	

Nassick, 19 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 25.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
1	Pint of Red Ink	– 3 –	each - -	– 3 –	- - -	(signed) Guzarathee.
1	ditto Black Ink	– 3 –	each - -	– – –	- - -	
					– 6 –	
			TOTAL - - - *Rs.*		– 6 –	

Nassick, 23 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 26.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
½ puliah -	Hemp - -	8 8 –	pullah -	4 4 –	- - -	(signed) Ramchoul.
1	Cart, hired -	– 12 –	each - -	– 12 –	- - -	The mark of Abba Tailee.
					5 – –	
			TOTAL - - -	*Rs.*	5 – –	

Forwarded 23 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Abbajee Ruggoonath*, Storekeeper.
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Narsoo Venkoo*, Carkoon, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 27.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
45¾ seers -	Coir Rope -	1 – –	8 seers -	5 11 –	- - -	(signed) Balaram.
60 seers -	Hemp - -	8 10 –	pulla -	4 5 –	- - -	
					10 – –	
			TOTAL - - -	*Rs.*	10 – –	

Forwarded 23 February 1851.

(signed) *Abbajee Ruggoonath*, Storekeeper.

Witness:
The mark of *Buyajee Wd. Sumbajee Majray.*

The mark of *Kadeerkha Wd. Mahmadkha.*

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam.*
(signed) *Narsoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 28.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Cane Baskets supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
175	Cane Baskets	34 5 4	240	25 – 7	- - -	(signed)
1 seer -	Coir Rope -	1 – –	8 seers -	– 2 –	- - -	Abbajee Ruggoonath.
					25 2 7	
			TOTAL - - -	*Rs.*	25 2 7	

Forwarded 3 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Abbajee Ruggoonath*, Storekeeper.
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Narsoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 29.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 29.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851, for Stationery.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
½ dusta -	Common Paper	– 8 –	each - -	– 4 –	- - -	(signed) Guzrathee.
Ink - -	Ink - -	- - -	- - -	– – 9	- - -	
					– 4 9	
			TOTAL - - -	*Rs.*	– 4 9	

Forwarded 23 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Abbajee Ruggoonath*, Storekeeper.
(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 30.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Carts employed for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
2	Carts hired -	– 8 –	each - -	1 – –	- - -	The mark of Rama Wd. Kondajee.
					1 – –	
			TOTAL - - -	*Rs.*	1 – –	

5 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 31, of 1851.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
16 candies -	Chunam -	4 – –	candie -	64 – –	- - -	The mark of Rittoo Lonary.
4 „ -	ditto - -	4 – –	ditto -	16 – –	- - -	„ Tookaram.
15½ „ -	ditto - -	4 – –	ditto -	62 – –	- - -	„ Sutwa.
14 „ -	ditto - -	4 – –	ditto -	56 – –	- - -	„ Huavunta.
5 „ -	ditto - -	3 – –	ditto -	15 – –	- - -	„ Maya.
					213 – –	
			TOTAL - - -	*Rs.*	213 – –	

28 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 32.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
138 pielies -	Grain - -	1 – –	6 pielies -	23 2 8	- - -	(signed) Bhowanee Sing. Bhugeruth Sing.
11½ seers -	Oil - -	1 – –	5¾ seers -	2 – –	- - -	
80 seers -	Goand - -	1 – –	7 „ -	11 6 10	- - -	
25 pielies -	Heerday -	1 – –	10 pielies -	2 8 –	- - -	
89 seers -	Coir Rope -	1 – –	6 seers -	14 13 4	- - -	
183 „ -	Goor - -	1 – –	18 „ -	10 2 8	- - -	
					63 1 6	
			TOTAL - - -	*Rs.*	63 1 6	

10 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 33.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
36 seers -	Hemp - -	1 – –	12 seers -	3 – –	- - -	(signed) Nuthoo Wd. Ramjee Patel.
42 „ -	Hemp - -	1 – –	14 „ -	3 – –	- - -	
					6 – –	
			TOTAL - - -	*Rs.*	6 – –	

28 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 34.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Carts supplied for the use of *Undwell* Bridge, during the month of February 1851 (for conveying Wood from the *Thul* Ghaut to *Undwell*.)

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
6	Carts hired -	– 12 –	each - -	4 8 –	- - -	The mark of Anunda Wd. Dhunjee. Bhawoo Sing.
6	Ditto -	– 12 –	„ - -	4 8 –	- - -	
					9 – –	
			TOTAL - - -	*Rs.*	9 – –	

28 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)

(signed) *W. Chapman*, Lieutenant Engineers.

(No. 35.)

No. 5.—Receipt of Materials supplied—*continued.*

(No. 35.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Carts supplied for the use of *Undwell* Bridge, during the month of February 1851 (conveying Wood from *Thul* Ghaut to *Undwell*).

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	(signed)
3	Ramjee Nuthoo - -	- 8 -	each -	1 8 -	- - -	Nuthoo Wd. Ramjee.
3	Esram Wd. Ramjee -	- 8 -	„ -	1 8 -	- - -	Esram Ramjee.
7	BuherrooWd. Lad Pateel	- 8 -	„ -	3 8 -	- - -	Buherroo Lad Pateel.
8	Bappoo Wd. Bhickajee	- 8 -	„ -	4 - -	- - -	Bappoo Bhickajee.
7	Bhawoo Sing - -	- 8 -	„ -	3 8 -	- - -	Bhawoo Sing.
4	Govinda Ragh Nack -	- 8 -	„ -	2 - -	- - -	Govinda Wd. Ram Nack.
7	Mhadoo Sonar - -	- 8 -	„ -	3 8 -	- - -	Mhadoo Sonar.
4	Suddoo Nimba - -	- 8 -	„ -	1 2 -	- - -	Suddoo Nimba.
3	Govind Wd. Ramaram	- 8 -	„ -	1 8 -	- - -	Govinda Ramaram.
4	Laxamon Ramjee -	- 8 -	„ -	2 - -	- - -	Laxamon Ramjee.
					25 - -	
			TOTAL - - -	*Rs.*	25 - -	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 36.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
10½ seers -	Steel - -	48 - -	56 seers -	16 14 10	- - -	(signed) Guzarathee.
					16 14 10	
			TOTAL - - -	*Rs.*	16 14 10	

2 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 37.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
22 seers -	Steel - -	48 - -	56 seers -	18 13 8	- - -	(signed) Pharsee.
					18 13 8	
			TOTAL - - -	*Rs.*	18 13 8	

18 February 1851.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 38.)—Bill No. 1.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Workpeople employed on cutting Wood for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
5	Biggaries -	– 2 3	each - -	– 11 3		
1	Carpenter -	– 3 –	„ - -	– 3 –		
					– 14 3	
			Total - - -	*Rs.*	– 14 3	

signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Vinayekoorf Crustnajee Suckaram*, Storekeeper.
(signed) *B. Brock*, Serjeant Overseer.
(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

	Rs. a. p.
Bill No. 1 - - - -	– 14 3
„ No. 2 - - - -	2 6 3
„ No. 3 - - - -	– 9 –
„ No. 4 - - - -	2 8 –
Total No. 38 - - -	6 5 6

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 38.)—Bill No. 2.

Lieutenant *W. Chapman*, Engineers, Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Workpeople employed on cutting Wood at *Thul* Ghaut for the use of *Undwell* Bridge, during the month of January 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
13	Biggaries -	– 2 3	each - -	1 13 3		
3	Carpenters -	– 3 –	„ - -	– 9 –		
					2 6 3	
			Total - - -	*Rs.*	2 6 3	

60 Woods cut.

(signed) *Vinayekoorf Crustnajee Suckaram*, Storekeeper.
(signed) *B. Brock*, Serjeant, Overseer.
(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(signed) *M. M'Nally*, Serjeant, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 38.)—Bill No. 3.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Biggaries employed on putting a piece of Wood into Cart forwarded for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPT.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
4	Biggaries -	– 2 3	each - -	– 9 –		
					– 9 –	
			Total - - -	*Rs.*	– 9 –	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Venayekoorf Crustnajee*, Storekeeper.
(signed) *B. Brock*, Serjeant, Overseer.
(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

No. 5.—Receipt of Materials supplied—*continued.*

(No. 38.)—Bill No. 4.

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Workpeople employed on cutting Wood for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
12	Biggaries -	– 2 3	each - -	1 11 –		
4	Carpenters -	– 3 3	„ - -	– 13 –		
					2 8 –	
			TOTAL - - -	*Rs.*	2 8 –	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Venayekoorf Crustnajee Suckaram*, Storekeeper.
(signed) *B. Brock*, Serjeant, Overseer.
(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 39.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
9	Bablee Wood - - -	– 12 –	each -	1 8 –	- - -	The mark of Bappoo Wd. Kondajee.
1	Puckhal repaired - -	– 3 –	each -	– 3 –	- - -	Dewoo Chamber.
8	Hempen Ropes repaired -	– 6 –	each -	1 2 –	- - -	Mullary Mony.
2,000 bundles	Grass - - - -	2 8 –	1,000 -	5 – –	- - -	Hurry Wd. Luxamon.
23	Earthen Pots - -	– – 7	each -	– 13 5	- - -	- - Vitto Wd. Crustna
3	Ditto - - -	– – 8	each -	– 2 –	- - -	Coombar.
					8 12 5	
			TOTAL - - -	*Rs.*	8 12 5	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(No. 47.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Articles supplied for preparing Coigns for the use of *Undwell* Bridge, during the month of February 1851.

Number.	Items.	Rate.	Per	Amount.	TOTAL.	RECEIPTS.
		Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	
17	Iron - -	1 – –	8 seers -	2 2 –	- - -	Government.
2	Ditto - -	1 – –	8 seers -	– 4 –	- - -	
					2 6 –	
			TOTAL - - -	*Rs.*	2 6 –	

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(True Translation.)
(signed) *W. Chapman*, Lieutenant Engineers.

(True copies.)
(signed) *P. M. Melvill*, Lieut.-col., Secy. to Govt.

(True copies.)
(signed) *R. J. H. Birch*, Lieut.-col.
Offg. Secy. to the Govt. of India in the Military Department.

Appendix (C.)

Store Bill, No. 1 (or Vouchers), from 40 to 46.

Stores entered in Stock, *Undwell* Bridge, February 1851.

(No. 40.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of February 1851, for preparing 68 Coigns, mean size, 1′ 7″ × 15″ × 15″.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
Labours:		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*
Stonecutters	2	– 4 11	each	– 9 10	
Ditto	24	– 4 6	,,	6 12 –	
Ditto	50	– 4 3	,,	13 4 6	
Ditto	28	– 4 –	,,	7 – –	
Ditto	44	– 3 –	,,	8 4 –	
Ditto	10	– 3 3	,,	2 – –	
Ditto	24	– 2 8	,,	4 – –	
Ditto	42	– 2 8	,,	7 – –	
Biggaries	13	– 2 –	,,	1 10 –	
Boys	11	– 1 –	,,	– 11 –	
Smiths	4	– 4 8	,,	1 2 8	
Hammermen	4	– 2 3	,,	– 9 –	
Bellows Boys	4	– 2 3	,,	– 9 –	
					53 8 6
Materials:					
Iron	10	12 8 –	120 seers	1 – 8	
Stones	100 cub. ft.	588 – 10	20,952 cub. ft.	2 12 10	
Charcoal	2½ maunds.	9 8 –	20 maunds	1 3 –	
					5 – 6
			TOTAL – – – *Rs.*		58 9 –

Rate – – – *Rs.* – 14 10 $\frac{12}{68}$ to each Stone cut, and conveyed on the spot.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Narsoo Venkoo*, Overseer.

(No. 41.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of February 1851, for repairing Chips, No. 441.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
Labours:		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*
Stonecutters	64	– 6 3	each	25 – –	
Ditto	24	– 6 –	,,	9 – –	
Ditto	80	– 5 3	,,	26 4 –	
Ditto	55	– 4 –	,,	13 12 –	
Ditto	24	– 3 –	,,	4 8 –	
Ditto	18	– 4 8	,,	5 4 –	
Ditto	13	– 2 –	,,	1 10 –	
Biggaries	44	– 2 –	,,	5 8 –	
Smiths	3	– 4 6	,,	– 14 –	
Hammermen	3	– 2 3	,,	– 6 9	
Bellows Boys	3	– 2 3	,,	– 6 9	
					92 9 6
Materials:					
Iron	15	13 8 –	120 seers	1 11 –	
Charcoal	10 maunds	9 8 –	20 maunds	4 12 –	
Stones	997 cub. ft.	588 – –	20,952 cub. ft.	27 15 9	
Government Bullocks, pairs	14	58 7 2	140	5 13 6	
					40 4 3
			TOTAL – – – *Rs.*		132 13 9

Rate – – – *Rs.* – 4 4 $\frac{18}{41}$ to each.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Sucharam*, Carkoon.
(signed) *Narsoo Venkoo*, Overseer.

(No. 42.)

Appendix (C.)

STORE BILL, No. 1—*continued.*

(No. 42.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Labour and Materials used at the *Undwell* Bridge, during the month of February 1851, for rough Stones collected, 20,952 cubic feet.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
Labour:		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*
Biggaries	760	– 2 –	each	95 2 –	
Women	180	– 1 3	„	10 2 6	
Boys	101	– 1 –	„	6 5 –	
Biggaries (Minners)	28	– 4 –	„	7 – –	
Ditto ditto	9	– 2 7	„	1 7 3	
Carpenters	3	– 6 –	„	1 2 –	
Ditto	1	– 2 –	„	– 2 –	
Smiths	16	– 4 8	„	4 10 8	
Ditto	6	– 6 –	„	2 4 –	
Hammermen	16	– 2 3	„	2 4 –	
Bellows Boys	16	– 2 3	„	2 4 –	
Minners	543½	– 2 –	„	68 3 –	
Carts, Village	179	– 8 –	„	89 8 –	
					290 6 5
Materials:					
Gunpowder	120 seers	15 – –	120	15 – –	
Ditto	97	20 – –	120	16 2 8	
Iron	9	13 8 1	120	1 – 2	
Fine Steel	12¾ seers	48 – –	56	10 14 10	
Charcoal	20 maunds	9 8 –	20 maunds	9 8 –	
Iron	1¾ ⅛	1 – –	4¾ seers	– 6 4	
Earthen Pots	10	– – 7	each	– 5 10	
Carts hired	4	1 – –	„	4 – –	
Hemp	17	7 12 –	120	– 1 7	
Coir Rope	6	1 – –	8 seers	– 12 –	
Cart, prepared in Store, as per Abbajee's Bill	1	165 10 10	each	165 10 10	
Cart-conveyed Wood from Thul Ghaut to Undwell Bridge	52	– 8 –	„	26 – –	
Government Bullocks, pairs	112	58 7 2	140	46 12 2	
					97 10 6
			TOTAL	*Rs.*	388 – 10

Rate – – – *Rs.* 2 12 10 $\frac{18}{100}\frac{1}{3}\frac{1}{3}$ per 100 cubic feet.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dajee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

Appendix (C.)

STORE BILL, No. 1—*continued.*

(No. 43.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Materials and Labour at *Undrell* Bridge, during the month of February 1851, for grinding Chunam, including Sand, Musula, &c., 94 candies.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
Labour:		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*
Biggaries	116	– 2 –	each	14 8 –	
Women	122	– 1 3	„	9 8 6	
Boys	44	– 1 –	„	2 12 –	
Bullocks, pairs, Village	96	– 5 –	„	30 – –	
Carpenter				—	
					56 12 6
Materials:					
Dry Chunam	49½	4 – –	candee	198 – –	
Ditto	5	3 – –	„	15 – –	
Hemp	180	8 – –	120	12 – –	
Ditto	92	7 12 –	120	5 15 1	
Goand	80	1 – –	7 seers	11 6 10	
Ditto	26	26 – –	120 „	5 10 1	
Kath	89	1 – –	6 „	14 13 4	
Ditto	12	4 – –	120 „	2 6 5	
Goor	170	1 – –	18 „	9 7 1	
Hurday	25 pielies	1 – –	10 pielies	2 8 –	
Ditto	34	1 – –	10 „	3 6 5	
Carts, hired	5	1 – –	each	5 – –	
Oil	5¾ seers	1 – –	5¾ seers	1 – –	
Bags for Grain	2	– 3 6	each	– 7 –	
Government Bullock, Pairs, with Puckals	14	58 7 2	140 seers	5 13 6	
Earthen Pots	6	– – 7	each	– 3 6	
Puckalls, repaired	1	– 3 –	„	– 3 –	
					293 4 3
			TOTAL	*Rs.*	350 – 9

Rate *Rs.* 3 11 7 to each candee.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dujee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(No. 44.)

Lieutenant *W. Chapman*, Engineers, First Assistant Superintendent Roads, &c. *Dr.*

The under-mentioned Labour and Materials used at the *Undrell* Bridge, during the month of February 1851, for Government Cattle "Feeding," 140 Pairs.

ITEMS.	Number.	Rate.	Per	Amount.	TOTAL.
Labour:		*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*
Cartmen	140	4 8 –	month	22 8 –	
Women	10	– 1 3	each	– 12 6	
					23 4 6
Materials:					
Grain	133 pielies	1 – –	6 pielies	22 1 8	
Grass (bundles)	2,400	2 8 –	1,000	6 – –	
Ditto	2,000	2 8 –	1,000	5 – –	
Oil	12	1 – –	6 seers	2 – –	
					35 2 8
			TOTAL	*Rs.*	58 7 2

Rate *Rs.* – 6 8 $\frac{2}{140}$ per pair.

(signed) *M. M'Nally*, Serjeant, Overseer.

(signed) *Dujee Suckaram*, Carkoon.
(signed) *Nursoo Venkoo*, Overseer.

(No. 45.)

No. 7. Day Book of Labour; and No. 8. Daily (or Figured) Abstract.

No. 7.

Day Book of Labour.

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
1851:			*Rs. a. p.*		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
February 1	1	Carkoon - -	- 5 9	each	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	1	Ditto - -	- 8 5	„	- 8 5		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	1	Carpenter - -	- 6 -	„	- 6 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	3	Stonecutters -	- 7 -	„	1 5 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	90	Biggaries - -	- 2 -	„	11 4 -		
	33	Women - -	- 1 3	„	2 9 3		
	12	Boys - - -	- 1 -	„	- 12 -		
						20 12 1	
February 2	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	1	Ditto - -	- 8 5	„	- 8 5		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	1	Carpenter - -	- 6 -	„	- 6 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	3	Ditto - -	- 5 -	„	- 15 -		
	6	Ditto - -	- 6 4	„	2 6 -		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	1	Ditto - -	—	„	—		
	2	Stonecutters -	- 7 -	„	- 14 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	61	Biggaries - -	- 2 -	„	7 10 -		
	23	Women - -	- 1 3	„	1 12 9		
	7	Boys - - -	- 1 -	„	- 7 -		
						28 8 3	
February 3	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	1	Ditto - -	- 8 5	„	- 8 5		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	1	Carpenter - -	- 6 -	„	- 6 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	2	Stonecutters -	- 6 11	„	- 13 10		
	3	Ditto - -	- 7 -	„	1 5 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	81	Biggaries - -	- 2 -	„	10 2 -		
	35	Women - -	- 1 3	„	2 11 9		
	15	Boys - - -	- 1 -	„	- 15 -		
						29 7 5	
		Carried forward - - -			*Rs.*	82 11 0	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:				Brought forward - - -		82 11 9	
February 4	1	Carkoon - -	- 5 9	each	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	1	Ditto - -	- 8 5	„	- 8 5		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	2	Carpenters - -	- 6 -	„	- 12 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	5	Ditto - -	- 5 -	„	1 9 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	2	Stonecutters -	- 6 11	„	- 13 10		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	83	Biggaries - -	- 2 -	„	10 6 -		
	35	Women - -	- 1 3	„	2 11 9		
	12	Boys - - -	- 1 -	„	- 12 -		
						31 - 5	
February 5	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	1	Ditto - -	- 8 5	„	- 8 5		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	3	Carpenters - -	- 6 -	„	1 2 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	1	Carpenter's Boy -	- 2 -	„	- 2 -		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	5	Ditto - -	- 5 -	„	1 9 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	2	Stonecutters -	- 6 11	„	- 13 10		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	84	Biggaries - -	- 2 -	„	10 8 -		
	40	Women - -	- 1 3	„	3 2 -		
	12	Boys - - -	- 1 -	„	- 12 -		
						32 6 8	
February 6	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	3	Carpenters - -	- 6 -	„	1 2 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	1	Carpenter's boy -	- 2 -	„	- 2 -		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	5	Ditto - -	- 5 -	„	1 9 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
		Carried forward - - -		*Rs.*	15 2 9	146 2 10	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -			15 2 9	146 2 10	
February 6 (*cont*d).	2	Stonecutters -	- 6 11	each	- 13 10		
	1	Ditto - -	- 5 -	„	- 5 -		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	70	Biggaries - -	- 1 3	„	8 12 -		
	35	Women - -	- 1 3	„	2 11 9		
	10	Boys - - -	- 1 -	„	- 10 -		
						31 3 10	
February 7	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	3	Carpenters - -	- 6 -	„	1 2 -		
	1	Chowkedar -	- 2 3	„	- 2 3		
	2	Carpenter's Boys -	- 2 -	„	- 4 -		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	5	Ditto - -	- 5 -	„	1 9 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	2	Stonecutters -	- 6 11	„	- 13 10		
	2	Ditto - -	- 5 -	„	- 10 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	3	Ditto - -	- 6 -	„	1 2 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	82	Biggaries - -	- 2 -	„	10 4 -		
	36	Women - -	- 1 3	„	2 13 -		
	12	Boys - - -	- 1 -	„	- 12 -		
						34 8 4	
February 8	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	3	Carpenters - -	- 6 -	„	1 2 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	2	Carpenter's Boys	- 2 -	„	- 4 -		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	5	Ditto - -	- 5 -	„	1 9 -		
	6	Ditto - -	- 6 4	„	2 6 -		
	7	Ditto - -	- 6 -	„	2 10 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	2	Stonecutters -	- 6 11	„	- 13 10		
	2	Ditto - -	- 5 -	„	- 10 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	3	Ditto - -	- 6 -	„	1 2 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	87	Biggaries - -	- 2 -	„	10 14 -		
	36	Women - -	- 1 3	„	2 13 -		
	12	Boys - - -	- 1 -	„	- 12 -		
						34 12 -	
		Carried forward - - -		*Rs.*		246 11 -	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -				246 11 –	
February 9	1	Carkoon - -	– 5 9	each	– 5 9		
	1	Maistry - -	– 11 5	,,	– 11 5		
	2	Ditto - -	– 8 5	,,	1 – 10		
	2	Muckadums -	– 2 10	,,	– 5 8		
	1	Smith - - -	– 6 6	,,	– 6 6		
	1	Ditto - -	– 6 –	,,	– 6 –		
	1	Hammerman -	– 2 6	,,	– 2 6		
	1	Bellows Boy -	– 2 6	,,	– 2 6		
	1	Carpenter - -	– 6 –	,,	– 6 –		
	1	Chowkedar - -	– 2 3	,,	– 2 3		
	5	Masons - -	– 7 –	,,	2 3 –		
	2	Ditto - -	– 6 6	,,	– 13 –		
	3	Ditto - -	– 5 –	,,	– 15 –		
	5	Ditto - -	– 6 4	,,	1 15 8		
	7	Ditto - -	– 6 –	,,	2 10 –		
	1	Ditto - -	– 4 –	,,	– 4 –		
	2	Stonecutters -	– 6 11	,,	– 13 10		
	1	Ditto - -	– 5 –	,,	– 5 –		
	1	Ditto - -	– 6 3	,,	– 6 3		
	4	Ditto - -	– 7 –	,,	1 12 –		
	1	Ditto - -	– 6 6	,,	– 6 6		
	2	Ditto - -	– 6 –	,,	– 12 –		
	2	Biggaries - -	– 2 –	,,	– 4 –		
						17 9 8	
February 10	1	Carkoon - -	– 5 9	,,	– 5 9		
	1	Maistry - -	– 11 5	,,	– 11 5		
	2	Ditto - -	– 8 5	,,	1 – 10		
	2	Muckadums -	– 2 10	,,	– 5 8		
	1	Smith - - -	– 6 6	,,	– 6 6		
	1	Ditto - -	– 6 –	,,	– 6 –		
	1	Hammerman -	– 2 6	,,	– 2 6		
	1	Bellows Boy -	– 2 6	,,	– 2 6		
	3	Carpenters - -	– 6 –	,,	1 2 –		
	1	Chowkedar - -	– 2 3	,,	– 2 3		
	2	Carpenter's boys -	– 2 –	,,	– 4 –		
	5	Masons - -	– 7 –	,,	2 3 –		
	2	Ditto - -	– 6 6	,,	– 13 –		
	4	Ditto - -	– 5 –	,,	1 4 –		
	3	Ditto - -	– 6 4	,,	1 3 –		
	7	Ditto - -	– 6 –	,,	2 10 –		
	1	Ditto - -	– 4 –	,,	– 4 –		
	2	Stonecutters -	– 6 11	,,	– 13 10		
	2	Ditto - -	– 5 –	,,	– 10 –		
	1	Ditto - -	– 6 3	,,	– 6 3		
	4	Ditto - -	– 7 –	,,	1 12 –		
	1	Ditto - -	– 6 6	,,	– 6 6		
	2	Ditto - -	– 6 –	,,	– 12 –		
	1	Ditto - -	– 4 –	,,	– 4 –		
	84	Biggaries - -	– 2 –	,,	10 8 –		
	38	Women - -	– 1 3	,,	2 15 6		
	11	Boys - - -	– 1 –	,,	– 11 –		
						32 9 6	
February 11	1	Carkoon - -	– 5 9	,,	– 5 9		
	1	Maistry - -	– 11 5	,,	– 11 5		
	2	Ditto - -	– 8 5	,,	1 – 10		
	2	Muckadums -	– 2 10	,,	– 5 8		
	1	Smith - - -	– 6 6	,,	– 6 6		
	1	Ditto - -	– 6 –	,,	– 6 –		
	1	Hammerman -	– 2 6	,,	– 2 6		
	1	Bellows Boy -	– 2 6	,,	– 2 6		
	3	Carpenters - -	– 6 –	,,	1 2 –		
	1	Chowkedar - -	– 2 3	,,	– 2 3		
	1	Carpenter's Boy -	– 2 –	,,	– 2 –		
	5	Masons - -	– 7 –	,,	2 3 –		
	2	Ditto - -	– 6 6	,,	– 13 –		
	5	Ditto - -	– 5 –	,,	1 9 –		
	6	Ditto - -	– 6 4	,,	2 6 –		
	8	Ditto - -	– 6 –	,,	3 – –		
	1	Ditto - -	– 4 –	,,	– 4 –		
		Carried forward - - -		*Rs.*	15 2 5	296 14 2	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -			15 2 5	296 14 3	
February 11 (*cont^d*).	2	Stonecutters -	- 6 11	each	- 13 10		
	2	Ditto - -	- 5 -	„	- 10 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	2	Ditto - -	- 6 -	„	- 12 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	85	Biggaries - -	- 2 -	„	10 10 -		
	8 9	Women - -	- 1 3	„	3 - 9		
	1 1	Boys - - -	- 1 -	„	- 11 -		
						34 8 9	
February 12	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	2	Carpenters - -	- 6 -	„	- 12 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	1	Carpenter's Boy -	- 2 -	„	- 2 -		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	8	Ditto - -	- 6 -	„	3 - -		
	1	Ditto - -	- 4 -	„	- 4 -		
	4	Stonecutters -	- 6 11	„	1 11 8		
	2	Ditto - -	- 5 -	„	- 10 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 4	„	- 6 6		
	4	Ditto - -	- 6 -	„	1 8 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	86	Biggaries - -	- 2 -	„	10 12 -		
	41	Women - -	- 1 3	„	3 3 3		
	11	Boys - - -	- 1 -	„	- 11 -		
						36 2 5	
February 13	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Ditto - -	- 6 -	„	- 6 -		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	12*	Carpenters - -	- 6 -	„	- 6 -		* *Sic orig.*
	1	Chowkedar - -	- 2 3	„	- 2 3		
	1	Carpenter's Boy -	- 2 -	„	- 2 -		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	7½	Ditto - -	- 6 -	„	2 13 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	4	Stonecutters -	- 6 11	„	1 11 8		
	2	Ditto - -	- 5 -	„	- 10 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 6 -	„	1 8 -		
	1	Ditto - -	- 4 -	„	- 4 -		
	86	Biggaries - -	- 2 -	„	10 12 -		
	42	Women - -	- 1 3	„	3 4 6		
	11	Boys - - -	- 1 -	„	- 11 -		
						35 10 8	
		Carried forward - - -			*Rs.*	403 4 -	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -				408 4 -	
February 14	1	Carkoon - -	- 5 9	each	- 5 9		
	1	Maistry - -	- 11 5	"	- 11 5		
	2	Ditto - -	- 8 5	"	1 - 10		
	2	Muckadums -	- 2 10	"	- 5 8		
	1	Smith - - -	- 6 6	"	- 6 6		
	1	Hammerman -	- 2 6	"	- 2 6		
	1	Bellows Boy -	- 2 6	"	- 2 6		
	2	Carpenters - -	- 6 -	"	- 12 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	1	Carpenter's Boy -	- 2 -	"	- 2 -		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	4	Ditto - -	- 5 -	"	1 4 -		
	7	Ditto - -	- 6 4	"	2 12 4		
	8	Ditto - -	- 6 -	"	3 - -		
	1	Ditto - -	- 4 -	"	- 4 -		
	4	Stonecutters -	- 6 11	"	1 11 8		
	1	Ditto - -	- 5 -	"	- 5 -		
	1	Ditto - -	- 6 3	"	- 6 3		
	4	Ditto - -	- 7 -	"	1 12 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	2	Ditto - -	- 6 -	"	- 12 -		
	85	Biggaries - -	- 2 -	"	10 10 -		
	43	Women - -	- 1 3	"	3 5 9		
	10	Boys - - -	- 1 -	"	- 10 -		
						34 6 11	
February 15	1	Carkoon - -	- 5 9	"	- 5 9		
	1	Maistry - -	- 11 5	"	- 11 5		
	2	Ditto - -	- 8 5	"	1 - 10		
	2	Muckadums -	- 2 10	"	- 5 8		
	1	Smith - - -	- 6 6	"	- 6 6		
	1	Hammerman -	- 2 6	"	- 2 6		
	1	Bellows Boy -	- 2 6	"	- 2 6		
	1	Carpenter - -	- 6 -	"	- 6 -		
	1	Chowkedar - -	- 2 3	"	2 3 -		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	4	Ditto - -	- 5 -	"	1 4 -		
	9	Ditto - -	- 6 4	"	3 9 -		
	8	Ditto - -	- 6 -	"	3 - -		
	1	Ditto - -	- 4 -	"	- 4 -		
	4	Stonecutters -	- 6 11	"	1 11 8		
	2	Ditto - -	- 5 -	"	- 10 -		
	1	Ditto - -	- 6 3	"	- 6 3		
	4	Ditto - -	- 7 -	"	1 12 -		
	1	Ditto - -	- 6 6	"	- 6 6		
	3	Ditto - -	- 6 -	"	1 2 -		
	85	Biggaries - -	- 2 -	"	10 10 -		
	42	Women - -	- 1 3	"	3 4 6		
	10	Boys - - -	- 1 -	"	- 10 -		
						35 5 4	
February 16	1	Carkoon - -	- 5 9	"	- 5 9		
	1	Maistry - -	- 11 5	"	- 11 5		
	2	Ditto - -	- 8 5	"	1 - 10		
	2	Muckadums -	- 2 10	"	- 5 8		
	1	Smith - - -	- 6 6	"	- 6 6		
	1	Hammerman -	- 2 6	"	- 2 6		
	1	Bellows Boy -	- 2 6	"	- 2 6		
	1	Carpenter - -	- 6 -	"	- 6 -		
	1	Chowkedar - -	- 2 3	"	- 2 3		
	5	Masons - -	- 7 -	"	2 3 -		
	2	Ditto - -	- 6 6	"	- 13 -		
	3	Ditto - -	- 5 -	"	- 15 -		
	5	Ditto - -	- 6 4	"	1 15 8		
	7	Ditto - -	- 6 -	"	2 10 -		
	1	Ditto - -	- 4 -	"	- 4 -		
		Carried forward - - -		*Rs.*	12 8 1	473 - 3	

No. 7.—Day Book of Labour—*continued.*

Appendix (C.)

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -			12 8 1	473 - 3	
February 16 (*cont^d*)	2	Stonecutters -	- 6 11	each	- 13 10		
	1	Ditto - -	- 6 3	,,	- 6 3		
	1	Ditto - -	- 5 -	,,	- 5 -		
	4	Ditto - -	- 7 -	,,	1 12 -		
	1	Ditto - -	- 6 6	,,	- 6 6		
	2	Ditto - -	- 6 -	,,	- 12 -		
	2	Biggaries - -	- 2 -	,,	- 4 -		
						17 3 8	
February 17	1	Carkoon - -	- 5 9	,,	- 5 9		
	1	Maistry - -	- 11 5	,,	- 11 5		
	1	Ditto - -	- 8 5	,,	- 8 5		
	2	Muckadums -	- 2 10	,,	- 5 8		
	1	Smith - - -	- 6 6	,,	- 6 6		
	1	Bellows Boy -	- 2 6	,,	- 2 6		
	1	Hammerman -	- 2 6	,,	- 2 6		
	1	Carpenter - -	- 6 -	,,	- 6 -		
	1	Chowkedar - -	- 2 3	,,	- 2 3		
	5	Masons - -	- 7 -	,,	2 3 -		
	2	Ditto - -	- 6 6	,,	- 13 -		
	4	Ditto - -	- 5 -	,,	1 4 -		
	7	Ditto - -	- 6 4	,,	2 12 4		
	7	Ditto - -	- 6 -	,,	2 10 -		
	1	Ditto - -	- 4 -	,,	- 4 -		
	4	Stonecutters -	- 6 11	,,	1 11 8		
	2	Ditto - -	- 5 -	,,	- 10 -		
	4	Ditto - -	- 7 -	,,	1 12 -		
	1	Ditto - -	- 6 6	,,	- 6 6		
	3	Ditto - -	- 6 -	,,	1 2 -		
	90	Biggaries - -	- 2 -	,,	11 4 -		
	42	Women - -	- 1 3	,,	3 4 6		
	8	Boys - - -	- 1 -	,,	- 8 -		
						33 12 -	
February 18	1	Carkoon - -	- 5 9	,,	- 5 9		
	1	Maistry - -	- 11 5	,,	- 11 5		
	1	Ditto - -	- 8 5	,,	- 8 5		
	1	Smith - - -	- 6 6	,,	- 6 6		
	1	Hammerman -	- 2 6	,,	- 2 6		
	1	Bellows Boy -	- 2 6	,,	- 2 6		
	2	Muckadums -	- 2 10	,,	- 5 8		
	1	Carpenter - -	- 6 -	,,	- 6 -		
	1	Chowkedar - -	- 2 3	,,	- 2 3		
	5	Masons - -	- 7 -	,,	2 3 -		
	2	Ditto - -	- 6 6	,,	- 13 -		
	4	Ditto - -	- 5 -	,,	1 4 -		
	7	Ditto - -	- 6 4	,,	2 12 4		
	7	Ditto - -	- 6 -	,,	2 10 -		
	1	Ditto - -	- 4 -	,,	- 4 -		
	1	Ditto - -	- 3 -	,,	- 3 -		
	4	Stonecutters -	- 6 11	,,	1 11 8		
	2	Ditto - -	- 5 -	,,	- 10 -		
	4	Ditto - -	- 7 -	,,	1 12 -		
	1	Ditto - -	- 6 6	,,	- 6 6		
	3	Ditto - -	- 6 -	,,	1 2 -		
	85	Biggaries - -	- 2 -	,,	10 10 -		
	41	Women - -	- 1 3	,,	3 3 3		
	8	Boys - - -	- 1 -	,,	- 8 -		
						83 3 9	
February 19	1	Carkoon - -	- 5 9	,,	- 5 9		
	1	Maistry - -	- 11 5	,,	- 11 5		
	1	Ditto - -	- 8 5	,,	- 8 5		
	2	Muckadums -	- 2 10	,,	- 5 8		
	1	Smith - - -	- 6 6	,,	- 6 6		
	1	Hammerman -	- 2 6	,,	- 2 6		
	1	Bellows Boy -	- 2 6	,,	- 2 6		
	2	Carpenters - -	- 6 -	,,	- 12 -		
	1	Chowkedar - -	- 2 3	,,	- 2 3		
		Carried forward - - -		*Rs.*	8 9 -	557 3 8	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -			8 9 –	557 8 8	
February 19 (*cont^d*)	2	Masons - -	– 6 6	each	– 13 –		
	5	Ditto - -	– 7 –	,,	2 3 –		
	3	Ditto - -	– 5 –	,,	– 15 –		
	7	Ditto - -	– 6 4	,,	2 12 4		
	7	Ditto - -	– 6 –	,,	2 10 –		
	1	Ditto - -	– 4 –	,,	– 4 –		
	1	Ditto - -	– 3 –	,,	– 3 –		
	4	Stonecutters -	– 6 11	,,	1 11 8		
	2	Ditto - -	– 5 –	,,	– 10 –		
	1	Ditto - -	– 6 3	,,	– 6 3		
	4	Ditto - -	– 7 –	,,	1 12 –		
	1	Ditto - -	– 6 6	,,	– 6 6		
	3	Ditto - -	– 6 –	,,	1 2 –		
	87	Biggaries - -	– 2 –	,,	10 14 –		
	46	Women - -	– 1 3	,,	3 9 6		
	12	Boys - - -	– 1 –	,,	– 12 –		
						34 9 3	
February 20	1	Carkoon - -	– 5 9	,,	– 5 9		
	1	Maistry - -	– 11 5	,,	– 11 5		
	2	Ditto - -	– 8 5	,,	1 – 10		
	2	Muckadums -	– 2 10	,,	– 5 8		
	1	Smith - -	– 6 6	,,	– 6 6		
	1	Hammerman -	– 2 6	,,	– 2 6		
	1	Bellows Boy -	– 2 6	,,	– 2 6		
	2	Carpenters - -	– 6 –	,,	– 12 –		
	1	Chowkedar - -	– 2 3	,,	– 2 3		
	5	Masons - -	– 7 –	,,	2 3 –		
	2	Ditto - -	– 6 6	,,	– 13 –		
	3	Ditto - -	– 5 –	,,	– 15 –		
	8	Ditto - -	– 6 4	,,	3 2 8		
	8	Ditto - -	– 6 –	,,	3 – –		
	1	Ditto - -	– 4 –	,,	– 4 –		
	1	Ditto - -	– 3 –	,,	– 3 –		
	4	Stonecutters -	– 6 11	,,	1 11 8		
	2	Ditto - -	– 5 –	,,	– 10 –		
	4	Ditto - -	– 7 –	,,	1 12 –		
	1	Ditto - -	– 6 6	,,	– 6 6		
	3	Ditto - -	– 6 –	,,	1 2 –		
	87	Biggaries - -	– 2 –	,,	10 14 –		
	44	Women - -	– 1 3	,,	3 7 –		
	12	Boys - - -	– 1 –	,,	– 12 –		
	1	Stonecutter - -	– 6 3	,,	– 6 3		
						35 11 6	
February 21	1	Carkoon - -	– 5 9	,,	– 5 9		
	1	Maistry - -	– 11 5	,,	– 11 5		
	2	Ditto - -	– 8 5	,,	1 – 10		
	2	Muckadums -	– 2 10	,,	– 5 8		
	1	Smith - -	– 6 6	,,	– 6 6		
	1	Hammerman -	– 2 6	,,	– 2 6		
	1	Bellows Boy -	– 2 6	,,	– 2 6		
	2	Carpenters - -	– 6 –	,,	– 12 –		
	1	Chowkedar - -	– 2 3	,,	– 2 3		
	5	Masons - -	– 7 –	,,	2 3 –		
	2	Ditto - -	– 6 6	,,	– 13 –		
	4	Ditto - -	– 5 –	,,	1 4 –		
	8	Ditto - -	– 6 4	,,	3 2 8		
	7	Ditto - -	– 6 –	,,	2 10 –		
	1	Ditto - -	– 4 –	,,	– 4 –		
	1	Ditto - -	– 3 –	,,	– 3 –		
	4	Stonecutters -	– 6 11	,,	1 11 8		
	2	Ditto - -	– 5 –	,,	– 10 –		
	1	Ditto - -	– 6 3	,,	– 6 3		
	4	Ditto - -	– 7 –	,,	1 12 –		
	1	Ditto - -	– 6 6	,,	– 6 6		
	3	Ditto - -	– 6 –	,,	1 2 –		
		Carried forward - - -		*Rs.*	20 9 6	627 8 5	

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward - - -			20 9 6	627 8 5	
February 21 (*cont*d)	87	Biggaries - -	- 2 -	each	10 14 -		
	43	Women - -	- 1 3	,,	3 5 9		
	12	Boys - - -	- 1 -	,,	- 12 -		
						35 9 3	
February 22	1	Carkoon - -	- 5 9	,,	- 5 9		
	1	Maistry - -	- 11 5	,,	- 11 5		
	2	Ditto - -	- 8 5	,,	1 - 10		
	2	Muckadums -	- 2 10	,,	- 5 8		
	1	Smith - - -	- 6 6	,,	- 6 6		
	1	Hammerman -	- 2 6	,,	- 2 6		
	1	Bellows Boy -	- 2 6	,,	- 2 6		
	2	Carpenters - -	- 6 -	,,	- 12 -		
	1	Chowkedar - -	- 2 3	,,	- 2 3		
	5	Masons - -	- 7 -	,,	2 3 -		
	2	Ditto - -	- 6 6	,,	- 13 -		
	4	Ditto - -	- 5 -	,,	1 4 -		
	8	Ditto - -	- 6 4	,,	3 2 8		
	9½	Ditto - -	- 6 -	,,	3 9 -		
	1	Ditto - -	- 4 -	,,	- 4 -		
	1	Ditto - -	- 3 -	,,	- 3 -		
	4	Stonecutters -	- 6 11	,,	1 11 8		
	2	Ditto - -	- 5 -	,,	- 10 -		
	4	Ditto - -	- 7 -	,,	1 12 -		
	1	Ditto - -	- 6 6	,,	- 6 6		
	4	Ditto - -	- 6 -	,,	1 8 -		
	84	Biggaries - -	- 2 -	,,	10 8 -		
	42	Women - -	- 1 3	,,	3 4 6		
	12	Boys - - -	- 1 -	,,	- 12 -		
	1	Stonecutter - -	- 6 3	,,	- 6 3		
						30 7 -	
February 23	1	Carkoon - -	- 5 9	,,	- 5 9		
	1	Maistry - -	- 11 5	,,	- 11 5		
	2	Ditto - -	- 8 5	,,	1 - 10		
	2	Muckadums -	- 2 10	,,	- 5 8		
	1	Smith - - -	- 6 6	,,	- 6 6		
	1	Hammerman -	- 2 6	,,	- 2 6		
	1	Bellows Boy -	- 2 6	,,	- 2 6		
	1	Chowkedar - -	- 2 3	,,	- 2 3		
	3	Biggaries - -	- 2 -	,,	- 6 -		
	1	Carpenter - -	- 6 -	,,	- 6 -		
						4 1 5	
February 24	1	Carkoon - -	- 5 9	,,	- 5 9		
	1	Maistry - -	- 11 5	,,	- 11 5		
	2	Ditto - -	- 8 5	,,	1 - 10		
	2	Muckadums -	- 2 10	,,	- 5 8		
	1	Smith - - -	- 6 6	,,	- 6 6		
	1	Hammerman -	- 2 6	,,	- 2 6		
	1	Bellows Boy -	- 2 6	,,	- 2 6		
	1	Carpenter - -	- 6 -	,,	- 6 -		
	1	Chowkedar - -	- 2 3	,,	- 2 3		
	5	Masons - -	- 7 -	,,	2 3 -		
	2	Ditto - -	- 6 6	,,	- 13 -		
	4	Ditto - -	- 5 -	,,	1 4 -		
	8	Ditto - -	- 6 4	,,	3 2 8		
	8	Ditto - -	- 6 -	,,	3 - -		
	1	Ditto - -	- 4 -	,,	- 4 -		
	1	Ditto - -	- 3 -	,,	- 3 -		
	4	Stonecutters -	- 6 11	,,	1 11 8		
	2	Ditto - -	- 5 -	,,	- 10 -		
	2	Ditto - -	- 6 3	,,	- 12 6		
	4	Ditto - -	- 7 -	,,	1 12 -		
	1	Ditto - -	- 6 6	,,	- 6 6		
	4	Ditto - -	- 6 -	,,	1 8 -		
	83	Biggaries - -	- 2 -	,,	10 6 -		
	43	Women - -	- 1 3	,,	3 5 9		
	12	Boys - - -	- 1 -	,,	- 12 -		
						35 13 6	
		Carried forward - - -			*Rs.*	739 7 7	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
1851:		Brought forward			- - -	739 7 7	
February 26	1	Carkoon - -	- 5 9	each	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	1	Carpenter - -	- 6 -	„	- 6 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 6	„	- 13 -		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	8	Ditto - -	- 6 -	„	3 - -		
	1	Ditto - -	- 4 -	„	- 4 -		
	1	Ditto - -	- 3 -	„	- 3 -		
	4	Stonecutters -	- 6 11	„	1 11 8		
	2	Ditto - -	- 5 -	„	- 10 -		
	2	Ditto - -	- 6 3	„	- 12 6		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	4	Ditto - -	- 6 -	„	1 8 -		
	84	Biggaries - -	- 2 -	„	10 8 -		
	41	Women - -	- 1 3	„	3 3 3		
	12	Boys - - -	- 1 -	„	- 12 -		
						35 6 8	
February 26	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	1	Ditto - -	- 8 5	„	- 8 5		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	1	Carpenter - -	- 6 -	„	- 6 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	8	Ditto - -	- 6 -	„	3 - -		
	1	Ditto - -	- 4 -	„	- 4 -		
	1	Ditto - -	- 3 -	„	- 3 -		
	3	Stonecutters -	- 6 11	„	1 4 9		
	2	Ditto - -	- 5 -	„	- 10 -		
	1	Ditto - -	- 6 3	„	- 6 3		
	4	Ditto - -	- 7 -	„	1 12 -		
	1	Ditto - -	- 6 6	„	- 6 6		
	5	Ditto - -	- 6 -	„	1 14 -		
	87	Biggaries - -	- 2 -	„	10 14 -		
	42	Women - -	- 1 3	„	3 4 6		
	12	Boys - - -	- 1 -	„	- 12 -		
						34 7 10	
February 27	1	Carkoon - -	- 5 9	„	- 5 9		
	1	Maistry - -	- 11 5	„	- 11 5		
	2	Ditto - -	- 8 5	„	1 - 10		
	2	Muckadums -	- 2 10	„	- 5 8		
	1	Smith - - -	- 6 6	„	- 6 6		
	1	Hammerman -	- 2 6	„	- 2 6		
	1	Bellows Boy -	- 2 6	„	- 2 6		
	1	Carpenter - -	- 6 -	„	- 6 -		
	1	Chowkedar - -	- 2 3	„	- 2 3		
	5	Masons - -	- 7 -	„	2 3 -		
	2	Ditto - -	- 6 5	„	- 13 -		
	4	Ditto - -	- 5 -	„	1 4 -		
	7	Ditto - -	- 6 4	„	2 12 4		
	8	Ditto - -	- 6 -	„	3 - -		
	1	Ditto - -	- 4 -	„	- 4 -		
	1	Ditto - -	- 3 -	„	- 3 -		
		Carried forward - - -		*Rs.*	14 2 9	809 6 1	

Appendix (C.)

No. 7.—Day Book of Labour—*continued.*

Date.	No.	ITEMS.	Rate.	Per	Amount.	Total.	Grand Total.
			Rs. a. p.		*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*
		Brought forward - - -			14 2 9	809 6 1	
February 27 (*cont^d*)	4	Stonecutters -	– 6 11	each	1 11 8		
	1	Ditto - -	– 5 3	„	– 5 3		
	2	Ditto - -	– 5 –	„	– 10 –		
	2	Ditto - -	– 6 3	„	– 12 6		
	4	Ditto - -	– 7 –	„	1 12 –		
	1	Ditto - -	– 6 6	„	– 6 6		
	6	Ditto - -	– 6 –	„	2 4 –		
	86	Biggaries - -	– 2 –	„	10 12 –		
	41	Women - -	– 1 3	„	3 3 3		
	12	Boys - - -	– 1 –	„	– 12 –		
						36 11 11	
February 28	1	Carkoon - -	– 5 9	„	– 5 9		
	1	Maistry - -	– 11 5	„	– 11 5		
	2	Ditto - -	– 8 5	„	1 – 10		
	2	Muckadums -	– 2 10	„	– 5 8		
	1	Smith - - -	– 6 6	„	– 6 6		
	1	Hammerman -	– 2 6	„	– 2 6		
	1	Bellows Boy -	– 2 6	„	– 2 6		
	1	Carpenter - -	– 6 –	„	– 6 –		
	1	Chowkedar - -	– 2 3	„	– 2 3		
	5	Masons - -	– 7 –	„	2 3 –		
	1½	Ditto - -	– 6 6	„	– 9 9		
	3⅔	Ditto - -	– 5 –	„	1 1 6		
	7	Ditto - -	– 6 4	„	2 12 4		
	8	Ditto - -	– 6 –	„	3 – –		
	1	Ditto - -	– 4 –	„	– 4 –		
	1	Ditto - -	– 3 –	„	– 3 –		
	4	Stonecutters -	– 6 11	„	1 11 8		
	1	Ditto - -	– 5 3	„	– 5 3		
	2	Ditto - -	– 5 –	„	– 10 –		
	1	Ditto - -	– 6 3	„	– 6 3		
	3	Ditto - -	– 7 –	„	1 5 –		
	1	Ditto - -	– 6 6	„	– 6 6		
	6	Ditto - -	– 6 –	„	2 4 –		
	86	Biggaries - -	– 2 –	„	10 12 –		
	42	Women - -	– 1 3	„	3 4 6		
	11	Boys - - -	– 1 –	„	– 11 –		
						35 9 2	
				Total Labour - - -	*Rs.*		881 11 2
				Materials, as per Stock Sheet - - -			1,545 9 7
				Grand Total - - -	*Rs.*		2,427 4 9

(signed) *W. Chapman*, Lieutenant.

DAILY OF FIGURED ABSTRACT - - - - - - - -

LABOUR - - - - - - - - - - - - -

DATE.	Carkoons.				Muckadums.				Maistry.				Biggaries.				Women.				Boys.				Carts.
1851:	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	
February - 1	1	-	5	9	2	-	5	8	2	1	3	10	90	11	4	-	33	2	9	3	12	-	12	-	-
2	1	-	5	9	2	-	5	8	2	1	3	10	63	7	10	-	23	1	12	9	7	-	7	-	-
3	1	-	5	9	2	-	5	8	2	1	3	10	61	10	2	-	35	2	11	9	15	-	15	-	-
4	1	-	5	9	2	-	5	8	2	1	3	10	83	10	6	-	35	2	11	9	12	-	12	-	-
5	1	-	5	9	2	-	5	8	2	1	3	10	84	10	8	-	40	3	2	-	12	-	12	-	-
6	1	-	5	9	2	-	5	8	3	1	12	3	70	8	12	-	35	2	11	9	10	-	10	-	-
7	1	-	5	9	2	-	5	8	3	1	12	3	82	10	4	-	36	2	13	-	12	-	12	-	-
8	1	-	5	9	2	-	5	8	3	1	12	3	87	10	14	-	36	2	13	-	12	-	12	-	-
9	1	-	5	9	2	-	5	8	3	1	12	3	2	-	4	-	-	-	-	-	-	-	-	-	-
10	1	-	5	9	2	-	5	8	3	1	12	3	84	10	8	-	38	2	15	6	11	-	11	-	-
11	1	-	5	9	2	-	5	8	3	1	12	3	85	-	10	10	39	3	-	9	11	-	11	-	-
12	1	-	5	9	2	-	5	8	3	1	12	3	86	10	12	-	41	3	3	3	11	-	11	-	-
13	1	-	5	9	2	-	5	8	3	1	12	3	86	10	12	-	42	3	4	6	11	-	11	-	-
14	1	-	5	9	2	-	5	8	3	1	12	3	85	10	10	-	43	3	5	9	10	-	10	-	-
15	1	-	5	9	2	-	5	8	3	1	12	3	85	10	10	-	42	3	4	6	10	-	10	-	-
16	1	-	5	9	2	-	5	8	3	1	12	3	2	-	4	-	-	-	-	-	-	-	-	-	-
17	1	-	5	9	2	-	5	8	2	1	3	10	90	11	4	-	42	3	4	6	8	-	8	-	-
18	1	-	5	9	2	-	5	8	2	1	3	10	85	10	10	-	41	3	3	3	8	-	8	-	-
19	1	-	5	9	2	-	5	8	2	1	3	10	87	10	14	-	46	3	9	6	12	-	12	-	-
20	1	-	5	9	2	-	5	8	3	1	12	3	87	10	14	-	44	3	7	-	12	-	12	-	-
21	1	-	5	9	2	-	5	8	3	1	12	3	87	10	14	-	43	3	5	9	12	-	12	-	-
22	1	-	5	9	2	-	5	8	3	1	12	3	84	10	8	-	42	3	4	6	12	-	12	-	-
23	1	-	5	9	2	-	5	8	3	1	12	3	3	-	6	-	-	-	-	-	-	-	-	-	-
24	1	-	5	9	2	-	5	8	3	1	12	3	83	10	6	-	43	3	5	9	12	-	12	-	-
25	1	-	5	9	2	-	5	8	3	1	12	3	84	10	8	-	41	3	3	3	12	-	12	-	-
26	1	-	5	9	2	-	5	8	3	1	12	3	87	10	14	-	42	3	4	6	12	-	12	-	-
27	1	-	5	9	2	-	5	8	3	1	12	3	86	10	12	-	41	3	3	3	12	-	12	-	-
28	1	-	5	9	2	-	5	8	3	1	12	3	86	10	12	-	42	3	4	6	11	-	11	-	-
During the Month	28	10	1	-	56	9	14	8	75	44	10	3	2,102	262	12	-	985	76	15	3	279	12	7	-	-

(True copies.)
(signed) *P. M. Melvill*, Lieut.-col., Secretary to Government.

(True copies.)
(signed) *R. J. H. Birch*, Lieut.-col.,
Offieg. Secy. to the Govt. of India, Military Dept.

DAILY OF FIGURED ABSTRACT.

LABOUR.

Masons' Sorts.				Carpenters.				Stonecutters' Sorts.				Smith.				Hammermen.				Bellows Boys.				Chowkedrs.				Total Labour.			
No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	No.	Rs.	a.	p.	Rs.	a.	p.	
26	9	14	4	1	–	6	–	5	2	1	6	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	29	12	1	
24	9	3	–	1	–	6	–	3	1	4	6	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	23	8	3	
26	9	14	6	1	–	6	–	6	2	9	4	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	29	7	5	
27	10	3	4	2	–	12	6	7	3	–	4	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	31	–	5	
27	10	3	4	4	1	4	–	8	3	6	4	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	32	6	8	
27	10	3	4	4	1	4	–	10	3	15	4	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	31	3	10	
27	10	3	4	5	1	6	–	14	5	6	7	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	34	8	4	
26	–	13	–	5	1	6	–	14	5	6	7	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	34	12	–	
23	8	12	8	1	–	6	–	11	4	7	4	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	17	9	8	
22	8	5	–	5	1	6	–	13	5	–	7	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	32	9	6	
27	10	8	–	4	1	4	–	12	5	–	7	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	34	8	9	
27	10	4	4	3	–	14	–	17	6	10	5	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	36	2	5	
26½	10	1	4	2	–	12	–	17	6	10	5	2	–	12	6	1	–	2	6	1	–	2	6	1	–	2	3	35	10	8	
27	10	4	4	3	–	14	–	13	5	5	5	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	34	6	11	
29	11	1	–	1	–	6	–	15	6	–	5	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	35	5	4	
23	8	12	8	1	–	6	–	11	4	7	7	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	17	3	8	
26	9	14	4	1	–	6	–	14	4	10	2	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	33	12	–	
27	10	1	4	1	–	6	–	14	4	10	2	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	33	3	9	
29	9	12	4	2	–	12	–	15	6	–	5	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	34	9	3	
28	10	8	8	2	–	12	–	15	6	–	5	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	35	11	6	
28	10	7	8	2	–	12	–	15	6	–	5	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	35	9	3	
30½	11	6	8	2	–	12	–	16	6	6	5	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	36	7	–	
–	–	–	–	1	–	6	–	–	–	–	–	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	4	1	5	
29	10	13	8	1	–	6	–	17	6	12	8	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	35	13	6	
28	10	7	4	1	–	6	–	17	6	12	8	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	35	6	8	
27	10	–	7	1	–	6	–	16	6	5	6	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	34	7	10	
28	10	7	4	1	–	6	–	20	7	13	11	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	36	11	11	
27	10	1	7	1	–	6	–	18	7	–	8	1	–	6	6	1	–	2	6	1	–	2	6	1	–	2	3	35	9	2	
719	271	8	1	59	19	2	–	354	144	6	11	38	15	2	–	28	4	6	–	28	4	6	–	28	3	15	–	881	11	2	

Total Materials during the Month - - -		1,545	9 7
GRAND TOTAL - - -	Rs.	2,427	4 9

(signed) *W. Chapman*, Lieutenant.

Appendix (G.)

Appendix (G.)

MINUTE by the Chief Engineer.

1. I WOULD propose the following scheme for the future class of Assistants in the Engineer Department.

2. The grades to be three, and subdivided into two classes, with corresponding pays as follows:

		Pay per Mensem.
Assistant Engineer	1st Class	Rupees, one hundred and fifty - 150
	2d Class	- ditto, one hundred and twenty - 120
Surveyors and Builders	1st Class	- ditto, one hundred - - - 100
	2d Class	- ditto, eighty - - - - 80
Assistant Surveyors and Builders	1st Class	- ditto, sixty - - - - 60
	2d Class	- ditto, forty - - - - 40

3. The grade of each individual to be determined with reference to qualifications and conduct, and not to length of service.

4. The qualification to be as follows:—

Assistant Engineer.

A knowledge of a complete course (Hutton's) of arithmetic, logarithms, the simple elements of algebra and plane geometry; mensuration of planes and solids, plane trigonometry and mensuration of heights and distances; the use of the theodolite and spirit level; simple trigonometrical surveying.

The calculation, plotting and fair delineation of simple trigonometrical and topographical surveys; the delineation and finishing in shade and colour of designs in architecture and civil engineering; the calculation and estimating of the same, as also their lining out for execution; an acquaintance with the properties and qualities of building materials, and of the principles of simple training in carpentry.

Surveyors and Builders.

A knowledge of the arithmetic (Hutton's Course), to the end of logarithms, practical geometry, mensuration of planes and solids; the use of all ordinary drawing instruments, and the ordinary masons and road levels; surveying with the plane table, compass and chain, fair plotting, and delineation in lines and shades of such surveys; the delineation and shading in ink of simple designs in architecture and civil engineering; the calculation and estimating, as also the lining out of such simple designs for executions; a partial acquaintance with the properties of materials for buildings.

Assistant Surveyors and Builders.

A knowledge of arithmetic (Hutton's Course), integers and fractions to the end of the square root, the elements of practical geometry, mensuration of planes and solids, the use of compasses and scales; the delineations in ink of the simplest description of topographical drawings and designs in architecture and civil engineering; the lining out of the latter for execution; surveying with chain and cross-staff; the fair delineation of such simple survey.

A practical acquaintance with the properties and qualities of the ordinary simple building materials.

5. Thus for each grade there is one scale of general professional attainment; but each is subdivided into two classes, with two corresponding scales of pay.

6. The qualifications above enumerated will be considered equally meritorious whether attained and applied through the medium of English, or either of the two vernacular dialects under this Presidency of "Mahratta" or "Goozrattee," in conformity with the rules laid down by Government for the late Government (Engineer) Institution, and which for twenty years have been attended with such advantages to Government in the employment as subordinates of the Engineer Department of the persons who were trained on the system pursued in that institution.

7. Candidates, when examined upon the foregoing scale of qualifications, will be allowed the use of their books for reference.

8. The examination of the candidates shall be conducted, registered and reported on by the Examiners of the Board of Education in committee with the Garrison Engineer, and Assistant Chief Engineer, or other two Engineer Officers, the Chief Engineer and Executive Officer, member of the Board, presiding.

9. Certificates of qualifications to be furnished by the Examiners, countersigned by the President of the Board of Education, the Chief Engineer and the Secretary to the Board.

10. In

10. In whatever department of Government the service and practice of engineerng may be required (Revenue Survey to be included), a preference to employment in that department shall be given to those individuals who shall produce the prescribed certificates of qualification over all other applicants for employment therein who do not possess such testimonials.

11. An individual will be appointed to any particular grade according to his general attainments. The rank of First Class, however, in any grade, will be accorded to those only who by testimonials either from the Examining Committee, or from the functionaries under whom they have been employed, are reported deserving of such distinction.

12. No one will be admitted as a candidate for promotion from a lower to a higher grade, unless he shall have previously attained to the position of First Class of the grade he holds.

13. Classification and promotion shall be regulated according to proficiency, usefulness and good conduct, without reference of time of service.

14. Any candidates for promotion from a lower to a higher grade shall, on application, appear, when practicable and convenient to the public service, before the Committee of Examination, in order to undergo the prescribed examination.

15. Under circumstances by which the public service might be impeded by the absence from the sphere of his occupations of a candidate for promotion, the production by him of a certificate of the attainment of proficiency prescribed, and of usefulness and good conduct, granted either by a local committee, or by the head of the office in which the candidate is serving, shall entitle the said candidate to immediate promotion; provided always, that he shall, on the first favourable opportunity, appear before the Examining Committee at the Presidency, to obtain from them a confirmation of his merits, and in default thereof to be to the lower grade from which he was

16. The rates of pay allotted shall be considered solely as a remuneration for professional service. All extra charges for establishment or stores will be borne by the State.

17. Batta or travelling allowance will be granted according to the following rates:—

		Rs.	*a.*	*p.*	
Assistant Engineer -	1st Class	1	2	–	one rupee and two annas per diem.
Ditto - - - - -	2d Class	–	14	5	fourteen annas and five pies ,,
Surveyors and Builders,	1st Class	–	14	–	fourteen annas - - - - ,,
Ditto - - - - -	2d Class	–	11	2	eleven annas and two pies ,,
Assistant Surveyors and Builders - - -	1st Class	–	8	5	eight annas and five pies ,,
Ditto - - - - -	2d Class	–	6	5	six annas and five pies ,,

* The rates according to the scale laid down in the order of the Bengal Government of 6th July 1826 for batta to public servants: a tent and pony will be furnished by Government in particular instances, according to the exigencies of the case.

* To be applied in cases where a higher salary is allotted than that of the First Class Assistant's Engineer, as above.

18. The following are the rates for leave of absence: applications for leave of absence will be forwarded to the Military Board, who will grant or withhold it at their discretion, provided the period does not exceed three months; the authority of Government will be required for any longer period. Leave of absence may be granted for one month without any reduction of salary, and for any period above that to the extent of two months with the loss of one-third salary; and from that to three months with loss of half salary; when leave of absence is obtained for a longer period than three months, the proportion is in each instance according to period of absence and the circumstances of the case.

19. The rules for suspension (Appendix, No. 1), notified in the Government Gazette of the 28th December 1843, and likewise the Superannuation Pension Rules published under date the 8th September 1835, Jameson's Code, section XLII., Art. 200, page 652, shall be applied to this class of servants.

20. Individuals possessed of and displaying mental acquirements, practical skill and general usefulness (combined with good character) beyond the scale laid down in the 4th para., shall meet with special consideration, and their case shall be specially recommended to Government for remuneration. Pay in proportion to the degree of merit of each case.

(signed) *G. Jervis*, Lieut.-col.,
Chief Engineer.

6 May 1846.

(True copy.)
(signed) *P. M. Melvill*, Lieut.-col.,
Secretary to Government.

Appendix (K.)

STATEMENT of the Number of SURVEYORS and BUILDERS, inclusive of the ELPHINSTONE INSTITUTION STUDENTS.

BOMBAY.	No.	SOUTHERN PROVINCES.	No.	NORTHERN PROVINCES.	No.
Expecting discharge with Pension	1	Superintending Engineer - -	2	Superintending Engineer - -	2
		*Executive Engineer, Poona -	4		
Acting Gar. and Civil Architect	2	Ditto - - - Belgaum -	4	Ex. Engineer, Surat and Broach	3
		Ditto - - - Dharwar -	4		
Engineer to the Dockyard - -	1	Ditto - - - Ahmednuggur	1	Ditto - - Ahmedabad -	3†
		*Civil Engineer, Candeish - -	3		
		* Ditto - - Sattara - -	2	Ditto - - Deesa - -	1
	4		20		9

SCINDE.	No.	COMMANDING ENGINEER, ADEN.	No.	ROAD AND TANK DEPARTMENT.	No.
Superintending Engineer, Scinde	–	Commanding Engineer - -	1	Superintendent Roads - -	1
				Lieutenant Chapman - -	1
Ex. Engineer, Lower Scinde -	2	‡Executive Engineer - -	1	Lieutenant Scott - - -	3
				Lieutenant Prevor - - -	1
Ditto - - Central Scinde -	1			Lieutenant Fuller - - -	3§
				Mr. R. Scott - - - -	2
				Mr. T. P. Armistead - -	1
				Captain Dennis - - -	1
	3		2		13

* *Note.*—Officers marked thus * have a Draftsman in their office in addition.

† Includes Mr. T. Scott, temporarily attached to Captain Jopp, Commissioner Sirshee and Pahlunpoor.

‡ There is a Mr. Randall also in the office: he was educated at Poona, and taken into the service before any of the Elphinstone Class.

§ One is attached to the office Captain Cowper was recently in charge of, and to which Lieutenant Fuller has been appointed; two attached to Lieutenant Fuller's own office in the Tama Collectorate.

The following Surveyors, not above accounted for :—

Under Superintendent of Railway - - - - - - -	1	
Under Collector of Land Revenue - - - - - - -	3	1. Mr. I. Edge, in charge Survey Department.
Under Collector of Kaira - - - - - - - - -	1	
Under Superintendent, Guzerat Trigonometrical Survey - -	1	
Under Collector, Surat - - - - - - - - -	2	
Under Settlement Officer, Deccan - - - - - -	1	
Mr. R. Scott, a Second Assistant Superintendent Roads - -	1	
Mr. T. Sangers, Second Assistant Grand Trigonometrical Survey	1	
Mr. W. S. Price, Assistant Superintendent Revenue Survey -	1	
Under Superintendent Cotton Experiments, Candeish - - -	1	
Ditto - - - - ditto - - - - Surat - - -	1	
TOTAL - - -	14	

ABSTRACT.

Bombay - - - - - - - - - - - - - -	4
Southern Provinces - - - - - - - - - -	20
Northern Provinces - - - - - - - - - -	9
Scinde - - - - - - - - - - - - - -	3
Aden - - - - - - - - - - - - - -	2
Road and Tank Department - - - - - - - -	13
Attached to other offices, and holding special appointments - -	14
Mr. Randall at Aden - - - - - - - - - -	1
GRAND TOTAL - - -	66

(True copy.)
(signed) *P. M. Melvill*, Lieut.-col.,
Secretary to Government.

(True copies.)
(signed) *R. J. H. Birch*, Lieut.-col.,
Offg. Secy., India, Military Department.

Appendix (M.)

MILITARY DEPARTMENT.

(No. 2,971.)

From Lieutenant-colonel *P. M. Melvill*, Secretary to Government, to the Secretary to the Government of *India*, dated 11 November 1851.

Sir,

ADVERTING to my letter, No. 2,961, of the 10th instant, forwarding the Report of the Commission on Public Works for submission to the Government of India, I am directed by the Right honourable the Governor in Council to transmit the annexed papers, marginally noted, and to request you will be pleased to bring to special notice the services rendered by Captain Gaisford, as Secretary to the Commission, together with the respectful recommendation of this Government that those services may be compensated by a salary of (300) three hundred rupees per mensem during the period the Commission continued engaged in its important labours, deducting therefrom the additional batta and boat allowance which have been drawn under the ordinary regulations.

1. Letter from Capt. Gaisford, dated 4 Sept.
2. Report of the Auditor-general, dated 23 Sept.
3. Min. of the Commission, dated 5 Aug.

I have, &c.
(signed) *P. M. Melvill*, Lieut.-colonel,
Secretary to Government.

Bombay Castle,
11 November 1851.

(1.)

From Captain *Thomas Gaisford* to *J. G. Lumsden*, Esq., Secretary to Government, *Bombay*, dated 4 September 1851.

Sir,

I HAVE the honour to request that you will solicit the orders of Government respecting the allowances I may be permitted to draw while deputed as a member of the Public Works Commission, and acting as secretary to the same.

I left Ahmednuggur for the above duty on the 14th April. The Report was finished on the 1st instant. I have received my garrison pay and official salary while thus employed, but have abstained from drawing any batta, Presidency house-rent, or boat allowance.

I have, &c.
(signed) *T. Gaisford*, Captain Artillery.

Ahmednuggur,
4 September 1851.

(2.)

REPORT by the Auditor-general, No. 348, dated 23 September 1851.

CAPTAIN GAISFORD has been in receipt of the full allowances of his appointment, as Director of the Artillery Depôt of Instruction at Ahmednuggur during the period embraced in his application; viz.—

	Rs.	*a.*	*p.*
Staff Pay, rupees six hundred	600	–	–
Pay and Garrison Allowances, three hundred and ninety-two and five annas	392	5	–
Nine hundred and ninety-two and five annas	*Rs.* 992	5	–

And this officer will further be entitled to receive the additional batta of his rank, or *Rs.* 91 5 *a.* (ninety-one and five annas) per mensem, with *Rs.* 23 (twenty-three) for boat allowance, between Panwell and Bombay.

2. But, from the nature of the duty that devolved on Captain Gaisford, that of secretary and member of the Commission on the Public Works Department, and the concurring testimony of the Commissioners to his valuable and important services, I would respectfully recommend a salary of *Rs.* 300 (three hundred) per mensem for the consideration of your Lordship in Council, and that of the Government of India, to whom the subject will have to be referred.

(signed) *G. Moore*, Colonel,
Military Audr. Genl.

23 September 1851.

Appendix (M.)

(3.)

MINUTE of the Commission, dated 5 August.

ON the completion of our Report on the Public Works Department, I propose we should submit for the consideration of the Right honourable the Governor in Council the subject of remuneration to our Secretary, who, by the Government letter dated 26 March 1851, was specially appointed to such duty, in addition to that of a member of this Commission.

It must be apparent, from the Report, with its Appendices, the very great amount of labour and research that has devolved on Captain Gaisford in the arrangement and condensation of the opinions and reports this Commission has received from the civil and military officers who were consulted on the important subject of our inquiry, and the attention of Government should be drawn thereto.

I consider Captain Gaisford's valuable services in the Commission justly entitle him to an adequate compensation beyond the amount of his official salary which he would have otherwise drawn for the ordinary duty of Director of the Depot of Instruction.

5 August. (signed) *G. Moore.*

I concur fully.

(signed) *J. D. Inverarity.*
H. B. Turner.

(True copies.)
(signed) *P. M. Melvill*, Lieut.-colonel, Secretary to Government.

(True copies.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Secy., Govt. of India, in the Military Department.

MILITARY DEPARTMENT.

(No. 38.)

From Colonel *J. Stuart*, C. B., Secretary to the Government of *India*, Military Department, with the Governor-general, to the Officiating Secretary to the Government, *India*, Military Department, *Calcutta*, dated 3 January 1852.

Sir,

IN returning the original enclosures of your despatch, No. 401 of the 16th ultimo, I am directed to acquaint you, for the information of the honourable the President in Council, that as the Report of the Commission assembled at Bombay to report on the system of Public Works at that Presidency must be taken into consideration in connexion with the Report of the Bengal Committee, it will be desirable to have it examined and epitomised by his Lordship's arrival in Calcutta.

2. The Governor-general thinks that the allowance proposed for the Secretary is reasonable.

I am, &c.
(signed) *J. Stuart*, Colonel,
Sec. to the Gov. of India, Military Department,
with the Governor-general.

Camp, Chowbeepore,
3 January 1852.

(True copy.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Sec. to the Gov. of India, in the Military Department.

(No. 401.)

From Major *J. S. Banks*, Officiating Secretary to the Government of *India*, Military Department, to Colonel *J. Stuart*, C. B., Secretary to the Government of *India*, Military Department, with the Most noble the Governor-general; dated 16 December 1851.

Sir,

WITH reference to the correspondence* noted in the margin, I am desired to forward for submission to the Most noble the Governor-general the accompanying despatches, No. 2,961 of the 10th, and No. 2,971 of the 11th November 1851, from the Secretary to the Government, Military Department, Bombay; the former submitting the Report of the Commission appointed to inquire into the existing system of Public Works at that Presidency, and the latter

* Letter from the Officiating Secretary to Government, Military Department, Calcutta, No. 501, dated 19 April 1851,

latter conveying the recommendation of the Bombay Government, that Captain Gaisford may be remunerated for services rendered as Secretary to the said Commission. and your Reply thereto, No. 187, dated 30 July 1851.

I have, &c.
(signed) *J. S. Banks*,
Offieg. Sec. to the Gov. India, Military Department.

Council Chamber, Fort William,
16 December 1851.

(True copy.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Sec. to the Gov., India, Military Department.

(No. 829.)

From Lieutenant-colonel *P. M. Melvill*, Secretary to Government, to Lieutenant-colonel *R. J. H. Birch*, C. B., Officiating Secretary to the Government, *India*, in the Military Department, Bombay Castle, 25 March 1852.

Sir,

WITH reference to my despatch, No. 2,961, dated 10th November last, I am directed to transmit the accompanying extract, Section VI. of the Report of the Commission appointed to inquire into the existing system of Public Works, together with a letter from the Military Board, No. 1,795, dated 1st instant, and to request that, in laying them before the Most noble the Governor-general of India in Council, you will be pleased to submit the request of the Right honourable the Governor in Council, that the expenditure stated in the Military Board's letter as necessary, in order to carry out the proposed plan for extending the Sappers' School at Poona, may receive the sanction of his Lordship in Council.

I have, &c.
(signed) *P. M. Melvill*, Lieut.-colonel,
Sec. to Government.

SECTION VI.

ENGINEER SCHOOLS.

168. AFTER the Government Institution had been some years abolished, the Quartermaster-general's Department felt the want of qualified persons as draftsmen and surveyors. To remedy this, Government, in 1840, sanctioned a plan by Lieutenant Wemyss, who then commanded at head quarters of the Engineer Corps (now called the Sappers and Miners), for remodelling the Regimental School, so as to qualify recruit boys for filling those situations.

109. The number was fixed at 40 boys, of whom the best were to be appointed to the Corps of Guides, and the remainder, if eligible, were to be permitted to enlist in the ranks on attaining the age of 18 years.

110. At present 27 boys attend this school, 10 of whom belong to the Sappers, and 17 to other native corps. They are instructed by an English teacher, a Sapper, and two Mahratta Pundits, on stipends of *Rs.* 30, *Rs.* 15, and *Rs.* 3, respectively.

111. The subjects of instruction, and the students' allowances, are as follows:

CLASS.	Number of Boys.		Monthly Allowances.	SUBJECTS TAUGHT.
	Established.	Actual.		
			Rs.	
1st - -	10	- -	6	Plane trigonometry and surveying.
2d - -	10	5	5	Geometry, mensuration, plane drawing.
3d - -	20	22	3½	Mahratta and English reading, writing, &c.

112. The Quartermaster-general informs us, that the lads entertained in his department from this school have all been found capable on joining of carrying on an ordinary road survey with permmbulator and compass, keeping a field-book, and plotting neatly. Thirteen of these young men are now employed, whereof five have been promoted to draftsmen, on salaries varying from 30 to 50 rupees, all of them drawing with neatness and correctness, able to read and write English with tolerable facility, and to use the plane table and

Appendix (M.)

theodolite. Lieut.-colonel Holland considers that this Engineer School adequately fulfils the purpose for which his predecessor supported in 1810 the late Captain Wemyss' plan.

113. The East Indian youths permitted, by Article 64. p. 311, Jameson's Code, to be entertained as apprentices to the European artificers, seem to be tacitly declined. The Regimental School, when enlarged, may supply lads more suitable for apprenticeship to maistries; but we are diffident of engineer maistries being thus produced from any class; they should rather spring from among the operatives of the country. We prefer, therefore, to advise, that young workmen approving themselves by skill in handicraft already attained, and by superior intelligence, should be recommended by executive engineers for instruction in the Sapper School, and there allowed ordinary wages for a certain period, with a view to their acquiring practice in accounts, and ability to work from a plan; or where, from distance, this would be inconvenient, we recommend their being attached to the Engineer's own office for instruction by the officer himself, or by his establishment, as circumstances might admit, on the same terms.

114. We have visited the Sapper Schools. The Europeans have a creditable knowledge of plane drawing, writing and accounts: they are all instructed in surveying, levelling and estimating.

115. We found the older native boys tolerably instructed in English reading, writing and accounts. Reflecting on what we had thus far seen, we were all disposed to question whether it was not a mistake to give up so much time to English instruction, particularly as a correct knowledge of the vernacular is commonly found wanting in lads who from an early age have been taught through the medium of a foreign tongue.

116. Considering the Public Work Department only, and not that of the Quartermaster-general, we were at first inclined to think, that, instead of teaching the many natives a difficult language like English, the few Europeans should rather have instruction in Mahratta, whereby not only might all the subordinates communicate one with another, but the Europeans, as overseers, would become a far more efficient body.

117. However, having since consulted Major Candy, Superintendent of the Poona College, and having witnessed what the scholars at that institution can do, we are satisfied that a competent knowledge of English may be required from candidates for the Public Works Department without the slightest apprehension of deficient numbers offering, or that this additional qualification will at all impair their fitness for that portion of engineering business which is conducted in Mahratta.

118. We would, therefore, expunge the 6th clause from Colonel Jervis's scheme, and require from every grade of surveyors and builders a thorough acquaintance with English. There are various institutions all deserving a share of such encouragement, from which competitors for employment will come forward.

119. We find that the Poona College alone is capable of supplying, in any numbers likely to be wanted, young men, most Brahmins, thoroughly grounded in mathematics and English, and needing only the superstructure of engineering knowledge to become qualified as surveyors and builders.

120. From these sources the present deficiencies of the branch may be replenished without long delay, and its future wants may certainly be supplied at Poona from a class of willing lads preferable to those bred in Bombay, from their moderate expectations, hardier training, and better fitness, as Decannees, to fare abroad in the districts.

121. Major Candy is of opinion that *Rs.* 7 per mensem would be a sufficient rate of subsistence for students while under instruction in the Sapper School.

122. Colonel Jervis's rules, in the Appendix, containing all the main provisions that will not be better left to the officer who will direct the engineering institution than attempted by us, the only arrangements remaining for us to name as requisite for improving the present means of instructing engineer subordinates, are as follows:

122-3. To accommodate classes of European overseers, native surveyors and maistries, an appropriate building must be erected: the present school-rooms are not more than sufficient for the recruit boys: a competent English teacher, not liable to be moved for the upper classes, with a native assistant, drawn perhaps from among the present surveyors, must be appointed: general supervision of the whole will appropriately rest with the Commanding Officer of the Sappers. Before determining his scheme, that officer should communicate with the principal of the Civil Engineering College at Roorkee, whence may probably be obtained a course of instruction made ready to his hand.

PUBLIC WORKS.

(No. 1,795 of 1852.)

To the Right honourable Lord Viscount *Falkland*, G. C. H., Governor and President in Council.

My Lord,

WITH reference to Secretary Lieutenant Colonel Melvill's letter, No. 2,962, dated 10th November last, and its accompanying extract from the report by the Commission upon Public Works, proposing a re-modelling of the Sapper School at Poona, in view to obtaining qualified persons for the Department of Public Works, we have the honour to report, that we approve of the proposition, and think it offers a fair chance of success. The only point

on

on which we entertain any doubt, is the propriety of giving the instruction in English; but in making the foregoing remark, we do not wish that the proposals of the Commission should be hindered or altered. We strongly recommend that they be carried into effect as early as possible.

2. On receipt of Secretary Lieutenant-colonel Melvill's letter, we addressed Captain Studdert, commanding Sappers and Miners, and Major Candy, Superintendent of the Poona College, requesting the former officer's opinion as to the buildings that would be requisite, and requesting him to furnish rough plans, and approximate estimate of the same, and requesting the favour of the opinion of the latter as to the salary of the European teacher and his assistant.

3. Major Candy, in reply, has stated, "I do not think that a well-educated man, competent to teach the upper classes of the proposed Institution, could be procured from Great Britain under a salary of *Rs.* 300 per mensem. This sum I should look on as the minimum amount of stipend to be given; *Rs.* 400 per mensem would be a more suitable sum: a Native Assistant Teacher might, I think, be procured on a salary of from *Rs.* 75 to *Rs.* 100 per mensem.

"As two or three hours a day would probably be sufficient for the instruction of the upper classes, I would suggest that this work might, with advantage to the economical working of the Institution, be committed to some competent person, who would not be entirely dependent for support on the remuneration received for it. The professor of mathematics in the Poona College, for instance, could give a couple of hours or so to this work, without trenching on his duties in the College, and I am authorized by him to say that he would be happy to do so for a remuneration of *Rs.* 200 or *Rs.* 150 per month."

4. Captain Studdert has submitted (under date 30th January) an estimate of the probable cost of constructing a school-room capable of accommodating 30 students, which amounts to *Rs.* 3,527.

5. The expenditure involved in the contemplated extension of the Sapper School at Poona will thus be as follows:

	Rs.
The erection of School-rooms	3,527
Monthly Expenses:	
Head Teacher	150 or 200
Native Assistant	75

6. The Commission seems to have considered that it would be necessary to subsist the youths, whilst under instruction, at a cost of about *Rs.* 7 per mensem for each. The expense of such subsistence, were it found necessary, would, of course, depend on the number of the students: it is difficult to make a satisfactory calculation as to what this number should be; but, supposing the course of instruction to average two years, thirty students of both classes (surveyors and builders and maistries) might be assumed as the average of a good many years: perhaps 15 as maistries, and the same number of the superior class, might be considered as the complement of the school, or the number under instruction might be left undetermined, and only five appointments of the superior class and five as maistries assured per annum; but we think that the grant of subsistence would be an unnecessary expenditure, and we recommend that at least the attempt be made to obtain students without any such grant.

We have, &c.
(signed) *C. Waddington*,
Lieut.-colonel Commandant, Chief Engineer.
J. Swanson, Major.

Bombay, Military Board Office,
1 March 1852.

(True copies.)
(signed) *P. M. Melvill*, Lieut.-colonel,
Secretary to Government.

(True copies.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Secy. to Govt., India, in the Military Department.

(No. 1,096.)

From *J. G. Lumsden*, Esq., Secretary to Government, to Secretary to the Government of India, Bombay Castle, 9 August 1852.

Sir,

I AM directed by the Right honourable the Governor in Council to transmit the accompanying copies of a letter from the Military Board, No. 7,527, dated 22d ultimo, and its enclosure, relative to the want of surveyors experienced by the Superintending Engineer, Southern Provinces, and to request, under the urgency of the applications, that, in submitting them, you will be pleased to move the Government of India to favour this Govern-

Appendix (M.)

ment with a decision on the subject submitted in the letter from this department, dated the 25th of March last, No. 829.

I have, &c.
(signed) *J. G. Lumsden*,
Secretary to Government.

Military Department, Bombay Castle,
9 August 1852.

(No. 7,527 of 1852).

To the Right honourable Lord Viscount *Falkland*, G. C. H., Governor and President in Council, dated 22 July 1852.

My Lord,

We have the honour to submit the accompanying letter, No. 2,764, of the 26th June 1852, from the Superintending Engineer, Southern Provinces, and to state, that it is the result of a correspondence regarding the want of surveyors.

2. The want of this class of public servants is great; but we can make no further definite recommendations to remedy the want pending the decision on the proposed institution at Poona, which formed the subject of reference by your Lordship in Council, under date the 10th November 1851, in Secretary Lieutenant-colonel Melvill's letter, No. 2,962, on which we reported in our letter, No. 1,795, of 1st March 1852.

3. We strongly recommend that the proposals of the Public Works Commission on this subject be put in force as early as possible.

We have, &c.
(signed) *C. Waddington*,
Lieut.-colonel Commandant, Chief Engineer.
J. Swanson, Major.

Bombay, Military Board Office,
22 July 1852.

(No. 2,764 of 1852.)

From Lieutenant-colonel *Walter Scott*, Superintending Engineer, Southern Provinces, to the Secretary Military Board, Bombay, dated 26 June 1852.

Sir,

With reference to your memorial, No. 4,818, of 30th April last, I have now the honour to report, that I have received several applications from young men educated at the Poona College for appointments: generally speaking, their mathematical acquirements are beyond, and some very much beyond, what is required.

2. They all, however, labour under the fatal objection of want of practical knowledge; and I submit, that in an executive office the use of instruments and the rudimentary portion of surveying could not be imparted without delays injurious to the conduct of Public Works.

3. If they were well grounded in the rudimentary part of practical surveying, they would improve in practice; but without some preliminary knowledge, they would occasion great and vexatious delays.

4. I believe that by the time a class for field instructions has been established for 12 months, we should be able to obtain from 12 to 15 young men, not perfect surveyors, but able to undertake simple surveys, and who would improve themselves by real practice.

5. I have been disappointed with respect to East Indians. I had hoped that with so many European pensioners in Belgaum, Captain North would have been able to obtain some; but he has not yet reported any applications.

6. As I understand that the subject has been discussed by the Commission of Public Works, I will not again trouble you with my views, which, of course, are less matured than theirs, and the proposition of different schemes distracts attention.

7. I believe, however, in urging the speedy establishment of a field surveying class, I am in accordance with them.

8. The extreme urgency of our wants is so great, that I trust I may be excused agitating this matter.

I have, &c.
(signed) *Walter Scott*, Lieut.-colonel,
Supg. Engineer, S. P.

S. E. O. S. P., Poona,
26 June 1852.

(True copies.)
(signed) *J. G. Lumsden*, Secretary to Government.

(True copies.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Secy, Govt. of India, Military Department.

(No. 103.) Appendix (M.)

From Lieutenant-colonel *R. J. H. Birch*, C. B., Officiating Secretary to the Government of India in the Military Department, to Lieutenant-colonel *P. M. Melvill*, Secretary to Government, Military Department, *Bombay*, dated 2 October 1852.

Sir,

In reply to your despatch, No. 1,996, of the 9th August last, I am directed to acquaint you, for the information of the Right honourable the Governor in Council of Bombay, that the Most noble the Governor-general of India in Council is pleased, under the circumstances stated, to sanction the expenditure necessary for carrying out the proposed plan for extending the Sapper School at Poona to the extent set forth in the Bombay Military Board's letter, No. 1,795, of the 1st March 1852.

I have, &c.
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Secy. to Govt. of India, Military Department.

Council Chamber, Fort William, 2 October 1852.

(True copy.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offig. Secy. to Govt. of India, in the Military Department.

(No. 570.)

From Lieutenant-colonel *R. J. H. Birch*, C. B., Officiating Secretary to the Government of India, Military Department, to Lieutenant-colonel *P. M. Melvill*, Secretary to Government, Military Department, *Bombay*, dated 28 May 1853.

Sir,

Your despatch, No. 2,971, of the 11th November 1851, having been submitted to the Government of India, I am desired to state, that, in compliance with the recommendation of the Bombay Government, the Most noble the Governor-general of India in Council is pleased to sanction the grant of salary of *Rs.* 300 (three hundred) per mensem to Captain Gaisford, for the period during which he performed the duties of Secretary to the Commission on Public Works at Bombay, deducting therefrom the additional batta and boat allowance which it appears have been already drawn by him under the ordinary regulations.

The report of the Commission, received with your letter, No. 2,961, of the 10th of November, and the subject of your despatch, No. 829, of the 25th March 1852, are under consideration.

I am &c.
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Secy. to Govt. of India, Military Department.

Council Chamber, Fort William, 28 May 1853.

(True copy.)
(signed) *R. J. H. Birch*, Lieut.-colonel,
Offieg. Secy. to the Govt. of India, in the Military Department.

(True copies.)
(signed) *T. L. Peacock*,
Examiner of India Correspondence.

East India House, 17 January 1854.

PUBLIC WORKS (BENGAL, &c.)

COPIES of the REPORT of the COMMISSIONERS on PUBLIC WORKS at Bombay, in the Year 1851–52; with the MINUTES of the Members of the Government, and ORDERS or DESPATCHES of the COURT of DIRECTORS relating thereto.

(*Mr. Hume.*)

Ordered, by The House of Commons, *to be Printed,*
6 *February* 1854.

[*Price* 1*s.* 3*d.*]

PAPERS RESPECTING GWALIOR.

(PRESENTED TO PARLIAMENT BY COMMAND OF HER MAJESTY.)

Treaty of Peace and Friendship with Dowlut Rao Scindia, 1803 - - - - - p. 1
Treaty of Alliance with Dowlut Rao Scindia, 1804 - - - - - - - p. 4
Treaty with Rao Scindia, with the Declaratory Articles annexed, 1805 - - - - p. 7
Treaty with Dowlut Rao Scindia, 1817 - - - - - - - - - - p. 10
Engagement between the British Government and Maharajah Dowlut Rao Scindia, 1820 - p. 12
Notes of a Conference between the Governor-General and Ram Rao Phalkeea, 19 December 1843 - - - - - - - - - - - - - - - p. 13
Proclamation of 20 December 1843 - - - - - - - - - - - p. 15
Proclamation of 25 December 1843 - - - - - - - - - - - p. 17
Proclamation of 27 December 1843 - - - - - - - - - - - p. 17
Treaty with Jyajee Rao Scindia, 1844 - - - - - - - - - - p. 18
Notification of the Governor-General, 13 January 1844 - - - - - - - p. 21
Proclamation by the Governor-General, 15 January 1844 - - - - - - p. 21

TREATY of PEACE and FRIENDSHIP with *Dowlut Rao Scindia*, 1803.

TREATY of PEACE between the Honourable English East India Company and their Allies, on the one part, and the Maharajah *Ali Jah Dowlut Rao Scindia*, on the other; settled by Major-general the Honourable *Arthur Wellesley*, on the part of the Honourable Company and their Allies, and by *Eetul Mahadeo*, *Moonshee Kavel Nyn*, *Jeswunt Rao Gooparah Ameer Ool Omrah*, and *Narroo Hurry*, on the part of the Maharajah *Dowlut Rao Scindia*, who have each communicated to the other their full Powers.

ARTICLE I.—THERE shall be perpetual peace and friendship between the Honourable Company and their allies on the one part, and the Maharajah Ali Jah Dowlut Rao Scindia on the other.

ART. II.—The Maharajah cedes to the Honourable Company and their allies, in perpetual sovereignty, all his forts, territories and rights in the Doab, or country situated between the Jumna and Ganges; and all his forts, territories, rights and interests in the countries which are to the northward of those of the Rajahs of Jyepore and Joudpore, and of the Ranah of Gohud, of which territories, &c. a detailed list is given in the accompanying Schedule. Such countries formerly in the possession of the Maharajah, situated between Jyepore and Joudpore, and to the southward of the former, are to belong to the Maharajah.

ART. III.—The Maharajah likewise cedes to the Honourable Company and their allies, in perpetual sovereignty, the fort of Baroach and territory depending thereon, and the fort of Ahmednugur and territory depending thereon, excepting those lands which it is agreed, by the Eighth Article of this Treaty, that the Maharajah is to retain.

ART. IV.—The Maharajah likewise cedes to the Honourable Company and their allies all the territories which belonged to him previous to the breaking out of the war, which are situated to the southward of the hills called the Adjimtee Hills, including the fort and district of Jalnapore, the town and district of Gandapore, and all other districts between that range of hills and the river Godavery.

ART. V.—The Maharajah Ali Jah Dowlut Rao Scindia, for himself, his heirs and successors, hereby renounces all the claim to the forts, territories, rights and interests ceded by the Second, Third and Fourth Articles; and all claims of every description upon the British Government and their allies, the Sobahdar of the Deccan, the Peishwah and Anund Rao Gwicowar.

ART. VI.—The fort of Asseerghur, the city of Boorhanpore, the forts of Pomanghur and Dohud, and the territories in Candeish and Guzerat, depending on these forts, shall be restored to the Maharajah Dowlut Rao Scindia.

ART. VII.—Whereas the Maharajah Dowlut Rao Scindia has represented that his family have long held, in Enaum, as a gift from the Kings of Hindoostan, the districts of Dholepore, Baree and Raja Kerrah, which are situated to the northward of the countries of the Rajahs of Jyepore and Joudpore, and of the Rana of Gohud; and that lands in Hindoostan, ceded by the Second Article of this Treaty to the Honourable Company, and their allies, are held in Jagheer by persons of the family of the late Madhajee Scindia, and others by principal Sirdars in his service, all of whom would suffer distress if deprived of the advantages they enjoy in those countries: It is agreed, that the Maharajah shall continue to hold and enjoy, in Enaum, the lands of Dholepore, Baree and Rajakerrah, and that Bala Baye Sahib, and Munsoor Sahib, Moonshee Kavel Nyn, Boogajee Jamdah, Amrajee Jadhoo, and Wirdah Charie, shall continue to hold their lands in Jagheer under the protection of the Honourable Company. And further, in order that no individual may incur loss or suffer distress in consequence of this arrangement, it is agreed, that the Honourable Company shall either pay pensions or grant lands in Jagheer, according to the option of the British Government, to certain other Sirdars, and others to be named by the Maharajah, provided that the total amount by the sums paid, or Jagheers granted or held, does not exceed seventeen lacks of rupees per annum, including the annual value of the lands, which it is agreed by this Article that Bala Baye Saheb, Munsoor Saheb, Moonshee Kavel Nyn, Boogajee Jamdeh, Ambajee Jadhoo and Wirdah Charie, are to continue to hold; and provided that no troops in the service of the Maharajah are to be introduced into Dholepore, Baree, and Raja-kerrah, or the other lands held in Jagheer, under the pretence of collecting the revenue, or any other pretence whatever.

ART. VIII.—Whereas the Maharajah Dowlut Rao Scindia has represented that his family have long held, in Enaum, certain lands, villages, &c., in the territories of Rao Pundit Purdhaun; viz. Chomargoondee Pergunnah, Jamgaum, Ranjingaum, half of Seo-gaum Pergunnah, six villages in Umba Pergunnah, five villages in Pytun Pergunnah, five villages in Niwaz Pergunnah, five villages in Hurla Pergunnah, six villages in Poonah Pergunnah, two villages in Wahy Pergunnah, six villages in Patutood Pergunnah, five villages in Pandipeergaum Pergunnah, five villages in Pagood Pergunnah, two villages in Parnyra Pergunnah, which have lately been taken possession of by the British Government and their allies: It is agreed that those lands and villages shall be restored to him, provided that no troops shall ever be introduced into those lands and villages under pretence of collecting the revenues, or any other pretence whatever.

ART. IX.—Certain treaties have been made by the British Government with Rajahs and others, heretofore feudatories of the Maharajah Ali Jah Dowlut Rao Scindia. These treaties are to be confirmed, and the Maharajah hereby renounces all claims upon the persons with whom such treaties have been made, and declares them to be independent of his government and authority, provided that none of the territories belonging to the Maharajah, situated to the southward of those of the Rajahs of Jyepore and Joudpore and the Ranah of Gohud, of which the revenues have been collected by him or his Aumildars, or have been applicable as surinjamee to the payment of his troops, are granted away by such treaties. Lists of the persons with whom such treaties have been made will be given to the Maharajah Dowlut Rao Scindia, when this treaty will be ratified by his Excellency the Governor-general.

ART. X.—No person whatever is hereafter to be molested on account of the part which he may have taken in the present war.

ART. XI.—It is agreed, that the rights of his highness the Peishwa to certain lands in Malwa and elsewhere shall be established as heretofore; and in case any difference should arise respecting those rights, it is agreed that the Honourable Company shall mediate, arbitrate and decide, according to the principles of justice, between his Highness and the Maharajah; and whatever shall be thus decided will be agreed to by both parties, and will be carried into execution.

ART. XII.—The Maharajah Dowlut Rao Scindia hereby renounces all claims upon his Majesty Shah Aulum, and engages, on his part, to interfere no further in the affairs of his Majesty.

ART. XIII.—The Maharajah Dowlut Rao Scindia engages never to take or retain in his service any Frenchman, or the subject of any other European or American Power, the government of which may be at war with the British Government, or any British subject, whether European or native of India, without the consent of the British Government.

ART. XIV.—In order to secure and improve the relations of amity and peace hereby established between the Governments, it is agreed that accredited ministers from each shall reside at the court of the other.

ART. XV.—The Honourable Company being bound by treaties of general defensive alliance with his Highness the Soubadhar of the Deccan and his Highness Rao Pundit Purdhaun, to which the Maharajah Dowlut Rao Scindia is desirous of acceding, he is to be admitted to the benefits thereof; and the Honourable Company, with a view to the future security of the Maharajah's territories, engage, in the event of his agreeing to the treaty above mentioned, in two months to furnish him with a force consisting of six battalions of infantry, with their compliment of ordnance and artillery, and usual equipments of military stores, &c.; and the expense of this force is to be defrayed out of the revenues of the lands ceded by the Second, Third and Fourth Articles. But it is agreed, that in case it should suit the interests of the Maharajah's Government to decline to enter into the treaty above mentioned, such refusal shall not affect any of the other stipulations of this treaty of peace, which are in every respect to be binding on the contracting parties, their heirs and successors.

ART. XVI.—This Treaty is to be ratified by the Maharajah Dowlut Rao Scindia in eight days from this time, and the ratification is to be delivered to Major-general Wellesley.

Major-general Wellesley engages that it shall be ratified by His Excellency the Most noble the Governor-general in Council, and the ratification shall be delivered to the Maharajah in three months, or sooner if possible. The orders for the cession of the territories shall be delivered to Major-general Wellesley at the same time with the ratification of the treaty of peace; but the forts of Asseerghur, Powanghur and Dohud are not to be delivered up till accounts will have been received that the territories ceded have been evacuated by the Maharajah's officers and troops.

(signed) *Arthur Wellesley.*
Eetul Mahadeo.
Kavel Nyn.
Jeswunt Rao Gooparah.
Narroo Hurry.

Done in camp, at Surge-Angenijam, this 30th of December 1803, answering to the 15th Ramgaun 1213 Fuzalee.

Ratified by the Governor-general in Council, 13th February 1804.

TREATY of ALLIANCE with *Dowlut Rao Scindia*, 1804.

TREATY of ALLIANCE and MUTUAL DEFENCE between the Honourable the English East India Company and the Maharajah *Ali Jah Dowlut Rao Scindia Behander* and his Children, Heirs and Successors, settled by Major *John Malcolm*, on the part of the Honourable Company, and by *Bappoo Eetul Punt*, and *Moonshee Kavel Nyn*, on the part of the Maharajah *Dowlut Rao Scindia*, after having communicated to each other their full Powers, the said *John Malcolm* being deputed to the Court of *Dowlut Rao Scindia* by Major-general the Honourable *Arthur Wellesley*, the Honourable Major-general aforesaid being invested with full Powers and Authority from his Excellency the Most noble Richard Marquess *Wellesley*, Knight of the Most illustrious Order of St. Patrick, one of his Britannic Majesty's Most Honourable Privy Council, appointed by the Honourable Court of Directors of the said Company to direct and control all their Affairs in the East Indies.

WHEREAS, by the blessing of God, the relations of friendship and unity have been happily established between the Government of the Honourable Company and that of the Maharajah Ali Jah Dowlut Rao Scindia Behander, by a recent treaty of peace; the two Governments aforesaid, adverting to the complexion of the times, have now determined, with a view to the preservation of peace and tranquillity, to enter into this treaty of general defensive alliance for the reciprocal protection of their respective territories, together with those of their several allies and dependents, against unprovoked aggression and encroachments of all or any enemies whatever.

ART. I.—The friendship and union established by the former treaty between the two States shall be promoted and increased by this treaty, and shall be perpetual: the friends and enemies of either State shall be the friends and enemies of both, and their mutual interests shall henceforward be inseparable.

ART. II.—If any person or state whatever shall commit any act of unprovoked hostility or aggression against either of the contracting parties, and, after due representation, shall refuse to enter into amicable explanation, or shall deny the just satisfaction or indemnity which the contracting parties shall have required, then the contracting parties will proceed to concert and prosecute such further measures as the case shall appear to demand. For the more distinct explanation of the true intent and effect of this Article, the Governor-general in Council, in behalf of the Honourable Company, hereby declares, that the British Government will never permit any power or state whatever to commit with impunity any act of unprovoked hostility or aggression against the rights and territories of the Maharajah Dowlut Rao Scindia, but will, at all times, in compliance with the requisition of the Maharajah, maintain and defend the same, when such requisition is made, in the like manner as the rights and territories of the Honourable Company are now maintained and defended.

ART. III.—With a view to fulfil this treaty of mutual defence, the Maharajah agrees to receive, and the Honourable East India Company to furnish, a subsidiary force of not less than 6,000 regular infantry, with the usual proportion of artillery, and with the proper equipment of warlike stores and ammunition. This force is to be stationed at such place, near Dowlut Rao Scindia, as may hereafter be deemed most equitable by the British Government, and it will be held in readiness, at such station, to proceed as soon as possible for the execution of any service on which it is liable to be employed by the condition of this treaty.

ART. IV.—And it is further agreed, that in conformity to the stipulations of the Fifteenth Article of the treaty of peace concluded by Major-general Wellesley, on the part of the Honourable Company, and by Bapoo Eetul, Moonshee Kavel Nyn, &c., on the part of Maharajah Ali Jah Dowlut Rao Scindia, that all charges and expenses of the six battalions above mentioned, and of their ordnance, artillery, military stores and epuipment, shall be defrayed by the Honourable Company out of the produce of the revenues of the territories ceded by the Maharajah Ali Jah Dowlut Rao Scindia to the said Company, by the Second, Third, and Fourth Articles of the aforementioned treaty of peace, which territories are specified in a statement annexed to that treaty.

ART. V.

ART. V.—Grain and all other articles of consumption and provisions, and all sorts of materials for wearing apparel, together with the necessary number of cattle, horses and camels required for the use of the subsidiary force, shall, whenever the aforesaid force is within the territories of the Maharajah, in consequence of his requisition, be entirely exempt from duties; and whenever any further force of the Honourable Company shall, in consequence of war with any other state, be in the dominions of the Maharajah, they shall, in like manner, as the subsidiary force, be exempt from all duties upon the aforesaid articles of necessary use and consumption; and it is also agreed, that whenever any part of the army of the Maharajah is in the territories of the Honourable Company, for purposes connected with the fulfilment of this treaty, that no duties on grain, camels, wearing apparel, &c., as stated above, which the part of the army of the said Maharajah may require, shall be collected; and it is further agreed, that the officers of the respective Governments, while they are in the fulfilment of the Articles of this treaty, either in the army or in the territories of the other, shall be treated with that respect and consideration which is due to their rank and station.

ART. VI.—The subsidiary force will, at all times, on the requisition of the Maharajah, execute services of importance, such as the care of the person of the Maharajah, his heirs and successors, the protection of the country from attack and invasion, the overawing and chastisement of rebels, or exciters of disturbance in the Maharajah's dominions; but it is not to be employed on trifling occasions.

ART. VII.—Whereas it is agreed, in the Thirteenth Article of the Treaty of Peace, that the Maharajah Ali Jah Dowlut Rao Scindia shall never take or retain in his service any Frenchman, or the subject of any European or American power, the government of which may be at war with Great Britain, or any British subject whatever, European or native of India, without the consent of the British Government; the Maharajah now further engages, that he will hereafter never employ in his service, or permit to reside in his dominions, any European or American whatever, without the consent and acquiescence of the British Government; the said British Government, on its part, engaging, that it never will employ, or permit to reside in its dominions, any person subject of the Maharajah, or others, who shall hereafter be guilty of crimes or of hostility against the person or government of the aforesaid Maharajah Dowlut Rao Scindia.

ART. VIII.—As, by the present Treaty, the union and friendship of the two States is so firmly cemented, that they may be considered as one and the same, the Maharajah engages neither to commence or pursue in future any negotiation with any principal states or powers, without giving previous notice, and enter in into mutual consultation with the Honourable East India Company's Government; and the Honourable Company's Government, on their part, declare that they will have no manner of concern with any of the Maharajah's relations, dependents, military chiefs or servants, with respect to whom the Maharajah is absolute; and that they will on no occasion ever afford encouragement, support or protection to any of the Maharajah's relations, dependents, chiefs or servants, who may eventually act in opposition to the Maharajah's authority; but, on the contrary, at the requisition of the Maharajah, they will aid and assist to punish and reduce all such offenders to obedience: And it is further agreed, that no officer of the Honourable Company shall ever interfere in the internal affairs of the Maharajah's Government.

ART. IX.—As the chief object and design of the present defensive alliance is the security and protection of the dominions of the contracting parties, and their allies and dependents, from all attack whatsoever, the Maharajah Dowlut Rao Scindia engages never to commit any act of hostility or aggression against any state or chief in alliance with the Honourable Company, or against any other principal state or power; and in the event of differences arising, whatever adjustment the Company's Government, weighing matters in the scale of truth and justice, may determine, shall meet with his full approbation and acquiescence.

ART. X.—The contracting parties will employ all practicable means of conciliation to prevent the calamity of war, and for that purpose will at all times be ready to enter into amicable explanations with other principal states or powers, and to cultivate and improve the general relations of peace and amity with all the principal powers of India, according to the true spirit and tenor of this

Treaty; but if a war should unfortunately break out between the contracting parties and any other state or power whatever, then the Maharajah Ali Jah Dowlut Rao Scindia Behander engages that the English force, consisting of six battalions, with their guns, &c., joined by a detachment of his army, consisting of 6,000 of the Maharajah's infantry, and 10,000 of his Pagah and Sillahdar cavalry, which force the Maharajah engages always to keep ready, shall be immediately put in motion for the purpose of opposing the enemy; and the Maharajah also engages to employ every further effort for the purpose of bringing into the field the whole force which he may be able to supply from his dominions, with a view to the effectual prosecution and speedy termination of the said war. The Honourable Company in the same manner engage on their part (on such event occurring) to employ in active operations against the enemy as large a force as the service may require, over and above the said subsidiary force.

ART. XI.—Whenever war shall appear probable, the Maharajah Ali Jah Dowlut Rao Scindia engages to collect as many Bingaries as possible, and to store as much grain as may be practicable in the frontier garrisons; the Company's Government also, with a view to the effectual prosecution of the war, engage to adopt similar measures in their frontier garrisons.

ART. XII.—The contracting parties entertain no views of conquests or extension of their respective dominions, nor any intention of proceeding to hostilities against any state or principal power, unless in the case of unjust and unprovoked aggression, and after the failure of their joint endeavours to obtain reasonable satisfaction through the channel of pacific negotiation, according to the tenor of the preceding Treaty. If, contrary to the spirit and object of this defensive Treaty, war with any state should hereafter appear unavoidable (which God avert), the contracting parties will proceed to adjust the rule of partition of all such advantages and acquisitions as may eventually result from the success of their united arms. It is declared that in the event of war, and of a consequent partition of conquests between the contracting parties, the shares of each government shall be equal, in the division of any territory which may be acquired by the successful exertion of their united arms, provided that each of the contracting parties shall have faithfully fulfilled all the stipulations of this treaty.

ART. XIII.—The interests of the contracting parties being identified by this defensive alliance, it is agreed, that the Honourable Company's Government shall be at liberty to employ the whole or any part of the subsidiary force established by the Treaty, in the quelling of any disturbances which may arise within their territories, or in the performance of any other service which may be required by the said Honourable Company's Government, provided such service shall not interfere with any other duties on which the said subsidiary force is liable to be employed under the conditions of this Treaty. And if disturbances shall at any time break out in any part of the Maharajah's dominions, which lies contiguous to the frontier of the Honourable Company, and to which it might be inconvenient to detach any proportion of a subsidiary force, the British Government, in like manner, if required by Dowlut Rao Scindia, shall direct such of the Company's troops as may be most conveniently stationed for the purpose, to assist in quelling the said disturbances within the Maharajah's dominions; and if disturbances shall at any time break out in any part of the dominions of the British Government which lie contiguous to the frontier of the Maharajah, the Maharajah, if required by the British Government, shall direct such of his troops as may be most conveniently stationed for the purpose to assist in quelling the said disturbances within the dominions of the British Government.

ART. XIV.—In order to strengthen and confirm the friendship established between the two States, it is agreed, that neither of the two contracting parties shall enter into any alliance, or have any concern with the tributaries or chiefs of the other; and in order to support the independent authority of both Governments, it is agreed and declared, that hereafter neither of the contracting parties will give protection or countenance to the rebellious tributaries and subjects of the other; but they will use their utmost endeavours for the apprehension of such rebels, in order that they may be brought to punishment.

ART. XV.—The Honourable Company agree to exert their influence to maintain the observance of such usages on matters of form and ceremony, and other customs, as shall appear to have been fixed, on all points of intercourse and communication between the Peishwah and his ancestors, and the Maharajah Dowlut

Dowlut Rao Scindia and his ancestors; and the English Government also agree to recognize the right of Dowlut Rao Scindia to all possessions he holds, whether by written sunnuds or grants, or by the unwritten authority of the Peishwah, according to former usage, provided such sunnuds do not interfere with the faithful fulfilment of the Treaty of Peace; and provided also, that in all cases where disputes may arise on the subject of possessions held by unwritten authority, the Maharajah Dowlut Rao Scindia agrees to refer to the sole arbitration of the said British Government, who will decide, with reference to former usage, on the principles of truth and justice. The English Government further agrees to use its endeavour to prevent any acts which have been done by Dowlut Rao Scindia or his ancestors, under the authority reposed in him or them by the Peishwah or his ancestors, from being subverted, provided their being supported is strictly consistent with the preservation of the honour and dignity of his Highness the Peishwah, and of the stipulations of the Treaty of Peace.

ART. XVI.—This Treaty, consisting of 16 Articles, being this day settled by Major Malcolm, on the part of the Honourable Company, and by Eetul Punt and Moonshee Kavel Nyn, on the part of Dowlut Rao Scindia, Major Malcolm has delivered one copy thereof in Persian and Mahratta and English, signed and sealed by himself, to the said Maharajah, who, on his part, has also delivered one copy of the same duly executed by himself; and Major Malcolm, by virtue of a special authority given him in that behalf, by Major-general the Honourable Arthur Wellesley (himself vested with full powers, as before stated), hereby declares the said Treaty to be in full force from the date thereof, and engages that a copy of the same from the Governor-general in Council, in every respect a counterpart of that executed by himself, shall be delivered to the Maharajah Ali Jah Dowlut Rao Scindia in the space of two months and ten days; and on the delivery of such copy, the Treaty executed by Major Malcolm shall be returned.

Done at Boorhanpoor, the 27th of February, Anno Domini 1804, or 14th Yeecada, Anno Higeræ 1218.

Ratified by the Governor-general in Council, March 23, 1804.

TREATY with *Rao Scindia*, with the DECLARATORY ARTICLES annexed, 1805.

DEFINITIVE TREATY of AMITY and ALLIANCE between the Honourable English East India Company and the Maharajah *Ali Jah Dowlut Rao Scindia Behander*, and his Children, Heirs and Successors.

WHEREAS various doubts and misunderstandings have arisen respecting the clear meaning and interpretation of parts of the Treaty of Peace concluded between the British Government and Dowlut Rao Scindia, at Serjee Anjengaum, on the 30th of December 1803; with a view of doing away all such doubts and preventing the recurrence, in future, of any misunderstanding, this Definitive Treaty of Amity and Alliance is concluded between the two States, by Lieutenant-colonel John Malcolm, acting under the immediate direction and superintendence of the Right honourable General Gerard Lord Lake, Commander-in-Chief of his Majesty's and the Honourable Company's forces, &c., and vested with full powers and authority from the Honourable Sir George Hilaro Barlow, Bart., appointed by the Honourable Court of Directors of the said Company to control and direct all their affairs in the East Indies, and Moonshee Kavel Nyn, vested with full powers and authority on the part of the said Maharajah Dowlut Rao Scindia.

ART. I.—Every part of the Treaty of Peace concluded by General Sir Arthur Wellesley, K.B., at Serjee Anjengaum, except what may be altered by this engagement, is to remain binding upon the two States.

ART. II.—The Honourable Company can never acknowledge that Dowlut Rao Scindia has any claim or right grounded on the Treaty of Serjee Anjengaum to possess the fort of Gwalior or the territories of Gohud; but, from considerations of friendship, it agrees to cede to the Maharajah that fortress and such parts of the territory of Gohud as are described in the accompanying Schedule.

ART. III.—As a compensation for this cession, and to remunerate the English Government for the annual expense incurred in supporting the Ranah of Gohud, Dowlut Rao Scindia agrees, on his own part and that of his Sirdars, to relinquish,

after the 1st of January 1806, all right and claim whatever to the pensions of 15 lacks of rupees granted to several of the chief officers of his state by the Seventh Article of the aforesaid Treaty of Surjee Anjengaum.

ART. IV.—The Honourable Company agree to pay to Dowlut Rao Scindia the arrears due upon the pensions granted by the Seventh Article of the Treaty of Peace, as above mentioned, up to the 31st December 1805, and also the balance due upon the revenues of Dholepoor, Rajah-kerrah and Baree, up to the same date, making deductions on the following heads:—

1st. Pensions forfeited by Bappoo Scindia and Sudashes Rao, by acts of hostility towards the British Government, to be stopped from the date of their hostility.

2d. Plunder of the Residency.

3d. Cash advanced by Mr. Jenkins to parties of the Maharajah's troops.

4th. Charges of collection, &c. for the provinces of Dholepoor, Baree and Raja-kerrah.

ART. V.—With a view to preventing any misunderstanding relating to their respective possessions on the quarter of Hindoostan, it is agreed, that the river Chumbul shall form the boundary between the two States, from the city of Cottah to the west, to the limits of the territories of Gohud to the east, and within that extent of the course of the Chumbul, Dowlut Rao Scindia shall have no claim or right to any rule, tribute, revenue or possessions on its north bank; and the Honourable Company shall have no claim or right to any rule, tribute, revenues or possessions on the south bank of that river. The Jalooks of Badek and Jooseperarah, which are on the banks of the Jumna, will, however, remain in possession of the Honourable Company.

ART. VI.—By the Fifth Article of this Treaty, which makes the river Chumbul the boundary of the two States, from the city of Cottah to the west, to the limits of the territories of Gohud to the east, the Maharajah resigns all pretensions and claims to any tribute from the Rajah of Boondee, or any other on the north bank of the Chumbul within the aforementioned limits; as also to the countries of Tauk Ramporah, Bahraungaum Zemeidah, &c., and to the districts of Dholepore Rajah-kerrah and Baree, all which remain in the possession of the Honourable Company.

ART. VII.—The Honourable Company, on consideration of the benefits derived from the Article which makes the Chumbul the boundary between the two States, and from friendship to the Maharajah, agree to grant him, personally and exclusively, the annual sum of four lacks of rupees, to be paid by quarterly instalments, through the resident at the Durbar; and the Honourable Company also agree to assign within their territories in Hindoostan a Jagheer (to be holden on the same footing as that enjoyed by Ballah Bhye), amounting to a revenue of two lacks of rupees per annum to Baiza Bhye, the wife of Dowlut Rao Scindia, and a Jagheer, amounting to the sum of one lack of rupees per annum, to Chummah Bhye, the daughter of that chief.

ART. VIII.—The Honourable Company agree to enter into no Treaty with the Rajahs of Oudeypore and Joudpore and Kottah, or other chiefs, tributaries of Dowlut Rao Scindia, situated in Malwar Mewar or Marwar; and in no shape whatever to interfere with the settlement which Scindia may make with those chiefs.

ART. IX.—The Honourable Company are now engaged in a war with Jeswunt Rao Holkar, and using every exertion for his reduction; but should they hereafter make a peace, or enter into any agreement with that chief, they engage not to restore to him, or desire to be restored to him, any of the possessions of the family of Holkar, in the province of Malwar, lying between the river Japti and Chumbul, which may have been taken by Dowlut Rao Scindia; nor will the Honourable Company interfere, in any manner whatever, in the disposal of those provinces; and they will consider Dowlut Rao Scindia at full liberty to make such arrangement as he chooses with Jeswunt Rao Holkar, or with any other branch of the Holkar family, respecting the claims of that family to tribute from the Rajahs or others, or to any possessions situate to the north of the river Japti, and to the south of the river Chumbul; but it is clearly to be understood that, as the Company's Government agrees not to concern itself with the arrangements which

Scindia

Scindia may make with the family of Holkar, respecting their claims or hereditary possessions, situated between the Japti and the Chumbul, that government will not take part in any dispute or war which may be the result or consequence of such arrangement or settlement.

ART. X.—As Serjee Rao Ghaultha has acted in a manner calculated to disturb the friendship between the two States, the Maharajah agrees never to admit that chief to share in his councils, or to hold any public employment under his government.

ART. XI.—This Treaty, consisting of 11 Articles, has been this day settled by Lieutenant-colonel Malcolm, acting under the directions of the Right honourable Lord Lake, on the part of the Honourable Company, and by Moonshee Kavil Nyn on the part of Dowlut Rao Scindia. Lieutenant-colonel John Malcolm has delivered one copy thereof, in Persian and English, signed and sealed by himself, to the said Moonshee Kavil Nyn, to be forwarded to the Maharajah Dowlut Rao Scindia; and has received from the said Moonshee Kavil Nyn a counterpart of the said Treaty, signed and sealed by the said Moonshee. Lieutenant-colonel John Malcolm engages that a copy of the said Treaty, certified by the Honourable the Governor-general, in every respect a counterpart of the Treaty now presented by himself, shall be delivered to Moonshee Kavil Nyn, to be forwarded to the Maharajah, within the period of one month from this date; and on the delivery of such copy to the Maharajah, the Treaty executed by Lieutenant-colonel John Malcolm, under the immediate direction of the Right honourable Lord Lake, shall be returned; and Moonshee Kavil Nyn, in like manner, engages that another copy of the said Treaty, ratified by the Maharajah Ali Jah Dowlut Rao Scindia, in every respect a counterpart of the Treaty now executed by himself, shall be delivered to Lieutenant-colonel John Malcolm, to be forwarded to the Governor-general, within the period of one month from this date; and on the delivery of such copy to the Honourable the Governor-general, the Treaty executed by Moonshee Kavil Nyn, by virtue of the full powers and authority vested in him as above mentioned, shall also be returned.

Done at Mustafapoor, this 22d day of November, A. D. 1805, or 29th of Shuban, in the year of Higera 1220.

(signed) *John Malcolm.*
Kavil Nyn.

DECLARATORY ARTICLES annexed to the Treaty concluded between the Right honourable Lord *Lake*, on the part of the Honourable Company, and Maharajah *Dowlut Rao Scindia*, on the 22d November 1805.

WHEREAS objections have arisen to the terms of the Fifth, Sixth and Seventh Articles of the aforesaid Treaty: It is hereby agreed and declared, that in lieu of those three Articles, the two following shall be substituted:

ART. I.—With a view to prevent any misunderstanding relating to the respective possessions of the Honourable Company and Maharajah Dowlut Rao Scindia in the quarter of Hindoostan, the Maharajah hereby agrees to cede to the Honourable Company all the territory north of the river Chumbul, which was ceded to the Maharajah by the Seventh Article of the Treaty of Surjee Anjengaum; that is to say, the whole of the districts of Dholepore Baree and Rajah-kerrah; and the Honourable Company shall have no claim or right to any rule, tribute, revenues or possessions on the south bank of that river. The Jalooks of Bhadek and Soorseperarah, which are on the banks of the Jumna, will, however, remain in the possession of the Honourable Company.

ART. II.—The Honourable Company, from friendship to the Maharajah, agrees to grant to him personally and exclusively the annual sum of four lacks of rupees, to be paid by quarterly instalments, through the resident at the Durbar. And the Honourable Company also agree to assign within their territories in Hindoostan, a Jagheer (to be holden on the same footing as that enjoyed by Balla Bhye), amounting to a revenue of two lacks of rupees per annum, to Baiza Bhye, the wife of Dowlut Rao Scindia, and a Jagheer, amounting to one lack of rupees per annum, to Chummah Bhye, the daughter of that chief.

Done at Illahabad, this 3d day of December 1805.

(signed) *G. H. Barlow.*

TREATY with *Dowlut Rao Scindia*, 1817.

TREATY of CONCERT and ALLIANCE between the Honourable the English East India Company and Maharajah *Ali Jah Dowlut Rao Scindia Behander*, and his Children, Heirs and Successors, settled on the part of the Honourable Company by Captain *Robert Close*, by virtue of full Powers to that effect vested in him by His Excellency the Most noble *Francis* Marquess of *Hastings*, Knight of the Most noble Order of the Garter, one of his Britannic Majesty's Most Honourable Privy Council, Governor-general, appointed by the Honourable Company to direct and control all their Affairs in the East Indies, Commander-in-Chief of his Majesty's Forces, &c. &c.; and on the part of his Highness *Dowlut Rao Scindia*, by *Ram Chudar Bhaskur*, duly empowered by His Highness to that effect.

WHEREAS the British Government and Maharajah Ali Jah Dowlut Rao Scindia Behander are mutually actuated by a desire to suppress the predatory power of the Pindarries, and to destroy and prevent the revival of the predatory system in every part of India. The following articles have been agreed on, for the purpose of giving effect to the mutual wishes of the two States.

ART. I.—The contracting parties engage to employ the forces of their respective Governments, and of their allies and dependents, in prosecuting operations against the Pindarries, and any other body of associated freebooters, to expel them from their haunts, and to adopt the most effectual measures to disperse and prevent them from re-assembling. With this view, the forces of the two Governments and their respective allies will immediately attack the Pindarries and their associates, according to a concerted plan of operations, and will not desist until the objects of this engagement are entirely accomplished. The Maharajah further agrees to employ his utmost efforts to seize the persons of the Pindarry leaders and their families, and deliver them up to the British Government.

ART. II.—The Pindarry hordes having established themselves in the territories of the Maharajah and other neighbouring states, it is hereby agreed, that on their expulsion, such of the lands occupied by them as heretofore belonged to the Maharajah shall be immediately resumed by his Highness, who engages never to re-admit them to possession. Such of the lands now occupied by the Pindarries as belong to other states shall be restored to their rightful proprietors, provided they shall have exerted themselves to the extent required in expelling the Pindarries, and shall engage never to re-admit them, or in any way to connect themselves with those freebooters. Those lands shall otherwise be delivered over to Maharajah Dowlut Rao Scindia, and be held by him on the same conditions.

ART. III.—Maharajah Dowlut Rao Scindia hereby engages never to re-admit the Pindarries, or any other predatory bodies, into his territories, or in any manner to give them the smallest countenance or support, or to permit his officers to do so; on the contrary, his Highness promises to issue the most positive orders to all his officers, civil and military, and to enforce them by the severest penalties to employ their utmost efforts to expel or destroy any bodies of plunderers who may attempt to take refuge in his Highness's territories. All officers disregarding his Highness's orders are to be considered and dealt with as rebels to the Maharajah, and enemies of the British Government.

ART. IV.—Maharajah Dowlut Rao Scindia is the undisputed master of his own troops and resources. With a view, however, to the more effectual accomplishment of the objects of this Treaty, his Highness agrees, that the divisions of his troops (which, taken together, shall amount to 5,000 horse) employed in active operations against the Pindarries, or other freebooters, shall act in concert with the British troops, and in conformity to the plan that may be counselled by the officer commanding the British divisions, with which his Highness's troops may be appointed to act in concert. With the same view, it is agreed, that a British officer shall be stationed with each division of the Maharajah's troops, to be the channel of communication between them and the British commanding officer; and to forward the other purposes of their conjunct operations, his Highness engages that all his officers, civil and military, shall afford every degree of support and assistance in their power, in procuring supplies or otherwise, to the British troops operating in his territory; and any failure in this respect shall subject the offend-

ing

ing party to be considered and treated as a rebel to his Highness, and an enemy to the British Government.

ART. V.—Maharajah Dowlut Rao Scindia engages, that the divisions appointed to act in concert with the British troops shall be maintained in a state of complete equipment, both men and horses, and regularly paid. In order to provide effectually for the latter object, in such a manner as shall prevent all future discussions or disputes, his Highness consents to renounce, for the next three years, the payments now made by the British Government to him, as well as to certain members of his family and ministers of his government; and that those sums shall be disbursed towards the payment of his Highness's troops, through the British officers stationed with them; and the British Government agrees, at the conclusion of the war, and after his Highness's troops shall have received what may be due to them, to pay any balance that may remain to his Highness. With the same view, the Maharajah Dowlut Rao Scindia likewise consents to relinquish, in the fullest manner, to the British Government, for a period of two years, the tribute which he is entitled to receive from the states of Joudpore, Boonder and Cotah.

ART. VI.—It is agreed, that the troops of Maharajah Dowlut Rao Scindia, cavalry, infantry and artillery, shall occupy, during the war, such positions as shall be designated by the British Government, and shall not change them without the express concurrence of that Government; any unconcerted movements being calculated to derange the joint operations of the forces of the two States, and to give advantage to the enemy. It is also agreed, in order to ensure the due execution of the stipulation contained in this Article, that the British Government shall be at liberty to station an officer in each of the divisions of the Maharajah's army above mentioned.

ART. VII.—The force that will be put in motion by the British Government, and that actually in the service of Maharajah Dowlut Rao Scindia, being fully sufficient to chastise the Pindarries, and effect the objects of the present Treaty, his Highness agrees, in order to prevent the possibility of collusion between his officers and the Pindarries, not to augment his forces during the war, without the concurrence of the British Government; his Highness expressly engages to prohibit his officers from admitting into the ranks of his army, or otherwise harbouring or protecting, the Pindarries or other freebooters; and all persons neglecting or disobeying these orders are to be considered and treated as rebels to his Highness, and enemies of the British Government.

ART. VIII.—With a view to the more effectual prosecution of the joint operations of the two Governments, and to the facility and security of the communication of the British troops with their supplies, the Maharajah, reposing entire confidence in the friendship and good faith of the British Government, agrees that British garrisons shall be admitted into the forts of Hindia and Aseergurgh, shall be charged with the care and defence of those forts during the war, and shall have the liberty of establishing depôts within them. The flag of Dowlut Rao Scindia shall, however, continue to fly in the fort of Aseergurgh; and his Highness shall be at liberty to station a Killehdar, with a personal guard of 50 men, in the said fort; but it is clearly understood, that the actual command of that place, as well as of Hindia, and the disposal of the warlike stores that may be found in those forts, shall be vested exclusively in the British commanding officers. Any part of those stores that may be damaged or expended while the forts in question are occupied by the British troops, shall be accounted for, and the value made good to his Highness. For the more effectual performance of this stipulation, inventories shall be taken by officers on the part of both Governments, at the time of the occupation of the forts by the British Government. The present garrison, with the exception above stated in regard to Aseergurgh, shall move out of the forts. The Maharajah will thenceforward have no further concern with the sebundies of the garrisons; but his Highness's other troops, including the Pacegah, &c., shall encamp at such places as may be prescribed by the British officers, in conformity to the provisions of the Sixth Article. The territories depending on the forts above mentioned will continue to be managed by the officers of the Maharajah, who will receive every support from the British Government and its officers. The whole, or such portion of the revenues as may be necessary, shall be appropriated to the payment of the Maharajah's troops acting in concert with the British divisions, as stipulated in the Fifth Article; and a faithful account of the whole shall be rendered to his Highness after the conclusion of the war. The

two forts above mentioned, and the territories dependent on them, will be restored to the Maharajah as soon as the operations against the Pindarries or their confederates shall be brought to a termination, in the same condition in which they may be delivered up to the British Government. All private property will be respected; and the inhabitants of the towns or villages depending on the forts will enjoy the protection of the British Government, or be permitted to depart with their property if they think proper.

ART. IX.—The main object of the contracting parties being to prevent for ever the revival of the predatory system in any form, and both Governments being satisfied, that to accomplish this wise and just end, it may be necessary for the British Government to form engagements of friendship and alliance with the several states of Hindoostan, the Eighth Article of the Treaty of the 22d of November 1805, by which the British Government is restrained from entering into treaties with certain chiefs therein specified, is hereby abrogated and annulled; and it is declared, that the British Government shall be at full liberty to form engagements with the states of Odeypore, Joudpore and Kotah, and with the state of Boonder and other substantive states on the left bank of the Chumbul. Nothing in this Article shall, however, be construed to give the British Government a right to interfere with states or chiefs in Malwar or Guzerat, clearly and indisputably dependent on and tributary to the Maharajah; and it is agreed, that his Highness's authority over those states or chiefs shall continue on the same footing as it has been heretofore. The British Government further agrees and promises, in the event of its forming any engagements with the above-mentioned states of Odeypore, Joudpore, Kotah and Boonder, or with any others on the left bank of the Chumbul, to secure to Dowlut Rao Scindia his ascertained tribute, and to guarantee the same in perpetuity, to be paid through the British Government; and Dowlut Rao Scindia engages, on his part, on no account or pretence whatever to interfere in any shape in the affairs of those states without the concurrence of the British Government.

ART. X.—If (which God forbid) the British Government and the Maharajah shall be compelled to wage war with any other state, on account of such state attacking either of the contracting parties, or aiding or protecting the Pindarries or other freebooters, the British Government, having at heart the welfare of Dowlut Rao Scindia, will, in the event of success, and of his Highness's zealous performance of his engagements, make the most liberal arrangements for the consolidation and increase of his territories.

ART. XI.—Such parts of the Treaty of Surgee Anjengaum, and of the Treaty concluded on the 22d November 1805, as are not affected by the provisions of the present engagement, remain in full force, and are mutually binding on the contracting parties.

ART. XII.—This Treaty, consisting of twelve Articles, having this day been concluded, subject to the ratification of the Governor-general and the Maharajah Ali Jah Dowlut Rao Scindia, Captain Close engages to procure the ratification of the Governor-general in five days from this date, or sooner if possible; and Ram Chunder Bhaskur engages to obtain his Highness's ratification before sunset this evening.

Done at Gwalior, this 5th day of November, in the year of our Lord 1817, corresponding with the 24th day of Zehedge, 1232 of the Hijra, and with Buddee Yekadussu of the month Aswin, in the year 1218 of the Arabic era.

(signed) *Robert Close.*
Ram Chunder Bhaskur.

(The seal of Dowlut Rao Scindia.)

Ratified by the Governor-General, in camp near Huddee Kagong, on the 6th of November 1817.

ENGAGEMENT between the *British* Government and *Maharajah Dowlut Rao Scindia.* 1820.

WHEREAS the Maharajah Dowlut Rao Scindia agreed to give up the annual payments made by the British Government to him in lieu of Shergurh Koosey, and also to the pension paid to himself and certain other persons of his court, together

together with the tribute to which he was entitled from Joudpore and Kotah, for three years, for the purpose of maintaining a body of auxiliary horse; and whereas the whole of that amount has already been paid by the British Government to the Maharajah's troops, and a considerable balance remains due to the British Government; it has now been agreed between the Maharajah and the British Government, that the body of auxiliary horse to be maintained by his Highness shall be reduced, so that the above-mentioned funds may be fully adequate to the payment of the force.

It is further agreed, that for the liquidation of the debt incurred by the Maharajah to the British Government for the payments already made to the auxiliary horse, as well as for the expenses of those horse, until the funds appropriated for their maintenance become available, the following districts shall be made over, from the commencement of the year 1877 Sumbut, to the British Government; viz.—

In KANDEISH.

1. The Pergunnah Yawal,
2. „ Choprah,
3. „ Pachorah,
4. „ Lahone (12 villages),
5. Possessions in Gurra Kotah,

and Maltoun, intermixed with those of the British Government, with the fort of Gurra Kotah.

And whereas the above-mentioned districts are intermixed with the possessions of the British Government; it is further agreed, that after the liquidation of the debt due by the Maharajah, the British Government shall either restore those districts to his Highness, or continue to hold them, paying a fair rent for them, or grant to his Highness other lands of equal value in lieu of them, which may be more conveniently situated, whichever mode may appear best to the British Government.

Done at Gwalior, this 6th day of February, in the year of our Lord 1820, corresponding with the 20th day of Bubbee-ul-sane, 1235 of the Higera, and with Maglendee Satnee, 1220 of the Arabic era.

(signed) *Hastings.*
J. Adam.
E. Colebrooke.

Ratified by his Excellency the Governor-General in Council, this 22d day of April, A. D. 1820.

NOTES of a CONFERENCE between the Governor-general and *Ram Rao Phalkeea*, on the Afternoon of the 19th December 1843.

Present:—The Governor-general; Mr. F. Currie; Sir R. Shakespear; Ram Rao Phalkeea; and Bajie Row; Durbar Vakeel.

THIS conference was held in the Governor-general's office tent, to which the parties retired after the public durbar at which Ram Rao Phalkeah was received, he being the accredited agent in conjunction with Sambagee Angreea, who was unfortunately taken ill on the morning's march, and unable to attend, on the part of the Gwalior Government.

On opening the conference, the Governor-general stated to Ram Rao, that his Lordship was desirous of conversing with him and Sambagee Angreea, whose absence he regretted, on the present state of affairs at Gwalior, and the means which it was necessary should be taken for placing them on a better footing; that it was evident a great deal was necessary to effect arrangements for the future security of the Gwalior Government, and for preventing the possibility of a recurrence of those proceedings which had caused the present interruption of friendly relations; and that it was his Lordship's wish that Ram Rao should speak freely his opinion on the different subjects that his Lordship would bring before him.

Ram Rao at once said that there was indeed much to be done; that the Maharajah was an infant, and the Maharanee also a mere child, incapable of acting in any way for themselves, or of judging between the well-disposed and ill-disposed;

posed ; that the advice of evil counsellors had been listened to, which had brought things to the unhappy juncture in which they now are. He went on to say, that his Lordship, in the khurreeta to the Maharanee, had referred to treaties, and that it was incumbent on the British Government to uphold the State of Scindia, and to afford it its aid and protection, which was an important subject.

The Governor-general asked Ram Rao if he was himself acquainted with the Treaty of Boorhampoor and its several stipulations.

He replied that the Treaty was among his records; that he knew it, but had not referred to it for many years, and did not recollect with accuracy the engagements it contained ; that he was himself with the army at the time it and the Treaty of Serjee Argengaum were concluded, having been present at the battle of Assave.

The Governor-general caused the terms of the Treaty, as contained in its Sixth Article, to be explained to Ram Rao, who said he had some recollection of the fact, that the arrangement was agreed to in substitution of one before proposed ; viz., that a force of 10,000 Company's troops should be located at some spot within Scindia's territories, to which Dowlut Rao Scindia objected, saying that it was neither good that Company's troops should be in his territory, nor his troops in the Company's. But he said, admitting the existence of the engagement regarding the 6,000 infantry and complement of artillery, what is its practical bearing on the present question ? and is the interference of the British Government restricted to cases in which Scindia may apply for that interference ?

The Governor-general replied, that the case, under the spirit of the Treaty, had arisen, in the present instance, from the fact of the Maharajah, whose adoption had been sanctioned ; the Maharanee, whose position in the government had been recognized by the British Government, being children incapable of acting for themselves, who, from the machinations of evil-disposed persons who had usurped the whole authority of the government, had been virtually set aside ; that through these persons, proceedings had been carried on so inimical to the British Government, that the usual friendly relations of the two States had been for the time dissolved, and that the ruin of the State must ensue if the British Government, which stood almost in the place of the guardian of the infant sovereign, did not interfere to save the person of the Maharajah, and to preserve the Government of the country.

To the truth of this Ram Rao assented. The Governor-general assured him, that the British Government, in its present proceedings, had no purposes of self-aggrandizement, but was actuated by the sole desire of upholding the engagements of the Treaty and of placing the Government of Scindia on a firm and secure basis; and that his Lordship's earnest desire was, that in the present negotiation and arrangement, the honour and interest of the Maharajah and the State should be entirely consulted.

Ram Rao said he was most grateful : and asked what portion of the expense of the present army it was proposed to charge to the Gwalior State ?

The Governor-general replied, that no part of the expenses of the force, as far as 6,000 men, with a proper proportion of artillery, was concerned, would be charged ; but that the exigency of the case had caused the assemblage of a force very much in excess of that number, but for the cost of which, or at any rate a great part of which, Scindiah must be held responsible; but for that and other matters of detail, his Lordship referred Ram Rao to a memorandum which he had drawn up, a translation of which would be made and placed in his and Sambajee Angreea's hands.

Ram Rao then said, that the first thing to be done was to reduce the present amount of the Gwalior army, by getting rid of the regiments that were in the interest of the ill-disposed faction, and he mentioned Alexander's troop and the Ghatta Puttan.

The Governor-general concurred entirely as to the reduction, and as to the propriety of retaining among the troops to be kept up those who, on the present occasion, had proved themselves faithful to the interests of their Government. His Lordship again referred him for details to the memorandum, which Ram Rao said he should himself also wish to discuss in the presence of his colleague Sambajee Angreea, who was to-day prevented from waiting on his Lordship by illness.

The Governor-general remarked, that they would find it stated in that paper, that his Lordship considered two things necessary in regard to the army, besides the reduction of the present force, viz. the increase of the contingent, with the assignment of certain portions of territory, to be hereafter fixed upon, for meeting the

the expenses of its maintenance, the revenues to be collected by our officers, and also the assignment, as a matter of internal management, of the revenues of certain specified districts, to secure the regular payment of the troops of the Durbar.

Ram Rao then referred to the cost which all these proceedings and the assemblage of the army would be likely to bring upon the Gwalior State.

His Lordship observed, that there was now a debt due on account of the contingent, &c., of nearly ten lacks of rupees, and further debt of about one lack on other accounts, and that for this, assignments of territory must be temporarily made, if the Durbar were not prepared to discharge the amount by a money payment; and there was the expense of the present armament in excess of the force to be kept up by the Treaty to be provided for, for which similar arrangements must be entered into.

Ram Rao having said that the Rajah and Maharanee were children, that the Governor-general was their guardian, and that the demand should not be such as would ruin the State;

The Governor-general then suggested, that perhaps this would be a fitting time for fixing some specific maintenance for the Maharanee, when the Maharajah should come of age, and succeed to the full government of the country.

Ram Rao replied, that at the present juncture he thought the raising that question unadvisable; that it might follow when the more important matters had been fully determined.

Some further conversation took place regarding the ceremonial entry of Lieutenant-colonel Sleeman into Gwalior, on his first visit as representative of the British Government, to which Ram Rao Phalkeea attached much importance, and also some remarks were made by him about the further progress of the Governor-general, before arrangements were made for his reception by the Durbar.

His Lordsdip intimated his intention to proceed on his way to Gwalior in a very few days, and his hope that the Maharajah would accompany Lieutenant-colonel Sleeman to meet his Lordship.

Generally, the most important points in the conversation on the part of Ram Rao were, his admission that a too numerous army was the source of the disorders in the Gwalior Government, and that without British aid the Government could not carry into effect the necessary reduction of such part of that army as was ill-disposed.

The position taken by the Governor-general under the Treaty of Boorhanpore, of guardian of the person and interests of the Maharajah, seemed to give much satisfaction.

The expediency of increasing the contingent was admitted as a consequence of proved undue ascendancy of the Gwalior army, and to the principle of making provision for the payment of debt now due, and of the charge of the present armament (after deducting that of 6,000 men, with artillery), no objection was raised.

(signed) *F. Currie*,
Secretary to the Government of India,
with the Governor-general.

PROCLAMATION.

20 December 1843.

On the decease of the late Maharajah Junkojie Rao Scindia, the British Government promptly acknowledged as his successor the Maharajah Jyajee Rao Scindia, who was nearest in blood to the late Maharajah, and whose adoption by the Maharanee, his Highness's widow, was approved by the chiefs.

The Maharanee and the chiefs concurred in conferring the dignity and power of Regent, during the minority of the Maharajah, upon the Mama Sahib.

The British Government communicated to the Durbar its entire approval of this measure; and the British Resident, in the presence of the chiefs, explained to the Regent that he was recognized as the responsible head of the Gwalior State, and as such would receive the consent of the British Government.

This declaration appeared to give general satisfaction; nevertheless, after a short time, the Mama Sahib was violently compelled to quit the Gwalior State, in despite of the remonstrance of the British resident.

The Dada Khaojee Wallah succeeded to the confidence of the Maharanee, without possessing generally that of the chiefs; and by his influence various acts were committed, insulting and injurious to the British Government. Persons heretofore, in compliance with its representations, deprived of offices, in which their conduct had been injurious to both Governments, were restored to power; and others were removed, who were known to be favourable to the maintenance of order, and to the continuance of the friendship which had so long subsisted between the two States.

The British resident could not remain a spectator of transactions of which he vainly disapproved. On the expulsion of the Mama Sahib, he was instructed to withdraw from Gwalior.

When the subsequent acts of the Dada, offensive to the British Government, and indicative of the substitution of hostile feelings for those friendly dispositions which had so long connected the two States, became known, the resident intimated to the Maharanee the opinion of the British Government, that it had become necessary to inflict some signal punishment upon that chief; and it was suggested that, in preference to any other punishment, he should be delivered a prisoner into the charge of the British Government. It was not thereby intended to derogate from the honour of the Gwalior State, but solely to provide effectually for the security of the person of the Dada; for which, under the circumstances of the Gwalior State, it did not appear to be possible sufficiently to provide within the Gwalior territory.

When afterwards it became known to the resident that the Dada had withheld from the knowledge of the Maharanee, and of the Durbar, a letter addressed to the Maharanee, conveying the sentiments of the British Government, the resident then peremptorily insisted upon the delivery of the Dada as a necessary preliminary to the re-establishment of the customary relations with the Gwalior State. That act on the part of the Dada could not be regarded otherwise than as a virtual usurpation of the sovereign authority in the Gwalior State, which the British Government is bound to maintain in the house of Scindia.

With this last requisition the Maharanee has at last complied.

The Governor-general regards, with satisfaction, this act of her Highness, however long deferred, as an indication of the desire of her Highness, and of the Durbar, to re-establish, on their accustomed footing, the friendly relations between the two States.

It could not but be felt, that while the late occurrences at Gwalior were an offence to the British Government, they at the same time created new insecurity to its subjects residing on the frontier.

The want of cordial co-operation on the part of the officers of the Gwalior State in the maintenance of order upon the frontier, had long been a subject of just remonstrance, and various orders had been issued by the late Maharajah, in accordance with the representations of the British resident. These orders had but too often remained without due execution; but in consideration of the long illness of his Highness, and of the consequent weakness of his administration, the British Government had not pressed for satisfaction with all the rigour which the importance of the subject would have warranted. It knew the good disposition of the late Maharajah, and was willing to attribute his failure to effect what was right, to the want of power rather than of will.

But the recent occurrences at Gwalior, and the changed spirit in which the administration has been conducted, no longer permit the continuance of this forbearance. The British Government must now preremptorily insist upon the adoption of permanent measures for the establishment of order upon the frontier, and for the future security of its subjects.

The Bristish Government has so long deferred intervention in the distracted affairs of the Gwalior State, in the sincere hope that the chiefs themselves would establish, in supercession of the disgraceful rule to which they have recently submitted, an administration willing and able to satisfy its reasonable demands, and to maintain the accustomed friendly relations between the two States.

The British Government can neither permit the existence of an unfriendly government within the territories of Scindia, nor that those territories should be without a government capable of coercing its own subjects, and of maintaining everywhere the relations of good neighbourhood with the subjects of the British Government and its allies.

The deplorable events which have last occurred at Gwalior, the hostile conflicts in

in the camp before the palace of the Maharajah, and the practical suspension of all government in his Highness's territories, now impose upon the British Government the duty of intervention, not solely for the security of the British interests, but for the execution, according to its true spirit and intention, of the solemn engagement of a treaty.

By the Treaty of Boorhampoor, contracted with the Maharajah Dowlut Rao Scindia, the British Government engaged to maintain a force, to be at all times ready on the requisition of the Maharajah, to protect the person of the Maharajah, his heirs and successors, to overawe and chastise rebels or exciters of disturbance in his Highness's territories, and to reduce to obedience all offenders against his Highness's authority.

The tender age and the helpless position of the present Maharajah, render it impossible for him to address to the British Government such formal requisition for aid as circumstances would justify him in demanding, and compel him to demand, under the provisions of the treaty of Boorhampoor; but it would be inconsistent with the good faith and injurious to the good name of the British Government, were it to permit this inability to demand aid, which only gives the Maharajah claims upon its protection, to deprive his Highness of that friendly support in his utmost need which it was the intention of the Maharajah Dowlut Rao Scindia to secure for ever by that Treaty to himself, his heirs and successors.

The Governor-general will therefore direct the immediate advance of forces amply sufficient to effect all the just purposes of the British Government to obtain guarantees for the future security of its own subjects on the common frontier of the two States, to protect the person of the Maharajah, to quell disturbances within his Highness's territories, and to chastise all who shall remain in disobedience.

PROCLAMATION.

Camp Hingonah, 25 December 1843.

The British Army has entered the territory of Scindia, not as an enemy, but as a friend to the Maharajah, bound by treaty to protect his Highness's person, and to maintain his sovereign authority against all who are disobedient and disturbers of the peace.

The Governor-general has no object, but that of seeing re-established in the territories of Scindia a strong government, willing and able to preserve the accustomed relations of friendship with the British Government and its allies; a Government which may at all times do justice to the army as well as the people, but command both for the good of all.

The Governor-general cautions the evil advisers of the Maharanee that they will themselves be held responsible for any resistance which may be offered to the measures deemed to be necessary for the establishment of the Maharajah's just authority, and for the security of his person and rights.

PROCLAMATION.

Camp Hingonah, 27 December 1843.

1. The British Armies have entered the dominions of Scindia as the friends and allies of the Maharajah, whose person and whose rights the British Government is bound by treaty to protect.

2. The British Government desires only to establish the just authority of the Maharajah over all his subjects, and to place upon firmer and permanent foundations that friendship between the two States, which, for their mutual benefit, has existed so long, and which, not the British Government, but the evil-disposed advisers of the Maharanee have now interrupted.

3. The British Government knows only as enemies those who oppose its armies, and are disobedient to the Maharajah, and disturbers of peace.

4. The armies will regard and treat as friends all peaceful cultivators and traders. They will pay for all supplies brought to the camp, give compensation for all injury unintentionally done to property, and injure no one but such as act hostilely.

5. A strong government having been established at Gwalior, capable of maintaining the Maharajah's authority over all, and willing as well as able to preserve tranquillity on the common frontier, the British Armies will return to their own territory.

By order of the Right honourable the Governor-general of India.

(signed) *F. Currie*,
Secretary to Government of India,
with the Governor-general.

Treaty with *Jyajee Rao Scindia*, 1844.

Treaty between the Honourable English East India Company and Maharajah *Ali Jah Jyajee Rao Scindia Bahadoor*, and his Children, Heirs and Successors, settled, on the part of the Honourable Company, by *Frederick Currie*, Esq., and Lieutenant-Colonel *William Henry Sleeman*, by virtue of full Powers to that effect vested in them by the Right honourable *Edward* Lord *Ellenborough*, one of Her Britannic Majesty's most Honourable Privy Council, Governor-General, appointed by the Honourable Company to direct and control all their Affairs in the East Indies, and on the part of his Highness *Jyagee Rao Scindia*, by *Rao Ram Rao Phalkeea Bahadoor Shumshere Jung*, *Deo Rao Yado Mama Sahib*, *Dubeer Ood Dowla Moonshee*, *Rajah Bulwunt Rao Bahadoor*, *Oodajee Rao Khatkeea*, *Molla Jee*, and *Nareen Rao Bhow Eemajee Photuanee*, the Sirdars nominated to conduct the Affairs of the Government during his Highness's Minority.

Art. I.—Every part of the Treaty of Peace concluded by General Sir Arthur Wellesley, K. B., at Sirjee Anjengaum, on the 30th December 1803, and of the Treaty of Alliance and Mutual Defence, settled by Major John Malcolm at Boorhampoor, on the 27th February 1804, and of the Definitive Treaty of Amity and Alliance, with the Declaratory Articles annexed, concluded by Lieutenant-Colonel John Malcolm, at Mustafapore, on the 22d November 1805, and of the Treaty concluded between Captain Robert Close, on the part of the British Government, and Maharajah Ali Jah Dowlut Rao Scindia, on the 5th November 1817, as well as every part of all other Treaties and engagements between the two States which may be now in force, except in so far as may be altered by this engagement, is to remain binding upon the two Governments.

Art. II.—Whereas the late Maharajah Junkojee Rao Scindia engaged to defray all the charges of a force to be commanded by British officers, and constantly stationed within his Highness's territories, for the protection thereof, and the preservation of good order therein, and the cost of such force hitherto has been about 500,000 of Company's rupees per annum, and the revenues and receipts set apart and assigned for the maintaining of the said force, together with other revenue now received by the British Government on his Highness's account, amount to the sum of about 546,000 Company's rupees; and whereas it is expedient to increase the amount of such force, and to make permanent provision for defraying the charge thereof; it is therefore agreed between the British Government and his Highness the Maharajah Jyagee Rao Scindia, that in addition to all the revenues and other receipts already set apart for the purpose of maintaining the said force, or received by the British Government on his Highness's account, the revenues of the districts enumerated and territory described in the Schedule (A.) to this Treaty, shall be appopriated to the maintenance of such force.

Art. III.—It is further agreed, that if the revenues of the districts so enumerated and described in such Schedule (A.), together with the revenues and payments mentioned in the foregoing Article, as set apart for the payment of the said force, or heretofore received on his Highness's account, shall, after defraying thereout all the charges of civil administration, exceed the sum of 18 lacks of Company's rupees, the surplus shall be paid over to his Highness Maharajah Jyagee Rao Scindia;

and

and if the said revenues and receipts shall fall short of 18 lacks of Company's rupees per annum, the deficiency shall be made good by his Highness.

ART. IV.—And it is further agreed, for the better securing of the due payment of the revenues of such districts enumerated and described in Schedule (A.), and for the better preserving of good order within the same, that the civil administration thereof shall be conducted by the British Government in the same manner in which the civil administration of other districts belonging to the Maharajah, of which the revenues are similarly assigned, is conducted by the British Government for his Highness.

ART. V.—And whereas there is now due to the British Government the sum of 10 lacks of rupees, more or less, as may hereafter appear on examination of the accounts, on the score of charges of the contingent force, and a further sum of one lack on account of advances made to her Highness the Baeza Baee, and on other accounts, and the charges of the present armament of the British Government may be estimated at 10 lacks (after deducting therefrom the expense of furnishing to his Highness 6,000 men, with artillery and stores, free of cost to his Highness, under the provisions of the Treaty of Boorhanpore); and a further expenditure of five lacks will be incurred by the British Government in affording compensation for losses sustained during, and in consequence of, the late hostilities, and in other charges connected therewith: It is further agreed, that his Highness shall pay to the British Government the sum of 26 lacks of rupees within fourteen days from the date of this Treaty, and in default thereof, that the revenues of the several districts enumerated in Schedule (B.) attached to this Treaty, shall, together with the civil administration of such districts, be made over to the British Government, until such time as the said sum of 26 lacks of Company's rupees shall have been paid, together with interest, at the rate of five per cent. per annum, upon the same.

ART. VI.—And whereas the British Government is bound by Treaty to protect the person of his Highness the Maharajah, his heirs and successors, and to protect his Highness's dominions from foreign invasion, and to quell serious disturbances therein; and the army now maintained by his Highness is of unnecessary amount, embarrassing to his Highness's Government, and the cause of disquietude to neighbouring states: It is therefore further agreed, that the military force of all arms hereafter to be maintained by his Highness, exclusive of the contingent above provided for, shall at no time exceed 9,000 men, of whom not more than 3,000 shall be infantry, with 12 field guns, and 200 gunners, with 20 other guns; and his Highness the Maharajah engages to take immediate measures for the reduction of his army within the number above specified, and the British Government engages, on its part, to assist his Highness therein, should such aid appear to be required.

ART. VII.—It is further agreed, that his Highness will discharge all pay due to the troops disbanded, and also give a gratuity of three months' pay to such of the officers, non-commissioned officers and privates of the corps disbanded, as may not be re-enlisted in the contingent or in any new corps formed by his Highness.

ART. VIII.—And inasmuch as it is expedient to provide for the due administration of the government during the minority of his Highness the Maharajah, which minority shall be considered to terminate when his Highness shall have attained the full age of 18 years, and not sooner, that is, on the Mittee Maug Buddee Punchomee Lumbut 1909, or nineteenth day of January, A. D. 1853; it is further agreed, that during such minority the persons entrusted with the administration of the government shall act upon the advice of the British resident in all matters whereon such advice shall be offered; and no change shall be made in the persons entrusted with the administration, without the consent of the British resident, acting under the express authority of the Governor-general.

ART. IX.—And it is agreed, that the following persons shall, in the first instance, constitute the Council of Regency, and that the first-named person shall be President of the same: Rao Ram Rao Phalkeea Bahadoor Shumshere Jung, Deo, Rao Jado Mama Sahib, Dubeer ood Dowla Moonshee, Rajah Bulwunt Rao Bahadoor, Odajee Rao Khatkeea Molla Jee, and Naraen Rao Bhou Eemajee Photnavees.

ART. X.—And inasmuch as it is fitting that her Highness the Tara Baee should have a suitable provision now made for the maintenance of her court: It is further agreed, that the sum of three lacks of rupees shall be annually set apart for that purpose, and be at her Highness's sole disposal.

ART. XI.—And it is further agreed, that the British Government shall, as heretofore, exert its influence and good offices for maintaining the just territorial rights of the Maharajah and the subjects of the State of Scindiah, at present existing in the neighbouring and other native states.

ART. XII.—This Treaty, consisting of twelve Articles, has been this day settled by Frederick Currie, Esq., and Lieutenant-colonel William Henry Sleeman, acting under the directions of the Right honourable Edward Lord Ellenborough, Governor-general, on the part of the British Government, and by Rao Ram Rao Phalkeea Bahadoor Shumshere Jung, Deo Rao Jada Mama Sahib, Dubeer ood Dowla Moonshee, Raja Bulwunt Rao Bahadoor, Oodajee Rao Khatkeea Molla Jee, and Narain Rao Bhow Eemajee Photnavees, on the part of the Maharajah Jyagee Rao Scindeah; and the said Treaty has been this day ratified by the seal of the Right honourable Lord Ellenborough, Governor-general, and by that of his Highness Maharajah Jyagee Rao Scindeah.

Done at Gwalior, this 13th day of January, in the year of our Lord 1844, corresponding with 22d Zilhidga 1259 H., and ratified the same date.

L. S. (signed) *Ellenborough.*

SCHEDULE (A.)

REFERRED to in ARTICLES II. and III. of the Treaty of Gwalior, being the Enumeration of Districts, with their estimated present Net Revenues, and Description of Territory assigned by his Highness Jyajee Rao Scindeah for the Maintenance of the increased contingent Force mentioned in the said Treaty, in addition to the Revenues heretofore assigned, and Payments heretofore received by the British Government on the part of his Highness.

Bhanderee	1,80,000	Kutchwaghur	2,27,500
Chunderee	81,000	Ruttunghur	1,60,000
Ghur Mhow	2,400	Hindia Hirdah	1,29,000
Mhow Mahonee	37,000	Manpoor	2,000
Jawnd	2,29,000	Char Manah	800
Jerun	37,000	Nodha	30,000
Indorkee	37,000		
Gungupore, &c.	16,000	Total	13,00,700
Yawul Chupra	97,000		
Sitwas Minawur	35,000		

* Such as Gondia, near Indergurh, yielding - 30,000
Mehdeh - 22,000
Punchore and Chundory - 250

And any other pergunnahs, districts or lands whatsoever belonging to his Highness, not above-specified,* which may be situated on the right bank of the river Scinde, from its embouchure on the Jumna to the point at which it leaves the ghauts, near Khainwah (save and except the fort of Nurwur, with the lands immediately surrounding the same, 38 villages, yielding 14,000 rupees, and Lebwah Jageer of Bulwunt Rao, yielding 2,000, and Bhengong Jaghire of Ben Putnavees, yielding 2,000, the two last to be transferred hereafter at the pleasure of the British Government, an equivalent being given for them in some other of the transferred districts by mutual agreement), and from that point all such other pergunnahs, districts and lands as may be situate below the summit of the ghauts.

It is to be understood, that all religious endowments and grants of a similar character bonâ fide existing at this date, and excluded from the rent-roll of the several districts, are to be respected and maintained, and that the assumption of the management of the new territories by the British Government does not involve the abolition of the suzerainté of the Maharajah, or of the proprietary rights of the inhabitants thereof.

(signed) *F. Currie,*
W. H. Sleeman.

N. B.—In addition to the lands above enumerated, the British Government receives as assignments for the former contingent, and on other accounts, sums to the amount of about 4,69,000 rupees, making the total aggregate receipts for the whole contingent force 18,47,600.

(signed) *F. Currie.*

SCHEDULE (B.)

REFERRED to in ARTICLE V. of the Treaty of Gwalior, being an Enumeration of the Districts to be held and managed by the British Government till the Debt due by the Gwalior State, mentioned in the said Article, is discharged.

Shojaunlpore	2,55,000
Shajehanpore	2,00,000
Eesagurh	3,00,000

(signed) *F. Currie.*
W. H. Sleeman.

NOTIFICATION

NOTIFICATION of the GOVERNOR-GENERAL.

Camp Malior, 13 January 1844.

THE evil advice of ill-disposed persons, considering only their own interests, and not the good of the Gwalior State, and the resolution of the Gwalior army, over-confident in its strength to endeavour to preserve the advantages it derived from its power over the Government of Scindeah, have led to two battles between the British forces and those of Gwalior, deeply to be lamented on account of the loss of brave men mutually sustained, but having for their result the secure establishment of British supremacy.

The Governor-general, successful in the field, has adhered to the principles upon which the intervention of the British Government in the affairs of the Gwalior State was from the first based. He has only used the power which victory has placed in his hands to carry into effect the necessary measures for securing the future tranquillity of the common frontier of the two States, for establishing the just authority of the Maharajah's Government, and for providing for the proper exercise of that authority during his Highness's minority.

A Treaty, calculated to effect these legitimate objects, and confirming former treaties, has this day been signed by the British Plenipotentiaries and the Council of Regency, and ratified by the Governor-general and his Highness the Maharajah Jyajee Rao Scindeah.

The accustomed friendly relations between the British Government and the Gwalior State are now restored, and the British armies will immediately return to their own provinces.

By order, &c.

(signed) *F. Currie,*
Secretary to Government of India,
with the Governor-general.

PROCLAMATION by the GOVERNOR-GENERAL.

Camp, Gwalior, 15 January 1844.

THE Governor-general makes known to all the subjects of the Maharajah Jyajee Rao Scindiah, and to all the inhabitants of the territories adjoining those of his Highness, that friendship has been re-established between the British Government and the Maharajah, and that the British Government will receive from his Highness sufficient funds wherewith to provide a force for the preservation of good order within his Highness's dominions, which dominions, as well as the person and authority of his Highness, are under the protection of the British Government.

The Governor-general, therefore, warns all disturbers of the peace, and all such as are disobedient to his Highness's just authority, that their misdeeds cannot be permitted, and he exhorts them to abstain from such acts as cannot fail to draw upon them punishment from his Highness, and the severest displeasure of the British Government.

By order of the Right honourable the Governor-general.

(signed) *F. Currie,*
Secretary to Government of India,
with the Governor-general.

PAPERS

RESPECTING

GWALIOR.

(Presented by Command of Her Majesty.)

Ordered, by The House of Commons, to be Printed,
12 *March* 1844.

99.

Under 3 oz.

Duplicate
See 3185

PUBLIC WORKS (INDIA).

RETURN to an Order of the Honourable The House of Commons, dated 14 February 1854;—*for*,

COPIES "of the REPORTS of the COMMISSION on PUBLIC WORKS at *Bombay*, and of the SECOND REPORT of the COMMISSIONERS on PUBLIC WORKS at *Madras*, together with the MINUTES or REPORTS of the Governor and Members of Council at *Madras*, to the Governor-General or Court of Directors, respecting those Reports:"

"Of all MINUTES or REPORTS of the Governor-General to the Court of Directors in answer to or respecting those Reports:"

"Of any MEMORIALS from the Commissioners on Public Works at *Madras* to the Court of Directors, respecting those Reports:"

"And, of any of the ANSWERS of the Court of Directors to the said Memorials, Minutes, and Reports."

Note.—The Report of the Commission on Public Works at Bombay has been presented to, and printed by, both Houses of Parliament. (House of Lords Paper, No. 17 of Session 1853–4; House of Commons Paper, No. 21 of Session 1853–4.) The Second Report of the Commissioners on Public Works at Madras, has not yet been received in this country.

East India House,
2 May 1854.

JAMES C. MELVILL.

(*Mr. Hume.*)

Ordered, by The House of Commons, *to be Printed*,
4 *May* 1854.

LIST.

	PAGE
Extract Public Letter to India from the Court of Directors; dated 30 January (No. 2) 1850	3
Extract Military Letter from Bengal to the Court of Directors; dated 9 September (No. 231) 1853, paras. 3 and 4	5
Public Letter from the Government of India to the Court of Directors; dated 7 October (No. 69) 1853	5
Extract Minutes of Consultations; dated 6 April 1852	6
Letter from Officiating Secretary to the Government of India, Military Department, to Secretary to Government of Madras, Military Department; dated 28 May 1853	6
Letter from Chief Secretary to Government of Madras to Officiating Secretary to Government of India; dated 13 September 1853	7
Printed Proceedings of the Madras Government on the First Report of the Commission on Public Works	8
Public Works Letter from Government of Madras to Court of Directors; dated 10 February (No. 1) 1854	127
Letter from Lieutenant-Colonel Cotton to Chief Secretary to Government; dated 4 January 1854	127
Minute by the President; dated 19 January 1854	128
Letter from Lieutenant-Colonel Cotton to Chief Secretary to Government; dated 5 January 1854	129
Minute by the President; dated 20 January 1854	129
Letter from Lieutenant-Colonel Cotton to Chief Secretary to Government; dated 5 January 1854	129
Memorial of Lieutenant-Colonel Cotton; dated 5 January 1854	129
Letter from Lieutenant-Colonel Cotton to Chief Secretary to Government; dated 4 January 1854	131
Minute by the President; dated 21 January 1854	131
Minute by the Honourable Mr. Eliott; dated 21 January 1854	132
Minute by the Honourable Mr. Thomas; dated 24 January 1854	133
Resolution; dated 10 February 1854	134
Letter from the Commissioners on Public Works to the Chief Secretary to Government of Fort St. George; dated 8 November 1853	135
Memorial of Commissioners on Public Works at the Madras Presidency; dated 8 November 1853	135
Minute by the President; dated 10 November 1853	136
Order of Government; dated 22 November 1853	136
Letter from the Court of Directors to the Government of Madras; dated 22 March (No. 13) 1854	136

East India House,
2 May 1854.

T. L. Peacock,
Examiner of India Correspondence.

COPIES of the Reports of the Commission on Public Works at *Bombay*, and of the Second Report of the Commissioners on Public Works at *Madras*, together with the Minutes or Reports of the Governor and Members of Council at *Madras*, to the Governor-General or Court of Directors, respecting those Reports;—Of all Minutes or Reports of the Governor-General to the Court of Directors in answer to or respecting those Reports;—Of any Memorials from the Commissioners on Public Works at *Madras* to the Court of Directors, respecting those Reports;—And, of any of the Answers of the Court of Directors to the said Memorials, Minutes, and Reports.

[The Court's Despatch of 30th January 1850, directing the formation of Commissions on Public Works at the several Presidencies of India, has already been laid before Parliament (Sessional Paper, No. 622 of 1851, pp. 146–154), but it appears essential to the completeness of this Return to give Extracts of so much of it as relates to the Presidency of Madras.]

Extract Public Letter to India, dated 30 January (No. 2) 1850.

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.

* * * * * *

3. The District Roads of Madras.

* * * * * *

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 by the Government.

19. The whole of the proceedings referred to in these letters, lead to the following conclusions:

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 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 superintendence, 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 understood 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.

* * * * * *

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

* * * * * *

61. Under the Presidency of Madras, the control of all works connected with the land revenue, especially all works of irrigation, is intrusted 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.

* * * * * *

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, 20th 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

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.

* * * * * *

67. We do not consider that any great public advantage would result from the engagement of two practical overseers thoroughly conversant with road-making in all it 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.

Extract Military Letter from Bengal, dated 9 September (No. 231) 1853.

3. We have received from the Government of Fort St. George, with the documents herewith transmitted as per margin, the First Report of the Commission for inquiry into the Department of Public Works at Madras, with an intimation that five copies of the printed report referred to have been forwarded direct for your information.

Cons. 4 March 1853, No. 705. Cons. 3 June 1853, No. 33/41.

4. Your Honourable Court will observe (Cons. 3 June 1853, No. 41) that we have deferred the consideration of the report and documents until favoured with a full exposition of the views of the Government of Fort St. George on the subject.

Home Department, No. 69 of 1853, dated 7 October.

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

Honourable Sirs,

With reference to your Honourable Court's Despatch, No. 32, dated 24 May last, we have the honour to forward the accompanying communication from the Government of Fort St. George, promising shortly to submit their final proceedings on the First Report of the Commission appointed to inquire into the whole subject of the superintendence and execution of Public Works under the Madras Presidency.

Home Cons. 5 Aug. 1853, No. 56 to 59. Home Cons. 26 Aug. 1853, No. 25 & 26. Home Cons. 7 Aug. 1853.

2. The reports of the Commissions appointed at the three Presidencies have been received, and are now under consideration in the Military Department, but no decision on the subject can be arrived at until we are in possession of the minutes of the Madras Government on the report from that Presidency.

We have, &c.
(signed) *Dalhousie.*
J. Lewis.
J. Dorin.
J. Low.

Fort William, 7 October 1853.

PUBLIC WORKS DEPARTMENT.

No. 118.

EXTRACT from the Minutes of Consultation, under date the 6th April 1853.

READ again letter from the Commissioners for inquiring into the system of Public Works in the Madras Presidency, dated 21 November, and recorded in Cons. 16 December 1851.

Read also the following papers:

Extract from the proceedings of the Board of Revenue, D.P.W.
(Here enter 15 January 1852, No. 31.)

Memorandum by the Right Honourable the President.
(Here enter 27 February 1852.)

Minute by the Honourable Mr. Thomas.
(Here enter 6 March 1852.)

Memorandum by the Right Honourable the President.
(Here enter 15 March 1852.)

The Right honourable the Governor in Council is of opinion that there are serious objections to the proposition recommended by the Commissioners, and supported by the Board of Revenue in the Department of Public Works, of replacing the trunk roads under the Board's charge, and resolves to defer the consideration of the subject until the final report of the Commissioners on the Department of Public Works generally, which may shortly be expected, is laid before him.

2. In regard, however, to the recommendation for the appointment of an assistant to the secretary to the Board in the Department of Public Works, the Governor in Council, satisfied on the representation of the Commissioners that that officer needs additional aid to enable him efficiently to discharge his duties, will be prepared to recommend the appointment to the Government of India, on the Board submitting an application in the prescribed form, showing the charge which the measure will involve.

(signed) *H. C. Montgomery*, Chief Secretary.

(True copy.)

(signed) *H. C. Montgomery*, Chief Secretary.

(True copy.)

(signed) *R. J. H. Birch*, Lieutenant-Colonel,
Officiating Secretary to the Government of India
in the Military Department.

No. 889.

From Lieutenant-colonel *R. J. H. Birch*, C.B., Officiating Secretary to the Government of India in the Military Department, to Lieutenant-Colonel *C. A. Browne*, Secretary to Government in the Military Department, Fort St. George.

Sir,

Military Department. No. 41.

THE Chief Secretary to the Government of Fort St. George having, with his letters to the Secretary to the Government of India in the Home Department, No. 121, of the 13th April 1853, forwarded a printed copy of the "First Report of the Public Works Commission," with correspondence regarding the subject under investigation by that Commission, the whole of the documents have, under the

the orders of the Supreme Government, been transferred to this department, from which instructions for the assembly of the Commission were originally issued.

2. The printed report and the other papers have been laid before the Most noble the Governor-General in Council, who would at once have entered upon the consideration of the report and papers, in order to be prepared for the further communications from the Government of Madras, which are promised, were it not for the terms of the minute by the Honourable Mr. Thomas, dated the 12th April 1853, regarding the imputations against the proceedings of Government contained in the report of the Commissioners. In the sentiments recorded in that minute the Right honourable the Governor entirely concurred (*see* his minute of the 13th April), and added: "I shall endeavour at some future period to show my reasons for the opinion I have formed that this first report of the Commissioners is one-sided; that it misrepresents the actuating motives and real feelings of Government, with regard to its measures for the improvement and amelioration of the country, and therefore that it is not entitled to that confidence, though some facts set forth in it may be well supported, which such a document should command, to render it of any general practical use."

Under these circumstances, the Most noble the Governor-General of India in Council will defer the consideration of any part of the report or documents until a full exposition of the views of the Madras Government shall have been submitted.

I have, &c.
(signed) *R. J. H. Birch*, Lieutenant-Colonel,
Officiating Secretary to the Government of India
in the Military Department.

Council Chamber, Fort William, 28 May 1853.

(True copy.)

(signed) *R. J. H. Birch*, Lieutenant-Colonel,
Officiating Secretary to the Government of India
in the Military Department.

No. 353.

From Sir *H. C. Montgomery*, Bart., Chief Secretary to the Government of Fort St. George, to *G. Plowden*, Esq., Officiating Secretary to the Government of India.

Sir,

I AM directed, in reply to Mr. Couper's letter of the 20th ultimo, to state for the information of the Most noble the Governor-General in Council, that the Honourable Mr. Eliott and the Honourable Mr. Thomas have recorded their opinions at considerable length on the First Report of the Commissioners for inquiring into the system of Public Works at this Presidency, and that the Right honourable the Governor has nearly concluded his review of the subject. These papers being voluminous, it has occurred to the Government to be desirable that, together with the final proceedings of Government, they should be laid before the Most noble the Governor-General in Council in a printed form. They are now in the press for this purpose; and I am instructed to notify that it is expected they will be despatched to Calcutta before the termination of the present month. Public Works Department.

I have, &c.
(signed) *H. C. Montgomery*, Chief Secretary.

Fort St. George, 13 September 1853.

Views and Proceedings of the Madras Government on the First Report of the Commission on Public Works.

Public Works Department.

No. 407.

Extract from the Minutes of Consultation, under date the 8th November 1853.

Read again the First Report from the Public Works Commissioners, dated 23 December 1852, and entered in Diary to Consultation, 15th April 1853.

Read also the following Minutes:

Minute by the Honourable Mr. Eliott, with Postscript.
(Here enter 19th July and 19th September 1853.)

Minute by the Honourable Mr. Thomas.
(Here enter 23 August 1853.)

Minute by the Right honourable the President.
(Here enter 29 October 1853.)

The above Minutes having been printed, ordered, that five copies be forwarded to the Government of India with the following letter.

Ordered also, that 30 copies of the same be forwarded to the Honourable the Court of Directors, with a copy of the letter addressed to the Government of India.

To the Secretary to the Government of India, in the Military Department.
(Here enter 8 November 1853, No. 408.)

To the Secretary at the India House.
(Here enter 8 November 1853, No. 409.)

(True extract.)

H. C. Montgomery, Chief Secretary.

Public Works Department.

No. 408.

From Sir *H. C. Montgomery*, Bart., Chief Secretary to the Government of Fort St. George, to the Secretary to the Government of India in the Military Department.

Sir,

Para. 1. In continuation of my letter of the 13th April last, and with reference to the intimation contained in my further letter of the 18th ultimo, I am now directed to lay before the Most noble the Governor-General in Council the proceedings in print of this Government on the First Report of the Commissioners appointed under the orders of the Supreme Government to inquire into the system of Public Works in the Madras Presidency.

2. These embrace minutes recorded by the Right honourable Sir Henry Pottinger and the Honourable Messrs. Eliott and Thomas.

3. The subjects adverted to by the Commissioners have, it will be observed, been discussed in detail in these documents, and as the individual opinions of the members of this Government do not in some points coincide, it is necessary to solicit the particular attention of his Lordship the Governor-General in Council to the respective views enunciated in these minutes, as well as to the appendices annexed in support of them.

4. The

4. The Commissioners in their concluding remarks (page 270) state that their chief recommendations are addressed to three main objects.

1st. The past neglect of even the existing works of irrigation and the high expediency of repairing past omissions, and entering vigorously on the task of both restoring the old works to their highest point of efficiency, and of greatly extending irrigation by new works.

2d. The absolute necessity of taking measures without delay to form a general system of internal communications; and,

3d. As an essential means to both these objects, the necessity of greatly enlarging and improving the engineer establishments.

5. The allegations of past neglect of existing works the Governor in Council believes to be, if not a mis-statement, very greatly exaggerated by the Commissioners, who in other parts of their Report (*vide* paras. 241, 245, 252 and 271), instance the benefits this Presidency has secured by attention to irrigation in the districts of Tinnivelly, South Arcot, Tanjore and Rajahmundry. But while admitting that in some instances possibly more might have been effected, the Commissioners, in page 110, para. 275, afford ample justification for any supposed and asserted neglect on the part of this Government in the following remarks:—

"Indeed we fully believe that this neglect by the Government of undertakings so remunerative, is to be accounted for in a great measure by the extreme paucity of engineers. Superficially and imperfectly as those officers are compelled to perform even their ordinary and routine duties, these are yet quite sufficient to engross all their time, and to leave them none to attend to new undertakings. Here and there indeed an officer is found with energy to take up the investigation of great projects, but this cannot be done except by the neglect of the ordinary duties of his charge; and this is no slight evil, though perhaps the lesser of the two. In the case of the Godavery works, not only were the ordinary duties of the division entirely neglected, as we learn from Colonel Cotton's own correspondence, but other divisions were deprived of no inconsiderable part of their far too scanty establishments, in order to provide for carrying on that one undertaking, and still the number of officers employed upon it was far too small, and the progress in consequence very slow."

6. The Right honourable the Governor in Council fully concurs with the Commissioners as to the benefits that must result from a greatly increased expenditure in works of irrigation, provided the means of superintendence under able and judicious direction is available, but without this indispensable requisite it is manifestly impracticable to entertain projects for the improvement of the country, either as regards irrigation or internal communications on any extensive scale. At the present moment, works which have received the sanction of this Government and of the Government of India are indefinitely and necessarily postponed because efficient supervision is wanting.

7. To the proposed plan of obtaining the increased agency for supervision of works solely by enlargement of the engineer corps, the Governor in Council is not able to record his assent. It appears to him inexpedient that Government should continue wholly dependent on the military corps of engineers for the supply of officers for civil engineering. In again recommending, therefore, that the military corps should be increased, the Governor in Council would suggest that the increase need not be carried to the extent required to provide for all the appointments which should be filled by scientific officers, but that a proportion might be left to be supplied by civil engineers sent from England, and by officers of the artillery and the line, and any qualified persons that may be found out of the service.

V. letter to Government of India, under date 2 June 1853, No. 605.

8. The Governor in Council does not support the proposal of the Commissioners for specifying any particular sum to be annually laid out on public works. He is of opinion that the amount to be expended on works of all descriptions, would most conveniently and properly be left to be fixed within a certain limit by the local government when proper supervision is forthcoming. He does not however object to a prospective estimate of the expenditure intended to be made within the year being submitted to the Government of India, that the amount may be known to that authority, and that it may see that the authorised limit

is not exceeded, but he is fully of opinion with the Commissioners, for the solid reasons they advance in para. 492, page 198, that whatever the admitted amount of annual expenditure may be, it should be placed at the unfettered and exclusive disposal of the local government.

Board of Revenue
D. P. W.
Military Board.
Superintendent of Roads.

9. On the subject of the controlling agency for the Department of Public Works, it will be observed there is a difference of opinion. The Right honourable the President and the Honourable Mr. Thomas are opposed to the adoption of the recommendation of the Commissioners for the constitution of a new Board to have control over public works of all kinds, in lieu of the three distinct authorities now existing. They are in favour of continuing the trunk roads throughout the Presidency, until finally completed, under the superintendence, as at present, of a separate officer corresponding direct with Government, and combat the opinion that the existing system, as the Commissioners assert, has failed. The Honourable Mr. Thomas considers that a new Board would be a cumbrous and expensive machinery, especially objectionable as excluding individual responsibility, and he would advocate the division of the Presidency into four divisions with a general superintendent to each. The Right honourable Sir H. Pottinger concurs in these views, believing that a Board on the principle proposed would prolong the present evil system; whereas the superintendence suggested would comprise personal inspection, individual responsibility, and vastly improved efficiency. The Honourable Mr. Eliott agrees with the Commissioners as to the composition of the proposed Board, except that he thinks that it will be sufficient to appoint one engineer officer to be a member of the Board besides the chief engineer, who is to have a seat in it *ex officio*. Mr. Eliott, in a postscript to his minute (page 33), has stated his reasons at length for preferring a Board consisting of an able and experienced revenue officer, and a select officer of engineers, eminent for his professional skill and experience, and thoroughly conversant with the practice of the department, to an individual officer for the control of the Department of Public Works at this Presidency, or to dividing this control by arranging the district in four grand divisions, with a superintendent to each, with reference especially to the union of the management of the Maramut with the administration of the Land Revenue.

10. To the arguments in support of these separate views I am instructed to solicit especial attention, as the controlling agency for the Maramut Department must ever be a matter of vital concern to the future prosperity of this Presidency, where the existence of the land revenue so much depends upon irrigation. But though the Government of Madras are not unanimous on the question of the future controlling agency of the Public Works Department, they agree fully on the impolicy of continuing any portion of it in the hands of the Military Board. The Honourable Mr. Thomas pronounces that delay and ineffectual supervision are marked characteristics of this Board, and he strongly advises that it should be abolished at the earliest possible date, and the Right honourable the Governor declares it to be worse than useless.

11. In paras. 173 to 181 of his minute, the Honourable Mr. Eliott has carefully reviewed the subordinate agency proposed by the Commissioners, and with the modifications suggested by Mr. Eliott the Governor in Council is inclined to recommend it on the proposed scale, but is of opinion that such details as are referred to by the Commissioners, must be left to be carried out gradually by the local government.

12. The Commissioners, in paras. 606 to 626, have largely discussed the subject of training a succession of subordinate officers, European and native, for the Department of Public Works. This subject has long engaged the attention of this Government, and the Government of India will remember that a project has been already submitted for raising a Government institution for this purpose, on the foundation of the existing school for the instruction of artificers established by Major Maitland.

13. The Right honourable the Governor in Council would again urge this project on the attention of the Most noble the Governor-General in Council. Anticipating the approval of the Government of India, the Governor in Council has lately authorised the extension to the Department of Public Works of the system of entertaining apprentices under the district civil engineers, which had been found to be so successful in the Road Department.

14. The

14. The Governor in Council will not in this communication further follow the Commissioners through their very lengthened and reiterated discussions, as the principal points of their report have been fully treated of in the minutes recorded, but he directs me in conclusion, to bring prominently to the notice of the Supreme Government the tone which the Commissioners have used in reference to proceedings and orders of Government, and the principles and views ascribed to it; and the exaggerations and misrepresentations with which they have endeavoured to support the studied reflections they have cast upon its conduct in many instances, which an exact statement of the case would have shown to be unfounded.

I have, &c.
(signed) *H. C. Montgomery*,
Fort St. George, 8 November 1853. Chief Secretary.

MINUTE by the Honourable *D. Eliott*, Esq.

Section I.

1. THE attention of the committee was directed to "the whole subject of the superintendence and execution of Public Works" under this Presidency.

2. The public works of this Presidency, the Commission point out, "are carried on under three distinct and independent departments; viz, 1st, the Public Works Department of the Board of Revenue; 2d, the Superintendent of Roads; 3d, the Military Board. Para. 3.

3. The Board of Revenue has the control of all irrigation works, all civil buildings in the provinces, and all roads and bridges not included in the trunk roads, nor in military cantonments, and all canals, &c.

4. The superintendent of roads has the sole superintendence of the great lines of communication which have been classed under the term Trunk Roads; he proposes all new roads on these lines, as well as all repairs and improvements, and he and his subordinates execute the greater part of the work.

5. The Military Board have the superintendence of the construction and repair of fortifications, of all public buildings, both military and civil, at the Presidency, the Government roads and bridges at the Presidency, all military buildings and forts in the provinces, and roads and bridges, &c. in military cantonments; as well as the roads, bridges, and civil buildings and works in the Saugor Division.

6. Besides these the work at the Paumbem Channel is under the sole superintendence of the chief engineer.

Section II.

7. IN the 2d section of their Report the Commission treat of the department of Public Works under the Board of Revenue.

8. In this department the civil members of the Board of Revenue are assisted by the chief engineer, who has a seat at the Board, and their secretary is an officer of engineers.

9. The general charge of the works under the superintendence of the Board of Revenue is vested in the collectors, assisted by professional officers designated as civil engineers.

10. The Commission represent the 20 collectorates under this Presidency as distributed into eight principal divisions, to each of which a civil engineer stands appointed, and one sub-division, in which an assistant civil engineer of the first class performs the same duties as the civil engineers in the other divisions. When they wrote, the first division (exclusive of the sub-division) comprised the three collectorates of Rajahmundry, Masulipatam, and Guntoor. But these districts have since been formed into two divisions, called the Godavery and the Kistna divisions, and placed respectively under the civil engineers charged with the anicuts on these rivers and the subsidiary works for the irrigation of the Para. 11.

country dependent on them. There are, therefore, under the orders of the Board of Revenue nine civil engineers and one first-class assistant civil engineer, with distinct charges. In general each civil engineer has to attend to two districts. In one only the charge of the civil engineer extends to a third district; but the second district of this division has no artificial irrigation, and the third is a small one.

3d Division, Bellary, Canara, Kurnool.

Paras. 13 to 16.

11. The nature of the works of irrigation in this Presidency is described by the Commission. The revenue immediately dependent on those belonging to Government is estimated by them at *135 lacs of rupees per annum, besides †15 lacs alienated as Enam. The custody of the works on which this revenue depends, the Commission observe, "devolves primarily on the collectors and tahsildars; then on the civil engineer department, whose more special province it is to give advice and assistance to the collector in preventing danger and repairing damage."

Para. 17.

Para. 20.

12. All repairs and alterations of works of irrigation, and of the other works above specified as appertaining to this department, are made under the orders of the Board of Revenue, which receives and discusses all projects for constructing new works or improving and enlarging old ones. Estimates for such works are submitted to the Board by the local officers, and if approved, are laid by the Board before Government. The Board receives and examines and submits to Government the bills for work done; distributes and transfers the assistants and other subordinate officers of the civil engineer; and exercises a general control over every part of the department, whether under the civil engineers or under the collectors.

13. These duties involve a vast deal of business, which, owing, as the Commission think, to the inadequacy of the office establishment, it has not been possible to discharge without arrear. It is stated that from the heavy pressure of business in the office, bills for work done can rarely be examined in less than a year after receipt, and a still longer time sometimes elapses between the completion of a work and the transmission of the bill for it to the Board.

14. The Commission omit to mention that the office establishment was strengthened by the appointment of an assistant secretary long before the date of their report; and that the establishment under the secretary was increased to the extent that seemed to be sufficient to enable it to carry on the current business without arrear, while a separate provision was made for the disposal of arrears at a much earlier period.

Para. 22.

15. The Commission represent that "the Board have done their best with the aid in general of a highly efficient secretary, but with a very inadequate office establishment, to deal with the business brought before them; but they have attempted very little beyond that, and have rarely taken the initiative in suggesting improvements." The Board not having done more, the Commission attribute to the full occupation of the civil members with their proper revenue duties, and to circumstances which prevent the chief engineer from giving much of his time to the general business of the department. The result, the Commission allege, is, that "the secretary alone has long been the real head of the department;" and this, they say, is more emphatically the case in consequence of a late despatch from the Court of Directors, implying that they held the secretary responsible for the sufficiency of the estimates recommended by the Board, whereupon the secretary claimed the right of recording his dissent from the opinion of the Board, a right which it is stated the Board conceded, and which he has exercised.

Para. 23.

16. Upon this state of matters the Commission remark, that it "appears to them very objectionable; it being obviously contrary to good policy that a Board should

---

* This estimate excludes Malabar and Canara, which have no artificial irrigation, also Kurnool and the five Northern Circars. The latter are omitted on account of the large proportion of them under Zemindary settlement; but large tracts have reverted to Government of late years. By the latest statement, the revenue from irrigated lands in Kurnool and the Northern Circars was close upon 15 lacs (14,94,004 rupees), raising the total to 150 lacs.

† This is a mere conjecture much short of the mark, I conceive.

should be so weak or so encumbered as to be obliged to leave the disposal of business wholly to the secretary, and still worse that a secretary, whose duty it is to carry into effect the orders of the Board, should be placed in the mixed and anomalous position of also sharing their responsibility, and therefore of discussing and disputing their orders."

17. The Commission conclude that "the Board of Revenue is of necessity, and from the very nature of the case, unequal to the control of the Maramut Department," and that it is "absolutely necessary that this duty should be transferred to a different body." Para. 25.

18. The Commission give a brief abstract of the present system of carrying on work in the provinces. The work connected with irrigation is shown to be divided into three classes, "Emergent," "Ordinary," and "Occasional." The "Emergent" work is that which cannot be postponed, as when a tank or channel is breached and must be repaired immediately to save the crops and the revenue of the year. This is done immediately by the collector, on his own responsibility. The "Ordinary" works are those repairs to tanks and water-courses, &c., which are necessary to keep the works in efficient condition, the estimates for which, for the most part, are made by the civil engineer (or his subordinates) at the suggestion of the collector or tahsildars, or of his own motion, from his personal knowledge of what is requisite, and the rest by the tahsildars. The collector decides upon the works to be executed, and enters them in an annual list, and then issues his orders to the tahsildars to commence the works, advancing to them for the purpose about half or a third of the amount of the estimates. The tahsildar causes engagements to be made with workmen, ordinarily through the officers of the village where the work is to be done; advances are made and renewed from time to time. The work is marked out and explained by the talook maistry, who visits it while in progress, and reports on it. Many of the works are also visited, while in progress, by some officer of the civil engineer's department; when finished, the work is measured by the tahsildar's department and the maistry, and in many cases by the civil engineer's department, and the accounts are then made up. The estimates for ordinary works are not previously submitted to the Board, but are ordered to be executed by the collector on his own responsibility. "Occasional" * estimates are such as are designed for the improvement or extension of existing works, or for the construction of new works. They are made almost chiefly by the civil engineer, though often on suggestion or recommendation from the collector. They require the previous sanction of Government before execution, and are submitted through the Board of Revenue. They are executed generally in the same manner as ordinary estimates, but the larger and more important works are now often executed under the superintendence of European overseers. Paras. 25 to 33. "Emergent." "Ordinary." "Occasional."

19. The rules for "occasional" works of irrigation are applied to estimates for roads, bridges, and buildings. The work is done in most cases by the tahsildar's department, aided, when necessary, by the instructions of the civil engineer. Larger works are often executed under the superintendence of an European overseer.

20. Thus it appears that the execution is almost entirely in the hands of the tahsildars, under the control of the collectors, while the duties of the civil engineer's department are, first, projecting and estimating, and, secondly, directing and inspecting.

21. With respect to the civil engineer's branch of the department, the Commission pronounce that its present and chief want is an increase of engineer officers, Paras. 34 to 36.

* *Note.*—The Commission remark that of late years some sorts of work have been required to be included in the occasional list, which are merely "ordinary" in their character. I am not aware of this. I have known objections made to works "occasional" in their character, that is, for the improvement or extension of existing works being included in ordinary estimates for repairs; but I do not recollect instances the reverse of this. Perhaps they allude to the large expenditure for maintaining the Godavery Anicut, &c., which is somewhat exceptional, respecting which it was ordered, under date the 8th May 1852, that while the practice in regard to ordinary estimates generally should not be altered, any expenditure sanctioned by the Board on account of the anicut, ordinary or emergent, should be immediately reported to Government.

officers, in order both to the efficient discharge of the ordinary and routine work of the department, and to the development of the resources of the country, and the increase of the revenue, by the restoration of works that have gone to decay, the improving and enlarging of existing works, and the formation of new works, and also with a view to the improvement of the roads.

Para. 37.

22. The subordinates of the department are of two classes, the revenue surveyors and the overseers; the former have, with one exception, been invariably East Indians. The term surveyor is an improper designation, as their duties are not confined to surveying; they are employed by the civil engineer in all the various duties of the department; besides surveying and taking levels, they project small works, make estimates, and inspect works performed by the collector's department, and are occasionally employed in the superintendence of important works in execution. They are instructed, mostly, in what is called the "Survey School" attached to the office of the Public Works Department, from which, after passing a certain examination, they are advanced to be sub-assistant surveyors, and placed under the civil engineers, with an allowance of *Rs.* 79. 0. 8.[a] a month, to which is added *Rs.* 24. 8. tent allowance, when reported qualified for detached duty. After seven years from entering the school, their allowances are raised to *Rs.* 141. 4.,[b] on their being recommended to it by the civil engineer, and two further advances[c] of salary are open to them after certain terms of service, on the same recommendation. There are now in the department 26 revenue surveyors of different grades.

	Rs.		
[a] Salary	30	–	–
Allowances when detached from the office	49	–	8
	79	–	8
[b] Salary	65	–	–
Field allowances	76	4	–
	141	4	–
[c] First	100	–	–
Second	140	–	–
(with field allowances as above.)			

Paras. 38 to 41.

23. The Commission have formed an unfavourable opinion of this class, but their defects seem to be capable of amendment; they seem at first joining to have a foundation of professional knowledge, which, with good practical instruction and experience afterwards, ought to make them gradually serviceable; and it appears that, in fact, their services do, by such training, become useful at an early period, and that the best of them are found by the civil engineers to be "extremely useful" after they have been seven or eight years in the department.* It is desirable to know what proportion of those of this standing are considered to merit such high praise.

Para. 39.

Para. 40.

24. They are represented to be in general intelligent, and for the most part both honest and sober; the testimony to the general integrity of the class is said to be very uniform. The defects ascribed to them are indolence, a want of activity and energy, an over estimate of their own importance, and a false estimate of what constitutes respectability, which makes them regard it as a degradation to put their own hands to any work. A better early training would, probably, in a great measure, cure these defects; such a training, for example, as the youths in the institution under Major Maitland are now subjected to. The remedy proposed by the Commission, of amalgamating them with the Europeans, I doubt not would be very efficacious, and, as at present advised, I see no objection to it.

25. The overseers appear to be all Europeans, drafted from the Sappers.† The number now belonging to the Maramut Department is stated to be 25, viz., seven in the first division, and one or two in each of the other divisions; there are also 11 under the superintendent of roads. They have been employed almost exclusively on superintending work in execution, occasionally in making surveys and taking levels, and in a few instances in inspecting works done. Their acquirements on first joining seem to be, in general, a good deal inferior to those of the surveyors, but they vary greatly. The Commission state that the results of the employment of this class have been most satisfactory, and they adduce testimonies in

---

* *Note.*—I am informed by the secretary to the Board D. P. W. that of 31 surveyors educated at the school, only six have turned out very inefficient.

† *Note.*—The order of the Government of India, dated 19 September 1851, expressly sanctions the employment of non-commissioned officers of the Sappers exclusively. But I am informed that Sappers not being available, vacancies are now supplied from the artillery and infantry, which cannot be expected to furnish men nearly so well qualified, and I understand that in fact many of those lately brought into the department have failed to give satisfaction.

in support of this statement; they also mention some very marked instances of direct saving produced by their vigilant and energetic superintendence, not only by the prevention of fraud, but by obtaining more and better work from the people employed, by saving in material, &c.

26. The Commission represent that the men of this class have been "unfairly treated by Government." In this report, dated 23 December 1852, they allege that "not one has yet been advanced from the lowest step of rank and pay," and that they are "without any prospect of improvement;" and they express their hope "that Government will now be induced to take up the subject, and to relieve this very deserving class from the causes of discontent from which they suffer;" which representation they make in the face of a communication addressed to them, under date 14 June 1851, in which they were apprised that the Government had applied to the Government of India to promote nine out of the 27 overseers in the department, or one-third of the whole, both in rank and pay, and that the Government desired to have their opinion upon the proposition of the Board of Revenue for extending the employment of non-commissioned officers of the Sappers and Miners, before they decided upon it. With this reference before them, the Commission were not warranted in the comments they have introduced into their report; and if the comments were penned, as is intimated in a note, before they were informed of what the Government had done, there was ample time to modify them according to the truth in the 18 months that elapsed before the report was closed. By the promotion sanctioned, two of the overseers had their allowances, including their military pay, increased to *Rs.* 107. 12. 8, one had his increased to *Rs.* 102. 8. 3, and the rest had an increase which raised their allowances, on the aggregate, the highest to *Rs.* 90. 11. 1, and the lowest to *Rs.* 85. 3. 5.

Paras. 52 to 54.

Sanctioned by Government of India, 19 Sept. 1851.

27. The Government of India, on the 14th June 1852, at the recommendation of this Government, granted tent allowance to three of the overseers while employed on special duty. The Board of Revenue afterwards applied to Government to allow the tentage of a sub-assistant surveyor to be drawn by any overseer whom the civil engineer of any division may find it necessary to employ in the duties of inspection properly pertaining to the Survey Department. The Government did not think it proper to assent to so general a proposition, but intimated that they would not object, on the Board bringing any special case to their notice, to apply for the sanction of the Government of India to the allowance of tentage for a specified period.

29 Nov. 1852.

28. It appeared to me at the time, and I think still, that a general discretion might be given to the Board to authorise tentage to overseers when the duties on which they are employed call for it; that is, when they render it necessary for them to move about the country.

29. The Commission next speak more fully of the execution of works in the Revenue Department, in which they regard the tahsildars as the executive officers, and the collector as the controlling authority over them, describing the jurisdiction and general duties of the tahsildar and the officers under him, pointing out the several steps towards the execution of work after the collector has given his orders to the tahsildar, and explaining the duties of the talook maistry; also setting forth the manner in which accounts are kept of the details of work, which form the materials from which the tahsildar makes up bills to be submitted to the collector, and examined in his office, and finally sent through the civil engineer to the Board of Revenue, and eventually to Government for sanction.

Para. 55.

Para. 56.

Para. 57.

Para. 58.

30. In commenting upon the existing system as described by them, the Commission point out that one of the chief inconveniences of it is dilatoriness, particularly in the smaller works which are executed by village officers; they do not think that the delay is owing to malversation, but chiefly to the procrastinating bent of the native character. Whatever* frauds there may have been formerly

Para. 59.

* The late Captain Best, superintendent of roads, previously employed for a long time in the Maramut Department, and one of our very best engineers, made the following statements in a letter dated 29 August 1850: "There were formerly cases of gross carelessness in estimating, gross neglect in

Para. 60. formerly in misapplying advances, they are assured that they are now rare. The accounts they represent as being kept irregularly, especially the daily accounts, with regard to which even in great works there is in general great laxity. But precautionary measures they observe are taken in some districts, Para. 62. particularly Canara and Trichinopoly, which are calculated to prevent the accounts being tampered with. It is stated that the opinions of the collectors vary as to the degree of credit due to these daily accounts—some think they are generally authentic, but the majority express the opinion that they are not very faithful, or exactly kept, and the civil engineers express the same conviction. As to the final accounts of works, some of the collectors think that they are fairly Para. 63. made up from the daily accounts, while others, and all the civil engineers, express their belief that they also are garbled.

Paras. 64 and 65. 31. The Commission suggest the means by which these evils may be corrected, all of which seem to me advisable, except the use of English in the daily accounts as a general rule. The Commission recommend this "for the figures certainly, and probably at no distant period for the headings and remarks also." The use of English in the accounts would no doubt facilitate check by the civil engineers in their inspections, and, where it is practicable, it would be well to introduce it, but I conceive it would be very rarely practicable. It is a suggestion, I think, worthy of note, that "strict agreement between estimate and bill ought not to be insisted on, as that directly encourages tampering with accounts."

Para, 66. 32. The Commission discuss the question how far the existing rates of labour are sufficient, how far the labour employed in public works is voluntary, and how far otherwise. On these points, they say, opinions are various. In Malabar and Canara the people in general are stated to be too independent to work for insufficient wages, yet the Commission come to a conclusion which appears to contradict this, in stating that, "on the whole there appears to be no district in which labour is not more or less obtained by compulsion."* They observe that "little coercion is used, but it is known that it will be used if required, and indeed the workpeople themselves, from long custom, consider themselves under a sort of obligation to work for Government on the established terms; but where the remuneration is inadequate they work unwillingly and slowly."

Paras. 67 and 68. 33. They state what they consider to be the causes of this practical insufficiency of the hire, and suggest the means of remedying it. In some districts they conceive the rate of hire to be too low, but more generally they believe the Para. 69. people would be content with the rate if they got full and prompt payment, to secure which is the great object; and this the Commission think will be best secured by the extended employment of European overseers.

Para. 70. 34. Without adopting the extreme opinion of the Commission as to the impossibility of inducing native functionaries to pay for work punctually, an opinion which, if well founded, goes to destroy all confidence in native agency generally, and would reduce one to despair of a good administration in any department, since in none can native agency be dispensed with, I agree with them that the extended employment of Europeans as overseers would have a beneficial effect in the manner specified by them.

Paras. 71 and 72. 35. The present practice of retrenchments from the cost of works, in consequence of inspections by the civil engineer or one of his officers, appears to be liable to the objections of the Commission. But I do not feel competent to form an opinion of the fitness of the rules proposed for limiting such retrenchments and fixing responsibility. A reference should be made to the department on the subject. I observe that Government, under date the 11th October 1849, in deciding

---

in executing, and gross frauds in charging for these works, pervading whole districts, and repeated from year to year; but such have never come to my knowledge. And I do not hesitate to state my belief that in no department under Government has there been anything like so great improvement within recollection as in this. Year after year the works are better chosen, better done, more fairly paid for, and more honestly charged for.

* In a late report, Major Cotton, in charge of the Godavery works of irrigation, states that he has 14,000 labourers who have come voluntarily for employment. Some degree of compulsion was necessary at first to procure the amount of labour required; but there is now not only no necessity for compulsion, but the demand for work by the labouring classes is so great that employment cannot always be given to all that seek it.

deciding upon objections made by the civil engineer of the 4th division to accounts of work done in Chingleput, disallowed the objections for reasons similar to those advanced by the Commission.

36. The subject treated in these paras. is of much importance. There can be no doubt of the expediency of improving so valuable a class of servants as the district and talook maistries. That there is great room for improvement is unquestionable. I take it to be clearly necessary both to improve their personal qualifications and to give them a more independent and respectable position, with better pay. Paras. 75 to 89.

37. The successful experiment of Captain Best of taking youths as apprentices for instruction, with an allowance of seven rupees a month during their apprenticeship, ought to be carried out in the Maramut Department in the manner proposed by the Commission. If a school shall be hereafter instituted on the plan recommended by the Commission, or on the foundation of that established by Major Maitland for the instruction of the Ordnance artificers, as this Government has proposed to the Government of India, the apprentice system might merge in it. But in the meantime much might be done towards the improvement of the department by the instruction of apprentices under the civil engineer and their principal assistants. I think it expedient that this be ordered at once. Para. 81. Para. 82.

38. The question whether the talook maistries should be under the tahsildars or the collector, is hardly worthy of consideration until we have better qualified maistries. Paras. 83 to 85.

39. I am strongly in favour of increasing the pay of both the superintendents and the maistries as duly qualified persons are found. I think it is not an unreasonable suggestion of the Commission that the superintendent should be put on the footing of a tahsildar in regard to pay. Indeed this is the case already in some districts. The rates proposed for maistries rising from 15 to 40 rupees do not appear to be excessive. The highest rate of course would not be attainable without a long service and superior qualification. Para. 86.

40. That the number of the maistries also needs be increased appears to me to be demonstrated.

41. The Commission give their views upon certain rules proposed by Government for modifying the present system for the conduct of the department. Paras. 91 to 106.

42. The Commission entirely overlook that these rules were proposed as a temporary provision to make the most of the existing establishment "until the thorough reform of the Department of Public Works which had been submitted for the consideration of the Government of India should be authorised." It is evident from the discussions which issued in the Minute of Consultation, wherein the rules in question were proposed, that the Government fully recognised that the grand defect of the system was the want of officers. It being impossible with the present establishment to give a civil engineer to each district, the question was how to employ the officer having the charge of two or more districts so as to admit of his concentrating his atttention upon the principal works in each district, and how he might be enabled to superintend more closely the execution of those requiring professional skill, with a view to fixing a greater responsibility upon him. I beg to refer to my minute on the subject, in which, after having expressed my opinion that every district should have its own engineer, I assented to the suggestion that until Government should be empowered to extend the establishment, the engineer in charge of each division should be required to remain in one of the districts composing it, six or eight months consecutively in alternate years, explaining my views as follows: "I concur in the principle of this suggestion, viz., that the engineer shall concentrate his energies upon one district for the greater part of every year, in executing, or directing and superintending the execution of the works of importance enough to require his personal attention, which have been sanctioned, and in planning and estimating for new works to be executed in a future year, employing the rest of the year in inspections, &c., in the other district, as far as his time will permit, for thus, I conceive, the work which is the proper business of the engineer (that is, the work requiring professional direction) may be as Para. 13, Minutes of Consultation, 31 January 1851. Recorded in Cons. 31 January 1851.

well done in quality as if each district had its own officer, and Government will have the satisfaction of finding the plans submitted to them bear the marks of mature deliberation and careful elaboration and adjustment, and will have assurance in sanctioning them that they will be well executed. There can be no doubt, however, that though what is done may be expected to be better done than at present, the quantity of work performed will be much less, and certainly short of the demand. This, however, applies only to works classed as 'Occasional,' and it is of more importance that every work of this sort should be well executed than that a greater number of such works should be executed in a less efficient manner. While therefore the department is not of sufficient strength to admit of an engineer being attached to each district, I am inclined to think that its actual strength will be turned to the best account in the manner suggested. But it must be understood that this is only an expedient, and that to get work better done, by insisting on a closer attention to the planning in the first instance, and enforcing a more direct responsibility for the execution, it will be necessary to leave much undone, which will be a check to the improvement of the country."

43. With regard to "ordinary" works, however, it was expected that these would be expedited by dispensing with the intervention of the engineer, and that not less, but more, would be done in this branch.

Para. 98.

44. The Commission say that the remarks of the Board of Revenue on the 3d rule, which embodies the suggestion I am now considering, appear to them to show convincingly that it is impracticable, and if put in operation would produce more harm than good. The Board did not assert that it was impracticable, but submitted that it would be found difficult in practice, assuming that Government did not intend that the planning or superintendence of works should be partly entrusted to the assistant civil engineer, implying that if this was intended their objection would not hold. It was, however, certainly presumed that the civil engineer of the division would so employ his assistant as most effectually to fulfil the design of Government that he should himself be occupied the greater part of every year in one district, in pursuance of which the assistant would naturally be employed in the district in which the civil engineer was not engaged, and when the civil engineer passed from one to the other before the completion of works begun under his direction, he would of course place them in charge of the assistant. This explanation seems to meet the particular objection of the Board. But they would still apparently prefer the existing practice, by which the civil engineer having two districts under his charge, "does for the most part confine himself to one district, and employ his assistant in the other, visiting it only when his presence is necessary for the determination of a professional question which may be too difficult for the unaided judgment of a less experienced officer, and for general inspection." This arrangement gives arbitrarily the advantage of an engineer of superior qualifications to one district, and one of inferior qualifications to another. As it may be hoped that the establishment will shortly be increased to an extent which will admit of a civil engineer being put in charge of each district, the question which is the best arrangement for the meantime is not of much practical importance, and I should be disinclined to insist upon the rule against the judgment of the Board.

From Board of Revenue, 10 April 1851, paras. 13 to 20.

Para. 98.

45. It was not, as the Commission suppose, forgotten that the civil engineer is not under the existing system an executive officer, except to a very trifling extent. This was distinctly considered, and it was judged to be expedient that more should be required of him in this line of duty.

46. The 4th rule is that by which it was intended to give to the civil engineer the relief requisite to enable him to give that greater personal attention to the execution of works which Government thought expedient. The Board say they are sensible of the importance of relieving the civil engineer from the duty of attending to petty works, but submit that an unconditional money limit to the sphere of that officer's superintendence would not be found to answer. The reasons they give for this opinion appear to me to be valid, and I would yield to their suggestion, that "the intention of Government would be best accomplished if the civil engineer, while relieved from the duty of attending to petty works, should be allowed to use his own discretion in determining what are properly such, and not be restricted to a money limit." The Commission point

From Board of Revenue, as above, paras. 22 to 29.

point out that of 4,339 estimates for works of irrigation sanctioned in 1850, amounting to 6,68,368 rupees, only 96 estimates, to the amount of 1,71,251 rupees, were above 1,000 rupees each.

47. In commenting upon the 1st rule, which requires that no new work or renewal of a work, to cost above 2,000 rupees, shall be submitted to Government till the collector or sub-collector has made inquiry on the spot in person, and satisfied himself of the data on which the expected return from the work has been calculated, the Commission overlook the proviso, leaving it to the collector to depute his assistant in less important cases to report to him, the responsibility for the recommendation of the work resting with the collector. In most districts there is a head assistant competent to take charge of two talooks, and another assistant of sufficient experience to take charge of one talook. When works above the limit of 2,000 rupees are proposed in those talooks, the collector will naturally devolve upon the assistant in charge the duty of making the inquiry contemplated by the Government, except in the case of works of extraordinary importance. In the talooks under his own charge he will take the opportunities that offer in the course of his jummabundy tour and at other times to make the necessary local inquiries. The sub-collector will do likewise. It is an erroneous assumption that a collector in the annual jummabundy "can only visit the chief place in each talook." He will very ill perform his duty and transgress the instructions for his guidance, if he does not stay at several places in each talook for the purpose of meeting the ryots in order to the settlement, and for the delivery of their puttahs, and in passing from one halting place to another he can easily arrange to make the necessary visitations. When it is considered that, as shown by the Commission, the whole number of estimates above 1,000* rupees, in 1850, was only 97 in the 20 collectorates, it will be obvious how they have exaggerated the difficulty of carrying this rule into effect. Of the propriety of the rule I have no doubt.

Para. 94.

*The rule refers to estimates above 2,000 rupees.

48. The remarks of the Commission on the second rule do not seem worthy of notice. Those of the Board of Revenue appear to deserve attention, particularly the doubt they express "of the advantage of a rule which connects the expectation with a return of the whole capital expended, rather than of interest thereupon." They "recommend that projects for which a return of 10 per cent. upon the outlay is certain (as far as certainty is possible in such cases) to be realised should be favourably entertained. I am inclined to support this recommendation, taking the 10 per cent. to be clear of what is necessary to be allowed for repairs and superintendence, which Captain Collyer, I observe in his estimate for the Palar Anicut, &c., reckons at 10 per cent. This allowance will vary with the nature of the work. A net return of 10 per cent. on the outlay will provide for interest on the capital until it is redeemed, and at the same time constitute a fund for its redemption, which being effected, it will remain as a permanent addition to the revenue. On the term "certain," I would observe that the Government in requiring it to be declared that the supply of water is "certain," meant nothing more than that it is to be depended upon in ordinary seasons.

Para. 97.

From Board of Revenue, as above para. 8.

49. With reference to the general remarks of the Commission in this para. I would observe that I do not think Government meant to intimate that ill-considered plans are commonly sent up: I believe that little more was meant, than is admitted by the Commission. The following are my remarks on this point in the Minute before quoted: "After all, as far as I know, the cases are rare in which the Government have been led into error in yielding to recommendations submitted by the Board of Revenue on a too implicit reliance on the reports of the engineers, supported as these must be by the collectors, at least in which it has been ascertained that the works sanctioned were not conducive to the improvement of the country, although perhaps some of them might have been spared."

Para. 105.

50. In closing the recapitulation of this section of the report, the Commission recommend for immediate adoption some of the suggestions offered by them. One is the suggestion that in every large work in which an overseer is employed, he should be charged with the payment of the workpeople and the keeping of the accounts; that he should be empowered to reject inferior materials and determine the price of all, subject to an appeal to the civil engineer; and that whenever practicable, the materials should be provided by him. The last two propositions appear to me questionable. The overseer ought to report to the engineer

Para. 644.

Para. 50.

when he considers the prices excessive, if his objections to them are not admitted by the local officer, and if the engineer concurs with him, he should hand up the report to the collector, with his opinion to that effect. I see many objections to the overseer providing materials himself, but it might be allowed occasionally, when unnecessary difficulties were made by the tahsildar or his officers. With respect to the rest, without laying down an absolute rule to the effect proposed, I think the Board should be instructed to cause the suggestion to be followed out whenever the officer responsible for the execution of the works felt sufficient confidence in the overseer. Another suggestion relates to the reform of the accounts, which I have adverted to above. The attention of the Board, I think, should be called to the subject, in order to the introduction of a uniform system, in accordance with the recommendation of the Commission.

Section III.

51. In the third section the Commission treat of the Roads and the working of the Road Department.

Para. 110.

52. In this para. the Commission mention the greatly extended use of wheel-carriages in this Presidency for the traffic between the inland districts and the coast, the last returns in 1848 showing 90,000 bandies, an estimate supposed to be much too low. There could not be a more convincing proof that the roads have been to a considerable extent much improved, but it is undeniable that there is great room for further improvement, indeed that the want of roads is our great and crying want. It is true also that the river navigation of the country has not been improved, and that canals for traffic have only been attempted on the very smallest scale.

Para. 111.

Para. 125.

53. Without stopping to inquire whether the Commission have fully exhibited all that was done in this department prior to 1846, when, as they justly observe, a new era commenced in the history of the roads of the country, I take up the subject at this point of time, just noticing that increased attention had been lately given to it, particularly under the administration of Lord Elphinstone, so that while the yearly expenditure on roads during the first ten years of the period from 1826 to 1845 had averaged 84,503 rupees, the average during the last ten years had been 1,79,348 rupees. In 1845 a separate department was constituted for the superintendence of the roads, and early in 1846 the Government received the sanction of the Court of Directors to the appropriation of 4 lacs of rupees annually to the formation, maintenance, and repair of the main or trunk roads, exclusive of the expenditure on minor roads still left under the collectors and civil engineers, to be provided for separately under instructions issued at the same time, among which the Commission notice a very important one, whereby they observe collectors were authorised "to disburse money for the repair of made roads of this class, on the responsibility of the civil engineer for the necessity of the outlay, to an amount not exceeding 50 rupees a mile annually." On referring to the order of Government, I find it more restricted than is to be understood from the words of the Commission. It authorised collectors, "during the monsoon season, to disburse a fixed annual amount for emergent repairs, or for keeping up a temporary establishment for the preservation of the roads, and especially of the ghauts, on the distinct understanding that such charges were to be confined within the narrowest limits, or emergency demand, never to exceed 50 rupees the mile, and to be reported without delay for the sanction of Government." From some oversight, this order it appears has not been acted upon. It should now, I think, be repeated.

Report, paras. 125 to 143.

M. C. 27 January 1846, para. 14.

54. In sanctioning this scheme for the Road Department, the Court of Directors, it is to be observed, established a precedent for vesting a subordinate government with discretion to lay out money for certain purposes within a certain annual limit, without a previous reference to the Supreme Government to obtain sanction for the plans of improvement projected.

55. The charge of the superintendent of roads, as laid down in the instructions for his guidance, was far too extensive, and extremely able, zealous, energetic, and active as Captain Best was, it was impossible for him to compass what was prescribed as his duty. It was intended that he should be executive as well as superintending. But endeavouring to inspect himself the many lines of road over

over which his superintendence extended, he was obliged to be almost always travelling, and of course was unable to give any considerable attention to the execution of particular works. Early in 1851 the Government felt it to be necessary to direct him to concentrate his efforts, "laying it down as a general rule, that the superintendent of roads should confine himself to the execution and completion of such great lines of road only as he can personally and efficiently inspect," and expressing the opinion, "that a system of superintendence based upon this principle, by which the energies of the superintendent and his department will be concentrated, will in the end be found the most economical and effective, and better calculated to yield permanently beneficial effects, than by the plan now pursued by that officer of passing hurriedly throughout the whole Presidency, leaving the works in progress to his assistants without his frequent supervision. Para. 138.

56. The superintendent of roads had been previously authorised, so early as August 1847, to avail himself of the aid of the civil engineers occasionally, for the formation of portions of the trunk roads, the construction of bridges, &c., for which he could not provide by means of his own establishment; and this aid was pretty largely called for, and very zealously and ably afforded. Para. 136.

57. Undoubtedly the orders of January 1851 reduced the Road Department to a much narrower immediate sphere of action than was originally contemplated; but it is not to be admitted that the effect was, as alleged by the Commission, "that all the trunk roads, excepting the lines to which specially the personal attention of the superintendent was to be confined, were left worse off than the cross roads, and far worse off than they themselves were before the Road Department was formed," for the order remained in force which authorised the superintendent to call for the assistance of the civil engineers to do for them what, from the information they rendered to him, he judged to be immediately requisite, and thus much work was done on the trunk roads beyond the limits within which the superintendent's personal supervision was thenceforward exercised. Para. 140.

58. My own opinion was, that the superintendent was too much confined by the above orders; I thought it was not in accordance with the intention of Government, in constituting the office of superintendent, that he should be personally employed in road making, though I deemed it indispensable that he should closely overlook the work in progress under his assistants. Entertaining this opinion, I considered it unnecessary to defer the commencement of other roads, besides those particularly mentioned by Government, the construction of which it would be possible for the superintendent to overlook personally. My idea was that the great roads in hand should be completed with all possible expedition, laying out upon them annually until they were finished, as much of the four lac fund as could be profitably employed in their execution with the means available, so that the superintendent might be able the earlier to transfer his attention to other lines of road, taking up in order the lines which, while they were recommended by the importance of the traffic which might be expected to pass by them, could most easily be superintended by him without drawing him off too much from those simultaneously in progress. Minute recorded in Consultation, 31 January 1851.

59. I still think that the best way of laying out the four lacs annually is, not by distributing it over a great many roads, but by concentrating it on a few, working on those in hand at many points at once. If a road is to cost, say four lacs, I think it would be better to provide for its construction in two years,* by allotting to it two lacs per annum, than in four years by an assignment to it of one lac per annum; the gain in time in bringing it into use is an obvious advantage, and another great advantage is the setting the superintendent free to commence other projects so much earlier.

60. I think it was a mistake not to give the superintendent the assistance of a subordinate department, constituted as he proposed in 1846. It is to be regretted that the superintendent so early lost the services of the engineer officer originally Paras. 140 to 145.

* This I conceive to be the minimum time that must of necessity be allowed for making a road in this country to admit of its settling properly.

originally appointed his assistant, and that the department has since been without the advantage of a second professional officer to take a share of the superintendence, so as to admit of its being more widely extended, without intermission of the closer oversight of the works under construction by the agency of the department, which the Government required to be maintained. With such aid, I doubt not Captain Best would have been able to expend the four lacs annually on trunk roads with economy and efficiency by the agency of his own department, but not if he made "numerous, almost continual, journeys from one end of the Presidency to the other," and not without some such concentration of the operations of the department as the Government contemplated. It is to be observed that Captain Best had a good reason for his lengthened journeys at first, in order to become personally acquainted with the several lines in all their extent, which object having been accomplished, there would have been less occasion in future for his absenting himself from the localities where the principal roads were in process of execution.

See letter from Captain Best to Government, 25 March 1851, p. 15.

Para. 147. 61. The statement referred to of the works executed by the Road Department, and the sums they have cost, is made up to 1 May 1851; the amount expended is 13 lacs of rupees. I fully consent to the opinion of the Commission that all the money spent has been most economically used; that the cost of the magnificent bridges over the Cavery* and Coleroon,† including losses by destructive accidents, came to no more than 55 rupees for each running foot of bridge, is, I think, a most signal proof of the ability of the architect, Major Lawford, and the careful superintendence given by him to the execution of those great works.

Para. 148.

62. By an account brought up to 30 October 1852, it appears that the amount drawn on account of sanctioned estimates to that date was 16,04,405 rupees, for 9,22,454 rupees of which bills had been sanctioned, and bills to the amount of 75,870 rupees were ready to be submitted, making a total of 9,98,344 rupees, leaving 6,06,080 rupees for which bills were yet to be made out, instead of 8,34,427 rupees, the amount unadjusted, as noted by the Commission, on the 1st May 1851.

Paras. 149 to 155. 63. In these paras. the Commission give an account of the Great Western Road from Madras to Vaniambaddy, a distance of 125¼ miles, upon which the expenditure from April 1845 to May 1851, exclusive of superintendence, amounted to 3,71,212 rupees, an expenditure which the Commission pronounce has been very economically managed. "The road," they observe, "has improved, the traffic increased, and the cost of carriage fallen to two-thirds of what it was, and this at a cost, when compared with the traffic, at one-eighth of the sum, which, making allowances for the difference in the value of money, &c., would have been considered necessary in Ceylon for the mere maintenance of a road already in the highest order." An interesting memorandum is exhibited in para. 151, showing the great reduction in the cost of carriage, in proportion as this road has been improved: the hire of a cart carrying 900 lbs., from Wallajahnugger to Madras, was, in 1823, seven rupees; in 1851 the hire of a cart carrying 1,600 lbs. was reduced to *Rs.* 3. 10.; the mode of travelling on this road, now almost universally used, is by post carriages drawn by horses, running at from six to seven miles an hour; the post is carried in the same manner.

Para. 154.

Para. 153.

About 70 miles.

Para. 156. 64. Of the 13 lacs of rupees expended from the funds appropriated to the Road Department, the Commission point out that nearly five lacs, being more than one-third, was really expended by other agency, chiefly by the aid of the civil engineers; they add, that the works on which this money was expended were not only executed, but projected by other departments.

Para. 157.

Para. 158. 65. They conclude that the Road Department has failed in relieving the civil engineers, as was anticipated, but rather has led to an increase of labour on the Civil Engineers' Department in this description of work, by reason of a fund being ready to supply the means for it, which they suppose has, in a measure, diverted

---

* Consists of 32 arches of 45 feet each, and spans a breadth of more than a quarter of a mile (1,714 feet). Cost, including losses, 98,640 rupees.

† 38 arches of 60 feet each. Cost, including losses, about 1,46,000 rupees.

diverted the attention of the officers of the Maramut Department from the works properly belonging to it.

66. The Commission doubt whether the money spent has been applied to the works most required. Speaking of the great bridges particularly, they intimate their opinion that although most useful works,* more especially those near Trichinopoly, over the Cauvery and Coleroon, above adverted to, they were not so urgently required as similar works are at other places mentioned. The Commission, however, overlook the consideration that led to the construction of the bridges over the Cauvery and Bhowany, viz., that there were local funds available for the purpose, and that the general fund was drawn upon merely in aid, and to make up the losses from the casualties that befel them in the course of construction. It is true that the importance of the Bhowany Bridge is not to be compared with the advantage that would arise from a bridge over the Palar on the Western Road; but it was not from a mistake on this point that the former was undertaken, but simply because it afforded a means of enploying the local fund referred to in a way to improve an important trunk road, while a special benefit would accrue to the district. Para. 159. No. 5. Madras to Coimbatore through Salem, and to Palghaut and Ponany, on the Malabar coast.

67. The Commission state that the accounts of the Road Department, though kept with the most minute accuracy, have not been brought to an adjustment, because there was no inspection. The orders of Government, of January 1851, were calculated to remedy this in some measure. I confess that I do not perfectly understand after all why bills to the amount of 8,34,427 rupees for work done and paid for several years previously should still be hanging over the executive officers, considering the not very extended limits within which the expenditure must for the most part have taken place. The Commission observe that the bills for work done on the roads under the superintendent's own personal management are sent up by him for sanction without any check but his own. On this point I quote the following explanation given by Captain Best in a letter dated 22 August 1850, in answer to a remark to the same effect, in a minute of Major Pears, then a member of the Military Board: "The accounts presented by me to Government for sanction are not my own accounts, but those of the above-mentioned officers (viz., the executive officers under him), or of the civil engineers who have built bridges or executed road work from funds supplied by me. It is their accounts which I audit. All advances are, in the first instance, debited against me by the collectors and the accountant-general, and I am held personally responsible for them until bills are passed by Government; but this is merely a variation of form. My office with regard to the accounts of money expended upon trunk roads is precisely the same as that of the Board of Revenue, D.P.W., as to what is spent upon branch roads and the works of maramut." Para. 161. Reduced by the end of October 1852 to 6,06,080 rupees, as above noted. Para. 162.

68. Concluding that the Road Department has failed to attain the objects aimed at, the Commission recommend that it be abolished, and give their opinion that the charge of the roads ought to be re-united to that of the works of irrigation, both in the local offices and in the controlling office at the Presidency; a recommendation which will fall under consideration in the sequel. I must observe, however, in this place, that, somewhat inconsistently with the opinion expressed by them, that the employment of the civil engineers in aid of the superintendent of roads was objectionable, because it took them off from their proper duties, which, with all their exertions applied to them, they could not overtake, and added to the burden of an already overworked establishment, the Commission, on the 21st November 1851, proposed that the office of superintendent of roads Para. 164.

---

* The following statistics, which I have extracted from a report of the civil engineer, dated 11 September 1852, show that they are indeed "most useful."

Average daily passage over the Coleroon Bridges, from 5 July to 20 August 1852.

Carts and carriages	432
Horses and bullocks	1,036
Foot passengers	19,157

Over the Cauvery Bridge, from 31 August to 1 September 1852.

Carts and carriages	606
Horses and bullocks	1,144
Foot passengers	24,730

roads should be abolished, and the superintendence again vested in the Board of Revenue, represented to be already overworked and incompetent to the performance of such a duty, and the charge of the trunk roads, and the direction and supervision of the executive officers employed on them, committed to the civil engineers. It appearing to the Government that there were serious objections to this proposition, it was thought proper to let the present system continue until the whole subject should come under consideration on a review of the more complete account of it expected to be submitted in the General Report of the Commission.

6 April 1852.

Paras. 167 and 168.

69. Referring to the remarks of the Commission in these paras., I must confess that I am not satisfied that the trunk road from Madras to Trichinopoly is likely to be of such importance as to make it so well worth the money laid out upon it as a road in some other direction might have been; for instance, the projected trunk road to Bellary, No. 11. With regard to the Northern Road, I am inclined to think it advisable now that the whole line should be examined with a view to ascertain to what extent the making of a road might be dispensed with, by adapting the back waters for navigation. A beginning is being made by the improvement and extension of Cochrane's Canal navigation through the Pulicat Lake, and to some distance northward, which has been commenced. It may be well to note, with reference to para. 167, that the project of a direct road from Salem to the sea at Cuddalore has been approved by this Government, and will be recommended for the sanction of the Government of India as soon as certain information that has been called for is received.*

Section IV.

70. The 4th section gives an account of the Engineer Department under the Military Board, with suggestion of changes in the structure of the department.

Para. 170.

71. The Board consists of the commandant of artillery, the chief engineer, and two stipendiary members, with a secretary and assistant secretary. But at present there is only one stipendiary member attached to the Board, the place of the other, which became vacant last year, not having been filled up, pending a reference to the Court of Directors.

Para. 172.

72. The work of the Board is divided into two departments, the Ordnance Department and the Engineer Department. The latter alone is now brought under consideration.

Para. 73.

73. The Board has control in this department over all military works in the interior, and all Government buildings and works at the Presidency, whether military or civil; also, in the interior, over roads and bridges, and Government buildings of whatever kind in cantonments. In the Saugor and Mhow division, lately transferred to the charge of this Government, the Board has more extended control over public works, under the orders of this Government as regards military works, and with regard to other works partly under the Government of India and partly under the Lieutenant-Governor of Agra.

74. The expenditure controlled by the Board independently of the Saugor and Mhow division, is about 2¾ lacs annually, of which 130,341 rupees is expended at the Presidency. In the other divisions the maximum is about a quarter of a lac, the minimum under 9,000 rupees. The Military Board has power, without reference to Government, to direct the execution of repairs on estimate not exceeding 500 rupees; for new works, and extensions, and improvements of old works, the previous sanction of Government is necessary.

Para. 175.

75. Under the Board there is a superintending engineer for the Presidency division with an assistant, and a superintending engineer in each of the Mysore, Hyderabad, Nagpore, Saugor and Mhow divisions. In the last there are also three executive officers. In the Hyderabad division the executive duties at Jaulnah are entrusted to the local cantonment staff officer, who corresponds direct with the Board. In the other divisions there is no engineer, or other officer,

* Since this was written the requisite information has been received, and application has been made to the Government of India.

officer, permanently under the orders of the Board for the execution of work; the work required is executed by commanding and staff, and other officers, as may be most convenient.

76. In the Saugor division the superintending engineer is in the position of direction and supervision, with an executive officer under him in three of the four circles of which it is composed; in the fourth he is himself executive also. In all the other divisions where there is a superintending engineer, he is exclusively an executive officer. In the other divisions, where there are no superintending engineers or other officers permanently at the Board's disposal, considerable inconvenience has been experienced. A partial remedy has been lately applied by assigning an allowance to officers occasionally charged with the execution of work. Paras. 184 to 186.

77. The absence of inspection in the interior and beyond the frontier is represented to be a material defect, and suggestions for removing it are brought forward in the sequel. At the Presidency, the duty of inspecting work done by the superintending engineer is laid on the chief engineer, but he has not much time to give to this duty; and many details devolve on the Military Board not properly appertaining to an office of general control. Para. 181.

78. The native subordinates of this branch of the department are described in terms similar to those applied to the maistries in the Civil Department. Para. 189.

79. The execution of works on contract is extremely limited in the up-country stations, because very few men of respectability, capital, and skill, can be found to take contracts, and because it is found that work in course of execution by contract requires fully as much careful superintendence as that done by the direct agency of the department. It is very much the practice, however, to obtain supplies of building materials by contract. At the Presidency, contracts are more generally in use. Para. 178. Para. 180.

80. With respect to roads and bridges in cantonments, they are usually, at division head quarters, in charge of the division quartermaster-general, and at other stations in charge of the station staff officer. It is said to be the practice in most cantonments to devote to this object all the fines levied at the police office. At some stations beyond the frontier where there is cultivated land within the cantonment, the Government revenue is laid out on the roads without being brought to account. Government have lately allowed the grazing rent for the glacis and esplanade of Fort St. George to be applied to the repairs and maintenance of the railing, &c. and of the esplanade roads; and this order has been extended to up-country stations also. Para. 190.

81. The Commission justly regard it as objectionable that the amount available for local improvements should depend on the sum that is levied in the way of police fines, and considering the practice open to abuse, they recommend that it be put a stop to. They propose that in every cantonment certain roads should be fixed to be maintained at the Government charge, with a certain mileage allowance for them; from which, when there are any local funds available, (excepting fines) these should be deducted, the receipts and disbursements of such funds being subjected to regular audit no less than the expenditure of the mileage allowance. This plan I think should be followed. With respect to fines, while it is improper that the expenditure upon roads should depend upon such a fund, I do not see why, when the fines have been duly brought to account, the amount should not be appropriated to the roads in reduction of the mileage allowance. Para. 191.

82. The suggestion of the Commission in para. 192, as to the value of the labour of Lascars employed on cantonment roads, and the value of tools, &c., supplied from the Government stores being charged against the roads, appears to me to be proper. Para. 192.

83. Changes are proposed by the Commission directed chiefly to the removal of anomalies and inconveniences arising from the mixture of duties now laid on the Military Board and the Chief Engineer. Paras. 193 to 199.

84. The changes adverted to will be more conveniently considered in the sequel.

Section V.

85. The fifth section contains the views of the Commission as to the constitution of a new Board of Public Works to perform the duties now committed to the Board of Revenue in that department, and those of the Military Board in what is called the engineer department; and the ninth details the establishment which appears to them to be necessary to make the executive department adequate to the work which they think ought to be performed in order to the due maintenance and improvement of the present works of irrigation, roads, &c., and the construction of new works of the same description urgently called for in all parts of the country.

86. The views of the Commission as to the value of irrigation to the revenue and to the general wealth, and the importance of maintaining and extending it, and the urgent necessity for the real and effective improvement of the roads, are set forth at large in the sixth and seventh sections; and the eighth submits a scheme of expenditure proposed to be laid out annually on works of irrigation and communication.

87. It seems to me advisable to review these sections, before entering on the questions of the superintendence and control under which it may be expedient to place the whole Department of Public Works, and of the agency to be at the disposal of the superintending and controlling authority, both as to its organization and its strength. These questions I propose to consider in close connexion after having seen what is the nature and extent of the work to be provided for.

88. I therefore pass over the fifth section, and proceed to the sixth.

Section VI.

89. The subject treated of in this section I consider of the highest importance, and I am bound to say that it is handled in a manner to set its importance in a very strong light. I have always been an advocate for laying out money in improving and extending the means of irrigation, and in my place as a member of the Board of Revenue, I gave my strongest support to the projects that were brought forward for that end during the period that I sat there.* I may mention particularly the Coleroon Anicuts. The annual net gain by these two anicuts in South Arcot and Tanjore, as shown by the table in para. 273, is in the proportion of $133\frac{1}{16}$ per cent. to the cost for the lower one, and $144\frac{1}{8}$ per cent. for the upper one. Since I have had a seat at this Board I have done all in my power to further the completion of the Godavery Anicut and the subsidiary works for the spread of irrigation by means of the waters of that great river, and have strongly advocated the adaptation of the channels originally designed for irrigation, to the object of navigation, to facilitate the carriage of the increased produce of the country to markets where prices are more remunerative than are to be obtained from grain dealers coming to the villages to lay in their stocks. I earnestly supported the project of an anicut across the Kistna,† towards the execution of which the most active exertions have been made this season, and such an advance has been effected that in the course of another working season it may be expected to be to a certain degree operative, by throwing larger supplies into the channels leading from it, which will have been prepared for conducting a larger body of water, and for carrying it farther, and distributing it more widely.

*From 1832 to 1838.

Paras. 289 to 292.

90. The Commission have vividly stated the terrible effects of drought in the district of Guntoor, which lies on the right bank of the Kistna. The Government in recommending this work strongly insisted on the importance of it as a means under Providence of preventing the recurrence of calamities so dreadful as this district had been afflicted with, but at the same time, upon careful

† I may here remark that the information contained in the note appended to para. 294 of their report, might have led the Commission to expunge that paragraph lamenting the supposed indefinite postponement of this work, which they were aware for months before the close of the report, was incorrect in fact. The civil engineer in charge of the work was appointed on the 9th March 1852, nearly nine months before the date of the report.

careful consideration, expressed their conviction that it would be highly remunerative. Upon calculations which I made at the time, and which are set out in my minute on the subject, I have not a doubt that this project will prove, as the Commission anticipate, an investment of capital most profitable to the Government, while it will create a vast amount of private wealth.

91. I have earnestly supported several other projects of the same description, promising like profitable results, for which Government have obtained sanction, not always without difficulty; and I have had the pleasure very lately of concurring cordially with the Right honourable the President in recommending for the sanction of the Court of Directors a great scheme for turning the waters of the Palar, which hitherto have run waste to the sea, to the fertilization of the country on both its banks, by means of an anicut, which will furnish a full supply to a series of great reservoirs, whence the lands depending on them will be fully and constantly irrigated in season. The waters of the river will thus be brought down to the vicinity of Madras, and will probably be made further available for the supply of this great place (said to contain a population of about 700,000) with water, both for domestic purposes and for the object of sewerage. The anicut and subsidiary works of irrigation are estimated to cost 8,66,114 rupees. In the districts of North Arcot and Chingleput.

92. But while I have always been sensible that by a judicious expenditure in promoting irrigation the Government as well as the people would be largely benefited, my convictions on this subject have been strengthened by the forcible manner in which the Commission have adduced practical proof of the soundness of the theory they maintain in their synopsis of what has been actually effected by this means in Tinnevelly and Tanjore, South Arcot and Rajahmundry. An instructive example is drawn from the two Southern Talooks of South Arcot of the deterioration caused by neglect of the sources and channels of irrigation, checked immediately by the operation of works designed specifically to cure the defects which that neglect had occasioned, whereby not only was the loss of revenue which had been the consequence of those defects recovered, but a large augmentation secured, the improvement of the revenue being an unquestionable indication of proportionate improvement in the resources of the Ryots. I would point also to the beneficial results springing directly and obviously from the improvement of irrigation in the tracts depending on the Samulcottah channel in Rajahmundry, and in the Woondy Talook of that district, both under the influence of the Godavery Anicut; not to speak of the effects of the anicut in other directions, so far as it has come into operation, which cannot yet be correctly estimated, but which we may assume with confidence have already much overpaid its cost, and the eventual results of which I am fully persuaded will be, if not equal to the anticipations of Colonel Cotton,—anticipations endorsed by the Commission, but which I conceive are too speculative to be entirely depended on,—at any rate productive of a very rich additional revenue to Government, and a vast accession of wealth to the people, who will be enabled to turn their land to such a profitable account as is indicated in para. 265. Paras. 241 to 269. Para. 266. Para. 267. Paras. 257 to 265.

93. The advantage of cultivating sugar is strikingly exhibited in this para. The introduction and spread of a variety of valuable products is the great desideratum in the agriculture of this country—of products more valuable than rice, to the raising of which the irrigated lands have been too exclusively confined. The principle of our assessment* takes the rate of tax upon land capable of producing rice and sufficiently supplied with water to render it fully productive when employed to raise that kind of crop, as the maximum demand upon the land, howsoever it may be employed. The ryot cannot be required to pay more for

* In the districts under survey field assessments "the lands have been assessed without reference to the species or value of the crops produced, and the same tax is collected from the same land, whether the produce be sugar or rice," and in 1837 the same rule was introduced in all the other districts, viz., "that land cultivated with sugar cane by irrigation should be taxed thereafter in the same manner as land employed in the cultivation of rice" v. C. O. Board of Revenue, 13 November 1837. This order was passed by authority of Government, under instructions from the Government of India and the Court of Directors. "In no case can land cultivated with sugar cane be charged with a tax additional to what would be charged on it if cultivated with rice. But if the land was classed

for the land when cultivated with sugar-cane, betel, chillies, plantains, &c., than when it is cultivated with rice. The whole profit of the more valuable crop goes to enrich himself. Hence the high importance of providing such a supply of water, so ample and so constant as will enable the ryot to interchange crops of those more valuable articles with his rice crops, and bring into the market products which may be exchanged for rice, or which in the course of traffic will have the same effect, and so tend to prevent the glut of rice which some apprehend will be the result of extending irrigation. On this point I concur generally in the observations of the Commission.

Paras. 320 to 322.

Paras. 271 to 274.

94. I would direct attention particularly to the remarks of the Commission on the statement given in Appendix Z, showing the revenue results of the outlay incurred by Government from 1836 to 1849 in the extension and improvement of irrigation, pointing out that from thirteen of the works entered in the statement there is an annual gain of 134 per cent. on the first cost, and upon the whole an annual gain of 69½ per cent., excluding the charge of the engineering and other establishments, which it is thought will be more than covered by an allowance of 25 per cent. I cannot but concur in the conclusion of the Commission, that "the result is most satisfactory; a most convincing proof of the value of irrigation, and of the ease with which the resources of the Government, as well as of the people, may by that means be immensely increased."

Page 274.

Paras. 295 to 302 and 312.

95. Upon the very important question discussed in these paras., I am inclined upon mature reflection to think that the arguments of the Commission are just and sound. I allude to the effect of increased production in overstocking the market and causing a reduction in the prices of grain, and thus *pro tanto* disabling the cultivator from paying the present money assessment. I apprehend it will have some effect in this way. But considering, as observed by the Commission, that "all improvements such as we are contemplating must be gradual, and the enlargement of cultivation in any one year must be atomic compared with the total agriculture of the country," I do not anticipate that it will be very sensibly felt. Should experience prove that the ryot is really unable to carry on the cultivation of irrigated land profitably at the present money assessment, by reason of the reduction in the price of rice (partly, it may be, from increased production, but more probably and in a greater degree from the cause adverted to by the Commission in para. 312, which must be met at any rate), notwithstanding the gain on so much of the land as he can employ in the cultivation of more valuable products, there will be no alternative, certainly, but to apply the remedy of reducing the assessment proportionately; but it is to be remembered that the great difference between the assessment of dry and irrigated land, in the case of land converted from one class to the other by means of extended irrigation, and the still greater gain to the revenue by land hitherto utterly unproductive being made capable of yielding rice and more valuable products, will afford the fund which will enable the Government to make a sufficient allowance on this score, and still retain a large profit. In this view there would be an advantage, as far as the revenue is concerned, in the extension of irrigation, if it only gave such a return as, besides redeeming the cost of the works and paying for their maintenance, would leave a fund just sufficient to replace any remissions that might become necessary to meet the fall of prices. It would surely be an advantage to secure the present revenue, if nothing more was gained, by a self-redeeming expenditure of this kind. When the inestimable good of cheap food is enjoyed by the people, and the state still gets the same revenue, the common weal is promoted, and the direct benefit to the community is reflected upon the state, which gains by it in various ways. The cheapness of food of course will cause increased consumption by the existing population, and we know that population has a constant tendency to increase not only in proportion to the increase of food, but beyond it. I do not anticipate therefore any such

Para. 301.

---

at the survey as one crop land with reference to its supply of water at that period, and the supply has since admitted of its producing two crops of rice, it is charged with an additional tax for that additional supply, equally whether cultivated with rice or with sugar cane, it being reckoned that sugar cane, requiring permanent irrigation, takes as much water as two crops of rice. How much this rule favours the cultivation of sugar cane is shown by the statement in the report, that the value of an acre of rice is 20 rupees, and of an acre of sugar cane 230 rupees; which however, perhaps, requires some qualification.

such fall in the prices of grain from the combined influence of increased production within and increased importation from without, as will ever necessitate remissions to the extent or nearly to the extent of the gain which will accrue to the state by the improvement resulting from irrigation extended gradually with a wise discretion.

96. It behoves the Government, of course, while it provides the means for increased production, to provide also, and simultaneously, all possible facilities for the transport of produce by means of good roads, canals, &c., which will best conduce to the equalization of prices, and tend to prevent the anomaly occasionally known of famine prices prevailing in one district, while the ryots in another can hardly obtain a remunerative return for their crops. And so it will be the duty of the Government to adjust the assessment carefully.

97. And here I may observe, with reference to the remarks of the Commission in para. 249, that several months before the close of their report, measures had been taken for the revision of the assessment of South Arcot, an overt fact of which they could hardly have been unaware, though they appear to ignore it. Para. 249.

98. I may also remark, that a plan of the civil engineer for partially improving the harbour of Porto Novo, and connecting it with that of Cuddalore, in South Arcot, by a navigable canal, has been sanctioned. Para. 251.

99. I do not think it necessary in this place to enter into a discussion of the other suggestions offered by the Commission in the paras. noted in the margin. But with reference to para. 323 I have to note that this Government has recommended the abolition of the moturpha tax. Para. 316 to 322.

100. I wish I could pass from this section, in which I have found so much to commend, without an expression of disapprobation; but there is one part of it upon which I cannot but animadvert; it is the passage contained in paras. 278 to 280, with the foot note to the latter para.

101. It is true that the Government, having already sanctioned a very large sum for the repairs of damages to tanks in the Bellary district, hesitated to authorise the expenditure of 37,998 rupees for the repair of a tank originally constructed upon an extravagant scale, whereon depended a revenue of only 7,524 rupees, and called for more particular information as to the circumstances which rendered the tank of importance; at the same time requiring the civil engineer and the Board of Revenue to consider whether the cost could not be diminished by some plan which would contract the tank to a size and capacity suitable to the object which it was to serve. They hesitated also at first to authorise the expenditure of 60,500 rupees* for the repair of another large tank, upon which depended a revenue of 12,239 rupees, calling for similar information respecting it. But upon mature consideration of the further information afterwards submitted, it was deliberately resolved, with special reference to the interests of the ryots,† that it was the duty of Government to undertake the repairs, costly as they were, and the Government of India, assenting to this principle, granted the sanction which this Government applied for. As the Commission must have known the grounds upon which the Government of Madras applied for sanction for the outlay of 98,500 rupees in the repair of these tanks, and the Government of India allowed the expenditure, if their object had been simply to advocate the principle that the interests of the ryots should be considered as well as those of Government, they would have done it with more force by correcting their statement that Government had "completely ignored the rights of the ryots," and

* The Commission erroneously, in para. 278, state this as the amount required for the repair of the two tanks.

† Extract from Minutes of Consultation, 17th November 1851, para. 8.

"The object is not only to recover revenue which may be considered as lost, but to restore the means of subsistence to the large body of ryots who have lived by the cultivation of the lands irrigated by these tanks. There is a marked distinction between the cases of outlays on new projects, and applications for expenditure of the nature of those now before Government. In the case of a new project no private capital is destroyed by the failure to execute the work, and no individual can be ruined or injured by its abandonment. But where, as in the present instances, a large amount of private capital and whole communities may be ruined by the failure to repair these great works, it becomes alike the duty and the interest of Government to make the necessary outlay."

and showing that the principle had been admitted and acted upon by Government. The first resolution of Government, calling for information to which the Commission refer, is dated 6 September 1851, the second, to the effect above stated, is dated 17th November 1851;* the authority of the Government of India for the outlay recommended by this Government, was given under date the 23d January 1852, and was communicated to the Board of Revenue D. P. W. on the 17th February 1852. The report is dated the 23d December 1852. The resolution of Government of the 17th November 1851 was equally open to the Commission as that of the 6th September preceding; and if the paragraphs in question were written intermediately, it is certain that they were not then printed. There was no excuse therefore for retaining in the text observations obviously intended to cast a reflection upon the Government, and suppressing what would have obviated it. For this the foot note to para. 280 makes no amends.

102. I am constrained reluctantly to notice another passage in this section, which contains a gratuitous reflection on this Government. I refer to the note to para. 263, where the Commission, in offensive terms, represent that the civil engineer who devised the project of the Godavery Anicut, and superintended its execution, was severely censured merely for "the grave offence of making too small an estimate;" for "an error of judgment" in under-estimating the cost, "which might have been supposed pardonable in an undertaking of such vastness and such novelty." I am sorry to be obliged to say that this is a misrepresentation. The Government, as the Commission must have known, simply expressed "regret that the estimates originally submitted were so deficient as they have now been shown, and that the work should have advanced so far without this fact having been brought to notice." What the engineer was really censured for, and that not severely, was "a profusion and want of economy in the expenditure of the public money," for which, it was observed, the Government "could find but little excuse in that officer's earnest desire and endeavours to expedite the work so as to bring it into early operation."

Minutes of Consultation, 13 February 1849, para. 5.

Section VII.

103. In the seventh section is presented a general view of the condition of the roads of this Presidency, with remarks on the necessity of improving them.

104. In paras. 329 to 366 the Commission give a detailed abstract of the annual reports on the state of the district roads from Ganjam to Tinnevelly in the period since 1846, which is followed by a more general view. I have already said that the want of roads is our great and crying need. Those that exist, except in some districts which have been particularly attended to, are generally bad. The assertion, however, may be questioned that there are "not above 1,000 miles over the whole extent of the country on which it is possible to travel in a wheel conveyance at the rate of six miles an hour with any degree of comfort." And bad as the roads generally must be admitted to be, we have seen that in 1848 there were more than 90,000 bandies, or carts drawn by bullocks, in use upon them.

Para. 377 and seq.

Salem, Tanjore and Madura.

105. The Commission undervalue what has been effected in Salem, which they notice as being generally regarded as the model district with respect to roads. They think little of its having "400 miles of road suitable to a light traffic, infinitely superior to the common roads of other districts," because they are "very inferior to first-class roads," that is, roads equal to English turnpike roads. Let us see how the roads of this district are spoken of by a writer who brings down the statistics of the district to 1852, at the end of which the report of the Commission is dated. "From one end of the district to the other, from north to south, and from east to west, there are excellent roads bordered by flourishing avenues." "The whole extent of roads within the district which has been completed, planted, guarded by ditches, and with few exceptions marked by milestones, amounts to 726 miles. They are traversed night and day by hundreds of country carts, without let or hinderance, and may be traversed by any English traveller in his own carriage." "The bridges built in the district amount

Calcutta Review, June 1852.

* More than 13 months before the date of the report.

amount to 84." The Commission remark, that in 1850 three new lines were opening in addition to the 400 miles they speak of. They make little account of the carts having increased between 1830 and 1847 from 1,189 to 3,296, to which 80 were added in 1848; of the bandy load having increased from 300 lbs. to 1,000 lbs., and the bandy hire decreased from 14 to eight annas for every 10 miles. In the district of Cawnpore, with all the attention that, according to the Commission, is given to roads in the N. W. P., the extent of the cross roads is 500 miles unmetalled. And it may well be doubted that they are nearly so efficient as those of Salem. Indeed it is evident they cannot be so, as the description of them represents that they are passable only for nine months in the year. Para. 378.

106. It is undeniable that the lines from the interior to the coast, which are of the most importance with a view to opening up the resources of the inland districts, have been unaccountably neglected. The condition of the military road from Masulipatam to Hyderabad is not to be excused. An estimate for the formation of a road to the Hyderabad frontier was called for under date the 19th June 1851, but has not been received, though the call for it was repeated on the 23d August 1852. It should be immediately attended to. The improvement of different portions of the northern road is in progress; the first part of it leading out of Madras is, I am informed, in excellent order. Para. 379. *See* Minutes of Consultation, 11 January 1853. Para. 5. In Ganjam, Vizagapatam, Rajahmundry, Nellore and Chingleput.

107. The districts of Bellary and Cuddapah have not been cared for as they ought to have been in respect to roads. But by the last reports the works noted in the margin* were in progress in the former district. In the Cuddapah district "the opening of the Goolcherroo Ghaut has been successfully accomplished, and there is little doubt that during the next season the improvements of the roads from it to Cuddapah on the one side, and towards the Damulcherroo Ghaut on the other, will open Cuddapah to the Western Trunk Road, and so make it easily accessible from the Presidency. An allowance of 15,000 rupees has been made for improving the road from Madras to Cuddapah *vid* Naggery, which it is not intended to maintain as a principal road. Para. 381. Minutes of Consultation, 11 January 1853, para. 8. Ibid. p. 9. Para. 379.

108. With respect to the road from Berhampore to Russellcondah, in Ganjam, which is the subject of remarks in the paras. noted in the margin, I may notice that on the 19th March last, this Government applied to the Government of India for authority to lay out the whole sum required for metalling and bridging it completely, so as to make it available at all seasons, if it shall be found that the traffic increases to an extent that will warrant the additional expense, and that conditional sanction has been accorded for that expense. Paras. 334 and 383. 1,42,246 rupees. 28 April 1853.

109. I agree with the Commission in the opinion they express, that Government, generally speaking, ought to make and maintain not only the main roads of the country at large, but those connecting principal towns or points in the same or contiguous districts, with exception, perhaps, of district roads which run through large zemindaries, such as that of Vizianagrum in the Vizagapatam district, the advantage of which is confined to the zemindary, or to it and to other zemindaries contiguous to it. Also, speaking generally, I agree with them, that the duty of the ryots is confined to the formation and preservation of the village roads connecting the outlying parts of the country with such main lines. If the ryots can be made to perform this duty, they will do, I think, as much as can fairly be required of them. Where the villages are widely separated and not populous, it will hardly be possible to get so much by this means. Para. 386.

110. The Commission say, that in other parts of India this duty, or interest, on the part of Government has been recognised, and in the North-western Provinces in particular, enormous sums, such as have never been dreamed of in this Ibid.

	Estimate.
* Road from Bellary to Dharwar	*Rs.* 11,489
Extending the work to parts not made	28,744
Road from Bellary to Bangalore	21,000
Ghaut Hill road to Ramandroog	647

this Presidency, are expended on the great lines of communication.* It seems to be assumed by the Commission that in Bengal, as well as in the North-western Provinces, and also, as I understand them, in Bombay, that is to say, generally throughout India, the roads, other than the trunk roads, are in a much better condition than in this Presidency; that the other Presidencies are all "more on a footing with the rest of the civilised world" in this respect than this Presidency. I should like to have full information on this point. For my own part, from what little I know of the Bengal Presidency, and from what I was accustomed, when I was at Calcutta, to hear of the cross roads, and indeed of some main roads, and from such knowledge as I have of the roads of this Presidency, I was not prepared for the statement that Bengal is better off than Madras in its secondary communications, or to speak definitely, that its cross roads, or its roads generally, exclusive of the one great trunk road, are in a condition, on the whole, which will admit of traffic by wheeled vehicles for a greater number of days in the year, those vehicles being able to travel a greater distance daily and to carry a heavier load than the roads of Madras, other than the western trunk road. I must say, I doubt it.†

Para. 324.

111. In Bengal and the North-western Provinces the Ferry Funds, which are of considerable amount, are given up for local improvements, under the direction of local committees. In this Presidency the receipts from ferries are inconsiderable, except in Malabar. It is true that the Court of Directors authorised the tolls collected at ferries being set apart as a fund for providing ferry-boats, and building bridges over rivers and nullahs, and the appropriation of any surplus there might be, after defraying the expense of these accommodations, to the repair of the public highways in the respective districts. I presume that this order was not carried into effect in the districts generally, simply because of the inadequacy of the fund to the purpose contemplated. In Malabar, however, it would have amply provided the accommodations of ferry-boats and bridges to the extent required, and would moreover have paid for the formation of a good system of internal communication, and it is to be regretted that the authorised appropriation was not made. With respect to the other districts, it is absurd to say, as the Commission do, that they have been injured by these particular funds not having been expended specifically for local purposes, when larger sums have been expended out of the general revenue for the objects to which they were meant to be appropriated—it may be affirmed that they have been virtually expended as intended, as part of the assignments from the Treasury for those objects. The Commission recommend that now, at least, the funds may be appropriated as authorised by the Court of Directors. This might be allowed in Malabar; but *cui bono* elsewhere? If the collections from ferries amount in any district to 3,000 rupees, for example, what would be the advantage of assigning that sum specifically to the maintenance of the ferries of the district,

Para. 392.

Para. 393.

---

* Whatever has been expended, it would seem less has been done than might have been expected, if we may rely upon the statements in a recent work—*vide* Kaye's Administration of the East India Company, pages 306 to 310. Under the Presidency of Fort William, including the North Western Provinces, there is the great trunk road from Calcutta, which has been completed as far as Kurnaul, a distance of 960 miles, having cost, it is stated, about 10,000 rupees per mile. "Two other trunk roads of lesser proportions, but still of very considerable extent, have also been commenced, and carried some way towards completion." One between Bombay and Agra, the extent of which will be 734 miles; this, it is stated, is not metalled except in parts. The other, from Bombay to Calcutta, will be upwards of 1,160 miles. How much of these two trunk roads has been completed is not stated in the work to which I refer, nor have I any means of ascertaining otherwise. Whether the second of these roads is to have more metalling than the first does not appear. Probably not.

† I find in the Friend of India of 14 April 1853, some remarks which indicate the contrary. Referring to a Table of the rates of speed at which the mail is carried in Bengal, it is observed, that "the grand trunk is the only road upon which a good speed has been attained, remarks being attached to all the remainder, strongly indicative of the want of improved means of communication. From Shergotty to Gya and Gya to Patna, for instance, the pace is 4½ miles an hour, but there the road is cutcha, and the slightest shower of rain renders it puddly, and impracticable for speedy transit." Again, "the southern roads are, however, in the worst condition, the mails travelling to Jelasore at three miles an hour, or less than a groom can walk, and even between Calcutta and Baraset (that is in the immediate vicinity of the capital) the rate rises to only four miles and a half an hour, while everywhere we have such notices as 'Road intersected by numerous unbridged rivers and nullahs.' 'Road has not been repaired for these many years.' 'Road not repaired for years.' 'The road in so bad a state and so much intersected by rivers and nullahs, that no great improvement in the speed of the mails can be effected.'"

district, the expense of which has hitherto been borne by Government. It is a mere begging of the question to assume that Government would have laid out that money equally if the ferry collections had been originally given up, and it is clear the Court of Directors meant exactly the reverse. The Commission would hardly argue that, if Government should consent to assign to the improvement of the communications in Malabar, the whole of the ferry collections, amounting, as they state, to 35,000 rupees a year, Government must still contribute to the same extent as before to that object—and why should they in any other district? It would be far more for the advantage of the district that the tolls on ferries should be carried to the account of revenue, as before, and that an allowance should be granted for keeping up its roads, bridges, and ferries.

112. I do not agree with the Commission that the receipts from Cochrane's Canal ought to be appropriated of course to the improvement of the canal. This income might be kept in account together with ferry collections and such like receipts, under a separate head, as constituents of a fund appropriated to the improvement of the communications, but there is no reason why it should be laid out on this work particularly, or that the expense necessary for the improvement of this work should be confined to what the net income from it would admit of. At present a large sum, equal to a third of what the Commission say has been realised as net profit from the canal, is about to be expended in its extension and improvement. Para. 394.

113. I fully concur with the Commission in their view of the direct and powerful tendency of improvements in the roads to re-act on the revenue. I have already adverted to the importance of such improvements as tending to equalise prices. The remarks of the Commission as to the effect of good roads in promoting the production of crops other than grain fit for foreign markets are very just. I have before said that the great agricultural desideratum is the growth of such crops, and the most effectual encouragement towards the accomplishment of it, I conceive, will be afforded by facilitating the transport of such produce to the places where a demand for it will be found. Those who have a strong apprehension that the improvement of irrigation gives too great a stimulus to the production of grain, ought most strenuously to support a very liberal expenditure on roads, with a view to give the greatest possible vent and diffusion to produce, as the only means of preventing the glut they anticipate. Para. 396.

114. The Commission point out the effect of improved roads in facilitating the carriage of salt into the interior, and thus creating a greatly increased demand to the advantage of the revenue, as developed by the experience of Canara since the opening of the passes, and of Madras since the sale of salt for inland consumption has been permitted there, and the Western Trunk Road has admitted of its easy transport at a comparatively cheap cost. Paras. 401 to 402. Paras. 404 to 406.

115. In a minute which I recorded as a member of the Board of Revenue, on the 9th November 1836, I took up a suggestion of Captain Cotton, in a recent report* on the project of forming railways on the principal lines of communication, in which he mentioned salt as one of the principal articles of traffic which would be greatly facilitated by this means. I proposed by way of experiment that a railway should be constructed on his plan from Madras to Wallajahnugger 70 miles inland, and that a salt depôt should be there established, a main object being to reduce the expense of the conveyance of salt, and thereby to lower the retail price in the interior, and thus increase the consumption. My scheme was adopted by the Board of Revenue and recommended to Government, and approved by the Governor in Council, who "entirely concurred with the Board as to the expediency and practicability of the proposed undertaking." This scheme is the germ from which has eventuated, at a long distance of time, the railway which has just been begun, the first terminus of which will be within a few miles of Wallajahnugger.

* Dated 6 May 1836.

Proceedings of Board of Revenue, 5 December 1836. Min. of Cons., 20 December 1836.

116. In support of the general argument of the Commission for the improvement of roads, I may observe that the position taken by the Board of Revenue in the proceedings just referred to, was that "the construction of roads and canals has been found to create trade and property with extraordinary rapidity." Having adverted to the report made by Captain, now Colonel, Cotton in 1836, on the improvement of the communications in this Presidency, by means of Para. 8.

canals and railroads, I cannot pass it by without drawing attention to its great merit, and especially to its far-reaching suggestiveness.

Disp. Rev. Dept., No. 13 of 1852, para. 9.

117. The Court of Directors have lately signified their approval of a suggestion of the Honourable Mr. Thomas for the establishment of salt depôts at important inland stations, and if this suggestion be carried into act, as I hope, it will be necessary to make roads to such stations from the principal places of manufacture on the coast, where such do not already exist, which will promote general traffic and contribute to the object, stated in p. 407, of facilitating the transport of the raw produce of the interior to the nearest shipping port. The views in this and subsequent paras. as to the principles on which the communications should be planned, I mainly agree in.

Paras. 407 to 411.

Para. 410 & Paras. 433 to 439. From Govt. of India, 1 April 1853. From Board of Revenue, 6 June 1853, enclosing letter from the Civil Engineer, dated 18 May, reporting that the expedition would set out in four days.

118. I concur with the Commission in regarding the opening of the Godavery for navigation as an object of the greatest importance. The Government of India having sanctioned the sum proposed for the survey of the river, &c., this work is in progress, and I trust that it will be successful in proving the feasibility of making the river easily navigable, so as to afford a ready outlet to the cotton of Berar, and to admit of a return of rice and salt from the coast.

119. The Commission have not fairly stated Captain Best's sentiments in para. 413. The question was, what could be best done to promote commerce generally in a large extent of country with a limited sum to expend on roads? Speaking generally, as stated in the extract from the remarks of Government, given in the next para., he laid down the position that the benefit to commerce from 150 miles of road made practicable for carts for two-thirds or three-fourths of the year by an expenditure of 100 rupees the mile, would be many times greater than would ever be derived from 10 miles of good road made at an expense of 1,500 rupees the mile. There is not the least reason to suppose that Captain Best, or the Government which concurred with him on this point, had any idea of applying his suggestion to roads traversing the Ghauts; it was distinctly meant to apply to cross roads, or roads other than those classed as trunk roads, in the plain country only; to improve them generally up to a certain point, and to provide for their being kept in that state, rather than to give one and another district the advantage of good cross roads practicable at all seasons for short distances, leaving the roads of the other districts in the meantime wholly unimproved. Captain Best thought that having, say 1,50,000 rupees to lay out on cross roads, he would do more for commerce by using it so as to make 1,500 miles practicable for carts during nine months of the year, the other three months being, from the state of the weather, unsuitable for the transport of many sorts of goods, and otherwise unfavourable for traffic, than to make 100 miles by which carts could travel during those three months, and which would always be easier for draught, so as to admit of larger loads and longer stages. Supposing the good road to admit of a cart carrying two-thirds of a ton at 15 miles a day, and the inferior cross road to admit of only one-third, and for a distance of only 10 miles, still the amount of tonnage carried in the year by the 1,500 miles of the latter description would greatly exceed the amount carried by the 100 miles of the former, even supposing that the latter were traversed equally as at other times during the three months that the former are assumed to be impracticable, a supposition which is improbable.

Para. 415.

Para. 422.

120. The Commission say dogmatically, that it is a mistake to suppose that trade ends when the rainy season commences, from any other cause than the roads being impassable; whereas there are, as above remarked, certain kinds of goods which cannot be carried in the wet season without great risk of loss; sugar and salt, for instance, and the weather of itself is sufficient to check, though not absolutely to put a stop to, general traffic.

121. I cannot but think that the Commission go quite beyond the mark when they propose, as they seem to do in para. 419, that our roads generally should be made equal to English turnpike-roads, so as to admit of bullock carts carrying from 1,800 lbs. to a ton, and travelling with ease 20 miles a day, indeed, so as "to render fast travelling practicable and moderately cheap." It would seem that they are speaking of cross roads as well as the trunk roads, for it is Captain Best's suggestions regarding cross roads that they are canvassing; I am, however, inclined to think that where the actual traffic on a particular line is considerable,

siderable, and that which may be reasonably expected, with reference to the products of the country which it opens, is promising, the road should always be made so good as to give such a decided facility to the carriage of commodities by it as will be likely to encourage a greater use of it; I mean that the quality of the road, where there is a good promise of increased traffic, should be in advance of what the actual traffic requires, and that "when a road inferior to the best is deemed sufficient at first, its quality should be raised to that standard as the traffic is found to exhibit or to promise commensurate increase." It was upon this principle that the Government lately sought and obtained the sanction of the Government of India to converting the road from Berhampore to Russell-condah, in Ganjam, into a first-class one, by bridging and metalling it throughout. Still I apprehend that Government must be content, with respect to the great mass of the cross roads, to do little more in the way of improvement than Captain Best suggested, that is, to put them, and to take care to keep them, in a state practicable for carts during three-fourths of the year, until all the trunk roads and the more important cross roads, especially those leading from the interior to the coast, have been finished in a way to entitle them to be called really good roads, though not so perfect as the turnpike-roads of England.*

Para. 424.

Para. 310.

122. I agree generally with the Commission, that greater attention ought to be paid to the state of the harbours. Measures have already been taken, as I have noted above, for the improvement of the ports of Porto Novo and Cuddalore. I think the improvement of the roadstead of Cocanada and the harbour of Coringa, which are closely connected, a very important object, and I hope it will soon† be taken up by Government. The memorandum of Colonel Cotton, in the Appendix to the Report of the Commission, demonstrates the great value of these ports, particularly of the protected harbour of Coringa, and the defects for which a remedy is required, and proposes a plan for removing them which seems to be well deserving of consideration.

Para. 426 & seq.

Porto Novo and Cuddalore, p. 444 and 445.

Paras. 429 to 432. Cocanada and Coringa.

123. I was of opinion, and expressed it at the time, that the small additional expenditure proposed for the improvement of the harbour of Negapatam, for which the ship and boat-owners were willing to pay a tax at a rate which would replace the outlay in little more than two years, ought to be allowed. I am not aware that any project for the improvement of the port of Cochin has been laid before Government; the project for connecting the back waters here adverted to has been lately sanctioned by Government.

Paras. 441 to 443. Negapatam. Note on letter from Board of Revenue, D.P.W., 30 Sept. 1850. Paras. 446 and 447, also 370. Cochin.

124. I agree with the Commission, that the fund accruing from the operation of Act XIII of 1839, may very properly be applied, in part, to the improvement of the harbours; but the expenditure should not be limited to what such a fund can immediately afford. The suggestion of Colonel Cotton, recommended by the Commission, of raising the capital required occasionally by opening a loan on the security of the port dues, seems to be worthy of attention.

Para. 450.

125. The Commission give an account of the Paumbem Channel, between Ceylon and the main land, and of the improvements effected in it, the cost of the improvements, and the beneficial results, the value of which to the community they estimate at above five lacs a year. There can be no doubt that the facility of intercourse between the opposite coasts of the Peninsula, which has been effected by the improvement of this channel, evidenced by an increase in the tonnage from 30,000 to 168,000 tons, has been cheaply purchased at the cost of 1½ lac laid out on the work between 1834 and 1851. It may be taken as certain, that the direct benefit to trade has indirectly had a favourable influence on the revenue.

Paras. 457 to 460

Section VIII.

126. I come now to the 8th section, in which the Commission submit a scheme of expenditure on works of irrigation and communication.

127. They

* It appears from the work I have referred to above, that the cross roads even in the North Western Provinces are not metalled at all. In the quotation given to illustrate the system for the management of the cross roads, it is noted with respect to Cawnpore, that "the district is intersected in every direction by unmetalled roads passable for nine months in the year," just the kind of roads suggested by Captain Best.—*Vide* Statistics of Cawnpore, para. 90, page 19.

† Since this was written a resolution has been passed for effecting this object.

Irrigation. Para. 463.

127. They first consider the amount proper to be annually devoted to the maintenance and improvement of irrigation works. The sum now expended annually on repair and maintenance they assume to be about seven lacs, which, though it might be sufficient if the works were in good order, they take to be much under what is required for the purpose of bringing them into that condition; they reckon that an expenditure of 15 lacs yearly will be necessary for some time, to be progressively decreased as the works are brought into the efficient state contemplated, after which the charge for them respectively will be no more than will repair the annual deterioration. The charge will be diminished and the revenue augmented as the works are successively made perfect.

Para. 466.

128. Besides this annual expenditure, commencing at 15 lacs, which they propose to be devoted to the restoration and maintenance of the existing works, they recommend that at least 7½ lacs annually should be devoted to the object of extending the benefits of irrigation; the whole amount to be laid out annually on works of irrigation would thus be 22½ lacs.

129. In treating of the expenditure necessary to keep the works of irrigation in repair, the Commission notice a set-off which is not usually taken into account, viz., the cess under the denomination of tank meras, or some corresponding term, which, originally intended to provide for this object, has been, in most districts, consolidated with the ordinary land revenue. The aggregate amount of this cess cannot be ascertained, but it is proper to bear in mind that there is such a fund in considering the burden of maintaining these works.

130. The aggregate of the expenditure proposed for the restoration and maintenance of existing works, and the formation of new works, is a good deal more than double what has been laid out annually on works of irrigation during the five years from 1846–47 to 1850–51, the average of which is 10,37,393 rupees; the proportion of this average applied to the maintenance of existing works, and the construction of new works respectively, is not distinguishable.

Para. 463.

131. The Commission, as I have remarked in a note above, have under-estimated the revenue actually received by Government from lands irrigated from Government works, in stating it at 135 lacs, by omitting the Northern Circars and Kurnool, including which it will not be short of 150 lacs, without reckoning the land irrigated from Government works which are held on enam tenure, the value of which I conceive is still more under-stated. There has been hitherto but a trifling expenditure in several of the Northern Circars, particularly Ganjam, Vizagapatam, and Masulipatam, in which in future, from the reversion to Government of lands hitherto held by zemindars, a considerable expenditure will be necessary to restore works which have been suffered to go to decay. The expenditure proposed by the Commission for the restoration of such works, the complete repair of others which are out of order, and the ordinary annual repair of the rest, will be about 10 per cent. of the Government revenue depending on artificial irrigation as estimated by me. It is impossible, from any data before us, to estimate with any degree of exactness the expenditure required for these objects; but supposing five per cent. of the revenue to be not an extravagant allowance for the maintenance of the works, after they have been put in good order, and I am inclined to think that it is not extravagant, the annual charge for that alone would be 7½ lacs, and I believe that if it were doubled for five years we should hardly accomplish the object of complete restoration and repair, so as to leave nothing to be done annually in future but to provide for the ordinary accidents of season and the usual wear and tear. I conclude, therefore, that the Commission have made a reasonable proposition on this head. I think that they have at least reasonably estimated what is required, though I rather doubt that, with the means of superintendence likely to be available, it would be possible at once to provide for the profitable expenditure of 15 lacs annually in the manner proposed, with a further simultaneous expenditure to a large amount in the execution of projects of improvement. The latter expenditure, if judiciously employed, would certainly reproduce itself with a large profit; the former would also be, in a measure, reproductive, by the irrigation being made sufficient to admit of the land being fully cropped, and so yielding constantly a revenue approaching to the maximum formerly obtained only in the best years, and of course greatly above the average.

132. The

132. The question of how much should be laid out annually for the extension of irrigation must depend, irrespectively of other considerations, on the means at the command of Government for the investigation of the projects of improvement that may be suggested, and for obtaining trustworthy plans and estimates, and eventually for their efficient execution. It is the primary duty of Government to provide for the object considered in the last para., and however remunerative a scheme of improvement may promise to be, beyond what will be gained by mere restoration and repair, the obligation to attend to the works required to keep up the present irrigation and make it more perfect, must not yield to such a consideration. Improvement, if the means for it are available, should go on *pari passu* with restoration and repair, but if there are not means for both, improvement must be postponed. The Commission observe, that there is no want of profitable projects to be undertaken; that in every district there are favourable openings for such undertakings, which will be brought forward rapidly as soon as officers shall be available for the important duty of investigation. Of this I have no doubt; but the officers required cannot be created at once.

133. With respect to roads, which the Commission divide into three classes, viz. 1st, the main arteries, consisting of roads running inland from the coast, those parallel with the coast, and those connecting important posts and places in the interior, the extent of which they estimate at about 8,000 miles; 2d, roads connecting towns of inferior importance with each other, and with the main lines, and connecting the chief stations of the talooks, and the chief talook towns of different districts with each other, where contiguous; the extent of these they estimate at 20,000 miles; 3d, the village roads connecting villages with the towns, or with roads of the first and second class. They think that not less than 1,50,000 miles of these roads are required. Roads. Para. 467.

134. The first class of roads, they think, should all be made equal to an English turnpike-road, to admit of carts with a pair of bullocks, carrying from 1,800 lbs. to a ton, and travelling with ease and certainty 20 miles a day, the cost of which, from the experience of the Trichinopoly Trunk Road, they estimate at 3,500 rupees per mile. The second class they propose should be made as good as the Western Trunk Road, that is to say, fit to admit of carts carrying 1,600 lbs., and travelling 15, or, in dry weather, 20 miles a day, which they think may be done for 2,500 rupees a mile; viz., 1,500 for construction and bridging, and 1,000 for metalling. Para. 419. Para. 417.

135. The cost of these two classes of roads they estimate at 7,74,00,000 rupees, viz.: 1st class, including canals, 2,74,00,000; 2d class, 5,00,00,000 rupees. Para. 470.

136. They are not so sanguine as to expect that the construction of these roads can be accomplished within a short period, but are only anxious to point out what there is to be done, and to urge that now at length the task should be entered upon with vigour. With this view, they propose that, as a beginning, 20 lacs annually should be steadily expended on the communications, in improving the roads already existing, and in opening new lines, exclusive of ordinary repairs. Para. 471.

137. The Commission present no data for their assumption that the extent of the second class of roads is not overstated at 20,000 miles. It is purely a conjectural estimate, which I will not attempt to test, for I hold it to be quite out of the question that Government should undertake to form such a network of subordinate roads on such a plan as is proposed by the Commission, before the construction of those of primary importance has been accomplished, and that will be a work of many years. The former are the roads to which the remark I have made above applies, that Government must be content with respect to them to do little more in the way of improvement than Captain Best suggested.

138. The Commission have given the elements of their calculation, that the extent required for the first-class roads is about 8,000 miles. But they are not the result of investigation. They assume, for example, that 28 new roads from the coast into the interior are needed between the northern frontier of Ganjam and Cape Comorin, and from Comorin to the northern limit of Malabar, merely because in Canara there is on an average one road into the interior for every 35 miles of coast. They have not gone over the districts inquiring what are the ports which it is desirable to open to the inland districts, and what natural lines offer for communication between them, and how far one common line will serve Para. 410.

for several districts, or parts of several districts. They have not adverted to the effect of railways in drawing to them at different points the traffic of many districts at greater and less distances, and causing the abandonment of lines leading more directly to the port whence their produce is shipped, but which, though more direct, will not, however improved, admit of the carriage of produce with anything like the rapidity, safety and cheapness with which it could be carried by the cross roads of the country to the railway, and by the railway to the place of exportation. Such a railway, for example, as that now commenced, to run out from the capital for some 60 miles in a line due west, as a trunk to two main branches, one to be carried by Vaniembady through Salem and Coimbatore to the Malabar coast, with a branch from Vaniembady to Bangalore, and the other through North Arcot, Cuddapah and Bellary towards Bombay. Considering these things, I feel pretty sure that probably one-half of the number of roads of this description suggested by the Commission would suffice; and still more sure I am that the average length of 150 miles assumed by the Commission is exaggerated. This indeed I think is self-evident on the least consideration of the data presented by the Commission. I should say the average would not exceed 120 miles, or one-fifth less. The length of 14 roads at 120 miles each, would be 1,680 miles, instead of 4,200. I think the lines parallel to the coast are also over-estimated at 1,500 miles.* There is to be deducted, at any rate, the southern trunk road, already far advanced; and making allowance for the improvements to the northern trunk road already sanctioned, and in course of execution, and for the water communication in Malabar, which, with the canal lately sanctioned, will be complete along the coast, and allowing also for the existing coast roads in Canara, I am inclined to think the estimate may be reduced to less than 1,000 miles. The Commission, I conceive, would be very much puzzled if they were required to lay down inland main lines answering to their description to the extent of 2,000 miles. With such abatements as I have suggested, it seems to me that 4,000 miles will be more nearly the extent of road required† to be made substantially, and bridged and metalled throughout. But I do not think that all these roads would need to be made at the expense proposed by the Commission. I should be disposed to say, taking the total at 4,000, that 1,500 miles might be made at the cost proposed for the first class, 3,500 rupees, and 2,500 miles at the cost proposed for the second class, 2,500 rupees. On this view, the estimate for roads to be made substantially, bridged and metalled, is reduced to 110 lacs. For this sum we should obtain 4,000 miles of road fit to be travelled at all seasons, with such a facility of draught as to admit of the cart load being trebled or quadrupled, and the distance travelled daily nearly doubled, and by which the mails might be carried at the rate of seven miles an hour, and travellers post in carriages drawn by horses to all the principal places in the Peninsula. I have said roads, but I conceive that it will probably be found most advantageous to provide for a considerable part of the aggregate length by canal; and I am myself disposed to think that on some of the lines the tram-roads proposed by Colonel Cotton, in his report of 6 May 1836, above referred to, might be introduced with excellent effect. I concur with the Commission as to the considerations which ought to determine the kinds of communication to be resorted to in different localities. I apprehend that with all the means that could be brought into operation, it would be difficult to execute in the year more than 300 miles of new road, say 100 at an expense of 3,500 rupees, and 200 at an expense of 2,500 rupees, besides giving some improvement to the cross roads in the manner proposed by Captain Best, and providing for the repairs of existing roads, as well as for the execution of the works proposed in the Maramut Department on the great scale already considered. The execution of 300 miles of new road would require an expenditure

Para. 468.

Miles.	
1,500 at 3,500 =	52,50,000
2,500 at 2,500 =	57,50,000
	110,00,000

See also para. 47, App. B.

100 × 3,500 =	3,50,000
200 × 2,500 ×	5,00,000
	8,50,000

* The length of the coast from the frontier of Cuttack to Cape Comorin, the Commission say is about 1,000 miles, the length of Malabar 140, of Canara 220=1,360. Deducting 200 miles for the southern road to Trichinopoly, there remain 1,160 miles.

† It does not appear to me that the example of England and Wales which the Commission refer to, is relevant in considering the accommodation that this country requires in the matter of roads. They look only to the area and population, without regard to the amount of traffic in the countries brought into comparison. But when this is considered, and the immense disproportion between the wealth and commerce of England and Wales and of the Madras Presidency is adverted to, it is apparent that there is no practical analogy between them.

expenditure of 8½ lacs, at which rate it would take about 13 years to complete the project. The present allowance for trunk roads is four lacs, which includes their repair. It is in my opinion expedient that at least double this sum should be allowed in future for making new roads, and improving existing roads, to bring them into the condition proposed, and that a separate provision should be made for repairs, as may be found necessary according to the extent to be kept in repair.

139. I am inclined to think that tolls to provide for the repair of roads migh be established under Act VIII of 1851, at least at ghauts, and at bridges over great rivers, where the advantage to be paid for is palpable, and perhaps at the entrances to towns; at such places tolls could not be evaded, and being few, I should imagine that means might be used to maintain such a control as would tend to prevent the exaction which would be likely at places removed from supervision.

140. In these paras. the Commission discuss an important question, namely, whether the expenditure for works of irrigation and for roads, &c. should be dependent on the amount of surplus revenue available, or whether if the year's revenue be insufficient to admit of the full expenditure required for the execution of works which may be expected directly or indirectly to reproduce their cost with a considerable profit, whereby the public revenue will be permanently augmented, and private wealth increased, the deficit may not be raised by borrowing on the credit of Government. The Commission strongly advocate the raising of the capital required for such works by loans, when the revenue from the drain for war or other objects is insufficient to afford it, pointing out the essential difference between raising a loan for the purpose of war, which is a mere sinking of capital, and for works which, besides returning a large profit to Government, will be the means of enriching and adding to the comfort of the community. Such a debt, they contend, cannot be regarded at all as a burden on the finances, because it is morally certain that the investment of the sum borrowed will create a fund for its repayment within a short period. They urge, therefore, that the sum fixed as proper to be annually expended on public works should be so expended, without consideration of the current surplus revenue; that the amount should be considered no less necessary to be provided, and no less an essential part of the year's expenditure than the pay of the army or the interest of the debt; and that any deficiency in the year's revenue to meet the charge, should be made good by loans. In these views I entirely concur. I observe that similar views have lately been propounded in Parliament, and cogently advocated. Paras. 432 to 488.

141. I have further to express my concurrence with the Commission in the opinion they submit, that whatever sum is fixed as proper for the usual annual expenditure in this Presidency on public works, should be at the unfettered disposal of the local Government. A precedent for the assignment of a certain sum annually for a certain purpose, to be at the disposal of the local Government, without reference to other authority, is afforded, as I have already remarked, by the grant of four lacs per annum as a fund for the construction and maintenance of the trunk roads. Para. 492.

142. I concur also in the recommendation that a standard for the usual expenditure having been fixed, an estimate of the probable actual expenditure of the two years next to ensue should be laid annually before the local Government, and if approved, communicated to the Government of India, provided that, if the estimate exceed the fixed standard, it should be first sent for the approval of the Court of Directors, and communicated to the Government of India after the approval of the Court has been obtained for the excess. Para. 493.

143. Having now seen the nature and extent of the public works of this Presidency, under the present system, and having formed some conception of what more is required for the material improvement of the country, I come next to the constitution and organization of the department for directing, controlling, and conducting the execution of those works. And first, I return to the fifth section of the report, in which a new Board of Public Works is proposed, to undertake the duties now divided between the Board of Revenue, the Military Board, and the chief engineer. Here I am prepared to say at once that I agree with the Commission, that it is not possible for the members of the Board of Section V.

Revenue, with such assistance as the chief engineer can render them, to sustain the burden which the greatly increased business in this department imposes on them. The present constitution was a great improvement on that which preceded it, but it is no longer adequate to the requirements of the department. I agree with the Commission also in thinking it expedient that the superintendence of the roads should be conjoined with that of the Maramut, as the agency for the latter must at any rate be largely used in the formation and repair of the roads. For the same reason, I think that the buildings, &c. in the provinces, now under the control of the Military Board, may be better placed under the control of the authority to which the officers, whose agency must be resorted to for their improvement, alteration or repair, are ordinarily subject; and for consistency, the authority which has the control of such buildings, &c. in the provinces, should have it equally at the Presidency.

Para. 208. Paras. 210 and 211.

144. Agreeing with the Commission that the whole of the public works should be under one control, I agree with them too, for the reasons they assign, in preferring a Board to an individual officer for the exercise of that control.

Para. 213. Para. 216.

145. I agree also with the Commission in thinking that an experienced revenue officer should be one of the members of the Board, and that his salary should be fixed at such a rate as to make the appointment eligible to any collector, so that Government may be able to select the fittest of the officers of that class. I think the chief engineer should be a member of the Board *ex officio*. I do not think that two other engineer officers are necessary to complete the Board. It appears to me that, with the chief engineer to give the Board the benefit of his advice on all professional questions of importance, and he being relieved from his present most burdensome duties, one other engineer officer will be able to conduct all the business that is purely professional, and to superintend the correspondence with the officers of the department who communicate directly to the Board, while the civil member, it may be presumed, will take charge of the correspondence with the collectors and the communications with the Board of Revenue, and also, of the accounts which do not require a professional revision, such as do require that revision falling to the professional member. The Board, I think, should have an engineer officer as their secretary, of the standing proposed by the Commission.

Para. 216.

146. The salaries proposed for the members and secretary of the new Board appear to me suitable.

147. The civil member, I think, should be also a member of the Board of Revenue, in order that he may take a part in the discussion of all subjects referred to that Board by the Board of Works, according to the 5th of the rules proposed in para. 232, and, if he thinks proper, record his sentiments; also in cases where the Board of Revenue, according to the 7th rule, may desire to initiate a project of improvement, or to bring before Government a scheme which the Board of Works may not approve. I may here observe that the other rules proposed in the same para. appear to me to be unobjectionable.

Para. 220.

148. I am of opinion with the Commission, that it should be the duty of the Board rather to control and direct operations, and to check and examine results, than to interfere with details which may be better left to the local officers; and that the proper method for a controlling Board to exercise its functions is by general rules, leaving cases and details within those rules to the discretion of the subordinate authorities, whose proceedings should be brought annually under review by detailed reports: and I approve of the practical application of those principles by the propositions submitted in para. 224, which appear to be essentially in accordance with the long established practice in Bengal.* With respect to the ordinary repairs of buildings and roads, the proposed rules will introduce the practice which already obtains with respect to works of irrigation, the necessary repairs of which the collector orders on his own responsibility.

Vide Appendix O.

149. I have

---

* Since writing this I have had an opportunity of seeing the Report of the Commission on Public Works in Bengal, para. 26 of which appears to contradict the statement furnished by the Military Board at Calcutta with respect to estimates for repairs, all which, when the amount exceeds 25 rupees, it is said, must be ultimately submitted for the sanction of Government.

149. I have felt that the Government has not the means of really dealing with the details of bills; that no real check is applied by their being submitted to it. Government must trust, and does practically trust, to the Board which has the means of check. I never could see any compensation for the trouble and waste of time caused by all bills being required to pass before Government. If it has any effect, it can only be to detract something from the sense of responsibility on the part of the Board, which ought by all means to be quickened. It is equally in vain, according to my experience, for Government to have estimates for ordinary repairs submitted to it. Government cannot of itself judge whether the repairs are necessary; the opinion of the local officer must really be its guide, and it is better to fix the responsibility upon him, whose report after all must of necessity be depended upon. I am persuaded that an annual report from the Board, showing the expenditure in repairs to buildings, and the time when each was last repaired, and explaining any particular circumstances, would be, as the Commission think, far more useful to Government, and a more real and effective check on wasteful outlay, than the present plan of submitting all the bills for such works in detail for sanction. Para. 222.

150. I am further disposed to agree with the Commission, that it may be expedient to give a discretion to collectors to undertake, within certain limits, improvements in irrigation works and roads, as well as to provide for keeping them in repair. Para. 225.

151. I quite approve of the arrangement which the Commission propose, in order that the Government may be put in possession of the information necessary to give it a complete view of the proceedings of the Public Works Department, and to enable it to exercise a due control. The reports and returns described by the Commission I conceive will very well answer the purpose. The information indicated under the 6th head in para. 226 is very much required. I think an account current of the costs and profits of irrigation works, such as the Commission contemplate, is very desirable. I think it would not be worth while, however, to have it made up for the numerous petty works of irrigation, which would be an immense task, but only for first-class works, defining these as being above a certain value. Para. 227 to 229

152. I do not think such an account could be made up for the roads. Para. 230.

153. The Commission suggest that one* of the stipendiary members of the Military Board and the assistant secretary may be dispensed with, and that the salary of the secretary may be reduced in consequence of the duties of that Board being so much diminished. On these points I am disposed to agree with the Commission. I do not think it advisable to give seats ex-officio to the Adjutant-general and Quartermaster-general. If it is not necessary that the commandant of artillery shall have a voice in Ordnance matters, I incline to vest the whole duty in a single officer. The Commission contemplate also the abolition of the offices of superintendent of roads and secretary to the Board of Revenue, D. P. W. This will follow of course the establishment of the new Board. Para. 218.

Section IX.

154. I proceed to the 9th section, in which the Commission discuss the necessity of enlarging the public works establishment in all its grades, and submit a statement of the new establishment proposed.

155. Without following the Commission through the remarks which they offer to show the necessity of a much more liberal provision for superintendence than has hitherto been allowed, and the need there is for more engineers to watch, repair, and improve the tanks and channels for irrigation, upon the efficiency of which the revenue of this Presidency so largely depends, a need that I am perfectly convinced of from my own experience and knowledge, coinciding with the statements in this report which I have already considered, I go at once to their scheme of an establishment for the Public Works Department in all its branches. Paras. 494 to 524.

156. First

* The appointment of the second stipendiary member has not been filled up since a vacancy occurred last year.

Para. 525.

156. First, they present a statement of the number of commissioned officers they consider to be required for the department, including the Board and its secretary, and the chief engineer and his adjutant.* The number is 113, which comprehends the officers to be employed executively in the Road Department, and in the performance of the duties relating to buildings now superintended by the Military Board, as well as those required for the Maramut Department. For this are proposed an engineer officer and assistant to each district to perform the duties with which the civil engineer is now charged, and an inspecting engineer to each † of the divisions now under the civil engineers, that is 20 district engineers, 20 assistant district engineers, and 9 inspecting engineers for the provinces immediately under this Government, with an inspecting engineer for the Presidency. Besides this establishment for our own territories, provision is made for an inspecting engineer and four district engineers for Mysore, and an inspecting engineer for the Saugor division and contiguous districts, also an inspecting engineer for railroads. Total 13 inspecting engineers, 24 district engineers, and 20 assistants. Further allowance is made for nine "special assistant district engineers," to be employed in investigating special projects of works.

157. Among the districts proposed to be provided each with a district engineer and an assistant, is Kurnool, with a revenue of only seven lacs, of which only a small part is dependent on irrigation, and a population of a lac and three-quarters; I conceive it to be unnecessary to give the same establishment to this small district as to the largest. It should be placed under the charge of the district engineer of Cuddapah or Nellore, with an extra assistant to aid him in this part of his range.

158. I have always thought it to be desirable that there should be an engineer to each of the large collectorates (excepting perhaps Malabar and Canara ‡), with an assistant in some of them. Considering, that on the plan before us, the roads generally, as well as the Maramut works, will be under the district engineer, and that there will probably be hereafter much more work in both branches,

Para. 526.

I now think it advisable to allow an assistant for every district including Kurnool, partly, as the Commission suggest, to give assistance to the district engineer, and partly to train up a body of young officers in the practical knowledge of Indian civil engineering, especially in regard to hydraulic works.

159. With regard to the inspecting engineers, whose intended duties are described in para. 528, the need of such officers to stand between the district engineers and the superintending Board has not hitherto occurred to me. There can be no question that the department would be made more efficient by the introduction of inspecting engineers, but without this provision, I should expect it to be generally sufficiently effective with the establishment of an engineer and assistant to each collectorate. I should look upon these officers as the professional staff of the collector, and I have no doubt that the material improvement of every district would be greatly advanced by concert and co-operation between the administrative head of the district, and the engineer appointed to conduct the business of the Maramut and Road departments under him, who from his duty being confined to the district, would be equally interested with himself in its progress. I think the district engineer should be under the collector, just as the sub-collector is under him, subject to his authority in a general way, but without direct interference on the part of the collector in regard to the details of his duty.

160. A great assistance would be afforded to the district engineers by the appointment of a certain number of unattached officers for the investigation of

Para. 537.

special projects either of irrigation, or of communication, or of other kinds. Under this arrangement, when a district engineer, and the collector of the district, and the inspecting engineer, if there was such an officer, agreed in recommending a project

* I do not see why the adjutant of engineers should be included in this list, for no duty is assigned to him in the Department of Public Works.

† There are at present eight divisions, but the first division is temporarily subdivided into two, an arrangement proposed to be continued.

‡ These districts not depending on artificial irrigation, there would hardly be sufficient work for an engineer of the superior class in each; one might be appointed to superintend the two districts, with an assistant in each.

a project of improvement, the district engineer would be relieved from the duty of investigating the scheme in detail and the labour of preparing a plan and estimate for its execution. One of the "special assistant district engineers"* would be sent to undertake this work, in the prosecution of which he would of course consult with the district officer, and if there was an inspecting engineer, would execute the duty under his control. I do not know that so many as nine officers are required for this kind of duty, but I think it is very expedient that in laying out the department, provision should be made to place a certain number of officers at the disposal of the Board and Government, for the purpose indicated.

* I do not think this a very apt designation.

161. According to my view, if inspecting engineers cannot be afforded, as proposed, the regular establishment within our own provinces, exclusive of the Presidency, to carry on the duties of the Department of Public Works under the Board, would consist of 19 district engineers.†

20 assistant engineers.

39

Say 5 special assistant district engineers.

44

† Or 18, if one be assigned to the two districts of Malabar and Canara; or 43.

162. The Commission reckon that besides the regular establishment for the districts, there will be employment for about 30 occasional executive officers, and considering that 20 such officers are employed at present, I apprehend that this estimate will prove not much, if at all, beyond the actual requirement, should works of irrigation and communication be undertaken in future to the extent to which my views go.

163. Supposing inspecting engineers to be allowed, as proposed by the Commission, I think it is proper that they should have the same allowances as the civil engineers have at present. If inspecting engineers be not allowed, I think that all the present civil engineers should be retained as district engineers with their present allowances, and that the first class of district engineers should consist of nine, whose allowances should be fixed at that rate; to the second class, which would consist of 10, I would give the staff allowance proposed by the Commission for the first class of district engineers, with the tent allowance of the first class. I conceive that two classes will be sufficient. I think there should be two classes of assistant engineers, with 8 or 10 in the first, and 10 or 12 in the second. The first class to receive a staff salary of 200 rupees, the same as the head assistant engineers at present; the second, 100 rupees, the same as second assistant engineers at present. The two classes to have the tent allowance at present received by the head assistant and second assistant engineers respectively. I would arrange the occasional executive officers likewise in two classes, assigning to them respectively the same allowances.‡ The "special assistant district engineers," that is, the engineers employed in special projects, I think should be in a position intermediate between the second class of district engineers and the head assistants, with a staff salary of 350 rupees.

Para. 540.

500 rupees.

4 rupees per diem.

164. I have hitherto considered only the establishment required for the Maramut Department in the provinces within our own territory, exclusive of the Presidency.

165. For the Presidency there may be an inspecting engineer and an executive engineer, on the footing and with the allowances proposed by the Commissiou.

Inspecting Engineer, staff salary, 1,000 rupees; Executive Engineer, 600 rupees. Both without tentage.

166. For Mysore the Commission propose an inspecting engineer and four district engineers, with an executive officer for the works under the Board at Bangalore.

‡ I have proposed the same allowances as at present to the head assistant and second assistant engineers, and to the executive officers of the first and second classes, but I doubt whether 100 rupees is a sufficient allowance for the second assistants and second-class executive officers. I think that it should not be less than 150 rupees, and that to preserve a due gradation, the allowance of the head assistant engineers, and th first-class executive officers, should be 250 rupees.

Bangalore. At present there is only one engineer officer, styled superintending engineer, for the whole territory of Mysore. It appears to me to be necessary on this occasion to consider only what agency is required for the performance of the work under the superintendence of the Board; and I should say that an inspecting engineer for the whole division, and one permanent executive officer for Bangalore, would be a sufficient provision.

167. For the duties to be performed under the control of the Board of Works in the Hyderabad, Nagpore, and Saugor territories, it seems to me that it will be sufficient to allow one inspecting engineer with a permanent executive officer at Hyderabad and Nagpore respectively, and four for the stations in the Saugor territory. Further, following the Commission, I suppose a permanent executive officer must be allowed for the Straits of Malacca, the Tenasserim Coast,* Cannanore and the Neilgherry Hills (when the barracks are finished). In all, three inspecting engineers and 12 permanent executive officers. Of these 12 permanent executive officers, one is intended for the Presidency, with a salary of 600 rupees, as above noted. Of the rest, four might be allowed a salary of 300 rupees;† and the remaining seven, a salary of 200 rupees,† or the same as the head assistant district engineers. I do not see reason for giving the former 400 rupees, as proposed by the Commission.

† With tent allowance.

168. Without inspecting engineers in the districts within our own territory, the permanent establishment would thus be—

	Inspecting Engineers.	District Engineers.	Assistant Engineers.	Special Assistant Engineers.	Executive Officers.
Presidency - - - - - -	1	- -	- -	- -	1
Maramut and roads within the Madras territory - - - - - -	- -	19	20	5	—
Beyond the territory and at certain military stations within the territory -	2	- -	- -	- -	12
	3	19	20	5	13

Total, 60.

With 9 inspecting engineers for the Maramut and Road Departments in the districts within our own territory, the number would be 69, besides about 30 officers required for occasional works. Total, 90 or 99.

Para. 539.

169. The Commission are not of opinion that all these officers need to be engineers. Where engineering skill and science are required, they would employ professional officers only; and in this view they would confine all the permanent appointments in the Maramut Department, all the inspecting engineerships, and as a general rule all the special appointments for the examination of projects, to "the professional corps;" and they think that generally the executive officers at the Presidency, at Tenasserim, Singapore, Hyderabad and Kamptee, should be engineers.

Para. 569.

170. Their reasons for confining the appointments specified to "the professional corps" are given in the 10th section, in which they discuss the question whether it will be best to provide the additional engineers absolutely necessary to render the Maramut Department efficient, by enlarging the corps of engineers which forms a part of the army, or by constituting a separate body of engineers for civil duties without military commissions or organization. They conclude that the best plan to effect the object in view, the cheapest and the most effectual, will be to extend the present system. They deprecate the employment of officers of the line in duties which require engineering science and skill.

Para. 571.

* This however will be regulated by the Government of India in connexion probably with the arrangements for the Province of Pegu.

skill. Their opinion on these points differs from that expressed by Colonel Cotton in 1837, who advised that the department should be opened to officers of the line and the artillery, and to others not in the Company's service, proposing that even "the highest appointments should be open to any one who could fit himself for them." "I cannot see anything in the nature of the department (he said) which can make it advisable to keep it exclusively for one body of men; a turn for these duties may be found in any class, and in England civil engineering is open to all, and the effects of it are very evident and beneficial." I confess myself inclined to adopt the above opinion of Colonel Cotton. I think it desirable to increase the strength of the military corps of engineers considerably, and to employ the officers who can be spared from military duties in civil engineering as heretofore. But I think it is quite inexpedient to depend wholly on a body of officers who must be held primarily subject to the calls of military service, and liable at any time to be withdrawn to answer those calls. We are experiencing the inconveniences of being so dependent at the present moment. I would therefore have not only the occasional executive appointments open to all persons who may be qualified for them, but also a proportion of the permanent appointments supposed to require engineering skill and science. The Commission recommend that the young military engineer officers may in future pass through a prolonged course of civil engineering in England, in order that they may come out like the young officers in the medical service, with practical as well as scientific knowledge. This is no doubt highly advisable, and should be strongly recommended to the Court of Directors. But I apprehend that effective service would be earlier obtained from civil engineers who had already actually practised their profession in England, and that not only would the present exigency therefore be more quickly supplied by such recruits to the department, but generally there would be less time lost in preparatory training in India, in the case of persons already practically proficient in civil engineering, who would only have to get an acquaintance with the modes of operation adapted to the circumstances of the country and native agency, and a knowledge of the language of the people with whom they have to work, to make their services useful; whereas officers of the military corps must in the first instance undergo a practical training for all the duties of military engineers, and must actually serve for that purpose with the corps of Sappers.

Appendix B., page XVIII.

Para. 597.

Paras. 598 & 599.

171. Supposing the number of permanent appointments under the Board of Works of a nature to require engineering skill to be 60, a fifth, or perhaps a fourth part, might be left to be filled up partly by professional men sent from England, and partly from among the officers of artillery and the line, and other qualified candidates who may be found in the country. I have noted that the Commission propose that there shall be an assistant under each district engineer, not as absolutely necessary to assist him in his work, but that a body of young men may be in training in the practical knowledge of hydraulic engineering especially, and I doubt not that young men will be forthcoming from the army* with a tolerable scientific foundation to begin upon, and some natural aptitude for this kind of employment, who may soon be taught to make themselves useful to the engineer, and gradually under his instruction, with constant opportunities of observing his operations, will gain sufficient practical skill to undertake the charge of works in execution, and presently to relieve the district engineer from many duties of detail.

172. This question must be decided before it can be determined what ought to be the strength of the engineer corps of the army; a subject upon which I do not feel myself called upon to enter further at present.

173. I turn now to the subordinate agency proposed for the Department of Public Works.

Para. 547.

174. A large

* In the 41st para. of the printed account of Roorkee College, it is remarked that "the Indian army is one of the sources whence scientific agency is most easily supplied. Besides the officers of the scientific corps, properly so called, there are in the Indian army many well-informed and highly educated men, who have much taste and capacity for civil engineering. It is only necessary that the persons possessed of this talent should be known, and that they should be provided with the means of improving themselves, and of perfecting their knowledge."

174. A large staff of warrant and non-commissioned officers is proposed,* viz., 80 of the former to be styled sub-engineers, with allowances running from *Rs.* 431. 12. to *Rs.* 176. 8. per month; 60 overseers and 64 sub-overseers, with allowances running from *Rs.* 145. 14. to *Rs.* 52. 12. 8. per month; total, 204.

Para. 548.

175. The allowances proposed for the sub-engineers of the first class exceed the military pay and staff salary and tent allowance of a first lieutenant of engineers, with the appointment of second assistant engineer. This appears to me inconsistent. The sub-engineers are a new class of officers intended to assist the engineer officers in all branches of their duty by relieving them from the more detailed and mechanical parts of it. Their work will be strictly of an engineering character. With two engineer officers to each district it may be questioned whether these sub-engineers are necessary. It is proposed that there shall be two to each district, 16 for main roads, 20 for special projects, and one for the Presidency division. The total charge for this new class of officers is *Rs.* 2,44,912. 8., which considerably exceeds the present† charge for the whole of the Civil Engineer's Department. I cannot say I am satisfied that there is a necessity for this additional charge, at least to the amount proposed, supposing the number of superior professional officers to be increased as suggested. The case would be different if that increase could not be given. In some districts, where there are very extensive and important works, the district engineer might with advantage have an officer of this class to aid him, besides the assistant district engineer; and such officers would no doubt be very serviceable in the execution of special projects, such as the Godavery and Kistna anicuts, and in directing and superintending occasionally the construction of main roads, ghauts, &c. I think it expedient on the whole to have such a class as this on the establishment as an opening for promotion, among other considerations, for the most able and deserving of the subordinates. But I conceive that the allowance proposed for the second rank of this class in the plan of the Commission, viz., *Rs.* 301. 5., may be sufficient. I do not observe, however, that such a class has hitherto been proposed. To the highest subordinate officer, called by the superintendent of roads "supervisor," the maximum salary was to be 140 rupees, including the pay of a conductor, to which warrant rank it was supposed the overseers of this class would be promoted. This rate was proposed by the superintendent of roads, as corresponding with the maximum rate allowed to the same class in Bengal and Bombay, including horse allowance. The same system was to be followed in the Maramut Department. In the North-Western Provinces a class of officers has been introduced denominated "sub-assistant executive engineers,"‡ but their salary is limited to 100 rupees a month, with travelling allowance when in the field to the extent of $\frac{3}{10}$ of their salary.

43 to the 21 districts, including Kurnool and Madras.

† 2,25,588. Appendix H. H.

From Board of Revenue, 30 July 1849, para. 57. Appendix H.

From Capt. Best, 16 May 1846.

See printed account of Roorkee College, 1851, p. 12 and 13, and p. 614 of this Report.

176. Of the 124 overseers it is proposed that 46 shall be distributed among the 20 collectorates in the interior, including Kurnool, 18 employed on main roads, 20 on special projects, and the rest at military stations, &c. The charge will

60 Overseers.
64 Sub-Overseers.

---

* The establishment for the whole of Bengal and N. W. P. proposed by the Bengal Commission on P. W., I observe, is—

Conductors	15

(corresponding apparently with the overseers of first class in the plan of the Madras Commission).

Sub-conductors	20
Overseers	65
Assistant Overseers	200
Total	300

Ordinary Regimental Pay	234	14	–
Staff Salary	100	–	–
Tent Allowance	90	–	–
Total	424	14	–

(According to military pay and audit regulations, p. 177, first and second assistant, same tent allowance).

‡ The number of this class was at first limited to four, but was afterwards increased to 20. Up to 1851 only four had been appointed.

will be *Rs.* 1,40,289. 4. If sub-engineers are not employed, I should think that two overseers might properly be allowed under every district engineer, and three in some; it would be necessary to allow some for main roads and special projects; what the numbers should be for these and other services I am not able to judge. It must depend upon experience. The Commission propose 40 more officers of the non-commissioned grades for the duties of the Presidency division, and of the various military divisions and stations. The maximum rate of allowance to overseers of the first class in the plan of the Commission somewhat exceeds what was intended as above remarked for the supervisors with the rank of conductors, the highest officers in the subordinate department in the scheme hitherto contemplated.

Vide letter from Board of Revenue, D. P. W., 24 October 1850, and statement appended.

177. The Commission speak of the proposed establishment of warrant and non-commissioned officers as an establishment of Europeans, and they say expressly that, in their opinion, "it is absolutely necessary that for many years to come the superior grades of the subordinate department should be almost exclusively European." Again they say, "appointments to this corps of subordinates should be confined almost wholly to men of European birth and education; at first this should be so strictly." I differ with them on this point, thinking that the sure way to bring up natives and East Indians to the required standard, is at once to make them eligible to any and every appointment in the list of subordinate offices on the ground of proved qualification and tried character. I would therefore do at once what the Commission propose to do eventually, that is, lay the appointments open to competition, and give them to the best men without distinction of race or colour, or place of birth or education. I think that the grade of sub-engineers, if there be such a grade, should from the first be declared "attainable by a superintendent of maramut, having displayed in a pre-eminent degree those qualities of zeal, energy, and honesty, which (the Commission observe) it is only fair to say that some few of the class have already evinced, and on passing the required examination," and that East Indians should be immediately "admissible to the grade of assistant overseers, and then compete for promotion on equal terms with their European comrades," of course subject to their furnishing sufficient testimony to their character and qualification. Otherwise the *élite* of the young men who have distinguished themselves by the manner in which they have gone through the training of the institution under Major Maitland, for example, who have had their minds disciplined and stored with useful theoretical and practical knowledge, and their physical energies developed by the laborious practice of a mechanical art in which they have acquired a high degree of skill, and through a long course of close observation have been found unexceptionable in their moral conduct, would be excluded, in order to make way for Europeans, who would probably have no pretensions to a like degree of knowledge and skill, and whose moral character and conduct could not be so well attested. The injustice and inexpediency of such exclusion seems to me to be so self-evident, that I need not dwell upon it. But I would just point to the high character which many of the East Indians in the class of medical subordinates have attained both for professional ability and for integrity. I would advert also to what is more in point, the fact that East Indians are now commonly employed in this country as engineers in steam vessels. The engineers in the Bengal marine I am informed are all of this class. The principal subordinate officer (with the rank of conductor) in the gun-carriage manufactory is an East Indian, a most able man. The services of persons of this class have been used with great advantage in responsible offices in the Mint and other working establishments, and I believe that they have been found worthy of trust.

Para. 547.

Para. 556.

Page 556.

177. The Commission submit their views as to the establishment of native subordinates required. The scheme of establishment they propose provides for a superintendent of maramut to each of the 20 districts, and a deputy superintendent to 15 of them. At present there are 15 superintendents and 3 deputies. There are now 97 maistries; the Commission propose 251 maistries and 302 under maistries, total 553, to be called respectively foremen and sub-foremen. Including the superintendents, the number is 588, at a charge of 2,11,620 rupees per annum in place of 33,375 rupees. The pay of the superintendents is proposed to range from 90 to 120 rupees. That of the deputies to be 60 rupees.

Para. 558.

The pay of the foremen to range from 30 to 60 rupees, and of the sub-foremen from 15 to 25 rupees.

I. 178. In the paper by Major H. C. Cotton, referred to by the Commission, and printed in the Appendix, the number of servants of this class proposed, including a superintendent and deputy superintendent to every district, was 349, which the
II. Board of Revenue D. P. Works reduced to 150 maistries of all classes. The rates of pay proposed by Major Cotton were 100 rupees to the superintendent and 60 to the deputy, and from 35 to 14 rupees for the talook maistries. The Board proposed to give 100 rupees to maistries of the first class, 10 in number, and 70 rupees to those of the second class, comprehending 15. Under these were four classes with rates of pay from 50 to 15 rupees. The total charge pro-
Para. 560. posed was 65,100 rupees. The Commission "have no hesitation in declaring that this establishment was far too small for efficiency," and as far as appears without any warrant, they proceed to say they are "fully convinced that in thus limiting their demands the Board were actuated too much by a regard to the known indisposition of the Government to admit any enlargement of existing establishments. They deemed it hopeless to ask for a sufficient establishment, but they hoped by asking for little, to get that little." I know not how the Commission presumed to make such observations, and seeing no foundation for them, I must take the Board to have meant what they said.

179. I cannot pretend to determine what addition to the present establishment is really required. I have already expressed my opinion generally that it is highly expedient to take measures for improving this valuable class of servants; that they should be better paid, and that their number should be increased. I have said that it seems reasonable that the superintendent should be put on the footing of a tahsildar in regard to pay, and that the rates proposed for the maistries do not appear to me to be excessive. I would add, that I think it very proper that there should be a superintendent of maramut in every district where there are artificial works of irrigation, upon which the revenue considerably depends, and which are of such extent as to fully occupy such an officer.*

180. It does not appear to me to be a change likely to have much effect on
Para. 563. the respectability of this class to call the maistries foremen and sub-foremen, as proposed by the Commission. Upon a suggestion of this kind Captain Best remarked that he "deprecated high-sounding titles." This very experienced officer frequently pointed out the expediency of providing for the systematic in-
To Government, 22 August 1850. struction of the maistries. The plan he himself adopted with this view has been already noticed. In the letter from which I have made the above quotation, he observed, in continuation, "If a maistry's rank and salary be made dependent upon the certificate he receives upon examination by an engineer officer, he will not want motive to exertion. I would have every maistry in public employ examined, and I would reward some of those who show diligence and skill, by the gratuitous instruction, for shorter or longer periods, of their sons or other relatives or nominees." He proceeded to say, "The sum that pays a surveyor or overseer for one year would suffice to educate a maistry who would do surveyor or overseer's work for half the salary. The surveyor or overseer must then improve himself or sink below the maistry. With better superintendence for the small and less important works, the engineer would have more time to spare for the more important. The teaching of one maistry would often save the salary of an engineer for many days, and the work the instructed maistry superintends will be better and more economical than those made now by the ignorant and unskilful. The education of maistries would spread downwards as well as upwards, and would be a boon to the whole population, valuable and cheap, for it would make workmen more skilful, and dwellings more comfortable." He added, "I believe that more may be done by the systematic instruction of maistries to remedy the deficiencies that are felt and complained of, and at less cost to Government than by any other measure, excepting the substitution of engineer officers for those of other corps who now hold engineer appointments." These

are

* The Commission provide equally for Malabar and Canara, in which there is no artificial irrigation, as for the districts in which the revenue is mainly dependent on such works, and for the small districts of Kurnool, as for the large districts of Bellary and Cuddapah adjoining.

are important observations, coming from an officer of Captain Best's ability and experience, gained by long and varied service in the Maramut Department, as well as in the charge of the roads, especially with reference to the question of resorting largely to the aid of Europeans instead of natives in the subordinate department.

181. Besides the maistries, or foremen and sub-foremen, the Commission propose to have a class of surveyors, on pay varying from 20 to 10 rupees, at an aggregate charge of 23,900 rupees, the number being 139. I have no doubt that it will be useful to afford to the engineer officers the assistance expected to be rendered by this class of servants, but the number appears to me excessive. Para. 567.

182. The Commission propose that the duty of nominating district engineers and assistant engineers to particular districts, as well as of nominating all the executive officers to particular works, shall be reposed in the chief engineer and the Board of Works, and that the recommendation of officers for promotion shall emanate from the chief engineer, and shall be sent up to Government, accompanied by the concurrence or dissent of the Board of Works; and that the same rule shall apply to the designation of the inspecting engineers, and of the permanent executive officers to particular divisions and stations. They also propose that it shall be recognised as the duty or privilege of the chief engineer and the Board to recommend officers for employment on executive duties. I do not see adequate reason for individualising the chief engineer, and assigning to him a special privilege or function in the manner proposed. I do not think it advisable that he should have power to act apart from the Board in this or in any respect. Para. 546.

183. I think that Government should reserve the power of determining the districts and divisions to which district and inspecting engineers respectively should be appointed, but I would give liberty to the Board to recommend the arrangement which they consider advisable, and also to recommend officers for promotion. I would leave to the Board the disposal of the officers of the department under the district engineers. I would permit the Board to recommend officers from the Line for executive duties, and would authorise them to make arrangements for the examination of officers desirous to enter the department in the manner proposed. Para. 546.

184. With regard to the subordinate department, I see no objection to the suggestions of the Commission regarding the appointment and employment of men in the different grades, and their promotion, except as to the separate action of the chief engineer. Paras. 556 to 566.

185. The suggestions of the Commission in regard to the training of the young officers of the corps of engineers, both in England and in this country, appear to me judicious. Paras. 597 to 601.

186. I agree with the Commission that it is advisable to abolish the present survey school, and to make a larger and better provision for the instruction and training of the subordinates of the Public Works Department. Paras. 609 to 611.

187. The Commission propose to form a great establishment for this purpose, on the model of the Roorkee College, with some modifications. Paras. 612 to 637

188. This Government, under date the 9th August 1850, recommended to the Government of India to take advantage of the foundation for a school of theoretical and practical instruction, calculated to form men for the duties of the Public Works Department, afforded by the school already existing, established by Major Maitland for the instruction of the Ordnance artificers under his command, by which he designed to raise them from mere manual labourers into skilful, scientific mechanics, and to give them a good sound practical education, such as workmen of all trades require to fit them to serve as foremen and overseers. I went pretty fully into the subject in my minute of the 25th July 1850, in which I endeavoured to show how well the plan of this school is calculated to furnish men thoroughly qualified for the duties of overseers in the Department of Public Works, by the combination of science with the actual practice of mechanical arts. I need not repeat what I there expressed, but I will repeat my conviction that by extending and improving this school as a Government institution, under the direction of the superintendent of the gun-carriage manufactory, with an officer of engineers, or any other officer duly qualified, to assist

in the scientific instruction of the pupils in the manner proposed, a very effectual and at the same time a very economical provision would be made for the immediate object of preparing men for this department of the service with qualifications eminently fitting them to give the engineer officers the aid they so urgently require.

189. I contemplate, primarily, the training of Europeans and East Indians in this institution, but I mean that it should be adapted also to afford to the class of native maistries the instruction which it is so necessary to impart to them; and I anticipate great advantage from their competing in the school with the Europeans and East Indians who are under instruction along with them. I have already said that I think all should be equally eligible for employment in the class of overseers, and in every rank of the subordinate department.

190. In the Minute referred to, I presumed that sanction would be given eventually for the appointment of a professor of civil engineering as a part of the system of public instruction, and I suggested that a provision might then be made for the election, from the highest class of the artificer's school, of a certain number of the students found to be most proficient, at an examination to be held for the purpose annually, to engineer scholarships, to be held by them during a course of study under the professor, by which they might acquire a higher degree of science than would fall within the scope of the school.

6 April 1853. 191. A letter has been lately addressed to the Government of India, again soliciting the attention of that authority to the scheme here noticed, and until we are favoured with the views of the Governor-general in Council on the subject, the discussion of the great project of the Commission may be deferred.

192. I have thus followed the Commission through their Report, and have given my views upon the topics on which they have treated. In doing so, I have been led on to a greater length than I anticipated when I began my review, and I fear it will be a weary task to follow me through it.

193. I think the Commission have done good service in bringing prominently and strikingly to view the importance of irrigation in this Presidency, with regard equally to the interests of Government and the people. They have done this very ably; and I think have proved incontestably the necessity of increased expenditure in maintaining, improving, and extending the works of irrigation, and carrying out the system of making the waters of the rivers available for this object, which has proved so successful on the Cauvery and Coleroon, and now on the Godavery, the works on which are notable examples of the profit to be derived from well-contrived projects of that nature. The peculiarity in the revenue system of this Presidency which gives Government a special interest in the improvement of irrigation, and the peculiarity of climate which makes irrigation extraordinarily valuable here, are well stated and forcibly applied. I am free to own that I have been led by the representations and arguments of the Commission to take a larger view of the duty and responsibility of Government in this behalf, than I had previously entertained.

194. I must say the same with regard to roads and communications. I have become more sensible of the importance of opening the country by this means, as the most effectual method of drawing out its resources, and more conscious of the obligation upon Government to lay out money liberally in the formation of roads and canals with a view to the promotion of commerce—more confident, at the same time, of a return for the expense in the improvement of the revenue, an improvement distinctly appreciable in the case of the revenue from salt—and not less certain, though not so obvious, as produced indirectly, in the revenue from the land, the grand resource of Indian finance.

195. I am persuaded that it is only by simultaneous efforts on a great scale, in the improvement and extension of irrigation, and in facilitating the transport of produce by making good roads and other communications leading to the principal marts, and especially from the heart of the country coastward, that we have reason to expect any augmentation of the public revenue, if indeed, without such means, it can be maintained at the present standard. By such efforts I am convinced that we may not only maintain it, but largely augment it, with infinite relief to those from whom it is raised; that not only will the cost be recovered

and

and the revenue permanently secured, while the people will be eased and put in the way of acquiring wealth, but that with the same benefit to the people, the finances of the State will be growing and a large profit accruing.

196. With such convictions, I concur with the Commission in advocating a greatly increased expenditure annually on these reproductive works. It has appeared to me, however, on grounds which I have stated, that the Commission have formed extravagant estimates of the expenditure required, both for irrigation and for roads, &c., especially for the latter, with regard to which they propose a scheme which I conceive to be utterly beyond what is called for under present circumstances, and in truth impracticable.

197. The expenditure which I propose is large when compared with what has hitherto been laid out; but I am satisfied that it will be for the advantage of Government to incur it, as soon as it has at its disposal a sufficient agency for the construction of works on which it will be profitably employed. I think it of such importance to follow out the scheme of improvement proposed steadily, without intermission, that I agree with the Commission that it is expedient to raise the necessary funds by loan when the surplus revenue may from any temporary drain be insufficient to afford them.

198. I have been led to agree with the Commission that the management of the roads and communications, and the works of irrigation should be combined, and that as the charge of both could not possibly be attended to by the Board of Revenue without prejudice to the proper business of that Board, it is necessary to provide otherwise for the superintendence of these departments; and I concur in their opinion that it is advisable to constitute a new Board of Works, to take charge of those departments, and of the buildings, &c., now under the management of the Military Board, confining the duties of the latter to the Ordnance Department. I further agree with the Commission as to the composition of the new Board, except that I think that it will be sufficient to appoint one engineer officer to be a member of the Board, besides the chief engineer, who is to have a seat at it *ex officio*.

199. With regard to the agency under the Board, while I agree with the Commission that it is greatly inadequate at present, and must be largely increased, I have not been able to concur entirely in their views as to the extent of the increase, either in the commissioned or subordinate ranks, or the manner in which it should be provided for. It has appeared to me inexpedient that Government should continue wholly dependent on the military corps of engineers for the supply of the officers required for civil engineering. In recommending therefore that the military corps should be increased, I have suggested that the increase need not be carried to the extent required to provide for all the appointments which should be filled by scientific officers, but that a proportion might be left to be supplied by civil engineers sent from England, and by officers of the artillery and the line, and any qualified persons that may be found out of the service.

200. With regard to the subordinate agency, I have been unable to subscribe without reserve to the scheme submitted by the Commission, which it appears to me has been drawn on an extravagant scale.

201. I concur with the Commission in thinking it not only expedient, but necessary, that some provision should be made for the instruction and training of men to fill the subordinate offices in the Department of Public Works, but I am not at present prepared to adopt the scheme they propose for this object, deeming it proper to wait for a communication of the views of the Government of India on a project some time ago submitted for raising a Government institution for the same purpose, on the foundation of the existing school for the instruction of artificers, established by Major Maitland, Superintendent of the Gun Carriage Manufactory.

202. Having thus briefly noted in a general way the principal points on which I agree and disagree with the Commission, I wish I could at once conclude my Minute. But while amply acknowledging the merit of this Report, and giving the Commissioners the praise they well deserve for the ability with which it has been drawn up, and the lucid manner in which they have explained the existing system, and expounded their views of the reforms they deem requisite, I think it

my duty as a member of this Government to animadvert upon the extraordinary tone which the Commissioners have thought proper to use in reference to proceedings and orders of the Government, and the principles and views ascribed to it, a tone of presumption and disrespect which seems to me to call for rebuke.

203. In the course of my review of the Report I have noticed, as they passed before me, some individual instances of studied reflection on the Government, which an exact statement of the case would have shown to be unfounded; and they are not the only instances of exaggeration and misstatement that might be pointed out. It is with great regret that I advert to these blemishes, which disfigure and discredit a work that would otherwise deserve unqualified praise.

Fort St. George, 19 July 1853. *D. Eliott.*

Postscript.

In the 144th para. of the above Minute, I have said that, for the reasons assigned by the Commission, I concur with them in preferring a Board to an individual officer for the control of the Department of Public Works. I would now add a few words to explain more particularly my views on this very important point. In considering under what control it would be best to place this department, I have had especially in mind the two elements of which it is constituted in the Maramut branch, which is incomparably of most importance, viz., the officers of revenue, and the civil engineers, and the agency subordinate to them respectively. We have seen how intimately the Maramut works are connected with the Revenue Department; that in fact the general management of the sources and channels of irrigation rests, and must rest, with the collectors; we have noted how large a part is performed by the revenue establishments in the execution of such works as are planned by the civil engineers, while the great bulk of the ordinary work which is necessary annually for the repairs which are indispensable for keeping the reservoirs and channels in efficient condition is done by them exclusively. Seeing how deeply the collector is interested in the conduct of the Maramut, upon which the prosperity of his district so essentially depends, and how extensively his revenue establishment is engaged, and must of necessity be engaged, in carrying on the ever recurring operations which it requires, he must be looked to as the head of the department. I hope that in future there will be allowed to every district a civil engineer and an assistant; but according to my view they will be the professional staff of the collector, subject to his authority in a general way, and bound to give him their professional assistance at his requisition, but not liable to be interfered with by him in the actual performance of what is of a strictly professional nature. Now the practical question is, how can a department so constituted be superintended and controlled, so as to secure to the controlling authority due respect and deference, to give it a due command over the executive, that it may be able to keep each of the branches in its proper place, and preserve that harmony of co-operation between them, which is essential to the orderly and efficient conduct of the department as a whole. It appears to me that the solution to the question is to be found in a Board constituted as proposed, consisting of an able and experienced revenue officer, to whom the collectors will be prepared to yield deference, and of a select officer of engineers eminent for his professional skill and experience, and thoroughly conversant with the practice of the department, in whose judgment the local engineers, and probably not less the collectors, will be ready to acquiese; aided in professional questions by the head of the engineer corps, whose position will give him authority with the officers belonging to that body. And I do not see how it is to be found otherwise. If it be proposed to place the department under the superintendence and control of an individual, he must of necessity be an officer of engineers, for professional knowledge would be an indispensable qualification; and I think it is not to be expected that the collectors would submit with due respect to his sole authority. There would, I fear, be endless contentions between them, which would never be settled without the intervention of Government. It would be worse if there were no general superintendent, and the Presidency were distributed in four grand divisions, with a superintendent to each; for the superintendents of divisions would mostly (all but one, probably) be of lower rank, and would, it may be presumed, carry less weight personally than an individual selected from the whole body of scientific officers. Under either of these arrangements for individual

Para. 158 above.

vidual superintendence, there would, I apprehend, be a failure in the government of the department. I doubt very much whether anything would be gained in the dispatch of business. I have supposed that, with a Board constituted as proposed, the business would be divided between the two ordinary members; the engineer officer taking the conduct of the business that is purely professional, and superintending the correspondence with the professional officers, who communicate directly with the Board, and the civil member taking charge of the correspondence with the collectors, and the communications with the Board of Revenue, and also of the accounts which do not require a professional revision. I think that promptitude in the disposal of business would thus be better obtained in a Board by a regular division of labour in all the details of a nature not calling for consultation, than through an individual superintendent, who must give his personal attention to every part of the business. I feel confident that the correspondence with Government would not be diminished, but increased, by the substitution of one general superintendent, or four superintendents of divisions for a Board, for the reason I have already given, that references to Government would be more frequently called for to settle questions between the superintendent and the collectors, and the local agency. If there were four superintendents there would be a tendency to diversity of system, and Government would find occasion to maintain a closer oversight, in order to restrain that propensity and preserve uniformity. The Government would to some extent be obliged to take the place of the Board for this end. These considerations and others relating to matters of detail, which I need not here enter upon, confirm me in the opinion before expressed, that it is advisable to commit the superintendence of the Department of Public Works at this Presidency to a Board, with reference especially to the union of the management of the Maramut with the administration of the Land Revenue.

19 September 1853. *D. Elliott.*

MINUTE by the Honourable *J. F. Thomas*, Esq.

Para. 1. Before entering upon an examination of this Report in detail, I will offer a few preliminary remarks upon its general character and tone, in support of the opinion expressed in my Minute of 12th April 1853.*

* *See* also Appendix A.

2. A further examination has confirmed me in the opinion, that the Report is chargeable, so far as it relates to, and purposes to set forth, the views and proceedings of this Government in past years, with misrepresentation, however unintentional, whilst there prevails throughout, a tone of exaggeration, and an undue appreciation of the merits and services of the existing civil engineers department, neither justified, in my opinion, by the records, nor by experience.

3. As an example of the mis-statement referred to, I quote the following passage in para. 225, in which it is asserted, that though professing to approve of outlays for the improvement of the country, yet the view practically acted upon by the Government has been, that "all expenditure is an evil." And again, in para. 18, it is alleged without qualification, that this Government "has never duly recognised the importance of improving the communications of the country;" and that "an expenditure on the roads has almost always been an unwelcome subject." Against such representations of the views and proceedings of the Government of this Presidency, for many years past, I can only enter my protest, and declare them to be unfounded.

4. It is difficult indeed to understand if the records of Government had been fairly examined by them, how the Commission could permit themselves to record these statements. They had before them the fact, that in 1844, the then Head of this Government, Lord Tweeddale, had placed the question of roads in this Presidency in so strong a light before the Home Authorities, as to obtain a grant of 4 lacs per annum, to be laid out upon trunk lines alone, and not to be subject to the control of the Government of India. And in consequence, although the department took unavoidably some time to organise, and has been comparatively but a short time effective, sums to the extent of 23 lacs of rupees have been already sanctioned by Government for trunk roads, independently of

considerable sums for other roads. So little foundation is there for the statement, that "all expenditure on roads has been unwelcome;" and so far is it from the fact, that this Government has never duly recognised the value and importance of the communications of the country. They assuredly did most fully appreciate their importance—not less fully than the Commission.

5. In like manner the Commission wholly mis-state the facts, in declaring, that all expenditure was deemed by this Government "an evil." The following were the views of this Government recorded in 1848, and urged upon the Government of India, in reply to a despatch pointing out the necessity of rigid economy. I give them here at some length, as they will clearly show that there is no foundation for the statement of the Commission, that this Government has been always opposed to a liberal expenditure upon public works, especially when it is considered that the Government had previously proposed (1845) to the Court of Directors, the construction of the large and costly work, the Godavery Anicut, to which was added subsequently, in 1848, that of the Kistnah.

Letter to the Government of India, 3d January 1848, para. 21: "The Government of India in closing their letter, state their concurrence in the views expressed by the Honourable Court, and urge upon this Government, 'the duty of sparing no exertion to bring the public expenses down to the level with the public income, and the absolute necessity which exists for the adoption of the utmost economy in all branches of the administration.'" In paras. 19, 20, and 24, this Government expressed their views as follows: "The point to which this Government would desire to attract the attention of the Supreme Government, is, that the returns submitted show an almost stationary or very slowly advancing land revenue during the last 30 years. This may be deemed unsatisfactory, considering the general security, and the peace which has prevailed in Southern India for years past. It is no doubt in a great measure to be ascribed to the peculiar circumstances of this Presidency, which labours under the disadvantage of the want of navigable rivers, and of roads and means of interior communication. These deficiencies cramp and even preclude a development of its sources of prosperity, and forbid the increase of the revenue. They limit the products of the soil to the common grains and other articles for home consumption alone; and whatever natural capability there may be for raising cotton, sugar, &c., or other raw produce for the British market, this Presidency is in a great degree disabled by these disadvantages from competing with other countries in the markets of Europe."

"The remedy is plain: and is in the hands of the controlling authorities themselves. They have only to sanction, and provide efficiently for the early construction of good and permanent communications from the inland districts to the coasts, and throughout the country; and to encourage the influx of European skill and capital, applied to the improvement of the indigenous cotton or sugar cane, &c., or to the raising a foreign and better species, by judicious and well-considered leases to *bonâ fide* capitalists on favourable terms, similar to that granted to Messrs. Arbuthnot & Co. in Vizagapatam, and to Mr. Hutson in Malabar, and by perfecting the works of irrigation on the Godavery, and constructing similar ones on the Kistnah; inducing at the same time the influx of British capital and its outlay in such projects as the Arcot Railway, (which would indicate a desire on the part of the Government for improvements,) and the Presidency will prosper. By these means, which would not require a very large annual outlay, for the progress of the works must be gradual, the country will at an early date advance steadily, if not rapidly; and it is not easy to understand why measures of this nature, involving comparatively so small an annual expenditure, should be postponed."

"Adverting to the facts that the land revenue is still increasing, rather than diminishing, and that a large saving has been lately made in the civil charges by the abolition of the provincial courts and of principal collectors, the Government of Fort Saint George sees no sufficient foundation for the further statement, that Madras must be dependent on external means for support. And whilst this Government would counsel a wise economy in all branches, it is of opinion that a considerable outlay of its revenues at this time on internal improvement, even if there were no surplus, would prove in the end a more sound policy, and more beneficial to the finances, than any other course; and they

they would deprecate the view of its financial state taken by the Honourable Court and by the Government of India, chiefly from the apprehension that it might lead to restrictions greatly calculated to retard its general and its financial prosperity."

6. The foregoing views are those which have guided me in my duties as a Member of the Government for nearly four years; and I am not prepared, by silence, to give countenance to the mis-statement of the Commission, nor to leave it to be supposed that the Government has been at all times adverse to a large and wise expenditure of the revenues in developing the resources of the country.

7. I will now proceed to examine each section of the Report separately, avoiding, as far as practicable, the notice of minor points; for I fear these papers are already too voluminous.

Section II.

8. I concur with the Commission, in their representation of the present unsatisfactory condition of the Department of Public Works under the Board of Revenue; but I think their statements in this Section are too often loose, and deficient in accuracy.

9. Take for example their assertion, in almost their opening paragraph,* that "the whole of the territories of the Madras Presidency carry on their cultivation in great part by means of artificial irrigation; the waters for this purpose being obtained either by channels taken off from the rivers, or by the tanks or reservoirs." The truth being, that it is only a few districts which thus depend so greatly on artificial channels and tanks; whilst some of our largest and most important provinces (as will be seen by the following data) scarcely depend at all for their cultivation on such artificial irrigation as channels and tanks. It is also well known to those acquainted with this Presidency, that the food of the great mass of the people in our inland provinces, is chiefly raised by dry land cultivation. A fact of itself, showing that the statement of the Commission cannot be correct.

* Para. 6.

10. The facts are as follows, in 1851–52.† † *See* Appendix B.

1. "Guntoor" had lands under tanks and nullahs, but 21,408 acres. Under other cultivation, 7,19,004. This manifests how little the province was dependent on artificial irrigation.
2. "Bellary" had 18,95,717 acres under cultivation, of which, under tanks and nullahs, but 90,690.
3. "Cuddapah," another large province, had 12,89,073 acres; of which 87,006 only were under artificial channels.
4. "Salem," 7,11,886 acres; under tanks, &c., 51,384.
5. "Coimbatore," 14,23,429 acres; under tanks and channels, 67,761.
6. "Kurnool," 4,53,156 acres; under tanks, &c., 6,973.

11. The above districts form a large portion of the Madras territories, and the data given, though not to be taken as accurate to an acre, are sufficient to demonstrate with what a want of precision statements are made by the Commissioners. It is this exaggeration, which runs through their report, to which I have adverted in the preliminary remarks.

12. But though I cannot follow the Commission in these and other statements, I entirely agree with them in the conclusion at which they have arrived, as expressed in para. 23, that the Board of Revenue in the Department of Public Works is essentially defective, and unequal to the duties of the department.

13. They state the case as follows: "And the cause of these deficiencies is not difficult to discover; it lies undoubtedly in the fact that the Board is physically utterly unequal to the various duties required of it. It is primarily a Board of Revenue, and its duties in connexion with the Public Works of the country, highly important as they are, have always, and unavoidably, been regarded as supplementary and subordinate. The revenue duties are fully sufficient to occupy the whole time of the members, and they are unable to give more than a very limited amount of attention to the Public Works Department. It is true that the chief engineer has a seat in the Board in that branch of its

business, and, nominally, he is the professional head of the department; but he has, besides that, two other offices to attend to, his own, and the Military Board, in which also he has a seat: hence he also, though he gives his written opinion on new projects agreeably to the orders of the Honourable Court, has but little time to give to the general business of the Board, or to devote to the improvement of the department."

14. It is obvious here to remark, that if such has been the real state of the Board for years, as I am satisfied that it has, the alleged efficient working of the department, as averred in para. 21, in which all errors and "misfeasances" charged at different times upon the Board are declared to have no foundation, can scarcely be correct. It seems to me indeed incredible, and contrary to the nature of things, that a Board "utterly unequal to its duties," and giving "little attention to them," with an inadequate ministerial establishment, should be free from all the omissions and oversights charged against it; yet this I understand to be the assertion in para. 21, and that the Commission maintain that the Government and the Honourable Court have been throughout in error in all their animadversions. I am unable to reconcile the statement in paras. 21 and 23, whilst those in para. 21 are, in my opinion, refuted by the records of Government.

15. As an instance in point, it will suffice to refer to the circumstances attendant upon the destruction of the first Bowany Bridge, as I view the records. It was then explained to Government by the Board, that one officer of engineers had designed the structure, but had not fixed the exact site, nor ascertained the true width of the river; that another, pursuing the same course, had estimated for the bridge; and a third commenced building, laid the foundations insecurely, and in order to make the bridge span the river, added, of his own authority, two additional arches, but to include them in the cost sanctioned, he reduced and weakened the buttresses. Upon the first trial of its strength, not merely the arch injured, but the whole structure fell like a pack of cards, owing, I believe, to these defective proceedings of the several civil engineers.

16. I am also equally satisfied that the loss at the Yenamaikal dam, another costly work, might and would have been avoided if the Board had been efficient and exercised a careful supervision or control, for this work would not then have been allowed to go forward in incompetent hands. The Government, at the time, condemned the Board in the latter case. I give these instances as two out of several which occur to me, and I must be allowed to express the opinion that the statement of the Commissioners merits little confidence.*

* *See* Appendix C. "Memo."

17. Further, in addition to their remarks upon the total inefficiency of the Board of Public Works, I agree also to a great extent with the Commission in their view (para. 34), that one of the chief defects of the department is the limited number of engineer officers; I should however especially add, of the class proposed in the minute of the Most noble the President upon this department in August 1846.† I shall quote that minute at some length, as it exhibits, I think, a just view of the prominent defects and wants of the Department of Public Works. The only point in which I could not concur is in the salaries to be assigned to executive civil engineers, which I think too low to secure the class of men needed.

† *See* also Appendix C., as above.

18. After pointing out that the first and chief defect was the absence of real individual responsibility, it was added, "I will now touch upon the second part of my objections to the present constitution of the Department of Public Works.

"Under the present system there is no adequate supervision in the execution of works for irrigation, or in the great bulk of the repairs. Works are suggested, and estimated frequently without any reference whatever to any scientific officer, by parties wholly incompetent to form any opinion as to their necessity or advisableness, and by whose want of skill and judgment I have reason to believe much of what is laid out is now expended in vain; and even in the works projected by scientific men under the present system, the same result is seen. Minor works are executed by parties ignorant of any but the rudest methods of construction, and wholly without any scientific aid. In larger works the collector of the district and the engineer stand in such anomalous relations to one another, and there is such a confusion of duties and responsibilities, that it were vain to make either really accountable for the result. The engineer has the sole ability, and

the

the collector has the sole power, and between the two the natural consequences of the divided responsibility are delay and inefficiency. Finally, there is no check in such a case; the same officers who have thus guided the operations of a large work are the sole authorities by whom its successful completion can be attested, and who can make a report of it to the Board. I would propose to alter this. I would desire to see a system established, and such a constitution of the department made, that all the expenditure of the public funds should be made under judicious and scientific direction, and that there should be a proper series of checks. My proposal would be, therefore, that the duties which the collector now performs in the large expenditure of public funds, with no assistance except that of his native servants, he should hereafter invariably discharge by the assistance of an engineer officer; I would propose that each collector should have an engineer officer attached to his district as an executive Maramut engineer, who should undertake on his behalf, and under his orders, all the outlays now made by the collector in the Department of Public Works. It would not be necessary to have officers of very high standing or salaries, on account of the other parts of the arrangement which I shall presently allude to, but I would recommend that a salary of 150 rupees per month, in addition to tent allowances, be given to the nine most important collectorates, and 100 rupees, with the same addition, to the rest. I would keep about the same number of civil engineers as at present, giving them the supervision of the executive works performed by ordinary engineers. By this means, and with the addition of a supply of the non-commissioned subordinate assistants lately promised to be sent out annually by the Honourable Court, we should be able to transfuse into the native agency a mass of European science, energy, and intelligence, and practical skill, which could not fail to tell powerfully upon the effects of their industry.

"These subordinate executive engineers should not be liable to be removed for military duty, but when once attached to the Public Works Department they should be considered altogether as in civil employ. Without this provision it is obvious that the efficiency of the system might be at any moment destroyed, and the experience gained in the duties of a civil engineer lost to the one branch of the service, whilst they could be of no use in the Military Department.

"The additional expense of such a constitution of the department would be saved, not in the diminution of the outlay upon the public works, but in the threefold usefulness derived from them, and in the means of insuring that the large outlays annually made should not, as at present, be too often thrown away.

"Let the cultivation of the sources of the revenue be once taken up in earnest, not as a secondary thing, but, as it really is, one of the chief and most important objects of the solicitude of the Government, and I have not the slightest doubt but that all objections on the score of expense will speedily vanish before the obvious results of the system.

"I will not enter here into the details of the system which I propose should be established further than to say, that the executive engineer attached to each collectorate would be essentially the executive officer for all works executed in that district; he would, in more important works, originate plans and estimates, and send them through the civil engineer of the division to the Board, the projects being thus, on their passage, subjected to the local check and scrutiny of the experienced scientific local officer, and finally submitted to the two officers at the head of the department. This I cannot but think would be found more advantageous than the present arrangement.

"Out of the body of such executive engineers thus constantly employed there would be gradually raised a school of really experienced men upon whom Government could depend, and from amongst whom, as vacancies occurred, a selection would be made from time to time of the most experienced to rise to the office of civil (divisional) engineers. We might thus hope, by keeping a larger body in constant training, to be ever ready to fill up those most important posts with men of undoubted qualifications; a thing which at present it is of the utmost difficulty to effect at any sacrifice, and which it is quite impossible to combine with the necessary regard to the fair and equitable claims of the commissioned officers themselves to higher employment in other branches; and through their instrumentality an amount of superior practical knowledge would be diffused through the native subordinate agency, of vast importance to the community generally.

"The number of collectorates in this Presidency being 19, the number of effective engineer officers necessary to be employed in the civil establishment on the system I propose, would be 19 executive engineers, and allowing a civil engineer to every two or three collectorates, probably a total of 28 always on duty. If an allowance of one-fifth be made for absentees, we should require a body of 34 officers for the revenue branch of employment, exclusively of the exigencies of the military branch.

"I have thought it my duty to enter into the above brief calculation, because from the remark made by the Honourable Court upon this subject, it would seem to be understood by them that all the necessary wants of the Revenue Department in engineer officers would be fully satisfied were 16 set apart for appointment to the eight divisions; whereas I am of opinion that the experiment is not fairly tried until a proper and efficient system is established and fully brought into action, and that to attain this a larger number of officers will be necessary than the Honourable Court originally contemplated."

19. Should the proposition here made, for giving each collectorate an intelligent civil executive engineer, permanently attached to the district, and competent to instruct and raise up a body of good native workmen be carried out, more would, in my opinion, be done for the department than by any of the recommendations of the Commission.

20. I may here point out, by an example which has lately come before the Government, my view. The Neilgherry Barracks, now under construction, were necessarily planned for a lower story alone, though not recommended as the best for that climate by the military authorities. It has been resolved that they shall now be an upper-storied building. This has only become practicable since skilled builders, brickmakers, &c., have been obtained from the European regiments. Till their practical skill was obtained, the officers of engineers have never, during the last thirty years, made, nor could they ever procure, either a really good solid brick or tile on the Neilgherries. They were indeed of opinion that clay of the requisite quality could not be found, and they have been compelled in consequence, for years, to build with very inferior materials, for they did not themselves possess the practical knowledge to remedy the evil.

21. This want in the Civil Engineers Department, viz., superior practical knowledge, cannot be supplied by adding to the corps itself. The scientific young officers who join it will be no more qualified to direct or superintend the native maistry or workman in his business than the present intelligent officers now serving, and the department will not benefit by the addition of any number of such officers, as it would by the introduction of a superior and practical executive civil engineer, such as proposed in the foregoing minute. It is this class which I think to be so greatly required, and without which the department will always be most defective.

22. I observe in the paragraphs (34-6) under consideration, which refer to the civil engineers and their duties, the same inconsistency before commented upon. The civil engineer of a division, it is pointed out, has an extent of charge and duties averaging "16,000 square miles," and "10,000 works," with other routine calls upon his time, which it is justly observed he is "unequal to." At the same time the Commission would have us infer that the shortcomings and defects in particular cases, when noticed by Government, have no existence. The two statements cannot stand together, and there can be no doubt that this branch of the department has been very inefficient, from the paucity of officers and their practical inexperience. And it should have been added also, in some cases, from neglect or indolence on the part of engineer officers,* so that the public works have been neglected or ill executed.

Para. 34.

23. Such an addition to the corps of engineers is, I think, required, as may always leave an engineer officer with two assistants in each division. This addition, with an executive civil engineer permanently attached to each collectorate,

* The recent communications from the Board of Revenue, as respects the officers lately in charge of the second and fifth divisions, show their neglect and inefficiency, as well as the inefficiency of the Board as a controlling authority.

torate, would supply the ordinary wants of the department, and I would limit any increase to this extent.

24. An additional number will still be required for other duties of the corps, such as to provide for the corps of Sappers and Miners, the military divisions at Hyderabad and Kamptee, &c., but to what extent I am not prepared, nor is it necessary to offer an opinion.

25. On the further points discussed in this section (II.), The subordinate agency of the department, the revenue surveyors, the European overseers, and the native maistries, I have only to record my agreement in every point with the Commission, and especially as to the importance at the present time of the European subordinates. The testimony borne to the value of the trained European workman, and the saving arising therefrom, fully confirms the remarks offered by the late President in 1846, quoted above.

26. We see that in one instance (Report, p. 48) the work of a properly qualified foreman, even when compared with other European overseers, produced a saving of 15 per cent., and was better work at the same time. The Commission thus state the fact:—"In all the foregoing cases the estimates appear to have been made at the usual rates, and it is unlikely that there would have been much to spare from them under the common superintendence. It may be asked, then, to what cause is the saving to be ascribed; is there really this amount of cheating under ordinary circumstances? We believe not; cheating and peculation to a certain extent are no doubt practised in maramut works, but a large part of the saving effected by means of European superintendence is ascribable to other causes, besides the mere prevention of direct fraud. The skill of all classes of workpeople in this country is at a low point, and their tools are bad; again, all of them are much disposed to loiter over their work, and especially when they are working in large bodies. Now an active intelligent overseer will correct all this, and to this cause we believe a great part of the result of their employment is due. Thus Captain Best, speaking of bridges built by one of his overseers (Brown), states that by good workmanship and good management every cubic yard of masonry built by him consumed much less chunam and employed considerably less labour than the work even of other overseers, so that there was a saving of 15 per cent. in the cost of the work (even compared with that of other overseers), while the work was much better, because the joints were closer." Nothing could more forcibly point out the advantage of the practical knowledge of a civil engineer well trained.

27. I also most fully participate with the Commission in the regret they express, that the European overseer has been deprived for a long period in this Presidency of advantages possessed by others of his class in the other Presidencies, but I do not doubt but that this will be remedied when the whole subject comes before the Government of India. I would urge this point the more, as it is scarcely possible to overrate the importance of giving due encouragement to this class of men. I am convinced, with the Commission, that the remedy for nearly all the evils in the details of the department is to be found at this time solely in the larger employment of this class, when superintended by well educated civil engineers.

28. It is also, I think, chiefly through them, by their influence and example, and by his associating with them, that the native workman or maistry will rise in efficiency and in character. I most cordially concur therefore in their recommendation and remarks on this head, paras. 43–64.

29. There cannot also, I think, be any doubt as to the value of the further recommendations, in paras. 75 to 89, for the improvement of the class of native Maramut superintendents or maistries. I would hold out, as the Commission propose, every inducement to this class to improve, and I would advance them both in pay and position to the utmost whenever found qualified.

30. I shall not enter at length upon the questions discussed in paras. 93 to 108. The real point at issue is, whether it is the best and wisest policy at the present juncture, when the department is under-supplied with officers, that they should be employed each year in going hastily over the whole extent of their too extensive charge, and doing nothing thoroughly for want of time; or whether,

whether, as the Government suggested, they should give their time in alternate years more exclusively to one district of their charge, and thus be enabled to overlook, with a care and efficiency now impossible, large and costly works executed under very imperfect supervision. I should not agree in the view the Commission take of the proposed rules in the existing state of the department. And I should have been glad if this Government had before them not only the opinions of the Commission, but those of the civil officers, as well as of the engineers in the provinces. I much doubt if they would concur with the Commission.

Section III.—*Trunk Roads.*

31. I am quite unable to agree in either the statements, or in the views in this section. The representation here given of the intentions and orders of Government in constituting the department of the superintendent of trunk roads, and of the instructions issued for the conduct of the department, appear to me rather a laboured perversion than a correct exposition of the facts of the case. Equally incorrect do I consider the statement,* more than once repeated in this section, that the department has been a "complete failure." The reverse can, I think, be proved. I am also of opinion that it can be shown that the orders and proceedings of Government, from 1845 to 1848, commented upon by the Commission, were practical and judicious.

* Para. 132, Section III.

32. For what were those orders, suggested in part, as the Commission observe, (para. 132), by Captain Best himself. The orders of Government, as I understand them, were to this effect: That one uniform system should be enforced in the Road Department; that to this end all trunk lines should be placed under one officer, not removable for other duty, thus securing individual responsibility and practical experience for the department, and constant attention to the state of the roads, providing thereby for their timely and perfect repair. That the lines should be constructed and the department enlarged gradually. That the lines and works were to be undertaken as the superintendent and his subordinates could properly supervise them, and consequently that he should confine himself and the department, in the first instance, to three great lines.

33. There does not seem to have been any difficulty on the part of the Honourable Court, in apprehending the views of the President, which are thus given in their despatch approving the scheme, and I am at a loss to understand why the Commission should have so mis-stated them.

Despatch dated 23 September, No. 38 of 1845.

"We approve of the suggestions for that purpose offered in your President's minute of the 21st of January last. Lord Tweeddale proposes that an experienced officer of engineers, with an assistant attached to him, should be entrusted with the control and management of the great trunk roads, and that the collectors and district engineers should have charge of the branch roads. His Lordship also proposes that a sufficient number of overseers for the constant superintendence of road repairs should be placed under the several engineer officers.

"The lines of road of chief importance are stated by the chief engineer to be the following:

"1st. The western road to Mysore to be completed, and provision made for keeping it in thorough and permanent repair.

"2d. The southern road to Trichinopoly, ditto.

"3d. The northern road, with the connecting line to Cuddapah and Bellary, thus opening up a more direct communication with those large fields of cotton and indigo."

* Captain Best named 15 years for the construction of the nine trunk lines.
† *See* para. 649, page 257.

34. Yet these orders for the gradual progress* of the trunk lines, and for placing the whole of the lines under one head and system, and for carrying them on under efficient and *bonâ fide* superintendence, are represented by the Commission,† first, as impracticable, inasmuch as they gave a charge of some hundreds of miles of road to one head, and so overwhelmed him with duty, overlooking the fact that if there was to be one uniform system, that there must be one head, and forgetting at the same time that it was proposed that time should be given for the work, and that the whole department was to be gradually extended and enlarged. Again, it is on the other hand alleged, that the instructions so limited and crippled the superintendent, that the department was rendered almost useless, its agency being confined to so few roads; forgetting

ting equally, that if the work in the department was to be thoroughly done, and experience acquired to warrant its enlargement, it must be by a gradual progress; and that this was the precise object of the orders of Government in limiting the superintendent's field of labours in the early stages of the department.

35. The course prescribed is, in my view, the proper course to be followed; and anything but unwise and impracticable. The Commissioners themselves, if they were called upon to lay down a system for the improvement of the harbours of this coast, as adverted to by them in para. 426 of their Report, would no doubt propose this identical course. Of commencing upon some one or two in the first instance, training assistants, and gaining experience, and so carrying on the work gradually; whilst they would probably, at the same time, propose that some one officer, best qualified for the task, should have the general charge of the whole.

36. I confess I am unable, therefore, to perceive either the justice or the force of their remarks throughout this section. They would, I think, apply to, and condemn, every large scheme intended to be carried to completion systematically and gradually.

37. But to advert now to the facts. The Commission themselves have fully admitted that, prior to the date of the appointment of the superintendent of roads, and of the formation of this separate department,—that is, so long as the roads were under the charge of the Board of Revenue, Department of Public Works, and of the Civil Engineers,—nothing had been done through a long series of years, and that at that time the whole country was without a good road in any direction. What are now the facts? Though the Road Department has been constituted but a few years, and it early lost the assistant engineer appointed to it, through illness, and some time back the superintendent, Captain Best; and although, necessarily, much time was at first given to the mere organisation of the department, yet these are, at this hour, the results, taken from the latest Report laid before the Government, dated 28 June 1853. *

* Appendix D.

38. In the seven years from 1 May 1846 to 30 April 1853, the estimates sanctioned by Government for this one class of roads amounted to Rupees 23 lacs, and upwards; † and the superintendent reports, that satisfactory progress has been made in all the works in hand under the department. He thus speaks (para. 6) of the condition of Trunk Road No. 1, the most important line, and the extracts show the great advantage of systematic attention, and of the experience gained by placing these most important works under a separate and independent charge.

See Superintendent's Report, para. 48.

† 23,33,809 rupees.

"Probably the best criterion of its improvement may be formed from the trifling extent of damage it sustained during the late very severe monsoon, compared with former years, as mentioned by Captain Best, in his general report of the department, to the 1st October 1848. The gradual improvement may be dated from the monsoon of 1846, during which no fewer than 11 bridges were destroyed; these having been substantially rebuilt, all the smaller tunnels and culverts carefully strengthened, others added to admit of the passage of water where necessary, and proper attention, as before stated, having been paid to the side slopes and drainage, I feel sanguine that, with the additional metal now being laid on, the present annual allowance of 39,178 rupees will be found sufficient to keep the surface of the road in good order for some years to come."

39. It will be further seen that the Government, notwithstanding the great difficulty experienced in finding qualified assistants, has lately strengthened the department. ‡

40. These statements, and the report throughout,§ entirely disprove, in my opinion, the reiterated assertion of the Commission, that the department has been a total "failure," as well as the prior assertion, that the Government have never recognised the value of roads. I cannot view these allegations but as a misapprehension

§ Appendix D.

‡ The superintendent thus gives the facts: "The establishment for European superintendence, which, on my first joining the department, consisted of one superintendent, three assistants, one assistant supervisor, and 14 assistant overseers, in all 19, has now been increased to one superintendent, five assistants, one second assistant, one assistant supervisor, 21 overseers; in all 29."—*Superintendent's Report, para. 52, Appendix D.*

prehension of the facts; and I should consider the abolition of the department, or any alteration, except to strengthen its executive, as calculated to retard, if not put a stop to, the effective progress now making in this branch of the Public Works. I will refer for a further statement of my views to the minute recorded in March 1852,* on the proposition then made by the Commission, to transfer this department to the existing Board of Revenue, even though they declare that Board "utterly unequal" to its actual duties; and although they were fully aware that, under it, nothing had ever been permanently done for the roads of this Presidency.

* *See* Appendix E.

Section IV.—*Military Board.*

41. I have very few remarks to offer upon this section. I have known, and I may add, have carefully observed the proceedings of the Military Board for several years past, and it has always appeared to me as peculiarly inefficient. The most ordinary and trifling matters take weeks for their disposal; and delay, with ineffective supervision, are, so far as I can form a judgment, the marked characteristics of this Board.

42. Its composition seems to me essentially defective. The official members, who have a voice on all questions equally with the stipendiary members, have other important duties. Those in the Board may be secondary in their estimation; they feel, therefore, that they are not responsible for the acts of the Board, nor does their public character depend in the least on the efficiency of the Board. On the other hand, the stipendiary members, not having the sole direction, they are not responsible; and in point of fact, the Government has not the power to fix responsibility upon any one; consequently it can neither stimulate to exertion nor secure an effective performance of duty.

43. This division of the Board into official and stipendiary members, leading also to continual changes, is, I believe, in itself a source of delay; independently of the fact, that the commandant of artillery, the senior member, resides of necessity at St. Thomas' Mount, and there is nothing in his former service which qualifies him to take the lead, nor any part in the despatch of nine-tenths of the business devolving upon the Board; and even the stipendiary members, unless they are officers who have been its secretaries, have ordinarily no special knowledge or qualification to fit them for the duties. I see no prospect of improvement in this department of the Public Works, but by the abolition of the Board, and by placing its several departments under officers conversant with the duties entrusted to them; upon whom actual and individual responsibility will rest, with whom the Government therefore can deal if the department is inefficient.

44. I should not consider it at all probable that any modified arrangements in detail, such as those suggested by the Commission, would effect anything of moment so long as the Board exists, or is constituted as at present.

45. I do not now, therefore, enter upon the consideration of these details, nor upon the statement made (para. 196) of the chief engineer's position and duties. It is manifest that the chief engineer can have no time for his special duties so long as he has more important duties in the Revenue Board, Department Public Works, and in the Military Board, confided to him. The sooner he is relieved from some of these multifarious duties, and they are entrusted to officers who can be made responsible for them, the better, I believe, for the public interests. But arrangements to this effect can only be made when the Military Board is abolished, which I should strongly advise at the earliest date. It is the more practicable at this moment, as only one stipendiary member is now in the Board.

Section V.—*Proposal for constituting a new Board of Public Works.*

46. We now come to perhaps the most important part of the Commissioners' Report: their view of the best means of remedying the defects which exist in the administration of the Department of Public Works. They propose a new and distinct Board, to consist of three members: two officers of engineers and one revenue officer, aided by the chief engineer, to have the charge and control of all Public Works throughout the Presidency.

47. I cannot concur in this proposal, and I am decidedly opposed to the formation of any new Board for Public Works. A Board at once puts an end to individual responsibility, which I look upon as essential to efficiency in this department. I am unable also to see any necessity for a Board. It is only

when

when large, or new untried projects are brought forward, that the sifting and the matured elaborate opinions, which are the results of the deliberations of a Board, can be needed. In the case of Public Works this is, I think, best obtained by a committee of engineer officers examining such projects on the spot. In all other cases, where there is nothing new or difficult—that is, in the great mass of the business of the department—an early decision and prompt disposal of the matter, without the delay which a Board is sure to interpose, is of more value than any little improvement of a plan, such as a Board sitting at the Presidency might suggest.

48. I am not also prepared to admit that an engineer officer or officers at the Presidency, who may not know the localities of works, are better judges of them, and of the expediency of their construction, than the local divisional officer, who has not only a perfect knowledge of all the circumstances of the district, but who must have the concurrence of the collector in his view of any project he may propose.

49. A Board will be found as heretofore, I should fear, a cumbrous and expensive machinery. It will not only create delays, but overload the Government—if there are to be three members, or even two, and a duly qualified secretary—with elaborate communications; whilst the subordinate officers will be burthened with additional correspondence and calls for information, as they will have to satisfy the various views of the several minds sitting at a Board. I should deprecate therefore the establishment of any such Board.

50. But in lieu of it, and of the present system, I would strongly advocate local superintendence and control, under a single responsible head. I would propose therefore to divide the Presidency into four divisions, or into any other more advisable number, and give to each a separate general superintendent, who should communicate immediately with the Government. He should not be a fixture at any one place, but move, when necessary, into any part of the division, and he should confer in person with the district officers under him, who should remain, as at present, in charge of two districts. The general superintendent should recommend important projects to Government, only after conference with the local officers and personal examination, certifying therefore from personal inquiry that they were sound in principle, and well and economically planned, and could be carried out without difficulty at the cost estimated.

51. It is the personal control and responsibility, under the immediate eye of Government, extended over not too large a charge, which will, I think, chiefly infuse vigour, and give efficiency to the department, and thus secure the due and early execution of works. Such superintendent would have an advantage which a Board never would possess. He would thoroughly know the wants and peculiarities of his division; and considering how diverse are the provinces of this Presidency, *e. g.*, Malabar, Tanjore, Ganjam, Bellary, this full local knowledge I look upon to be of the highest importance. Again, each division of the Presidency would, under this system, be equally well looked after and cared for, and the Government would know where to fix responsibility, and be able to apply a remedy if the Public Works in any district or division were neglected or ill executed. This system of divisional superintending engineers would also, I think, be found less expensive, and yet in my opinion be far more effective and conducive to the public interests than a Board.

52. I may further add, that I do not see why a collector in his own district is not as capable of judging of projects proposed for its improvement as the single revenue member of the proposed Board, who may really know little or nothing personally of the district. I should certainly prefer the opinion of the local officer, if he was one who had been any length of time in his district, to the judgment of the member of the Board. In whatever light therefore it is viewed, the Board proposed does not seem to be an advisable agency for the Public Works Department, but the contrary.

53. I think it also Utopian to expect and to propose a Board, on the ground that the two best men in the service will be always, and under all circumstances, selected for the Board. A Board opens the door for the employment of a second-rate man, with one superior man; and it is in the nature of things, therefore, that such second-rate man with interest, or a popular man, will find

entrance into the Board, and remain there, whatever might be the advantage to the public interests by his supersession.

Section VI.—*On Works of Irrigation.*

54. I agree to so great an extent with the Commission, as to the value and importance of such works in this Presidency, that it is not necessary for me to follow them into the details by which they seek to establish this point. It is almost sufficient to advert to the known facts, that the Carnatic with the Northern Circars, embracing a large portion of this Presidency, depend upon the annual fall of rain from the north-east monsoon; and that this monsoon is always variable and uncertain, often scanty, and not infrequently fails.

55. The advantage, therefore, it may even be said the duty, of providing supplies of water to meet the deficiency of this monsoon, from the never-failing south-west monsoon, can need no arguments; and I shall but add here the opinion I have already expressed in a minute on the projected Palar Anicut, in further support of the Commissioners' views: "I should have wished that, in lieu of this general statement, the Government had been furnished with well-ascertained data, that in years such as 1823–24, 1832–33, the seasons of our severest droughts, the Palar would have then supplied the tanks.

"It is in such seasons chiefly that these works are so invaluable, and repay the heaviest outlay; as they then preserve the lives of the agricultural labourers, and save the stock of a district."

56. Still, all-important as are works for irrigation, they have, I believe, if the interests of the producers or ryots are to be considered, their limit, unless they are executed gradually to admit of population increasing, and the demand for additional produce being thus augmented simultaneously with their execution. I think it would be an error to continue annually a very large expenditure upon new works of this description, when once the great object had been attained, of bringing such a breadth of land under certain irrigable culture, as shall secure the people against the famines consequent upon the failure of the north-east monsoon.

57. After this object has been secured the chief want of this Presidency is not so much, it appears to me, the execution of new extensive works of irrigation, such as the Commission urge, for the production of large additional quantities of grain, but roads and other facilities for the distribution of the produce of the land.

58. The low range of prices in all ordinary seasons shows that, at present, the supply is fully equal, and more than equal to the local demand; and in abundant years, the prices of grain fall so largely, that it is very doubtful if they are remunerative to the ryot, at the present rate of assessment upon his land.

59. I may adduce, as illustrating this point, the following statement, not selected, but taken from papers at this time in circulation. In the Government review of the North Arcot annual settlement, they observe, "In consequence of the increased extent of cultivation in so propitious a season, the price of grain underwent a great decline, as compared with the rates obtaining in the preceding year. The prices in the principal and subdivision were, respectively, 15 and 21 per cent. below those of Fusly 1260, 1850–51, and 31 and 39 per cent. below the commutation rates."

60. So again, the price of paddy the produce of irrigated land. That produce, which the Commission propose so largely to augment, is stated by the Board of Revenue, in their proceedings on the Bellary settlement, 1261 (at this time also under review), to have been gradually diminishing for years: "taking," they say (para. 3, Board's Proceedings, 10th July 1853, on the Bellary settlement), "the last 40 years in even periods of 10 years, the price of paddy has fallen gradually from 115 to 84 rupees the garce."

61. We here observe the steady reduction of price, and its great extent, largely enhancing, as the Board notice, the assessment upon the ryot, for his tax is a permanent money rent per acre, payable within the year, let prices be what they may. The Board thus state the case: "It is of great importance to be able to compare the prices at the time the settlement was made, with those now prevailing,

vailing, in order to judge how the assessment bears upon the ryot. It was supposed to be about 45 per cent. of the gross produce, when the settlement was made; but having been converted into a money payment, the prosperity of the ryots must always greatly depend on the price they can obtain for their produce, and the share virtually taken by Government will increase in proportion to the decrease in the price of grain. The average price of paddy during the first four years of the Company's Government was, it will be seen, as high as 152 rupees a garce; but the last two appear to have been years of great scarcity. During the next period of four years, the price of only one year (Fusly $\frac{1218}{1808}$) is given, when it was 104 rupees per garce. Taking the last 40 years in even periods of 10 years, the average price has been

				Rupees.	
From Fusly	1222	to Fusly	1231	- -	115 per garce.
„	1232	„	1241	- -	101 „
„	1242	„	1251	- -	103 „
„	1252	„	1261	- -	84 „
			or 1851		

Had the assessment remained unaltered, therefore, the average share of the produce taken by Government during the past 10 years would have been 61 per cent., assuming it to have been 45 per cent. when paddy was at 115 rupees per garce. But the general remissions of 25 per cent. and 33 per cent. made in 1820, were considered to have reduced the share of Government to 33 per cent., in accordance with what Colonel Munro, in his plan for a permanent ryotwar settlement, considered it ought to be, and the share of Government would now appear to have risen again, through the operation of low prices, to 46 per cent. of the gross produce, or about what it was previous to the general remissions." See also note as regards the district of Nellore.*

62. My

* Extract from the Proceedings of the Board of Revenue, dated 22 August 1853; reviewing the Annual Settlement of Nellore, 1851–52.

Para. 4. The prices of grain continue in a very depressed state. From the marginal statement given in para. 9 of the Collector's Report, it is seen that they are considerably below the average of the last 10 years, and less even than in the year immediately preceding, while, as compared with the commutation price, there is a falling off of 22½ per cent. in the price of paddy, and no less than 40 per cent. in that of dry grains.

Extract from a Report from D. White, Esq., Collector of Nellore, dated 18 February 1853, No. 17.

Para. 9. The grain market continued during the year under review, depressed as before. Compared with Fusly 1260, there was no improvement in the prices. On the contrary, the average rate for wet grains was less; that for dry produce being nearly on a par, but they were respectively 22½ and 40 per cent. below the commutation standard.

Fuslies.	Fine Paddy.	Coarse Paddy.	Jonnaloo.	Natcheny.	Varegaloo.	Prices.
	Rs. a. p.	*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*	*Rs. a. p.*	
1251 - - -	17 1 10	14 15 3	17 2 4	15 13 2	13 1 2	
1252 - - -	16 4 9	14 4 2	15 6 1	14 8 11	11 14 4	
1253 - - -	15 15 8	13 5 8	14 3 7	13 8 5	11 12 9	
1254 - - -	18 4 8	15 13 4	19 3 5	16 15 6	15 11 3	
1255 - - -	27 6 7	24 6 10	32 12 6	29 7 3	23 11 2	
1256 - - -	23 3 11	20 5 4	29 13 6	25 11 3	21 15 5	
1257 - - -	21 9 1	18 6 3	28 3 1	24 2 -	20 8 6	
1258 - - -	19 11 5	16 15 -	21 11 11	19 7 6	16 15 1	
1259 - - -	18 - 4	15 9 5	19 8 -	16 14 5	16 9 9	
1260 - - -	17 8 -	15 9 5	20 5 2	17 10 8	16 10 8	
Total - -	195 2 3	169 10 8	218 5 7	194 3 1	168 14 1	
Average - - -	19 8 2¾	16 15 5½	21 13 4¼	19 6 8½	16 14 2½	
Fusly 1261 - -	16 5 -	14 11 4	19 11 3	17 9 2	16 10 1	
Wet average - -	- - -	15 3 2	Dry average	- - -	17 15 6	
Commutation - -	- - -	20 - -	Commutation	- - -	30 - -	
Decrease - - -	- - -	4 7 10	Decrease -	- - -	12 - 6	
		22½ per cent.			40 per cent.	

62. My view, therefore, is, and I am not aware that it differs widely from that of the Commission, though in some passages in this section they would appear to controvert it, that to give new or additional works of irrigation, if at all extensive, their due value, they must be combined, with opening up, by roads, canals, &c., new and additional markets; and that, simultaneously with the execution of the works. That if this is not done, and there is no new market, but only the old local market, then such works must be carried on gradually, to allow of a population growing up to consume the large additional produce annually raised. Without this, prices must continue to fall, to the ruin of the ryots, or the Government must lower its rate of assessment. Or, to use the language of an authority quoted by the Commission, para. 281, "The decrease of price must be followed by a corresponding decrease in the commutation at which the assessment is rated, whereby both grower and consumer will be directly benefited, and the Government repaid by the extension of cultivation and the improved means of the people." This is no doubt true in the end; but it is not the view the Commission would seem to take; as they calculate on an increase of revenue at the present rates on the land, and do not apparently allow that there can be an excess of production beyond the remunerative demand. They appear to me to overlook the necessary consequence of raising within a limited period, large additional quantities of ordinary grain by means of an expenditure of Government capital; that if there is no co-incident extension of the market, the result of these works must be to diminish the money value of the produce of every acre previously under cultivation, and so to raise the assessment on the ryots generally.

63. The Commission would seem indeed to recognise this partially, in paras. 303, 304–307, as they there state, that "the intimate relation between the extent under cultivation and the (lower) range of price is very observable;" but they afterwards argue against the plain and obvious deduction from their own statement; and their views generally in this respect, and in this section, seem to me somewhat confused and contradictory, and I cannot fully subscribe to them.

64. I may adduce in support of the foregoing remarks, the following observations, already offered in the minute referred to in para. 53: "A glance at the map will, I think, show that the local demand for home consumption can never take off the enormous additional produce which the anicuts of the 'Godavery and the Kistna,' and I should add, that of the Palar, will bring almost immediately into existence. And without, therefore, some permanent extension of the market,* co-incident and corresponding with this instant or early extension of production, a great fall of price must in a short time ensue, if rice is chiefly raised. This fall may indeed enable Rajahmundry (especially as the ryot is there aided by grants of Tuccavey) and Masulipatam to export largely, and probably to under-sell the rice of Ganjam and Vizagapatam, where there is no such Government outlay on works of irrigation. But this may not so much benefit the state as raise, in time, one class of ryots at the expense of another." On this point the following statement will be found in a letter from the collector of Rajahmundry, enclosed in the Board's letter of 9th August 1853, just circulated.

* Not depending, as at present, on the large mass of well-paid labourers congregated on the works.

"I conceive that the export will go on increasing, because hitherto the trade has been vigorously carried on in competition with the ports of Vizagapatam and Ganjam,

---

This commutation rate was fixed, it will be seen from the following extract,† on an average of 55 per-centage of the gross produce, after deducting village fees. The present low range of price therefore raises the assessment very largely, *i. e.*, 75 per cent. on the dry grain lands, and 67 per cent. on the wet, and must be most oppressive, if not ruinous to the ryots. It is not easy to see what advantage would result, under these circumstances, from new works of irrigation, the additional supplies of produce still further lowering prices and ruinously enhancing the assessment if new markets are not created simultaneously, or the assessment lowered.

† Para. 243, Minute of Board of Revenue, 5 January 1818.

243. Having ascertained the average gross produce of each goontah of land, "from information obtained by the survey, as well as what is admitted by the inhabitants," Mr. Travers proceeded to assess it as follows: He first deducted from the gross produce six and a half per cent. for bandooloo, the admitted fees of the curnums, village artificers, servants, &c.; the remainder was then, in supposition, divided between Government and the ryot, in the proportion of 11 in 20, or 55 per cent., to the former, and nine in 20, or 45 per cent., to the latter, and the Government share of 11 in 20, or 55 per cent., was finally converted into money at the rate of seven Madras pagodas for dry grain, and five Madras pagodas for paddy per pooty.

Ganjam, where rice is produced at a very cheap rate, as the wages of labour are very low."—Para. 2, Collector's letter, 14th May 1853.

65. In further examining the section, I cannot also agree in the views contained in paras. 295, and I might add 296-7 and 301; they seem to me to a great extent unsound. And I am not aware of any facts to sanction the statement in para. 316.

66. I will only advert, in conclusion, to the opinion expressed in para. 320: the great importance of the introduction of some agricultural product, not a common article of food in the country. Upon this point I entertain a strong opinion. This Presidency cannot, I believe, make any great advance in wealth till its produce finds its way largely into, and commands the great European or foreign market. So long as it is limited to a home demand and local markets, the returns from the land will be small, and the people continue poor. But I much doubt if exportable produce of articles of a quality, and of a kind to compete with those of other tropical countries, can be, or will be largely raised, except by a modification of the assessment, by holding out, by that means, inducement to the ryot to produce for the foreign market, and enabling him also to do so by lessening the tax on his land. For if a crop of sugar-cane, for example, is not only liable, as at present, to the highest tax of a single crop, but to an additional tax, that of double crop lands, because it requires more water than a crop of rice, I doubt if this country can, under such a system of taxation, compete with the rich untaxed soils of the Mississippi or Brazil.

67. I will not pursue this subject, as it would lead to a long digression; but I will state my opinion briefly, that I consider the present rules for assessing the land, as laid down by the Honourable Court, to be often injurious; and that I believe it to be a fallacy, to view the land tax of this country as identical with rent in England. I will only observe, that in England the whole produce of the land is readily consumed in the home market; that there is no land there pure waste, to be had for asking; whilst in this Presidency there are tens of thousands of acres of as good soil waste, to be had by any applicant, as there is under the plough, and as near the market too; that it requires no more labour nor capital to raise additional crops when food is wanted, than on land previously under the plough; that when land is irrigated by Government works, large areas are at once made as fertile as the land previously irrigated; and neither has the Government nor the occupant expended more capital or labour on this additional area, to make it equally productive with the old land.

68. I do not see, therefore, the applicability of the theory of rent at the present hour to this Presidency; and I look upon the assessment upon the land at this time as essentially, with but limited exceptions, a tax, and not rent; that a high assessment does, therefore, now operate precisely as a heavy tax. It may shut out the produce of the land from all but the home market, as it so raises the cost of production, that it cannot compete with the products from other countries, or in distant markets; and I am strongly of opinion that some modification of the existing system of assessment is necessary, whenever the land tax forms a large element in the cost of production, to attain the object the Commission so strongly press, and in the importance of which I so fully agree with them.* Section

* The following Minute, recorded on the 12th January last, will further explain my views upon this point:

MINUTE.

Letter from the Board of Revenue, 9 December 1852, on the Survey and Revision of Assessment in South Arcot.

As this experimental survey and assessment will form the basis of a more general measure, it is of the first importance that sound principles should be laid down; I am induced therefore to call attention to what appears to me an error in these orders.

In para. 4 the Board direct "that such articles as require water for more than six months, as betel, sugar-cane, &c., should be declared liable to the assessment for two crops."

2. The principle here laid down is, to subject articles of produce, however essentially different in their character, and in the circumstances which confer value upon them,—that is, in their ability to bear a tax,—to one and the same rate of tax or assessment, and two products entirely dissimilar are put on the same level, though the one, betel, can bear the highest possible tax,—and even if overtaxed, it would be but little detriment to the country,—whilst the other, sugar-cane, if too heavily taxed, must cease to be grown, and the district will then be deprived of a most important source of wealth, at present a valuable article of export extensively produced.

Section VII.—*The Roads of the Presidency.*

69. The observations already made upon this head in Section II. render it unnecessary for me to do more than to state my entire concurrence with the Commission on the importance which they attach to good roads in every district of the Presidency. As I have before stated, roads, or facilities of communication, are the chief want of the present hour in this Presidency, whether the rail, or tramroad, or ordinary road, as the means of distributing the produce of the land, and of giving it, and the fruits of all productive industry, more extensive markets and an increased value.

70. The outlay of Government capital upon roads has one special advantage over other outlays; for, however large it may be, it interferes with no capital previously laid out; and it does not, like an expenditure upon works of irrigation, specially aid one particular class, and increase production without reference to demand; but the expenditure on roads benefits alike all interests and all classes; its only result is to give additional value to the products of all industry equally, and the largest outlay, if judiciously made, will certainly repay the State in the increased wealth of the people.

71. Upon the further question discussed in this section, whether the more or (as advocated by Captain Best) the less perfect road should be now constructed, it appears to me that each case must stand on its own merits; that it must depend upon the extent of traffic, the density of population, and whether the road will open up rich or poor tracts, and limited or extensive markets; and also upon the relative cost of the more perfect road. No one rule can, it seems to me, be laid down universally, and I should think it therefore an error to adopt one course, as the Commission appear to recommend,* and in all cases make the most perfect, that is, the most costly road.

* Para. 420.

72. I am not aware that I can add anything to the remarks of the Commission upon the harbours of this Presidency, para. 426. I only wish that it was in my power to bring home the conviction to the mind of others, as it rests on my own mind—as an eye-witness of so many wrecks, and of such deplorable loss of

---

3. If we take the two articles named by the Board, and apply to them the great first principle of all sound taxation, that the tax be imposed so as to check or interfere as little as possible with future production, we shall, I think, at once see how entirely the Board's orders in the case of South Arcot are opposed to this principle; betel is there an article of pure luxury; it is consumed individually in very small quantities, so that a high price but little affects its sale; it is so perishable and incapable of transport, that it is not open to the competition even of a neighbouring district, and is wholly an article for home consumption, and for the home market.

4. Sugar-cane, on the other hand, in South Arcot, is largely grown for the foreign market. It is exposed, therefore, in the market of Europe, to the competition of the whole world; and so far from being in daily demand, at almost any price, like betel, if the price is not kept low, so that the manufacturer can continue to manufacture with a profit, all demand for it must cease, and it will cease to be grown; or, if the tax or assessment is not so heavy as to produce this result, the extension of the cultivation may be most seriously impeded.

5. I should not agree, therefore, with the Board in placing these articles in the same category; though I am aware of the grounds upon which this is done, that land of like capability shall bear the same tax, whatever its produce. This will be correct and sound in the case of all ordinary grains for the home market,—that is, as regards seven-eighths of the land under the plough in this country,—but is a questionable rule, and I cannot but think likely to prove highly detrimental, when applied, as the Board here propose, to products like sugar-cane, grown for the supply of manufactories already established in the district.

6. I should, therefore, request the Board to modify their instructions, and in lieu of now fixing one and the same high rate for the betel-vine and sugar-cane, &c., to direct the collector carefully to ascertain whether sugar cane can easily bear this two crop rate of tax, and to authorise him, if he found that the two crop assessment would interfere with, or in any material degree check the growth and extension of the cane, to lower the rate to one crop. This measure of encouragement I should think just, both to the ryots and to the manufacturers who have sunk their capital in sugar-works; and I cannot doubt its subserving the interest of the district. It is of secondary importance, but I should see no objection also, at this date, now that the town and inland duty on betel have been abolished, greatly to increase the rates of assessment on betel-vine land, in accordance with the old native usages in this district, which seems to me sound in policy. I annex a memorandum, drawn up some years back by the head sheristadar of South Arcot, bearing on this point. The Board might be asked (if there is no objection), with a view to a reference hereafter to the Honourable Court, whether the rates on betel-vine land might not be increased, and a higher revenue drawn from an article so legitimately a source of revenue.

12 January 1853. (signed) *J. F. Thomas.*

of life in the storms at Madras—of the absolute necessity of a pier at the port, as noticed by the Commissioners, para. 448. If a return were made from the master attendant's office of the loss of life during the last five years, I do not think that there would be any hesitation in ordering the construction of a pile pier, such as that projected and proposed by Messrs. Mitchell & Son, patentees of the screw pile, at the cost of six lacs of rupees. I believe it possible that a boat might live in the sea, and carry aid, which could not by any effort cross the surf, and a pier running out beyond the surf line would then afford means of preservation for life and property which nothing else could.

73. There can be no question that a pier would at the same time confer a vast benefit on the trade of the place, and amply repay the cost of construction by tolls; whilst it must be remembered that Madras is the great mart and port of the Presidency, and will be still more exclusively so when the rail is completed. It seems to me that it may prove a short-sighted policy to promote the construction of a railroad to bring the commerce of the country to the beach, and then to have no better means of transport to the shipping than the rude Masulla boat. I should therefore urge the construction of a pier at Madras, whether by a guaranteed loan or out of the revenues, at the earliest possible date; and I regret that the Commission have not brought this work more prominently under consideration as one of the first—next to a railroad, the very first want of the Presidency.

Section VIII.—*Proposed Scheme of Expenditure on Works of Irrigation and Communication.*

74. Having stated my full concurrence in the views of this Government, as recorded in 1848, which the Commission here, in effect, merely reiterate or expand, I need not swell this paper by many remarks upon this section. The actual fact of the unimproved condition of far the greater part of this Presidency, the comparatively small amount of capital yet laid out on improvements of any kind, except in two or three districts, leave in my mind no room to doubt that the largest outlays on roads, canals, and similar works for communication, and for the general improvement of the country, will amply repay their cost; and I am satisfied that a large expenditure, as compared with past outlays, is absolutely necessary to develope the resources of the Presidency and to augment its finances, even though there should not be "a surplus revenue," as observed by the Government in 1848.

75. I hold the same opinion, to a great extent, as to expenditure upon works of irrigation; but the course to be pursued as respects them, when once the magnificent works of the Godavery and Kistnah, and the Palar are carried out, should, I think, be by a gradual improvement of existing works, as seen in Tinnevelly.

76. The Commission thus state the facts as regards that district under Captain Horsley's charge, and it will be seen, though they are probably exaggerated by the Commission, that the results obtained by his judicious plans are more important, and I believe more certain and at less annual cost for repairs, than the returns obtained from new works and projects: "We think we are fully justified in ascribing this large and progressive increase in the revenue to the improvement of the works of irrigation, since it is spread over far too long a term to be attributable to a series of good seasons, and we have already remarked that the last 15 years contain two decidedly bad seasons; we have then an increase of outlay to the amount of 3,23,419 rupees, producing a direct return in revenue of 19,74,830 rupees, or about six for one, besides an addition of 30 lacs to the income of the people.

"We have already observed, that by far the greater part of the gain in Tinnevelly was obtained by the efficient repair of existing works, and a very large part of it by rendering supplies of water comparatively certain, which before were precarious. This is a most important species of improvement." Paras. 241, 243.

77. Under these views, I would not push outlays on new irrigation works to an unlimited extent, nor require such outlays to be annually large specified sums;

neither would I limit the expenditure, unless it was to secure for the local Government the power to disburse a given per-centage of the revenue upon public works.

78. What is required, in my opinion, is, authority for the local Government, not to expend large specified sums, but authority to lay out any amount upon well-considered and well-sifted plans and projects, without reference to immediate returns; that they should be permitted, therefore, to sanction upon their own responsibility, all projects which they can carry out with the means at their command. The means this Government possesses of executing even the necessary public works must for some time be limited, and if, therefore, only ordinary care and consideration are exercised in sanctioning the projects submitted to them, there can be no doubt that the annual outlay will not be very large, and that it will be long before even the necessary works are all completed.

79. I am not aware, therefore, that anything can be gained by specifying the sums to be expended, as the Commission have done, unless it is also clearly shown that these sums can be now laid out judiciously and economically, and that there will be no fruitless schemes nor waste, like the large expenditure some years back on the abortive breakwater at Madras, and upon the Red-hill railroad, or like that upon the roads under the civil engineers, which were never completed nor duly repaired. Of these works nothing remains at the present hour except enough to warn the Government not to pursue a similar course, nor to entertain similar crude projects.

Sections IX. and X.—*On providing Officers for the Public Works Department.*

80. The subject in Section IX. having been considered in paras. 15–21 of this minute, I confine myself to a brief remark on the statement in para. 529, which I think erroneous.

81. The civil engineer for each collectorate proposed by the Marquis of Tweeddale, was a well-qualified executive engineer, trained as a civil engineer in England or in America, in the practical part of the profession; and it is an error to assume, as the Commission would seem to do (para. 541, &c.), that his place could be supplied by a junior officer of the Engineer corps. This proposal of the Commission will not secure the permanent employment of an officer in one district. The civil district engineers, such as they propose, may be called away at any time to other duties, and the works of the district put into new hands, whilst the native subordinate agency will continually have new masters; nor can they be instructed or properly trained by an officer of engineers, himself without real practical skill and knowledge. This is not the view of the Marquis of Tweeddale, and the objects he deemed necessary will never be attained by the proposed arrangement. The same view is expressed by an experienced officer of engineers, quoted by the Commission, Appendix I., page XLIII. Major H. C. Cotton thus states the results of his experience.*

82. This leads immediately to the consideration of the views of the Commission in paras. 569, &c., Section X, in which they pronounce against the introduction

---

* Extract from Report, page XLIII. Appendix.

Then an efficient corps of European Civil Engineers, as a permanent arm of Government, should be established,† and the native portion, of which alone I intend to treat in this letter, would be formed into one of the most suitable and useful branches of the public service.

† Not a corps whose services are dependent upon the external relations of the country, as those of a military corps must be, but one exclusively set apart for works of civil engineering; a corps of covenanted servants educated before leaving England as civil engineers, and quite distinct from military corps. This corps might be formed at first by volunteers from the English corps, and a few practical and experienced civil engineers from England. There could not be a better time than the present for drafting officers from the engineer corps for the purpose, because nearly all the first lieutenants being brevet captains, it is evident that the younger branches who would be promoted to supply vacancies are fully qualified for it by time of service and experience, and the military corps would rather be improved than injured by it. It would not be necessary to set aside the service of the military engineer officers in the time of peace; employment would be found for them in the extended improvements for which peace would afford opportunity, and to which, during peace, the attention of Government would more especially be called.

duction of purely civil engineers, and advocate the strengthening of the existing corps, a military arm, as the most expedient course for improving the Public Works Department.

83. Unless there is a political object in keeping up a large corps of military engineers, I should not agree with the Commission; such a corps is necessarily formed of men who as youths may be good draughtsmen or mathematicians, and of superior scientific attainments, but they may all on entering the corps be entirely without practical knowledge of any art, and may never have the opportunity of acquiring it under competent instructors. This is of little consequence in a military engineer, but all-important in the purely civil engineer's duties in this country, where contractors and foremen well skilled in all details of execution are not to be found. The proposal of the Commission, if carried out, will exclude from the Government service the superior practical intelligent civil engineer, for he would be restricted to the lower grades, and placed under a junior military engineer; consequently there would never be seen in the Department of Public Works in this country that class of engineers which has done more for Europe than any other class, the men who have raised themselves through all the grades of workman, foreman, mechanic, to the highest post of civil engineers. I should regret to see a system adopted in this country which would effectually shut out all such men, and all superior intelligence combined with practical skill and scientific acquirement, and keep the Department of Public Works as inefficient as at present in the requisite practical knowledge, as well as solely a seniority corps, as other military corps in this country.

84. How far this want of knowledge as civil engineers might be obviated in part by a college, like Roorkee, as the Commission propose, experience can only determine. I must be permitted to question if first-rate civil engineering skill will be attained, and retained in the Government service, unless the advantages of promotion and of rank are provided, so that the civil engineer shall not always be subordinate to military juniors. I should therefore, notwithstanding he institution of a college, advocate the introduction into the Public Works Department of men from all departments, or wherever they might be found with the requisite qualifications of civil engineers, and advance such men, as Lord Tweeddale proposes, to the higher posts and duties in the civil department.

Section XI.

85. The Commission in this section give an analysis of their Report, and sum up their recommendations. I propose to follow the same course, and to state in a few words upon each separate head, my agreement or disagreement with them.

Section II.—Present Condition and Defects of the Department of Public Works.

86. I agree with them entirely in considering the present system most defective, that the Revenue Board Department of Public Works, the controlling authority, is wholly unequal to the duties of the department, and that it should be abolished.

87. I agree also in the opinion that the civil engineers in the provinces are too few, and consequently unequal to the duties, and that their number should be increased, and the department generally strengthened also in all its subordinate branches; but with this proviso, that the additional strength and efficiency will best be found in attaching well-trained civil engineers permanently to each collectorate, and not by appointing the junior officers of the engineer corps to the charge of a district.

Section III.—Trunk Road Department.

88. I dissent altogether from the views the Commission here set forth on the Road Department, whilst the records and facts disprove, in my opinion, their statement. I look upon their recommendation that the separate Trunk Road Department should be abolished, as calculated to be highly detrimental to the public interests, until all the trunk roads of the Presidency have been completed.

Section IV.—The Military Board.

89. I consider the views of the Commission on this branch of their inquiry to be superficial, and that the root of the existing evils is left untouched, that their suggestions are in consequence of little practical value; the true and only remedy being the abolition of the Board and the transfer of their duties, in regard to public works, into the hands of officers with individual responsibility.

Section V.—The New Board.

90. I differ wholly with the Commission in this recommendation, as it will perpetuate the existing evils—delay and imperfect supervision. A Board will, I think, be a cumbrous and expensive machinery, but is above all objectionable, as it excludes individual responsibility. In lieu of a new Board I would advocate the division of the Presidency into four divisions, each with a general superintendent, as far more effective, as he would have full personal knowledge, and exercise actual personal supervision over the officers and the department in his division, and be himself individually responsible.

Sections VI. and VII.—Works of Irrigation and Communication.

91. I agree in the value and importance the Commission attach to the execution of such works, especially of roads, canals, and facilities for internal communication, so to create new markets, and to give increased value to the products of all industry. I should modify in part the views expressed by the Commission as to the vast additional revenue to be obtained from new works of irrigation, and consider it advisable, with the exception of the works on the Godavery and the Kistnah, that irrigation works should be carried out gradually; whilst I would push forward immediately to the utmost extent railroads, roads, canals, piers, improvement of the harbours, and all means for facilitating the external and internal commerce of the Presidency.

Section VIII.—The Expenditure on Public Works and the Extent of the Agency.

92. I do not see the use of specifying any particular sums to be annually laid out on public works, and so far I differ from the Commission. But I most fully concur with them that a large expenditure, even if there is no surplus revenue and the funds must be borrowed, on roads and other works for internal communication, and on works of irrigation to a large extent, is most necessary and advisable. This expenditure to be incurred on the responsibility and at the discretion of the local Government.

Sections IX. and X.—On the proper Means of enlarging the Establishment for Public Works and providing duly qualified Officers.

93. I should fully agree with the opinion given, that the Civil Engineer Department should be greatly enlarged in all its grades; but I should not agree in the opinion, that an addition exclusively to the corps of engineers, a military corps, is the best means of strengthening the department. I would introduce for civil engineer's duties, well-trained civil engineers, and raise them to high positions as the best, if not the only means of perfecting the department. I agree in considering a college similar to Roorkee as most desirable, but not in itself sufficient to place the department upon the most effective footing.

94. I may close these notes with the observation, that I think much credit to be due to the Commissioners for the ample and detailed review of all branches of the Department of Public Works, presented in their Report, and for the ability with which they have discussed the numerous important questions examined by them. I regret that the Report should have been drawn out to so great a length, and that it should be disfigured by an exaggeration not creditable to the members of the Commission, and by mis-statement and by a misrepresentation of the views and proceedings of Government. For they could scarcely be ignorant of the main causes which have compelled the local Governmen in past years to withhold expenditure from valuable improvements, the prohibition

prohibition by superior authority against all disbursements not absolutely necessary, and by the impossibility of finding agency to superintend important works. These facts were patent before them on the records, as will be seen in the Appendix (A.) annexed.

95. I trust, however, that large and extensive improvements will ere long be sanctioned, and that the Public Works Department of this Presidency will receive that attention from the controlling authorities which its great importance demands; and that there will be no prohibition, and no limit even prescribed by them to the largest expenditure upon well-considered projects, in all branches of the department. Unless experience shall show that the expenditure sanctioned by the local Government has afforded no adequate return, and has not been followed by a corresponding improvement of the finances, and of the general condition of the country.

23 August 1853. *J. F. Thomas.*

APPENDIX.

Appendix (A.)

1. HAVING referred in my minute of the 12th April last, to the letter to the Government of India from this Government, dated 3d January 1848, as in itself a complete refutation of the misrepresentations of the Commission, I deem it right to annex that letter in full, with a few of the passages from the Report to which I object. I consider it unnecessary to enter into particular cases; this has been sufficiently done in the Honourable Mr. Eliott's minute.

2. I also annex the following letters from the Government of India, of 1846, 1850, 1851, which will further demonstrate the error into which the Commission have fallen, in ascribing to this Government a systematic neglect of the Public Works. The course pursued by the Government of late years, it will be seen, has been forced upon them by the supreme authority, under the pressure of financial difficulties.

LETTERS from the GOVERNMENT OF INDIA.

EXTRACT from a Letter from the Secretary to the Government of India, dated 30 October 1846.

5. THE special attention of the Most Noble the Governor in Council is requested to the observations contained in paras. 111 to 114 and para. 329 of the Honourable Court's despatch, in which the Court desire that no important measure, tending either to diminish the public resources or to augment the public expenditure, shall be carried out without their previous concurrence, except under circumstances of clear and urgent necessity, and that the Governments in India shall co-operate in strenuous efforts to effect every practicable improvement of the resources, and the reduction of every expense that can be effected without detriment to the public service.

18. Concurring in the views of the Honourable Court, that it is most incumbent on the Government of India to spare no exertion to bring the public expenses down to the level with the public income, the Honourable the President in Council would urge upon the Most Noble the Governor in Council the absolute necessity which exists for the adoption of the utmost economy in all branches of the administration. It may be that no effectual relief can be afforded but by a large diminution of military expenditure and the exercise of rigid economy in those branches of civil expenditure on which the well-being of the people and the general improvement of the country mainly depend, cannot be contemplated without pain and regret; yet still, it will be a duty to control expenditure of every kind till the time shall arrive when a more favourable posture of the Indian finances will enable the Government to indulge more liberally in those great measures of public utility which are so much required for the moral and physical advancement of India.

No. 1740, dated 6th December 1850.

To the Secretary to the Government of Fort St. George.

Sir,

I AM directed by the Honourable the President in Council to transmit to you, for the information and guidance of the Right Honourable the Governor in Council, the annexed copies of paras. 3 and 4 of a despatch from the Honourable the Court of Directors, No. 39

of 1850, dated the 9th October; and, with reference to the instructions therein conveyed, to impress on you the absolute necessity of enforcing every possible economy in the management of the public resources.

I have, &c.
(signed) *J. Dorin*,
Secretary to the Government of India.

Fort William, 6 December 1850.

Letter from, dated 7 November 1850, No. 7.

EXTRACT from a Despatch from the Honourable the Court of Directors, addressed to the Government of India in the Financial Department, No. 39 of 1850, dated the 9th October.

Forward Reports on the Tabular Statements of increase and decrease of charge on account of salaries and establishments submitted in the months of November and December 1848, and January and February 1849.

3. WHILE we are not unmindful of the fact that a portion of this augmentation represents additional establishments which have been required for the purpose of developing the receipts from opium, salt, and other branches of revenue, and that against that portion may therefore fairly be placed the increase gained by means thereof to the income of the State, yet, in the present position of your finances, we must remind you, not only of the importance of closely watching all augmentation of expenditure, but of the indispensable duty of adopting effectual measures for the equalisation of income and charge. To this most essential object we must, therefore, direct your immediate and unremitting attention, and it is very important that the same consideration should be impressed forcibly upon the attention of the subordinate governments.

4. You will not fail to give us information of the progress that is made from time to time in the reduction of your expenditure, and we hope to learn that the prospect may be confidently entertained of its equalisation with your revenues at no distant period.

(A true copy.)
(signed) *J. Dorin*,
Secretary to the Government of India.

No. 50.—Home Department.

From *G. A. Bushby*, Esq., Secretary to the Government of India, to *J. F. Thomas*, Esq., Chief Secretary to the Government of Fort St. George, dated the 17th January 1846.

Sir,

I AM directed to acknowledge the receipt of your letter, No. 287, dated the 16th ultimo, submitting, with the recommendation of the Most Noble the Governor in Council in favour of the measure, a survey and sketch plan of a proposed canal, to connect the Ellatoor Backwater with the Calicut River, in the province of Malabar, a distance of six miles, at an estimated cost of *Rs.* 16,202. 2. 6.

2. In reply, I am desired to state, that the President in Council regrets being obliged to discourage useful works of this nature, but he is of opinion, that it will be advisable for the present to suspend any outlay for purposes, however advantageous, which can be postponed without detriment.

3. The original enclosures of your letter are returned.

I have, &c.
(signed) *G. A. Bushby*,
Secretary to the Government of India.

Fort William, 17 January 1846.

No. 367.

EXTRACT from the Proceedings of the Honourable the President of the Council of India in Council, in the Financial Department, under date the 14th March 1851.

READ a communication from the Home Department, No. 512, dated the 20th December last, forwarding for consideration and orders, a despatch from the Government of Fort St. George, No. 1150, dated the 7th idem, with enclosures, soliciting sanction to the expenditure of *Rs.* 31,475. 15. 11. for the construction of an annicut or dam across the Cheyaur River, and for the excavation of a channel, to supply water from it to certain tanks in the Trivatoor and Wandivash talooks of the district of North Arcot.

Resolution.—The President in Council is of opinion, that in the present position of the Indian finances, the consideration of the question of constructing works on the Cheyaur River had better be postponed.

* * *

Secretary to Government.

These letters are but a few of several of like character.

OBJECTIONABLE Statements of the Commission.

Para. 225. * * * * "Hitherto, indeed, though the ruling authorities have admitted, in general terms, the importance of promoting improvements, yet the view practically acted on has been, that all expenditure is an evil, and that it is the duty of the controlling authorities to check it, with but little reference to the valuable return to be obtained. But if this view is abandoned, and if it comes to be cordially recognised that such improvements are desirable, &c."

Para. 462. * * * * "The splendid instances which we have quoted are only exceptional; the general tone of feeling in the Government is still narrow; there is still the same confined view of the field of operations; still the same feeling clearly apparent, though not avowed, that every outlay is an evil, no matter what and how great is the benefit to be so secured; still there is the narrowest and strictest economy in refusing trifling outgoings from the Treasury, combined with the same practical disbelief as of old, in those general truths which point to the sure means of vastly augmenting the income."

Para. 713. "With respect to the value of the property which will be under the charge of the road establishments, if we take the money value of the works of communication now existing, it will be found to be extremely small; simply because the vast importance of roads has been hitherto so lamentably overlooked by our Government. But we earnestly trust that the time has at last come when their value is more justly appreciated."

These statements, it will be seen from the following letters, are wholly without foundation.

LETTER to the Government of India, 3d January 1848.

No. 3.

To *J. Dorin*, Esq., Secretary to the Government of India.

Sir,—Para. 1. Adverting to the observations of the Honourable Court on the military charges of this Presidency, referred to in paras. 12 and 13 of your letter, No. 1739, dated 30th October 1846, I am directed to forward copy of a letter* on the subject from the military auditor-general, together with the statements which accompanied it; and also two statements prepared in the Military Department of the Government Secretariat.

*Dated 10 May 1847. Abstract Memorandum.

2. From these statements it appears, that taking the whole military charges of this Presidency, including the commissariat, from 1836-37 to 1845-46, and deducting charges involving increased expenditure on account of augmentations ordered by the Honourable Court of Directors, or by the Government of India, as well as extra charges on account of the employment of Madras troops in the other Presidencies, over which the Madras Government have of course had no control whatever; there has been, during this period, an increase, originating with the Government of Fort St. George, amounting to *Rs.* 12,393. 8. 6. and a decrease, also originating with the Government of Fort St. George, amounting to *Rs.* 16,62,220. 9. 6.

Military charges. Ditto, ditto, Commissariat charges.

3. As far therefore as the Government of Fort St. George is properly responsible, the military accounts from 1836 to 1846 show a decrease of expenditure of very nearly 16½ lacks of rupees, instead of the large increase attributed to it in the Honourable Court's financial despatch of the 19th August, No. 22, of 1846.

4. The Government would also observe, with reference to the Court's observations (in paras. 217 to 220 of their despatch) upon the increase of expenditure in the Post Office Department, that it must be borne in mind, that there has been in recent years a very large increase of public and private correspondence, and that the usefulness of this department has been greatly extended.

Post Office.

5. It will be seen from the three memorandums accompanying, that the Post Office is now the instrument for distributing a correspondence, far greater in proportion to the expenditure than at any former period; and that, although from the absence of sufficient data, the actual proportion cannot be stated, there is no room to doubt that the State has derived more than a compensating advantage from the additional outlay.

6. The letters of all descriptions posted during the year 1845-46 are estimated as follows: sent

Through the General Post Office - - -	11,10,985
Through the Provincial Post Offices - -	25,05,032
Through the Talook Tappals - - -	6,26,567

7. Whereas, so recently as 1838-39, through the Talook Tappals none were sent,

Through the General Post Office, the actual number was -	4,69,269
And through the Provincial Post Offices - - -	9,42,662
TOTAL - - -	14,11,931

or 14 lacks, 11,000 in 1838-39; against a total of 42 lacks, 42,000 in 1845-46. An augmentation of treble the former extent of correspondence within a period of eight years, or less than one-half of that to which the Honourable Court's remarks apply.

8. It is not therefore, the Government believe, too much to say that whilst the charge of the Post Office Department, as shown by the Honourable Court, including in it the loss of surplus revenue, has not been doubled from 1823–24, the service rendered has been at the lowest estimate quadrupled. In other words, that in 1823–24, one fourth or but one fifth of the present amount of correspondence was then distributed, at a charge equal to one half of the existing expense. The Government will continue to watch over this item of charge and revenue, but it appears to them one that must be always viewed rather with reference to its general public advantage and its indirect benefits, than financially, as a source of direct revenue, and they regard the extension of its usefulness as a matter of much importance, such as to merit some slight sacrifice of revenue.

Land Revenue.

9. In the 223d, 224th, and 225th paragraphs of their despatch, the Honourable Court direct attention to the decline of the land revenue of this Presidency, and observe that in their despatch of 30th August 1837, they instructed this Government "to institute inquiries with a view of ascertaining the causes which operated to produce so serious a falling off in the receipts." Prior to the receipt of the communication from the Government of India forwarding the foregoing despatch from the Honourable Court, this Government which had in view the examination of the state of the land revenue in each province, had, at the requisition of the President, called upon the several collectors to furnish a statement of land revenue collections for the 30 years from 1815 to 1845. These returns have been received from all the districts but North Arcot.

10. It will be seen from them that it would be an error to assume, as the Honourable Court's remark* would appear to imply, that the land revenue has been declining for a series of years throughout this Presidency, and that there was cause therefore for alarm, as regards this vital and all-important source of its financial prosperity.

11. Instead of a decline, there has been in the larger number, and those the most important districts of the Presidency, an advancing and in others a stationary land revenue within the last 30 years. This is apparent in the returns from the following districts:
Canara, Malabar, Madura, Tanjore, Tinnevelly, South Arcot, Vizagapatam.

These returns show an increasing land revenue, as seen in the annexed statement.

Fusl.es.	Canara.			Malabar.			Tanjore.			Tinnevelly.			Madura.			South Arcot.			Vizagapatam.		
	Rs.	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*
1225	15,95,350	3	9	15,51,499	2	4	33,51,552	2	10	Not given			14,95,948	11	3	18,39,492	12	–	—		
1226	15,99,649	11	7	17,12,346	13	5	33,85,047	4	7	14,42,028	10	6	14,55,848	15	9	18,38,883	15	4	11,81,297	5	–
1227	15,96,838	13	2	16,85,461	9	4	32,60,685	6	–	15,11,522	5	11	14,48,680	11	–	18,79,443	9	9	11,80,971	3	3
1228	15,43,895	12	7	16,81,928	10	6	31,02,204	4	5	14,47,685	12	3	14,69,802	–	9	18,68,120	15	5	11,79,220	9	3
1229	15,74,983	15	7	17,43,161	10	2	31,06,399	1	10	14,99,992	10	9	14,42,809	7	5	18,65,224	15	10	11,79,998	3	–
1230	15,87,489	12	11	16,79,782	4	–	31,71,171	4	2	15,97,457	2	5	14,26,022	7	10	18,68,628	7	7	11,81,014	–	–
1231	15,97,953	5	2	17,47,208	3	10	30,69,278	6	2	15,80,802	2	1	14,51,379	6	11	17,93,957	–	7	11,80,741	10	6
1232	16,10,301	11	3	16,38,817	9	1	32,95,158	7	11	17,41,925	11	5	15,77,915	12	7	20,43,835	13	3	11,80,923	3	0
1233	16,04,889	–	3	16,08,916	9	11	41,41,249	14	3	16,50,059	5	6	13,92,375	4	5	14,96,561	12	3	11,81,741	10	1
1234	16,07,483	4	7	17,43,539	–	6	49,68,109	6	8	16,08,753	2	10	16,02,831	5	4	18,36,111	1	8	11,81,933	10	9
1235	15,85,640	–	4	16,47,917	11	5	35,59,050	3	9	16,41,032	4	4	16,33,930	3	11	20,07,025	13	2	11,82,365	13	2
1236	15,69,219	10	10	15,88,820	12	8	30,04,392	11	5	15,47,624	2	4	16,75,494	15	7	20,78,085	3	11	11,81,966	9	2
1237	15,84,977	–	9	15,60,063	–	7	28,07,213	5	11	13,91,325	10	11	15,81,005	10	5	18,41,317	12	6	11,48,549	1	9
1238	15,83,141	12	2	15,91,505	9	7	36,88,329	12	1	14,91,952	9	1	15,18,918	10	8	17,85,555	7	3	11,23,152	–	8
1239	15,49,924	15	10	15,98,979	5	2	33,21,667	15	3	14,42,018	5	2	15,17,323	–	6	18,67,084	4	–	11,78,531	2	4
1240	13,55,431	4	6	13,56,502	14	8	33,85,862	13	4	14,03,158	2	4	15,81,910	10	9	18,88,962	5	2	11,68,434	15	2
1241	15,18,295	8	11	14,23,331	–	10	34,91,758	–	6	10,25,348	4	5	14,21,167	10	4	16,81,327	10	8	11,73,311	11	5
1242	15,16,882	3	2	17,77,060	15	6	37,76,763	3	–	13,55,161	13	9	15,36,964	2	4	13,03,957	9	2	11,61,795	15	3
1243	15,73,829	3	5	16,07,564	–	10	38,86,613	7	7	15,81,507	12	8	15,95,607	2	6	16,15,152	3	7	12,43,824	3	–
1244	15,56,278	4	8	16,16,310	1	4	36,26,853	3	4	16,29,690	11	5	16,28,861	12	7	19,79,017	10	6	12,34,294	7	11
1245	16,70,820	1	10	16,33,345	9	5	34,39,847	5	10	15,88,171	8	10	17,47,460	9	–	19,74,357	13	3	12,38,099	–	3
1246	16,83,336	13	6	16,11,322	9	10	36,57,072	13	11	16,38,008	10	–	14,60,852	10	8	18,88,376	–	2	11,98,250	–	7
1247	16,96,273	9	9	16,10,757	4	1	36,89,451	15	2	18,38,049	–	2	16,30,349	14	10	20,29,824	–	5	12,39,971	13	4
1248	17,01,628	5	8	16,34,134	2	5	37,88,353	14	3	18,05,289	2	–	17,33,95[illegible]	–	2	21,35,894	15	10	11,67,664	–	9
1249	17,13,908	13	9	16,32,510	15	–	38,02,851	14	7	19,23,382	13	11	17,77,834	5	5	23,57,054	1	10	12,49,643	14	7
1250	17,25,789	14	–	16,37,004	7	7	36,15,899	10	5	17,37,373	15	3	17,37,822	6	–	23,13,609	6	5	12,12,197	3	10
1251	17,33,775	2	–	16,56,539	3	4	33,86,138	8	8	16,38,398	1	8	18,13,618	12	1	20,87,925	12	–	12,55,618	9	4
1252	17,37,038	12	1	16,40,301	6	9	36,06,231	–	2	15,94,595	10	10	17,91,259	7	7	18,56,840	13	10	12,35,526	3	7
1253	17,43,909	15	4	16,28,673	3	1	37,51,749	13	3	16,85,533	9	4	17,66,937	12	1	19,83,143	8	1	12,04,914	11	2
1254	17,48,672	12	4	16,40,080	14	3	38,07,717	6	–	17,79,430	1	7	17,11,756	8	1	19,45,981	10	8	11,61,032	9	8
1255	17,34,308	–	7	Not given			42,17,698	3	6	19,80,581	7	4	17,41,619	7	3	Not given			9,72,571	7	6

Years.	*Rs.*	*a.*	*p.*
1815 - -	15,95,350	3	9
1820 - -	15,58,982	12	11
1825 - -	15,85,640	–	4
1830 - -	13,55,431	4	6
1835 - -	16,70,820	1	10
1840 - -	17,25,789	14	–
1845 - -	17,34,308	–	7

12. When the revenue in any particular year in these districts is much below the ordinary amount realised, and affects the Court's average, it will be found that it is owing entirely to extraneous causes, and not indicative of any decay of the sources of wealth. Thus the average of the series taken by the Honourable Court from 1829 to 1834 in Canara, is affected by the receipts of the year 1830–31 falling to 13 lacs. This was caused solely by the insurrection in the year 1830, and had nothing whatever to do with the capability of Canara, to afford its quota of revenue. Upon the whole, the revenue of Canara has been steadily advancing throughout the entire period examined

* Para. 232. "We now come to the important heads of 'Land Revenue' at Madras, the declension in which for so long a period has occasioned us much anxiety."
Extract from a letter from the Honourable the Court of Directors addressed to the Government of India in the Financial Department, under date the 19th August, No. 22, of 1846.

examined by the Court, after deducting the revenue* arising from the annexation of a portion of Coorg to the collectorate.

*About 70,000 rupees.

13. In the following districts the revenue has been stationary, or nearly so.

Fuslies.	Salem.			Coimbatore.			Nellore.		
	Rs.	*a.*	*p.*	*Rs.*	*a.*	*p.*	*Rs.*	*a.*	*p.*
1225 - - - -	18,05,633	15	10	20,62,609	11	8	13,50,697	10	6
1230 - - - -	17,49,225	4	2	21,28,110	1	8	12,76,924	2	10
1235 - - - -	17,86,814	3	7	22,99,054	7	6	11,98,647	1	10
1240 - - - -	17,11,348	10	5	22,55,355	2	7	12,81,531	–	3
1245 - - - -	16,38,957	7	5	20,76,305	1	1	13,11,991	–	2
1250 - - - -	17,61,621	10	1	20,20,757	10	3	12,51,951	13	8
1254 - - - -	17,15,238	15	10	22,17,962	10	9	12,91,523	11	2

14. It is also to be borne in mind that subsequent to the date on which the Honourable Court have commenced their comparison,* the rents in some districts have been reduced by the orders of Government, on the express ground that the revenue drawn, which forms the basis of the Court's first series of averages, was beyond the capabilities of the province, and was itself one cause, and an important one, of the following decline.

*viz. 1815.

15. Thus in Bellary and Cuddapah the Government in 1821 reduced the land revenue 25 per cent. at once, on the recommendation of Sir Thomas Munro, upon the acknowledged ground that the land revenue taken was too high. This consideration greatly affects the conclusion to which the Honourable Court have arrived, and goes to show that no just inference could be drawn as respects these and other districts† similarly circumstanced, by commencing with the average in the Court's despatch.

16. The actual decrease of land revenue noticed by the Court will be found, therefore, this Government believe, greatly below the amount stated by the Honourable Court, viz., 40 lacs, and the positive diminution of revenue to have been caused chiefly and almost entirely by the severe droughts and famine, which afflicted part of the Northern Circars, and extended partially to other districts in 1831-32, 1832-33, and which involving in its consequence an enormous destruction of stock and agricultural capital, those districts could not rapidly recover. There was also a previous low state of prices, induced, it is probable, by the increase of lands under cultivation for ordinary grains.

17. The augmented collections and the more flourishing state of the revenue of later years, reducing, as the Honourable Court observe, the diminution from 40 to 8 lacs from the standard assumed of 1815-16, is to be ascribed almost entirely to more propitious seasons; and neither has the falling off nor the augmentation been, in the opinion of this Government, influenced in any great degree by any other cause. Prices of grain, at one time extremely low, have rallied, and if in addition to the relief afforded by the abolition of the transit duties the land is applied more largely to the raising of cotton, sugar, and other articles for a foreign market, they will not, it is expected, very greatly fall.‡

18. From these observations the Government of India will gather that this Government do not view the subject in the same light as the Honourable Court have done, and the detailed statements forwarded will, they trust, bear out the opinion they hold, that the financial resources of this Presidency are in as healthy and sound a condition, and perhaps more so, than they have been at any period in the 30 years reviewed by the Honourable Court.

19. The point to which this Government would desire to attract the attention of the Supreme Government is, that the returns submitted show an almost stationary or very slowly advancing land revenue during the last 30 years. This may be deemed unsatisfactory, considering the general security and the peace which has prevailed in Southern India

† Extract from Remarks of Acting Collector on Statement of Land Revenue in the District of Chingleput.

"The defects inherent in both the renting and amany systems led to a decline in the revenues, which did not recover their former height, until the survey field assessment was finally introduced into all the Government villages in fuslies 1248 and 1249."

‡ Extract from a Letter from the Honourable the Court of Directors, addressed to the Government of India in the Financial Department, under date the 19th August, No. 22, of 1846.

"Para. 224. From the above view, it appears that the greatest decline occurred in the five years from 1829-30 to 1833-34, which was in the alarming rate of between 30 and 40 lacs per annum, as compared with the preceding 15 years. In the five years from 1834-35 to 1838-39, there was an amelioration of 13 lacs per annum, as compared with the five years immediately preceding; and in the last five years from 1839-40 to 1843-44, there was a further amelioration of 13 lacs per annum. The present deficiency is, therefore, reduced in amount to 8 lacs per annum, as compared with the sum realised from land 30 years ago."

India for years past. It is no doubt in a great measure to be ascribed to the peculiar circumstances of this Presidency, which labours under the disadvantage of the want of navigable rivers, and of roads, and means of interior communication. These deficiencies cramp and even preclude a development of its sources of prosperity, and forbid the increase of the revenue. They limit the products of the soil to the common grains and other articles for home consumption alone; and whatever natural capability there may be for raising cotton, sugar, &c., or other raw produce for the British market, this Presidency is in a great degree disabled by these disadvantages from competing with other countries in the markets of Europe.

20. The remedy is plain, and is in the hands of the controlling authorities themselves. They have only to sanction and provide efficiently for the early construction of good and permanent communications from the inland districts to the coasts, and throughout the country, and to encourage the influx of European skill and capital, applied to the improvement of the indigenous cotton or sugar cane, &c., or to the raising a foreign and better species, by judicious and well-considered leases, to *bonâ fide* capitalists on favourable terms, similar to that granted to Messrs. Arbuthnot & Co. in Vizagapatam, and to Mr. Hudson in Malabar, and by perfecting the works of irrigation on the Godavery, and constructing similar ones on the Kistnah, inducing at the same time the influx of British capital and its outlay in such projects as the Arcot Railway, which would indicate a desire on the part of the Government for improvement, and the Presidency will prosper. By these means, which would not require a very large annual outlay, for the progress of the works must be gradual, the country will at an early date advance steadily, if not rapidly, and it is not easy to understand why measures of this nature, involving comparatively so small an annual expenditure, should be postponed.

21. The Government of India, in closing their letter, state their concurrence in the views expressed by the Honourable Court, and urge upon this Government the duty "of sparing no exertion to bring the public expenses down to the level with the public income, and the absolute necessity which exists for the adoption of the utmost economy in all branches of the Administration."*

22. The returns now submitted will, the Government hope, go far to remove the impression entertained, and it will be perhaps recognized that the views as quoted above have been founded upon an erroneous estimate of the expenditure and resources of this Presidency by the Government of India.

23. First, as regards the military expenditure. If from the excess of expenditure in the six years, 1837–38 to 1842–43, assumed by them at nearly 30 lacs per annum, the amount of military disbursement not properly chargeable on this Government, as shown in the return from the Military Auditor-General, and from the statements prepared in the Military Department of this office, be deducted, it will be manifest that instead of alleged increase there has been, so far as the Government of Fort St. George is concerned, a decrease in military charges of not less than 16½ lacs within the last 10 years, from 1836 to 1846, and that the *bonâ fide* military expenditure of this Presidency at this date, 1846–47, is not larger than in 1836.

24. Adverting to the facts, that the land revenue is still increasing rather than diminishing, and that a large saving has been lately made in the civil charges, by the abolition of the provincial courts and of principal collectors, the Government of Fort St. George see no sufficient foundation for the further statement that Madras must be "dependent on external means for support." And whilst this Government would counsel a wise economy in all branches, it is of opinion that a considerable outlay of its revenues at this time on internal improvements, even if there were no surplus would prove in the end a more sound policy and more beneficial to the finances than any other course, and they would deprecate the view of its financial state taken by the Honourable Court and by the Government of India, chiefly from the apprehension that it might lead to restrictions greatly calculated to retard its general and its financial prosperity.†

25. The Board of Revenue have been called upon for information, and for a report on the subject reviewed in para. 246 of the Honourable Court's letter, and on its receipt it will be duly forwarded to the Government of India, but the Government have not thought it

---

* Extract from a Letter from the Honourable the Court of Directors, addressed to the Government of India, in the Financial Department, under date the 19th August, No. 22, of 1846.

"Para. 265. It is impossible to regard the financial condition of Madras as at all satisfactory while it remains in this state; and as we do not apprehend that the resources, after deducting the transit duties, will average 480 lacs per annum prospectively, we consider that it should be the object of Government to keep the total charges, including interest, &c., within a standard of 430 lacs, an amount which was but little exceeded in the year 1837–38."

† Extract from a Letter from the Honourable the Court of Directors, addressed to the Government of India, in the Financial Department, under date the 19th August, No. 22, of 1846.

"Whenever the local surplus, therefore, falls below this sum, you may feel assured that Madras is dependent on external means for support."

it necessary to delay on that account, submitting the returns in the Military Department and the foregoing observations with the detailed returns of land revenue for the last 30 years.

(signed) *J. F. Thomas,*
Chief Secretary.

Fort St. George, 3 January 1848.

Appendix (B.)

	DISTRICTS.	Wet Cultivation. Under Tanks and Nullahs. Extent of Land in Acres.	TOTAL CULTIVATION. Extent of Land in Acres.
1	Guntoor	21,408	7,19,004
2	Nellore	99,522	3,79,462
3	Bellary	90,690	18,95,717
4	Cuddapah	87,006	12,89,073
5	North Arcot	1,54,883	4,13,638
6	Chingleput	1,73,022	2,41,914
7	South Arcot	1,92,572	6,92,321
8	Salem	51,384	7,11,886
9	Tanjore	6,79,299	8,89,885
10	Trichinopoly	1,26,831	4,26,235
11	Madura	96,558	4,91,126
12	Tinnevelly	1,66,565	7,63,987
13	Coimbatore	67,761	14,23,429
14	Kurnool	6,973	4,53,156
15	Ganjam	68,203	*1,12,308
16	Vizagapatam	12,044	*23,106
17	Rajahmundry	1,31,024	4,15,232
18	Masulipatam	38,562	*1,66,721
	TOTAL	22,64,307	1,15,08,200

* These, and other districts with low figures, are in a great part of the zemindary where the ryots do not hold directly of the Government, and the only lands entered in this statement are those paying rents directly to the Government officers.

Appendix (C.)

No. 318.—P. W. D.

EXTRACT from the Minutes of Consultation, dated 8 December 1846.

READ the following Minute. No. 18.

By the Most Noble the President.

(Here enter 25 August 1846, No. 266.)

Para. 1. The Government entirely concur in the views and in the opinions expressed by the Most Noble the President in the Minute recorded above, and think that the suggestions offered for increasing the efficiency of the Department of Public Works in all its branches are well calculated to insure the object contemplated. No. 19.

2. The principal features of the arrangements comprehended in the Minute are the following:—

Firstly. That the Department of Public Works shall not form, as at present, a subordinate branch of the duties of the Revenue Board, but be constituted a distinct and separate department.

Secondly. That an engineer officer shall be selected, to be one of the two stipendiary members of the Military Board, and shall be nominated to a seat in, and become the working and responsible head of the Board of Public Works.

Thirdly. That the chief engineer will, nevertheless, continue to be an *ex-officio* member of the Board of Public Works, to assist in the discussion of all important questions.

Fourthly. That to each collectorate shall be attached an executive Maramut engineer, who should undertake, on behalf of the collector, and under his orders, all the outlays now made in the Department of Public Works.

3. The

3. The subsidiary arrangements do not require particular notice in this place; and if the general principles declared in the Minute of the President are approved by the Honourable Court, these arrangements can be carried out without difficulty. The only point for observation is the expense; and as it is proposed that the Maramut engineers shall receive in some districts 100, and in others 150 rupees each per mensem, the annual charge on this account will be but 28,200 rupees, besides tent allowance, and probably a small establishment for each.

9 at 150 Rs. 1,350
10 at 100 „ 1,000
Per mensem 2,350
Per annum 28,200

4. Considering that the bulk of the public revenue, and the development of the resources of the country are greatly, if not wholly, dependent on the efficiency of the works of irrigation, and that the system in force for the control and management of this department, generally, is now very defective, as constantly noticed in the correspondence of the Board of Revenue in the Department of Public Works,* the Government are of opinion that the additional expense is a secondary consideration, and agree with his Lordship that "it would be saved, not in the diminution of the outlay upon the Public Works, but in the threefold usefulness derived from them, and in the means of insuring that the large outlays annually made should not, as at present, be too often thrown away."

*See Memorandum annexed.

5. With these observations, the Government resolve to submit the views of the Most Noble the President, and the arrangements proposed in his Lordship's Minute, for the favourable consideration and orders of the Honourable Court of Directors.

The following Minutes by the members of Council, written since the foregoing resolutions were prepared, are ordered to be recorded and brought to the notice of the Honourable Court of Directors.

Minute by the Honourable Mr. Chamier (here enter 26 October 1846, No. 337).

Minute by the Honourable Mr. Dickinson (here enter 6 November 1846, No. 338).

Minute by the Most Noble the President (here enter 21 November 1846, No. 339).

Memorandum.

1.
This is a correspondence with the Honourable Court of Directors on the inefficient working of the Board of Public Works.

To the Court of Directors,	R.,	No.	40,	26 September	1844	-
Ditto,	„	„	46,	26 October	„	(p. 9)
Ditto,	P. W.		12,	16 December	„	- -
From Ditto,	Rev.		12,	29 May	1845	-

2.
In these papers there are observations of Government on the defective system of the Board of Public Works.

Public Works Cons.,	3 December	1844,	Nos.	11 & 12	-	-
Ditto,	3 „	„	„	17 & 18	-	-
Ditto,	15 April	1845,	„	1 & 2	-	-
Ditto,	5 September	„	„	24 & 25	-	-
Ditto,	23 „	„	„	5 & 6	-	-
Ditto,	6 January	1846,	„	5 & 6	-	-
Ditto,	7 April	„	„	13 & 14	-	-

3.
In these papers are notices of delay, extra or unauthorised expenditure, works badly executed, or unsatisfactory explanation.

Public Works Cons.,	2 January	1844,	Nos.	6 & 7	-	-
Ditto,	30 „	„	„	4 & 5	-	-
Ditto,	13 February	„	„	1 & 2	-	-
Ditto,	12 March	„	„	1 to 5	-	-
Ditto,	12 April	„	„	3 & 4	-	-
Ditto,	16 „	„	„	1 to 3	-	-
Ditto,	7 May	„	„	1 & 2	-	-
Ditto,	25 „	„	„	1 to 4	-	-
Ditto,	25 „	„	„	5 & 6	-	-
Ditto,	11 June	„	„	7, 8, 15, 16		-
Ditto,	18 „	„	„	1 to 6	-	-
Ditto,	30 July	„	„	3 & 4	-	-
Ditto,	3 September	„	„	15	-	-
Ditto,	17 „	„	„	1 & 2	-	-
Ditto,	3 December	„	„	19 & 20	-	-
Ditto,	7 February	1845,	„	2 & 3	-	-
Ditto,	7 „	„	„	17 & 18	-	-
Ditto,	25 „	„	„	1 & 2	-	-
Ditto,	15 April	„	„	12 & 13	-	-
Ditto,	6 May	„	„	2 & 3	-	-
Ditto,	1 July	„	„		-	-
Ditto,	23 September	„	„	5 & 6	-	-
Ditto,	7 October	„	„		-	-
Ditto,	11 November	„	„	11 & 12	-	-
Ditto,	25 „	„	„	10 & 11	-	-
Ditto,	10 March	1846,	„	13 & 14	-	-
Ditto,	23 June	„	„	3 & 4	-	-

Appendix (D.)

General Report of the Road Department, to the 1st May 1853.

1. The nature of the country chosen for the several trunk roads has so frequently been remarked upon in the late Captain Best's reports to Government, that I purpose in speaking of each line in succession, commencing with the western trunk road, No. 1, to detail merely what works were in progress at the time of my assuming charge of the department, those for which estimates have since been sanctioned, the progress made in the same, noticing the large masonry works only, the extent of traffic, and adding some few particulars regarding the increased establishment, which has been found necessary as the operations of the department have been extended.

"No. 1. Trunk Road."

2. Lieutenant Forlong, of the 1st Regiment Native Infantry, the officer in charge of No. 1 trunk road, was engaged in superintending the annual repairs on an estimate of *Rs.* 39,178. 11. from the Presidency to Vaniembaddy in the 125th mile, and in order to avoid passing through the crowded bazaar street of that town in the alteration of the line on an estimate of *Rs.* 6,383. 14. from the 125th mile, to join the old road to Bangalore again beyond the Neycoondy river in the 129th mile.

3. Throughout the 125 miles, commencing from the Supreme Court limits, at the Female Asylum in the 4th mile from the Fort (measured from the Wallajah bridge) the average thickness of metal on the road in the month of March 1852 was 3¾ inches, and the greatest thickness in any part of it, and that for a distance of 10 miles only, between the 73d and 83d miles, was 5¼ inches, proving, as stated by Captain Best in his general Report to the 1st May 1851 (in which he observes, that in 24⅝ miles the crust was 6 inches thick, and more in 7¼ miles), that the quantity of material worn off the road, exceeded the quantity replaced.

4. It was evident, therefore, that the annual allowance, which during the last five years had been increased from *Rs.* 15,610. 10. to *Rs.* 22,775. 12., and again to *Rs.* 39,178. 11. was still insufficient to keep the surface in repair in the then rapidly deteriorating state of the road; and I consequently took an early opportunity of submitting to Government an estimate of *Rs.* 1,16,543. 3., being a revision by Lieutenant Forlong, of one which had been prepared by Captain Best, for placing on it a thickness of six consolidated inches of metal throughout.

5. This estimate received the sanction of Government on the 1st June 1852, and the work commenced by Lieutenant Forlong has since been most actively carried on under the superintendence of Lieutenant Chauncy of the 39th Regiment Native Infantry, who was appointed to succeed that officer on his being ordered to join his regiment on foreign service in Burmah. The expenditure up to the present time has been about 94,000 rupees: those portions of the road which have been completed are now in perfect order, and much attention having been given to the side slopes and drainage, the condition of the road generally is greatly improved.

6. Probably the best criterion of its improvement may be formed from the trifling extent of damage it sustained during the late very severe monsoon, compared with former years, as mentioned by Captain Best in his general report of the department, to the 1st October 1848. The gradual improvement may be dated from the monsoon of 1846, during which no fewer than 11 bridges were destroyed; these having been substantially rebuilt, all the smaller tunnels and culverts carefully strengthened, others added to admit of the passage of water where necessary, and proper attention, as before stated, having been paid to the side slopes and drainage, I feel sanguine, that with the additional metal now being laid on, the present annual allowance of *Rs.* 39,178. 11. will be found sufficient to keep the surface of the road in good order for some years to come.

7. On the 23d October 1852, an estimate of *Rs.* 45,009. 12. 6. was sanctioned for improvements from Vaniembaddy to the Mysore frontier beyond Oossoor in the 193d mile, which provides for bridging and tunnelling the numerous rivers and streams, in all 51, which cross the line in this distance, and an effective establishment for superintendence having been organised the works are now progressing rapidly. The expenditure up to the present time has been about 21,000 rupees.

The principal bridges to be constructed on this portion of the line are:—

The Neycoondy of - - - - -	4	arches of	8 yards span.
The Kullaur - - - - - -	1	„ of	16 ditto.
The Natrapilly - - - - -	3	„ of	10 ditto.
The Burgoor Malapady - - - -	3	„ of	10 ditto.
The Condacoopum - - - - -	3	„ of	5 ditto.
And Cooroobahully - - - - -	3	„ of	16 ditto.

8. In addition to the above estimates, two of trifling amounts have been sanctioned, one of *Rs.* 959. 10. for improving the road over the Begunhully tank bund in the 193d mile, and another

another of *Rs.* 424. 9., for strengthening the Cooum river bank in the 5th mile; the former work has been completed under the superintendence of the Collector of Salem, and the latter is to be undertaken by the civil engineer of the 4th division.

9. A sum of 3,100 rupees was sanctioned on the 23d August 1852 for the formation of direct bandy tracks from 13 of the principal quarries to the main line, between the Presidency and Cauveripauk, which will be of much importance, as at present the road operations are not only frequently stopped during the rains, but the price of stone and gravel is materially increased, by the bandies having to follow long winding tracks to avoid crossing deep channels, or patches of cultivated land. The surveys of these quarry tracks have been completed, and the formation of them commenced.

10. The road now comprises six divisions, averaging 31½ miles in extent, each being under the charge of an assistant overseer. These divisions are again subdivided into districts of six miles, in which, in addition to the head coolies, are employed, according to the amount of work, pygusts and cart conicopolies, other conicopolies are placed in charge of the quarries, and the duties of the department maistries extend over a certain number of districts, to superintend, under the orders of the overseers, either the road or masonry works, or both, according to their qualifications.

11. As new estimates received sanction, Lieutenant Chauncy's charge became so extensive, comprising, as stated in my report for December 1852, 189 miles of trunk road, No. 1, 65 miles of No. 10; the number of masonry works to be constructed between Vaniembaddy and the Mysore frontier, the formation of quarry tracks, and the charge of the several quarries, which require frequent inspection, that I was induced to solicit the sanction of Government to my entertaining an intelligent assistant to travel about with, and relieve him from some portion of his work. For this purpose, Mr. Addis, who had gained considerable experience in road making in the Coimbatore district, and who was otherwise well qualified for the duties, was appointed to the department, and is now employed under the directions of Lieutenant Chauncy.

"No. 2 Trunk Road."

12. Overseer Graham of the sappers was engaged as now, in superintending the construction of the Feringypett bridge of one 15 yard arch, and the annual repairs from Fraserpett, *viâ* the Sumpajee ghaut to Mangalore, a distance of 105 miles, and reports great improvements to have been effected. The repairs of the branch road from Oopinungady to Pootoor, 7½ miles, have been superintended by the department of the Collector of Canara, and an allowance of 200 rupees for its annual repair was sanctioned on the 23d November 1852. The only additional estimate which has been sanctioned on this road is one of *Rs.* 1,455. 1. for a bridge over the Huntiaur nullah of one 6 yard arch.

"No. 3 Trunk Road."

13. The operations on this line, on an estimate of 1,150 rupees for maintenance, from the north-western frontier of Mysore, *viâ* the Munzerabad ghaut to Buntwall, a distance of 46 miles, as well as the construction of bridges in Canara, between the foot of the ghaut and Oopinungady, on an estimate of 9,827 rupees, have been conducted under the orders of the Board of Revenue in the Department of Public Works.

On the former estimate, bills have lately been submitted to Government, amounting to *Rs.* 1,317. 5., for the years 1849, 1850, 1851; and on the latter, an expenditure to the extent of 9,753 rupees is proposed to be debited to the road funds, as explained in my letter, No. 207, dated 4th May 1853.

The construction of the bridge of one arch of 49 feet span, at a new site over the Conchicar Coottle stream near Buntwall, is to be delayed until the completion of the Feringypett bridge, in which will be tested the value of laterite stones as a building material for arches.

14. The additional estimates which have been sanctioned are:

Rs. 2,506. 15. 4. for making a new line of road at Buntwall from Mangalore, between the 15th and 18th miles.

Rs. 798. 12. 6. for constructing a bridge of one arch of 8 yards' span across a jungle stream at Buntwall, and

Rs. 13,589. 13. 7. for the construction of bridges in the Canara District, the particulars of which have not been furnished to this office.

"No. 4 Trunk Road."

15. Lieutenant Francis, of the 12th Regiment Native Infantry, who was engaged in the construction of the road from the Mysore frontier, *viâ* the Periambaddy ghaut to Cannanore, a distance of 68 miles, was, on the works being nearly completed, removed to the southern trunk road, No. 8, leaving assistant overseer Church, of the sappers, in charge, to carry on the annual repairs on an estimate of 3,400 rupees sanctioned in Minutes of Consultation, No. 238, dated 2 December 1850.

16. The only additional estimate which has been sanctioned on this line, is one of *Rs.* 1,398. 5. for rebuilding the Oorettee Todu bridge, of three arches of eight yards' span, near the foot of

of the ghaut; the cause of the failure of the original structure was explained to Government in my letter, No. 576, dated 14th December 1852. The expenditure during the year has been—
6,008 rupees, and the assistant overseer reports very favourably on the state of the ghaut and road generally.

"No. 5 Trunk Road."

17. Lieutenant Chauncy now in charge of the western roads, Nos. 1 and 10, was engaged in superintending the repairs between Waliaur and Ponany, 70 miles, in the annual repairs of the same. In the construction of the road from Coimbatore to Waliaur, 16 miles, in placing additional metal on the same. In improvements between Waliaur and Ponany, and in building the Nuragumpillay bridge of five arches, 13 yards' span, and Parlakadow bridge of 10 arches of 15 yards' span, both of which have been completed, the former at a cost of *Rs.* 6,518. 4.; for the latter the bill has not yet been received.

18. The rebuilding of the bridge of 26 arches of 47½ feet span of the Cauvery river at Bowany, on an estimate of *Rs.* 48,789. 11. has been completed under the orders of the civil engineer of the fifth division, but no bills yet received by this department, and the repairs between Perindoray and Bowany, 12 miles, have been carried on by the civil engineer of the seventh division.

19. The additional estimates which have been sanctioned are:
Rs. 4,830. 14. for repairs between Coimbatore and Avanashy, 12 miles.
Rs. 5,204. 5. for additional metal and masonry works between the same.
Rs. 1,566. 3. for repairs from Coimbatore towards Carumthumputty, 4½ miles.
Rs. 1,370. 12. for annual repairs between Coimbatore and Waliaur, 16 miles.
Rs. 13,066. 10. 4. for construction of the road between Paulghaut and Menjara, 12½ miles.
Rs. 4,781. 10. 9. for building a bridge of three arches of 10 yards' span, over the Wotapollum stream, in lieu of an old timber one which had gone to decay, and
Rs. 2,218. 14. 9. for repairs to the Chinna Nowkurray bridge, and Muddakaray road dam.

20. These works are being conducted by the departments of the Collector of Coimbatore, and civil engineer of the seventh division; and in consequence of a representation made by the latter officer regarding the want of some assistance in superintendence from the road department, overseer Downes of the Sappers was ordered, in March last, to proceed to Coimbatore for employment on Trunk Road No. 5, in the limits of that district.

"No. 6 Trunk Road."

21. The works in progress on this road from the Presidency to the Bengal frontier were, annual repairs between Itchapoor and the frontier, 54 miles; repairs between the same, and the construction of a bridge of nine arches of 10 yards' span, over the Bimlipatam river, which has nearly been completed under the superintendence of Lieutenant Rundall, of the Engineers.
The repairs between Goomidipoondy and Ulloor, 102 miles; annual repairs between the same, and construction of the road between Madaveram and Goomidipoondy, 19 miles, under that of Assistant-supervisor Arnold of the Sappers.

22. The additional estimates sanctioned are:
Rs. 703. 4. 2. for repairs between Senkaram and Aukapilly, 12 miles.
Rs. 1,408. 1. 3. for repairs between Senkaram and Soobarum, 12 miles.
Rs. 3,688. 3. 9. for building a bridge of three arches of 10 yards' span, at the approach to the Bimlipatam river bridge.
Rs. 3,413. 7. 7. for repairs between Yellamanchelly and Cassimcottah, 12 miles.
Rs. 23. 171. –. 5. for repairs from Yellamanchelly to Toonee, 25½ miles.
Rs. 21,135, for the construction of two bridges, each of 10 arches of 10 yards' span, over the Aukapilly and Toonee rivers.
Rs. 3,600, salary of an officer, at 150 rupees per mensem, for two years.
Rs. 3,210 for annual repairs from Toonee to Soobarum, 53½ miles.
Rs. 781. –. 3. for repairs in the Guntoor district.
Rs. 952. 14. for construction of the road between Yerukenjairy and Madaveram, 3 miles.
Rs. 2,974 for annual repairs between Yerukenjairy and Goomidipoondy, 22 miles.
Rs. 59,268. 5. 9. for alterations and improvements between the 47th and 79th miles.
Rs. 6,310. 8. 8. for repairing the damage done in October 1852, from the fifth to the 28th miles, and
Rs. 28,753. 7. for repairing the damage done in November and December 1852, between Tada and Nellore.

In addition to the bridges before named, the following are to be constructed:

The Pamla Kalva - - - -	of 5 arches of 10 yards' span.
Mamadi Kalva - - - -	of 5 arches of 12 ditto.
Kalingee Nuddy - - - -	of 7 arches of 10 ditto,

and two head sluices, one of one vent of two yards' span to the Ootoo Calva, a channel from the Kunlair river, and the other of six vents of 1½ yards' span in the bund of the Woojelly tank.

23. The first nine of these estimates were prepared by Lieutenant Rundall, and the works on them will be superintended by that officer, in communication with this department, assisted by Lieutenant Magrath, of the 21st Regiment Native Infantry, who arrived in the Vizagapatam district on the 23d April last; those on the last five estimates will be conducted by Ensign Marshall, of the 12th Regiment Native Infantry, who joined the department on the 10th October 1852. Assistant Supervisor Arnold, who has been in charge of the line as far as Nellore for the last five years, was obliged shortly after being relieved, to proceed to the Neilgherry Hills on medical certificate.

24. The inundations of the rivers Corteliaur, Ponairy, and Pennaur and their channels, with the overflowing and bursting of several of the large tanks to the west of the line, again caused a great amount of damage during the last two monsoons. Nor will repairs be of any avail until the river and tank embankments are carefully strengthened, and the supply of water to the river channels properly regulated by head sluices, as represented in my Report for January last.

25. From Yerukenjairy to the Corteliaur river, a distance of 12 miles, the road has been completed, its surface metalled, all the smaller streams crossing it tunnelled, and a bridge of five arches each of eight yards' span, built over the surplus channel from the Red-hill tank, a bridge of nine arches each, of 12 yards' span, is in course of construction across the Ponairy river, and a small one of three arches, of 12 yards' span, has nearly been completed in the 20th mile. By the end of the year, the metalling, excepting over those portions where the embankments where breached during the last monsoon, will be completed as far as Goomidipoondy, 22 miles.

"No. 7 Trunk Road."

26. On this road, which branches off to Hyderabad from No. 6, a little north of Ongole, no estimates for work have yet been submitted.

"No. 8 Trunk Road."

27. Captain Heathorn, of the 3d Regiment Native Infantry, who was in charge of the southern Trunk Road No. 8, from the Presidency to Trichinopoly, was obliged shortly after my joining the department, to proceed to sea on medical certificate. On the 26th April 1852, Lieutenant Tireman, of the 4th Regiment Native Infantry, was appointed to succeed him, and on the 29th October 1852, Lieutenant Francis was directed to take charge of the line from Vickravandy to the Oopaur river, near Semiaveram, a distance of 95 miles, Lieutenant Tireman's charge extending from Palaveram to Vickravandy, 80½ miles, and thence to the lower Coleroon anicut, 62½ miles on Trunk Road No. 9, on which latter, beyond the marking out and the preparation of materials for the Wallajah and Vuddavaur bridges, no work had been commenced.

28. On No. 8. The works in progress under Lieutenant Tireman's superintendence were:
Completing the construction of the road from Chingleput to Vickravandy, 53 miles, and from Vickravandy to Oolundoorpett, 30 miles.
The annual repairs between Palaveram and Vickravandy, 80½ miles.
The construction of a causeway across the Oopaur river, near Semiaveram, which has been completed at a cost of *Rs.* 5,401. –. 7.; of a bridge of 5 arches, of 10 yards' span, over the Chinnaur river, of which the abutments and piers were built before the last monsoon; and the annual repairs and metalling of the road from Vickravandy to Oolundoorpett. These last three works have now been placed under Lieutenant Francis, and the Chinnaur bridge, which was nearly completed, having unfortunately been destroyed by an unexpected fresh in the month of March, before the centerings had been removed, has to be rebuilt.

29. The works under Major Lawford, civil engineer of the 6th division, were:
The construction of the road between the Coleroon and Cauvery rivers, 2½ miles, and from the Coleroon river to Semiaveram, 5½ miles.
The construction of a bridge of 32 arches of 15 yards' span, over the Cauvery river, near Trichinopoly.
Of a bridge of 38 arches of 20 yards' span, over the Coleroon river, near Trichinopoly.
And the annual repairs between Semiaveram and Trichinopoly, 8½ miles.

30. The estimates since sanctioned are:
Rs. 42,099. 5. 9. for the reconstruction of 22 arches of the Coleroon bridge.
Rs. 1,937 for annual repairs between Semiaveram and Trichinopoly, 8½ miles.
Rs. 378. 11. for embanking the Oopaur, near Semiaveram.
Rs. 47,667. –. 6. for the construction of the road between Oolundoorpett and the Vellaur river, 29 miles; and of
Rs. 57,263. 10. 4. from the Vellaur to Semiaveram, 36 miles.
Rs. 31,709. 12. for a causeway across the Paular river, near Chingleput, and
Rs. 25,000, for repairs between Moosree and the Salem boundary of these works; the three first have been conducted under the orders of Major Lawford; the two second are in progress under the superintendence of Lieutenant Francis, the sixth under that of Lieutenant Tireman, and the last is to be carried on under the directions of the civil engineer of the 5th divisn

31. The

31. The rebuilding of the Coleroon bridge has been completed, but the bills not yet furnished to this department. The embankments and formation of the line generally from Oolundoorpett to the Oopaur river, are progressing rapidly under Lieutenant Francis, and by the end of the present year, the greater number of the smaller masonry works, with the abutments and piers of the larger bridges, will be completed. The principal bridges on this portion of the line are:

The Yeringee	8	arches of 10	yards' span.
Chepaukum	7	„ of 10	ditto.
Oorungoor	1	„ of 7	ditto.
Vapoor	1	„ of 8	ditto.
Chinnaur	5	„ of 10	ditto.
Jungle stream	1	„ of 5	ditto.
Ditto	1	„ of 6	ditto.
Agarum	1	„ of 12	ditto.
Jungle stream	1	„ of 5	ditto.
Ditto	1	„ of 6	ditto.
Ootatoor	1	„ of 12	ditto.

and the Vickravandy bridge, of five arches of eight yards' span, particulars regarding the destruction of which, during the last monsoon, were submitted to Government in my letter, No. 189, dated 21 April 1853, has to be rebuilt.

"Trunk Road No. 9,"

32. Which branches from No. 8 in the 94th mile, near Vickravandy, follows a direction nearly due south, and crossing over the Vellaur and Coleroon rivers at the sites of their anicuts, is continued on to Combaconum, a distance of 75½ miles, where it joins the high road from Trichinopoly, to the coast road from Negapatam to the Presidency.

33. The construction of a bridge of 19 arches of 31 feet span, over the Vellaur anicut, under the superintendence of Captain Heathorn, was completed previous to my joining the department, and Major Lawford is about to submit a plan, which, in connexion with other improvements to the Coleroon anicut, will provide for bridging it. Of the Vellaur Bridge, four of the arches at the north end fell in March last, the portion of the anicut under them having been destroyed during the floods in that month. Arrangements are being made for restoring the anicut, and if the work is completed sufficiently early in the season, I shall hope to get the piers rebuilt before the monsoon, leaving the arches to be turned next year.

34. The construction of the road from the Lower Coleroon anicut to Combaconum, 13 miles, of two ferry boats for crossing the Coleroon river, and of a head sluice to the North Rajah Voikal, to provide a roadway at a cost of 4,000 rupees to the department, have also been conducted under the orders of Major Lawford. An annual allowance of *Rs.* 300. 8. was sanctioned in Minutes of Consultation, No. 118, dated 27 March 1852, for the maintenance of the ferry boats, for which bills are furnished by the Collector of Tanjore.

35. The marking out of the line between Vickravandy and the Lower Coleroon anicut, a distance of 62½ miles, was completed on my joining the department, and the preparation of materials was in progress for the construction of a bridge, of one arch of 60 feet span, over the Vuddavaur channel, and of one of five arches of 10 yards' span over the surplus channel from the Wallajah tank.

36. The estimates since sanctioned are:

Rs. 3,240. for repairs between the Lower Coleroon anicut and Combaconum, 13 miles.

Rs. 49,150. 8. 6. for the construction of the road from the Geddalum river to the Lower Coleroon anicut, 43 miles; and of

Rs. 48,094. 12. 4, from Pauprumpett to the Geddalum river, 19½ miles.

The works on the first of these estimates are in progress under the superintendence of Major Lawford, and on the two latter of that of Lieutenant Tireman. The abutments of the Vuddavaur bridge, and abutments and piers of the Wallajah bridge, were completed before the last monsoon, and the turning of the arches, with the construction of all the smaller masonry works, as well as the embankments throughout, will be completed by the end of this season.

37. The principal bridges on the line, of which the abutments and piers only will be built before the monsoon, are the—

Pumby	of 2	arches of 10	yards' span.
Aullungaul	4	„ 3	ditto.
Mullataur	2	„ 10	ditto.
Comarummungalum	1	„ 5	ditto.
Poolavanoor	1	„ 5	ditto.
Wallajah	5	„ 10	ditto.
Old Vuddavaur	2	„ 5	ditto.

The expenditure during the year has been *Rs.* 27,850. 11. 11.

"Trunk Road No. 10."

38. Branches from No. 1 in the 71st mile, and crossing the Poinay River at Trivellum, continues on by Chittoor, the Moogly ghaut, and Palmanair, to the Mysore frontier, where it joins the high road from Nungly to Colar, a distance of 65 miles.

39. The construction of this road was conducted under the personal directions of Captain Best, the works on the death of that officer being carried on by Lieutenant Forlong, under whose superintendence the Palmanair bridge of five arches of 12 yards, the Eroowarum bridge near Chittoor of five arches of eight yards' span, since destroyed by the floods in March 1853, as reported in my letter No. 180, dated 18 April 1853, and the other masonry works were completed. On the departure of Lieutenant Forlong to Burmah the charge of the line was made over to Lieutenant Chauncy, who is now engaged in completing the works on the original estimates, amounting to *Rs.* 74,042. 5. 5., in superintending the annual repairs on an estimate of 6,813 rupees, and in rebuilding the Eroowarum Bridge.

40. From Arcot to Chittoor, 27 miles, bridges over the Poinay river at Trivellum and the Eroowarum near Chittoor, being the only two wanting on the whole line from the Presidency to Bangalore, the road is in excellent order; between Chittoor and the foot of the Moogly ghaut, 14 miles, some few portions require to be improved, for which funds are available, but the work has necessarily been postponed till the rains set in. The Moogly ghaut and road from its summit to the frontier, 24 miles, are also in very good order, and I have no doubt that by the end of the present year the whole line, with the exception of the two bridges before mentioned, will be perfectly completed.

"No. 11 Trunk Road."

41. This trunk road, in the late superintendent's reports, has been spoken of as the one from Madras to Bellary, *viâ* Sholingurh, Damulcherro ghaut, Goorumconda, and Hundy Anuntapoor; but the estimates and accounts for the Goolcherroo ghaut, and improvements of the road from Baukrapett having been numbered the same, I have thought it better to define the road from Madras to Cuddapah as No. 11, more particularly as by the order of Government, contained in extract from Minutes of Consultation, No. 392, dated 6 December 1852, the construction of the line to Bellary is to remain for future consideration, in consequence of the projected railway to that station.

42. Eventually, on the railway being extended from Mêuit to Trivellum, it may be considered advisable to continue the road from Damulcherroo as far as Chittoor only, to join No. 10, as proposed in my letter, No. 190, dated 22 April 1853, in which case No. 11 will be comprised between Chittoor and Cuddapah, its continuation being by No. 10 from Chittoor to Ranecpett, and thence by No. 1 to Madras

On my assuming charge of the department, the only work in operation was the improvement of the Goolcherroo ghaut, under the superintendence of Lieutenant Hemery, of the Engineers, on an estimate of *Rs.* 14,592. 11., and the expenditure, up to the present time, has been *Rs.* 14,732. 8. 6.*

43. The estimates since sanctioned are:

Rs. 600 for the annual repairs of the Goolcherroo Ghaut.

Rs. 11,881. 7. 10. for improvements between Damulcherroo and Kulloor, including the Ghaut; and,

Rs. 16,903. 1. for the construction of the road from Baukrapett to Cuddapah.

On the first of these the repairs were carried on up to March 1852, by Lieutenant Hemery, since which a small establishment has been kept up to attend to the side drains, avenue trees, and other trifling works, and Assistant-overseer Dameram, of the Road Department, has now been sent to Cuddapah, to construct the road from that town to Baukrapett, and to continue the repairs of the Ghaut.

44. On the improvements to Trunk Road No. 1, on the estimate of *Rs.* 1,16,543. 3. being completed, Mr. Addis's services will be available for carrying out the second of these estimates, and I shall hope in the course of next year to see the work well advanced. In addition to the above, a sum of 15,000 rupees was sanctioned on the 14th August 1852, for clearing jungle and removing impediments to the common cart traffic on the Chitwail Valley road to Cuddapah; the work to be superintended by the departments of the civil engineers of the second and fourth divisions.

45. In carrying on the several works of the Road Department much valuable assistance in superintendence has been received from the departments of the collectors of Canara, Coimbatore and Salem, and of the civil engineers of the 1st, 3d, 6th and 7th divisions, and I cannot speak too highly of the services of my assistants, Lieutenants Tireman, Chauncy, Francis and Marshall; my opinion of the abilities of Captain Heathorn and Lieutenant Forlong was made known to Government on those officers being withdrawn for a time from the department.

46. I have

---

* The excess of *Rs.* 139. 13. 6. was received by the sale of unserviceable tools, and the expenditure received the sanction of Government in M. C. No. 311, dated 21 September 1852.

46. I have also every reason to be satisfied with the conduct generally of all the overseers, but more especially of Serjeant Arnold, Corporals Graham, Brown, Jolliffe, Church, Hopkins and Goodchap, Ordnance Artificer Dameram, and of Assistant Overseers Wakefield, Shopman and Ramanjooloo; Assistant Overseers Booth, Boveridge, McCarthy and Lawrence, who have lately joined the department from the artillery, also promise well.

47. Accompanying this report are maps of the several trunk roads, on a scale of four miles to an inch, showing the positions of all the towns, villages and large bridges, of which mention has been made, one map on a scale of 20¾ miles to an inch, showing the relative positions of the roads, statements of the estimates sanctioned, advances drawn, balances of estimates, bills sanctioned and ready for sanction, and of the outstanding balances, from the first formation of the department to the 1st May 1853, with a general summary of the same, a prospective statement of expenditure for the year 1853, 54, a statement of traffic, and one of the marches I have made from December 1851 to May 1853.

48. It will be observed, by comparing the general summary contained in statement No. 14 with that submitted to Government to the 1st May 1852, that the estimates sanctioned during the past official year amount to *Rs.* 5,38,980. 1. 8., the advances drawn to *Rs.* 4,13,468. 1., and the bills sanctioned to *Rs.* 4,54,115. 11. 8.; of the expenditure no exact account can be given until bills for the several works executed are received, but the advances may be taken as an approximate amount.

49. I have been endeavouring to procure correct returns of traffic on the several trunk lines, a comparison of which, with the periodical reports furnished to my office on the condition of each mile of road, will in the course of time enable me to judge correctly of the annual amount of outlay required for repairs. This at present I am unable to do, partly on account of the traffic returns hitherto furnished at irregular intervals being very incomplete, and partly from not having as yet received a sufficient number of reports from which to form an opinion as to whether the roads generally are properly maintained.

50. From January 1852 to May 1853 surveys on a scale of eight inches to one mile, extending over a distance of nearly 400 miles, have been completed, each mile occupying a separate sheet, according to the arrangement of the late superintendent, on which are shown an extract from the field book of the surveyor, and elevations of the several masonry works, large and small. A very intelligent maistry, by name Annasawmy, has been employed exclusively on this duty, and the surveys, carefully made, have been plotted by him with a great degree of neatness and exactness.

51. The establishment for European superintendence which, on my first joining the department, consisted of 1 superintendent, 3 assistants, 1 assistant supervisor, and 14 assistant overseers, in all 19, has now been increased to 1 superintendent, 5 assistants, 1 second assistant, 1 assistant supervisor, 2 overseers and 19 assistant overseers; in all 29.

C. C. Johnston, Captain,
Superintendent of Roads.

Superintendent of Roads' Office, Camp,
Aurumbauk, 28 June 1853.

Appendix (E.)

Minute.

Letter from the Commission on Public Works, 21st November 1851; Extract from the Proceedings of the Board of Revenue, reporting upon the same, 15th January 1852.

1. The Commissioners propose, in the above communication, that the Government should at once abolish the separate Road Department, established under the orders of the Honourable Court, by their despatch of 23d September 1845, and revert to the former system, by again placing the whole of the Presidency roads under the charge of the Board of Revenue, Department of Public Works, and of the civil engineers of the districts.

2. I concur entirely in the opinion recorded by the Right Honourable the President and the Honourable Mr. Eliott, that the proposed change is open to the most serious objection in principle, and that it is not calculated to further the public interests. It is obvious to remark, that so long as the roads were under the charge of the Board of Revenue and of the civil engineers, little or no attention was paid to them, and, in fact, year after year passed, and nothing whatever permanent or effectual was done. The condition of the roads of this Presidency when the superintendent took charge of them is thus stated in the Honourable Mr. Chamier's minute of the 5th February 1845: "The state of the roads in the interior, with the exception of the Great Western Road, is discreditable to the Government, and detrimental to the best interests of the country; and the detention and difficulties to which troops marching are liable, are highly embarrassing to the public service."

3. Large sums of money had indeed at times been laid out by one civil engineer or another upon the roads, for instance, in the northern division; but whether through the neglect of the Board, or that one engineer did not take the same view of their importance,

or of the line selected, or of the mode of construction as his predecessor; the result was that, under the Board and the civil engineer, the money expended was wasted, and the Presidency was without a really good road.* No systematic attempt indeed appears to have been ever made, through a series of years, to form great lines of good road, and I see no reason to suppose that it will be otherwise in future, if the control is vested again in the Board of Revenue, Department of Public Works, and the civil engineers.

4. The only line of trunk road made prior to 1845 was, as Mr. Chamier noticed, the great western line, running to Bangalore; and this was done by taking this road out of the charge of the Board and of the civil engineers, and placing it under the exclusive control of officers responsible for it; at one time of the chief engineer, and afterwards of a separate officer (Captain Worster).

5. The Honourable Mr. Chamier also observed, and as it seems to me justly, in the same minute, para. 4., that there is nothing in the education of the officers of engineers "which particularly qualifies them for road-making;" there would not appear, therefore, to be any necessity for placing the roads under them, and it may be questioned whether practical experience in this particular department of work is not as necessary as mere scientific acquirements.

6. I can scarcely myself doubt, looking at the extent of the duties imposed upon a civil engineer, that if the great western road and the great southern line, two roads of primary importance, and both, for a long distance, within the same division, had depended for their execution upon the engineers of the division, they would not have been done at this hour; and if they are now to be left to be kept up by that officer, it will be at the cost of other important works; but if this be not the case, and his general duties are attended to, the Government will then constantly have, as heretofore, the just excuse offered for all omission and waste of funds, that it was not practicable for him to be responsible for those roads, as other works, which did not admit of delay, called him away at the moment when he should have been on the road, supervising the work going forward under his subordinates. Whilst the Board, it is certain, will deem that plea all-sufficient to exonerate the officer from responsibility; and the past irresponsible and defective system, if it can be called a system, would resume its full force.

7. Concurring also fully in the view taken by the late President (see Marquis of Tweeddale's minute, 21st January 1845, para. 4†), of the duties of the superintendent, it is, I think, evident that if these duties are to be well and ably performed, it can only be by an officer who has this one separate and exclusive charge, and who will be content to take in hand at one time no more than he can thoroughly perform. These details never can be properly worked out, I believe, by the engineers of the divisions, who are not permanently attached to any one division, and whose hands are already more than full.

8. The very first instance adduced by the Board of Revenue, Department of Public Works, of improvements effected on the roads by the civil engineers of divisions, irrespective of the road department, viz., the Parumbaddy ghât, appears to me to disprove their view. This ghât was only made by withdrawing the officer entirely from his duties as a divisional officer, and by restricting him exclusively to the road department, showing, as I think, clearly that the divisional duties of an engineer are incompatible with the special duties required on large and important roads.

9. Again, in the case of the Coleroon bridge, also cited by the Board, it was only because the chief calls upon the civil engineer happened to lie in the immediate proximity of the site of the bridge, that he was enabled to undertake the charge. This exceptional case further demonstrates, therefore, that the civil engineer cannot ordinarily take the supervision of important road work and attend at the same time to his proper duties, and that the trunk roads must and ought, as a general rule, to be a separate charge.

10. I consider the Board to be in a great degree in error in their estimate of the work performed and the progress made by the late superintendent of roads. It was of course necessary, in the early stage of his duty, that he should prepare his way rather than undertake, with the limited number of subordinate officers in his department, at the same time, several lines of road in various parts of the country. His error was, in my view, in attempting too much in this way. But the rules prepared by Captain Best, drawn in part from his own experience, and in part from communications with the officers in charge of roads at the other Presidencies, and his numerous reports, show the mass of preparatory work performed; and much of this, it may be safely stated, the Board of Revenue had neither the time nor were in circumstances ever to accomplish; and I much question, looking

* Salem is an exception; but here the roads were formed by the Collector and his assistants, and not by the civil engineer—nor under the Board's supervision,—but even, I take it, without their cognizance.

† "So that it may be seen nothing is proposed to be undertaken without every detail and particular connected with it having been ascertained. To secure this, the foundation of the proposed line must be examined; the levels taken; the quality of the material tested of which it is to be made; plans for the site and construction of bridges prepared; the best mode of under-drainage explained, and determined on; and every part connected with its formation, or the material to be used in its construction, should be specified in writing, accompanied by plans regularly executed in accordance with the specifications."

looking at Captain Johnstone's late report,* whether there has not been fully as much done by the Road Department as could be expected, or was anticipated; for it will be seen, on reference to Lord Tweeddale's minute,† para. 20, that he limited the department, in the first instance, to three main roads.

* Founded on Capt. Best's papers, &c.

† 21 January 1845.

11. It may be as well to notice here, that the Commissioners in assigning as the grounds of their proposal the altered character of the Road Department, "under recent orders," are but imperfectly acquainted with the subject on which they treat. The observe in para. 2 of their letter: "The great defect in the constitution of the Road Department was, that it was required to be not simply projecting and controlling, but executive also; and this with very inadequate agency; and thus there was laid on the superintendent an accumulation of duties, beyond the powers of any individual whatever to discharge in a satisfactory manner. The practical evils found to result from this system, led the present Government in October 1850, to direct Captain Best to confine his movements, and give his best attention to the three roads of limited extent, and comprised within a comparatively small compass, which roads it was considered, would occupy the full time and attention of himself and his assistants. These orders were reiterated in January 1851, with the addition, that Captain Best should confine himself to the execution and completion of such great lines of road only as he could personally and efficiently inspect; and that no portion of any of the trunk roads on which workmen were engaged, should be for any period beyond a few days left without a personal supervision of the superintendent of roads or one of his assistants, these assistants being only two in number." And the Commissioners add, para. 3; "These orders totally changed the character of the Road Department; it ceased entirely to be what was intended at its creation."

12. These statements appear to me inaccurate, and at variance with the records. In one of the earliest orders of Government, 2 April 1846, para. 1, it was remarked, when refusing the superintendent a large office establishment, "Independently of the heavy charge it would create, a large establishment of this nature is open to exception, as tending to take the superintendent from his more direct and immediate duties, the constant personal supervision of the works under his care; and to constitute him rather the head of a fixed office establishment, when he would be superintending the routine office duties of an establishment. This would not meet the views of Government, as it is the object of his Lordship in Council to keep the Road Department a practical working department, rendered efficient by undertaking no more at one period than can be readily and thoroughly superintended, and by securing for all works, the constant personal supervision of the European heads of the department; and he is of opinion, therefore, that the establishment should be such as can move without difficulty under the superintendent." I can see no difference between these early orders and the recent instructions of Government referred to by the Commission, who would appear not to have read the records.

13. On their further proposal that the Government should at once nominate an assistant to the Secretary to the Board of Revenue Department of Public Works, they have grounded it almost entirely upon the supposition that the superintendent of roads would, or could be immediately abolished by the Government without a reference to the Honourable Court. If this should not be the case, there are clearly no funds available for the salary of the assistant secretary, and the proposition of the Commissioners necessarily falls to the ground.

14. I should, however, under any circumstances, consider it better to await their full report on the department before any change is made; but as I have no doubt that the secretary is now overburdened, some aid might perhaps be given in attaching an efficient uncovenanted assistant to the department, and this may be even eventually a better course than the withdrawing a young officer of engineers from the active duties of his profession, at a time when the services of such officers are greatly needed in the provinces.

6 March 1852. (signed) *J. F. Thomas.*

Appendix (F.)

The facts of the case, as stated by the Board, are as follow:

No. 570.

EXTRACT from the Proceedings of the Board of Revenue in the Department of Public Works; under date the 3d August 1848.

1. IN the first of the papers above recorded, the Board of Revenue are required to call upon Captains Ditmas, Bell, and Birdwood, the three officers engaged in planning and building the bridge over the Cavery at Bhowani, to submit such explanations as they may have to offer in reply to the statements made in Lieutenant-Colonel Lawe's report. These explanations the Board are further required to lay before Government, with their own opinion on the subject; and at the same time to furnish an estimate for rebuilding the bridge in the manner proposed by the chief engineer.

2. The explanations received from the three officers above mentioned are contained in the four papers next recorded. Captain Ditmas, who is represented when acting as civil engineer in the division "for a short time to have drawn out an incorrect section of the river, it having been measured in a loose and careless manner," states in his first letter, that though he considered the sections taken by him "to be nearly correct, he never should have permitted them to be made use of without being verified and tested previous to their adoption;" and again, that "he made them merely to enable him to judge somewhat regarding the cost of bridges, should they hereafter be proposed." These, however, were not the views of the Board, to whose instructions Captain Ditmas does not appear to have adverted in framing his reply. In the letter despatched from this office on the 18th April 1844, he was requested to prepare plans and estimates for the bridges, and to forward them to Captain Bell for transmission, and it was added, "that the difficulty of obtaining memoranda regarding the sections of rivers, and the practicability of bridging them made it very desirable that the data should be recorded with care." The Board not deeming the first explanation satisfactory, referred a second time to Captain Ditmas, who, however, did not consider it advisable to make any change in his original statement, and adduced additional reasons to show that his section could not be considered in any other light than the one in which he had described it.

From Capt. Bell to Capt. Best, 6 July 1844.

3. Upon these sections, such as they were, Captain Bell prepared the plans and estimates of the two bridges. In his reply to the requisition of the Board now under consideration, he observes, "that in submitting them (*i. e.* the original plans and estimates) to the Board he distinctly stated that they had been prepared by him upon the sections and rough designs sent to him by Captain Ditmas;" and again, that he had "never had an opportunity of examining the (Cavery) river when accurate observations could be taken." He however did repair to Bhowani, and made such observations on the locale as circumstances permitted. The only point for determination between him and Captain Ditmas is, whether the sections and drawings transmitted by the latter officer were in such a state as to justify the preparation of working plans and estimates upon them without further surveys and measurements of the site, a point which can only be satisfactorily settled by professional men. Captain Ditmas' letter of 30 May 1844, certainly conveys the impression that his operations had been interrupted before he had been able to bring them to a satisfactory conclusion. Captain Bell, however, has observed that "the sections of both rivers" in Captain Ditmas' plans being "drawn on the same scale for heights and distances, the line of rock clearly traced, and the elevations of the bridges shown in pencil outline," he concluded that Captain Ditmas' remarks referred only to the incomplete condition of the drawings, not to the actual observations on the rivers, which he must have been aware could not have been repeated for a twelvemonth. It is due to Captain Bell to state that this Board appear to have viewed the matter in the same light, and with the concurrence of their late professional colleague, in whose sagacity, judgment and scientific knowledge long experience had taught them to place the highest value, to have submitted them to Government without a suspicion of their insufficiency. It may be added, that the bridge across the Bhowani was constructed on these very plans, and the success of the undertaking may be learned from the chief engineer's recent report to Government, in which it is stated "to have been finished, of a good height, and handsome appearance."

Para. 1.

4. The remarks of Colonel Lawe, as applicable to Captain Birdwood, refer,

1. To his having deviated from the sanctioned plan on his own responsibility.

2. To his having failed to report his proceedings regularly, so as to allow of their being checked and rectified in the progress of the work.

3. To his having adopted faulty expedients and erroneous methods of construction in the instances in which he departed from the approved plan.

To Governor in Council, 1 August 1844.

5. With regard to the first point, it must be explained that the project was first submitted to Government exactly as received from Captain Bell, but the consideration of it was deferred pending the receipt of certain information regarding the general expenditure on public works which the Board have previously been desired to furnish. This plan, as approved by the Board, provided for the construction of 24 arches in the Cavery, and nine in the Bhowani bridge, the piers for all of which, it was supposed, would, with a single exception, rest on a rocky foundation. When, however, the subject was again brought forward after the interval of a twelvemonth, a second plan and estimate prepared in the Board's office for the Cavery bridge was likewise submitted, which, by allowing 11 arches of 62 feet, would, it was supposed, obviate the difficulty occasioned by the interruption in the supposed series of rocks to be employed as foundations. Both it was added were laid before the Governor in Council "in order that the design which hereafter might be found most easy of execution might be then adopted. In other respects it is not of much consequence which may be preferred, as there is no doubt that the large and small arches may be built with equal success under proper superintendence." Allowance was likewise made in the revised estimate for strengthening the piers of both bridges at the recommendation of the chief engineer, but the Board considered that discretion still remained with the civil engineer to act upon the suggestion or otherwise, according to circumstances. When Captain Birdwood came to carry the project into execution, he found that the bed of the river was

To Governor in Council, 4 August 1845.

not

not correctly represented in the plan, and that it was not only of greater breadth, but that there was no continuous line of rock to serve for foundations, the section, as explained by Captain Ditmas, not having apparently been carried across in a straight line. He therefore found himself compelled, as he has shown, to adopt one of the sanctioned plans, by some modifications to the altered circumstances of the case. These consisted in the addition of two arches to the original design, and of 18 inches to the span of each arch, the piers being left of the dimensions originally approved. The additional strength to the piers to correspond with this slight increase to the span of the arches would have been, according to Captain Birdwood's statement, 2$\frac{1}{16}$ inches, which being in his opinion quite insignificant, no allowance was made for it. He also made use of that description of structure which to his judgment appeared best calculated to afford a secure basis for the piers.

From Capt. Ditmas, 19 April 1848.

Minute by the Right Honourable Sir *H. Pottinger*, Bart., G.C.B, Governor and President in Council.

Section I.

1. The Commission, of whose proceedings the ample volume on which I am about to remark forms the First Report, was constituted in February 1851, in conformity with instructions from the Honourable the Court of Directors.

2. The members nominated to it by the Madras Government, were Mr. Bourdillon, of the Civil Service, Collector of North Arcot; Brevet-major F. C. Cotton, of the Engineers, Civil Engineer of the 7th Division, and Brevet-major George Balfour of the Artillery, Stipendiary Member of the Military Board.

3. I think it proper to specify the names and stations of these officers, with reference to observations which I have made already, and shall have to make on their Report. They were directed to include in their inquiries, "The whole subject of the superintendence and execution of Public Works," and as they state that they began those inquiries in March 1851, and their Report was handed up to Government in December 1852, it is observable that they were occupied a year and three quarters in its compilation and arrangement, a fact which may possibly, in some small degree, account for what I am forced to pronounce its perplexing and inconvenient verbosity; and which I conceive might have been advantageously avoided by compressing all the matter that is really useful in the Report into, at the outside, one third of the space it occupies.

4. The Report has been divided by the Commissioners into sections and paragraphs, and I shall endeavour to follow a similar course, with the object of ensuring perspicuity, as well as easy reference, as far as relates to the limited criticisms I design to make upon it. I use the term limited, partly with advertence to the extremely elaborate form which the Commissioners have thought it expedient to adopt in their proceedings; and of which I have above expressed my opinion; but chiefly with due regard to the very able and careful examination of these proceedings, into which my honourable colleagues, the civil members of the Madras Government, have minutely entered, and whose minutes I have had the advantage and privilege of reading, whilst placing my own final sentiments on record.

5. It is almost superfluous for me to say that the perusal of those minutes has been both highly interesting as well as satisfactory to me. It has given me a share of the benefit of the great local experience and knowledge of the honourable writers of those documents, who have necessarily, in the course of their long service in the Madras Presidency, gradually acquired a matured measure of information on every question connected with the past and present administration of its affairs; to which, notwithstanding the most earnest and sedulous application of my time and energies, since I have been at the head of the Madras Government, I am sensible I cannot pretend. I gladly avail myself of this opportunity to avow the obligation I feel, in this respect, to my honourable colleagues; and although I have incidentally seen cause to dissent from their views, and shall doubtless find like occasion in the course of the present minute, I always have felt, and shall feel, that such differences are merely matters of wholesome diversity of official sentiments, which is well calculated to elicit a sound decision on the points at issue.

6. But

6. But to drop this digression. On a copy of the Report of the Commissioners being first sent to me in a printed form, about Christmas 1852, I read it rapidly, though carefully through; making at the time marginal notes, some on points for inquiry, and some regarding points the inaccuracy of which obviously required refutation. Matters remained in this state till April last, when the Report was transmitted to the Home Authorities and the Government of India; and as up to that period I had been prevented, owing to unceasing and heavy calls of business on my time and attention, from even partially placing my individual sentiments in official shape, I deemed it advisable to explain, by a short minute, the circumstances which had led to the delay on my part, and likewise to state in a few words the general impressions which I had formed upon it. This minute will be found in Appendix (A.)

(A.)

7. I have now further to state that in a recent reperusal and careful examination of the Report, which I have just accomplished, I have not discovered the smallest reason to recall or modify those impressions. On the contrary, the more closely I have looked into and studied the tenor and bearing of the Report, the more convinced have I become that its tone is wholly unprecedented and unjustifiable; that it assumes on behalf of the members of the Commission, the unheard-of and unreasonable pretension of weighing and condemning "the actuating motives and real feelings of Government with regard to its measures for the improvement and amelioration of the country;" that that assumption is, in numerous instances, upheld by misrepresentations, as well as by the studied omission of matter that would have demonstrated them to be such; that even where facts are cited and admitted, they are disguised, as far as possible, in garbled and partial extracts and statements; that in no single instance that I can discern, are the arguments on both sides of the question fairly and candidly brought to bear on the topic immediately under discussion; that in what I conceive to be the preposterous tautology of many parts of the Report and its Appendix, the strictures and quotations which the Commissioners evidently fancied to be exclusively calculated to establish their views, besides throwing discredit on Government, are repeated to a tiresome and perfectly useless extent, whilst it cannot, I apprehend, fail to be evident to any one who may take the trouble to read the Report, that the observations and explanations of Government on the opposite side, are entirely eschewed and left out of sight. I therefore unqualifiedly subscribe to a remark, which I see has been made by the Honourable Mr. Thomas, that "it is difficult indeed to understand how, if the Records of Government had been fairly examined by them, the Commissioners could permit themselves to record these statements;" and to this remark I will add, from myself, my personal assurance that a great deal of the Report was devised and got up to serve particular purposes, and not at all framed for the information or enlightenment of Government, who are in various parts of it designated with a degree of contumely and undisguised contempt, for which I can trace no motive but to insult; which I also pronounce, after the experience of a very long public life, to be quite unique, and which I deem to be deserving of the strongest reprehension, and to require to be at once put down, as a baneful example in any public service.

Section II.

6 to 106.

8. I now turn to a consideration of the Report, on which for the reasons I have already stated, and because I see no use in swelling these papers by repetitions, my remarks will be as concise as is consistent with clearness.

9. The second section contains a summary history of the past and present state of the Department of Public Works under the Board of Revenue; and it is self-evident, from the ample details which are offered, that the department urgently demands speedy reform, as well as a very large increase to the officers of all grades and classes who are to be employed in it. I must, however, observe that it occurs to me, that whilst the Commissioners invariably depreciate everything that has been effected of late years, and captiously enlarge on deficiencies and defects, they not only fail to point out, in practical reasoning, how those deficiencies and defects could have been obviated, with the circumscribed means which this Government has had at its disposal, but actually are reduced to contradict their own favoured postulate, by admissions which they are constrained to make as to the very want of means, to which I allude.

10. Had

10. Had the Commissioners felt inclined to deal fairly with questions before them, they would, in the first place, have recollected that for some years past, the exigencies of the State rendered it expedient for the highest authorities to restrict the public expenditure to the narrowest scale; but this they not only have esteemed it befitting to overlook, but have taken on themselves to lay the whole blame on Government, whose bounden duty it was to obey the commands of their superiors; have stated in unequivocal language, that expenditure on the roads had almost always been an unwelcome subject with Government, who had discouraged the submission of projects of improvement; an assertion which, as well as that, that the Board of Revenue have frequently urged on Government, with very scanty success, the necessity for giving them more assistance in their office, I distinctly pronounce, so far as I am concerned, to be at variance with the truth. (B.) and (C.)

11. A great many valuable and requisite hints, relative to the future formation of the establishment of the Mahramut Department of this Presidency, are to be found in the section of the Report on which I am treating. I am myself strongly in favour of a great extension of the European subordinates in that department, as being far more energetic, active, and trustworthy than natives. I am, of course, well aware that the service of Government cannot be carried on in this or any other department without the agency of the latter; but I fully coincide with the Commissioners, that men like the superintendents and maistries, who form a necessary ingredient in the general good management of the important, though minor, duties of the departments to which they are attached, should be better educated, better paid, and better cared for than they now appear to be.

12. I cannot, however, at all approve of the suggestion of the Commissioners, that the overseers ought to have the power of fixing the price of all articles, and providing the materials that are required for works going on under their superintendence. They will, of course, see that no inferior materials are used, and they will pay the people, or at least see that that is properly done, which will secure full and prompt payment to the workmen, and thereby effectually put a stop to the highly objectionable practice which is said to exist, of the civil engineer's retrenching the workmen's wages, even months after the work has been executed. 50.

13. I cannot pass over in total silence the inflated attempt which the Commissioners have got up, when speaking of the European overseers, to establish that they had been unfairly treated, and were therefore in a state of discontent and despondency. The members of the Commission seem to have thought this topic held out too inviting an opportunity to be missed of indulging in their usual invective; but it is to be noted that they must have known, full 18 months before they handed up their proceedings, that the Madras Government had obtained the sanction of the Supreme Government to what was thought to be a proper measure of promotion for the overseers at the time, and yet they allowed their mis-statement to stand in the text of their Report, accompanied by a foot-note which rather aggravated their original comment. The fact is, as I have before asserted, they would appear to have began writing on one exclusive principle, that of vilifying Government, and eventually had not the good sense and right feeling to modify their errors, so that, in this case, what might have been assumed to be a mistake at first, became, in the result, a positive deviation from fact. 45. 52 to 54.

14. I have no means of knowing to a certainty whether the European overseers and other subordinate classes of the Public Works Department, are, in Madras, worse off than similar grades under the Bengal and Bombay Presidencies; but, should it be so, I most unhesitatingly recommend that in the contemplated revision they should be placed on the same footing precisely. In saying this, I beg to add that I do not believe that any promises were ever made to the overseers by Government, who alone had power to either make or fulfil them. 52.

15. I agree with the Commissioners in all they say on the subject of compulsory labour, as well as the causes of it, on which I had occasion to express my strong opinion formerly, and the means of preventing it. I also fully concur in their views respecting the superintendents of Mahramut, the talook maistries, and the excellent plan of apprentices, which appears to have been successfully introduced 66 to 74. 76 to 90.

duced by Captain Horsley and the late Captain Best, and which ought most certainly to be persevered in until a more enlarged and comprehensive system can be fashioned, and introduced generally for the Madras Presidency. Such a system I trust will be shortly sanctioned by the authorities on whom it rests, in compliance with the urgent advice and solicitation of this Government, which have been long since submitted.

91 to 106. 16. I have given my best consideration to the observations of the Commissioners on the orders and rules promulgated by Government, under date the 31st of January 1851, together with the reply of the Board of Revenue, of the 10th of April following. The Commissioners, as the Honourable Mr. Eliott justly observes, " entirely overlook that those rules were proposed as a temporary provision, to make the most of the existing establishments, until the thorough reform of the Department of Public Works, which had been submitted for the consideration of the Government of India, should be authorised."

17. I will not needlessly swell this Minute by combating the somewhat intricate and very lengthened reasons assigned by the Commissioners for disapproving of those rules; I will content myself by saying, that if, as I am persuaded is correct, they were advisable at the time they were issued, they are still more applicable to the present conjuncture, and therefore I earnestly recommend that they be strictly enforced until a final and better arrangement can be introduced in their stead. It is almost superfluous to observe that this can only be effected by a large and universal augmentation to the existing establishments.

18. In the foregoing paragraphs of the Commissioners' Report, from para. 96 to the close of this section, there are instances, in my estimation, of the usual amplification and distortion of the motives and intentions of Government, conveyed in supercilious language; but as I differ altogether from the conclusion at which the members have arrived, I purposely refrain from offering any refutation of the assertions to which I advert.

Section III.—*Review of the Condition and Treatment of the Roads in former Times, and of the Working of the Road Department.*

107 to 124. 19. The paragraphs of this section numbered in the margin do not appear to demand any particular notice from me; they contain an epitome of the state of the roads in the countries comprehended within the limits of the Madras territory from an early period, and show the attempts that had from time to time been made to form and improve them, including a small experimental cattle railway or tramroad that was sanctioned, from Madras to the Red Hills, and which did not succeed.

20. In the year 1845, the Road Department was, for the first time, formally constituted under the sanction of the Honourable the Court of Directors, at the recommendation of the then Governor, the Marquis of Tweeddale. The sum of four lacs of rupees annually was set apart to be expended on trunk roads only by the Government of Madras, without reference to higher authority, and the orders and instructions which were then issued and laid down for the guidance of the able and excellent officer who was appointed to be the head of the department, were, I have grounds for knowing, through my personal intercourse with him, in a great measure framed at his own suggestions. The great error I saw in them when they first came under my consideration was, that they promised too much at their early introduction; but, with competent establishments and sufficient superintendence, I now hold that they are perfectly practical and the best that can be devised for the duty to be performed; it being my decided opinion, as I observe it is that of the Honourable Mr. Thomas, that the Road Department should be kept distinct from all others, under one officer, who shall have nothing else to think of or attend to.

131. 21. I note that the Commissioners speak of the incongruities which they have described, and assert that they have inevitably led to the total failure of the Road Department. I wholly repudiate this assertion as applicable to present circumstances. I did at one time myself freely admit that it had failed in the high hopes which were at first held out regarding it, but it has been subsequently admitted that the difficulties of introducing it had not been sufficiently foreseen and

and estimated, and that the very commendable willingness and zeal of Captain Best himself had chiefly led to that mistake, from his undertaking what has been demonstrated by experience to have been impracticable. I would likewise here remark that I entirely concur in the opinion offered by the Commissioners, that the employment of the civil engineers of divisions in executive duties on the roads has been a very great evil in every respect, and I am at a loss to understand how they came, with these views, to propose that the trunk roads should be replaced, even as a temporary measure, under those officers. *See* Appendix (C.) 163. (C.)

22. The Road Department has now, I conceive, been placed in good working condition, and should on no account be disturbed or incorporated with any other; the only precaution that seems to be required is to afford the officer at the head of it, who has hitherto given the utmost satisfaction by his efficient proceedings and management, every available assistance he may ask for, whether in assistants or subordinates; and, that being done, I cannot myself perceive any reason to apprehend but that all the expectations that can be fairly indulged regarding it will be gradually and perfectly realised. I therefore am most strongly opposed to the idea of the abolition of the department, as advised by the Commission. 164.

23. I will only reiterate, in closing my remarks on this section, that, adverting to the statements in the last report of the superintendent of roads, of the 1st of May 1853, which, in my estimation, wholly refute the assertion that Government had never recognised the value of roads, and remembering how much has been done, in spite of the unforeseen difficulties and impediments that have occurred to impede the progress of the department, I am forced to denounce this portion of the Report of the Commissioners to be wilfully overstrained and hypercritical, and, consequently, greatly calculated to mislead. 107 to 168.

Section IV.—*Engineer Department under the Military Board, with Suggestions, &c.*

24. It is quite unnecessary for me to attempt to follow the Commission through the details of this section which may have their use for such as wish to make themselves acquainted with them; but, after the experience I have necessarily acquired, during the period I have been at the head of the Madras Government, of the working of the Military Board, I beg to state my unqualified opinion, an opinion, I may observe, which will be borne out by reference to innumerable condemnatory remarks which I have had to make on its proceedings, that it has been, and is, not simply inefficient for the duty assigned to it, but that it has invariably been, and is, a clog to public business, and ought accordingly to be forthwith and finally abolished. 169 to 205.

25. I was led to fancy, when I first came to Madras, that the chief objects of having such a Board were to expedite and promote the rapid performance of the duties of the officers who are subordinate to its authority, and further, to assist Government by its advice and judgment on every occasion when they might be required, more especially with respect to questions of outlay and expenditure in the Department of Military Works. Instead, however, of these objects being attained through the medium of the Board, I have experienced exactly the reverse; delay and ineffective supervision have been the marked feature of the Military Board's procedure in great as well as in small matters, and in some very important cases it has acted in such a mode as almost to lead me to believe that it was throwing impediments in the way of the orders of Government solely to force them to adopt its recommendations.

26. One very striking instance I think it worth while to note; it is connected with the long delayed and difficult subject of the drainage of Black Town. Government had issued, after years of anxious discussion, their final orders. The Military Board neglected to give effect to them, and when called on for explanation as to the delay, represented that they were about to submit a project which could not fail of success, and which would be far more effectual to the desired end than any other scheme that had been devised. Government waited patiently until the project was sent up by the Military Board, and I then looked into it most carefully, and recorded my opinion upon it. It has since remained in abeyance, and is, I perceive, quoted as a proof of the disinclination

(D.) of Government to sanction outlay. I need scarcely say that this is not correct. I showed my well-considered reasons for differing from the asserted feasibility of the project, as well as from the extraordinary views which the Military Board built upon it, but beyond that I did not oppose it. I am very glad to be able to conclude this topic by recording my sanguine hopes that the desideratum of the drainage of Black Town, so far as it is possible, is likely to be shortly accomplished, not under the auspices of the Military Board, but through the suggestions of the justices in session, aided by the judicious directions of their officiating assessor and civil engineer.

27. My opinion is that the future duties of the Military Board, as it is now termed, should be confined to the Ordnance Department, under a field officer of artillery, with a secretary and an assistant secretary, should the work be found too much for one person. This I do not however imagine is likely to be the case. The detail of the chief engineer's duties will best be defined by the local Government when the proposed abolition of the Military Board is perfected. In the meantime I cannot help saying that the enumeration of that officer's tasks, in connexion with the Public Works Department, carries with it, in my eyes, an
198. air of ridiculous exaggeration, and tempts me to inquire, if he be relieved from them all, what will be left for him to attend to.*

Section V.—*Proposal of a New Board of Public Works.*

28. Before I had an opportunity of reading the Honourable Mr. Thomas's remarks on this section I had made up my mind to dissent personally to the new Board, which the Commissioners have recommended shall be established, and I was therefore gratified to find that my ideas corresponded with those of that gentleman.

29. I have witnessed so much unnecessary trouble and delay from the existence of Boards since I have been at Madras, as well as elsewhere previous to coming here, that I am strongly opposed to any such arrangement. Even had I been inclined to favour a Central Board to sit at the Presidency, I should certainly have voted against the contemplated third, or civil member, whose nomination to it I should have felt to be not simply useless, but actually pernicious, as introducing into the whole plan an element of constant opposition and strife, nor can I recognise one compensating motive for this proposal. The civil member cannot be expected, unless perchance in a few isolated cases, to have the intimate knowledge of the peculiarities of each district, which it is to be presumed will be possessed by the respective Collectors, and in the event of his not agreeing with the recommendations which they support, it follows that Government will have to be referred to, and in all likelihood will, after lengthened delay and much unsatisfactory correspondence, be constrained to decide in opposition to the views either of the local authorities, or those of the very officer whose special duty it would be to advise.

30. I am however, as I have said above, adverse to a Board in any shape, as striking at the root of that most essential point, personal responsibility; and after mature and deep reflection I cordially adopt the suggestion of the Honourable Mr. Thomas, that the Presidency should be divided into four convenient divisions, to each of which an engineer officer of rank and experience should be appointed under the appellation of general superintendent, who should constantly be on the move within his own range, consulting with the officers stationed in the different districts that compose it, and who, having satisfied himself by personal examination of the desirability and advantage of the works that may be pointed out and recommended to his notice by the local functionaries, should thereupon report his sentiments direct to Government, whose province it would then become to sanction their execution, or to call for any additional information or explanation that might seem to be requisite. In highly important projects, which

---

* *Note.*—Since this was written, I have observed in paras. 198 and 199, the proposed future duties of the chief engineer. I differ from the 1st, 2d and 3d clauses of para. 198, and from the 4th, 5th and 6th of para. 199. The 1st clause of the former para. strikes me to contain an unprecedented proposal, subverting all rule of authority.

which are certain to involve a very heavy outlay, and respecting which the Government should happen to entertain doubts, it has occurred to me that two, or even more, of the general superintendents might be directed to assemble in committee on the spot to confer together, and to report the result of their deliberations. This expedient should however, I conceive, only be had recourse to in suitable and peculiar instances.

31. Having unconditionally rejected the recommendations of the Commissioners, relative to a new Board of Public Works, it is perhaps supererogatory to notice the rules for its procedure which they have laid down. I nevertheless deem it worth while to direct attention to them, as exhibiting the extraordinary anomaly of the Government of a country being virtually placed out of sight in considering plans for its control and good management, if we except indeed the irksome duty prudently reserved to the Governor in Council by the 3d rule of the 231st para., of acting as mediator and moderator of the doubtless frequent dissensions and disputes of the members of the ill-digested Board and its co-ordinate partners in authority. It had not escaped my notice that something, very much to the same purpose, is advanced in a foregoing para., attended by the customary misstatement and sneer, in making which it has been entirely overlooked by the Commissioners that Government were the fittest judges of what was proper, and moreover, had sufficient reasons for withholding their ready assent to proposed outlay. Of those reasons one very cogent one will be found in a memorandum whicIf I wrote on the 24th of may 1850, and to which I likewise add other instances. *See* Appendices (F.) (G.)

231, 232.

219.

(E.)
(F.)
(G.)

Section VI.—*The value of Irrigation to the Revenue, &c.*

32. I concur with my honourable colleagues that this section contains a great deal of matter of the highest importance, but at the same time I am bound to add that that matter has been spun out by a vast quantity of redundant quotations, some of which I conceive to emanate from loose and very questionable authority, interspersed with overstrained and, in many places, erroneous and even contradictory statements, to an extent that greatly deducts from its value, and is in no respect called for in a fair and honest examination. The Commissioners indeed seem to me to have set out, in the composition of this section of their Report, with a predetermination to concoct what might be technically termed a strong case, and this has, I think, led them into wearisome repetition and disquisitions on points on which I can trace no system of opposition to their views.

33. I cannot, for instance, suppose that there is any one who doubts the value, both to the Government and people, of works of irrigation in a country like Southern India, where local and sometimes very extended failures of the periodical rains are of frequent occurrence, attended with much wretchedness, and even dire famine; but whilst I willingly go hand in hand to this extent with the members of the Commission, I advisedly assert that I hold the inference which they try to establish to be altogether erroneous, inasmuch as I distinctly deny that there has been any, however minute, want of due encouragement on behalf of Government of late years towards works of irrigation, where the means of giving effect to well-considered plans were forthcoming, and the recommendations, whether from the Board of Revenue or the executive officers, came up with proper explanation and estimates, for the want of which latter I have, I allow, often personally withheld my support, because I did not choose to take the initiative in what I must always consider a highly objectionable mode of carrying on Public Works, by making advances for purposes on which Government had had no sufficient information. Besides this strong argument, it ought likewise to be borne in mind that throughout the whole period that I have been in my present office this Government had to obtain the sanction of superior authority to any expenditure exceeding a limited sum, and this fact necessitated that it should not merely be assured of the expediency of the proposed outlay, but that it should be enabled to assign reasons to satisfy others.

34. Great weight is very naturally and properly laid by the Commissioners on the admirable results of the improvement and extension of works of irrigation in Tanjore and elsewhere, and no one with common sense would, I should

 say,

(H.) (I.) (J.) say, venture to gainsay them. This Government has certainly of late evinced its hearty conviction of their almost incalculable benefits, by its earnest recommendation in favour of the construction of anicuts on the Kistnah and Palar rivers, as well as by its unlimited encouragement of the "gigantic undertaking," now in progress on the Godavery river. With regard to this latter, whilst I unfeignedly trust that it will more than realize all the best anticipations and aspirations set forth by the Commissioners and its projectors, I should be acting hypocritically did I not confess that I have always had my misgivings of its permanent stability and consequent perfect success. I hold it to be an undertaking absolutely without parallel in this or any other country on earth; and when I recall the almost incredible violence which I have myself witnessed the Godavery river exert when in high flood at points possibly a thousand miles above where the anicut on it is built, and further reflect that that overwhelming force is inevitably increased many many hundred fold before its action reaches that magnificent structure, erected on an artificial foundation in a vast plain of unstable alluvial soil and sand, my reasoning faculties compel me to doubt if any combination of art and science will effectually and safely restrain the physical power opposed to it. I however reiterate my very anxious and most sincere hope that my apprehensions will prove groundless, though it is due to myself to add that recent accounts of damage done by the last inundation in the river have rather tended to strengthen them.

35. The Commission have dwelt, in an enlarged form, on the effects of the disastrous famine which occurred in 1833, which fell with peculiar severity on the collectorate of Guntoor, and it is impossible to overrate its hapless effects; but they seem to me to have been here introduced and expatiated on, with the chief object of attempting to establish that it was a consideration of the profit and loss of the cost of an anicut on the Kistnah river that influenced the views of Government. Nothing was ever more distant from the truth, and the delay which occurred in its commencement, after it was approved of by the Honourable Court, was solely caused by the engineer officer at the head of the Godavery anicut (Lieutenant-colonel Cotton), declining to spare any of the officers employed under him. I stated expressly on this refusal coming before me, that I would not attempt to withdraw any of those officers, which would, of course, have been made a handle for complaint; but even with this delay, the work was in full operation many months before the Commission stated, "with much pain," that it had been indefinitely postponed. I leave those who may peruse these remarks to draw their own conclusion from them. It is unnecessary for me to designate what it amounts to.

293. (H.)

298 to 301. (J.) 311.

36. So far as I am informed, I look on the prolix discussion in the paras. noted in the margin, as to the fear of a want of a sufficiency of labour, to be quite gratuitous, seeing that I had never heard of that fear until I saw it spoken of in the Report. For the same reason, I dismiss, unnoticed, the remarks of the Commissioners as to the ryots coming forward to cultivate where irrigation is provided, unless prevented by too high an assessment on the land, which I fancy is a truism universally admitted; but as to the declaration that the civil engineer had experimentally shown the ryots that cotton can be grown successfully on their nunjah land, it would, if correct, be so gratifying a fact, that I am sorry to say I believe it to be a mistake. Major Lawford did himself try certain experiments in growing cotton by means of irrigation, but the specimens of the produce which he sent to the Horticultural Society at Madras were pronounced worthless, and I always understood the thing fell to the ground.

316 to 319. 321 and 322. 323.

37. I am at a loss to comprehend what the Commissioners had to do with the financial questions touching the circulating medium, and the Accountant-general's bills on the district treasuries, which in no way appertain, so far as I can perceive, to the Department of Public Works; and are moreover, long ago, and fully provided for. The sudden transition from those extraneous points to the culture of rice, cotton and sugar, to the publication of information, and to the opening of new roads, seems quite out of place here; and those topics are again immediately followed by some dogmatical remarks on the mohturpha tax. These instances of forward assurance tend, in my estimation, to demonstrate what I have before had cause to observe, that a great deal has been purposely put forward in this Report, foreign to the duty assigned to the Commission, and introduced

introduced solely as the groundwork of tacit insinuations, that everything demanded their attention and reforming hand.

Section VII.—*Roads of the Presidency and Harbours.*

38. The Commissioners begin this section by assigning their reasons for the details which they propose to give on the subject of it; and whilst I am perfectly willing to admit that there is considerable force in many of the opinions and facts they have collected and brought to bear on the topic, I will only premise that the whole appear to me to be studiously exaggerated; and that assertions are made to uphold that exaggeration, which are not authorised by facts. 324 to 376.

39. I observe, for example, in the very first paragraph of this section, that it is declared that "an effort must be made to put the Madras Presidency more on a footing with the rest of the civilised world in this all-important particular." If this remark is intended to be applied to other portions of India, I deny its fitness, because I believe that at this hour there is as great a proportion of serviceable fair weather roads within the Madras territory, as in any one of the other Presidencies. In recording this belief, partly grounded on personal observation, and partly on information gleaned from inquiry and printed reports, I am far from meaning to dispute that there is a vast field for both extension and improvement on this score; but I must qualify even this admission, by coupling it with the same extenuatory explanation that I propounded in remarking on "Works of Irrigation;" namely, that as much has been of late years effected with regard to roads, as the means at the disposal of Government rendered feasible. 324.

40. In the matter of a road from Samulcottah* to Cocanada, on the refusal to sanction which the Commissioners have largely expatiated, I conceive that Government were perfectly right, as well as respecting that proposed from Russelcondah and Aska. In the former case, the chief objection was the attention of Captain Orr being diverted from the all-important works under his supervision at the Godavery anicut; and in the latter a second-class road appeared to me to be all that was needed; as I take this opportunity, once for all, to assert, in plain contradiction to the opinion of the Commissioners, that trade does end, and has always ended, when the rainy season begins, not merely in the Madras territory, but in every quarter of India where the monsoon prevails. 336. 337.

41. The remarks on the roads of Chingleput seem to me to be penned in the worst taste. It happens that the collector does not come up to the desired mark of the Commission for total condemnation in his Report upon them; and therefore his sentiments are scouted, and occasion is seized to state, that cart drivers are fined if they pass along the gravelled road. When this was alleged, the Commissioners must have known that the road referred to leads to the coast road to Pondicherry and Cuddalore, which it had been decided to abandon, and which was actually superseded by the southern trunk road more inland, and that even admitting the asserted rule to be in force, which I do not, Government had nothing to say to it. 354.

42. It is to be noted, that the assertion made regarding water communication in Malabar is both distorted and incorrect. The civil engineer (the second member of the Commission), had grossly failed in the superintendence of a very important work entrusted to him, and which has not been completed to this day; and I accordingly declined to afford him a pretence for showing additional neglect on more important works. That which is here remarked upon has been since ordered to be carried out. 370a.

43. The comparisons which the Commissioners strive to get up in this section, and in other parts of their Report, between the size and extent of districts under this

* *Note.*—In a Report just received from the Board of Revenue, it is notified that in consequence of adopting the bank of a canal lately cut, the road originally proposed between Cocanada and Samulcottah, will not now be required; so that if the estimate had been sanctioned when it was laid before Government, the expenditure would have been wholly thrown away. But the Commissioners' own words, as given in para. 275, page 110, of their Report, afford substantial reasons for the course pursued by Government, which in para. 336, page 134, they have inconsistently condemned.

this Presidency and the United Kingdom, with the object of drawing inferences from them, are so far fetched and inappropriate, that I hold them to be unworthy of comment; and with reference to the allegations which are so undisguisedly
383. uttered in the 383d para., it seems only expedient I should here observe, that they betoken, in my conception, great meanness of mind, and absence of proper feeling.

44. The distorted and shortsighted arguments of the Commission relative to what they term the "Surplus Ferry Funds," much surprise me; they are described as a valuable means of local improvement, which Government has intercepted, and swept into the Treasury; and yet in no district, except Malabar, are they found to have been nearly equal to the expense incurred on ferries. It is, I see, admitted to be close on 40 years since the Honourable Court authorised the ferry funds to be set apart for building bridges, providing ferry boats, &c., but I look on it to be pretty evident that the outlay was meant to be limited to the receipts, and that the local Government have, consequently, during this long period, exercised a degree of liberality not contemplated by their superiors. At all events, all I can say is, that I now, for the first time, have learned the purport of the Honourable Court's orders.

394. 45. I have recently had cause to look carefully into the present state of Cochrane's Canal; and I heartily coincide in the measures which are in contemplation for its general improvement, as well as extension, though I dissent from
(K.) some of the details that have been proposed, as will be seen in the Appendix. The improvements would have been begun upon, in real earnest, long ago, but for the want of a qualified officer to superintend them.

400 to 406. 46. The introduction by the Commissioners of their notions on the salt revenue seem to me to be of a piece with those relative to the circulating medium, Accountant-general's bills, &c., on which I have before animadverted, as being equally obtrusive and useless.

407 to 425. 47. I have no intention of attempting to follow the Commissioners through their very lengthened observations on roads. I have already declared my unqualified acquiescence in the advantages of, and necessity for, their great extension and improvement. I have likewise said that the trunk roads seem to me to be now progressing very favourably, and that I think they could not be under a better system of management. But with regard to the number, length, and
407. description of roads proposed in the "outline of a general system of roads,"
467. I hold them to be beyond the bounds of reason, if not of possibility; and I also
412. think that the deductions and calculations arrived at and formed upon them,
423. embracing the dogmatism, that the present classification of roads must be abandoned, and the opinions of Messrs. Boothby and Wight, acted on, though opposed to sense and experience, as to the necessity for roads being rendered equally serviceable throughout the year, are mere idle declamation formed to deceive, and grounded on error and quibble, of which a notable proof is afforded when speaking of the traffic on the Palghat line, which is said to have fallen off in the rainy season, not from rain, but from the "muddy" state of the road, as if there ever had been a road in any part of India that did not become muddy from rain.

Harbours of the Presidency.

48. The assertion with which this portion of the seventh section opens, viz., that the harbours have been neglected, is doubtless true to a certain extent; and
431 and 431. the reasons assigned for that neglect are, in my ideas, shown to have been the want of officers to afford practical information and supervision. It is also quite true that I objected to the trifling expenditure spoken of, as "indispensably
431. necessary to keep the new passage open" at Cocanada, both because I was convinced, from the plan submitted to Government, that it could not have had that effect; and because Captain Orr, the civil engineer, had more duty of high urgency and importance than he could attend to at the Godavery anicut. A
(L.) Minute which I append, will demonstrate, however, that the delay exclaimed against in this and other instances has been erroneously laid at the door of Government.

433 to 439. 49. I should be very happy could I join in the flattering anticipation which appears to be entertained, that the Godavery river will be found navigable, and capable of being adapted to purposes of trade, but that I cannot candidly do. I

expressed

expressed my doubts, to the same purport, when a plan was two years ago agitated for exploring the river. Even then I declared that I considered the experiment worthy of public support, and proposed that it should be strongly recommended to the Government of India. This recommendation has been since acceded to; and has, in truth, been partly put to the test, but I lament to have to say, that nothing that has yet come before me, either privately or officially, has tended in the least degree to shake my original impression. I will only add, that I warmly trust I shall be proved, eventually, to be in error, though I do not expect such a satisfactory result, judging either from my former or more recent information on this highly interesting topic. The closing observations of the Commission in this paragraph I esteem to be mere superficial conjecture, without an iota of proof to uphold it. 439.

50. The ports of Masulipatam, Negapatam, Cuddalore, Porto Novo, and Cochin are next noticed by the Commission. The mismanagement evinced in the effort made to improve the former some years back, is slurred over very discreditably; and the eventual failure attributed to "subsequent neglect," while it is notorious that nothing was accomplished with the large sum expended; and neglect could not be exhibited towards nothing. 440 to 445. 440.

51. My opinions relative to the three ports on the Coromandel coast will be found in the annexed Appendices. I do not mean to adduce them as conclusive on either side of the question, but they will vouch for my habit of judging for myself, and that I do not hastily pass opinions. The Commission should have stated the probable expense of opening up the harbour of Cochin. I have visited that port twice in my life, and have never understood till now that such a scheme was thought possible; I must therefore be permitted to doubt it, notwithstanding Lieutenant Selby's favourable opinion. The bank, which is formed outside that port, seems to be an appendage of every river in India, that disembogues directly into the sea. That off the Indus now extends out of sight of land, though it is well known that vessels of war, as well as merchant ships, used, within the last century, to sail into the river; and several of the largest bunders, or sea ports, which were vast marts of commerce in former times, are now perfectly inaccessible even to boats of the smallest size, except in the very highest floods. Those who talk so glibly of restraining great and unexplained natural causes by dredging machines and other trifling human expedients, would do well to ponder on these facts. Cuddalore (M.) Negapatam (N.) Porto Novo (O.) 441 to 445 (P.) 446 (Q.)

52. With the record of my most cordial concurrence in the opinions of the Honourable Mr. Thomas, as to the desirability of both a pier and a breakwater at Madras, I take leave to say, that I deem the very notion of either one or the other being effected by private enterprise of the people of Madras to be an illusion. One of the earliest steps I took, on assuming charge of this Government, was to recommend and obtain an Act of the Legislative Government for a pier, and the instant it was promulgated, those who had been clamorous and loud regarding the delays of Government, set about discovering some pretence for abandoning the scheme, which was accordingly done. I recommend that, should one or both be attempted again, only professional scientific men of tried talent, from Europe or America, be employed.

Section VIII.—*Proposed Scheme of Expenditure on Works of Irrigation and Communication.*

53. It seems to me that the Honourable Mr. Thomas is quite right in his view, that the Commissioners, in this section, only reiterate and enlarge on the views of the Madras Government, as enunciated in 1848; and as I cannot agree that those views are opposed to what has been practically acted on, I deny, at once, the axiom which is attempted to be established, that "there is the narrowest and strictest economy in refusing trifling outgoings from the Treasury, combined with the same practical disbelief, as of old, in those general truths which point to the sure means of vastly augmenting the income."

54. I have before expressed my sense of the necessity for, as well as benefit that must result from, a greatly increased expenditure on works of irrigation; and I have no objection to offer to the amount indicated by the Commission when "the means of superintendence likely to be available" are realised, and when thereby the money can be expended "under able and judicious direction;"

but I am very apprehensive that both these *desiderata* can only be looked for at a rather distant day. I therefore see no good at present attainable by fixing the amount to be annually laid out, which I think will be best considered and determined upon when "the superintendence likely to be available," and "the able and judicious direction" are forthcoming. I may here anticipate my further remarks on this section, by saying that I fully agree in the opinion, that the amount devoted to Public Works should be (henceforward) at the exclusive
492. disposal of the local Government.

464 and 465. 55. I neither agree with the Commission in their sentiments, as to the item of revenue which they term "The Tank Cess," nor in the forced deduction at which they arrive. It seems, from the explanation offered, to have been wisely abolished, and incorporated with the general land revenue; and were the colouring which is here striven to be given to the transaction correct, it is strange that it should have been lost sight of by successive Governments during a period exceeding half a century. For myself, I never even heard of it till now, and I opine, that it is some obsolete matter, ripped up to cavil upon, since it can scarcely be presumed that it could make any difference in the deliberations of Government at this day.

467 to 471. 56. In the preceding section I have stated my ideas of the overwhelming propositions of the Commission on the subject of roads, as well as on the extraordinary scope of their calculations. I have no intention of analyzing the details of the latter with regard to the "outlay and saving" to be incurred and effected; but I must observe, that the heedful examination which I have bestowed upon them has absolutely astonished me, as far outvieing anything that I have ever before seen or heard of. For the grounds of this one unqualified assertion, I confidently refer to the 471st paragraph, which talks of a yearly net saving of 960 lacs of rupees in the cost of carriage.

473 and 474. 57. There are one or two other points I may notice before I close this section. I do not approve of tolls, unless under very peculiar circumstances, such as on difficult ghauts, or on bridges, over broad rivers; and even there the greatest
475 to 477. care must be taken, to prevent their being turned into sources of extortion. I consider the cart tax in Salem to be unobjectionable. I object to this Government attempting local railroads, which, if once allowed, would certainly clash
480. with the general plan under consideration for all India. The opinions stated in para. 480 seem to me to be contradictory, as to the people willingly making village or cross roads. Besides being contradictory, those opinions seem to me to be upheld by arguments of absolute futility and childishness, betraying a total want
482 to 487. of knowledge of the general native character and ideas. I am wholly opposed to loans being taken up for Public Works; they will progress, I conceive, quite as fast as is desirable, through the appropriation of the overplus or available revenue. I have doubts whether steam-boats are not prohibited on canals, as being destructive to the banks. This question ought to be carefully inquired into before plans are submitted, or even any theory is built on the use of steam-
491. boats on canals, which, instead of being "the best and cheapest species of communication" would, I suspect, prove the worst and most costly. Their being
(R.) used on rivers within the Madras territory, unless for very confined local pur-
(S.) poses, such as ferries, I hold to be chimerical. I append three important Minutes
(T.) which it has become my duty to record in connexion with this subject. I leave them without comment to speak for themselves.

Section IX.—*Enlargement of the Public Works Establishment, &c.*

58. Having repeatedly and distinctly, in preceding passages of this Minute, expressed my hearty concurrence in the necessity for a large augmentation of expenditure on works of irrigation and roads, it follows, as a matter of course, that the establishments to give effect to that augmentation must be increased in the like proportion; and to this extent I cordially coincide in the views of the
494. Commissioners.

495 to 510. 59. I cannot, however, say that I have derived either information or edification from what I deem their tedious and intricate dissertation on "superintendence," and of which I am unable to guess the object, unless it be to swell the Report, as I cannot discover anything in it that the most superficial observer can fail to be acquainted with.

60. One

60. One or two observations have struck me as worthy of being cited: in para. 497, the Commission say, "the very limited scale of our professional establishments compels the employment of young and inexperienced officers in the projection of works, who, as a necessary consequence, fail to see how the object aimed at may be most cheaply and most effectively attained. In short, our engineers are unavoidably put to actual work while they ought to be only under instruction; and they gradually acquire skill and experience by a succession of errors, of which the State bears the cost." And again, "the Civil Engineer Department is looked to as the means of improving and extending irrigation, and it has already effected not a little, considering the small means placed at its disposal; but everywhere we find statements made of the insufficient strength of the establishment; and as this has been admitted by all concerned, by the civil engineers, by the Board of Revenue, by the Government, under Lord Tweeddale, and by the Honourable Court itself, it would seem hardly necessary for us to write on the subject now; but when we see that what has been universally allowed as an essential want of greater or less extent for the last 15 years, has only been nominally supplied by an addition of six subalterns to the engineer corps, we must take up the subject once again, and treat it as if it had never been understood." 497. 513.

60. Reading the foregoing quotations, and referring to the remark in another paragraph to this effect: "There has been a determined stand made against every suggested increase; and when the want of engineers, or any subordinates of the Engineer Department, has come so prominently forward, that it could not be denied or refused, the addition has been made on a scale too low for thorough efficiency, under the impression that the money spent was to yield no direct return;" it seems to my comprehension, that the Commissioners' notions are a compound of facts and sophistry, which directly go to refute each other; although the very arguments which are adduced, with evident opposite intent, clearly demonstrate, that Government exercised a sound, and in fact, an unavoidable discretion in the measures that are impugned. 510.

61. Instead of the inspecting engineers proposed by the Commissioners, I have already stated in para. 30 of this Minute, that I approve of the Honourable Mr. Thomas's plan of having four general superintendents to an equal number of divisions of the whole Presidency, to be defined by Government, and who would likewise perform the duty of a central Board. To enable the general superintendents to fully carry out their important trusts, I would advise, that there should be a civil engineer and two assistant civil engineers, as soon as they can be provided, in each Collectorate. These three latter officers as well as the general superintendents would belong to the engineer corps, to be augmented accordingly, or at least to the regular military service, if qualified candidates for such employment can be selected from it, and which I see no reason to doubt will be the case.

62. In addition to them, I would further adopt the suggestion of the Marquis of Tweeddale, which I also perceive the Honourable Mr. Thomas supports, of having an executive civil engineer, who had received a practical scientific education in England or elsewhere, and who was perfectly fitted for all the duties comprised in his designation, attached permanently to each collectorate; I would place this latter class of valuable functionaries solely under the general superintendents and collectors; and would make them entirely independent of the civil engineers and their assistants, with respect to the execution and supervision of all works entrusted to their charge and guidance. The rules, to give full effect to these arrangements, would naturally emanate at the proper time from the Governor in Council, and I need therefore here say little further regarding them, except that I entirely dissent from the views of the Commission, that that authority which can only, in my estimation, properly appertain to Government, should be in any degree "reposed in the chief engineer and Board of Works." Such an idea seems to me to amount nearly to laying Government aside altogether; besides which, I have learned nothing during my five years' residence at Madras, that should induce me to favour a proposition, which I esteem to be equally anomalous and open to the very strongest objections. 545 and 546.

63. In paras. 34, 49 and 52 of this Minute, I have offered my views on some of the projects referred to by the Commission in the 537th para. of their Report;

(U.) (V.) and I need not therefore repeat them here; but I beg again, to call particular attention to Appendix (D.), which distinctly and wholly refutes the unconditional assertion, that the questions, as to the sewerage of Madras, and the provision of a sufficient supply of good water for domestic use, "have recently been indefinitely postponed by Government after some inquiry, on the mere ground of expense."

537. I desire, by soliciting special reference to that Appendix, to hold that assertion up to the reprehension it merits, as a glaring misrepresentation. It will be seen, that I took the greatest pains to examine most carefully the scheme to which it refers, and because I did not see cause to concur entirely in it, or in any measure in a quantity of appended extraneous nonsense, the Members of the Commission have forsooth forgotten what was due to honesty of report, and have indulged in the misstatement which I have quoted above, and which I hereby denounce in plain terms.

537. 64. The insinuated threat or warning with which the paragraph I am reviewing closes, strikes me to be the very acme of absurdity. I believe there exists neither "knowledge" nor "public feeling" on any such question amongst the population of Madras; and I further believe, that were it practicable, at this hour, to ask the 700,000 people of whom that population is said to be composed, their opinion, individually, on the project so "important to their health," and "in a measure to their lives," there would not be found five indifferent persons of all classes, who had either ever heard of, or thought of it; nor one man, whose interests are in any way concerned, by its meddling with his grounds, gardens, tanks or wells who would not earnestly vote against its adoption.

65. As I have stated my opinion to be against the establishment of a central Board of Works; and have also pointed out the mode which I would propose for the discharge of the duty of civil assistant, civil and executive civil engineers in the provinces; and as the whole system to be hereafter introduced must necessarily, in a great measure, hinge on the decision that may be come to on those points, it would be quite fruitless for me to enter into any examination of the comprehensive plans of the Commission for subordinate establishments. I must however say, that they occur to me to be both extravagant in allowances, and excessive in number; and did it rest with me, I would strike out the whole of the newly proposed class of sub-engineers, and reduce the overseers and sub-overseers to 50 of each class, for the whole Presidency; paying them on the most liberal scale that may be granted to the same classes in Bengal, the North West Provinces, and Bombay.

66. I agree not simply with the Honourable Mr. Elliot, that it is not expedient that Government should continue wholly dependent on the corps of military engineers for the supply of officers required for civil engineering; but I go farther, and, as I have said in para. 61 of this Minute, I think that officers from the artillery and line should be employed, in all branches of the Public Work Departments, including irrigation, roads, &c., wherever they can be spared from their corps, and are found by actual practical tests, in contradistinction to theoretical chamber examinations, which I utterly decry, to be possessed of the necessary scientific qualifications. My sentiments on this much-mooted question will be learned from the annexed Appendices connected with my nomination in (D.) December 1852, of Captain Greenlaw, of the 46th Regiment, N. I., to be assistant secretary to the Board of Revenue Department of Public Works.

67. Those documents exhibit my conclusions upon the exclusive, and, as I conceive, short-sighted policy which that Board suddenly thought fit to adopt, at direct variance with their original application to Government; which only extended to procuring an uncovenanted assistant to their Secretary. I saw no reason, as the Minutes will explain, to change my views, to conform with those of the Board, and the appointment of Captain Greenlaw took place. The result was, that the officer at the head of the engineer corps (Lieutenant-Colonel Cotton), and several junior officers of that corps, avowedly acting under the instigation of their superior, had recourse to the unprecedented and indefensible step of addressing individual memorials to the Home Authorities, exclaiming against what was arrogantly set forth to be an invasion of their prescriptive rights. For the opinion which I formed, and hold still, on that presumptuous transaction, I request that reference may be made to the annexed Appendices.

CONCLUSION.

Sections X. & XI.

68. A considerable portion of the X. and XI. Sections appears to me to be formed by repetitions of "thrice-told" exhausted topics; and in a good deal of the remainder, I cannot help thinking that the Members of the Commission have wholly gone beyond their proper field and sphere, by intermeddling with subjects with which they had no sort of concern; as well as by advancing opinions on momentous questions, which I hold to be for the special and exclusive consideration of the highest authorities alone; and those opinions, moreover, conveyed in numerous instances in offensive and presumptuous language.

69. I admit it to be true, that some useful hints may be gleaned from even these two sections, and so far they may, perhaps, be tolerated; but I confess I cannot forbear smiling when I see that the Commissioners assume to themselves the right to dictate what augmentation is to be made to the engineer branch of the Madras army: to criticise and correct the established course of education at the Military College at Addiscombe in England; to point out, and provide for the defects of the course of instruction of young officers, on their first arrival in India; and finally, to lay down rules and regulations for the establishment of an institution, on the principles of that at Roorkee in the North Western Provinces, in such terms as might, and certainly would, lead those who were not cognizant of the truth, to fancy that the Government of Madras had never before thought or heard of that institution; and assuredly, not to suspect that they have repeatedly, during the last three years, solicited authority to found a similar one under this Presidency. Indeed, it strikes me that it displays no little evidence of ingenuity in the art of subterfuge and evasion on the part of the Commission, that they should have been able to compose so many high sounding and prolix paragraphs on what they term the outline of a college; without the most distant allusion to the fact I state, and of which the members were perfectly conversant. 612 to 637.

70. I beg to conclude this subject by expressing my hope, that whenever such an institution shall be sanctioned at Madras, it may be placed under the guidance and direction of Major Maitland of the Artillery, now Superintendent of the Gun-carriage Manufactory, an officer eminently qualified for the charge; that he may be granted whatever subordinate assistance he may apply for, and that he may not be interfered with by the chief engineer as visitor, or under any other capacity or denomination; such interference being, in my judgment, certain to lead to continual and useless disputations.

71. I cordially adopt the following remark from the 84th para. of the Honourable Mr. Thomas's minute: "I should therefore, notwithstanding the institution of a college, advocate the introduction into the Public Works Department of men from all departments, or wherever they might be found with the requisite qualifications of civil engineers, and advance such men, as Lord Tweeddale proposed, to the highest posts and duties in the Civil Department."

SUMMARY.

72. In section 11 the Commissioners briefly sum up their opinions on the different sections, and I will adopt the same course.

Section II.—*Condition and Wants of the Department of Public Works.*

73. I concur with the Commissioners that the Department of Public Works, in its present footing, is wholly unfit for and unequal to its duties; I therefore recommend that it should be at once set aside, and a large increase made to all branches of a new one, to be fashioned on a plan explained in a subsequent section.

Section III.—*Department of Trunk and other Roads.*

74. I am strongly and unqualifiedly opposed to the recommendation of the Commissioners, that the present Road Department shall be abolished. I have no objection to its being enlarged and strengthened; but beyond this, I must withhold my acquiescence, as to either the correctness or advantage of anything that is advanced by the Commission respecting the existing Road Department.

Section IV.—*The Military Board.*

75. The Military Board ought, in my ideas, to be at once abolished. I speak from my immediate personal observation and experience, as stated in the body of my minute, when I declare it to be worse than useless, and a mere cloak for official neglect, delay, and the avoidance of any shade of personal responsibility.

Section V.—*New Board of Public Works.*

76. A Board, such as the Commissioners advocate, would be, I conceive, merely prolonging the present evil system; I cannot therefore accede to it on any terms whatever. I recommend general superintendents to certain divisions of the country, which would, as I have explained, comprise personal inspection, individual responsibility, and vastly improved efficiency.

Sections VI. and VII.—*Value of Irrigation and of good Roads, Harbours, &c.*

77. I include these two sections under one head, because I have only to observe that I coincide generally with the Commission as to the value of the works to which they refer; but I neither agree in their highly exaggerated estimates for the future, nor in the erroneous deductions respecting the past. The former seem to me to depend almost solely on means that have yet to be created, and which have at no period existed within the Madras Presidency. My ideas as to harbours, rivers, canals, &c., will be fully gathered from the text and appendices, and I have nothing to add to those points.

Section VIII.—*Expenditure on Public Works of Irrigation and Communications.*

78. I can see no object to be gained, or use, in laying down at this time the amount to be expended on the works named at the head of this section. That, I think, will most conveniently and properly be left to be fixed by the local Government when proper supervision is forthcoming; I will only state that I am not myself inclined to recommend that money should be borrowed to carry on Public Works, unless in cases of evident emergency, such as are not likely to happen.

Sections IX. and X.

79. I have nothing to add to the observations which I have offered in the body of my minute on these sections.

80. I am sorry to end this minute as I began it, by observing that I believe it to be an unexampled instance of individuals, in the station of the members of the Commission, failing to acquit themselves of a duty entrusted them, of reporting truthfully and impartially on important public matters referred for their consideration. That I cannot by any means allow they have done: in fact, I affirm that they have not only so failed, but that they have vitiated whatever may be really beneficial in their Report, by mixing it up with low contempt towards their superiors, combined with exaggerations and misstatements; so that in lieu of being perused and studied with that entire confidence which such official documents usually inspire, it will only be examined and read with distrust. I think this is much to be regretted in a public point of view. The Commission had an excellent opportunity of doing great good service, which I conceive they have signally thrown away. They may perhaps, however, gain by their procedure the applause of parties, both in Europe and India, whose standing maxims would appear to be that Government neither ever do that which is right, nor are actuated by wise and proper perceptions and motives. On the other hand, I am much mistaken if they do not lose the favourable opinion and respect of honourable and rightly-thinking men, who judge of others by that high standard that guides their own actions, whether of a public or private nature, through life.

Madras, 29 October 1853. *Henry Pottinger.*

APPENDIX.

Appendix (A.)

MINUTE.

THE draft of the letter to the Government of India has just been returned to me, with certain remarks embodied in a minute of the 12th instant by my honourable colleague, Mr. Thomas.

I have not had time to devote to a complete and careful perusal of the First Report of the Commissioners on the system of Public Works, and therefore I passed the draft of the letter above denoted without comment; but as the Hon. Mr. Thomas has since briefly recorded his sentiments,* and as they have just come back to me, and my silence might be interpreted into dissenting from his views, I beg most distinctly to say that I entirely coincide in them, and shall endeavour at some future period to show my reasons for the opinion I have formed, that this First Report of the Commissioners is one-sided; that it misrepresents the actuating motives and real feelings of Government with regard to its measures for the improvement and amelioration of the country; and therefore, that it is not entitled to that confidence, though some facts set forth in it may be well supported, which such a document should command to render it of any general practical use.

* Minute dated 12 April 1853.

(signed) *Henry Pottinger.*

13 April 1853.

Appendix (B.)

MEMORANDUM.

I CONCUR generally in all the remarks of the Hon. Mr. Thomas, which contain many valuable hints, and much information which will be very useful to me when the question comes finally before me.

I am still inclined to press the appointment of an efficient assistant secretary to the Revenue Board D. P. W. I do not see that it need be an engineer officer; one of any branch of the service who is qualified for the important duties that will devolve on him, even as an assistant in that department.

I know of no one myself at this moment, but I should hope some officer might be found. He would require a competent knowledge of engineering, &c., and above all, to be a good man at calculations and with his pen.

(signed) *Henry Pottinger.*

15 March 1852.

Appendix (C.)

MEMORANDUM.

LETTER from the Public Work Commissioners, No. 390, dated the 21st of November 1851; and Extract from the Proceedings of the Board of Revenue D. P. W., No. 20, dated the 15th of January 1852.

THE summary of the proposal of the Mahramut Commissioners, as contained in the first of the above documents, is so clearly given in the Hon. Mr. Eliott's memorandum of the 10th of December last, that I need not repeat it.

I observe that the Board of Revenue, D. P. W., recommend that proposal for adoption, and support their recommendation by quoting various instances in which the plan which it advocates, of placing the trunk roads in charge of the civil engineers of divisions, has worked well.

I am equally satisfied with the Mahramut Commissioners and the Board that a radical reform is urgently required in the Road Department, which I have before been unwillingly forced to declare has, as I conceive, totally failed in the high hopes that were formed of it when it was first organised on its present footing; but when I look to the unceasingly laborious and responsible duties with which the civil engineers are already charged, I cannot,

after much reflection, bring myself to think that it would be for the public good, or even fair towards those functionaries, to heap more duties on them.

Besides the above cogent reason, I see many objections to any change in a temporary form. Changes inevitably bring with them a certain degree of confusion and attendant references and delay; and as I trust we may now soon expect to receive the final report of the Committee which has been so long sitting on the Public Works Department, I strongly advise that that report be waited for, before any orders on the papers now before me are issued.

In the meantime, however, it is impossible not to see that the Secretary to the Board of Revenue D. P. W., has more work to do than he can possibly get through with every exertion; and should my honourable colleagues be of the same opinion, I am ready to apply to the Government of India for sanction to an assistant secretary being added to the Board of Public Works. The vast increase in that department of late years, and which is certain to progress, demonstrates, in my estimation, that something must be done to render it more efficient and equal to the work it has to perform; and whatever final arrangements may be decided upon, it is to me self-evident that the addition I now suggest will be one of the first steps to be taken.

(signed) *Henry Pottinger.*

27 February 1852.

Appendix (D.)

Minute.

Printed Letter from the Military Board, No. 723, dated the 20th of April 1853; with a Printed Collection of Documents regarding the Drainage, Waterage, and Sewerage of *Black Town*, and other parts of *Madras*, &c., &c.

The above documents have been with me for some days past, and I had before looked into them, but it is only now that I have had leisure to read them through regularly, and put my sentiments in writing.

Whatever conclusion other persons may come to as to the varied projects which are therein developed, I am constrained to avow that I rise from a careful and unbiassed perusal of these papers under strong personal impressions that the plans they propound are all but impracticable. I conceive that the arguments brought forward in support of those plans are altogether one-sided and partial; that, whilst blinking all the difficulties and obstacles which are inseparable from an examination of this or any similar scheme, they display and extol its facilities and recommendations, and apparently assume, as a matter of course, that its objects and advantages are of certain and easy attainment.

Although, as I have just stated, I personally entertain very decided ideas of the non-practicability of the whole scheme, yet I am ready to admit that, could it be carried out, it would prove a vast boon to Madras. This admission, however, leads me to add, that I do not believe that, admitting there are no insuperable obstacles, and under the most favourable circumstances, so great an undertaking could be completed under a less cost than six, or possibly eight times the amount of the comparatively trifling sum spoken of in the chief engineer's memorandum; and therefore, before any step is taken in connexion with the matter, I deem it to be imperative that it should be submitted for the information and orders of the Honourable Court; and further, that should they be pleased to approve and authorise its consideration, the most minute surveys and estimates of every part of the work to be performed, be made and prepared by the officer who may be selected to superintend it; and who will accordingly, fully and perfectly understand, that he will be held personally responsible for their accuracy; and will not in the event of failure, whether complete or partial, be allowed to exculpate, or screen himself under the opinions and views of any other individuals.

Three lacs.

It seems hardly necessary, with advertence to the foregoing observations, that I should enter into any details or analysis of the grounds of them, but to show that my views are not based on a mere superficial examination of the question, I will, as briefly as possible, state certain points that have occurred to me to be open to considerable doubt, and which will hereafter require to be minutely looked into.

1st. I believe that the area of the proposed tank, or reservoir, comprises a large portion of the lands of several villagers, who must be compensated for it, before it is appropriated.

2d. I have no sketch or plan of the locality to refer to, but my impression is, from having once or twice ridden over it on horseback, that the site of the intended reservoir lies on the southern and western side of the Adyar, or that at the best, that river runs along one edge of it, and I cannot at all comprehend how any bund or embankment can be formed in such a position, to overcome and resist the violence of what is frequently swelled to an irresistible and tumultuous flood.

3d. Supposing

3d. Supposing it, however, possible at a very heavy outlay to restrain the water within the area of the tank or reservoir, how is it to be raised to the top of the northern and eastern bank of the Adyar, which at the point opposite the tank, where I presume the mouth or inlet to the canal is to be fixed, cannot, I should roughly guess, be less than 100 to 150 feet high.

4th. No provision is made that I can see, for either a total or partial failure of the periodical rains, or even for what might be termed a very dry hot season, in which during the, comparatively speaking, few years I have been at Madras, both the rivers Adyar and Cooum have oftentimes ceased to flow in the least degree, and have been consequently formed into stagnant pools. In such cases, I would inquire what is to be done for water to supply the great reservoir and its appendages?

5th. Granting, however, that the difficulties which have appeared to me as above described shall be surmounted, excepting of course, those proceeding from natural causes, like the want of rain, I have the greatest misgivings as to the practical working of the chief canal; the detailed distribution of the water to the variety of purposes to which it is to be applied; the provision of ground in the thickly inhabited and populous quarters of Madras, for the beds of the multiplicity of minor channels, locks, sluices, reservoirs and cisterns; and I hold it to be quite certain, that the owners of the extensive lands, all of which are I fancy "Meerasee," and which are now kept in a permanent state of very high cultivation, by irrigation from the waters of the existing tanks, which the canal is to absorb, will never be contented to forego their immemorial rights and advantages, to meet the far-fetched and questionable project before me.

I have now stated my candid and unprejudiced sentiments, as to the proposition brought forward by Lieut.-Colonel Cotton, and here perhaps I might fitly decline any further remarks; but before closing this Minute, I feel it to be a duty I owe to the public and to Government to express my great surprise at the extraordinary course which the Military Board have seen fit to adopt, by mixing up the original subject of Lieut.-Colonel Cotton's plan with long, and I must add unmeaning, dissertations on the healthiness of Madras, as though the one chiefly depended on the consummation of the other.

In former remarks, which I have had occasion to offer on the general salubrity of Madras, when discussing the long mooted topic of the drainage of Black Town, I have said, that I consider it, looking to its extent, dense population, and natural position, the very healthiest town in India, if not in the world; and I perceive nothing in the dissertation with which we are favoured in this "printed collection," that tends to shake my confidence in that assumption.

I observe no reply from the chief magistrate, to the call made on him for his opinion on the multifarious schemes of the Military Board, in their letter to him of the 8th of November 1852; and I confess, I am inclined to applaud that first-rate public officer for his discrimination and good sense in not attempting to fathom those schemes, many of which appear to my mind to be based on downright theory, without an approach to the smallest practical reasoning.

The article under the head of "Sanitary Report on the 4th District of Madras," occurs to me to be absolutely contradictory. It sets out with stating, that "it is unquestionable that there are many circumstances in the peculiar character of Madras which are at all times predisposing to affect unfavourably the sanitary condition of its inhabitants;" and a little further on it observes, "I consider that the immunity from endemic and epidemic diseases which Madras generally enjoys, is attributable to the dry character of its climate, whereby the unhealthy influences enumerated above, are in some degree negatived, but in the event of unusually humid seasons, or under that peculiar constitution* of the general atmosphere which produces the invasion of epidemic cholera, or other disease, there can be no doubt that we possess an alarming degree of the elements likely to favour and to aggravate such visitation."

I ask any impartial person to explain what the above extracts mean. For myself, I not only differ "in toto" from the doctrine which either of them advances, but I unqualifiedly and cordially concur in the opinion laid down some time ago, by the Honourable Mr. Thomas, that there is something in the air, soil, and general features of Madras, peculiarly tending to the salubrity of its climate, and consequent healthiness of its redundant population; I will only add, with reference to a remark contained in the same paper, that I am wholly at a loss to comprehend what the clearing of the banks in the bed of the Adyar River, which flows through a quarter celebrated for its healthiness, has to do with the sanitary condition of the 4th Division. I read, with a certain portion of surprise and humiliation, the vapid attempts which are evinced in this printed collection of sensible and well-informed men, to countenance the schemes, which it has been my task to protest against.

(signed) *Henry Pottinger.*

16 May 1853.

Appendix (E.)

* I should like to have this defined for universal information. I have met with no medical man who pretends to such occult knowledge.

(signed) *H. P.*

Appendix (E.)

Memorandum.

The neglect and total want of system, which have called for this Draft Minutes of Consultation, are so wholly at variance with anything that I have ever been accustomed to, that I am at a loss to express my surprise and reprobation of them. Can it be wondered at, that I hesitate to sanction new estimates and expenditure, when I find that those which have been already authorised are allowed to remain in so unsatisfactory and discreditable (to all concerned) a state? I desire, that the Accountant-general's letter and these papers may be sent to me on return from circulation, that I may consider the proper means of relieving myself personally from any further responsibility in such matters, and may suggest steps for forcing the different revenue and other officers to do their duty to the public.

(signed) *Henry Pottinger.*

24 May 1850.

Memorandum of Unadjusted Balances.

	Rs.	*a.*	*p.*
Rajahmundry	1,838	2	4
Masulipatam	12,322	7	3
South Arcot	20,942	2	9
Tanjore	6,172	11	3
Vizagapatam	1,344	13	1
Coimbatore	9,098	5	4
Ganjam	136	1	7
Madura	20,299	15	8
Nellore	73	8	–
Malabar	12,646	2	5
	84,874	5	8

Appendix (F.)

Memorandum.

I have always declared, and I repeat that declaration, that there is only one mode of having such items settled, and if necessary, recovered. That is, by making a collector when he is first appointed to a district, immediately and personally responsible, and obliging him, as is done under the Bombay Presidency, to give a certificate to his predecessor that he has looked into and understood all the outstanding balances, and is prepared to account for them. Here we find items of charges lying over for 18 years, during which repeated changes have taken place in the Revenue Head of the Collectorate, and now Government are annoyed by lengthy references from which no possible good, that I can see, is to be expected. I recommend that the matter be dropped, or else the present collector be called upon at once to refund the disputed sums.

(signed) *Henry Pottinger.*

15 November 1852.

Appendix (G.)

Memorandum.

I do not agree with the observation in the margin, by the chief secretary. A collector who is resolved to do his work, as it should be done, will always find time to call for, and examine, the balances; and the laxity which pervades this Presidency on the subject of accounts is to me quite surprising. In fact, were matters properly conducted, I do not see how these balances could possibly exist. In my notion, not only should the accounts of every collectorate be finally and perfectly closed at the expiration of each fusly (showing any unadjusted balances, even to a rupee—in a separate statement), but, that the accounts of each tuhseedaree should be closed each month.

This

This is the only remedy to apply to these arrears. Where money is advanced to engineer, or other officers, for particular duties, it should be debited to them personally until completely accounted for. I shall probably have an opportunity of recording these sentiments more formally ere long; and in the meantime I propose that this useless correspondence be ended.

(signed) *Henry Pottinger.*

30 November 1852.

Appendix (H.)

Minute.

Captain *Lake's* Project for an Annicut across the Kistnah River, with former Proceedings and Report of the Committee appointed by Minutes of Consultation of the 5th of September 1848.

On first reading Captain Lake's Report, with those of the collectors of Guntoor and Masulipatam, which were submitted to Government with the proceedings of the Board of Revenue of the 7th of August 1848, the impression I imbibed (and of which I made a note at the time) was, that the estimate framed by the former officer was far below the probable expense. This impression has, I see, been fully corroborated by the Report of the Committee, which has calculated the outlay on the annicut alone at (in round numbers) seven and a half lacs of rupees, being, as nearly as possible, seven-eighths ($\frac{7}{8}$) in excess of Captain Lake's first computation.

400,000
750,000
Rs. 350,000

It was not, however, to the annicut alone that my apprehension of the inadequacy of Captain Lake's estimates extended. I fear he has under-rated the cost of all the subsequent improvements, intended to give the annicut "full effect." On reference to his Report, it will be observed, that he allows only 1,000 rupees a mile for making roads, which seems to me far below the mark; and after the charges which I have seen sanctioned for channels, sluices, embankments, &c., in other places, I can place but little confidence in the sums he has put down.

I am aware that the sums detailed in the para. which I have cited, point to ulterior measures; and I find that the Board of Revenue D. P. W., in their proceedings, handing up Captain Lake's Report, say, "probably not more than one lakh (independent of repairs) will be required for the actual distribution of the waters upon the lands, exclusive of the Delta, for some years. Thus the proposed present outlay will be,— Para. 30.

For Annicut - - - - - -	402,639
Distribution of water - - - - -	100,000
Rs.	502,639"

But this is avowedly only a conjecture, and moreover, does not include the Delta; of the extent of which (in comparison with what it does include) I am necessarily ignorant. With these uncertainties, I confess it appears to me to be impossible to pronounce with any degree of confidence, whether the annicut, when perfected, according to Captain Lake's most enlarged plan, will have cost 20 or 30 lakhs of rupees; and even to render it available, on the modified scale described by the Revenue Board, I do not think we can reckon on a less outlay than one moiety of the first-named sum, viz., 10 lakhs of rupees.

I trust it will not be imagined from the preceding remarks, that I am wishing, or meaning, to throw cold water on the project. On the contrary, no one can be more anxious for its completion, or more alive to the advantages and blessings which it is calculated to diffuse by its operations, than myself; but I feel that it is right not to allow my judgment to be biassed by my anxiety to see the project carried out, and therefore I have, after mature and lengthened reflection, candidly stated my opinions; to which I will only add, that laying aside the question of the undoubted benefit that must accrue, in due time, to the State by a great increase of revenue, I esteem it to be a positive duty which the British Government owe to the inhabitants of the districts which the annicut is meant to fertilise, 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.

I have only to further state, that from a careful consideration of all that is recorded in the papers before me, I entertain no doubt of the feasibility of Captain Lake's plan; and that I am likewise satisfied, that the point which that officer has selected for the site of the annicut, is the proper (or perhaps I might say only) one. I accordingly recommend that the whole of the documents and plans which are now circulated be transmitted to the

Honourable Court, with the earnest recommendation of this Government in favour of the project; but at the same time accompanied by an intimation that, should it even be fully approved and sanctioned, no steps will be taken for commencing on the work until the Godavery annicut shall not only have been completed, but shall have stood the test of at least one season of floods and inundations.

(signed) *Henry Pottinger.*

18 June 1849.

Appendix (I.)

Minute.

Letter from the Secretary to the Board of Revenue D. P. W., No. 632, dated the 12th of May 1853, with various Inclosures and Plans, submitting a project for an Annicut across the Palaur River near Arcot, at an expense of rupees 7,95,963. 13.

I have read with great attention and interest the above letter and the correspondence with it, and have also minutely examined the map and plans to which they refer.

I consider the project of an annicut across the Palaur river at Arcot to be a very admirable one, and one of which the benefits can scarcely be over-rated.

It is impossible that I can follow the civil engineer of the 4th division through the calculations, plans, and estimates, nor does it appear at all necessary that I should attempt anything of the sort, but I may say, that they appear to me to have been prepared with the greatest care and skill, such as to entitle them to perfect confidence.

The eventual out-turn of this desirable project is shown to be likely to far more than repay the outlay as soon as the ryots shall have the means, and shall have acquired confidence, to avail themselves of the vast facilities which it will afford them to extend and improve their cultivation.

This is undoubtedly a very important object, and one which ought never to be lost sight of in schemes of this nature, but it occurs to me, that a still more momentous desideratum is sure to be attained by the Palaur annicut. I mean that of effectually protecting the districts which it is intended to fertilize from all possibility of scarcity or famine—so far as human means are available to effect that end.

I therefore cordially and unhesitatingly commend and concur in the design, and propose that it be immediately submitted to the Honourable Court, with the strongest recommendation of this Government that it may meet with their early sanction.

(signed) *Henry Pottinger.*

25 May 1853.

Appendix (J.)

Memorandum.

Minute by the Honourable Mr. *Thomas*, dated the 25th of July 1853, on the project for an Annicut across the Palaur River.

I suppose the above Minute, though placed on record after the Draft Mins. of Cons. was prepared, will require to be forwarded with the rest of the papers on the matter to which it relates; and so far as it rests with me I entirely approve of that being done.

I consider the remarks made by the Honourable Mr. Thomas to be equally sound and well grounded; and it strikes me to be desirable that they should be looked into before the matter goes further.

The chief point to be ascertained appears to me to be the capability of the Palaur river to supply the tanks that are to be fed by means of the annicut with water, in seasons in which the north-east monsoon may wholly or partially fail; as it is self-evident, that such scanty seasons will be those in which the advantages and blessings anticipated from the work will be of the greatest value to the country and people.

I would therefore advsie that the Board of revenue be called on to Report, in concert with the civil engineer of the 4th division, on this momentous question to the success of the whole plan.

The

The next point to which the Honourable Mr. Thomas refers is, the possible necessity for a revision of the assessment, so as to assist in retaining prices of grain, when the full effects of the annicut shall have brought a large additional extent of land under cultivation, at such rates as will prove remunerative; and I concur with my honourable colleague in proposing that this point be likewise referred for the mature consideration of the Revenue Board. At the same time I think it right to state, so far as I can judge from my comparatively short experience of the fluctuations of the seasons in this part of India, that I deem it probable that the superabundant produce in one district will often be needed to compensate for deficiency in others; and I also see abundant reason to hope that extension of cultivation under the different annicuts will in due time not be confined to rice and grain, but will embrace a vast increase of sugar, indigo, the manufacture of rum, and other articles adapted to the markets of England, and foreign Europe.

The improvement and extension of roads, to open up the districts to be fertilised by the annicuts, are of the highest moment, and ought to engage early attention. This seems to me to be particularly desirable in the districts through which the waters of the Palaur Annicut are to flow, as there are, I fancy, in them no means of forming canals, such as will partly answer the purpose of roads in Rajahmundry, Masulipatam, and the other northern districts where the face of the country is level, and the supply of water certain and superabundant.

(signed) *H. P.*

2 August 1853.

Appendix (K.)

Minute.

Letter from the Secretary to the Board of Revenue, D. P. W., No. 917, dated the 18th of July 1853, submitting Estimates for a Lock and Calingula to be constructed at the north end of Cochrane's Canal, and for extending (a Branch of) the same Canal to the Railway Terminus near Clive's Battery, the former amounting to *Rs.*15,469. 4. 9, and the latter to *Rs.*35,734. 6.

On the 4th of March 1852, the Military Board handed up an estimate amounting to *Rs.*1,995. 13. 4. for removing the accumulation of mud and sand from the bed of the Cooum River, agreeable to custom, and in conformity with the sanction of the Honourable Court, who had authorised an annual outlay of 2,000 rupees for that purpose.

In sanctioning this estimate the Government expressed their doubts whether any permanent advantage was gained by this outlay, and directed* the Military Board to obtain the opinion of the chief engineer as to the advisability of continuing it in future; as well as regarding the improvement of the Cooum River, to which the Military Board's particular attention had been previously directed.†

* Mins. of Cons., 18 March 1852.

† Mins. of Cons., 23 April 1851.

On the 7th of June last the Military Board, in reply to the above, addressed a letter to Government, accompanied by a memorandum, drawn up by the chief engineer, proposing the construction of a lock at the northern or Ennore end of Cochrane's Canal, as the best means of retaining at all times a large volume of water in the canal, and likewise in the Cooum River, and thereby improving both.

After giving my best consideration to the letter from the Military Board and its enclosure, I stated my personal sentiments, grounded on actual observation, in two memorandums of dates as per margin,‡ and of which I here annex transcripts: —

‡ 24 June 1853. 3 July 1853.

"*Memorandum* (A.)—I have no objection to an application being made to the Government of India for sanction to this expense (12,000 rupees), but must say, that I do not clearly see how the project is to answer the proposed purpose, even so far as keeping the bed of the Cooum River clear and free from noxious smells. I also strongly apprehend that a lock on the Cochrane's Canal at the point indicated (or in fact any other) will interfere most seriously with the free navigation. The passage up and down of boats appears to me, from recent observation, to be almost incessant; and if it is intended that they should all be kept in or outside the lock, till the tide suits for its being opened, I fear loud complaints will be justly made against such a system. I further apprehend that the observation that 'only an insignificant body of water will escape when the lock is opened,' will prove erroneous. The rush of water outwards will be tremendous, and the management of the lock will be, I suspect, attended with much difficulty.

"24 June 1853."

(signed) "*H. P.*"

"*Memorandum* (B.)—I see no satisfactory explanation as to the fears I have expressed in my memorandum of the 24th ultimo, regarding the navigation being seriously impeded. If the lock is to be kept open at the fall of the tide, it seems to me that the whole of the water will run out. After heavy floods I believe the lock will be wholly useless.

"3 July 1853." "*H. P.*"

Whilst the matter was under discussion, his Excellency the Commander-in-chief left the Presidency, and the Honourable Mr. Thomas being also absent, the Members of Council present were reduced to two. The Honourable Mr. Elliott did not appear to share in my doubts, and as the only objection I felt to the scheme arose from my apprehension of its success, and I had fully given my reasons for dissenting, I did not deem it proper, on my single judgment, to oppose it further; and I accordingly concurred in the application made to the Government of India on the 6th of July, for sanction to the required amount (12,000 rupees).

The Board of Revenue D. P. W. have now submitted the two estimates, described at the head of this minute. That for the lock and calingula at the northern end of Cochrane's Canal, shows an increase of *Rs.* 3,469. 4. 9. on the original sum.* The other, for a branch canal to run at right angles from the present one, and parallel to the railway, to Clive's Battery, amounts to *Rs.* 35,734. 6. 0.

Rs. 12,000.

The proposed augmented expense on the lock and calingula at the northern end of Cochrane's Canal is not apparently intended to cause any alteration with regard to those works, beyond the additional outlay; and as I have already stated distinctly my opinion on them, it is not necessary that I should repeat it here. As, however, the letter from the Board of Revenue D. P. W. may be assumed to have re-opened, as it were, the question, I feel it right to declare that my opinion continues unchanged, as will be seen by the annexed copy of a Memorandum (C.) which I made on the Revenue Board's letter when it first came to me:—

"*Memorandum* (C.)—I should wish this letter to be laid before Council; I have seen no reply to the remarks which I made on the letter from the Military Board of the 7th of June, and as I cannot approve of the proposed lock at the mouth of Cochrane's Canal, and am also doubtful of the efficacy of the extension of that canal proposed to Clive's Battery, I want the matter to be further considered before we apply for sanction.

"5 August 1853." "*H. P.*"

With regard to the contemplated branch to the present canal, to extend to Clive's Battery, I have given it my very best reflection, and have likewise looked at the ground through which it is to be dug. I cannot, I confess, see the object of digging a basin or canal that is to be close to and parallel to the railway, and which must be rendered passable to the public by the erection of not less than five or six bridges, even if that number will suffice. Should the traffic so increase hereafter as to call for additional basin room, the present canal might, I conceive, be advantageously widened and enlarged in close proximity to the bridge by which the railway is to cross "Cochrane's Canal," either above or below it, or on both sides; and an extensive and convenient wharf built along the eastern bank, for landing all goods from boats, with facilities for transferring them to a rail or tramway, instead of transporting them to the beach at Clive's Battery, down the proposed basin or canal, attended with the serious and obvious inconvenience and labour of the boats conveying them, being obliged to pass under half a dozen of bridges in a distance of somewhat less than half a mile.

In conclusion, judging from the local experience I have acquired during my residence at Madras, and also weighing the opinions of those whom I have consulted on the subject, I am bound to say, that I do not think that any expedient that can be hit upon will prevent the bar at the mouth of the Cooum River being naturally opened on each and every recurrence of a high flood from the interior; and on all such cases it is self-evident, that both the lock and calingula at the northern end of Cochrane's Canal, and the newly dug basin, will, for the time, cease to be of any use, however slight. This fact indeed seems to me to be admitted in all the papers; and though it is made as light of as possible, yet it strikes me to be a vital objection to the whole project.

Did I believe that the projects were feasible I should cordially support them, but as I do not think either will answer the desired purposes, owing to natural obstacles that cannot be overcome, I desire to place that opinion on record, and only hope I may prove to be mistaken.

I request that a copy of this minute may be sent with any application that may be decided on, and likewise transmitted to the Honourable Court.

(signed) *Henry Pottinger.*

29 August 1853.

Appendix (L.)

Minute.

Letter from the Secretary to the Board of Revenue Department Public Works, No. 168, dated the 2d of June, submitting Plans and Estimates for the Improvement of the Ports of Coringa and Cocanada, with a Memorandum by the Chief Engineer.

I have read the above letter, and the papers that are in circulation with it, very carefully.

As the works at Coringa and Cocanada appear to be quite separate, I suppose it is competent for this Government to sanction the aggregate amount* asked for, and I have no objection to that being done; but to any further expenditure on "more extensive improvements," I wish it to be clearly understood that I will not grant my consent without the previous authority and approbation of the Honourable Court, to whom the estimates, &c. will therefore require to be sent. *Rs. 17,887. 13. 4.

Had the Board of Revenue D. P. W. not frequently before committed the same fault, I should have felt some surprise at their handing up, without offering any remarks on it, a paper so full of groundless assertions and errors as the memorandum by Lieutenant-colonel Cotton. That officer broadly asserts, that the River Godavery is navigable for 450 miles, and speaks of the success of Messrs. Palmer & Co.'s enterprises; whilst I happen to know, from my personal knowledge, that they were all utter failures, and abandoned in consequence years before that firm became bankrupt.

I consider a great portion of Lieutenant-colonel Cotton's memorandum to be highly improper and disrespectful in its tone and purport; it attempts to establish as a fact, that the delays of which he complains have been solely caused by the supineness of Government. He, as well as the Board of Revenue D. P. W., seem to have forgotten, that a report on the harbours of Cocanada and Coringa was called for above seven years ago, and that that call was repeated in 1848, a few months after I assumed charge of this government. He and the Board likewise overlook, that by the Minutes of Consultation of the 11th of January 1850, the Government declined to approve of Captain Orr's plans for improving the port of Cocanada, partly for the reason that that officer's time and thoughts were believed to be fully occupied with the Godavery Annicut, and partly because the plans specifications, and estimates, so long called for, had not then been submitted, nor have they, it is to be noted, been so till this hour.

With these truths staring them in the face, it does strike me to be rather inconsistent and absurd, the Board of Revenue D. P. W. writing in the following terms:—"This work is stated to be urgently required for the communication with the shipping, and the civil engineer hopes it will receive early sanction to admit of its being executed in time for the approaching freshes;" they add, "the works are in conformity with Colonel Cotton's recommendations, are approved by the collector, and appear to be indispensably necessary," whilst the present civil engineer begs "that these estimates may not be detained."

I see that Lieutenant-colonel Cotton expatiates in his memorandum on the manifold and inestimable benefits and advantages that might and would accrue to the country, to the people, and to Government, were the local engineers and authorities vested with the power of expending the public money *ad libitum* in carrying out their own projects without the interference of Government or necessity for its sanction. The Board of Revenue might have known, whatever Lieutenant-colonel Cotton's ignorance may amount to, that such a scheme was at variance with the rules of this or any other service, as well as opposed to the commands of the Honourable Court, who have even been pleased to set a limit to the sums to be expended by the different Governments of India without their previous sanction.

I have said more, perhaps, in reviewing these documents than they at first sight may appear to call for; but as I believe that some of them are written, not for the information of Government, but to serve particular purposes, I do not choose to allow them to pass without exposing their fallaciousness.

(signed) *Henry Pottinger.*

21 June 1853.

I desire that a copy of this Minute may be sent to the Honourable Court, with the papers to which it relates.

(signed) *Henry Pottinger.*

21 June 1853.

Appendix (M.)

Minute.

Letter from the Marine Board, No. 2,377, dated the 3d of November 1852, submitting Correspondence respecting the deteriorated state of the Ports of Cuddalore and Porto Novo.

I think it right to offer the brief remarks I have to make on the above letter in the form of a minute, because the Marine Board appear to me to have forgotten or overlooked what they wrote to Government two years ago respecting the port dues of Cuddalore, and now seem to wish to show that the falling off in those dues arose from other "elements tending to so unsatisfactory a result."

21 December 1850.

I am not sure that I fully understand what is intended to be conveyed by the remark I have cited; and I am free to confess that I place but slight reliance in any opinion offered by the then collector of South Arcot (Mr. Wroughton), who deceived me in all the communications, both verbal and written, that I had with him on the important question of cotton cultivation; but I do think the report* of the superintendent of sea customs at Cuddalore bears reason and fair argument on the face of it, and that it ought not, therefore, to be hastily set aside to make room for any speculative schemes, such as I look upon those here submitted.

11 December 1850.

I can discover nothing in these documents to prove that either the port of Cuddalore or of Porto Novo has recently deteriorated. From the description given of them, they appear to partake of the universal feature of all the creeks or mouths of rivers along the eastern coast of the Peninsula, and, so far as I am aware, it yet remains to be tested whether that natural feature can be overcome by art. I have understood that it has been tried at Cocanada or Coringa, and been there a perfect failure. I have also known it to be tried in various native ports of the Gulf of Kutch, where they were open to the full influx and reflux of the sea; and, although they succeeded apparently for a short time, they speedily fell into utter disrepair, and had to be abandoned on account of the expense of keeping them in order, far outbalancing any gain that could be anticipated.

This is exactly the point which it strikes me this Government should keep before it in considering these propositions; and as that lately submitted regarding Negapatam is precisely, so far as I can form a judgment, of a like description, I am strongly disposed to think that nothing should be done at Cuddalore or Porto Novo until the result of the Negapatam projects is ascertained.

I have, however, no objection to the plans and estimates for one or both being called for; and, as I conclude the outlay will exceed what this Government can take on themselves to sanction, I recommend that the whole question be laid before the Honourable Court for their consideration and orders.

(signed) *Henry Pottinger.*

29 November 1852.

Appendix (N.)

Minute.

Letter from the Secretary to the Board of Revenue D. P. W., No. 322, dated the 25th of April 1853, submitting Projects, accompanied by Plans and Estimates, for Improving the Harbours of Cuddalore and Porto Novo, in South Arcot.

I have read the above letter and its accompaniments with great attention, and have studied and considered the plans most carefully, with a view to master them, which I think I have now done.

I must say that I have the strongest personal misgivings as to the practicability of permanently improving the harbour of Cuddalore at an expense of 15,000 rupees, by altering the current of the two rivers that meet at its mouth. I have had some experience of attempts of this nature, and I have seen how futile they have proved in projects which have promised, at least as favourably as those before me, in controlling adverse natural causes. I cannot, therefore, on my own judgment, support the civil engineer's project, even to the above extent; but, should it be thought worth the trial, I am prepared to join in an application to the Government of India for their sanction to the expenditure, no part of which should, in my idea, be charged to the surplus Chutrum Fund.

As to the second scheme for bringing the waters of the Vellaur River by a canal to the harbour of Cuddalore, it is, perhaps, feasible; but it seems to me that it should, under any circumstances,

circumstances, be delayed until the result of the project referred to in the preceding paragraph, should it be sanctioned, is demonstrated. I hold that to bring those waters, admitting its feasibility, whilst the success of the first project is doubtful, would be an ill-advised and premature outlay.

With regard to the third scheme, that of running a pier out into the Bay of Bengal to a distance of 400 yards, I most unqualifiedly record my opinion that would prove an absolute waste of public money. I do not believe that it ever could be effected on any part of the coast of Coromandel, without reference to the cost; and I must hold it to be a chimera which no human power or art could carry out.

I have deemed it right to state my sentiments in the form of a minute in case reference to the Honourable Court or the Government of India should be thought advisable.

(signed) *Henry Pottinger.*

14 May 1853.

Appendix (O.)

Minute.

I have no objection to offer to what the Honourable Mr. Eliott proposes in this Minute. I merely should wish my Minute to go with any application that may be made to the Government of India. I have stated my reasons for doubting the success of the proposed plans.

(signed) *Henry Pottinger.*

23 May 1853.

Appendix (P.)

Memorandum.

I recommend that the Board of Revenue Department of Public Works, and the civil engineer of the 6th division, be referred to the Minutes of Consultations of the 14th ultimo (not yet a month old), and informed that the question has been submitted for the sanction of the Government of India, whose orders this Government do not deem it proper to anticipate. I have frequently had occasion to remark, that when a matter is once referred to supreme authority, I deem it highly objectionable and disrespectful to go farther in it, pending a reply. Had the matter been submitted three months earlier, it might even have been settled one way or another.

(signed) *Henry Pottinger.*

12 July 1853.

Appendix (Q.)

Memorandum (No. 1.)

After the very large sums sanctioned in 1845, for the improvements of the Port of Negapatam, and which were reported by the Board of Revenue under date the 12th of April 1849, to have been attended with complete success, I am surprised at this application, and must decline sanctioning it.

(signed) *Henry Pottinger.*

18 July 1850.

(No. 2.)

I think it right to say that I greatly question the stability of the proposed pier, if, as appears to me from the sketch, it extends into the sea, and is wholly exposed to the surf and strong currents. I further think that Government should have some idea of the eventual total expenditure on the Negapatam Harbour, as well as a return of the import and export duties for the last five years. It may be very practicable to improve the harbour at a very heavy outlay. It is the duty of Government to see that it is worth while to incur such an outlay.

(signed) *Henry Pottinger.*

13 May 1853.

(No. 3.)

I shall not attempt further to withhold my concurrence to the proposed charge, but I must repeat my doubt of the success of the project. I conceive that any person of common sense and observation, is as capable, or nearly so, of judging of the probable success of such

schemes as any engineer whatever. When a bridge is to be built, or any other work that simply requires science, I am free to coincide with the remarks of the Honourable Mr. Eliott; but when the physical powers of natural obstacles are to be overcome, then I consider my own judgment to be quite as sound as that of any other thinking man, and I am not prepared to put it aside.

With these observations, which I desire may be placed with the correspondence, I withdraw my objection to the outlay.

(signed) *Henry Pottinger.*

1 June 1853.

Appendix (R.)

Minute.

Letter from the Secretary to the Board of Revenue, No. 393, dated the 21st of March 1853, regarding the Dowlaishwarum Foundry.

I stated my opinion on this question in a Memorandum dated the 11th instant. The papers have again come round to me, with the remarks of my honourable civil colleagues, and having most fully reflected on the matter, I am obliged to adhere to my first view.

I know, of course, nothing of the practice at Roorkee, Casseepoor, or Calcutta, in this respect; but even should it be as the Honourable Mr. Eliott seems to suppose it is, it would not change my ideas; as I consider, with the Honourable Mr. Thomas, that the single result of such a Government establishment, would be that of impeding and interfering with private enterprises, and the outlay of private capital.

I recognise no authority whatever on the part of Government for the promise which is asserted to have been made to Mr. Falkener in favour of the firm which he represents; and the sentiments of the Board of Revenue D. P. W., as expressed in their secretary's letter, strike me to be altogether based on erroneous principles and arguments; inasmuch as they would seem to advance, that Government is bound to incur heavy expense and to keep up establishments to promote the objects, and to purchase, as it were, the interested (for it can be nothing else) advice and assistance of private persons and establishments.

I request that the Memorandum adverted to at the commencement of this Minute may be appended to it.

I have no objection to this question being referred to the Honourable Court, but beyond that I am unable conscientiously to go.

(signed) *Henry Pottinger.*

30 April 1853.

Appendix (S.)

Minute.—Dowlaishwarum Foundry.

The opinions of the Members of Government regarding the Dowlaishwarum foundry being equal, it devolves on me to pronounce the casting vote.

I have again read and considered the whole of the correspondence with great care, and must adhere to the views I have already expressed.

6 September 1852. 30 April 1853. I consider, that had the orders of Government been carried out as they should have been, ample time has been afforded to the private individuals who urge the foundry being retained, to have made other arrangements; and I have, in a recent Minute, explicitly explained why I am unable to subscribe to the arguments of the Revenue Board D. P. W., on that portion of the question.

In addition to my former remarks, I am now sorry to be compelled to say that I have reason to believe the foundry is, and has been, applied to objects which are unsanctioned by and unknown to Government; and which I conceive call for immediate and full investigation and report.

Not very long ago, a proposal was made through the Board of Revenue D. P. W., to establish a steam ferry on the Godavery River, and the sum of 9,000 rupees was asked for to build a steam ferry-boat. I opposed this scheme, which I looked upon to be altogether premature in a wild and thinly inhabited part of this Presidency, like Rajahmundry; but the proposal led to my making private particular inquiries, in the course of which I was informed, that there were no less than four steam-boats now ready at Dowlaishwarum, and a fifth in a

forward

forward state of preparation, besides a very large flotilla of other boats and vessels, to the asserted extent of 1,000 or 1,200 tons.

About the same time I observed it set forth in a petition from the Madras Native Association to Parliament, that permission to survey and examine the Godavery river had been refused by the Madras Government to Lieutenant-colonel Cotton, who had built a steam-boat for the purpose at his own expense. I placed, of course, little or no confidence in this absurd assertion, but I here allude to it as corroborative of the alleged fact of steam-boats being at Dowlaishwarum, of which I had no previous personal knowledge from anything that had come officially before me.

I consider it probable, if my information be correct, that some of the steam-boats are employed on the works of the annicut, but I cannot recognise that as the slightest reason that their existence, as well as the cost, manner, and course of their being built, should have been kept a secret from Government.

The sum of 10,000 rupees have been lately applied for, and, at the recommendation of the Madras Government, sanctioned by the Government of India, to meet the expense of exploring the Godavery River, and I have all along supported the project, notwithstanding my personal apprehensions, from my former acquaintance with the failure of similar attempts, that this one will likewise end in disappointment. I however here specially allude to it, for the purpose of observing that should it be intended, as I have heard is the case, that some of the steam-boats above alluded to, are to be employed in the enterprise, I conceive that that fact should be made known to the Supreme Government, as it seems to me to be a pure deception to lead those high authorities to fancy that the expenditure is limited to what they have authorised.

The Military Board recommended, within these few months, that iron railways for the Esplanade, and other places in the vicinity of Madras, should be procured from the Government Foundry at Dowlaishwarum. I did not myself at first perceive the drift of the recommendation; but as soon as I discovered that it was meant to set Government up in opposition to all private capitalists in iron, I strongly opposed the plan. I have since been told, that it was one of the various contrivances for finding work for the foundry; or, in other words, supporting it at the expense of checking all private enterprise.

It will be understood, from the general tenor of this Minute, that my unqualified opinion is, that the Government Foundry at Dowlaishwarum is a useless, expensive establishment, calculated to do harm, and to repress the outlay and efforts of private capitalists. I therefore advise that its final abolition be proposed to the Honourable Court, and that, pending a reply, the public work done in it shall be confined to the smallest practicable amount, and that none on private account shall be permitted on any pretence.

This Minute, and the whole of the correspondence connected with it, should be sent to the Home authorities by an early opportunity.

(signed) *Henry Pottinger.*

30 May 1853.

Appendix (T.)

Minute.

Correspondence regarding the Foundry at Dowlaishwarum, and the Steam and other Boats on the Godavery River.

I have taken the pains to go regularly through the whole of the papers and correspondence, commencing at the close of the year 1846, and extending up to the present time, on the topics named at the head of this Minute.

Nothing that I have seen in these long and somewhat confused documents has tended to alter my views as to the inadvisability of establishing a steam ferry on the Godavery, or of keeping up a foundry at Dowlaishwarum to perform work for private persons as well as for the public; but as I have already assigned, in the Minute and Memorandum of dates noted in the margin, my detailed and fully considered reasons for the views I entertain, it would answer no good purpose to repeat them here.

11 April 1853.
18 „ „
30 „ „
2 May „
30 „ „

The perusal of the papers referred to above has, however, confirmed the impression I had imbibed, from parts of the more recent correspondence, that neither the establishment of a foundry at Dowlaishwarum, nor the building and setting-up of steam-boats at that place, has ever been authorised.

Para. 1.

With respect to what is now designated the "foundry," I see that a "workshop" was sanctioned, and an officer appointed to the charge of it; but from the description of work which is enumerated as proposed to be done in it, it seems to me to be quite clear that nothing like a "foundry" was not only intended by Government, but, as I shall show presently, was expressly prohibited. If, therefore, the "workshop" is to be continued on any footing

Mins. of Cons., 28 April 1846.

as a "foundry," I repeat the sentiments I have already recorded, that that should only be done with the approbation and permission of the Home authorities.

As regards steam-boats, there seems to me to be, if possible, still less grounds or justification for the proceedings of the local authorities.

It will be found that application was made by those authorities for permission to construct a steam-boat of five-horse power, as a tug, and that the proposal was disapproved on what I hold to be conclusive grounds; that, subsequently, a reference was made to Calcutta respecting an engine of the requisite power being procured there, and that, failing that, Government resolved, at the recommendation of the Board of Revenue D. P. W., to ask the Honourable Court to send one out from England.

Mins. of Cons., 31 July 1846.

Mins. of Cons., 20 November 1846.

Very shortly after this, a further reference was made to the Government of India relative to an iron steam-boat called the "Lotus," which was stated to be for sale for 6,000 rupees, and which Major Cotton had suggested, through the Board of Revenue D. P. W., should be bought. On this boat being, at the request of this and by orders of the Supreme Government, examined by the controller of Government steam-boats and the superintending engineer at Calcutta, those officers stated, that she was ascertained to be "so much out of order (the chimney and fire-bars entirely worn out, and the covering of the boilers also much worn) that it is impossible to get the steam up to try the engines without a considerable repair. The iron hull was also much corroded. Under these circumstances, and having learnt from those who have had opportunities of seeing her under steam, that the 'Lotus,' even if repaired, would not, from want of power, answer the purpose of Major Cotton, I could not recommend her being purchased by Government."

24 December 1846.

A copy of the letter of which the above is an extract was furnished to the Department of Public Works, on the 23d of March 1847, with an intimation that an application would be "immediately made to the Honourable Court for the supply of a steam-vessel of the dimensions and construction that had been recommended by Major Cotton" in the specifications forwarded by him, under such and such dates.

Why this intention was not carried out there is nothing in the papers before me to show; but I understand that Major Cotton left his station without leave about this time, and proceeded to Calcutta, where I am told he bought the "Lotus," in the face of the above report declaring her to be useless. I can discover neither any authority for this step, nor what the boat cost in price and repairs. I think, therefore, the Board of Revenue should, even at this late period, be required to explain the matter, and to show from what funds the whole expense was defrayed. I surmise that it was so from the amount afterwards sanctioned for the Godavery Annicut; but surely some record of such a transaction should have been kept, and Government made acquainted with it.

Touching the steam-boats now on the Godavery, I have said above, that they have not only been built without authority, but in direct disregard of the orders of Government. I cannot but consider that maintaining an establishment like the foundry at Dowlaishwarum, for such purposes, is altogether at variance with the public interests and the good of the service. Whatever specious reasons may now be advanced to the contrary, I cannot but hold, that all that has been and is being done in this respect is a mere cloak for indulging in personal schemes and predilections, in which the public money is unauthorisedly squandered; and I cannot for an instant doubt but that the Honourable Court and the Supreme Government will learn with surprise, that such extensive and expensive projects have been going on for a long period wholly unknown, so far as I am informed, to the Government of this Presidency. I have before stated, in other words, that I entirely concur in the following observation of the Madras Government: "His Lordship in Council doubts the expediency of Major Cotton engaging in the construction of a five-horse power steam-engine. The time and labour which must be given to this object by Major Cotton and the officers attached to him, may, he is disposed to think, take their attention from more important duties." When it is found that, in defiance of this prohibition, one steam-vessel of 20-horse power has been built, and that several others are completed, or nearly so; that Captain Hutchison, the officer appointed originally to the charge of the workshop, is stated to have been occupying his time and thoughts in constructing a steam-boat on his own behalf; and that Major Cotton, the civil engineer of the Godavery division, has been doing the same, I would calmly inquire, if this is becoming and proper in their positions towards the Government who pays them, as well as what the artificers and people employed on such work must suppose? Whatever colouring may be given to or plea urged for these admitted facts, I am compelled, from the experience I have acquired during a long public life in every part of the world, and especially in India, to think that they (the artificers and people) can have imbibed but one impression, and that the example which has been thus set is, both in theory and practice, most objectionable and improper.

Mins. of Cons., 31 July 1846.

I note that the Board of Revenue D. P. W., in one of their letters, speak of the large profits to be derived from building boats, as well as of the impetus which such a measure would give to trade. If the Board intend by this allusion to recommend that Government should build boats to hire out, and carry on the traffic of the country, I wholly differ from them. I conceive that all such arrangements can only emanate from private capital and speculation, at the present day, in the districts to which the Board's letter refers, and that the

7 July 1853.

the interference of Government would be premature, and is quite uncalled for. Besides these reasons, I can trace no connexion between such objects and the legitimate duties of the engineer's department in the Godavery and Kistnah Divisions. Should the course of events render it hereafter, at some future distant period, desirable for Government to take steps to promote the transport of commerce on the rivers of the Carnatic, as is now done in the Ganges and Indus, a separate establishment, under a responsible head, must be organised for the proposed end; by which means Government will not only be kept apprised of the proceedings of their servants, engaged in the work, but large sums will be saved which it is my conviction are now literally thrown away in the crude and ill considered designs of speculative and enthusiastic projectors, who are, moreover, irresponsible for their acts.

In conclusion, I hold that that undefined sort of "Imperium in Imperio," which seems always to have obtained in the Godavery Division since it was first formed, and unquestionably does so at the present moment to a great degree, is irreconcileable to proper authority and supervision. I believe, from careful reflection and consideration of all these papers, that Government are only made acquainted with what goes on there in every department, as far as it suits the local and executive officers to communicate their acts; and I hereby record my final and solemn opinion, that the only effectual course to remedy the evils attendant on the so called foundry at Dowlaishwarum, and the unauthorised large outlay to which it has led, and is hourly leading, is to suppress it at once, and, further, peremptorily to prohibit the formation of any more steam-boats, as well as any crews or establishments being longer kept in the public employ to work those that have been already built, contrary to orders.

(signed) *Henry Pottinger.*

4 August 1853.

Appendix (U.)

Minute.

Letter from the Secretary to the Revenue Board D. P. W., No. , dated the 23d of December 1852, regarding the nomination of Captain *Greenlaw*, of the 46th Regiment N. I., to be assistant to the Secretary to the Revenue Board, D. P. W., vice Lieut. *Foord*, going to Europe.

I see nothing in the above letter or its accompaniments that should alter my opinion as to the fitness of Captain Greenlaw, of the 46th Regiment N. I., to be assistant to the Secretary to the Revenue Board, D. P. W.

I believe Captain Greenlaw to be as well if not much better qualified for the duties which will devolve on him than any available engineer officer, and when I sent the Minute appointing him to the Chief Secretary to Government, to be put in circulation, I wrote a private note to Sir Henry Montgomery to point out that Captain Greenlaw had proved himself hardworking and zealous, and that I consider him quite equal to taking charge of the office in any temporary absence of the Secretary.

Had I not felt assured that Captain Greenlaw was qualified, I certainly should not have appointed him, and I shall as certainly not remove him until it is proved that he is unfit. On the contrary, I consider it highly desirable, that in the present state of the engineer corps of the Madras Presidency, experienced officers, if fully qualified, should be selected to assist in the important duties appertaining to that branch of the service; and that the exclusiveness which the letter before me appears to advocate, should, under present circumstances, be wholly laid aside.

(signed) *Henry Pottinger.*

29 December 1852.

Appendix (V.)

Minute.

Extract from the Proceedings of the Board of Revenue, D. P. W., No. 277, dated the 11th July 1853, reporting on Captain Greenlaw, &c.

1. As I have been informed that the Memorandum which I made * on the above letter is not in that form that necessarily requires that its purport should be made known to the Board of Revenue D. P. W., or that that document should be submitted for the information of the Honourable Court, and as it is my wish that both should be done, I beg to place this minute on record, reiterating my conviction that Captain Greenlaw was much better qualified to fulfil the duties of the situation of assistant secretary to the Board of Revenue D. P. W., than one half of the engineer officers in this presidency, and, decidedly so, than any one of

* 17 July 1852.

the young officers who have been discreditably instigated to address memorials to the Honourable Court connected with that appointment.

2. I say this advisedly, because none of them have had, I believe, one-fourth of his experience, and none of them would have brought to the situation, had they been named to it, that devotion and zeal for the service which Captain Greenlaw would have been glad to have displayed had he been given an opportunity of so doing.

* Captain Greenlaw was appointed, at his own request, paymaster in the ceded Districts.

3. Had it not suited Captain Greenlaw's purpose to be removed* from his late appointment, I should have assuredly required clearer proof of his unfitness for it than anything that is brought forward in this partial report, which I further look upon to be uncalled for and intrusive, after Captain Greenlaw had left the situation.

4. The strongest conclusion as to the accuracy of what I say with respect to Captain Greenlaw's qualifications, is to be found in the fact that the Board of Revenue Department Public Works cannot produce an officer to take his place; and though they now declare that they would rather have no assistant secretary at all than one who is not an engineer, and fully qualified, according to their newly formed and inflated standard, I do not forget that their original application for some assistance to their secretary was limited to an uncovenanted servant, and that it was my personal suggestion that it should be provided for by a commissioned officer being appointed.

See Appendices (B). and (C.)

Since Captain Greenlaw resigned, I have offered the situation of assistant secretary to the Revenue Board D. P. W., to Captain Reilly of the 10th Regiment N. I., now employed on the Jackattalla Barracks, but he has declined it; and I know of no other officer to whom I could confidently entrust the duty, else I would not hesitate an instant to appoint him.

I request that copies of the letter of the Board of Revenue D. P. W., and of this Minute, may be transmitted to the Honourable Court by the next mail, that they may clearly understand that Captain Greenlaw was not removed for any fault or inefficiency, notwithstanding the one-sided sentiments of those who have thought proper to intrude them on Government.

(signed) *Henry Pottinger.*

15 August 1853.

Appendix (W.)

MINUTE regarding the Memorials by Junior Engineer Officers to the Honourable Court.

I ENTIRELY concur in the above sentiments of the Honourable Mr. Thomas. I only refrained from offering any remark on the letter proposed to be transmitted to the Honourable Court, from a feeling of delicacy and repugnance to again revive the question of Captain Greenlaw's nomination; but I must say that I felt most strongly that there was a total want of common respect towards their superiors, and an assumption of a right to appeal in the young lieutenants who had done so, and who, I had no doubt, would come under the marked displeasure of the Honourable Court.

I now request that these brief remarks may be sent to the Court with the memorials, should they be forwarded.

(signed) *Henry Pottinger.*

5 April 1853.

Appendix (X).

MINUTE.

DRAFT of a Despatch to the Honourable Court, transmitting a Memorial from Lieutenant-Colonel *Cotton*, of the Engineers.

I HAD heard by common rumour of Lieutenant-colonel Cotton's proposed memorial, but had not seen it until it came to me two days ago, in circulation with the draft of the despatch which is to accompany it to the Home Authorities, and to which draft I have most readily affixed my initials in token of approval, as I conceive it contains all the explanation which the Honourable Court are likely to require on the topics to which it refers.

I will not condescend to follow Lieutenant-colonel Cotton through his long strain of self-complacency and approbation, contrasted with his depreciation of the merits and claims of others; but in the situation which I have the high honour to fill, I deem that I am called upon to record my well-weighed opinion, that this memorial is a most overbearing and impertinent production; that it is, so far as anything emanating from the author of it can be, a premeditated insult to the Government of which he is a servant; and that when coupled with other memorials which have been recently addressed to the Honourable Court by junior officers of the Engineers, it approaches, in my ideas, very closely to what might be designated

designated mutiny, and, to say the least of it, is a gross and unequivocal breach of subordination.

I must here beg that it may not for one instant be imagined that I offer these strong animadversions from any immediate personal sensitiveness or perception with reference to the memorial of which I am speaking. Had I never been at Madras, or seen or known a single individual named in that document, and had it been submitted to me as a stranger, I should have expressed precisely the same sentiments respecting it, and should have looked on it as a reproach to any officer holding a commission in any well-regulated army.

With respect to the insinuations in which Lieutenant-colonel Cotton has thought it right to indulge, as to the motives that led to the appointments which he has been pleased to denounce, I simply desire to distinctly say that those insinuations are false. In making these appointments I can most solemnly and conscientiously assert, that I exercised the trust reposed in me under a full conviction of their appropriateness, and nothing has to this hour come to my knowledge to cause me to doubt that I was right.

The nomination of Major Atkinson to the situation of superintending engineer of the Presidency Division, has been already explained to and approved by the Honourable Court.

That of Captain Johnston to be superintendent of roads, I need only declare was given to him entirely unsolicited, and I may here note, that I have never to my knowledge seen or exchanged one word with that officer up to the present hour. It is, however, due to him to add, that he has proved himself most efficient, and has given Government the very highest satisfaction as the head of the very important department which he now controls.

The appointment of assistant secretary to the Revenue Board Department of Public Works I offered (unsolicited) to Captain Greenlaw on Lieutenant Foord's departure, from my conviction of his fitness for it; and I here take occasion to state, that I believe him to possess much higher qualifications as a hardworking, scientific, zealous public servant than any one (I make no exception) of those officers whose names I see are cited by Lieutenant-colonel Cotton, on whose individual judgment of true merit or estimable qualities I am unable to place the smallest reliance.

I must here explain, that I have for a length of time past looked upon Lieutenant-colonel Cotton to be a person who required to be carefully watched and restrained in his ebullitions. I conceive him to be led away by overweening egotistical vanity as to his own qualifications, deserts, and services, which vanity is, I doubt not, pampered by the ill-judged flattery of others. I esteem him to be ready at all times to enter into any new and ill-digested project which crosses his mind, or is suggested to him through the medium of books or men; that were he left to himself he would be absolutely reckless of the public interests on the score of expense, when placed in opposition to his own schemes; and I hold that his attempt, as exemplified in the memorial now before me, to set himself up as a controlling authority above all his compeers and colleagues, and even to throw the necessary and legitimate power of Government behind his back, is an undeniable proof of a want of proper feeling, as well as of how little he is deserving of the confidence he seems to expect.

In closing this Minute I must repeat my earnest request that no syllable of it may be ascribed to any emotion of fancied annoyance as excited by Lieutenant-colonel Cotton's memorial. I am incapable of any such emotion, particularly as regards an individual for whose judgment I feel no respect, and whose criticisms on my conduct, whether official or private, I regard with indifference. I have, in what I have said here, viewed the memorial solely as a point of duty, and stated my sentiments upon it out of respect to the Honourable Court, to whom I wish a copy of this Minute to be forwarded with the despatch.

(signed) *Henry Pottinger.*

Guindy Park, 4 May 1853.

GENERAL APPENDIX.

No. 120.
Public Works Department.

EXTRACT from the Minutes of Consultation under date 13 April 1853.

Read the following Report from the Commissioners appointed to inquire into and report upon Public Works.

(Here enter 23 December 1852.)

Ordered, that five copies of the First Report of the Commissioners upon the Department of Public Works be forwarded to the Government of India, with the following letter.

Ordered also, that the same number of copies be forwarded to the Honourable Court of Directors, with a copy of the letter addressed to the Government of India.

(A true extract.)

(signed) *H. C. Montgomery,*
Chief Secretary.

No. 121.

Public Works Department.

To *J. P. Grant*, Esq., Secretary to the Government of India.

Sir,

1. In obedience to the instructions conveyed in Officiating-Secretary Major Wylie's letter of the 21st December 1850, a committee was appointed at this Presidency to investigate and report on the system of Public Works.

2. The Commission was composed of Mr. Bourdillon, of the Civil Service (Collector of North Arcot), Major Fredk. Cotton, Civil Engineer of the 7th Division, and Major Balfour, of the Artillery, member of the Military Board.

3. These officers assembled at the Presidency, and commenced their labours on the 21st March 1851. Early in January 1853, they laid before the Government their first report, of which I am now directed to forward five printed copies for the use of the Government of India, and to intimate that a similar number has been forwarded by the mail of the 13th instant to the Honourable Court of Directors.

4. The Government of India will perceive, from this very voluminous report, extending to 725 paras., that the Commissioners have entered most minutely into the subject which they were appointed to investigate, and their very lengthened proceedings will in some measure account for the time these inquiries have occupied.

5. It was, I am instructed to state, the intention of the Government to submit the report, with a full view of its contents, but finding it so comprehensive that the review contemplated cannot be accomplished within any definite period, they deem it proper not to detain the report longer, but to forward it for the information of the Government of India and the Honourable Court of Directors respectively, transmitting separately the expression of the views of this Government as soon as the whole subject has undergone the necessary discussion.

6. The present report, it will be seen, is divided into 11 sections, the last of which, as intimated by the Commissioners, is a recapitulation of the contents of the preceding chapters.

7. The first four sections are devoted to the past history and present state of the department in all its branches, and to an exposure of the defects which the Commissioners conceive to exist in it.

8. The Commissioners in the subsequent chapter (V.) proceed to develop the changes which they consider necessary to make the departments thoroughly efficient in every respect.

9. The proposition of the Commissioners for withdrawing from the Revenue and Military Boards and the Superintendent of Roads,* the control now exercised by them, and vesting the sole charge of Public Works in a new Board, composed of one revenue officer from the civil service and two engineer officers, with the chief engineer as an *ex officio* member, requires careful deliberation, and will meet with due consideration from the Government.

10. Passing on to the Executive Department, the Commissioners press on Government the urgent need of a large increase of the Engineer establishment.

11. They recommend that the corps of Engineers, which now consists of two battalions of 46 officers, exclusive of nine supernumeraries, shall be augmented to 112 officers, to be disposed in four battalions, one of which shall be added immediately, and the other gradually in the course of six years.

Vide Appendix DD—EE—FF.

Proposed Establishments.	Nos.	Charge.
Commissioned - - -	113	5,31,590
European Subordinate - -	204	3,85,201
Native - ditto - -	725	2,35,560
Office Establishments - -	1,379	2,66,724
College - - - -	-	50,000
Rs.	-	14,69,075
		5,79,471—Present Establishment, *vide* Appendix H. H.
		8,89,604—Increase.

12. The subordinate European engineer and native professional departments are also proposed to be largely increased with office establishments of a suitable extent. Provision is also made for an Engineer College of Instruction. The recommendations of the Commissioners on the score of establishments thus involve an aggregate charge (in the proportions marginally shown) of *Rs.* 14,69,075, or *Rs.* 8,89,604 in excess of the present charge under that head.

13. The

* Under date the 21st November 1851, the Commissioners had proposed that the Road Department should be placed under the existing Board of Revenue Department Public Works, and this proposition was considered by Government, and minutes recorded, copies of which are annexed, under date the 6th April 1852.

13. The Commissioners dwell on the alleged neglect of roads and irrigation works, and calculating the profitable returns, directly and indirectly, from expenditure on such undertakings, they propose that the future outlay on Public Works shall be about 48 lacs annually, or about 29 lacs in excess of the present expenditure; the whole to be at the unfettered disposal of the local Government.

	Present average of 5 years.	Proposed.
Irrigation	10,37,898	22½
Roads, &c.	4,20,762	20
Buildings	4,29,491	4½
About	19	48
Lacs		

	Present.	Proposed.
Outlay	19 lacs	48
Establishment	6 „	15
about	25	63
Lacs		

14. The proposition of the Commissioners thus provide that the annual expenditure in the Public Works Department shall be raised from about 25 lacs to 63 lacs, being an increase of about 38 lacs per annum. P. 684.

15. The Right Honourable the Governor in Council will content himself with this brief summary of the suggestions of the Commissioners. The comprehensive nature of their report, the great changes advocated, and the importance of the questions discussed both financially and with regard to the improvement of the country and the welfare of the people, obviously call for careful and mature deliberation.

16. The Right Honourable the Governor in Council will not here notice the comments of the Commissioners on the alleged parsimonious policy of the Government of this Presidency and the Supreme Government in regard to Public Works, further than to observe that they appear to have overlooked the restrictions on expenditure necessarily imposed on Government by the financial condition of India during the late wars. The irrigation works of Tanjore, Trichinopoly, and Tinnevelly, the fine ghauts and passes of Malabar and Canara, and the trunk roads leading west and south from Madras, and later, the magnificent works in progress on the Godavery, Kistnah, and Pennar rivers, evince the interest taken in the progress of improvement, and the manner the Government have made use of the means placed at their disposal.

17. I am directed to request the attention of the Government of India to the separate minutes herewith transmitted.

I have, &c.

(signed) *H. C. Montgomery*,
Chief Secretary.

Ordered that the following minutes be recorded.

MINUTE.

DRAFT LETTER forwarding Report of P. W. Commission.

IT is, I think, very desirable that this draft should point out distinctly the misrepresentation of the views of this Government, into which the Commissioners have been led by their ignorance of the records.

In various passages of their report they ascribe to this Government a practical indifference to, and even an unwillingness to sanction any expenditure on works for the improvement of the country, and the Government is represented throughout the report as opposed for a series of years to such outlay. Such appears to me the general tone and character of its statements.

It will be seen from the following extract from a letter to the Government of India in 1848, how entirely this representation is at variance with facts. It was there observed, and proposed to the Government of India, that "whilst this Government would counsel a wise economy in all branches, it is of opinion that a considerable outlay of its revenues at this time on internal improvements, even if there were no surplus (revenue), would prove in the end a more sound policy, and more beneficial to the country."—*See* also para. 21 of the same letter to Government of India, Financial Department, 3 January 1848.

Like misconception and misrepresentation of the views of Government exist in the statements of the Commission on the Road Department; and as the Commissioners brought this subject under the notice of Government in their letter of the 21st November 1851, that letter, and the views of Government, with the minutes pointing out their error,* should be adverted to in this review of their proceedings.

(signed) *J. F. Thomas.*

12 April 1853.

MINUTE.

---

* Para. 11, Minute of 6th March 1852, on letter from the Board, 15th January 1852.

MINUTE.

THE draft of the letter to the Government of India has just been returned to me with certain remarks embodied in a Minute of the 12th instant by my Honourable Colleague, Mr. Thomas.

I have not had time to devote to a complete and careful perusal of the first report of the Commissioners on the system of Public Works, and therefore I passed the draft of the letter above denoted without comment; but as the Honourable Mr. Thomas has since briefly recorded his sentiments,* and as they have just come back to me, and my silence might be interpreted into dissenting from his views, I beg most distinctly to say that I entirely coincide in them, and shall endeavour at some future period to show my reasons for the opinion I have formed, that the first report of the Commissioners is one-sided, that it misrepresents the actuating motives and real feelings of Government with regard to its measures for the improvement and amelioration of the country, and therefore that it is not entitled to that confidence—though some facts set forth in it may be well supported—which such a document should command, to render it of any general practical use.

(signed) *Henry Pottinger.*

13 April 1853.

MINUTE.

DRAFT of LETTER to the Government of India to be transmitted with the First Report of the Commission on Public Works.

SINCE this Report came to me I have been so engrossed with other important subjects, particularly the Reports of the Special Commissioner on Malabar, that I have not been able to give attention to it, I am therefore unprepared to make any comment upon it. Having now nearly disposed of the business which has so much occupied me, I hope to have leisure to study the Report deliberately, and I shall diligently apply all the time I can spare from the papers passing in circulation to a careful review and digest of it, in order that I may be able, as early as possible, to express my views upon the many important subjects of which it treats so largely and discursively.

(signed) *D. Eliott.*

13 April 1853.

No. 1 of 1853.

No. 122.

Public Works Department.

To *James Cosmo Melvill*, Esq., Secretary at the India House.

Sir,

I AM directed by the Right Honourable the Governor in Council to forward, for the purpose of being laid before the Honourable Court of Directors, five printed copies of the first Report furnished by the Commissioners appointed to inquire into and report upon the Department of Public Works, together with a transcript of a letter addressed on the subject to the Government of India.

I have, &c.

(signed) *H. C. Montgomery,*
Chief Secretary.

Fort St. George, 13 April 1853.

---

* Minute dated the 12th of April 1853.

EXTRACT Public Works Letter from Madras, dated 10 February 1854.

No. 1.

WE have the honour to forward two memorials to your address, from Lieutenant-colonel A. T. Cotton, Chief Engineer, dated 5 January last.

2. In the first of these this officer complains that the Government have printed a book, which has been extensively circulated in Madras, containing minutes of the members of Government on the report of the "Public Works" Commissioners, besides several minutes by the President, most severely reflecting on him, and one of which minutes is that which the President wrote on the memorial addressed by him to your Honourable Court in March 1853, and forwarded with our letter of the 3d June following, No. 4.

* * * * * * *

4. As connected with the first of the memorials alluded to above, we forward copy of a letter from Lieutenant-colonel Cotton, dated 4 January, applying for permission to print certain public documents, in defence of charges brought against him (as he represents) in the proceedings of Government on the First Report of the Public Works Commission, and likewise take the opportunity of submitting copies of the papers recorded in the Consultations noted in the margin as having reference to the subject of the second memorial.

Rev. Cons. 2 August 1853, No. 21, 22. Ditto, 23 August 1853, No. 33 to 39.

5. The Right Honourable the President, and the honourable the members of Council having recorded their views at length upon the subject of each of the communications addressed by Lieutenant-colonel Cotton in minutes of the dates noted in the margin, copies of which also accompany, we do not consider it necessary to do more on the present occasion than to refer your Honourable Court to those documents.

Minutes by the Right Hon. the President, dated 19th, 20th and 21st January 1854. Ditto, by the Hon. Mr. Eliott, 21 January 1854. Ditto, by the Hon. Mr. Thomas, 24 January 1854.

6. Your Honourable Court will observe from our resolution of this date that we have not considered it open to us to accord to Lieutenant-colonel Cotton the permission solicited by him to print certain documents, pending the orders of the Government of India and your Honourable Court, on the reports of the "Public Works" Commissioners.

7. We beg to acknowledge the receipt of your despatch in the Public Department, 9 November 1853, No. 48, relating to the appointment of Captain Greenlaw, of the 46th Regiment, N. I., to the office of assistant secretary to the Board of Revenue in the Department of Public Works, a subject to which we shall do ourselves the honour to reply separately.

EXTRACT Fort St. George Public Works Diary to Consultation of 14 February 1854.

January 5, received the following letter:

No. 2.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

IT is now a matter of common notoriety that in the book which has been printed, containing the minute of the Right Honourable the President and members of Council on the subject of the Public Works Report, several minutes by the Right Honourable the President are inserted, most severely reflecting on my conduct.

I most respectfully submit, that not having been one of the Public Works Commissioners, I am not connected with that matter, and my case is essentially different from theirs in two respects.

1st. No paper of mine has been published, and therefore in appealing to the public in my case the Government have brought forward only the charges against me, without any papers which could enable that public to form their own judgment in the case.

2d. I understand the two civil members who have recorded their views on the Public Works Report have not given any opinion either on the minutes animadverting on my conduct, or on their publication.

At present I am therefore brought before a tribunal without any opportunity being given me of making my own defence.

I speak of the minutes being made public, though nominally they have not been so, because they have in fact. They are printed; they have been placed in the hands of various individuals, both in the service and out of it, and have been seen and commented on by one, at least, of the editors of the Madras newspapers.

The Honourable the Court of Directors have my papers as well as the minutes before them; and had I been brought before a court-martial, I should of course have been allowed to produce any papers I thought necessary; but I am now brought before the public, both without defenders and without being allowed to make my own defence, as matters stand. I have therefore the honour respectfully to request that I may be permitted to print and circulate to those who have seen the charges brought against me such public documents as may appear to me necessary for my defence.

(signed) *A. T. Cotton*, Lieutenant-colonel,
Chief Engineer.

Chief Engineer's Office, Fort St. George,
4 January 1854.

MINUTE by the Right Honourable the President.

LETTER from the Chief Engineer, No. 7, dated the 4th of January 1854, asking for permission to print such documents as may appear necessary for the defence of certain charges, &c.

I HAVE not earlier had time to attend to the above letter, owing to other pressing important matters.

So far as I am personally concerned, I have no objection to the chief engineer's request being now acceded to, as nothing that that officer might point out can possibly affect me; but, viewed as a public question, I do not think that the orders which may be shortly expected, either from the Government of India or the Home authorities, should be anticipated, and I not only conceive that that would be done by granting the chief engineer the permission he applies for, but that a very objectionable precedent would be established.

I am not going to discuss the validity of the chief grounds on which the chief engineer places his application, but it is quite superfluous to remark that although that officer was not a member of the Commission of Public Works, he has been held up by that body as their great oracle and authority, and as such is quoted by the public press, both in India and England.

I repeat that I have personally, in my private capacity, no objection to permission to print what he likes being given to the chief engineer; but that, as the head of the Government, I doubt the propriety of acquiescence.

(signed) *Henry Pottinger.*

19 January 1854.

No. 4.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

I HAVE the honour to forward a memorial in triplicate addressed to the Honourable Court of Directors, and request that you will be so good as to submit the same to the Right Honourable the Governor in Council, with a view to its being forwarded.

(signed) *A. T. Cotton*, Lieutenant-colonel,
Chief Engineer.

Chief Engineer's Office, Fort St. George,
5 January 1854.

MINUTE by the Right Honourable the President.

LETTER from Lieutenant-colonel Cotton, Chief Engineer, No. 8, dated 5 January 1854, forwarding a memorial to the Honourable Court.

THE above memorial will of course be sent to the Honourable Court by the next mail.

The only part of it that appears to call for any reply from me, is to explicitly repudiate the idea that Government have made any appeal to the public; I can safely say that such an idea never entered the mind of my honourable colleagues or myself. Government could hardly be expected to sit silent under the load of misrepresentation that had been heaped on it by the First Report of the Commissioners of Public Works, and as that Report had been prematurely forced before the world to suit a particular object, it necessarily appeared to be requisite that the refutation should be equally extensively circulated, and on that account it was printed. It has not, however, been yet made public by authority, and at the last meeting of Council, it was, after due consideration, decided that that should not be done, pending orders from the Government of India or the Honourable Court.

20 January 1854. (signed) *Henry Pottinger.*

No. 3.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

I HAVE the honour to forward a memorial, in triplicate, addressed to the Honourable the Court of Directors, and request that you will be so good as to submit the same to the Right Honourable the Governor in Council, with a view to its being forwarded.

(signed) *A. T. Cotton*, Lieutenant-colonel,
Chief Engineer.

Chief Engineer's Office, Fort St. George,
5 January 1854.

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

The respectful Memorial of Lieutenant-colonel *Arthur Thomas Cotton*, of the Corps of Madras Engineers, holding the appointment of Chief Engineer at Fort St. George,

Humbly showeth,

Para. 1. THAT in March last your memorialist considered it his duty to transmit a memorial to your Honourable Court, stating his views of the effect upon the corps of which he is in charge, of certain late appointments in it; that no answer to that memorial has yet been communicated to your memorialist; that the Right Honourable the Governor in Council has now printed a book, which

has been extensively circulated in Madras (so that the contents of it are in fact published), containing the minutes of the President and the two civil members of the Council on the Report of the Public Works Commissioners; that, besides the above minute, several minutes by the President have been printed in the same book, most severely reflecting on your memorialist, though not one of the Commissioners of Public Works, one of which minutes is that which the President wrote on the above memorial.

2. Your memorialist respectfully submits for the consideration of your Honourable Court the following objections to this proceeding:

1st. The matter of the above memorial is before your Honourable Court, and the virtual publication of one of the minutes written on that occasion (and that without the minute of the other members of Council, and other documents), before the decision of your Honourable Court is known, seems to be an appeal to the public, which the circumstances do not justify, so far as your memorialist is concerned.

2d. That not only has no decision yet been received from your Honourable Court, but it seems to your memorialist that he has a right to presume that your view of the case essentially differs from that shown in the President's minute referred to; for it is not to be supposed that the matter would have remained unnoticed for more than six months (it is now 10 months since it was sent in to Government), if your Honourable Court had concluded that it was so objectionable a document as is implied in the minute; it being usual, I believe, in such cases whenever there is even the least room for doubt as to which is in the right, the superior or subordinate, to give the superior the benefit of that doubt.

3d. In the matter of the Public Works Report, both the civil members of Council have recorded at length their views respecting that document; one of them defending it, while in the case of your memorialist, neither of these gentlemen have recorded their views either upon the subject of the minute, or upon the appeal to the public, by its publication in a book primarily on another subject. It is thus, certainly, to be presumed that neither of the civil members concur with the Right Honourable the President in this proceeding; though they have neither said anything in defence of your memorialist, nor protested against your memorialist being thus publicly accused, without an opportunity being given to your memorialist of defending himself by the publication of such documents as your memorialist may consider necessary for that end.

3. As so much time must elapse before your memorialist can hear from your Honourable Court, and the public here are already in possession of these papers, your memorialist has thought it necessary at once to address the Government here in a letter, a copy of which is here appended.

4. Your memorialist respectfully submits:

1st. That no step such as the present, being a public condemnation of a servant of Government on a point which is still in the hands of your Honourable Court by the local authorities, against whom your memorialist has appealed, is justifiable, whether as respects your memorialist on the authority of your Honourable Court; and

2d. That if an appeal to the public is made by the publication of a document condemnatory of any individual, that document ought to be accompanied by every other that that individual may think necessary for his defence.

And your memorialist, as in duty bound, &c.

(signed) *A. Cotton*, Lieutenant-colonel,
Chief Engineer.

Chief Engineer's Office, Fort St. George,
5 January 1854.

No. 2.

From Lieutenant-colonel *A. T. Cotton*, Chief Engineer, to the Chief Secretary to Government.

Sir,

It is now a matter of common notoriety that in the book which has been printed, containing the minutes of the Right Honourable the President and Members of Council, on the subject of the Public Works Report, several minutes by the Right Honourable the President are inserted, most severely reflecting on my conduct.

I most respectfully submit, that not having been one of the Public Works Commissioners, I am not connected with that matter, and my case is essentially different from theirs in two respects.

1st. No paper of mine has been published, and therefore in appealing to the public in my case the Government have brought forward only the charges against me without any papers which could enable that public to form their own judgment in the case.

2d. I understand the two civil members who have recorded their views on the Public Works Report have not given any opinion either on the minutes animadverting on my conduct or on their publication.

At present I am therefore brought before a tribunal without any opportunity being given me of making my own defence.

I speak of the minutes being made public, though nominally they have not been so, because they have in part; they are printed; they have been placed in the hands of various individuals, both in the service and out of it, and have been seen and commented on by one at least of the editors of the Madras newspapers.

The Honourable Court of Directors have my papers as well as the minutes before them, and had I been brought before a court-martial I should of course have been allowed to produce any papers I thought necessary; but I am now brought before the public, both without defenders and without being allowed to make my own defence, as matters stand. I have therefore the honour respectfully to request that I may be permitted to print and circulate to those who have seen the charges brought against me such public documents as may appear to me necessary for my defence.

I have, &c.

(signed) *A. Cotton*, Lieutenant-colonel,
Chief Engineer.

Chief Engineer's Office, Fort St. George,
4 January 1854.

Minute by the Right Honourable the President.

Letter from Lieutenant-colonel Cotton, Chief Engineer, No. 9, dated the 5th January 1854, handing up a memorial to the Honourable Court, bringing to notice the proceedings of Government with respect to certain engineer officers who memoralised against being superseded by an officer of the native infantry.

The memorial above referred to will immediately be sent to the Honourable Court.

The Honourable Court having expressed their sentiments in a recent despatch on the alleged supersession of certain officers of engineers by an officer of infantry, of course the prohibition of the promotion of the former who memorialised to a higher grade is at an end.

The despatch from the Honourable Court of the 9th of November 1853 will be disposed of in the usual manner, and when it is replied to in due routine, and the draft comes to me, I shall place a minute on record to accompany the reply.

The Honourable Court's orders will necessarily be strictly obeyed, but as I conceive them to have been grounded on misstatement, and further, as I hold that circumstances have since shown that the view I took of the deficiency of qualified engineer officers was essentially correct, I shall point out the impressions I still retain on that question. I wholly deny the allegations made in the chief engineer's memorial as to its being a common right for officers to communicate with me personally as Governor. Lieutenant Scott had chosen to enter into the combination, and as I looked, and still do so, on such a combination to be equally subversive of proper authority and respect, I marked it by my personal displeasure. No individual at the head of this Government, or any other Government, has, I will venture to assert, ever made himself more accessible to all ranks and classes than I have done; but so far as for admitting it to be "a common right," I distinctly decline to do so. I have exercised, and shall continue to do so, my own pleasure on those points. Lieutenant Scott was told by my orders that I would not communicate with him in person, but that if he had anything to say he might inform my private secretary, or put what he wished to make known on paper. I think I was informed afterwards that he observed that he had come to apply to me to be removed to another station as he had quarrelled with his immediate commanding officer, which I deemed a conclusive proof of the total want of the usual respect which the example of Lieutenant-colonel Cotton has inculcated.

21 January 1854. (signed) *Henry Pottinger.*

Minute by the Honourable Mr. *Eliott.*

The letters of Lieutenant-colonel Cotton, chief engineer, one, No. 7, dated the 4th instant, and two, Nos. 8 and 9, dated the 5th instant, containing memorials to the Honourable Court of Directors, have reached me on circulation this day.

In the first letter Colonel Cotton requests the permission of Government to print and circulate such public documents as may appear to him necessary for his defence against certain reflections contained in minutes of the Right Honourable the President appended to his minute on the First Report of the Commission on Public Works, printed with the proceedings of Government on that Report.

Letter No. 7. In the second letter, Colonel Cotton submits a memorial addressed to the Honourable Court of Directors, complaining of the publication of those minutes.

Memorial enclosed in No. 8. In both his letter to Government and in his memorial to the Court of Directors, Colonel Cotton assumes that the Government have appealed to the public in his case, and complains that they have brought forward only the charges against him, without any papers, which could enable that public to form their own judgment. He surmises that the Government printed the papers in question purposely as an appeal to the public, and complains of the civil members of Council not having protested against his being thus publicly accused without an opportunity being given to him of defending himself by the publication of such documents as he might consider necessary for that end.

I deny that an appeal to the public was intended by Government in printing the minutes. The Report of the Commission on Public Works was printed in the first instance for the sake of convenience, and for the same reason the minutes reviewing that Report were likewise printed. These minutes were intended for the consideration of the Government of India, and the Honourable the Court of Directors, and the copies of former minutes appended to some of them were annexed simply for more easy reference to documents already recorded in the proceedings of Government, to which the writers desired to call attention. The Government are not in any way bound to make known to officers, on whose conduct they have found it necessary to animadvert, in communications to the Court of Directors, the tenor of their comments, or to give them an opportunity to discuss them; still less to make known to them, or to give them an opportunity of discussing the opinions of the head, or individual members of the Government,

ment, which have not been adopted by the majority. It is quite contrary to all precedent to do so, pending the judgment of the Court in the representation made to them. It would be detrimental to the public service to admit such discussion. I do not see that there is reason to distinguish between this case and others, merely on the ground that the minutes having been printed, have got into the hands of persons who would not have had an opportunity of seeing them if they had been, as usual, confined to manuscript. This was not authorised nor contemplated by Government, and it has been stated to the Governor-General in Council, that the Government do not feel themselves at liberty to publish the papers that have been printed, while they are under the consideration of that authority and the Court of Directors. Colonel Cotton does not specify what papers he desires to print and circulate; and I have no idea that they are beyond those that have been sent to the Court. I presume that all the papers to which the appended minutes relate will be before the Court, when his memorial to that authority, which is the subject of one of them, is disposed of. His appeal to that only legitimate tribunal will therefore have all the support that the papers in the records of Government can afford, and the opinions that have been expressed regarding his conduct will be weighed by that standard; his proposed appeal to the public I think is inadmissible.

The Honourable Court will judge of the propriety of the memorial which Colonel Cotton has addressed to them on the subject, and I trust that the opportunity will be taken to lay down some rule as to the latitude which is to be allowed to officers in criticising the proceedings of Government in the shape of memorials, as well as upon the right asserted by Colonel Cotton, which of course he does not claim as a peculiar privilege, to vindicate himself from censures, which he understands to have been passed upon him in the course of discussions at the Council table, by appeal to the public, knowing that those censures, and the grounds of them, have been submitted to the judgment of the Honourable Court.

In his third letter, Colonel Cotton has submitted a memorial, addressed by him to the Honourable Court of Directors, not on account of any grievance of his own, but as the champion of certain officers of the corps of engineers under his command, on account of a grievance which he considers them to have suffered. I question the pretension of Colonel Cotton to set himself up as the champion and advocate of these officers; and I cannot but remark that the time was ill chosen for doing so, when a despatch had actually been received from the Honourable Court of Directors, containing their decision, pending which, only the resolution complained of was to have effect. The despatch was received on the 1st January, and Colonel Cotton's memorial is dated the 5th. I do not object to the memorial being transmitted to the Honourable Court, for though it appears to me exceptionable, yet it is for the Court to determine on the correctness of the principle on which it is based. I do not enter into the merits of the case, further than to say that I did not approve of the promotion of the officers in question being suspended because of their having addressed memorials to the Honourable Court.

Minute, dated 15th and 23d August 1853.

While I oppose the claim of Colonel Cotton to be allowed to print and circulate public documents by way of appeal to the public, from censures upon which we may expect a judgment to be pronounced by the Honourable Court of Directors, on a full consideration of his conduct, as manifested in the papers before them, which it would seem must be the papers he desires to publish, I yet would guard myself from being supposed to concur in the censures to which he objects, particularly those expressed in the minute of the Right Honourable the President,* dated 4th May 1853, on the draft of the despatch with which Colonel Cotton's memorial was transmitted to the Honourable Court.

* I subscribe to the despatch, but not to the minute.

21 January 1854. (signed) *D. Eliott.*

MINUTE by the Honourable Mr. *Thomas.*

LETTER from Lieutenant-colonel Cotton, 4 January 1854, requesting papers with a view to publication.

Letters dated 5 January, with two memorials from the same officer, with minutes by the Right Honourable the President and by the Honourable Mr. Eliott, dated 21st instant.

These papers have reached me this day (24th), and I have little to add to the remarks recorded in the Honourable Mr. Eliott's minute, in which I fully concur.

It should, I think, be pointed out to Lieutenant-colonel Cotton that he is in error in designating the minute, or views of one of the members, as the proceedings of the Government. This error is the more marked in this case, as in the instance to which he especially refers, the minute of the President of the 4th May last, there was but one of the civil members of Government then present. I was not even aware of the existence of his memorial, and of the minute upon it, till long after both had been despatched to England, being then absent on the Neilgherries. So little ground is there for his remarks in the alleged omission to protest against the view taken of his conduct by the President.

As he has now brought this memorial again under notice, I deem it right to state my opinion that I consider that document unjustifiable, as wholly wanting in the respect due to the head of the Government, and subversive of all authority.

Colonel Cotton had no personal grievance of which to complain; and his assumption of a right to comment upon, and pass in review the acts of the head of the Government under the guise of a memorial to the Honourable Court I must entirely condemn, whether in his case or in the more recent one of the Rev. Mr. Taylor, unless the Honourable Court see cause expressly to sanction such appeals to them.

I look upon the memorial now sent in by Lieutenant-colonel Cotton, in which that officer represents the cases of certain junior engineer officers, as open to similar exceptions, particularly as noticed by the Honourable Mr. Eliott, at this date, when the Court's late despatch has removed the ground of complaint.

With reference to Lieutenant-colonel Cotton's application for papers "for the purpose of publication," though I should deprecate the concession in this and similar cases where personal feelings and interests come under discussion, I should be glad to see a discretion given to this Government to publish its proceedings and papers, upon great general questions in which the whole community are interested. Such, for example, as the Minutes and Proceedings of Government and of the Revenue Board on the recent apprehended famine, on the Mohiturfas, the salt and other general questions; I cannot myself doubt but that this course would be found highly beneficial, and far better calculated than the existing system to uphold the character of the Government, and to lead to a sound, healthful, and useful public opinion. It is upon this ground that I now advocate the publication of the minutes and the orders of Government on the Report of the Public Works Commissioners.

24 January 1854. (signed) *J. F. Thomas.*

No. 62.

R. D^r to Cons. 9 August 1853, Nos. 21, 22. Cons. 23 August 1853, No. 33 to 39.

Resolved, that Lieutenant-colonel Cotton's memorials, enclosed in his letters of the 5th January 1854, Nos. 3 & 4, be forwarded to the Honourable Court of Directors, together with his letter of the 4th January, No. 2, and the Minutes of the Members recorded above, as well as the Papers recorded in the Consultation, noted in the margin, having reference to the application of the Board of Revenue in the Department of Public Works for the promotion of certain engineer officers who had previously memorialized the Honourable Court.

2. Resolved also, that Lieutenant-colonel Cotton be informed with reference to his letter of the 4th January, that pending the orders of the Government of India and the Honourable Court of Directors on the Reports of the Public Works Commissioners,

Commissioners, the Government do not consider that it is open to them to accord to him for the purpose stated the permission he solicits to print certain public documents.

(signed) *H. C. Montgomery*,
Chief Secretary.

Fort St. George, 10 February 1854.

MEMORIAL from the Commissioners of Public Works at *Madras*.

EXTRACT Fort St George Public Works Consultation of 22 November 1853.

Read the following Papers:

From the Commissioners for inquiring into and reporting upon the system of Public Works, to Sir *H. C. Montgomery*, Bart., Chief Secretary to Government, Fort St. George.

Sir,

WE have the honour to forward a memorial in triplicate, addressed to the Honourable the Court of Directors of the East India Company. We beg to request that you will be good enough to lay it before the Right Honourable the Governor in Council, with a view to its being transmitted to the Honourable Court.

(signed) *J. D. Bourdillon*,
G. Balfour, Major,
Public Works Commissioners.

Public Works Commissioners' Office,
Fort St. George, 8 November 1853.

Respectful Memorial from *J. D. Bourdillon*, Esq., of the Madras Civil Service, and Major *George Balfour*, Commissioners for inquiring into and reporting on the system of superintending and executing Public Works in the Madras Presidency, to the Honourable the Court of Directors of the East India Company.

YOUR memorialists beg to submit the following circumstances for the consideration of your Honourable Court, and for such orders as you may deem fitting.

In pursuance of your Honourable Court's despatch of the 30th of January 1850, para. 65, your memorialists were on the 18th February 1851 appointed Commissioners, jointly with Major F. Cotton, of the Madras Engineers, for the purposes of inquiring into and reporting on the superintendence and execution of Public Works under this Presidency, and on the 23d December 1852, the Commissioners submitted the first Report on the very complicated and extensive subject committed to them. Your memorialists then proceeded with their inquiries, being deprived of the co-operation of Major Cotton, who was withdrawn for other important duty in the provinces, and on the 1st instant they reported to Government that their second and final Report was completed, with the exception of a small part of the Appendix. On the 8th instant (this day) your memorialists waited on his Excellency the Governor at the public breakfast officially notified, for the purpose of presenting that Report to him in person, and of officially paying their respects to him as the head of the Government on the breaking up of the Commission. Your memorialists put down their names in the proper book in the usual way, for an interview for this purpose; but after breakfast, and before the reception began, the senior aide-de-camp, Captain Hay, delivered to them a message from the Governor to the effect that his Excellency could not grant them an interview, and that it was owing to his (Captain Hay's) mistake that their names had been put down at all, as he had previously received his Excellency's orders that their names should not be on the Government House list.

Your memorialists beg to represent that according to social usages in this country, removal from the lists of those admitted to Government House carries with it various social and public inconveniences and disabilities: and that as applied to gentlemen holding important and responsible offices under Government, such a measure is altogether unprecedented. They feel compelled to ascribe this sentence of exclusion now notified to them, to displeasure felt and recorded by his Excellency at some passages, or at the general tenor of their first Report. They have thus incurred this exclusion solely, as they believe, by their discharge of an important and arduous duty committed to them in pursuance of the orders of your Honourable Court, and which duty they zealously and laboriously endeavoured to perform in an honest and complete manner, in accordance with their duty to your Honourable Court, and to advance the well-being of this country. Your memorialists therefore address your Honourable Court in the confident hope that you will be pleased to grant them redress, and replace them in that position socially and officially, which as men of honour and integrity, and zeal in your service, they have a right to claim.

And your memorialists respectfully subscribe themselves,

(signed) *J. D. Bourdillon*,
G. Balfour, Major,
Public Works Commissioners.

Fort St. George, 8 November 1853.

Minute by the Right Honourable the President.

I beg to propose that the memorial which accompanies this letter be transmitted to the Honourable Court by the first opportunity. The statement therein contained is quite correct, with the addition that I desired my aide-de-camp to say that I declined to have any personal intercourse with any of the members of the Commission. As the head of this Government I feel that I was quite justified in the step I took, equally to protect myself from being intruded upon by persons who had so totally forgotten what was due to me in that position, and also in my private capacity to mark the sense I entertained of their conduct.

(signed) *Henry Pottinger*.

Guindy Park, 10 November 1853.

No. 418.

Ordered, that the memorial received with the above letter be forwarded to the Honourable the Court of Directors, together with the minute recorded by the Right Honourable the President.

(signed) *H. C. Montgomery*,
Chief Secretary.

Fort St. George, 22 November 1853.

Public Department, 22 March (No. 13) 1854.

Our Governor in Council at Fort St. George.

Letter (Public Works Department), dated 23 November (No. 10) 1853.

Para. 1. In this letter you have transmitted to us a memorial from Mr. J. D. Bourdillon and Major G. Balfour, members of the Commission on Public Works, complaining of the manner in which they had been treated by the Governor of your Presidency.

2. These gentlemen state that having waited upon Sir Henry Pottinger at the public breakfast, and having put down their names for an interview in order to present

present their second Report, and officially to pay their respects to him as the head of the Government on the breaking up of the Commission, they were informed by the senior aide-de-camp that the Governor could not grant them an interview, and that he had given orders "that their names should not be on the Government House lists."

3. The memorialists state that they feel compelled to ascribe the treatment of which they complain to displeasure felt at some passages, or at the general tenor of their first Report; and this impression is verified by Sir Henry Pottinger in a minute which accompanies the memorial, and in which he states, "As the head of the Government I feel that I was quite justified in the step I took, equally to protect myself from being intruded upon by persons who had so totally forgotten what was due to me in that position, and also in my private capacity, to mark the sense I entertained of their conduct."

4. The blame imputed to the Commissioners in the above minute is stated at greater length and in far stronger terms in the minute recorded by Sir Henry Pottinger, on the first Report of the Commissioners; and on the same occasion the other members of your Government took exception to the tone of the Commissioners' remarks on the Government of your Presidency, with reference to Public Works in past years. Several instances are pointed out by Mr. Eliott, in which their statements, impugning the conduct of your Government, are contradicted by facts; and both he and Mr. Thomas impute to those gentlemen misstatements in cases where they could scarcely be ignorant of circumstances which ought to have modified their conclusions.

5. We shall not be in a position till we have received the second Report of the Commissioners, and been put in possession of the views of the Government of India on the subject, to go into a full consideration of the substance of the Report already received, and of the minutes recorded by your Government in connexion with it; but we have, nevertheless, thought it right to enter on such an examination of it as would enable us to decide how far the Commissioners may have laid themselves open to these observations on the tone and spirit of their Report, as far as it regards the conduct of your Government.

6. The result is, that whilst we are entirely of opinion that it was the bounden duty of the Commissioners to bring fully before the Government of India all the facts connected with the subject of their inquiry, and the deficiencies which, in their opinion, existed in any part of the service of the Department of Public Works, we think they are liable to animadversion for the tone of several parts of their Report, with reference to the conduct which on different occasions your Government thought it right to pursue. Such a course could not be necessary for a perfect elucidation of the truth, and could not but tend to produce feelings little calculated to promote the important object of a good and harmonious understanding amongst gentlemen employed in the same public service.

7. On the other hand, we cannot but regret the mode which Sir Henry Pottinger thought proper to adopt for expressing his disapprobation of the conduct of the Commissioners when they came, according to the accustomed practice, to seek an interview for the purpose of presenting their second Report, and also the communication made to them by his orders, which we think casts unmerited discredit on public officers of high character and reputation.

8. With regard to the charge of wilful misstatement and misrepresentation, which seems to be implied by Mr. Thomas, we shall reserve our opinion until the Commissioners have had the opportunity of offering an explanation.

(True extracts.)

T. L. Peacock,
Examiner of India Correspondence.

East India House,
2 May 1854.

PUBLIC WORKS (INDIA).

COPIES of Reports of the Commission on Public Works at *Bombay*; of Second Reports of Commissioners on Public Works at *Madras*, with Minutes or Reports of the Governor and Members of Council at *Madras* to the Governor-General or Court of Directors respecting the same; of Minutes or Reports of the Governor-General in Answer to those Reports; of Memorials from the Commissioners on Public Works at *Madras* respecting those Reports; and of the Answers of the Court of Directors thereto.

(*Mr. Hume.*)

Ordered, by The House of Commons, *to be Printed*,
4 *May* 1854.

[*Price* 1 *s.* 6 *d.*]

Under 20 *oz.*

BANDA AND KIRWEE BOOTY.

RETURN to an Address of the Honourable The House of Commons, dated 9 February 1864;—*for*,

"COPY of any further CORRESPONDENCE on the subject of the BANDA and KIRWEE BOOTY, between the India Office and the Treasury Board (in continuation of Parliamentary Paper, No. 498, of Session 1863)."

India Office,
10 February 1864.

T. T. PEARS, Major-General,
Secretary for Military Correspondence.

(*Lord Stanley.*)

Ordered, by The House of Commons, *to be Printed*,
12 & 23 *February* and 4 *March* 1864.

COPY of any further CORRESPONDENCE on the subject of the BANDA and KIRWEE BOOTY, between the India Office and the Treasury Board (in continuation of Parliamentary Paper, No. 498, of Session 1863).

G. E. Cochrane, Esq., to the Secretary to the Treasury.

Sir, India Office, 8 August 1863.

WITH reference to the letter to your address, dated 15th September 1862, I am directed by the Secretary of State for India in Council, to transmit a letter from the Commander in Chief in India to the Right Honourable Viscount Palmerston, just received from the Governor General of India, setting forth the grounds on which his Excellency considers the Central India Field Force formerly under his command, has a fair claim to share in the Kirwee Prize. Letter No. 41 A. of 1863.

2. In transmitting this communication, the Governor General of India observes that it had reached him too recently to enable him to add any information to that which was furnished by Sir Hugh Rose; but he hoped to be able to address Sir Charles Wood on the subject by the next mail.

3. Sir Charles Wood will give directions that whatever may be received from the Governor General regarding Sir Hugh Rose's representation shall be transmitted for the information of the Lords Commissioners of Her Majesty's Treasury.

I have, &c.
(signed) *G. E. Cochrane*,
Assistant Military Secretary.

Major General Sir *Hugh Rose*, K.C.B., to the Right Hon. Viscount *Palmerston*, K.G., G.C.B.

My Lord, Head Quarters, Simla, 26 June 1863.

I HAVE the honour, with the utmost respect, to submit the claims of the late Central India Field Force to share in the Kirwee prize money.

I do so in the belief that the principle of equity, or constructive capture, has been allowed in the case of that prize; it not having been considered just, under the peculiar circumstances of the case, that the troops who actually took the prize, on which occasion there was no fighting, should alone share in it, whilst the Central India Field Force, which was far more engaged, and lost far more, and without whose co-operation Banda and Kirwee would not have been taken, should not be allowed to share in the prize.

Of course it is self-evident that my force could not urge any claim as the actual captors of Kirwee, as it was at the time at Calpee.

But, on the other hand, it was the position at Calpee, on the Jumna, and on the left flank, and in front of Sir G. Whitlock's column, which the Central India Field Force had all along occupied, whether at the actions and capture of Rathghur, which were fought for the relief of Saugor, the actions prior to and subsequent to the capture of Garrakotta, the storming of the passes into Bundelcund, the capture of the Fort of Chandaree, the general action of the Betwa, the storm and capture of the fortified city and fortress of Jhansi, the storming of the Fort of Loharee, the general action of Koonde, the actions on the Jumna, and the capture of Calpee, which enabled that general officer to advance on Banda and Kirwee.

Before going further, it is right that I should submit my reasons for having so long deferred making this official application on behalf of the Central India Field Force for a share in the Kirwee prize money.

In the first place, I was not aware for a long time that the principle of constructive capture had been allowed, and when I understood that it was so, I

did not like, by any direct or formal appeal, on behalf of my late force and myself to share in the prize, to have the appearance of being influenced by self-interest, or too eager a desire to acquire a share in so rich a booty.

I felt quite convinced of the justice of the claim ofthe force to share in it in an equitable point of view. I felt equal confidence in those who had acknowledged the justice of the principle of constructive capture, and in those to whom the adjudication of the question was entrusted.

Moreover in advocating the justice of the claim of my force, I must have gone into a recital of its successful operations, a self-recital which I was very anxious to avoid.

Subsequently I was urged by numerous military and other friends to put forward my claim, because, if I did not do so, it might be urged that I myself did not acknowledge the right of my force to share in the prize, an argument which, in fact, has been used by those who oppose the claim of the Central India Field Force.

Enclosure No. 1. Letter from Sir H. Rose to the Governor General of India, dated 12 July 1862.

That this ground of opposition is untenable is shown by a letter, enclosed, which I had the honour to address to the Government of India, dated 12th July 1862, adducing the claim of my force to share, on the principle of constructive capture.

I was prevented from sending in my claim in consequence of the mislaying of two or three important documents since found, one of them a very brief but important letter from Sir Robert Hamilton, agent for the Governor General in Central India, written to me after the capture of Jhansi.

This letter, which is submitted further on, proves, in anticipation, the right of my force to constructive capture, for Sir Robert Hamilton tells me, that as I had cleared the country by the capture of Jhansi, he supposes that "General Whitlock will move on to Banda," which is the same as Kirwee.

I shall now have the honour, as briefly as possible, to submit to your Lordship the proofs which I venture to think entitle my force to share in the Kirwee prize money, on the principle of constructive capture.

In order to do this, it is necessary to give a brief historical recital of the operations of the Central India Field Force, which will show how they were combined and intimately connected with those of Sir George Whitlock, and how materially the operations of this officer in Bundelcund, and his capture of Banda and Kirwee, were dependent on the operations of the Central India Field Force in the Saugor District, and later in Bundelcund.

Your Lordship is aware that, with a view of putting down rebellion in India in 1857-58, a great strategical combination was arranged.

A Bombay column for quelling rebellion in Central India, of which its rebellious sovereign and the reduction of Jhansi were the main features, and co-operating with the army of the Commander in Chief in India, on the lines of the Jumna and Ganges, was to march *viâ* Saugor to the Jumna and Calpee.

Of the two brigades of this column, first called the Nerbudda and afterwards the Central India Field Force, I was directed to detach one from Mhow and Indore along what is called the Grand Trunk Road to Gwalior, for the purpose of freeing that important communication, re-establishing the electric wire on it, and bringing into order the districts to the right and left of the road. I myself was directed to march with the other brigade into Bundelcund *viâ* Saugor.

Subsequently to the strategical combination above-mentioned, it was decided that a Madras column, under Sir G. Whitlock, starting from the Madras Presidency and relieving Saugor, was to co-operate with my force for the subjugation of Bundelcund, Rewah, and other states on the right bank of the Jumna.

Enclosure No. 2. From Secretary to Government, Bombay, to Sir H. Rose, dated 12 December 1857.

The instructions given to me in a letter from Mr. Anderson, the Secretary to the Government of Bombay, enclosed, show clearly that the scene of my operations was the same as that assigned to the column under Sir G. Whitlock. For in the 3d para. of these instructions, it is said, that the principal points to which my attention was to be given, were the "re-establishment of the direct communication with Agra, and the restoration of order in the Saugor and Nerbudda Territory and the Bundelcund States."

Your Lordship may remember what an object of anxiety was Saugor in 1857. It was not besieged, but it was invested, with its small garrison and British inhabitants, 370 men, women and children, by large bodies of rebels, who, occupying strong forts and positions at some miles distance from it, intercepted all communications with it, except by a narrow line, which also was not secure, to the Nerbudda.

The

The rebels held Garrakota, a very strong fort, mentioned further on, to the south-east of Saugor, the whole of the Shahgurh territory more to the north, the fortified pass and village of Nowreowlee, the forts of Koraie and Kimlassa, all commanding the communications with Saugor and the Grand Trunk Road, and afterwards Rathgurh.

Two attempts made by the garrison of Saugor to free themselves from this investment were repulsed with loss; one under Major Finch, 31st Native Infantry, against Sehora, on the road to Rathgurh, and another against Nowrowlee, on the road to the Grand Trunk Road, in which Colonel Dalyell, commanding the force against the rebels, was killed.

Sir G. Whitlock, on account of causes and delays explained in the enclosed letter to me from the Commissioner of Saugor, was unable to relieve Saugor; and at the very urgent request of that functionary, and of Sir R. Hamilton, I determined to make forced marches to effect this important object.

Enclosure No. 3. Letter from Commissioner of Saugor to Sir H. Rose, dated 22 December 1857.

In a letter from Lord Elphinstone, enclosed, relating to the relief of Saugor, he says, "I have suggested to him" (Sir R. Hamilton), "that as General Whitlock will probably reach Saugor with his column early in February, if that place is not immediately threatened, it would be well to adhere to your original plan of opening the direct communication with Agra, at the same time cutting off the Kotah and Rajpootana rebels from Bundelcund and Oudh.

Enclosure No. 4. Telegram from Sir R. Hamilton to Lord Elphinstone, dated 5 January 1858.

Enclosure No. 4A. Letter from Lord Elphinstone to Sir H. Rose, dated 4 July 1858.

"This might be done by taking Jhansi, or even by holding Sepree. One great advantage from taking this line is, that you would place yourself in communication with the Commander in Chief, who is now advancing before Cawnpore up the Doab.

"But upon this point" (of your movements) "Sir Robert Hamilton and yourself are much better judges than I can be. If the difference of a week, or perhaps a fortnight, in the relief of Saugor is of importance, that place must, of course, be first attended to. If it can wait for General Whitlock's advance, the other movement appears to me the most desirable."

In another letter, written a few days afterwards, enclosed, on the same subject, Lord Elphinstone says,—

Enclosure No. 5. Letter from Lord Elphinstone to Sir H. Rose, dated Bombay, 6 January 1858.

"As he" (Sir Robert Hamilton) "says that Holkar has done all that he required, there could be no use in your remaining at Indore; and as Sir Robert is anxious that Saugor should be first relieved, I have of course nothing more to say.

"There is no doubt that Saugor is in a position of some danger, for its safety depends upon the fidelity of a regiment of Bengal sepoys. I hope that you will arrive there in time to prevent any disaster, and that you will then be able to turn your face towards Tehree and Jhansi, leaving Jubbulpore and Eastern Bundelcund to the Madras column under General Whitlock."

These letters show how geographically and completely Sir G. Whitlock's and my operations were connected and combined. We were both ordered to march on the same place, Saugor, and from thence to Bundelcund. Sir G. Whitlock was to have relieved Saugor, but not being able to do so, I was called on to effect the relief, as is seen in the above letters.

How important was the speedy relief of Saugor is shown by the enclosed letters from Major Western, Deputy Commissioner of Saugor, who says,—

Enclosure No. 6. Letter from Major Western, Deputy Commissioner, dated Camp, near Saugor, 14 December 1857.

"I really think if the mutineers came to Saugor from Calpee and Jhansi, unless we get assistance, the sepoys at Saugor will go, and then in all probability Saugor, with its magazine, &c. will be lost.

"If General Stuart's brigade" (which afterwards became my first brigade) "came to Saugor, all would be right.

"The Madras division" (Sir G. Whitlock's) "will not be at Saugor for two months, if then."

Again the Deputy Commissioner of Saugor says, "I am sorry to say they have made an awful mess at Saugor. This is the second time we have been thrashed by the Nowreowlee rebels, and of course the effect will be very bad."

Enclosure No. 7. Letter from Deputy Commissioner, Saugor, dated Camp, near Saugor, 16 December 1857.

Major Western alluded to the two defeats of the garrison of Saugor above-mentioned: he continues—

"I do hope Brigadier Stuart's brigade, or at any rate a part of it, will at once be sent to Saugor.

"The . . . . . Native Infantry are not to be trusted; I really think Europeans, or troops that can be depended on, are most urgently required at Saugor."

The value of Saugor is further proved by the importance which the rebels attach to it.

Saugor is a most important strategical point, containing the arsenal of Central India, and standing on the direct line of communication between the west of India and Allahabad, the lines of the Jumna and Ganges.

It is also on the direct road from the Nerbudda to Jhansi and Gwalior.

Saugor is equally important as regards the right of my force to constructive capture, as will be seen by a glance at the map and by a consideration of the operations themselves.

Neither the Madras column under Sir G. Whitlock, nor the Bombay, the Central India Field Force under my command, could have advanced into Bundelcund without relieving and securing Saugor.

It is an important fortified outpost of Bundelcund, in which are Banda and Kirwee, both as regards supplies and strategy, without the possession of which a forward movement could not be attempted against the passes protecting Bundelcund, which, by the instructions of the Government of India, was to be the scene of the combined operations of the Madras and Bombay columns.

On my march from Indore to Saugor, as I have said before, I received urgent appeals from the authorities, amongst others Brigadier Sage, commanding at Saugor, to relieve that place as rapidly as possible. My march to relieve it was so rapid that at Rathgurh I was exposed to the greatest straits for provisions.

It is a mistake to suppose that the relief of Saugor was effected without fighting: an action before Rathghur, the siege and capture of that fort, a determined attempt of the enemy to relieve Rathghur and surprise my camp, and a hard-fought action at Barodia, were all preliminary to, and necessary for the relief of Saugor, as will be shown in this letter.

Before going further, however, it is right to state that my force was extremely weak for the extensive and important operations assigned to it, of which the capture of strong forts was the principal point.

This was fully acknowledged by the Bombay Government; but it could not be helped, as they were in great straits themselves, and could give me no more troops.

I had a weak troop of only four guns of Horse Artillery, so weak that, including natives and Europeans, they only amounted to 82 men. The field service strength of a battery of British Horse Artillery is 210, all British.

I had a light field battery as inefficiently manned as the troop of Horse Artillery, and so weak in horses that I was obliged to obtain for the battery untrained horses from the Queen of Bhopal on my march.

Of siege artillery I had only two 18 pounder guns; two 8-inch mortars; two 5½-inch mortars; and one 8-inch howitzer; all as insufficiently manned as the rest of the artillery.

In cavalry I had a squadron of the 14th Light Dragoons, a troop of the 3d Bombay Light Cavalry, and a troop of Hydrabad Contingent Cavalry; and in infantry, one weak Bombay European Infantry Regiment lately raised and in very bad order, but whose discipline became excellent before the end of the campaign; one Bombay Native Infantry Regiment; and of the Hydrabad Contingent, a native force, two 6-pounder guns, detachments of the 1st and 3d regiments, and the 4th, a very weak regiment of infantry; a company of Madras and a few Bombay sappers and miners.

All the corps were much under-officered in consequence of the rule which then existed that regimental officers might be employed on civil and staff employ. The infantry regiments had only half their strength of officers.

Of the three native corps which formed a large proportion of my brigade, one was a regiment of which the commanding officer had strongly remonstrated against their being employed in Central India, because his men would have to act against their relatives and friends. The other was the Hydrabad Contingent, of which a portion had wholly broken out into mutiny, and with the view to prevent the whole body doing the same, their commander was so hard pressed by the prevailing troubles, that he was forced to assure them, in order that they should not be employed against the King of Delhi.

With this force, so very weak in numbers, and the morale of a part of it such as I have described, I had to conduct operations for which in former times five times and more the amount of each arm was considered necessary.

In order to prevent my relieving Saugor, the rebels had determined to defend the Fort of Rathghur, which stands on and commands the road from Indore and Mhow to Saugor, from which latter place it is only 30 miles; it was garrisoned

risoned by warlike and desperate Velaitees and Pathans, and is said by Dr. Lowe to be larger and as strong as that at Mooltan; the east and south faces being almost perpendicular, and the rock scarped and strengthened by a deep rapid river, the Bina, running close beneath its walls from east to west.

My force attacked it; the heavy guns being brought up to a difficult spur to effect a breach, and took it in a few days. Scindia, with a force of at least four times the strength, besieged it for five months.

Mahomed Fazil Khan, nephew of the Queen of Bhopal, a gallant leader; Nawab Kumdar Khan, a son of the Great Pindaree Chief; Kishen Ram, and other leaders of note, were blown up in the turret of the gateway, besides many of their followers killed.

The Rajah of Banpore, after having been defeated with loss, in an attempt to relieve Rathghur, and surprise my camp, recrossed the Bina, taking up a strong position on my left rear, at the village and ghurree of Barodia, on the Bina, with a view of cutting off my communications from Bombay, and retaking the Fort of Rathgur when I marched to Saugor.

Having received intelligence of this on the 30th January, I left the camp at Rathghur with a portion of my force to protect it; made a forced march to Barodia, about 15 miles off, and attacked the Rajah of Banpore, who defended the passage of the Bina.

It was carried by the 3d European Regiment, and Barodia taken by storm at dark, the enemy admitting a loss of 400 or 500 men.

Here, as at Rathghur, the enemy's force consisted of Bundeelas, a warlike and feudal peasantry, Valaitees and Affghans, known as desperadoes, and engaged as mercenaries by the rebel chief.

They made a determined resistance, although broken by the horse artillery and cavalry. They could not fly, but in groups and individually, sold their lives as dearly as they could.

The Rajah of Banpore was wounded, and fled precipitately through the jungles on foot; and Amant Sing, the ablest military leader of the rebels, was killed.

We had two officers, British and native, killed; one, Captain Neville of he 21st Company Royal Engineers, acting as my aide-de-camp, who had served unhurt 70 nights in the trenches before Sebastopol, was killed by a round shot.

Six British officers and one native officer were wounded; in all, nine officers killed and wounded.

It will thus be seen that one brigade of the Central India Field Force lost one British officer and six wounded, whilst in the only one or two actions which Sir G. Whitlock had, throughout the entire campaign, and with a much larger force than mine, he had only four British officers wounded and none killed.

The Fort of Kerai, from which the rebels had invested Saugor, and cut off the communication between that place and the Indore and Agra road, and through which they had now retreated, fell into our hands with its artillery, stores, &c., as well as the Fort of Kimlassa, and the fortified pass and village of Nowrowlee.

My rear being completely freed, the troops returned to Rathghur in the night, having marched a distance of 30 miles, and fought an action in less than 24 hours.

The force marched to Saugor before daylight the following morning, and entered it on the 3d of February, to the great satisfaction of the invested garrison and inhabitants, who came out to meet the troops.

As a proof of the combination and co-operation which existed at this period between Sir G. Whitlock and myself, I beg leave to quote from the following letters which passed between us, copies of which are enclosed.

Enclosures, Nos. 8, 9, 10, 11. Letters from Sir G. Whitlock to Sir H. Rose, dated Feb. 1, 7, and 10, and one from Sir H. Rose to Sir G. Whitlock, dated 3 February 1858.

In No. 11 Enclosure I say to Sir G. Whitlock:—

"The force under my command has taken Rathghur; the force relieved Saugor yesterday."

"My orders are to advance on Jhansi as speedily as possible, taking of course the forts, and subduing the country in the hands of the rebels which are between Saugor and Jhansi."

* * * * * *

"I am instructed" (by Lord Elphinstone) "that your force and mine are to give each other mutual assistance."

* * * * * *

"As I am ordered to act as I can in concert with your force, I should feel extremely obliged to you if you could, as much as possible, clear the valley of the Nerbudda and the country north of it."

Enclosure No. 12. Letter from Sir G. Whitlock to Sir H. Rose, dated 12 Feb 1858.

Sir G. Whitlock, in a letter enclosed to myself, acknowledges the receipt of the above, and says,—

"I have the honour to acquaint you that the troops, as per margin, have reached Jubbulpore, and that it is my intention to move in a few days to Saugor."

"I will again write before I move, giving you every information regarding my movements."

Enclosure No. 13. Letter from Sir H. Rose to General Whitlock, dated 13 February 1858.

In No. 13 Enclosure I say to Sir G. Whitlock,—

"I march to-morrow to Saugor, in two marches, as I wish to attack Maltoun, Chandaree, and Jhansi as soon as possible."

"I hope that you will have the great goodness to bring up the 5,500 bullock loads of corn for my force."

The above correspondence shows how at this early period, in the sense of combination, co-operation, and mutual aid, Sir G. Whitlock and myself, who were not personally known to each other, acquainted each other with all our movements and operations, as is the case with troops acting in combination; and that even before we received the definite instructions of the Government of India to co-operate, which are submitted further on, we had communicated with each other as commanders of troops do who move in the same line of country, or in combination, which is of itself a proof that the country in which we acted necessitated co-operation.

There was another outpost to Bundelcund, without the possession of which neither Sir G. Whitlock nor myself could have moved into that province; the strong fort of Garrakotta, situated between the rivers Souar and Gidaree, which acted as ditches to it. So strong was this fort, of which the defences were parapets 20 feet thick, rivetted with masonry, that, in 1818, Brigadier Watson, C.B., with a force of 11,000 men and 28 siege guns, was unable to make a breach in them; and the besiegers running short of ammunition, the garrison was allowed to evacuate the fort with the honours of war.

Leaving, as required by Major Western, a portion of my force to guard Saugor, my brigade marched against Garrakotta.

After surprising and cutting up an outlying picquet of the enemy, and driving in the 52d Native Infantry rebels, who endeavoured to hold a good position in front of Garrakotta, the rebels retired precipitately from the fort before I had time to invest it completely, through the jungle to Shahgurgh.

They were pursued to the river Beas, and 70 of them killed.

During these operations, Sir G. Whitlock's force was in the valley of the Nerbudda, nearly 100 miles in my rear, to the south-east of Saugor.

It is evident that if Sir G. Whitlock had preceded me, as originally intended, at Saugor, he would have been opposed by the same rebel forces who endeavoured to prevent my relief of it at Rathgurgh and Barodia, and he must also have attacked Garrakotta, without the possession of which both Sir R. Hamilton and Major Western declared that it was impossible that I or Sir G. Whitlock could advance into Bundlecund and against Jhansi. In consequence of my having relieved Saugor, Sir G. Whitlock was enabled to march from the Nerbudda by a straighter line into Bundelcund, and he merely visited Saugor after I had left it, reinforcing with some troops the garrison under Brigadier General Wheler, who commanded there.

Having with great difficulty collected supplies, the Central India Field Force, taking on its way the little fort of Barodia, marched against the passes which divide Bundelcund from the Saugor district.

With a feint against Maltoun, for the purpose of dividing the enemy, which to render serious I was obliged to make with half of my force, I directed the real attack against Mudanpore, a very strong position, a narrow pass, with a lake and deep wooded glens on the one and high wooded hills on the other side.

The passes were taken by storm, a great number of the rebels being killed on the ground, amongst whom was the notorious mutineer Lall Turbaie, the leader of the mutiny in the 52d Native Infantry.

The

The rebels were so panic-struck by the rapid capture of the passes, following close as it did after the capture of Rathgur and Garrakotta, and the defeat at Barodia, that they dispersed in precipitation, leaving open the whole line of road and country from the passes to Jhansi, and giving up the pass of Maltoun, the fort Narut in its rear, the strong little fort of Serai in the jungles, the stronger fort of Morowra, on the road to Jhansi, the fortified castle of Banpore, the residence of the Rajah of Banpore, and the strong fort of Tal Behut, on the heights over the lake of that name; abandoning also the line of the Bina and Betwa rivers, except the fort of Chandaree, on the left bank of the latter river.

The whole of the valuable territory of the rebel Rajah of Shahgurh also fell into our hands, and Sir R. Hamilton annexed it at Morowra to the British possessions, by a formal proclamation and ceremony; the British flag being hoisted on the walls of the fort, and the guns of the Force, on his application, firing a royal salute.

I beg to draw your Lordship's attention to this circumstance, because the occupation of the passes and forts in the Shahgurh territory, and the clearing of the country up to Jhansi, all of which is in the province of Bundelcund, facilitated the advance of Sir G. Whitlock into the south-eastern portion of that district.

After the annexation of the Shahgurh territory, the Central India Field Force marched to Jhansi.

I have the honour to enclose a copy of a letter received at this time from the chief of the staff in India, by which it will be seen that on account of the strength of that place, and the numerical weakness of my force, I was offered the option by the Commander in Chief in India of not attacking it, but of proceeding on to Banda, which, as I have said before, is the same as Kirwee.

Enclosure No. 14. Letter from Sir W. Mansfield to Sir H. Rose, dated 11 Feb. 1858.

Enclosed is a letter from the Viceroy of India to the same effect.

Enclosure No. 15. Letter from Lord Canning to Sir R. Hamilton, dated 11 February 1858.

Notwithstanding the weak state of the Central India Field Force, I determined to attack Jhansi, knowing that had I passed by it I should have let loose a garrison of 11,000 desperate warlike Bundeelas, Valaitees, and mutineers into the line of operations of Sir G. Whitlock and myself, which would have effectually put a stop to the subjugation of Bundelcund, and harassed, if not prevented, my march to Calpee.

Lord Elphinstone, then Governor of Bombay, had expressed a very strong wish that I should take Jhansi, as he felt assured that it would prove a fatal blow to rebellion in Central India. At the same time, however, his Lordship expressed his doubts as to whether it would be possible to do so on account of the large force of Valaitees, rebel Sepoys, and Bundeelas whom the Rance of Jhansi had collected there to defend it.

A few days before I reached Jhansi I received from the Supreme Government orders to combine my operations, and to co-operate with Sir G. Whitlock. He received the same instructions, of which I have the honour to enclose copies.

Enclosure No. 16. Letter from Secretary to Government of India to Sir G. Whitlock, dated 13 March 1858.

In these instructions the Government say,—

"It is necessary that you should communicate your movements to Major General Sir H. Rose, in order that he may be able to shape his own course so as to combine with yours in giving confidence and support to the chiefs. Sir Hugh Rose will receive instructions to this effect."

In my answer to these instructions, enclosed, I say to the Government of India,—

"I have the honour to say that I shall pay the strictest attention to these instructions, and be careful to shape my own course so as to give, in combination with Major General Whitlock, confidence and support to these chiefs" (of Bundelcund).

Enclosure No. 17. Letter from Sir H. Rose to the Government of India, dated 19 March 1858.

* * * * * *

"The arrival of Major General Whitlock on my right flank, and his co-operation with me, is a most important improvement on the plan just mentioned; and I may add, that nothing will tend more to cause, effectually, the permanent pacification of the Saugor district than an advance of Major General Whitlock's force in the direction pointed out by the Governor General."

Enclosure No. 18. Letter from Major General Whitlock to Sir H. Rose, dated 19 March 1858.

In a letter from Sir George Whitlock to me, enclosed, forwarding a copy of the instructions above referred to, he says,—

"In the meantime, you shall be kept regularly acquainted with my move-

ments, and I beg the favour of hearing what arrangements you propose making to carry out the wishes of the Governor General, that our plans may be combined."

Enclosure No. 19. Letter from Sir H. Rose to Sir G. Whitlock; dated 19 Mar. 1858.

In my letter to Sir G Whitlock, enclosed, informing him that I had received the instructions of Government alluded to, I say,—

"I shall be most happy to combine my future movements with yours in giving confidence and support to the Chirkaree and other loyal Bundelcund chiefs; and as the best means of doing so, to attack, in combination with your force, the numerous rebels who are besieging him at Chirkaree, and who are concentrating at Nowgong."

"I march from here to-morrow, intending to arrive before Jhansi on the 20th, where I shall commence the attack without delay. Immediately after its capture I shall proceed with my two brigades to carry out, in combination with yourself, the operations pointed out by the Governor General."

I did not move against Chirkaree, but attacked Jhansi, because, as has been shown, Sir R. Hamilton and myself considered that if I left Jhansi untaken, "I should have let loose a garrison of desperate and warlike Bundeelas, Valaitees, and mutineers, into the line of operations of Sir G. Whitlock and myself."

Enclosure No. 20. Letter from Sir R. Hamilton to the Secretary to Government of India, dated March 1858.

Enclosed is a letter from Sir Robert Hamilton to the Government of India, which they entirely approved, as will be seen in the enclosed letter, in which he gives the reasons which rendered it necessary that I should besiege Jhansi, and not go to Chirkaree.

Enclosure No. 21. Letter from the Secretary to Government to Sir R. Hamilton, dated 30 April 1858.

It will be seen that Sir R. Hamilton says in this letter,—

"I may add, that in the opinion of the Vakeels in camp, the fall of Jhansi is likely to have a very great effect on the rebels and mutineers now infesting Bundelcund; and the advance of Sir H. Rose's force, after its capture, will be the more effective, and greatly accelerate the rout and destruction of the rebels."

In the meantime Chirkaree, besieged by Tantia Topee, fell, and its projected relief became unnecessary.

Tantia Topee, after taking Chirkaree, moved with the army of the Peishwar against me, to relieve Jhansi.

As hereafter mentioned, he was totally defeated and routed in the action of the Betwa, and fled to Calpee, leaving Bundelcund in our possession.

Sir G. Whitlock, moving without interruption through Punnah, reached Banda, where he fought the action of the 19th of April.

Enclosure No. 22. Letter from Sir H. Rose to Sir G. Whitlock, dated 18 March 1858.

Enclosed is a letter from myself to Sir G. Whitlock, in which I say, "I hope that the siege of Jhansi will not take much time, but I will not fail to let you know my progress. I hope that we may soon meet."

Enclosure No. 23. Letter from Sir G. Whitlock to Sir H. Rose, dated March 1858.

In his answer to this letter, enclosed, Sir G. Whitlock says,—

"I am indeed right glad at the prospect of soon, I hope, meeting you, and shall be only too happy in co-operating with you against the rebels, who are so numerously assembling in the districts between us."

Enclosure No. 24. Extract Register of Events, dated 22 March 1858.

In the "Register of Events" in the Saugor district, extract enclosed, kept by the Commissioner of Saugor, that functionary says,—

"Major General Whitlock having received orders to aid the native states of Punnah, Rewah, and Chirkaree, and co-operate with Sir H. Rose," &c. &c.

These documents show, without comment, how both Sir George Whitlock, myself, and the civil authorities understood the orders given to us in two distinct communications from the Supreme Government to mean that we were to co-operate with each other, and combine our movements for the subjugation and pacification of Bundelcund.

On the march of my force to Jhansi, we heard of the formation of an army of rebels at Nowgong, in Bundelcund, on our right, under Tantia Topee, with the ostentatious title of the Army of the Peishwar.

The object of this force was to oppose Sir George Whitlock's and my advance into Bundelcund, and to relieve Jhansi.

One of the chief merits of Tantia Topee was his powers of organization: and it was surprising how well he had organised the so-called army, which, according to

to Sir R. Hamilton's statement, and Tantia Topee's confession before his execution, amounted to 20 guns and 20,000 men, a great many being Valaitee mercenaries.

It would not have been safe for me to have besieged Jhansi whilst the rebels held the strong fort of Chandaree, on the left bank of the Betwa, in my left rear.

I ordered, therefore, my second brigade, under Brigadier, now Sir C. Stuart, to diverge to the right from the Grand Trunk Road, as they advanced along it towards Jhansi, and take it.

This they did, by storm, on the 17th March, killing great numbers of the garrison, who made a desperate resistance, and joined me a few days afterwards at Jhansi. We lost here five officers and 25 men killed and wounded.

The position of Chandaree is very strong; it is on a ridge; the troops had to drag the heavy guns up a steep height to make the breach, which was difficult.

I arrived before Jhansi on the 21st of March, and besieged it, investing it completely with cavalry and artillery.

I always invested the rebel forts; because, although it diminishes very unnaturally the number of the attacking force, the moral effect of surrounding rebels is advantageous, for their retreat is cut off, and they imagine that not only is their enemy determined to take their stronghold, but not to let the garrison escape.

The fort of Jhansi, with its fortified city, four miles and a half in circumference, are very strong fortifications.

The fort, only partially enclosed by the high city wall, stands on an elevated rock. It has three lines of works, with flanking fire, the walls being of masonry and of great thickness.

But the greatest difficulty in attacking Jhansi is that it cannot be breached; for in rear of the only curtain on which breaching batteries can be brought to bear there are two walls, varying from 18 to 20 feet thick, and a dry tank, cut out of a solid rock, 30 feet deep, in rear of both.

It was, therefore, necessary to breach the city wall as near the fort as I could, with a view to take the city first and the fort afterwards.

The first brigade having now joined me, under Brigadier now Sir C. Stuart, my force was much strengthened in all the arms; but still it was only an incomplete division, and inadequate to the investment and siege, in such a hot season, of so large a fort and such an extent of fortified wall, with so numerous a garrison as Jhansi; I was, therefore, compelled to have recourse to a mode of attack which, under ordinary circumstances, would not have been justifiable.

In order to bring an enfilading fire on the city wall, I disconnected and separated my two attacks, and to make up for deficiencies in siege artillery, brought up 9-pounders and even 6-pounder guns to fire on the enemy's defences.

My troops were very much overworked; the infantry had to guard the batteries and advanced positions, which I took up to bring rifle fire to bear upon the enemy manning the walls; the investing cavalry and artillery which guarded or watched every inch of ground round the fort never took off their clothes, saddles, or harness during 17 days, nor unbridled, except to water.

The garrison and inhabitants, under the influence of their courageous Queen, made a desperate resistance; they were conscious that they were all more or less compromised in the massacre of the 73 English officers' ladies and children, at the outset of the mutiny, when the whole population took part in the procession which conducted them to the place of execution, singing religious songs, &c., and were present at the execution.

There was not a house in Jhansi which had not preserved a portion of the clothes or property of their victims as a trophy.

Even the women and children worked under fire during the siege, repairing the defences, and carrying water and food to the troops on the city walls and gates; and the Queen of Jhansi kept up their enthusiasm by constantly visiting the fort and walls, encouraging her people to resist to the last.

I could only spare two 18-pounder guns to effect the breach, and I disposed the remainder of my artillery so as to take in partial enfilade the city wall;

to keep up a fire night and day on the fort and city; blowing up the magazine in the fort, and doing as much harm as I could to the fort and town, except the palace, which I wished to keep for an hospital: firing the houses, stores, &c., and keeping the garrison without rest, and in anxiety during the night.

Notwithstanding the closeness of the breaching-battery, the wall was so thick, that the progress of making the breach with the two 18-pounders was slow; the command which the height of the fort gave the enemy was a great advantage, as its artillery overlooked all our attacks.

Its defences were shot away during the day, but at night they were re-made with large wetted sandbags.

I understood now—indeed I had always foreseen, the difficulties of besieging Jhansi with my inadequate force, and which had led the Viceroy and Lord Clyde to give me the option of not attacking it.

But, as I said before, it was impossible to obey my orders, to march to Calpee, and leave such a stronghold as Jhansi untaken in my rear.

But neither the Viceroy nor the Commander in Chief in India had foreseen another difficulty as to Jhansi which occurred—the attempt of the so-called army of the Peishwa, 20,000 strong, with a large force of artillery and cavalry under Tantia Topee, to relieve Jhansi.

The rebel army crossed the Betwa on the 31st March, and marched straight against me.

I have stated that my force was too weak for the siege and investment of Jhansi; but it had now to fight a general action with Tantia Topee. I had asked General Whitlock to have the goodness to help me by falling on the rear of the Peishwar army as they marched to the Betwa, but he was unable to give me any assistance.

If, in order to strengthen my force against Tantia Topee, I withdrew the besieging and investing troops, it would have been a moral and practical advantage to the enemy.

Encouraged by such a proof of weakness, they would have fallen on my camp and rear, and I should have been placed between two fires—the garrison of Jhansie in rear, and Tantia Topee's force in front.

The arrival of the Peishwar army in front of my camp was announced to the garrison of Jhansi by a huge bonfire; the city and fort were illuminated, and mad shouts of joy resounded from the fort, the city and its walls, during the night, which were answered by a steady fire from our batteries.

I determined, therefore, to maintain the investment and siege of the city as before, and keeping up the usual fire, to withdraw as few men from the attacking and investing force, for the engagement with Tantia Topee, as possible.

I drew up my small force in two lines, in order of battle against him, a quarter of a mile from, and in front of my camp, across the road leading from the Betwa to Jhansi, and facing the enemy.

I could see during the night, by the enemies' fires, &c., that their line very considerably outflanked mine.

At midnight, a non-commissioned officer commanding a picket of cavalry, which I had ordered to watch a ford lower than that by which the main body of the enemy had crossed the Betwa, galloped in; he had waited so long to count the enemy that the rest of his men were killed or wounded, and reported that several thousands of them, of all arms, had crossed the Betwa, and were moving to turn my left, and relieve Jhansi from the north.

I was therefore compelled to send my second line, under Sir C. Stuart, to move rapidly to the left, and oppose this flank movement.

The whole of the force, with which I had to meet this attack of Tantia Topee, was now reduced to one short line, which did not, all arms included, amount to the strength of a British regiment of infantry.

I had intended to commence the attack at daybreak, but before it the enemy vigorously attacked me, driving in my videttes, whom I ordered to retreat from both flanks, uncovering my line, which opened an artillery fire on the enemy.

However, it was clear that delay would be most hazardous, for so greatly was I outflanked, that, keeping my front engaged, the enemy's flanks had only to move on, when they would come upon and take in rear the batteries, and their line of troops investing Jhansi.

A decisive

A decisive flank attack was therefore necessary, and having taken ground obliquely to the right and left I attacked the enemy's right flank with horse artillery and cavalry, and their left, as I had no guns to spare, with cavalry only, moving, with the infantry, against the enemy's centre.

The manœuvre succeeded, and the enemy broke, leaving several of their guns in our possession.

Just at this time we heard the guns of Sir C. Stuart's force, and his opponents, at several miles distance to our left-front, and from the sound becoming fainter, we judged that he had also repulsed his opponents.

The enemy's second line against me was two or three miles in rear of their first, and as it was of importance to give them no time to recover from the defeat of their first line, I directed the infantry to engage the numerous detached parties of the first line, and proceeded as fast as I could with the horse artillery and cavalry against the second line.

To prevent our advance, the enemy had set fire to the jungle; but going at full speed through the fire, in order to escape ignition, we reached the second line, and opening a close and rapid fire on it, and moving the cavalry against it, drove it across the Betwa.

Forming on the right bank of the Betwa, the second line opposed our passage with artillery and musketry fire.

Our guns were brought up close to the bank of the river; the cavalry, covered by them, crossed the river under a heavy fire of the enemy, and charging up the bank broke them and cut them up, taking all the remainder of their artillery, including heavy guns and their park; prepared for the relief of Jhansi, and pursuing them for several miles to the other side of the river, till there was not the slightest formation of them visible.

The pursuit, from the beginning, lasted for 16 miles; the whole line being the scene of combats with detached parties and individuals, who, according to their custom, no quarter being given, sold their lives as dearly as they could.

Sir C. Stuart had been equally successful on the left, routing the enemy, and taking their guns.

The whole loss of the enemy at the Betwa amounted to about 1,500 men.

The loss on our side was comparatively small, on account of the extreme rapidity of the movements.

Tantia Topee fled to Calpee, and the whole of the Peishwar army which had intervened between me and Sir George Whitlock, taken Charkarie, and held in subjection all that part of Bundelcund upon Sir George Whitlock's left, through which that officer had to move on his advance to Banda, was now subdued.

This favourable state of things in Bundelcund was increased by the fall of Jhansi, which took place two days after the action of the Betwa.

Desirous of availing myself of the discouragement which was caused amongst the garrison of Jhansi, by the defeat of the Peishwar army which was to relieve them, I determined, although the breach was not as good as I could have wished, to attack it by storm and escalade on the 3d of April.

The front and enfilading fire on the breach was so heavy, that, except by a fire from the fort, the enemy made but little resistance there; but on the rocket battery on the left, which was to be taken by escalade, and also on the whole of the defences on the left, likewise to be taken by escalade, they made a desperate resistance with artillery-fire, rockets, stink-pots, stones, &c., the enemy on the walls thrusting at the assailants with spears, and cutting at them with swords.

The attack by escalade on the right failed, on account of the shortness of some of the ladders, the breaking down of others, and the resistance, as stated, made by the enemy.

But the attack on the breach and by escalade on the left succeeded.

The enemy, however, firing from the fort, the houses and the streets, particularly the Queen's Palace, which was in the centre of the town, opposed by every means in their power the entrance of the troops into the town and palace.

Colonel Turnbull, commanding the Artillery, who had given remarkable proofs of ability and intrepidity throughout the campaign, fell, shot from a house.

The troops however, despite of all obstacles, pushed up to the palace, which was the scene of a desperate conflict.

After they had effected an entry into it, the rebels retired from room to room fighting, leaving in the rooms they were forced to abandon, heaps of powder, with a slow match, which blew up, wounding and burning to death several of the assailants; the soldiers, tearing off their burning clothes, rushed about the palace in a state of frenzy. But it was in the palace stable, where the Queen's body guard were stationed, that the fiercest contest took place.

Driven out of the stable yard, into which the fort fired on friends and foes, after a hand to hand combat, into the stables, the rebel horsemen protecting themselves behind their horses, fired their pistols and carbines at the troops, and then rushed madly on, hewing at them with their sabres in both hands.

The danger of the moment was increased by the rebels setting the stables on fire, and the horses getting loose, rushed wildly amongst the combatants. The conflict was carried on until every man and horse of the body guard was killed.

Thirty-five colours, many of them English, and one of them given by the Governor General of India to the Ruler of Jhansi, were taken from the body guard.

The combat in the streets did not cease till the next morning, when Jhansi and its fort became ours.

The loss of the enemy was computed at 5,000, which Major General Wheler, who was then stationed at Saugor, says, he considered rather under than over the mark. It is a source of unmingled satisfaction that among this number there were no women or children.

The discipline of the troops was so good, that, although excited by the recollections of the massacre of the English at Jhansi, the fierce resistance of the garrison, the action of the Betwa, and the storming of the town, they carefully obeyed my orders not to harm either the one or the other.

Our loss amounted to 343 British and Native killed and wounded, including 24 British and 12 Native officers, in all 36 officers, which, considering the smallness of the force, was a large per-centage, particularly in officers.

Desirous of profiting by the effect of the action of the Betwa and the fall of Jhansi, I fixed to march on Calpee as soon as I had arranged for the protection of Jhansi, cared for the sick and wounded, and put my force in order after the arduous siege.

However, I was prevented from going to Calpee as soon as I had intended, by the appearance of the fugitive garrison of Kotah occupying a part of the Grand Trunk Road, and threatening Jhansi.

The rebels moved away to the north on my sending troops against them.

Meanwhile I had been reinforced by a weak wing of the 71st Light Infantry. But notwithstanding this accession of strength, it will be seen that my force was weaker when it marched against Calpee, than it had been at Jhansi, by a good deal, having to leave there for its protection from the Kotah rebels, or any attack from the Gwalior side, besides the sick and wounded, half a battery of artillery, a troop of native cavalry, and one regiment of native infantry.

I venture to request your Lordship's particular attention to the favourable effect which the capture of Jhansi and the action of the Betwa produced in Bundelcund, and the operations of Sir George Whitlock in that province. No better proof of this can be given than a short, but most meaning letter before alluded to, addressed to me by Sir R. Hamilton after the fall of Jhansi, of which I have the honour to enclose a copy.

Enclosure No. 25. Letter from Sir R. Hamilton to Sir Hugh Rose, dated 9 April 1858.

In this letter, dated the 9th of April, *i. e.*, after the capture of Jhansi and the action of the Betwa, and 10 days before Sir George Whitlock's action of Banda, Sir R. Hamilton says,—

"I suppose General Whitlock will move on to Banda, as you have cleared off all in this quarter," that is to say, an army of 20,000 men under Tantia Topee, with 20 heavy and light guns, and the 11,000 desperate men forming the garrison of Jhansi, and the Kotah garrison, which, but for the operations of the Central India Field Force, would have cut off Sir George Whitlock's communications, attacked his column, and rendered his march on Banda and Kirwee most difficult, if not impossible.

In

In a previous official memorandum of the 6th of April, enclosed, Sir R. Hamilton says,—

Enclosure No. 26. Memorandum by Sir R. Hamilton, dated 6 April 1858.

"General Whitlock will be at Chirkarie on the 6th April, and his future movements will depend upon what he may learn from us."

This memorandum of Sir R. Hamilton's of the 6th of April, and his letter of the 9th idem above quoted, are strong proofs of the very essential assistance which Sir G. Whitlock derived from the operations of my force; of how dependent his movements were upon those of my column, and of the justice of our claim to the Kirwee prize, for it will be remembered that I have already stated that Tantia Topee had besieged and taken Chirkarie, marching from it against me, and fighting the action of the Betwa, where he was routed, and fled to Calpee.

Consequently, if I had not called upon myself Tantia Topee's army, he, flushed with his success at Chirkarie, would have held that place and Mahoha, and, supported by the Nawab of Banda, whom Sir G. Whitlock afterwards engaged and defeated, opposed in great strength, and in a strong position, advance of Sir G. Whitlock through Mahoha to Banda and Kirwee; Mah is only 10 miles from Chirkarie, and Sir G. Whitlock, in consequence of the defeat of Tantia Topee's army by my force on the Betwa, was enabled to march through it without the slightest obstacle.

In another part of the memorandum of the 6th of April, Sir R. Hamilton distinctly proves how much impressed he was with the conviction that the operations of Sir G. Whitlock's and my columns ought to be and were combined. He says,—

"I think General Whitlock should act on Banda at once, and, having dislodged the rebels there, advance by Jubbulpore or Hummeerpore to Calpee, so as to co-operate with this (my) force on that place."

The evidence of Sir R. Hamilton, in his letter of the 9th April, above quoted, is the more important, because it is, as it were, prophetic, given before Kirwee was taken, and some years before the claim of my force was made; he besides spoke with all the authority of an officer filling the very important post of agent of the Governor General for Central India, and acting as representative of the Government to both Sir G. Whitlock's and my force, which is another proof of our combination.

Further proof of this co-operation is given by Sir G. Whitlock himself in a letter enclosed. He says,—

"We are all most anxious to be with you; I will push on as fast as I can to you."

Enclosure No. 27. Letter from Sir G. Whitlock to Sir H. Rose, dated 5 April 1858.

In another he says,

"How I envied you the thrashing of the Peishwar's army, and wish my column could have been at the river. What a slaughter you have made, and how well your cavalry have done their work."

Enclosure No. 28. Letter from Sir G. Whitlock to Sir H. Rose, dated 15 April 1858.

Before leaving Jhansi, I sent a flying column of all arms across the Betwa, under Major, now Lieutenant Colonel Orr, C. B., to clear away any remnants of the rebels who might be in those districts, particularly in the forts of Mhow and Rannypore, and who would infest Sir G. Whitlock's rear, and my right as I advanced to Calpee.

After doing this, Lieutenant Colonel Orr was to move to a ford called Kotra, recross the Betwa there, and co-operate with me against Koonch, a large town, half way between Jhansi and Calpee, which the Gwalior contingent from Calpee had fortified, and occupied with a view to oppose my march on the latter place.

Lieutenant Colonel Orr reported to me on the 15th of April, that both Mhow and Rannypore were deserted, their garrisons having fled after the fall of Jhansi, and the action of the Betwa. He adds, "As soon as I get to Mhow, I will try and open communication with General Whitlock, as directed by you."

Mhow is only 38 miles, as the crow flies, from Mahoha, through which place, as before stated, Sir G. Whitlock marched.

In a later letter Lieutenant Colonel Orr says,—

"I wrote also to General Whitlock yesterday, reporting my being there (Mhow), and begging him to let me know his probable movements."

All this proves the proximity to, and the combination of, my force with Sir George Whitlock's.

On his march to join me at Koonch, Lieutenant Colonel Orr took the little fort of Gurwhai with 4 guns and 42 men, the remainder of the rebels from Mhow and Rannypore flying to Calpee.

Enclosure No. 29. Letter from Sir G. Whitlock to Sir H. Rose, dated 20 April 1858.

I received a letter from Sir G. Whitlock, enclosed, containing the announcement of the fall of Banda on the 19th April.

Serious difficulties beset my force after leaving Jhansi.

There were no streams or rivers, and men and horses could only be watered very slowly from wells of great depth.

The heat was intense, and told severely on my numbers, weakened by casualties and sickness.

Added to this, the inhabitants of the country through which we passed were the most disaffected which we had yet met with; they had never felt the influence of British power since the commencement of the mutiny, betrayed our communications and movements, and cut off our supplies coming from Jhansi.

The rebels appreciated, as fully as the Supreme Government and Lord Clyde had done, the importance of the strategical movement of the Bombay column against Calpee.

Calpee was their main arsenal, and it was a very well provided one, having been supplied with plundered artillery and warlike stores from Gwalior and other military stations.

The fall of Calpee not only would enable my column to co-operate with the left rear of Lord Clyde's army, but it would be the signal to the rebel cause that rebellion in Central India, from Bombay to the Jumna, had been put down.

The Queen of Jhansi, the Rao Sahib, and Tantia Topee, therefore, determined that a blow must be struck at Koonch, to prevent the British force moving against Calpee; and, as is seen by the rebel correspondence, they had hoped that the blow would be a successful one against troops weakened by casualties, sun, and sickness.

The rebels, therefore, leaving Calpee nearly entirely without any force, moved its garrison, consisting of the best rebel force, the Gwalior Contingent, to Koonch, a large town about midway between Jhansi and Calpee, fortifying all that part of it which was opposite the march of my force. They also threw up entrenchments and cut ditches across the road, for many miles on the road leading out of Calpee to Jhansi.

They occupied on my flank the small fort of Lohari, and as it was necessary that this should be taken before attacking Koonch, I sent against it a detachment under Major, now Lieutenant Colonel, Gall.

After blowing open the gates with powder-bags, Lieutenant Colonel Gall took it by storm, killing every rebel in it. They made the same obstinate resistance round the walls that they made at the Betwa, Jhansi and other places. Lieutenant Colonel Gall's force lost four British officers, and 19 men killed and wounded.

I directed Lieutenant Colonel Orr, who was marching to rejoin me from the other side of the Betwa, to make a feigned attack, in combination with Sir C. Stuart, commanding the First Brigade, on the fortified post of Koonch, whilst, by a flank march, I made the real attack with the Second Brigade on its left flank, threatening its rear, and the communications of the rebels with Calpee.

Koonch was taken by storm, and the enemy pursued on the road to Calpee for 16 miles, with a considerable loss of men and all their guns, 15 in number.

The Gwalior Contingent, a remarkably fine body of men, and very well equipped, proved themselves worthy of the instruction they had received from their British officers. They made a masterly retreat from Koonch.

A thick line of skirmishers, upwards of two miles in length, with "goles"—that is, compact round masses of 30 or 40 men at stated intervals—covered the retreat in columns across a flat plain, the goles acting like squares, and crossing their fire with the connecting skirmishers.

Our attacks were rendered more difficult by large dry clods of earth which obstructed the wheels of the artillery and the advance of the cavalry. The line of skirmishers, however, were taken in flank by the cavalry and artillery, grape,

grape, round shot, and every description of projectile being poured into the retreating columns, who were then attacked, and cut up by the cavalry.

The pursuit lasted until every man and horse were utterly exhausted, and unable to move.

The heat was intense, 110 degrees in the shade. The action had begun at daybreak, and lasted, with the pursuit, till nine o'clock at night. Twelve men of the 71st Light Infantry were struck dead in the ranks with sun-stroke; and the greater part of the wing, as well as many officers and men of other regiments, were affected by sun.

Several artillery horses also dropped down dead in harness, and many more became inefficient.

Having learnt from Sir R. Hamilton and my scouts that the enemy had fortified the road into Calpee, I directed my First Brigade to make a feint upon this fortified line of road, and made myself an unexpected flank march to the right, eventually establishing myself on the right bank of the Jumna, at the village of Golowlee, about seven miles from Calpee.

The objects of this move were to commence the attack of Calpee on a point not expected, and to communicate with a column under Colonel Maxwell, 88th Foot, whom Lord Clyde had directed to co-operate with me on the left bank of the Jumna, and to supply me with the ammunition and stores which I so much needed, in consequence of the great expenditure against Jhansi.

The Second Brigade, by a mistake of their commander, were exposed for a whole day's march to the sun, and became nearly in totality prostrate.

I received this disastrous account just as I learnt other unfavourable news from Sir Robert Hamilton, that the Nawab of Banda, after his defeat at that place by Sir G. Whitlock, had joined the rebels at Calpee with a large force of very efficient cavalry, most of them belonging to our late mutinous regiments of cavalry, some horse artillery, guns, and infantry.

This is another proof of the assistance which my force gave to Sir George Whitlock; for this efficient force, instead of continuing to act against him, came to Calpee, and combined their operations with the Gwalior and other rebels against me.

This accession of fresh, good cavalry to the rebel cause was unfavourable to the Central India Field Force; for besides menacing my long line of sick and wounded, which increased daily, they cut off all our communications with Jhansie, and even those between my two brigades, the Second Brigade being unable to protect itself.

The most ordinary duties out of camp had to be covered by strong escorts. Men and horses going to water, and grass cutters, could no longer move without guard.

The season was an unusually hot one, even for India, and heat apoplexy was consequently frequent.

The thermometer in the daytime varied from 107 degrees to 130 degrees in the shade; and at night was not lower than 105 degrees.

As the duties became more severe, the exhaustion of the men and their want of rest were increased by this overpowering heat night and day, the constant exertion of marching and being engaged, and the almost entire want of rest.

To avoid the sun, we always marched at midnight; the intense heat prevented the men sleeping in the day, besides which, we were frequently engaged during the daytime. The men, therefore, were without their natural rest and under extraordinary exertions in overwhelming heat, and the effect of this was seen, that when the halt sounded, after the first hour's march, for a quarter of an hour, the whole line of march fell into a deep sleep, from which it was difficult to wake the men.

Out of 36 men of the 14th Light Dragoons, forming part of one forage escort, 17 men were brought back to the camp in doolies, after only two hours' exposure to the sun.

Every one was obliged to wear wet towels or cloths under their caps; so hot even was it inside the tents, that the hand could not be borne on the tent poles.

This precarious state of things was rendered worse by the daily affairs with

the enemy mentioned above, which, of course, added to the sufferings of the men and to the list of casualties.

An intercepted letter, containing an order from the commander of the rebel force, made known to us how fully aware was the enemy of this state of things. The order stated that as the European infidels either died or had to go into hospital from fighting in the sun, they were never to be attacked before 10 o'clock in the day, in order that they might feel all its force.

On one occasion my march to the Jumna had been rendered slower by the necessity of my assisting the Second Brigade, who were prostrated with sickness and surrounded by the enemy's cavalry.

In consequence of an earnest appeal from the officer commading their rear guard, I had to move at one o'clock in the day from my camp to Muttra to their help.

The enemy had attacked this place in such overwhelming numbers, that the officer commanding the wing of the 71st Light Infantry was retiring from it.

I ordered him to re-occupy it, and the enemy attacking the Second Brigade were then driven back through the ravines into Calpee.

On the march to Muttra 200 out of less than 400 men of the 25th B. N. I. fell out of the ranks, struck by sun.

I concentrated my two brigades during the night on the Jumna, and prepared for the general attack on Calpee.

Enclosure No. 30. Letter from Dr. Arnott to Sir H. Rose, dated 19 May 1858.

At this time the superintending surgeon of the field force addressed me a letter, enclosed, in which he says,—

"I do myself the honour to draw the attention of the Major General commanding the Central India Field Force to the health of the troops with reference to the operations which are supposed to be in contemplation against Calpee."

"We have now 310 Europeans in hospital, having lost in the week 21 by sunstroke, and there is scarcely an officer of the staff fit for duty."

"Thus paralysed as the force already is, and with the rest enfeebled and worn out by this long and arduous campaign, I cannot refrain from mentioning my apprehensions, should the operations before Calpee be protracted and the exposure great, that the force will be completely prostrated."

My own experience more than confirmed this opinion. I knew that every officer and man in the force was ailing for want of rest and extraordinary exertions in overpowering heat.

Enclosure No. 31. Letter from Government of India to Sir H. Rose, dated 21 May 1858.

Sir G. Whitlock was desired by the Government of India to assist me, as will be seen by the enclosed letter.

But the general action on the Jumna enabled me to take Calpee before he could give me any assistance, as is shown in the enclosed letter, which also proves unanswerably the combination and co-operation existing between his force and mine.

Sir G. Whitlock says in his letter of the 29th of May 1858,—

Enclosure No. 32. Letter from Sir G. Whitlock to Sir H. Rose dated 29 May 1858.

"Really your motto seems to be '*Veni, vidi, vici*;' whilst my second brigade with their snail pace, has prevented me leaving this place. I offer you my sincerest congratulations on your great victory. I was to have marched this morning to you, but now (in consequence of the capture of Calpee) proceed to look after Nerrain Rao, who has a large number of rebels and guns with him."

This is the final and conclusive proof of the co-operation of Sir G. Whitlock's and my columns. Sir G. Whitlock was to have assisted me, as he states in his letter of the 29th of May; but freed by the capture of Calpee from doing so, and his left flank protected, he proceeded from Banda to Kirwee, of which he took possession on the 5th of June, that is, seven days after the date of his letter to me.

Calpee is very difficult to attack. It is situated on a high rock rising from the Jumna, and is surrounded by those remarkable networks of miles of deep ravines, natural labyrinths, which are only seen in the vicinity of the great Indian rivers.

My plan of attack against Calpee was that Colonel Maxwell should shell Calpee, in reverse, from the other the left bank, and that I should make a corresponding

corresponding attack on the ravines protecting it, and the left flank of the fort itself.

On the 20th May the Gwalior Contingent, debouching from the ravines, made a determined attack at, according to their custom, 11 a. m., the greatest heat of the day, on my right. It was so necessary to save the strength of the men for the general attack, that I only strongly reinforced the picquets, and repulsed the attack.

In this affair there were 44 casualties, including four officers.

On the 22d May, information was brought by a spy, whom I had sent into Calpee, that the enemy intended to make a general attack on my position at Golowlee on the Jumna the following day, making a feint on my left, and the real attack on my right from the ravines, that they had sworn a religious oath on the Jumna, a sacred river, that they would drive my force into the river, and destroy it or die, moving afterwards southwards against Sir George Whitlock.

Another proof that the taking of Calpee had saved him from a dangerous attack on his left flank.

The intelligence proved to be correct.

The enemy, with the horse artillery and cavalry and a column of infantry of the Nawab of Banda, under his personal orders, and the Rao Sahib, Nana Sahib's nephew, made a serious feint on my left, debouching at 10 o'clock, a. m. from Calpee by the Banda road.

The whole object of this feint was to induce me to weaken my right to support my left. The mass of the enemy lay concealed in the ravines waiting for the moment that I should do so, in order to burst on my weakened right. The Nawab of Banda's troops converted the feint into a real attack on my left and centre. Still, for some time, not a shot was heard, or a man seen from the ravines. But so convinced was I by the spy's report, confirmed by the attack on my left, that the real attack would be against my right, that I did not take a man away from it. The nature of the grounds also made it clear that the real attack must be from the ravines.

Of a sudden the whole line of deep ravines became a mass of fire, the artillery opening on my right from the road in rear of the ravines, and the infantry firing and charging out of them.

I have not before mentioned another great difficulty which beset my force, and which now all but produced a fatal effect.

Owing to the Enfield rifle ammunition having been, in the first instance, inferior when issued, and to its having deteriorated under the effects of an Indian climate, and the rifles themselves being the worse from constant use, the arms of the British troops on the right became in a measure useless, and no efforts of the men could make them go off; the top of the bullet was blown out of the barrel, and the shell left in it.

Out of several rifles as many as five or six shells were taken, and two or three men in vain endeavoured to ram down a cartridge.

The sun also acted fatally on the men who had been in position waiting the attack of the enemy, and sun stroke showed itself among them in its worst form, some of the men going into hysterics of laughing or crying, others falling senseless on the ground, &c.

My right, thus situated, was driven in, and the rebels, drunk with the opium which had been distributed to them rushed in overpowering numbers from the ravines, on the right of our position on the Jumna, where was the mortar battery and half a battery of artillery.

The right defeated, our camp and rear on the Jumna were cut off.

I had ordered the Camel Corps to reinforce me from Colonel Maxwell's column on the opposite bank of the Jumna in consequence of the critical state of the health of my troops, and the importance of the operations which they had to perform.

The heavy firing of the enemy was answered by our musketry, which became weaker and nearer; an orderly, with a request for half the Camel Corps from the Brigadier commanding on the right, was followed by another with an urgent demand for all the assistance I could give him.

I proceeded with the whole of the Camel Corps to the right at their best pace, dismounted the men at the foot of the rising ground on which were the

mortars and field guns, and moved up in double time to his assistance. Every horse of the mounted officers being killed or wounded by the shots of the rebels coming over the brow of the hill.

We were just in time; the British Infantry on the right prostrated by sun-stroke, and with their rifles inefficient, were driven completely in; Brigadier Stuart on foot, with his sword drawn, had ordered the 12 artillerymen with the half battery of artillery; so much reduced were the number of artillerymen that there were only 12 men for a division of guns, to draw their swords and fight to the last for their guns.

The enemy, debouching in thousands from the ravines, were rushing with frantic cries, and features distorted by opium and passion, against this handful of men, from which they were not removed above 30 yards.

Charging with the Camel Corps who gave three cheers, the enemy wavered, turned, and fled into the ravines, pursued by the Rifles and men of the 80th of the Camel Corps.

They fled into Calpee; the men of the Camel Corps not being recalled till they dropped fast from sun-stroke.

In the meantime the 21st Company of Royal Engineers, the 25th Native Infantry, and the whole of my left, advanced and charged the enemy's centre and right, and so vigorously, that the enemy retired in general confusion across the broken country in their rear, abandoning the road from Calpee to Banda.

The pursuit was so hot that a great part of the enemy were cut off from Calpee, and retired to the north.

The success was complete, and the general action of this day on the Jumna made us masters of Calpee the next morning.

After having given a night's rest to my exhausted troops I marched to Calpee very early the next morning; the enemy had commenced evacuating it during the night, and we pursued their retiring column towards the Sind River and Gwâlior throughout the day; the pursuing force consisting of horse artillery and cavalry, till they lost their formation and dispersed all over the country; a considerable number of them being killed.

The rebel force lost all their guns, stores, baggage, tents, &c., so that even the Ranee of Jhansi, who fled with them, had not a tent to sleep in, and passed the night under trees.

When we marched afterwards to Gwalior we had evidence of how great the losses of the enemy must have been. At every three or four miles interval were the remains of fires; and the bones of the sepoys, who, having died of wounds, or of sickness, were burnt by their comrades.

At Calpee we found the arsenal, which I have previously spoken of, containing every description of warlike stores and arms; cases of English rifles, swords, &c., from England, unopened; shot and shell, brass shells, &c., and all the requisites of a park, besides all the ordnance mounted, and in store, in the fort.

Although the taking of Calpee was not the end of the operations of the Central India Field Force, I conclude this letter because the subsequent operations against, and the capture of Gwalior, had nothing to do with the combined operations of my force with the column of Sir G. Whitlock, on which the claim to share in the Kirwee prize is founded.

I venture to leave that claim, supported as it is by the contents of this letter, to the decision of your Lordship, in perfect reliance on a justice and impartiality which all respect.

I have not indulged in praise of my force, as I wish to confine myself closely to a narration of the facts on which the claim of my force to a share in the Kirwee prize is founded. But in closing this communication I ought, I think, to say that never was a general more than myself indebted to his troops, with the exception of a portion of the native force which I have mentioned in this letter, for daring courage, the most patient endurance of hardships, and a discipline of which the spirit seemed only to increase with trials, never, perhaps, before borne by a British force in India.

The troops were animated with only one feeling—determination to do the duty which had been assigned to them, cost what it might, and to obey the orders of their commander.

I have

I have the honour to enclose 31 approvals of the most prominent operations mentioned in this letter, selected from a large number which I have in my possession from the Government of India, the Government of Bombay, the commander in Chief in India, and the Commander in Chief of the Bombay Army; viz.:—

Two for the capture of Rathgurh.
Four for the action of Barodia.
Two for the capture of Garracotta.
One for the forcing of the passes at Mundunpore into Bundelcund.
Two for the capture of Chandaree.
Four for the general action of the Betwa.
Four for the storm and capture of Jhansi.
Four for the capture of Loharee.
Three for the general action of Koonch.
Five for the operations before and capture of Calpee.

Enclosure No. 33. Approvals of Sir H. Rose's operations from the capture of Rathghur to the fall of Calpee.

These approvals are submitted to your Lordship because they are important proofs of the efficient assistance given by my column to that of Sir G. Whitlock's. Some of them express a warmth of feeling not usually found in official approvals.

I enclose also two copies of General Orders by Lord Clyde, of the 9th and 26th of June 1858, because the fifth paragraph of both state, before any claim was put forth by my force to share in the Kirwee prize, that the Commander in Chief in India considered that Sir G. Whitlock's operations and those of the Central India Field Force were part of the same combination.

Enclosures Nos. 34 and 35. General Orders of 9 and 26 June 1858.

I have also the honour to enclose an extract from General Order, No. 388 of 1861, acknowledging and ordering to be put in force the principle of constructive capture as regards the Lucknow prize money.

Enclosure No. 36. General Order, No. 388, of 1861.

I have, &c.
(signed) *Hugh Rose,*
General Commander in Chief in India.

Enclosure 1.

(No. 571.)

To the Secretary to the Government of India, Military Department.

Adjutant General's Office, Head Quarters, Simla,
12 July 1862.

Sir,

I AM directed to state, for the information of the Right Honourable the Governor General in Council, that the Commander in Chief has learnt that the claims of his late (Central India) force, and the claims also of those of the Rajpootana field force under the late Major General Henry Roberts, to share in the prize taken at Kirwee, in Bundelcund, on the principle of constructive capture, as laid down in Government General Order, No. 388, of 1861, have been entertained by the Lords of the Treasury; and that the late Commander in Chief in India, General Lord Clyde, has, in an official paper, submitted to the Treasury, supported the claims of Sir Hugh Rose's late force.

2. Such being the case, and as his Excellency on the part of his late force, has never been heard in the matter, nor been called on to adduce arguments in support of such claims, and as his Excellency feels the conviction that if these claims be treated on the principle of constructive capture, he will be able to prove that Major General Sir G. Whitlock's column could not have taken Kirwee without the assistance of the Central India Field Force; and as Sir George Whitlock's and Sir Hugh Rose's columns were ordered to combine their movements in Bundelcund by the Government of India, and as at the time of the capture of Kirwee, the two forces were actually engaged in combined operations, all of which is shown by the correspondence of the Government of India, of Sir G. Whitlock, Sir Hugh Rose and the agent for the Governor General in Central India, and accredited in his political capacity to the forces of Sir Hugh Rose and Sir George Whitlock, his Excellency ventures to request the Government of India may be pleased to submit to Her Majesty's Government his Excellency's desire to represent to the Lords of the Treasury, the grounds on which he considers that his force is entitled to participate in the prize captured at Kirwee.

I have, &c.
(signed) *E. B. Johnson,*
Officiating Adjutant General of the Army.

Enclosure 2.

(No. 3217 of 1857.—Secret Department.)

From *H. L. Anderson*, Esq., Secretary to Government, Bombay, to Major General Sir *Hugh Rose*, K.C.B., Commanding the Nerbudda Field Force; dated 12th December 1857.

Sir,

I AM directed by the Right Honourable the Governor in Council to forward, for your information, copy of a letter, with enclosure from Major W. C. Erskine, Commissioner Saugor Division, of the 5th instant, No. 439, together with copies of two demi-official notes of the 4th instant, from Major Erskine and Colonel Munsey, to the address of Brigadier Steuart, commanding the Deccan field force, urging the advance of troops.

2. In forwarding this correspondence, I am desired to observe that the Right Honourable the Governor in Council considers the first object to which your attention should be directed, to be the complete restoration of the authority of Government in those parts of Malwa and Central India which adjoin the territory of this Presidency; Holkar's troops and the Bhopal Contingent are both deeply implicated in the rebel cause, and until they are disposed of, his Lordship in Council is of opinion that it would expose your communications to interruption, and even the Presidency to possible danger, if you were to leave them in your rear.

3. When this primary object has been completely effected, the Right Honourable the Governor in Council considers that the principal points to which your attention should be directed are the re-establishment of the direct communication with Agra, and the restoration of order in the Saugor and Nerbudda territory, and in the Bundelcund states.

4. This Government knows little or nothing of the internal and political condition of the country north of the Nerbudda, and the Right Honourable the Governor in Council thinks it would be very inexpedient for the Government to lay down the plan of a campaign for the column under your command; but his Lordship in Council would remark that Jubbulpore lies altogether to the eastward of the line of operations which he conceives your column should undertake.

5. It appears to the Right Honourable the Governor in Council that Jhansi and Saugor, or rather Nowgong, are the points which you should consider as the destination of your force rather than any place further to the east, and that from these points you will be able to co-operate with the Commander in Chief in India, and to cut off the retreat of the Gwalior contingent, or of the Dinapore mutineers, or of any other rebel force which may endeavour to fall back upon Bundelcund, and the strong country north of the Nerbudda.

6. The Right Honourable the Governor in Council has not, however, the least desire to underrate the importance of Jubbulpore, and if, when Indore and Bhopal are settled, you find that you are strong enough to detach a portion of your force to its assistance, he would by no means prevent your doing so. Looking, however, at the position of Jubbulpore in the map, it is evident to his Lordship in Council that a force could be sent much more quickly from Nagpore, or even from Allahabad, than from Mhow, or from any Bombay station.

I have, &c.
(signed) *H. L. Anderson*,
Secretary to Government.

(No. 439 of 1857.—Foreign Department.)

From Major *W. C. Erskine*, Commissioner, Saugor Division, to *H. L. Anderson*, Esq., Secretary to Government, Bombay; dated Jubbulpore, 5th December 1857.

Sir,

I HAVE the honour to forward you a copy of a letter just received from Brigadier Steuart, by which you will see that he does not consider himself authorised to comply with any call from me without Major General Sir Hugh Rose's orders being first obtained.

I have on a former occasion brought to your notice the urgent necessity for reinforcements arriving here with as little delay as possible. The column under Brigadier General Whitlock, warned for service in these territories, cannot be possibly here before the middle of January; in the meantime the delay is productive of great injury to the interests of Government. The Great Deccan Road from Jubbulpore to Mirzapore has been closed for the last six weeks, and all postal communication cut off by that route; and now the rebellion spreading to the south has closed the other postal route, *viâ* Nagpore and Sumbulpore, so that all inland communication between Bombay and Calcutta is now entirely at an end for the present. In addition to this, enormous supplies of grain and carriage of all kinds, intended for the use of the troops in the North-West Provinces, and greatly needed by them, are detained

detained at Nagpore, Seonee, Nursingpore, and Jubbulpore, not only by the road being closed, but because there are not troops sufficient for their safe escort, so that not only do the Government suffer inconvenience by the stoppage of these necessary supplies, but very great expense is entailed by their protracted retention.

2. Brigadier Steuart's column is more than ample to effect the very desirable object of crushing the rebellion on the eastern frontier of my districts, and reopening the communication with Calcutta and the north-west; and as I see by the papers that the other column under Brigadier Steuart has succeeded in defeating and dispersing the Neemuch rebels, I trust the Bombay Government will still persist in their intention to relieve the Central Provinces, by directing Brigadier Steuart to move on to Jubbulpore with all practicable expedition, as I am of opinion that a speedy and effectual blow should be struck to prevent the rebellion proceeding further south, and enable me to save the remaining very rich and fertile districts under my charge.

I have, &c.
(signed) *W. C. Erskine*, Commissioner.

(No. 18 of 1857.)

From Brigadier *C. Steuart*, Commanding Deccan Field Force, Camp, Hoshungabad, to Major *W. C. Erskine*, Commissioner of Saugor and Nerbudda; dated Camp, Hoshungabad, 3rd December 1857.

Sir,

I HAVE the honour to acknowledge the receipt of your letters, No. 476 of 1857, dated Jubbulpore, 30th November 1857, with its enclosure, and No. 477 of 1857, dated Jubbulpore, 30th November 1857, both of which reached me yesterday evening.

By General Order of Government, No. 1,086 of 1857, dated Bombay Castle, 25th November 1857, by the Right Honourable the Governor in Council this brigade has been made part of the Nerbudda Field Force, which is placed under the command of Major General Sir Hugh Rose, K.C.B., and this completely deprives me of any discretionary power. I must now act only on the orders I receive from that officer, unless indeed the Right Honourable the Governor, or his Excellency the Commander in Chief, may be pleased to send me orders direct.

I did myself the honour to forward a present state of my brigade to the officer commanding Saugor Division, which, from your letter, I conclude has not been communicated to you, I therefore have the honour to forward one for your information, as you are evidently under a misapprehension as to its composition and strength.

I have this day forwarded, by express, copies of your letters to the Quarter Master General of the Army, for submission to his Excellency the Commander in Chief, and requested instructions as I know not where to address Major General Sir Hugh Rose.

I have, &c.
(signed) *C. Steuart*,
Brigadier, Commanding Deccan Field Force.

My dear Sir, Jubbulpore, 4 December 1857.

HAVING heard to-day that the 50th Madras Native Infantry, and the Native Horse Artillery (both with General Whitlock's force), have refused to march, I anticipate still greater delay than ever in the arrival here of any troops from the Madras Presidency, and I am consequently the more anxious for the speedy advent of your force.

The force we now have here is not strong enough to enable Colonel Munsey to do much, but with the addition of your brigade this district would, in a very few days, be quieted, and the road opened to Mirzapore and Calcutta.

I write this demi-officially, because I do not wish the bad news of the mutiny of the Native portion of General Whitlock's force to be made public sooner than can be helped.

Yours truly,
(signed) *W. C. Erskine*,
Commissioner.

To Brigadier Steuart, Hosungabad.

P.S.—The road from Calcutta to Bombay *vid* Sumbulpore and Nagpore is, I hear, now closed, consequently there is no communication between Calcutta and Bombay.

You are, of course, at liberty to make what use you may think proper of this note.

My dear Sir, Jubbulpore, 4 December 1857.

I BEG you will allow me to express my full concurrence in Major Erskine's letter to you of this day's date. The troops under my command are too weak to undertake any move-

ment of consequence, and the people of the country round about are becoming very confident. The approach of a few Europeans would effect wonders in tranquillizing the districts, and I trust you will be able to push on.

Yours, &c.,
(signed) *A. Munsey*,
Colonel Commanding Kamptee Column.

Enclosure 3.

(No. 521 of 1857.—Judicial.)

From Major *W. C. Erskine*, Commissioner Saugor Division, to Major General Sir *Hugh Rose*, K.C.B., Commanding Nerbudda Field Force, Camp, Indore; dated Jubbulpore, 22d December 1857.

Sir,

WITH reference to a letter, No. 3,277, to your address from the Secretary to Government at Bombay (a copy of which has also been forwarded to me for my information), which allows you discretionary power to order the advance of a portion of your force towards Saugor or Jhansi, should you consider it advisable to do so for the relief of those places, I trust you will excuse my forwarding the following rather cogent reasons for urging you, if practicable, to detach a portion of your force to Saugor with as little delay as possible.

2. The garrison of the Fort of Saugor itself is composed of one weak company of European artillery, and about 40 officers of the covenanted and uncovenanted services. To this handful of men is entrusted the preservation and protection of the large arsenal at that station, and also the lives of 170 ladies and European women and children, a duty sufficiently heavy and onerous at any time, but doubly so now that I learn by the last reports that disease is making its appearance in the garrison, and several cases of that dread scourge, small-pox, have lately made their appearance.

3. Outside the Fort, for the protection of the Cantonments, a detached outpost at Rehlee of 150 men, and also for keeping open the postal communication with Nursingpore, there are about 1,000 Bengal Sepoys of the 31st and 42d regiments, together with 125 of the 3d Irregular Cavalry. These men have hitherto behaved very well, and will, I hope, continue loyal to the British Government; but the Brigadier, from the various examples of treachery shown by the Sepoys of the Bengal army, mistrusts these men, and will not allow them to take any duties inside the Fort. These men, as I said before, are at present performing their duties zealously and with loyalty, but knowing as they do that they are now almost the only regiment left in the Bengal army, with mutinous comrades on every side of them, and seeing no aid approaching in the shape of reinforcements, it is not impossible that even their fidelity may at last give way, in which case Saugor, with its large and valuable arsenal, and the lives of 170 women and children, will be left to a mere handful of European artillery, some of whom are already prostrated with disease. I do not wish you to infer from the foregoing that the Native troops at Saugor have evinced any disposition to mutiny. I am happy to say they have not; but still such a contingency is not impossible from the reasons given above.

4. Again, although the Gwalior mutineers have recently been routed and dispersed by the Commander in Chief with a loss of most of their guns, it is by no means improbable, but in my opinion very likely, that the mass of these men will make their way to Jhansi, the rebel Ranee of which place is, I know well, inviting the assistance of all the mutinous soldiery she can find, and then it is most natural to suppose that a large body of mutineers assembled together, and in want of arms and ordnance of all kinds, are most likely to turn their attention to an arsenal so proximate to their own position, and known by them to be so weakly defended as Saugor is, and, therefore, I do not think I shall be considered in any way an alarmist when, with these contingencies, I look upon the position of the Fort of Saugor, with its handful of European troops, as very critical, and likely soon to be one of great danger.

5. In addition to the above, by a report just received from Major Western, the Deputy Commissioner of Saugor, I learn that the main body of the mutineers of the 52d regiment Native Infantry have left Garakotta, and talk of attacking the post of Rehlee first, and Saugor afterwards; that simultaneous with their movements reports have come in of the advance of a large body of rebels from Rathgurh, and also of the troops of the Shahgurh and Banpore rebels, it is said, with the intention of attacking Saugor; they may not carry out these intentions, but it is certainly inviting an attack leaving this important post so inefficiently defended; and although these mutineers and rebels may be formidable to the garrison now at Saugor, I am of opinion they would not stand one hour before your force, or even a portion of it.

6. I am the more urgent in my request for your assistance because, owing to circumstances over which I have no control, the main portion of the promised reinforcements from Madras, under Brigadier General Whitlock, are not likely to be here before the end of January at the

the earliest. A weak regiment of Native infantry and a Horse Field Battery will be here about the 15th proximo, and then, though unable to do so alone with the limited means at his disposal, still with a portion of your force at or near Saugor I have no doubt the officer commanding the Madras troops at this station would push on all the men he could spare to co-operate with your troops.

7. I enclose a copy of a letter to my address from Brigadier Lawrence, at present commanding the Madras troops now at this station.

I have, &c.
(signed) *W. C. Erskine*, Commissioner.

P.S.—The force now here consists entirely of Native soldiers, except 65 artillerymen, and nearly half of it is employed in the interior of the district against rebels.

I must add that I doubt Brigadier Lawrence being able to advance to Saugor so soon as he anticipates, or with the force he names, as we must not leave powerful rebels in our rear, Bejyragogurh, 75 miles north-east of this, where the rebel chief has a strong fort, and a number of guns and disciplined infantry; nor could we well leave the Dumoh district in our rear without troops in a disorganized state; but he will no doubt do his utmost to advance when reinforced.

The presence of a few European soldiers is what we most require.

(signed) *W. C. Erskine*, Commissioner.

(No. 315.)

From Brigadier *A. W. Lawrence*, Commanding Madras Troops North of the Nerbudda, to Major *W. C. Erskine*, Commissioner Saugor and Nerbudda Territories; dated Camp, Jubbulpore, 22 December 1857.

Sir,

In reply to your letter, No. 518, of this date, just received, I have the honour to state that I consider it most desirable some move should at once be made in the direction and for the relief of the garrison of Saugor, now held by only a company of European artillery; and I would beg to suggest that you should urgently solicit Major General Sir H. Rose, commanding the Nerbudda field force, to endeavour to send as large a force as he can spare to Saugor.

2. On the arrival here, about the 15th proximo, of reinforcements of Madras troops, I hope to be in a position to advance on Saugor, should there be no other urgent calls, with a force as per margin,* and should reach that place about the 1st February, to form a junction and co-operate with any force Major General Sir H. Rose could spare.

* One regiment Native Cavalry.
One squadron Irregular Cavalry, Hyderabad Contingent.
One 9-pounder battery, European Artillery.
Two 6-pounder guns.
One regiment Native Infantry.
One Rifle company.

3. Should that officer be unable to send the column under Brigadier Steuart which you so earnestly requested to have before for service in these territories, I would beg to suggest your soliciting him to spare about 500 European infantry, a battery, a regiment of Native infantry, and a squadron of cavalry: with this force to strengthen and co-operate with mine, I feel sure that good service could at once be done, Saugor relieved without further delay, and tranquillity established in these territories.

I have, &c.
(signed) *A. W. Lawrence*, Brigadier,
Commanding Madras Troops North of the Nerbudda.

Enclosure 4.

(No. 5. Honourable East India Company's Electric Telegraph.)

Message from Indore, 5 January, Tuesday, 10th instant, from Sir *R. Hamilton* to Bombay, to Lord *Elphinstone*.

Most urgent.—I have received your message. Sir H. Rose left on Sunday, and is with the reinforcement. He will reach Sehora Saturday, and proceed to Saugor at once. The last accounts from Saugor were not satisfactory. The conduct of the 31st Native Infantry had become suspicious, and they were anxious for our force to advance at once this way from Captain Western. I really think the advance should not be delayed; and it is evident the Governor General wishes Sir H. Rose to be set free to move onward.

Enclosure 4 A.

Extract of a Letter from Lord *Elphinstone* to Sir *H. Rose*, dated 4 July 1857.

"I have suggested to him that as General Whitlock will probably reach Saugor with his column early in February, and if that place is not immediately threatened, it would be as well to adhere to your original plan of opening the direct communication with Agra, at the

same time cutting off the Kotah and Rajpootana rebels from Bundelcund and Oude; this might be done by taking Jhansi, or even by holding Sepree. One great advantage from taking this line is that you would place yourself in communication with the Commander in Chief, who is now advancing from Cawnpore up the Doab; his force is moving in two parallel columns, one on the right bank of the Ganges, the other on the left bank of the Jumna. Sir Colin Campbell hopes by this means to clear the Doab of mutineers and rebels; the two columns are ordered, I understand, to unite at Mynpooree. But upon this point (of your movements) Sir R. Hamilton and yourself are much better judges than I can be.

"If the difference of a week, or perhaps a fortnight, in the relief of Saugor is of importance, that place, of course, must be first attended to; if it can wait for General Whitlock's advance, the other movement appears to me the most desirable. At the same time, I believe that there are mutineers at Bhopal to be punished; but probably Colonel Steuart, who is now at Sehora, might be strong enough for this."

Enclosure 5.

My dear Rose, Bombay, 6 January 1858.

I HAVE just received the enclosed from Sir R. Hamilton; as he says that Holkar has done all that he required, there could be no use in your remaining at Indore; and as Sir Robert is anxious that Saugor should be first relieved, I have, of course, nothing more to say. There can be no doubt that Saugor is in a position of some danger, for its safety depends upon the fidelity of a regiment of Bengal Sepoys. I hope that you will arrive there in time to prevent any disaster, and that you will then be able to turn your face towards Tehree and Jhansi, leaving Jubhulpore and eastern Bundelcund to the Madras column under General Whitlock. By turning to the north you would have a better chance of intercepting the Kotah rebels, and you would place yourself in communication with the Commander in Chief. Colonel Wetherall has arrived here as Acting Deputy Adjutant General; Ashburnham has gone home from Calcutta.

Believe me, &c.
(signed) *Elphinstone.*

The mail is in, but you will get your letters and papers as soon as this. There is little or no news.

Enclosure 6.

My dear Richards, Camp, 14 December 1857.

I SEND you copies of news received to-day; I am near the Nerbudda, but shall be at Saugor on 24th. I really think, if the mutineers come to Saugor from Calpee or Jhansi, unless we get assistance, the sepoys at Saugor will go, and then, in all probability, Saugor, with its magazine, &c., will be lost. If Steuart's brigade came to Saugor all would be safe. The Madras division will not be at Saugor for two months, if then.

Yours, &c.
(signed) *N. C. Western*, Major.

We are getting short of grain and money, which is another very important reason for assistance being sent to us.

The 31st is, I believe, the only corps in Bengal which has not mutinied; is it wise to risk so much on its continuing to remain faithful.

Enclosure 7.

Camp Burmonee,
10 miles North of Nerbudda, near Burman Ghât,
16 December 1857.

THE Native Infantry are not to be trusted; the order of the Governor General about leave men has had a very bad effect on the regiment. I really think Europeans as troops that can be depended on, are now most urgently required at Saugor: it is the only station now garrisoned by Bengal troops which are armed.

(signed) *N. C. Western.*

Enclosure 8.

My dear Sir, Camp Chupperah, 1 February 1858.

I HAVE been for some time most anxious to write to you that my movements have been so hampered, first in the preparation for a large siege train, and then in moving with it, that I am quite unable to state the probable time of my arrival at Jubbulpore. I hope now to reach that station on the morning of the 6th, with seven companies of the Third Europeans, and three troops of lancers; and on the 10th, at farthest, I expect a troop of Native horse artillery with six guns, a troop of lancers, 100 sappers and miners, and the 50th regiment Native

Native Infantry. The 1st regiment Native Infantry, and a horse battery (European) with six guns, are now at Jubbulpore.

There, I fancy, I shall find instructions for my future movements; and I should feel particularly obliged if you could favour me with a few lines regarding your own plans.

My force is in the best of health, and in fine working order, particularly my cavalry and European infantry.

Believe me, &c.
(signed) *G. C. Whitlock*, Major General,
Saugor Field Division.

General Sir H. Rose, K.C.B.,
&c. &c.

The following shows what I expect will be the strength of the force at Jubbulpore about the 10th instant:

Lancers - - - -	230	Sappers - - - -	90
Horse Battery (European) -	80	1st Regiment Native Infantry	500
3d Europeans - - -	700	50th „ „ -	450
Native Horse Artillery - -	70	Rissalah - - - -	150

Enclosure 9.

From Major General Sir *H. Rose*, K. C. B., commanding Central India Field Force, to Brigadier General *Whitlock*, commanding Saugor Field Division, dated Saugor, 7 February 1858.

Sir,

I RECEIVED with much pleasure to-day your letter of the 1st instant, and I lose no time in making known to you my future movements.

I have been detained here by want of supplies, but the day after to-morrow, the 9th instant, I hope to have sufficient to march against Gurrakotta, garrisoned by the 52d Mutineers and their Bundela and Pathan allies. I hope to take it in three or four days, and then to move *vid* Shahghur, which I believe will make no resistance against Chandaree, where, Sir R. Hamilton thinks, the Rajah of Banpore will make a stand.

From Chandaree I shall move on to Jhansi.

Nothing could be more advantageous for the suppression of the rebellion than your rapid march to Saugor *en route* to Banda. Your progress up to here will clear the valley of the Nerbudda, and secure our supplies, which is our only cause of anxiety.

The Commander in Chief—so General Mansfield says—is anxious that my force should move to Jhansi with as little delay as possible, in order to keep his left rear clear.

I shall always be happy to tell you all my movements, and shall be most happy if you will have the kindness to do the same to me.

I have, &c.
(signed) *H. Rose*, Major General,
Commanding Central India Field Force.

Enclosure 10.

My dear Sir, Camp, Jubbulpore, 16 February.

I WAS very much obliged to you for your friendly note of the 7th, and you may be assured I shall avail myself of your kind permission to communicate with you. I am glad to hear of your successes. I wish I were with you with my force.

I am sadly crippled in infantry, being compelled to leave the 50th Regiment at this place to escort treasure after us, which is coming on from Kamptee, as also a portion of my siege train, which I feel I must leave behind. Royal as well as our own artillery are coming onwards. My park only arrived on the 13th, cattle and all hands much jaded, and much repair required. By working day and night we, I trust, shall be able to move on to-morrow; but I must move by Jhansi, whence reports are unfavourable regarding the Rewah Rajah's troops.

I have ordered back the 4th and 6th Cavalry after the report of the Nana Sahib and his force having crossed the Ganges. Some of us should lay hold of him.

I am writing in great haste, but will give you a line in two days hence.

Believe me, &c.
(signed) *G. C. Whitlock.*

Enclosure 11.

(No. 109, of 1858.)

From Major General Sir *H. Rose*, K. C. B., Commanding Central India Field Force, to Major General *Whitlock*, or Officer commanding at Jubbulpore; dated Head Quarters, Camp, Saugor, 3 February, 1858.

Sir,

THE force under my command has taken the Fort at Ratghur. The leading military rebel, Mahomed Tafel Khan and another Nawab, were hung over the gate of the Fort at Ratghur the same day.

The force relieved Saugor yesterday.

Our communication with Bhopal Malwa and Western India are open.

The rebels, in consequence of the advance on the force in this direction, have abandoned their fortified camp at Nowrowlee, 12 miles to the north of Saugor, on the road to Seronge, and a successful attack which part of the force under my command made on the rebels under three of their principal leaders on the 31st ultimo at Barodia, and the capture of that village 11 miles on the road from Ratghur to Kerai, has caused them to abandon the strong position which they held at that place, 33 miles to the north of Saugor, on the road to Goonah.

My orders are to advance to Jhansi as speedily as possible, taking, of course, the forts, and subduing the country in the hands of the rebels which are between Saugor and Jhansi. Besides the great advantage of restoring the country between Saugor and Jhansi to the Government, it is of the utmost advantage that I should advance as quickly as possible to the north in order to clear the left rear of the army of the Commander in Chief engaged against the rebels.

I am instructed that your force and mine are to give each other mutual assistance.

Major Western states, that in consequence of all the country to the north and east of Saugor being completely, and the country to the south of it being partially, in the hands of the rebels, he is unable to furnish my force from the supplies indispensable for immediate operation either to the north or to the east.

Under these circumstances, and as I am ordered to act as much as I am able in concert with your force, I should feel extremely obliged to you if you could, as much as is possible, clear the valley of the Nerbudda and the country to the north of it, in order to enable Major Western to direct from the valley of the Nerbudda and the adjacent country, which he states are the granaries of this part of India, the supplies necessary for such operation.

I have, &c.
(signed) *H. Rose*, Major General,
Commanding Central India Field Force.

P.S.—I have just heard that the rebels have reoccupied Kerai.

Enclosure 12.

(No. 18.)

To Major General Sir *H. Rose*, K. C. B., commanding Central India Field Force, Saugor; dated Head Quarters, Camp, Jubbulpore, 12 February 1858.

Sir,

I HAVE the honour to acknowledge the receipt of your communication, No. 109, of the 3d instant, and to acquaint you that the troops as per margin have reached Jubbulpore, and that it is my intention to move in a few days on Saugor, as I shall be yet detained to wait the arrival of the Ordnance stores, which will, I hope, arrive on the morrow. I will again write before I move, giving you every information regarding my movements.

Wing, Her Majesty's 12th Lancers.
One Horse Battery.
Siege train of 20 pieces.
Co. Sappers and Miners.
3d Madras European Regiment.
2d Regiment Madras Native Infantry.

I have, &c.
(signed) *G. C. Whitlock*, Major General,
Commanding Saugor Field Division.

Enclosure 13.

From Major General Sir *H. Rose*, K. C. B., commanding Central India Field Force, to Major General *Whitlock*, commanding Saugor Field Division; dated Garrakotta, 13 February 1858.

Sir,

I MARCH to morrow to Saugor in two marches, as I wish to attack Maltoun, Chandaree, and Jhansie as soon as possible.

I hope that you will have the great goodness to bring up the 5,500 bullock loads of corn for my force.

I have, &c.
(signed) *H. Rose*, Major General,
Commanding Central India Field Force.

Enclosure 14.

(Confidential.)

Major General *Mansfield* to Major General *Rose*; dated Head Quarters, Cawnpore, 11 February 1858.

Sir,

I HAVE the honour, by desire of the Commander in Chief, to call your attention to the defence of Jhansi.

You are probably aware that it is of great importance that Jhansi should be reduced with as little delay as possible; but if the defence be strong, and if there be a very large assemblage of insurgents in that city, it may be doubted whether you have a force sufficient to undertake the siege.

His Excellency observes that you have not, at the very outside, more than 1,500 of British infantry.

Sir Colin Campbell, therefore, considers that before undertaking this operation you should have made quite certain, from intelligence to be derived from Sir R. Hamilton, or other quarters, that a serious opposition, to overcome which your force is unequal, is not likely to be encountered at Jhansi, as a check might have very disagreeable consequences.

If, after weighing all these circumstances, you should be of opinion that the siege cannot prudently be undertaken, your march may be directed in two divisions, viz., one on Calpee on the Jumna through Chirkaree, and the other on Banda, from each of which places you would report for the information of the Commander in Chief.

I have, &c.
(signed) *W. R. Mansfield*, Major General,
Chief of the Staff.

Enclosure 15.

Lord *Canning* to Sir *R. Hamilton*; dated Allahabad, 11 February 1858.

Dear Sir Robert,

IF the Nerbudda Field Force proceeds to Jhansi, and if the Ranee should fall into its hands, she must be tried, not by a Court Martial, but by a Commission appointed for the purpose.

Sir H. Rose will be directed to hand her over to you, and you must put together the best Commission which your material will allow.

If for any reason it should not be possible to deal with her at once, and if there should be difficulty in keeping her in custody in or near Jhansi, she may be sent here. But it is very desirable that the preliminary inquiry into her conduct, which will decide whether there be grounds for a trial, should be completed before she arrives here. She must not come here with any doubt as to whether she deserves to be tried or not. I hope, however, you will be able to finish her trial on the spot; what may be done with her after trial will depend upon the sentence.

I say "if" the Nerbudda force proceeds to Jhansi, because Sir H. Rose will receive authority to pass by that place in the event of his having any doubt as to his being strong enough to deal with it. In that case the Nerbudda Field Force should be directed upon Calpee or Banda (one or both), and operations against Jhansi be suspended until additional strength can be sent from this side. Nothing would be more embarrassing and even dangerous than that the Nerbudda column should sit down before Jhansi, or any other place in that direction, and find itself unable to achieve its purpose without aid from this quarter.

I therefore wish that Sir H. Rose should not consider himself under any obligation to attempt the reduction of Jhansi against the probability of success; and he will receive instructions from the Commander in Chief in this sense.

He is too weak in European infantry to run such risks.

I see you have brought away Captain Keatinge. Was there any risk in leaving him where he was? and would not his remaining have tended to keep Western Malwa straight?

(signed) *Canning.*

Enclosure 16.

To Major General *Whitlock*, Commanding Movable Column, Camp, Dumoh.

Military Department, Allahabad,
13 March 1858.

Sir,

FROM intelligence which has reached the Right Honourable the Governor General from Chirkaree, it cannot be doubted that the fort of that place has, by this time, fallen into the hands of the insurgents, who were laying siege to it, and who were already masters of the town, part of which was burnt.

Punnah also and Rewah are threatened.

It is of urgent importance that support should be given to the loyal chiefs of Bundelcund as soon as possible, and as no troops can be moved into the Bundelcund States from this side of the Jumna, the Governor General directs me to request that you will proceed at once, with the column under your command, in the direction of Punnah, Chirkaree, or such other point as you may judge expedient, with the object of supporting the chiefs who may be threatened by the insurgents, and freeing them from the danger to which they are now exposed.

You will use your discretion as to having a garrison at Dumoh, or elsewhere, in the Saugor territory; but you are requested to bear in mind that the Governor General wishes the relief of the well affected Bundelcund chiefs to be considered as the paramount object for the present.

It is necessary that you should communicate your movements to Major General Sir H. Rose, in order that he may be able to shape his own course, so as to combine with yours in giving confidence and support to the chiefs.

Sir H. Rose will receive instructions to this effect.

I have, &c.
(signed) *R. J. H. Birch*, Colonel,
Secretary to Government of India, Military Department,
with the Governor General.

Copy forwarded for the information and guidance of Major General Sir H. Rose, K. C. B., commanding Central India Field Force.

By order.

(signed) *R. J. H. Birch*, Colonel,
Secretary to Government of India, Military Department,
with the Governor General.

Enclosure 17.

From Major General Sir *Hugh Rose*, K.C.B., commanding Central India Field Force, to Colonel *Birch*, Secretary to the Government of India, Military Department; dated Camp Sirrus, on the left bank of the River Betwa, 19 March 1858.

Sir,

I have the honour to acknowledge the receipt, this day, for my information and guidance, of a copy of your letter of the 15th instant, to Major General Whitlock, containing the Right Honourable the Governor General's instructions to that officer respecting his advance with the column under his command, in the direction of Punnah, Chirkaree, or such other points as he may judge expedient, for the purpose of supporting the well affected chiefs who may be threatened by the insurgents, and freeing them from the danger to which they are now exposed.

I have the honour to say that I shall pay the strictest attention to these instructions, and be careful to shape my own course so as to give, in combination with Major General Whitlock, confidence and support to these chiefs.

I may, I hope, be permitted to say that I have received, with sincere pleasure, these instructions; strategically and politically speaking, they are calculated to produce the best effect in this part of India; and they develop and complete a plan of operations, which Sir Robert Hamilton and myself had agreed yesterday that it would be advantageous to carry out after the reduction of Jhansi, for the relief of the chiefs in question, and the defeat of the rebel army concentrated at Chirkaree and Nowgong, whose numbers Sir Robert Hamilton says amount to 60,000 men, according to the last reports received.

Both Sir Robert Hamilton and myself had always felt the strongest wish to assist the Chirkaree chiefs who had supported the English Government with so much devotion. But the reports from Mr. Carne, which represented his position at Chirkaree as quite desperate on the 1st of March, when my force could not possibly have reached that place till three weeks or a month later, precluded all hope of relieving him.

The plan I have mentioned, that is, a march against the rebels at Chirkaree, or in that direction, has, under existing circumstances, advantages over a direct march to Calpee from Jhansie.

If I marched straight to Calpee, I leave sincere and influential supporters of the British Government—the Rajah of Chirkaree, the Ranee of Bigaroo and Tehree, and others—to be overrun by masses of rebels; and I should have the so-called army of the Peishwar on my right flank, and closing in, as I advanced, on my rear. It is evident that it is more advantageous to attack the Peishwar's army separately, and Calpee separately, than to place myself between their two fires.

The

The round I should have to make to relieve Chirkaree would not delay me much as to my arrival at Calpee, and the defeat of the rebels will leave friends instead of enemies in my rear.

The arrival of Major General Whitlock on my right flank, and his co-operation with me, is a most important improvement on the plan just mentioned; and I may add, that nothing will tend more to cause, effectually, the permanent pacification of the Saugor district, than an advance of Major General Whitlock's force in the direction pointed out by the Governor General.

I have, &c.
(signed) *H. Rose*, Major General.

Enclosure 18.

(No. 55.)

From Major General *Whitlock* to Major General Sir *Hugh Rose*, K.C.B., commanding Central India Field Force; dated Head Quarters, Camp beyond Jhansi, Assistant Quartermaster General's Office, Camp at Dumoh, 19 March 1858.

Sir,

I HAVE the honour to enclose, for your information, the accompanying copy of a letter received from the Secretary to Government of India, Military Department, with the Governor General.

2. In consequence of these instructions, I returned to Dumoh, and placed myself on the high road to Punnah, on which place I shall move the moment my details of artillery, cavalry, and infantry join me from detached duty, which I hope will be on the morrow.

3. I have communicated with Major Ellis, and, of course, must be guided in my future operations by such information as I receive from that officer.

4. In the meantime you shall be kept regularly acquainted with my movements, and I beg the favour of hearing what arrangements you purpose making to carry out the wishes of the Governor General that our plans may be combined.

I have, &c.
(signed) *G. C. Whitlock*, Major General,
Commanding Saugor Field Division.

Enclosure 19.

From Major General Sir *H. Rose*, K.C.B., commanding Central India Field Force, to Major General *Whitlock*, commanding Saugor Field Division; dated Sirrus Ghat, two marches from Jhansi, 19 March 1858.

Sir,

I HAVE the honour to state to you that I received this day the copy of a letter, dated 15th instant, from Colonel Birch, Secretary to Government of India, Military Department, and with reference to it to say, that I shall be most happy to combine my future movements with yours in giving confidence and support to the Chirkaree and other loyal Bundelcund chiefs, and, as the best means of doing so, to attack, in combination with your force, the numerous rebels who are besieging him at Chirkaree, and who are concentrating at Nowgong.

I should feel extremely obliged to you if you would have the goodness to acquaint me with your future movements.

I march from here to-morrow, intending to arrive before Jhansi on the 20th instant, when I shall commence its attack without any delay. Sir R. Hamilton tells me that its garrison consists of 1,500 Sepoys and 1,000 Bundelas. Immediately after its capture I shall proceed with my two brigades to carry out, in combination with yourself, the operations pointed out by the Governor General, crossing the River Betwa.

The greatest concentration of rebels appears to be at Nowgong and Chirkaree; the former have assumed the title of the army of the Peishwa.

Brigadier Stuart, commanding my first brigade, reports to me that on the 17th instant he stormed the fort of Chandaree at five A.M. that day; there were about 50 dead bodies found about the fort, but the jungly and mountainous nature of the country enabled the garrison to escape.

Brigadier Stuart will join me before Jhansi immediately.

I have, &c.
(signed) *H. Rose*, Major General,
Commanding Central India Field Force.

Enclosure 20.

From Sir *R. Hamilton*, Agent for the Governor General in Central India, to *G. F. Edmonstone*, Esq., Secretary to Government of India, Foreign Department; dated March 1858.

Sir,

I HAVE the honour to acknowledge the receipt, at one P.M., this day, of your Despatch, No. 273, dated 13th March, and to state, that I immediately communicated its contents to Major General Sir Hugh Rose.

To enable the Governor General to form a correct opinion on the position of this brigade, it is necessary for me to enter into the following details:—

It, the second brigade, is to-day within 10 miles of Jhansi. The whole of its cavalry under Brigadier Stuart, will have invested the fort and town before sunset, and Major Boileau, the chief engineer, will have made reconnoisance, with a view to fix the site of our batteries on the arrival of the remainder of the brigade before Jhansi early to-morrow morning. The garrison of Jhansi are aware of, and prepared for, our approach, so that any cessation of the operations would now be looked on as a retreat, the moral effect of which would be hazardous, if not actually most fatal.

Moreover, the first brigade has been detained at Chandaree, and could only move this morning to join this, to effect which, will take at least five long marches.

Their junction with this brigade is essential to any forward movement, even supposing Sir Hugh Rose were now to refuse Jhansi, and draw off to proceed to succour Punnah, and the loyal chiefs in Bundelcund.

Again, it is important that our communications with Goonah and Saugor, from whence our reinforcements and our supplies must come, be secured, and that nothing be left in our rear which would require to be watched.

If Sir Hugh Rose were now to turn off, he must pass almost within range of the guns of the fort to reach the Burwa Saugor road, the ford of which must be taken, for his force to cross that difficult and unbridged river, the Betwa; but this advance would entirely cut off his communications with his first brigade, and place Jhansi, with its 1,500 mutineers, town and fort, and 1,000 Bundelas, not only in his rear, but between the two brigades, and entirely cut off his communication with Goonah and Saugor, and consequently with his reinforcements and supplies.

Further, Chirkarie is, by the nearest route, eight marches, but that place could not be reached in eight days by his brigade, with its large siege train. Supposing it were to move to-morrow morning, probably not before the 31st of this month, it would be some days longer in reaching Punnah, whilst General Whitlock's force should reach Punnah in eight marches from Dumoh, or by the 24th or 25th, if they march from Punnah to Chatterpore, would be four marches more, and thence to Chirkaree is about 50 miles.

There is then every reason, and the hope, that Punnah and Rewah will both be relieved by Major General Whitlock's force before Sir Hugh Rose could arrive there, supposing he went at once, and direct, and met with no opposition or delay.

Already has the pressure on Jhansi caused the Ranee to call in all her troops who were attacking Oorcha and Mhow, and it has also forced her to send and ask assistance from Tantia Topee, which, if complied with, must cramp his operations to some extent, and relieve, in some degree, our loyal chiefs in that quarter, whom the advance of General Whitlock will effectively protect.

Under these circumstances now existing here, and the above statement of facts, I hope the Governor General will consider that it would not be politic to suspend operations before Jhansi, but rather to urge them on vigorously, until the first brigade arrives from Chandaree, when Sir Hugh Rose will be able to form a flying column, which can move rapidly towards Begawur, Chutterpore, and elsewhere, to succour the loyal states between Tehree and Punnah, by routes along which heavy artillery could not travel.

I may add, that in the opinion of the vakeels in camp, the fall of Jhansi is likely to have a very great effect on the rebels and mutineers now infesting Bundelcund; and the advance of Sir Hugh Rose's force, after its capture, will be the more effective, and greatly accelerate the rout and destruction of the rebels.

In conclusion, I beg to state that Sir Hugh Rose desires me to express his entire concurrence in the views and reasonings above expressed, and his hope that they will be considered sufficient to allow of a slight delay in giving effect to his Lordship's wishes.

(signed) *W. R. Hamilton.*

General Whitlock was at Dumoh on the 16th March, and should on that or the next day have received the Government order.

Enclosure 21.

(No. 453 of 1858.—Foreign Department.)

From the Secretary to the Government of India, with the Governor General, to the Agent to the Governor General, Central India; dated Allahabad, 30 April 1858.

Sir,

The Right Honourable the Governor General has had under consideration your letter, No. 118, dated 20th instant, explaining the reasons which have prevented execution of the orders communicated in the letter of this office, dated 13th instant, by which it was directed that the freeing of the loyal Rajahs of Chirkaree, Punnah, and Rewah, from the danger which threatens them, should be considered paramount to the operations against Jhansie.

2. In reply, I am desired by his Lordship to inform you that, under the circumstances represented, and with advertence to the fact of Sir Hugh Rose's force having been already committed before Jhansi, the decision taken in respect of the prior reduction of that place, was unquestionably right, and is therefore entirely approved.

I have, &c.
(signed) *G. F. Edmonstone,*
Secretary to the Government of India with the Governor General.

No. 718, of 1858. Forwarded to Major General Sir H. Rose, K.C.B., for information.

(signed) *R. Hamilton,*
Agent to Governor General for Central India.

Indore Residency, 10 April 1858.

Enclosure 22.

From Major General Sir *H. Rose,* K.C.B., commanding Central India Field Force to Major General *Whitlock,* commanding Saugor Field Division; dated 18 March 1858.

Sir,

I hope that the siege of Jhansi will not take much time, but I will not fail to let you know correctly my progress. * * * * * * * * *

I hope that we may soon meet.

I have, &c.
(signed) *Hugh Rose,* Major General,
Commanding Central India Field Force.

Enclosure 23.

Major General *Whitlock* to Major General *Rose*; dated March 1858, Camp, Right Bank River.

My dear General,

I am indeed right glad at the prospect of so soon, I hope, meeting you, and shall be only too happy in co-operating with you against the rebels who are so numerously assembling in the districts between us. I trust I shall find a letter from you at Punnah.

May every success attend your force in your attack on Jhansi, and what will delight me will be the intelligence of the capture of the savage and bloodthirsty Ranee; what a regular Jezebel she must be.

I feel certain, despite her swords and spears, that she has been disposed of already.

You have carried everything before you in first style, and I long to see your force, and I much wish I could have shown you my second infantry brigade, but it is a very long way behind, and I have but few of that arm.

Believe me, &c.
(signed) *G. C. Whitlock,*
Major General.

Enclosure 24.

EXTRACT from the Commissioner's Register of events in the Saugor District; dated 22 March 1858.

MAJOR GENERAL WHITLOCK having received orders to aid the native states of Punnah, Rewah, and Chirkaree, and co-operate with Sir Hugh Rose, I left his camp on the 17th instant, and proceeded to Saugor, as my presence would have been of no use beyond the boundaries of my own division.

Enclosure 25.

From Sir *R. Hamilton* to Sir *Hugh Rose*; dated 9 April 1858.

My dear Sir Hugh,

I SUPPOSE General Whitlock will move on Banda, as you have cleared off all in this quarter.

Yours, &c.
(signed) *R. Hamilton.*

Enclosure 26.

MEMORANDUM.

6 April 1858.

GENERAL WHITLOCK will be at Chirkaree on the 8th, and his future movements will depend on what he may learn from us.

Chirkaree is four marches from Banda, and, as the rebels have been cleared from Mhow Rannypoor, I think General Whitlock should act on Banda at once, and, having dislodged the rebels there, advance by Jullalpore or Humeerpore on Calpee, so as to co-operate with this force on that place.

	Miles.
Mahoba	10
Kulra	9
Mutwun	9
Banda	10

It is necessary that General Whitlock should have some expression of our views by to-day's despatch.

(signed) *R. Hamilton,*
Agent to Governor General.

Enclosure 27.

Sir *G. C. Whitlock* to Sir *H. Rose*; dated Camp, 6 April 1858.

My dear General,

WE are all most anxious to be with you. Such a ghaut, such labour-breakings down, and I know not what impediments, I have never before met with. However, I will push on as fast as I can to you, and from all I can learn, the roads are favourable.

It is most fortunate I did not move on by Adjghur. I should have been 12 miles further from you, and similar difficulties to encounter.

The Chirkaree and Punnah Rajahs are most profuse in their offers of troops, and the latter money.

It is lucky he was a friend instead of a foe, for we should have had some hard struggles in getting through the ghauts.

Believe me, &c.
(signed) *G. C. Whitlock.*

Enclosure 28.

Sir *G. Whitlock* to Sir *H. Rose*; dated Camp Syringhur, 15 April.

My dear General Rose,

How I envied you the thrashing of the Peishwar army, and wish my column could have been at the river. What a slaughter you have made, and how well your cavalry have done their work. I begin almost to despair of ever falling in with you.

I shall be at Banda in a few days. The fellows fall back as fast as we approach them; however, I think we shall get in amongst them at last.

I will go to the park immediately, and see if I can supply your wants, and will write you again on the morrow.

Believe me, &c.
(signed) *G. C. Whitlock.*

Enclosure 29.

(No. 76.)

From Major General *Whitlock* to Major General Sir *H. Rose*, K.C.B., commanding Central India Force, Camp near Banda; dated Divisional Head Quarters, Assistant Quartermaster General's Office, Camp at Banda, 20 April 1858.

Sir,

I HAVE the honour to forward my telegram, acquainting the Commander in Chief in India of the result of our encounter with the enemy yesterday.

2. I am happy to tell you he was completely repulsed, but not till after five hours hard fighting; we were engaged with the mutineers principally, who fought most desperately, and had their fire not been high, we should have suffered most severely.

3. Our loss is, I believe, killed seven, four officers wounded, one mortally.

I have, &c.
(signed) *G. C. Whitlock*, Major General,
Commanding Saugor Field Division.

Enclosure 30.

(No. 77, of 1858.)

From the Superintending Surgeon, Central India Field Force, to the Chief of the Staff, Central India Field Force; dated Superintending Surgeon's Office, Camp before Calpee, 19 May 1858.

Sir,

I DO myself the honour to draw the attention of the Major General commanding the Central India Field Force to the health of the troops, with reference to the operations which are supposed to be in contemplation against Calpee.

In the action before Koonch on the 7th instant, one regiment about 420 strong, lost seven men by sun stroke, and on the march to Banda lost five men, and admitted 35 into hospital, and whenever it has been exposed, has suffered very severely; and, though the rest of the troops have borne exposure better, their losses have been heavy, and their admission into hospital very numerous, from the overwhelming effects of a temperature ranging from 109° to 117° in tents, and seldom falling under 100° at night. But to illustrate better the state of health of all ranks, I may mention that we have now 310 Europeans in hospital, having lost in the week 21 by sun stroke, and there is scarcely an officer of the staff fit for duty. The Quartermaster General, Clergyman, the Adjutant General, the Commissariat Officer, the Baggage Master, the Brigade Major, and Quartermaster General, and Brigadier of the 2d Brigade, are all sick; several of these, and many other officers, will have to go to Europe, and others will have to go elsewere for change of climate.

Thus paralysed as the force already is, and with the rest enfeebled and worn out by this long and arduous campaign, I cannot refrain from mentioning my apprehensions, should the operations before Calpee be protracted, and the exposure great, that the force will be completely prostrated.

I have, &c.
(signed) *T. S. Arnott*, M.D., Superintending Surgeon,
Central India Field Force.

Enclosure 31.

(No. 335, Military Department.)

From the Secretary to the Government of *India* to Major General Sir *Hugh Rose*, K.C.B., Commanding Central India Field Force; dated Allahabad, 21 May 1858.

Sir,

I AM directed to inform you that a telegram to the following effect was this day despatched to you:—

"Your message and that of Sir Robert Hamilton, of the 19th May, have been sent to Major General Whitlock, who has been informed that if he can spare any portion of his force to support you, it is desirable that he should do so, and that the Governor General trusts that this may be possible."

"He has also been informed that Lieutenant Metge and his Sikh Horse, 219 strong, have marched from Allahabad to Banda, and are at his disposal for the present; they will be able to reach Banda by the 26th instant."

"General Whitlock has been ordered to communicate with you, and inform you whether he can support you or not."

I have, &c.
(signed) *R. J.H. Birch*, Colonel,
Secretary to the Government of India,
Military Department,
With the Governor General.

Enclosure 32.

From Sir *G. C. Whitlock* to Sir *H. Rose*; dated Camp, Banda, 29 May 1858.

My dear Sir Hugh Rose,

It was very kind of you, occupied as you must have been, not only to send me your telegram, but to favour me with a note from yourself.

Really your motto seems to be *veni, vidi, vici*, whilst my second brigade, with their snail pace, has prevented me leaving this place.

I offer you my sincerest congratulations on your great victory. I was to have marched this morning to join you, but now proceed to look after Narrain Row, who has a large number of rebels and guns with him.

My small column has suffered very severely. My aide-de-camp and myself were prostrated from the effects of *coup de soleil*, and I am only now recovering.

We have lost from sun stroke five officers and several men.

It was frightful, the heat; now we are all better; the rain has cooled the air considerably.

I have just heard that some of the cavalry from Calpee are making their way to Narrain Row, but I disbelieve the fact.

I fancy the rebels look to the effect of the sun on our troops, but you have set them to rights on that point.

The 43d are a good deal knocked up.

I trust you have not suffered from your exposure.

Believe me, &c.
(signed) *G. C. Whitlock.*

Enclosure 33.

(No. 960, of 1858.—Secret Department)

From *H. L. Anderson*, Esq., Secretary to Government, Bombay, to Colonel *Edward Green*, Adjutant General of the Army; dated Bombay Castle, 18 March 1858.

Sir,

I am directed by the Right Honourable the Governor in Council, to acknowledge the receipt of your letter, No. 2133, dated the 9th instant, forwarding a Despatch from Major General Sir Hugh Rose, commanding the Central India Field Force, detailing his operations before Rathghur.

2. In reply, I am desired to inform you, that the Right Honourable the Governor in Council has perused, with great pleasure, Sir Hugh Rose's report of these operations, by which an important service has been rendered to the State, and that his Lordship in Council has derived gratification from the favourable mention made by Sir Hugh Rose of the services of Brigadier C. Stuart, and the following officers and private:—

Lieutenant Colonel Turnbull, Artillery; Major Boileau, Madras Engineers; Captain Forbes, 3rd Regiment Light Cavalry; Captain Lightfoot, Artillery; Captain Hare and Lieutenant Westmacott, Hyderabad Contingent; Lieutenant Moore, 3rd Regiment Light Cavalry; Lieutenant Quartermaster Thompson, Artillery, Hyderabad Contingent; Private Davis, 3rd European Regiment.

I have, &c.
(signed) *H. L. Anderson,*
Secretary to Government.

(1.)

(No. 2593.)

From the Adjutant General of the Army to the Major General Commanding Central India Field Force; dated Adjutant General's Office, Bombay, 24 March 1858.

Sir,

I am directed by the Commander in Chief to acknowledge the receipt of your Despatch, dated Saugor, 7th February, and a subsequent communication without date or place, the former detailing events connected with the siege and capture of the fortress of Rathghur, the latter your operations subsequent to its fall, and the action with the insurgents at Barodia.

2. These despatches having been submitted by his Excellency's order to Government, with the expression of his entire approval of the conduct of the troops, and the manner in which your command in the field is exercised, as shown by the great success that has attended your movements. A letter has been received in reply from the Secretary to Government, Secret Department, transcript of which I am directed to append for your information, and to request that the sentiments of the Right Honourable the Governor in Council, as therein expressed, may be made known to the officers, non-commissioned officers, and soldiers, European and native, serving under your command.

3. With respect to the conduct of Sobedar Soojut Khan, and troopers Bahadoor Khan and Vuss, of the 3rd Regiment Light Cavalry, as represented in the 13th, 14th, and 15th paragraphs

paragraphs of your despatch recounting the action of Barodia, I am to request, that in order to carry out your wishes for rewarding their gallantry, you will be pleased to constitute a Court of Inquiry, under the provisions of Article 273, section xxxix. of Jameson's Code, and that this plan be adopted on all occasions when you may desire to reward special gallantry in action on the part of the native troops under your command.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(2.)

(No. 2527.)

From the Adjutant General of the Army to the Major General commanding Central India Field Force; dated Adjutant General's Office, Bombay, 20 March 1858.

Sir,

I HAVE had the honour of submitting to the Commander in Chief your letter, without date or name of place, detailing your operations with the force under your command, against the insurgents at Barodia.

2. His Excellency has perused your Despatch with much satisfaction, and I have been commanded to recommend to the especial notice of Government the conduct of all the troops on the occasion; also to bring prominently forward the officers, non-commissioned officers, and private named by you, as having distinguished themselves in action with the enemy.

3. I am to convey to you the cordial thanks of the Commander in Chief for the very valuable services you are performing, and to request you will notify to the officers, non-commissioned officers, and soldiers, both European and native, that their gallant and excellent conduct is fully remembered, and heartily acknowledged, by the Government and the Commander in Chief.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(3.)

(No. 2594.)

From the Adjutant General of the Army to the Major General commanding Central India Field Force; dated Adjutant General's Office, Bombay, 24 March 1858.

Sir,

I AM desired by the Commander in Chief to acknowledge the receipt of your Despatch, without place or date, announcing the relief of Saugor, and annexing a list of British inhabitants, including the garrison, which had been shut up in the fort since the disturbances commenced in that district.

2. In congratulating you on the important services thus rendered to the Government, I am to inform you, that by his Excellency's orders, your communication has been submitted to the Right Honourable the Governor in Council.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(4.)

(No. 1336, of 1859.)

From General Orders, dated Fort William, 24 September 1859, of the Military Department, page 531.

HIS Excellency the Governor General in Council is pleased to direct the publication of the following extract of a letter from the officiating Adjutant General of the Army, No. 1094 of the 18th ultimo, and reports from Major General Sir Hugh Rose, G. C. B., late commanding Central India Field Force, of the capture of Rathghur, and of the action at Barodia.

His Excellency in Council, in notifying his entire concurrence in the opinion expressed by the Right Honourable the Commander in Chief, desires to record his high approval of the manner in which these operations were directed. His Excellency in Council offers his cordial thanks to Major General Sir Hugh Rose, and to all the officers and men employed on these occasions, and regrets that the miscarriage of the reports of these operations should have delayed the public notice of them.

(5.)

EXTRACT of a LETTER from the Officiating Adjutant General of the Army to the Secretary to the Government of India, Military Department, No. 1094, dated 18 August 1859.

IN continuation of my letter, No. 389, of 20 May last, I am now directed to append, for submission to his Excellency the Governor General in Council, the accompanying Despatch, No. 1204 A, dated 29 June of the present year, from Major General Sir Hugh Rose, G. C. B., late commanding Central India Field Force, giving cover to copies of his reports of the capture of Rathghur, and action of Barodia.

With reference to the operations described in the despatches now forwarded, his Lordship desires me to observe, that they reflect the highest credit upon the commander and the troops engaged, and are characterised by that complete success which marked the whole of Sir Hugh Rose's campaign in Central India.

(6.)

(No. 2376.)

From the Adjutant General of the Army to the Secretary to Government; dated Adjutant General's Office, Bombay, 17 March 1858.

Sir,

IN continuation of my previous communications, No. 2133 and No. 2288, dated respectively the 9th and 13th instant, I am directed by the Commander in Chief to transmit for submission to the Right Honourable the Governor in Council, the enclosed letter (without date), from Major General Sir Hugh Rose, K.C.B., commanding Central India Field Force, detailing his proceedings subsequent to the capture of the fort of Rathghur, and action with the insurgents near the town of Barodia.

2. The operations of Sir H. Rose in the field, while they have the cordial approval of the Commander in Chief, will doubtless be most satisfactory to his Lordship in Council, as the success which has attended them must have the most beneficial effect in tranquilising a district which has been so long in the hands of the rebels.

Lieutenant Colonel Liddell Captain Campbell - -	3d European Regiment.
Captain Forbes - -	3d Light Cavalry.
„ Wood - - - „ Macdonald - - „ Rose - - -	Staff.

3. The Lieutenant General Commanding in Chief has desired me to submit in the margin of this letter, the names of officers prominently brought to notice by Sir Hugh Rose, and to beg that the Right Honourable the Governor in Council will be pleased to bring their conduct prominently to the notice of the Honourable Court of Directors.

4. The Major General will be directed to constitute a Court of Inquiry, under the provisions of Act 273, section xxxix. of Jameson's Code, with the view of ascertaining if the native officer and men alluded to in the 13th and 14th paragraph of his Despatch, are entitled to admittance to the distinction of the order of merit.

I have, &c.
(signed) *Edward Green*,
Colonel Adjutant General.

(7.)

(No. 1188, of 1858—Secret Department.)

From *H. L. Anderson*, Esq. Secretary to Government, Bombay, to the Adjutant General of the Army; dated Bombay Castle, 3 April 1858.

Sir,

I AM directed by the Right Honourable the Governor in Council to acknowledge the receipt of your letter of the 29th March last, No. 2701, and to state for the information of his Excellency the Commander in Chief that copies of Sir H. Rose's Despatch of the 9th March, which affords ample evidence of the activity and judgment which characterise the operations of that officer, and of the gallantry of the force under his command, will be forwarded to the Government of India and to the Home Authorities.

I have, &c.
(signed) *H. L. Anderson*,
Secretary to Government.

(8.)

(No. 511, of 1858.)

From the Adjutant General of the Army to Major General Sir *H. Rose*, K.C.B., commanding Central India Field Force, Jhansi; dated Adjutant General's Office, Head Quarters, Mahableshwar, 28 April 1858.

Sir,

I HAVE had the honour to receive and lay before the Commander in Chief your Despatch of the 9th ult., detailing your operations against the rebels of Bundelcund, Shahgurh, Saugor, and Nerbudda districts, which by his Excellency's directions has been submitted for the information of the Right Honourable the Governor in Council, with the expression of Sir Henry Somerset's full approbation of the great success which has attended your operations on the occasion, and of the commendation bestowed by you on the several officers therein mentioned.

2. From the Secretary to Government in the Secret Department, communications have been received (of which transcripts are appended for your information), one intimating that copy of your Despatch under reference, which affords ample evidence of the activity and judgment which characterise your operations and the gallantry of the troops under your command, will be forwarded to the Government of India and the Home Authorities, the other concurring in the commendation passed upon the officers alluded to in your Despatch, whose gallant services fully merit the approbation of Government; and I have to request that the sentiments of the Right Honourable the Governor in Council may be made known in such manner as to you may seem proper. 1188—5. 1466—20.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(9.)

(No. 266 A.)

From the Deputy Adjutant General of the Army to the Secretary to the Government of India, Military Department; dated Head Quarters, Camp, Futtehgurh, 26 April 1858.

Sir,

I HAVE the honour, by desire of the Commander in Chief, to transmit for submission to the Right Honourable the Governor General a Despatch, dated 26th ultimo, from Major General Sir H. Rose, K. C. B., commanding Central India Field Force, reporting the operations of the second brigade of the force subsequent to the capture of the fort of Garrakotta, embracing the forcing of the pass of Mudinpoor, and capture of the forts of Serai and Marowra.

Forwards a Despatch from Major General Sir Hugh Rose, reporting the operations of the 2d Brigade of the Central India Field Force, subsequent to the capture of the Fort of Garrakotta.

2. His Excellency considers that these operations were most skilfully conducted.

I have, &c.
(signed) *H. W. Norman*, Major,
Deputy Adjutant General of the Army.

(10.)

(No. 1324, of 1858—Secret Department.)

From *H. L. Anderson*, Esq., Secretary to Government, Bombay, to the Adjutant General of the Army; dated Bombay Castle, 10 April 1858.

Sir,

I AM directed to acknowledge the receipt of your letter, dated the 1st instant, No. 11, enclosing a Despatch from Brigadier Stuart, announcing the storming and capture of the fort of Chanderee.

2. In reply, I am desired to intimate that the Right Honourable the Governor in Council concurs in the commendation bestowed by his Excellency the Commander in Chief, on the gallantry with which the attack on the fort of Chandaree was conducted, and will await the detailed report promised in the third paragraph of your communication.

I have, &c.
(signed) *H. L. Anderson*,
Secretary to Government.

(11.)

(No. 512.)

From the Adjutant General of the Army to Major General Sir *H. Rose*, K.C.B., commanding Central India Field Force, Jhansi; dated Adjutant General's Office, Head Quarters, Mahableshwar, 28 April 1858.

Sir,

I HAVE had the honour to receive and lay before the Commander in Chief your Despatch, No. 219, dated the 20th ultimo, handing in a report of the capture of Chandaree by Brigadier C. Stuart, commanding the first brigade of the force under your command, which has been submitted to the Right Honourable the Governor in Council, with an expression of his Excellency's entire approbation of the very successful exploit which was attained by much dash and gallantry on the part of the storming party, and fortunately with small loss of life.

1324 of 10 April. 2. The Secretary to the Government in the Secret Department (of whose communication transcript is annexed for your information) has replied, that the Right Honourable the Governor in Council concurs in the commendation bestowed by the Commander in Chief on the gallantry with which the attack on the fort of Chandaree was conducted, which his Excellency requests the favour of your making known to the officers and troops engaged.

3. The Commander in Chief and Government await the promised Despatch referred to in the concluding paragraph of Brigadier Stuart's communication, No. 83, of the 17th ultimo.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(12.)

RESOLUTION by the Honourable Board, dated 26 June 1858.

Resolved,

THAT the Right Honourable the Governor in Council cordially concurs in the sentiments expressed by his Excellency the Commander in Chief, relative to the victory obtained by Sir Hugh Rose on the banks of the Betwa, over the force which had advanced under Tantia Topee, for the relief of Jhansi.

The Right Honourable the Governor in Council believes that the masterly ability displayed by Sir Hugh Rose in this action, and the gallantry and endurance of the officers and men under his command, will cause the victory of the Betwa to be remembered as one of the most glorious incidents of the struggles of 1857–58.

The Right Honourable the Governor General will have received Sir H. Rose's Despatch, direct from that officer, but it will afford sincere pleasure to the Right Honourable the Governor in Council to forward copy of the Adjutant General's letter to the Right Honourable the Governor General in Council, and to recommend the officers whose names are therein mentioned to the protection of the Government of India. It will also be a grateful duty to the Right Honourable the Governor in Council to draw the attention of the Honourable Secret Committee to the splendid services which have been rendered by Sir Hugh Rose and the force under his command.

The Right Honourable the Governor in Council requests that the sentiments of Government may be communicated to Sir Hugh Rose.

(13.)

(No. 243, of 1858.)

From General Orders by his Excellency the Commander in Chief, dated Calcutta, 22 July 1858, page 1015; dated Allahabad, 30 June 1858.

THE Right Honourable the Governor General is pleased to direct the publication of the following letter from the Assistant Adjutant General of the Army, No. 408 A, dated the 9th June 1858, enclosing a Despatch from Major General Sir Hugh Rose, K.C.B., commanding Central India Field Force, reporting the details of an action with the rebel army under Tantia Topee, near Jhansi, during the siege of that fortress.

The Governor General cordially concurs with his Excellency the Commander in Chief in the unqualified approbation he has expressed of the conduct of the officers and men concerned in this action, and in his admiration of the brilliant charge made by Captain Need, at the head of a troop of Her Majesty's 14th Light Dragoons.

(No. 408 A.)

From the Assistant Adjutant General of the Army to the Secretary to the Government of India, Military Department, with the Governor General; dated Adjutant General's Office, Camp Poora, 9 June 1858.

Sir,

I AM desired by the Commander in Chief to forward for submission to the Right Honourable the Governor General, the enclosed copy of a Despatch, dated 30 April last, (which has only now reached Head Quarters) from Major General Sir H. Rose, K.C.B., commanding Central India Field Force, reporting the details of an action fought on the 1st idem, with the rebel army under Tantia Topee on the River Betwa, near Jhansi.

2. The operations of the troops engaged upon this occasion appear to his Excellency to have been conducted with the highest skill and vigour, and the behaviour of all concerned merits his unqualified satisfaction.

3. Sir Colin Campbell cannot, however, refrain from drawing his Lordship's attention to the gallant and successful charge made by a troop of Her Majesty's 14th Light Dragoons, under Captain Need, and, indeed, to the services of all those especially named by the Major General and Brigadier Stuart.

I have, &c.
(signed) *D. M. Stewart*, Major,
Assistant Adjutant General of the Army.

(14.)

(No. 1929).

From the Adjutant General of the Army, to the Major General commanding Central India Field Force; dated Adjutant General's Office, Head Quarters, Poona, 2 July 1858.

Sir,

I HAVE had the honour to receive, and to submit to the Commander in Chief, your communication dated 30th April last, with annexment, detailing the action of the "Betwa" between part of your force and a large body of the rebels who had advanced to harass your operations against "Jhansi."

2. The excellent disposal of your force on this occasion, the fact and good judgment displayed by you in baffling the designs of the enemy, without allowing your siege operations to be interfered with, and the gallantry with which all ranks of your troops supported you, have afforded his Excellency the utmost gratification.

3. Sir Henry Somerset has had much pleasure in forwarding your Despatch to Government, accompanied by the names of the officers and men whom you have brought prominently to notice, with the view of obtaining for them the protection of superior authority.

4. In annexing for your information the extract of a Resolution of Government, I am to add the cordial and grateful acknowledgment of the Commander in Chief to yourself and all under you for the good service performed on this as on all occasions, and by which the character of the Bombay Army has been so gloriously upheld; and I am to request you will be good enough to make known to the force under your command, in such public manner as you may please, his Excellency's sentiments, together with those of the Government, as contained in the flattering and well-merited encomium which has been proved in the brilliant action now under notice.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

---

(15).

RESOLUTION by the Honourable Board, dated 24 May 1858.

Resolved,

THE Right Honourable the Governor in Council most heartily participates in the satisfaction with which his Excellency the Commander in Chief has regarded the operations of Sir Hugh Rose and the gallant force under his command, in the investment, storm, and capture of the city and fortress of Jhansi. The remarkable service thus accomplished will, the Right Honourable the Governor in Council feels confident, call forth an expression of high commendation from the Right Honourable the Governor General of India, to whose notice it will be the pleasing duty of this Government to bring Sir Hugh Rose's merits. The great strength, natural and artificial, of the defences, the numbers of the enemy, the desperate character of the resistance, have increased the glory of the achievement, but they have not failed to cause a severe loss among the officers and men of Sir Hugh Rose's gallant force. That loss is, however, far less than might have been anticipated. The Right Honourable the Governor in Council has to deplore the loss of Lieutenant Colonel Turnbull, but it will be his melancholy duty earnestly to recommend the family of this valuable officer to the protection of the Honourable the Court of Directors. His Lordship in Council begs that his Excellency the Commander in Chief will communicate to Sir Hugh Rose his Lordship's congratulations on the splendid success achieved by the force under his com-

mand, and will assure him that the Government of Bombay will feel sincere pleasure in recommending his services, and those of the gallant officers mentioned in his Despatch, to the most favourable consideration of the Right Honourable the Governor General of India.

(16.)

(No. 1409).

From Adjutant General of the Army to Major General Sir *Hugh Rose*, K.C.B., commanding Central India Field Force, Calpee; dated Adjutant General's Office, Head Quarters, Poona, 12 June 1858.

Sir,

I HAVE had the honour to receive, and submit to the Commander in Chief, your communication dated 30th April last, with its accompaniments, detailing your operations before, and final successful capture of, the town and fort of "Jhansi."

His Excellency has perused these papers with feelings of the greatest satisfaction and interest, and desires me to tender his acknowledgment and hearty congratulation on the eminent success which has attended this and all your various operations in the field, and of which the capture of Jahnsi must be deemed the most signal.

Sir Henry Somerset directs me to request you will be good enough to convey to all under your command the cordial thanks of the Commander in Chief for the noble manner in which they have again supported you in obtaining another glorious victory over the rebels and their leaders.

His Excellency has had much pleasure in bringing the report of this great success to the notice of Government, and I am to annex for your information the accompanying resolution of Government, and to request that you will be good enough to make known to the troops under your command, in such public manner as you may deem fit, the sentiments of the Right Honourable the Governor in Council therein conveyed.

You will observe that his Lordship in Council has intimated the intention of affording the protection solicited by you, as also by the Commander in Chief, for the family of the much lamented Lieutenant Colonel Turnbull, whose loss Sir Henry Somerset sincerely deplores.

The names of the officers of the Bombay Army, as per margin,* brought to notice by you and the brigadiers serving under your orders, have been duly made known to Government, in order that their good service and gallant conduct may be communicated to the Honourable the Court of Directors, and Sir Henry Somerset has had much gratification in forwarding to the Resident at Hyderabad, for transmission to the Government of Madras, the names of those of the Hyderabad Contingent so honourably mentioned in these Despatches.

* Brigadier C. S. Stuart, commanding 1st Brigade.
(Brigadier C. Steuart, C.B., 2d Brigade specially.)
Lieutenant Colonel Lowth, Her Majesty's 86th Regiment.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

First Brigade.

Major Stuart - - - - -
Captain Darby (specially) - - -
Lieutenant Dartwell (specially) - -
„ Fowler - - - - -
„ Jerome - - - - -
Ensign Sewell - - - - -
} Her Majesty's 86th Regiment.

Lieutenant Webber, Royal Engineers.

Brigade Staff.

Captain Coley, Major of Brigade.
„ Bacon, Deputy Assistant Quarter Master General.

Second Brigade.

Captain Sandwith - - - - -
„ Robison - - - - -
Lieutenant Park - - - - -
Ensign Newport - - - - -
} Third Bombay European Regiment.

Lieutenant Fox, Madras Engineers (specially).
„ Bonus, Bombay Engineers (specially).

Brigade Staff.

Captain Todd, Major of Brigade.
„ Leckie, Deputy Assistant Quarter Master General.

I have, &c.
(signed) *D. Crew*, Captain, Assistant Adjutant General.

(17.)

(No. 173 of 1858.)

From General Orders by His Excellency the Commander in Chief, dated Calcutta, 9 June 1858, page 782.

Allahabad, 21 May 1858.

THE Right Honourable the Governor General is pleased to admit Subadar Major Ajoodia Sing, of the Kolapore Infantry Corps, to the Third Class of the Order of Merit, in consideration of his exemplary loyalty to the State.

(No. 174 of 1858.)

THE Right Honourable the Governor General of India is pleased to direct the publication of the following despatch from the Deputy Adjutant General of the Army, No. 342 A, dated 23d May 1858, forwarding a communication from Major General Sir H. Rose, K.C.B., commanding Central India Field Force, detailing his operations against and the capture of the fortress and town of Jhansi.

His Lordship entirely concurs with the Commander in Chief in the satisfaction his Excellency has expressed at the manner in which this fortress has been captured by Major General Sir Hugh Rose, and in his Excellency's high estimation of the services of the Major General, and of the officers and men under his command.

(18.)

(No. 342 A.)

From the Deputy Adjutant General of the Army to the Secretary to the Government of India, Military Department, with the Governor General; dated Head Quarters, Camp, Shahjehanpore, 23 May 1858.

Sir,

I HAVE the honour, by direction of the Commander in Chief, to enclose, for submission to the Right Honourable the Governor General, copy of a despatch of the 30th ultimo, from Major General Sir H. Rose, K.C.B., commanding Central India Field Force, detailing the operation of the troops under his command against the fortress and town of Jhansi.

Forwards Major General Sir Hugh Rose's Despatch on the capture of the fortress and town of Jhansi.

2. His Excellency desires to express his cordial satisfaction with the manner in which the capture of this important place was effected, and his perfect appreciation of the services of Sir H. Rose, and those under his command, and he begs to recommend all to the favourable consideration of his Lordship, especially those who have been more prominently mentioned by the Major General.

I have, &c.
(signed) *H. W. Norman*, Major,
Deputy Adjutant General of the Army.

(19.)

(No. 2380 of 1858.—Secret Department.)

From *H. L. Anderson*, Esq., Secretary to Government, Bombay, to Colonel *E. Green*, Assistant Adjutant General of the Army, Poonah; dated Bombay Castle, 19 June 1858.

Sir,

I AM directed by the Right Honourable the Governor in Council, to acknowledge the receipt of your Letter, No. 1356, dated 10th instant, with a despatch from Major General Sir H. Rose, K.C.B., commanding the Central India Field Force, reporting the operations of a detached force under the command of Major Gall of Her Majesty's 14th Light Dragoons against the Fort of Loharee.

2. In reply I am directed to state that the Right Honourable the Governor in Council has read Sir H. Rose's Despatch with great interest and concurs with His Excellency the Commander in Chief in regarding these operations as most creditable to Major Gall and the officers and men comprising the force under his command.

3. The Right Honourable the Governor in Council heartily participates in the satisfaction with which His Excellency the Commander in Chief contemplates the admirable conduct of the 25th Regiment Native Infantry, and desires me to request that His Excellency will favour His Lordship in Council with his opinion as to the best manner in which the satisfaction of Government may be manifested towards that gallant corps.

4. In forwarding a copy of your Letter, and of its enclosures to the Right Honourable the Governor General of India, this Government will not fail to bring to His Lordship's favourable notice the officers and men named in the 3d paragraph of your communication.

5. The Right Honourable the Governor in Council observes that the name of a Sepaee noticed by Major Gall, is omitted in your letter, and would wish to know if any reason exists for the omission.

I have, &c.
(signed) *H. L. Anderson*,
Secretary to Government.

(20.)

(No. 1746 of 1858.)

From the Adjutant General of the Army, to the Major General Commanding Central India Field Force; dated Adjutant General's Office, Poona, 25 June 1858.

Sir,

I AM directed by the Commander in Chief to acknowledge the receipt of your letter dated the 17th May, forwarding copy of Major Gall's Despatch with accompaniments detailing the operations of the force under him at the assault and capture of Loharee; the perusal of these documents has afforded His Excellency great interest, reflecting as they do, so much credit on Major Gall and the officers and men engaged.

The Commander in Chief has had much gratification in forwarding the report in question for the information of Government, and in recommending to favourable notice the officers and men therein mentioned.

I am now desired to annex extracts paras. 1, 2, and 4, of a letter from the Secretary to Government in the Secret Department, No. 2380 of the 19th instant, and to request that the sentiments therein expressed, and in which Sir H. Somerset joins, may be communicated to Major Gall and all concerned, in such manner as you may deem most appropriate.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(21.)

(No. 198 of 1858.) Allahabad, 9 June.

From General Orders by His Excellency the Commander in Chief, dated Calcutta, 29 June 1858, page 872.

THE Right Honourable the Governor General is pleased to direct the publication of the following despatch from the Deputy Adjutant General of the Army, No. 373 A, dated 31st May 1858, forwarding one from Major General Sir H Rose, K.C.B., enclosing a report from Major R. H. Gall, of Her Majesty's 14th Light Dragoons, of his capture of the Fort of Loharee on the 2d ultimo.

The Governor General desires to express his entire approval of the gallant conduct of the officers and men engaged under Major Gall in this affair, and his cordial appreciation of the merits of Major Gall himself, both in the present affair, and on all occasions in which he has been employed.

(No. 373 A.)

From the Deputy Adjutant General of the Army, to the Secretary to the Government of India, Military Department, with the Governor General; dated Head Quarters, Camp Futtehgurh, 31 May 1858.

Sir,

BY desire of the Commander in Chief, I have the honour to transmit for the information of the Right Honourable the Governor General, copy of a despatch from Major General Sir Hugh Rose, G.C.B., dated 17th instant, enclosing a report from Major R. H. Gall, of of Her Majesty's 14th Light Dragoons, of his capture of the Fort of Loharee on the 2d idem.

2. His Excellency heartily concurs in the praise bestowed by the Major General upon Major Gall and the officers and men engaged in this gallant affair.

I have, &c.
(signed) *H. W. Norman*, Major,
Deputy Adjutant General of the Army.

(22.)

(No. 2386.)

From the Adjutant General of the Army, to the Secretary to Government, Secret Department, Bombay; dated Adjutant General's Office, Head Quarters, Poona, 23 July 1858.

Sir,

I AM directed by the Commander in Chief to forward for submission to the Right Honourable the Governor in Council the accompanying Despatch from Major General Sir H. Rose, G.C.B., detailing his operations before Koonch on his advance against Calpee.

Sir H. Somerset deems it unnecessary to offer any comment on the successful and skilful operations now reported, beyond again recording the high sense his Excellency entertains of the valuable services performed by Sir Hugh Rose and the Troops under him, and to which

which is now added another victory won by the indomitable courage, endurance and discipline of the troops of the Central India Field Force under their distinguished leader, and which brilliant successes it has from time to time been the pleasing duties of the Commander in Chief to lay before the Government, to whose protection I am now strongly to recommend the officers of whom Sir H. Rose had made such honourable mention.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

(23.)

RESOLUTION of the Honourable Board, dated 28 July 1858.

THE Right Honourable the Governor in Council feels quite incompetent to express in adequate terms, his sense of the brilliant services which have been rendered to the State by Sir H. Rose and the gallant army under his command. The victory of Koonch has added another to the many claims which Sir H. Rose possesses on the gratitude of his country.

It will be a grateful duty to His Lordship in Council to forward a copy of the Adjutant General's Letter to the Government of India, and to recommend to the protection of the Right Honourable the Governor General the officers whose names are honourably mentioned by Sir Hugh Rose.

(signed) *H. L. Anderson*,
Secretary to Government.

(24.)

(No. 3970 of 1858.—Secret Department.)

From *H. L. Anderson*, Esq., Secretary to Government, Bombay, to Colonel *E. Green*, C.B., Adjutant General of the Army; dated Bombay Castle, 10 November 1858.

Sir,

I AM directed by the Right Honourable the Governor in Council to transmit for the information of his Excellency the Commander in Chief, and for communication to Major General Sir Hugh Rose, G.C.B., and the officers mentioned in his Despatch, copy of a Letter (dated 21st October last, No. 425, from the Secretary to the Government of India), stating that the Right Honourable the Governor General entirely concurs with this Government in its appreciation of the brilliant services rendered by Major General Sir Hugh Rose and the gallant force under his command on the occasion referred to.

I have, &c.
(signed) *H. L. Anderson*,
Secretary to Government.

(25.)

(No. 425.—Military Department.)

From the Secretary to Government of India, Military Department, with the Governor General, to the Secretary to Government, Bombay; dated Allahabad, 21 October 1858.

Sir,

WITH reference to your Letter No. 122, dated the 7th August last, to the address of the Secretary to the Government of India, Foreign Department, transmitting a despatch from Major General Sir Hugh Rose, G.C.B., detailing his operations before Koonch on his advance against Calpee, which Despatch has already been published in General Orders o this Department, No. 324, dated 30th July 1858, I am directed to state that the Right Honourable the Governor General entirely concurs with the Government of Bombay in its appreciation of the brilliant services rendered by Major General Sir Hugh Rose and the gallant force under his command on the occasion referred to, and to request that the Right Honourable the Governor in Council may be moved to convey to Sir H. Rose, and to the officers mentioned in his Despatch, the warm thanks of the Government.

I have, &c.
(signed) *R. J. H. Birch*, Major General,
Secretary to the Government of India,
with the Governor General.

(26.)

EXTRACT of a LETTER from General Sir *C. Campbell*, Commander in Chief of India; dated 21 May 1858.

"I HAVE watched your progress with the greatest interest, and I congratulate you very heartily on all you have effected. Your operations have been conducted with much skill, and I have reason to thank you for the manner in which you have executed the difficult task assigned to you by the Government of India."

(27.)

From *J. W. Sherer*, Esq., Magistrate at Cawnpore, to Major General Sir *H. Rose*, K.C.B., and Commanding Central India Field Force, Calpee; dated Cawnpore, 27 May 1858.

Sir,

"I HAVE the honour to transmit to you the following message, received by telegraph from the Governor General, and dated 27th instant" (message begins):—

"I congratulate you heartily on this last and crowning success. You have good reason to be proud of your campaign. Pray let me know from you as to the time at which the force, which is to go to Gwalior, can begin to move in that direction. Will your health allow of your remaining in command of it, as a Divisional Commander. The Commander in Chief wishes this, and it will be most satisfactory to me if you can do so" (message ends).

I have, &c.
(signed) *J. W. Sherer*, Magistrate.

(28.)

EXTRACT from a LETTER from the Secretary to Government of India with the Governor General, to the Agent to the Governor General for Central India, No. 1703; dated 12 June 1858.

Para. 1. I HAVE the honour to acknowledge the receipt of your letter, dated 24th ultimo, No. 212, reporting the defeat and dispersion by the Central India Field Force, of the insurgents who had entrenched themselves at Calpee, and the capture of all their guns, ammunition, stores, and baggage.

2. In reply I am directed to express the Right Honourable the Governor General's acknowledgments of the complete, uninterrupted, and conspicuous success of the operations reported by you, and to state, that the important services which have been rendered by the troops under the command of Sir H. Rose, fully merit the warm thanks of the Government. It will rest, however, with the Military Department, on receiving Sir Hugh Rose's report of the operations before Calpee, to convey expression of these thanks in a suitable form.

(29.)

EXTRACT from a LETTER from the Secretary to Government Secret Department, No. 50 of 1859, dated 6 January 1859, to the address of the Adjutant General of the Army.

"I AM desired to state, that the Right Honourable the Governor in Council has read with interest, undiminished by the time which has since elapsed, and subsequent brilliant success, the despatch now submitted, relative to the victory achieved by the force under Sir Hugh Rose's command, over the rebel army, on the banks of the Jumna, and to the occupation of Calpee.

"3. His Lordship in Council regrets that it is not within his competence to convey the thanks of Government to the gallant officers and men, who so well supported the honour of Her Majesty's Arms. That grateful duty belongs to higher authority. The Right Honourable the Governor in Council, however, cannot forbear the expression of his request to His Excellency the Commander in Chief, that he will intimate to Sir Hugh Rose with how much admiration His Lordship in Council has perused a record of sufferings so nobly borne, and difficulties so triumphantly surmounted."

'30.)

From the Adjutant General of the Army to Major General Sir *H. Rose*, G.C.B., Commanding Poona Division of the Army; dated Adjutant General's Office, Bombay, 17 January 1859.

Sir,

I HAVE had the honour to receive and submit to the Commander in Chief the accompaniments to your letter, dated the 26th ultimo, detailing your operations before "Calpee," which have been duly submitted to the Right Honourable the Governor in Council.

2. In transmitting for your information Extract of a letter from Government, No. 50, dated the 6th instant, I am desired to observe that Sir H. Somerset feels he can accord no higher tribute of gratification and praise than the assurance of his Excellency's most cordial concurrence in the sentiments and eulogiums therein conveyed.

I have, &c.
(signed) *E. Green*, Colonel,
Adjutant General.

Enclosure 34.

GENERAL ORDER by His Excellency the Commander in Chief; dated Calcutta, 9 June 1858, page 781.

THE following General Order issued to the Forces in the Field on the 28th ultimo, is published to the Army:—

In the month of October 1857, the garrison of Lucknow was still shut up, the road from Calcutta to Cawnpore was unsafe, the communications with the North West were entirely closed, and the civil and military functionaries had disappeared altogether from wide and numerous provinces.

Under instructions from the Right Honourable the Governor General, a large plan was designed, by which the resources of the three Presidencies, after the arrival of reinforcements from England, should be made available for combined action.

Thus while the army of Bengal gathering strength from day to day, has recovered the Gangetic Dooab, restored the communications with the North West of the Empire, relieved the old garrison of Lucknow, afterwards taking that city, re-occupying Rohilcund, and finally assuring in great measure the tranquillity of the old provinces, the three columns put in movement from Madras and Bombay have rendered like great and efficient services in their long and difficult marches to the Jumna, through Central India, and in Rajpootana.

These columns, under the command of Majors General Sir Hugh Rose, K.C.B., Whitlock, and Roberts, have admirably performed their share in the general combination arranged under the orders of his Lordship the Governor General.

That combination was spread over a surface ranging from the boundaries of Bombay and Madras to the extreme North West of India.

By their patient endurance of fatigue, their unfailing obedience, and their steadfast gallantry, the troops have enabled the generals to fulfil their instructions.

In no war has it ever happened that troops have been more often engaged than during the campaigns which have now terminated.

In no war has it ever happened that troops should always contend against immense numerical odds, as has been invariably the case in every encounter during the struggle of the last year, and in no war has constant success without a check been more conspicuously achieved.

It has not occurred that one column here, or another there, has won more honour than the other portions of the army.

The various corps have done like hard work, have struggled through the difficulties of a hot-weather campaign, and have compensated for paucity of numbers in the vast area of operations, by continuous and unexampled marching, notwithstanding the season.

It is probable that much yet remains for the army to perform, but now that the Commander in Chief is able to give the greater part of it rest for a time, he chooses this moment to congratulate the generals and the troops on the great results which have attended their labours.

He can fairly say that they have accomplished in a few months what was believed by the ill-wishers of England to be either beyond her strength, or to be the work of many years.

By order of his Excellency the Commander in Chief.

(signed) *W. Mayhew*, Lieutenant Colonel,
Adjutant General of the Army.

Enclosure 35.

General Order by his Excellency the Commander in Chief, dated Calcutta, 26th June 1858, page 855.

THE Commander in Chief congratulates Major General Sir Hugh Rose very heartily on the successful result of his rapid advance on Gwalior.

2. The restoration of the Maharajah Scindia to his capital, by the force under the command of the Major General, is a happy termination of the brilliant campaign through which the Central India Field Force has passed, under his able direction.

3. That campaign has been illustrated by many engagements in the open field, by the relief of Saugor, the capture of Rathgurh, Shahgurh, and Chandaree; by the memorable siege of Jhansi, by the fall of Calpee, and lastly, by the re-occupation of Gwalior.

4. His Excellency again offers his hearty thanks and congratulations to Major General Sir Hugh Rose, and the gallant troops under his command.

5. It must not be forgotten that the advance of the Central India Field Force formed part of a large combination, and was rendered possible by the movement of Major General Roberts, of the Bombay Army, into Rajpootana, on the one side, and of Major General Whitlock, of the Madras Army, on the other, and by the support they respectively gave to Major General Sir Hugh Rose, as he moved onwards, in obedience to his instructions.

6. The two Major Generals have well sustained the honour of their Presidencies.

7. The siege of Kotah and the action of Bandah take rank amongst the best achievements of the war.

8. The Commander in Chief offers his best thanks to Major General Roberts, to Major General Whitlock, and the various corps under their command. He is happy in welcoming them to the Presidency of Bengal.

By order of his Excellency the Commander in Chief.

(signed) *W. Mayhew*, Lieut.-Colonel,
Adjutant General of the Army.

Enclosure 36.

GENERAL ORDER, No. 388, MILITARY DEPARTMENT.

Fort William, 3d May 1861.

THE following paragraph of a military letter from the Right Honourable the Secretary of State for India, No. 135 of the 23d March 1861, is published in General Orders:—

A question having arisen as to the interpretation to be put on that part of Her Majesty's Warrant (quoted in the margin),* authorisng the distribution of the property captured at Lucknow as prize, I have determined, in pursuance of the authority vested in me by the Royal Warrant, that the force which advanced from Allahabad, under Major General Havelock, the forces of Lord Clyde, which, under Major General Windham, held Cawnpore, and that which brought off the beleagured garrison of Lucknow intermediately between Chinhut and the recovery of Lucknow, from the rebels, as well as the force under Lord Clyde, present at the final operations, and that which held Cawnpore during such final operations, are entitled to share in the prize moneys.

---

* "And whereas our said Commissioners have recommended unto us to grant all the said booty for the use of the Commander in Chief, officers and men belonging to our naval and military forces, and the European and Indian Troops of the East India Company, which took active part in the operations leading to the aforesaid capture of the said City of Lucknow and its dependencies, including all the troops at first entrenched in the said Presidency, the said force under the command of the late Major General Sir Henry Havelock, Bart., Knight, Commander of the Most Honourable Military Order of the Bath, the force which held Cawnpore during the final operations against Lucknow, and the said force under the personal command of the said Baron Clyde, of Lucknow, which took part in the said capture of the said City of Lucknow, and its dependencies, or in the operations which contributed thereto, which operations commenced with the first affair at Chinhut, and the investment of the Residency by the rebels, on or about the 29th of June 1857, and ended with the final expulsion of the rebels, and the capture of the said City of Lucknow, on or about the 21st of March 1858."

Major General *T. T. Pears*, C.B., to the Secretary to the Treasury.

Sir, India Office, 11 September 1863.

In continuation of the letter from this office, dated the 8th ultimo, I am directed by the Secretary of State for India in Council to inform you that a Despatch now received from the Governor General of India, states that a search having been made through the records of Government bearing on the subject of the claim of Sir Hugh Rose's force to share in the Kirwee prize, nothing has been discovered which would appear likely to aid Her Majesty's Government in arriving at a decision on the claim, save documents, copies of which were enclosed in the letter of the Commander in Chief in India, transmitted in the letter from this office above referred to.

A perusal of these documents, the Governor General conceives tends to show that there was co-operation between the forces under Sir Hugh Rose and Sir George Whitlock; and that the prior advance of the former, and especially the capture of Jhansi, facilitated the service assigned to the latter, and contributed to the ease with which Banda was occupied, and the Kirwee booty obtained.

I have, &c.
(signed) *T. T. Pears*, Major General,
Military Secretary.

The Secretary, Treasury.

G. A. Hamilton, Esq. to *J. C. Melvill*, Esq.

Sir, Treasury Chambers, 16 January 1864.

I am directed by the Lords Commissioners of Her Majesty's Treasury to acquaint you, for the information of the Secretary of State for India in Council, that in compliance with an application from Major Chandos Clifton, Prize Agent to Sir G. Whitlock's division, my Lords have furnished that gentleman with a copy of the communication addressed to Viscount Palmerston by Sir Hugh Rose, setting forth the grounds on which His Excellency considered that the Central India Field Force had a fair claim to share in the Kirwee prize, and which communication was forwarded to this Department by Mr. Cochrane's letter of the 8th August last.

I am, &c.
(signed) *Geo. A. Hamilton.*

J. C. Melvill, Esq.

Major General *T. T. Pears*, C.B., to the Secretary to the Treasury.

Sir, India Office, 26 January 1864.

1. I am directed by the Secretary of State for India in Council to acknowledge the receipt of your letter, dated 16th instant, stating that the Lords Commissioners of Her Majesty's Treasury have furnished the Prize Agent of Major General Whitlock's force with a copy of the communication addressed to Viscount Palmerston by General Sir Hugh Rose, setting forth the grounds upon which His Excellency considered that the Central India Field Force had a fair claim to share in the Kirwee prize.

2. I am directed to state, with reference thereto, that Sir Charles Wood, on the re-assembling of Parliament, will cause the representation of Sir Hugh Rose to be laid before the House of Commons, in continuation of the Return from this office regarding the Banda and Kirwee booty, presented to the House on the 24th July last.

I have, &c.
(signed) *T. T. Pears*, Major General,
Military Secretary.

The Secretary, Treasury.

Major General *T. T. Pears*, C.B., to the Secretary to the Treasury.

Sir, India Office, 5 February 1864.

Dated 19 Dec. 1863, No. 348.

A DESPATCH just received from the Government of India, transmits a claim preferred by Major General M. W. Smith, C.B., now commanding the Poonah Division of the Bombay army, to share in the Kirwee prize money. General Sir H. Rose is anxious that the correspondence should be forwarded to the Lords of the Treasury, in addition to the representation already made by him to their Lordships, as it appears to Sir H. Rose to contain additional evidence in support of his own claim to share in the prize money referred to.

2. The correspondence is accordingly herewith transmitted.

3. Irrespective of this consideration, however, Sir Charles Wood would have felt it his duty to send the proceedings to the Lords Commissioners of the Treasury, in order that the claim advanced by Major General Smith might be duly considered, and he desires me to offer the following observations with the view of assisting their Lordships in arriving at a judgment on the case.

4. Major General (then Colonel) Smith commanded as Brigadier, a brigade of the Rajpootanah Field Force under Major General Roberts, during the operations in Central India, in 1857–58. In April 1858, a flying column, consisting of the troops noted in the margin, was detached under his command from the Rajpootanah Force for the purpose of co-operating with the Central India Field Force, under Major General Sir Hugh Rose. Major General Smith states his orders were—

Troop of Her Majesty's 8th Hussars, 1st Bombay Light Cavalry, 95th Foot, 10th Bombay Native Infantry.

"To cover Sir Hugh Rose's rear, and to protect his communications, which, in consequence of the rapidity of his advance, were exposed and in danger of being cut off."

5. In pursuance of these instructions, Brigadier Smith separated from the Rajpootanah Force on the 23d April 1858; arrived at Goonah on the 12th May; re-occupied Chandaree on the 26th May; fought the action at Kotah-ke-Serai on the 17th June 1858; and immediately joined Sir H. Rose before Gwalior.

6. The claim of this brigade to share in the Kirwee prize property appears to have been preferred in August 1862; but the Commander in Chief at Bombay declined to support it. He considered that no co-operation existed between the force of Major General Roberts, one of the brigades of which Brigadier Smith commanded, and the column under Major General Whitlock. It was his opinion that this column was most materially assisted by Sir Hugh Rose's march; and that had it not been for that march, it was more than doubtful whether it would have been in the power of General Whitlock to fight the battle of Banda; and as a consequence of that action, to secure the booty at Kirwee.

7. Having seen the discussion which took place in the House of Commons on the 14th July 1863, regarding the Banda and Kirwee booty, Major General Smith renewed the claim on the 21st August 1863.

8. Lieutenant General Sir William Mansfield sees no cause to modify his opinion given in August 1862. It is evident to him "that the column commanded by Major General Smith co-operated far less towards the general result of General Whitlock's and Sir H. Rose's campaign, when marching northward, of which the capture of Kirwee was one feature, than the troops in the Dooab, to the north of the Jumna, which were shut out from sharing in the prize money referred to."

9. Sir William Mansfield no doubt here refers to the claim of the troops,* the subject of the letter from this office to the Treasury, dated 13th June 1862.

* Detachment, Madras Artillery. Detachment, Bengal Irregular Cavalry. Detachment 80th Foot. Madras Rifles. 17th Madras Native Infantry.

10. Sir H. Rose agrees in the view of Sir William Mansfield as to Major General Smith's claim. He cannot admit that the arrival of the column at Goonah on 12 May 1858, and the subsequent occupation of Chandaree on the 26th of that month, had any effect upon his operations, or those of Sir George Whitlock. He observes,—

"Major General Smith's arrival at Goonah could have had no possible effect on, or been of the slightest advantage to, Sir H. Rose's operations at Calpee, because at that very time, on 12th May, Sir H. Rose was actually before Calpee, which is distant 200 miles from Goonah; and when Major General Smith occupied, on 26th May, Chandaree, which is 158 miles from Calpee, Sir H. Rose had taken Calpee three days before.

"Besides,

"Besides, another proof that Major General Smith's force was not required for the protection of Sir Hugh Rose's rear, or communications, is, that when he advanced to Calpee, he left in Jhansi (which it is needless to observe was between Sir H. Rose and Major General Smith) a force of all arms, British and native, under Lieutenant Colonel Liddell, of the Bombay army, to garrison that place, and to cover his rear."

11. Sir H. Rose admits the very efficient assistance he received from the co-operation of General Smith's brigade during the operations against Gwalior. This brigade, he states, was placed under his orders for the express purpose of attacking Gwalior; but that these operations could have nothing whatever to do with the capture of Kirwee, and in preferring the claim of his own force to share in the Kirwee prize money, he did not include for this reason the operations of his force against Gwalior.

12. The claim is sent without any remark on the part of the Government of India.

13. Much weight is no doubt to be attached to the opinion of the military authorities in India, who played so conspicuous a part in the operations at the period in question. Nevertheless, Sir C. Wood is inclined to doubt the correctness of the conclusion drawn by them, believing the facts to be as follows:—

14. Sir William Mansfield, when chief of the staff to the Commander in Chief in India, on the 2nd June 1858, wrote thus to the Government of India,—

"Sir Hugh Rose dwells on the fact of his having had no reserves. This is hardly an accurate statement. The troops at Mhow and the Rajpootanah column gave him an effectual support on his left flank, and kept his direct communications by the Agra road free, as shown by the detachment of one of Major General Robert's brigades to Jubbulpore, under the orders of his lordship, when Sir Hugh Rose became alarmed for his rear."

15. In a memorandum sent to the General Commanding in Chief by Lord Clyde about October 1861, his lordship observed with reference to a "Memorandum on the War in India since the fall of Lucknow," recorded by him on the 26th July 1859, that "it will be seen that a portion of Major General Robert's force (viz., the column under Brigadier Smith) was in co-operation with Sir H. Rose, under my instructions, prior to the capture of the treasure at Kirwee." He referred particularly to the 12th paragraph of the memorandum above cited as sufficiently indicative of his having at once, on hearing of Tantia Topee's movement towards Gwalior from Calpee, ordered the Rajpootanah Field Force to give what aid it could to Sir Hugh Rose.

"No time was lost in moving Sir H. Rose on Gwalior; I assisted him with a Brigade from the Rajpootanah Force."

16. Sir Hugh Rose now states that Major General Smith's brigade was placed under his orders for the express purpose of attacking Gwalior. This statement appears scarcely to be borne out by the facts. Brigadier Smith had left Major General Robert's force to protect Sir Hugh Rose's rear on the 23rd April, 1858. He reached Goonah on the 12th May. The action at Calpee was fought on the 23rd May. It was not until some days after this that Gwalior was seized by the Gwalior Contingent. This would appear to have happened on the 1st June only, for Sir R. Hamilton writes, "In justice to Brigadier Smith and the portion of General Robert's force, I must add that they moved up, and joined the force before Gwalior, rendering most important aid, and doing very gallant service during the operations, resulting in the capture of Gwalior, which was only 18 days in possession of the rebels."

17. As Gwalior fell on the 18th June, it could only then have been seized by the rebels on the 1st June.

18. Again, Major General Rose, in his Despatch dated Golowlee, 24th May 1858, stated as follows:—

"I have the honour to report to you, for the information of the Commander in Chief, that the approach of Brigadier Smith's brigade from Rajpootanah to Goonah, having secured Jhansi from attack by Kotah and Bundelcund rebels I recalled Lieutenant Colonel Lowth, commanding Her Majesty's 86th Regiment, whom I had detached with a column to watch the road from Jhansi to Goonah; and I marched with the 1st Brigade of my force from Jhansi on the 25th ultimo on Calpee."

19. Sir C. Wood understands from the proposed decision of the Lords Commissioners, as stated in their Minute of the 14th July 1863, that the property captured by the forces respectively under Major Generals Rose and Whitlock, will be thrown into one fund, and be divided generally amongst the two forces,

the estate of Lord Clyde sharing as Commander in Chief. The property taken by Major General Roberts' force, on the other hand, will be divided exclusively amongst the officers and soldiers of that force, with the same reservation as to the right of Lord Clyde as Commander in Chief. Sir C. Wood has always felt that, under this decision, the case of the brigade of Major General Smith is peculiar. This officer, who was nominally under Major General Roberts, actually served under Sir Hugh Rose. For their service with the latter, he and the troops under him received the Central India clasp to their medal. The grant of donation batta made to them, was also made on account of their co-operation with the force under Sir H. Rose.

20. If the claim of the brigade to share in the Central India and Saugor prize property be rejected, it could not share at all, as it does not appear to have been present on either of the occasions* on which prize property was captured by Major General Roberts' force.

* Ahwah, Kotah, Bunass.

21. With this explanation, Sir C. Wood submits the claim for the decision of the Lords of the Treasury. He desires me, however, to express his opinion that the claim is well founded. An opinion to the same effect has also been recorded by Lord Clyde, the Field Marshal Commanding in Chief, and the late Secretary of State for War. In his former communications regarding the property captured in Central India, Sir C. Wood did not refer to the case of Major General Smith's brigade, because under his view that the booty should be divided amongst the three forces, this brigade would, as a matter of course, have shared in the general distribution.

22. It appears from the proceedings accompanying this letter, that Sir H. Rose considers that presence during the operations against Gwalior only, will confer no right to share in the United Prize Fund of the Central India and Saugor forces, inasmuch as those operations did not take place until after the capture of Kirwee. This appears to Sir C. Wood to be an erroneous impression. Some property, though to a small amount, was taken at Gwalior, and has been carried to the credit of the Central India Prize Fund. All, therefore, present at Gwalior would seem to have a right to share in the united fund, if the decision of the Lords of the Treasury be carried out.

23. Major General Rose's force was formed on the 25th November 1857. It captured Gwalior on the 19th June 1858; property was taken at Jhansi, Calpee, and Gwalior.

24. Major General Whitlock's force was formed on the 17th November 1857. It occupied Kirwee on or about the 5th June 1858; booty was taken both at Banda and Kirwee.

25. It appears to Sir C. Wood, that all who served with either force between the dates named, should share in the United Prize Fund.

26. Major General Roberts' force was formed on 31st December 1857. It fought the general action on the Bunass River on the 14th August 1858; booty was taken at Ahwah, Kotah, and Bunass.

27. In this case, all present with the force between the dates named, would seem entitled to share in the Rajpootanah Prize Fund. This division, however, although no prize was taken after that captured at Bunass, continued some time longer in the field, "encountering difficulties, enduring much fatigue and hardship, and rendering important service in the pursuit of rebels from Gwalior."

28. Part of the division was engaged as late as the 21st January 1859, under Lieutenant Colonel Holmes at Jeekun, and part on the 10th February 1859, under Brigadier Honner at Kooshana. Still, it is presumed, it must be held that such service alone cannot confer a right to share in the captures made previously.

29. Sir C. Wood is aware that no steps are to be taken with regard to the final distribution of the booty captured in Central India, until the papers on the subject have been presented to Parliament. He is desirous, however, in order to obviate any delay in the distribution, of ascertaining the opinion of their Lordships on the points now submitted to them.

I have, &c.
(signed) *T. T. Pears*, Major General,
Military Secretary.

The Secretary, Treasury.

No. 343, of 1863.—Military Department.

From the Government of India to the Right Honourable Sir *Charles Wood*, Bart., G.C.B., Her Majesty's Secretary of State for India.

Sir,

WE have the honour to transmit for your consideration and orders, copies of the papers, noted in the margin, relative to the claim preferred by Major General Smith, C.B., late Colonel Commanding one of the brigades of the Rajpootana Field Force, to share in the Kirwee prize money.

Proceedings for Dec. 1863, Nos. 227 and 228.

2. It will be observed that the opinions of their Excellencies the Commanders in Chief in India, and at Bombay, are adverse to the claim in question, and that Sir Hugh Rose is anxious that a copy of this correspondence should also be forwarded to the Right Honourable the Viscount Palmerston, K.G., G.C.B., in addition to that which accompanied the late Governor General's Military Letters, Nos. 41A and 57A, of 28th June and 29th July 1863, as it contains additional evidence in support of his Excellency's own claim to the prize referred to.

Fort William, 19 December 1863.

EXTRACT.—Fort William, Military Proceedings for December 1863.

(No. 227.)

From Lieutenant-Colonel *W. F. Marriott*, Secretary to Government, Bombay, Military Department, to the Secretary to the Government of India, Military Department (No. 2722); dated Bombay Castle, the 12th September 1863.

I AM directed to transmit, for final decision by the Government of India, the accompanying copies of a letter from the Adjutant-General, and of its accompaniments, relative to a claim preferred by Major General Smith, C.B., late Colonel Commanding one of the brigades of the Rajpootana Field Force to share in the Kirwee prize money.

From Lieutenant Colonel *T. Stock*, Adjutant General of the Army, to the Secretary to Government, Bombay, Military Department; (No. 1458); dated Head Quarters, Poona, the 4th September 1863.

I HAVE the honour to forward correspondence, as per margin, in which Major General Smith, C.B., late Colonel Commanding one of the brigades of the Rajpootana Field Force, which served under the late Major General Roberts in 1858, prefers a claim to share in the Kirwee prize money, on the grounds stated in the enclosed letter.

Letter from Adjutant General to Major General Smith, No. 3984, 16 Aug. 1862. Letter from Major General Smith, dated 21 August 1863.

2. I am to request you will draw the attention of the Honourable the Governor in Council to the accompanying letter, containing his Excellency's opinion, which was communicated to Major General Smith last year.

3. Sir William Mansfield sees no cause to modify that opinion, it being evident to his mind that the column commanded by Major General Smith co-operated far less towards the general result of General Whitlock's and Sir Hugh Rose's campaign when marching northward, of which the capture of Kirwee was one feature, than the troops in the Doab to the north of the Jumna, which have been shut out from sharing in the prize money referred to.

From Lieutenant Colonel *T. Stock*, Adjutant General of the Army, to Major General *M. W. Smith*, C.B., Commanding Scinde Division (No. 3984); dated Head Quarters, Poona, the 16th August 1862.

I AM desired to acknowledge your letter, without date, regarding the distribution of the Kirwee prize money.

The Commander in Chief regrets that it is out of his power to support your request; but if you desire your letter to be forwarded, without support, His Excellency will have pleasure in complying with your wishes.

His Excellency observes that you do not show that any co-operation existed between the force under Major General Roberts, one of the brigades of which you commanded, and the column under Major General Whitlock, Madras Army. According to his Excellency's recollection of the campaign, conducted by Major General Roberts, there certainly was no such co-operation. General Roberts' operations were confined to Rajpootana, and were, so to speak, eccentric from the movements conducted by his Excellency Sir Hugh Rose and those of the Madras column. It has always been Sir William Mansfield's opinion that the latter, viz., Madras column, was most materially assisted by Sir H. Rose's march, and that

had it not been for that march, it is more than doubtful that it would have been in the power of General Whitlock to fight the battle of Banda, and, as a consequence of that action, to secure the prize money at Kirwee.

His Excellency is in a position to say, that your idea regarding the Kirwee prize is an erroneous assumption. There is no doubt, he believes, that it consisted of the contents of a permanent treasury of a very wealthy, but disaffected, rajah or nabob, whose name has escaped recollection.

Taking all these circumstances into consideration, his Excellency would recommend that the application contained in your letter should not be pressed.

From Major General *M. W. Smith*, C.B., Commanding Poona Division, late Brigadier Commanding Brigade Rajpootana Field Force in Central India, to the Adjutant General of the Army, Bombay; dated Poona, the 21st August 1863.

HAVING seen by the Parliamentary news, received with the last mail, that it has been announced in the House by Lord Palmerston that the question as to whether the Central India Field Force, under his Excellency Sir Hugh Rose, should participate in the Banda and Kirwee prize money, is to be debated in the House of Commons, and that Her Majesty's Government will take no decisive step in the matter until after such debate has taken place; and as I deem the present a fitting opportunity to bring forward the claims of a brigade of the Rajpootana Field Force (which, under my command, directly co-operated with the force under his Excellency Sir Hugh Rose in Central India) to share in the prize, in the event of the final decision of Government being favourable to the claims of the Central India Field Force, I have the honour to bring to the notice of his Excellency the Commander in Chief, the services of the Brigade which I had the honour to command, which I trust will be found of such a nature as to warrant his Excellency in submitting the claim with his recommendation, for the favourable consideration of Her Majesty's Government.

Colonel Blake's Troop; Bombay Horse Artillery; Her Majesty's 8th Hussars; 1st Bombay Native Light Cavalry (Lancers); Her Majesty's 95th Regiment; 10th Regiment Bombay Native Infantry.

2. On the capture of Kotah, the last stronghold of the rebels in Rajpootana, by the field force under the command of Major General Roberts, and when there no longer remained in that part of the country any rebel force of importance, a flying column, consisting of the troops noted in the margin, was detached from the Rajpootana Field Force, and ordered to proceed under my command into Central India, for the purpose of co-operating with the field force under his Excellency Sir Hugh Rose. The orders which I received were, that "with my brigade of the Rajpootana Field Force, I was to cover Sir Hugh Rose's rear, and to protect his communications, which, in consequence of the rapidity of his advance, were exposed, and in danger of being cut off." In pursuance to these instructions, I marched towards the Grand Trunk Road with all practicable despatch, having separated from the Rajpootana Field Force on the 23d April, and I arrived at Goonah on the 12th May, dispersing, *en route*, a considerable body of rebels who had collected in the jungle in the vicinity of the Trunk Road, in order, doubtless, to cut off convoys proceeding to the Central India Field Force. At Goonah, I awaited further orders from his Excellency Sir Hugh Rose, with whom I put myself in communication as soon as practicable. Meantime, having received information that the fort of "Chandaree," which a short time before had been captured by the Central India Field Force, and left garrisoned by a detachment of Scindiah's troops, had been re-occupied by the enemy in force, I quitted the Trunk Road on the 21st of May, and by forced marches, during which we lost many men from sun-stroke, arrived before "Chandaree" on the evening of the 26th, and found the enemy in possession of the town and fort. Owing to the brigade being too weak to invest the place, I was compelled to make the attack from one side only, in consequence of which the rebels escaped during the night and dispersed. Thus it will be seen that one of the objects for which the brigade was detached, that of keeping open the communications of the force under Sir Hugh Rose, was here accomplished, and the most direct co-operation clearly established. Leaving a sufficient force to occupy "Chandaree," I marched on the 1st June, *en route*, towards the Trunk Road, and arrived at Sepree on the 6th, whence, under direct orders from his Excellency Sir Hugh Rose to march upon Gwalior, I advanced with my brigade upon Kotah-ka-Serai by the Autree Pass, while he with the Central India Field Force pressed forward by the Morar cantonment.

3. For the importance of the services and the further co-operation of my brigade during the subsequent operations before Gwalior, I cannot do better than refer to the Gwalior despatches of his Excellency Sir Hugh Rose, wherein, should any further proofs be necessary, the entire co-operation of the force which I had the honour to command, is most fully and clearly acknowledged.

4. As I am of opinion that it would be irrelevant to detail the further services of the brigade subsequent to the re-capture of Gwalior in June 1858, I shall not trespass longer on his Excellency further than to add that it continued to serve in Central India, in pursuit of the rebels, for nearly twelve months, during the whole of which period it was constantly under canvas and on the march.

5. Trusting that his Excellency will be pleased to consider the claim of this brigade to be just, and apologising for the length of this letter.

Military Department, Fort William.—No. 1059, under date the 28th September 1863.

FORWARDED to the Adjutant-General, for opinion of his Excellency the Commander in Chief.*

Return requested with an early reply.

(No. 228.)

From Colonel *H. W. Norman*, C.B., Secretary to the Government of India, Military Department, Governor General's Camp, to the Officiating Secretary to the Government of India, Military Department, Calcutta (No. 318); dated Camp, Meean Meer, the 8th December 1863.

From Colonel *E. Haythorne*, Adjutant-General, to the Officiating Secretary to the Government of India, Military Department (No. 1156/E); dated Head-quarters, Simla the 4th November 1863.

IN returning the papers received with your memorandum, No. 1059, dated 28th September last, I am directed to say that the Commander in Chief in India agrees with Sir William Mansfield that, for the reasons stated by his Excellency, Major General Smith's force have no claim to share in the Kirwee prize money.

2. The Commander in Chief further begs to add, that he cannot admit that the arrival of Major General Smith's column at Goonah on the 12th of May 1858, and the subsequent occupation of Chandaree on the 26th of that month, which the enemy, by his report, appear to have abandoned without defending it, had any effect upon Sir Hugh Rose's operations, or those of Sir G. Whitlock.

Firstly. Because a reinforcement of the 71st Highland Light Infantry joined Sir Hugh Rose's force, without any assistance whatever, in the beginning of April, six weeks before Major General Smith's arrival at Goonah; and, secondly, because, in consequence of a movement which Sir Hugh Rose directed part of his force to make, from Jhansi towards Goonah, a month before Major General Smith came up, he had covered and brought to Jhansi a convoy of details of troops and supplies coming to him from Mhow, along the Grand Trunk Road.

3. Major General Smith's arrival at Goonah could have had no possible effect on, or been of the slightest advantage to, Sir Hugh Rose's operations at Calpee, because at that very time, on the 12th of May, Sir Hugh Rose was actually before Calpee, which is distant 200 miles from Goonah; and when Major General Smith occupied, on the 26th of May, Chandaree, which is 158 miles from Calpee, Sir Hugh Rose had taken Calpee three days before.

Besides, another proof that Major General Smith's force was not required for the protection of Sir Hugh Rose's rear or communications, is, that when he advanced to Calpee, he left in Jhansi, which it is needless to observe was between Sir Hugh Rose and Major General Smith, a force of all arms, British and Native, under Lieutenant Colonel (now Brevet-Colonel) Liddell, C.B., of the Bombay Army, to garrison that place, and to cover his rear.

4. As regards the operations against Gwalior, Sir H. Rose most willingly acknowledges the very efficient assistance which he received from the co-operation of Major General Smith's brigade, which was placed under his orders by the late Commander in Chief in India, for the express purpose of attacking Gwalior.

5. Sir Hugh Rose has already, in his official Despatch reporting that operation, fully shown his sense of the excellent service performed by Major General Smith and his brigade on that occasion; but it is superfluous to observe that these operations can have nothing whatever to do with the capture of Kirwee, inasmuch as they took place after the capture of that place, Kirwee; and in preferring the claim of his own force to share in the Kirwee prize-money, Sir Hugh Rose did not include for this reason the operations of his force against Gwalior.

6. The Commander in Chief in India requests that the Government may be pleased to forward this correspondence to Viscount Palmerston, through the Right Honourable the Secretary of State for India, as it is a proof that Sir William Mansfield, who was Chief of the Staff under the late Commander in Chief in India, is, as well as Lord Clyde, of opinion that Sir H. Rose's force ought to share in the Kirwee prize-money.

Returned to the Officiating Secretary to the Government of India, Military Department, Calcutta, for disposal under the orders of his Excellency the Governor General in Council.

T. G. Baring, Esq., to the Secretary to the Treasury.

Sir, India Office, 20 February 1864.

I AM directed by Sir Charles Wood to forward, for the information of the Lords of the Treasury, copy of a letter from Sir Robert Hamilton, Bart., K.C.B., formerly Agent of the Governor General in Central India, together with a copy of the letter from the Secretary to the Government of India to which Sir Robert Hamilton's communication refers.

I am, &c.
(signed) *T. G. Baring.*

The Secretary to the Treasury.

(Enclosures.)

129, Park-street, Grosvenor-square,
Sir, 17 February 1864.

MY attention having been drawn to a letter from Colonel Erskine, late Commissioner in the Saugor and Nerbudda Territories, printed in the papers laid before Parliament, I have the honour to request that a copy of the Despatch from the Secretary to the Government of India, dated 29th January 1858, may be submitted to the Lords of the Treasury with any other document showing the powers vested in me whilst employed in Central India with the military force styled the Central India Field Force.

I have, &c.
(signed) *Robert N. C. Hamilton,*
Late Agent to the Governor General,
Central India.

To T. G. Baring, Esq., M. P.,
Under Secretary of State for India.

From *G. F. Edmonstone*, Esq., Secretary to the Government of India, To Sir *R. Hamilton*, Bart., Agent to Governor General in Central India; dated Fort William, 29 January 1858.

Sir,

I HAVE had the honour to submit to the Governor General in Council Colonel Durand's letters, of the dates and numbers noted in the margin,* objecting to the order conferring on the Commissioner of Saugor and Nerbudda Territories political authority over the chiefs in Bundlecund, who are ordinarily subject to the Central India Agency.

* Letter of 5 July 1857, No. 3A. Letter of 13 July 1857, No. 19A.

2. In reply, I am directed to observe that the strong objections therein made to the order above referred to, and the predictions of evil that would result from it, have been very little borne out by events. The measure was not in itself a desirable one, but at the time when it was adopted the communications with Agra were closed, and the Lieutenant Governor's authority was nonexistent. Colonel Durand had been compelled to quit Indore, and communication with him was uncertain, nothing being known of his movements except that he was on his way to Asseerghur. For the purpose, therefore, of political superintendence he was not available; and if no transfer of authority had been made, the chiefs would have felt that they were left wholly to themselves, at a time when it was most desirable that even the appearance of this should be avoided.

3. But the times are now changed, and the suggestions contained in Colonel Durand's letter of 13th July are become appropriate. Already the military command has been placed in the hands of one officer, Major General Sir H. Rose; and his Lordship in Council considers it will be right that the whole of the Saugor Division should, for political matters, be subject to the control of the Governor General's Agent for Central India. The interlacing of the small States, some of which have hitherto been under the Commissioner and some under the Agent, may otherwise lead to the embarrassment of the military authorities.

4. In pursuance of the above instructions, you are requested, in communication with Major Erskine, to assume the political functions in respect of all the chiefs in the Saugor and Nerbudda Territories which have been heretofore exercised by the Commissioner of those territories, under the general direction of the Honourable the Lieutenant Governor of the North Western Provinces.

The Commissioner, Major Erskine, will be informed that the authority temporarily conferred on him over certain of the Bundlecund Chiefs has now ceased, as has also his authority over the chiefs in the Saugor Division.

The Government North Western Provinces will be informed of the foregoing arrangements, and a copy of this letter will be sent to Colonel Durand.

(2974.)

The Secretary to the Treasury to *T. G. Baring*, Esq., M.P.

Sir, Treasury Chambers, 2 March 1864.

I AM directed by the Lords Commissioners of Her Majesty's Treasury to acknowledge the receipt of your letter of the 20th ultimo, and Major General Pears' letter of the 5th ultimo, with their enclosures, relative to the Banda and Kirwee Prize. I am, at the same time, to transmit herewith, for the information of the Secretary of State for India in Council, copy of a letter from Major Chandos Clifton, enclosing a case with the opinion of counsel thereon, and copy of a subsequent letter from the other agents of Sir G. Whitlock's division on the subject of Sir Hugh Rose's despatch.

I am to state with reference to the Treasury letter of 14 July last, that my Lords will take the whole of these documents into consideration before they submit any recommendation to Her Majesty respecting the distribution of the Banda and Kirwee Booty.

In the meantime, however, their Lordships may observe that, as a Commission has been recently appointed by the Queen for the purpose of considering and reporting on the general question of the distribution of booty of war; and as questions regarding the application of the principles of actual or constructive capture, bearing on the conflicting claims advanced to the Banda and Kirwee Booty, may come under their view, my Lords are of opinion that it will be advisable to suspend a final decision respecting the booty in question until after the report of the Commission.

I am also to transmit, for the information of Sir Charles Wood, the enclosed communications, as stated in the margin, received since the date of the last papers presented to Parliament, on the subject of the Banda and Kirwee Booty.

Colonel Brett and Major Clifton to Secretary to Treasury, 16 July 1863.
Major Clifton to Assistant Secretary to Treasury, 8 August 1863, and Enclosures.
Major Clifton to Assistant Secretary to Treasury, 15 December 1863.
Appendix.

I am, &c.
(signed) *F. Peel.*

T. G. Baring, Esq., M.P.

(Enclosures.)

Sir, Army and Navy Club, 16 February 1864.

I HAVE thought it desirable in the very important question of the Banda and Kirwee Booty to submit the claim of Sir G. C. Whitlock and his troops on the whole case as developed in the Parliamentary Papers, for the opinion of the following eminent counsel—

J. Rolt, Esq., Q.C., M.P.
Sir H. M. Cairns, Q.C., M.P.
Montague Smith, Esq., Q.C., M.P.
Dr. Travers Twiss, Q.C., and
Harris Prendergast, Esq.;

and I have now the honour to enclose the case and the opinion unanimously given by those jurists. I have been informed that, subsequently to the decision recorded in the Treasury Minute, dated the 14th July 1863, this controversy has been reopened by the recent receipt (for the first time after so long a term of litigation) of a formal claim or statement (for a copy of which I have unsuccessfully applied two months ago) put forth by Sir Hugh Rose, the Commander in Chief in India, who has now come forward to assert a title for himself and the Central India Field Force, to share in the booty taken by Sir G. C. Whitlock's division.

However this may be, I would respectfully request that this important opinion of so many counsel of high reputation, concurring, as I believe, with the unani-

mous opinion of the Law Officers of the Crown, who had not all the actual facts of the case so correctly set before them, may be submitted at your earliest convenience for the consideration of the Lords Commissioners of Her Majesty's Treasury.

And, as in former controversies of this nature, in the cases of the Deccan and the Ava Booty, the judgment of the legal authorities has been acted upon by the Treasury Board in the advice which their Lordships tendered to the Crown with respect to the distribution of those captures, I trust that I may venture to appeal to the impartiality of the Lords Commissioners in the present instance (notwithstanding any adverse conclusions which may have been adopted on incorrect, and at that time, unconnected statements) to favourably reconsider the claim advanced by the actual captors of the booty, supported as it is by the consentient opinions of so many distinguished jurists, who have unhesitatingly pronounced for the exclusive title of Major General Whitlock and the troops under his command, to a grant of the treasure captured in their operations against Banda and Kirwee.

I have, &c.
(signed) *Chandos F. Clifton*,
Prize Agent to Sir G. C. Whitlock's Force.

To the Assistant Secretary to the Treasury.

Banda and Kirwee Booty.

Herewith is left a copy of the correspondence on the subject of the Banda and Kirwee Booty, ordered by the House of Commons to be printed on the 24th July 1863.

The prize agents of Sir George Whitlock's force are desirous of having your opinion on the points hereinafter stated, taking the facts of the case as they appear upon the correspondence, and having reference to that and the several documents set out in it alone. They would, at the same time, beg to refer you to the Act of 3 & 4 Will. 4, c. 41, establishing the Judicial Committee of the Privy Council, and to the Act 3 & 4 Vict. c. 65, to improve the practice and extend the jurisdiction of the High Court of Admiralty, Sect. 22 of which is in the following terms:—"And be it enacted that the said High Court of Admiralty shall have jurisdiction to decide all matters and questions concerning booty of war, or the distribution thereof, which it shall please Her Majesty, her heirs, and successors, by the advice of her and their Privy Council, to refer to the judgment of the said Court; and in all matters so referred, the Court shall proceed as in case of prize of war, and the judgment of the Court therein shall be binding upon all parties concerned, as well as to the declaration of Lord Chancellor Cottenham, of the object and intention of the framers of the Act as contained in his speech on introducing the Bill, and which was to the following effect:—But before he touched on this part of the subject, he would refer to the jurisdiction of the Admiralty Court when a question of prize came before it, viz., when it had to adjudicate upon the disposal of an enemy's property taken at sea. This was undoubtedly within its jurisdiction. But when a question of booty arose, viz., when the property was taken on land, the Court of Admiralty had no jurisdiction. If the property was taken in the course of joint operations of an army and navy, then it had jurisdiction over both, but over questions of booty it had no jurisdiction. Anciently these questions were determined by the Court of Chivalry, but that court having been abolished they fell under the cognizance of the Treasury, from which it was now proposed to transfer them to the Admiralty Court."

Bearing in mind, then, that the whole is subject to the prerogative of the Crown, but on the assumption that the advisers of the Crown are desirous of dealing with the matter according to the principles of justice, and with a view of distributing the booty as prize to those who are actually entitled to it, your opinion is requested upon the following points:—

1. What is the bearing of precedents upon the claim of the prize agents of Sir George Whitlock's force?

2. Have such prize agents made out a valid claim, on the face of the correspondence as actual captors to the whole of the booty captured at Banda and Kirwee?

3. Had such prize agents a full and fair opportunity of investigating and answering, the statements of the parties preferring adverse claims prior to the decision of the Treasury on the 14th March 1863?

4. Whether having regard to the Acts 3 & 4 Will. 4, c. 41, and 3 & 4 Vict., c. 65, and the statement of Lord Cottenham, the case is not one falling within the principle of those Acts, and which should be referred to the Court of Admiralty for a judicial decision?

OPINION.

1 and 2. Having read and considered the Parliamentary papers relating to the proposed distribution of the Banda and Kirwee prize money, we are of opinion that, upon the principle to be deduced from a comparison of the precedents showing the disposal of the prize money resulting from the captures at Delhi, Lucknow, and Dhar, in the recent Indian war, and the Mahratta booty taken by General Wellesley in the Deccan war, the booty which was captured by the troops under the command of Sir George Whitlock in the regular course of the operations arising out of the particular service allotted to their commander, may be justly claimed by Sir George Whitlock's Division, as the actual captors, to the exclusion of all the other divisions of the Army then in the field. And we entertain this opinion notwithstanding any supposed co-operation which may be attributed to Sir Hugh Rose, and the column under his command, by reason of the proximity of the line of country in which that force was operating at the same period of time or otherwise.

3. We think the prize agents of Sir George Whitlock's Division had not the complete opportunity to which they were entitled, of answering the adverse claims preferred to the Treasury prior to the decision of 14th March 1863.

4. We think this case falls entirely within the scope of the Acts of Parliament, enabling the Crown to refer such matters to the Court of Admiralty, or to the Judicial Committee of the Privy Council.

(signed) *John Rolt.*
Montague Smith.
H. M. Cairns.
Travers Twiss.
Harris Prendergast.

12th February 1864.

Club Chambers, 15, St. James's Square,
17 February 1864.

Sir,

HAVING been informed by you yesterday afternoon that a copy of the recently received statement of Sir Hugh Rose in the matter of the Kirwee Prize had been despatched on the 16th ultimo to Major Clifton's address, we have made inquiry at the Army and Navy Club, and have now received the packet, dated Treasury Chambers, 16 January 1864, enclosing that document and its annexes. We greatly regret that this paper should have been so long at Major Clifton's club without his knowledge. It will now be forwarded to him, and as soon as a reply can be drawn up, a further communication, in answer to the arguments of Sir Hugh Rose, will be forwarded to the Lords of the Treasury; and these papers will also be submitted to those counsel whose opinion has been transmitted for their Lordsips' consideration in Major Clifton's letter of the 16th instant.

We have, &c.
(signed) *Tudor Lavie,*
late in Command of the Brigade of Artillery
with Sir G. Whitlock's Force.

Alfred Kinloch,
Chaplain to the Madras Force.

Colonel *Brett* and Major *Clifton* to the Secretary to the Treasury.

Sir,

6 St. James's-place, 16 July 1863.

WE have the honour to address the Lords of the Treasury, and respectfully to submit to their Lordships that having been under the necessity of incurring individually a pecuniary responsibility, and of making considerable advances (amounting already to nearly 3,000*l.*), for the general benefit of the captors claiming the booty taken during the late war in India at Banda and Kirwee, in meeting the law and other expenses in the prosecution of the claim put forward by Sir George Whitlock's troops and contested by other parties, we are desirous of being relieved from the same; and we beg most respectfully to apply to your Lordships to order the issue of a sum of money from the proceeds

of the prize already realised and in their possession, to be appropriated to that purpose. This application, we have the honour to observe, cannot be thought unreasonable at the present time, if the decision of this case is now to be deferred, in accordance with Lord Palmerston's declaration in the House of Commons on Tuesday last (14th July), until Parliament reassembles in 1864, and may possibly be afterwards postponed for judicial examination before some competent tribunal.

We have, &c.

(signed) *De Renzie Brett*, Colonel Madras Army,
Prize Agent.

Chandos F. Clifton,
Late Major and Captain 12th Royal Lancers,
Prize Agent, General Whitlock's Force.

Major *Clifton* to the Assistant Secretary to the Treasury.

SIR, Army and Navy Club, 3 August 1863.

As prize agent for the Banda and Kirwee Booty, I have the honour to acknowledge your letter of the 14th ultimo (delivered in St. James'-square on the afternoon of the 16th idem), which announces the ultimate decision of the Lords Commissioners of Her Majesty's Treasury in favour of Sir H. Rose and the troops under his command.

The receipt of this letter has been quite unexpected, as it was understood, in consequence of Lord Palmerston's statement in the House of Commons on the 14th ultimo, that no further steps whatever were to be taken until the papers relating to this subject could be produced and discussed in Parliament.

The grounds upon which the Lords Commissioners have recognised the claim (if pretensions which have never been fairly or publicly put forth can be so called) of the Bombay division have already been shown to be untenable.

Sir H. Rose himself admits that the Madras and Bombay divisions were not "parts of a combined force."

Lord Clyde states that these columns were "prosecuting separate campaigns."

Sir R. Hamilton testifies that actual co-operation never took place.

The two divisions, when Kirwee was captured, were not convergent, but widely divergent, and incapable of affording mutual assistance.

And, finally, it is abundantly proved, as the note which affects to qualify Sir G. Whitlock's independence has been found to be not genuine, that that officer was entrusted with a distinct and separate command, so that he never reported to Sir H. Rose, nor received instructions from him; and it was only Lord Canning himself, as Sir R. Hamilton states, who had authority to direct his movements.

It appears however, as you now intimate, that the Lords Commissioners had already formed their decision some months ago, before any opportunity had been afforded to me of establishing these facts, or of examining and testing the counter-statements of the friends of Sir Hugh Rose; and I must respectfully regret that their Lordships have determined to adhere to a decision which was obviously founded on *ex parte* representations, and evidence of disputed authenticity, and which is said to be directly opposed to the unanimous opinion of the law officers of the Crown.

I will not now question your statement that there is no law which regulates the distribution of this booty, and that the grant of this prize-money depends absolutely on the discretion of the Crown. I will only venture to submit that the exercise of the Royal Prerogative, in the distribution of prize, is wont to be governed

governed by precedents, and in the most well-known cases has been determined by legal authority, even before the enactment of those statutes which now bear upon cases of this nature. Shortly after the final decision on the Deccan case, in which the advice of the law officers of the Crown guided the judgment of the Treasury Board, the Statute 3 & 4 Will. 4, c. 42, s. 4, was passed, and jurisdiction was thus conferred in questions of this character on the Judicial Committee of the Privy Council.

And in 1839 the Statute 3 & 4 Vict. c. 65, s. 22, was introduced by Lord Chancellor Cottenham, in order to transfer the decision of questions of prize from the Treasury to a judicial court, and to enable the Crown to refer disputed cases of military booty to the judgment of the High Court of Admiralty; and it would appear, I venture to submit, from the use of the word "booty" in this clause, that the Act of Parliament contemplates a reference to the Admiralty Court before the Royal Warrant which converts the capture into prize-of-war is proclaimed.

Under these circumstances, I have still reason to express a hope, in the name of a gallant force which, under devastating sickness and on the field of battle, perilled life and limb in doing good service to the State, that the petition which I have lately* presented to Her Majesty will be granted, and that this question will at once be referred for trial, according to the laws of evidence, before a judicial tribunal.

* 14 July 1863.

I trust I may request that this letter may be added to the documents which are now being submitted to Parliament.

I have, &c.
(signed) *Chandos F. Clifton*,
Prize Agent to Sir G. Whitlock's Force.

Army and Navy Club, 3 August 1863.

P.S.—Since the completion of this letter a communication† has been received from the Lord President of the Privy Council, intimating that my petition to the Queen, which I have now the honour to enclose, cannot be presented to Her Majesty without the direct concurrence of the Lords Commissioners of the Treasury. The grounds for this determination, as stated in the Registrar's letter, are based on the precedent of the Deccan case in 1833. But the Judicial Committee of the Privy Council was not at that time in existence. The Statute 3 and 4 Will. 4, c. 41, was not passed till the following month, while the Statute 3 and 4 Vict. c. 65, giving jurisdiction to the High Court of Admiralty on questions of military booty, is of far later date. These statutes appear to have been enacted in order to give special powers to these courts, and it must be obvious that none of the cases prior to the extension of their jurisdiction can establish an absence of jurisdiction at the present time.

I have now, therefore, to request that you will be good enough to ask the consent of the Lords Commissioners to refer the enclosed petition to the Judicial Committee of the Privy Council.

The promise which has been made in Parliament that no further steps should be taken in *distributing* this booty, I cannot but believe, does not in any way preclude the Lords Commissioners from granting the further boon of an open and judicial trial of this important question, either in the High Court of Admiralty, or before the Judicial Committee or any other competent tribunal.

To the Assistant Secretary
to the Treasury.

---

† *See* letter (enclosed) from H. Reeve, Esq., Registrar of the Privy Council, dated 31 July 1863, to Messrs. Gregory & Co.

(Enclosures.)

To the Queen's Most Excellent Majesty.

The Petition of Major *Chandos F. Clifton*, Prize Agent to Major General *Whitlock's* Division.

May it please your Majesty,

Your petitioner having been appointed prize agent to the Madras Division under Major General Sir George Cornish Whitlock, K.C.B., which, after the victory at Banda, in the East Indies, in the summer of 1858, captured (at a time when the casualty list in the royal regiments of the force amounted to the fearful rate of 42 per cent. in their daily operations), the spoil of that place and of the neighbouring town of Kirwee, has learned with surprise and regret that your Majesty's ministers, contrary to usage in such cases and to the express opinion of your Majesty's law officers, have recommended that a portion of this booty should be in part distributed among troops of the Bombay army, which had no share whatever in the enterprise whereby it was captured. Appealing to that Royal justice which it has ever been your Majesty's desire to administer to the meanest subject, your petitioner, with loyal submission, humbly begs to lay at the foot of the Throne the following representation of the case, which he is emboldened to believe, as greatly affecting the interests of a gallant force, whose arduous service in the Indian campaign has been commended by the Crown and the Legislature of the country, will not be thought unworthy of his Sovereign's most gracious consideration.

In the hottest season of 1858, operations against Kirwee having been strongly pressed upon that officer by the Government (*See* "Military Consultations of the Madras Government, 2d July 1858"), a division of the Madras army under Major General Sir G. C. Whitlock, K.C.B., after their signal victory over the Nawab of Banda at the head of a numerous army of rebels and mutineers, marched against his kinsman Narrain Rao, the chief of Kirwee, who had been specially proscribed by Lord Canning as a ringleader of the insurrection. This chief was nearly related, by adoption, to Nana Sahib, and had proclaimed himself during the revolt Peishwa of the Mahrattas. As our troops advanced, he took up a position with 9,000 men in front of the town; but finding his adversary strongly reinforced, and assailing him both in front and flank, he surrendered to the Madras commander, though the main body of his army, under his Dewan (Radho Govind), retired to the neighbouring hill-fastnesses, and maintained a formidable resistance until December 1858, when this force was destroyed by Sir George Whitlock in the brilliant action of Punwaree.

General Whitlock's march on Banda and Kirwee was made under the special orders of Lord Canning, and there was no sort of connexion or association between this commander and Sir Hugh Rose; for, in fact, it appears that in May 1858 General Rose telegraphed to Lord Harris, at Fort St. George, requesting assistance from General Whitlock; and Lord Harris, in reply, referred him to the Supreme Government (*See* "Military Consultations of the Madras Government," Nos. 76, 77, page 1606, 8th July 1858); and it is also important to add that no single order or report ever passed from Sir Hugh Rose to Sir George Whitlock, or from Sir George Whitlock to Sir Hugh Rose.

On Narrain Rao's surrender, his garrison was disarmed, and his treasury was taken possession of by the prize agents of the force. At this time (7th June 1858) the nearest Bombay force under Major General Sir Hugh Rose, G.C.B., was about 200 miles south-west, and was marching on an opposite route against the Sepoy army of the Jhansi and Calpee territories, which had just overthrown the Maharajah of Gwalior, and had been strengthened by the defection of his troops and the seizure of his ordnance, treasure, crown-jewels, and capital.

In accordance with Lord Canning's Despatch to Sir A. Wilson (*see* "Fort William Gazette," page 194, No. 181 of 1858), your Majesty's ministers made a declaration in Parliament that this booty was to be given to the British army. Not doubting that, according to usage in such cases, the prize property would be promptly distributed to the actual captors, Major General Whitlock's troops felt it unnecessary to take any steps to substantiate their claims. It appears, however, that the Lords Commissioners of your Majesty's Treasury, in order to ascertain the rightful claimants, applied to your Majesty's Secretaries of State for War and for Indian Affairs, for such information as might enable their Lordships to come to an equitable decision. These departments sought no information from the actual captors or their representatives; and in May 1861 it transpired that, acting on statements made in the interest of other claimants, they had drawn up representations extremely adverse to Major General Whitlock's division. The prize agents of that force, in conjunction with others who had acted with them, immediately endeavoured to make known to your Majesty's Secretaries of State for War and for Indian Affairs the real circumstances of the case. Failing in this (for no attention was paid to their respectful remonstrance by these Public Departments), they addressed, in November 1861, a memorial to the Lords Commissioners of your Majesty's Treasury, showing by conclusive evidence that the Bombay troops under Major General Rose were not in any way engaged in the operations by which Kirwee was captured; that General Whitlock held a distinct and independent command; that he received no orders from Sir Hugh Rose, and forwarded no report to him; that his division was in no fair sense leaning on, or connected with, the Bombay force; and that Sir Hugh Rose was fully engaged with a powerful and successful enemy, and nearly a month's march from Kirwee

Kirwee at the time of capture. They argued that according to precedents and all rule of Prize Law, and by the dicta of Lord Stowell in numerous naval cases, and of the late Duke of Wellington in analogous instances of military captures, they were entitled to receive the whole of the Kirwee booty, to the exclusion of all claim by Sir Hugh Rose. To corroborate these representations they submitted their case, with all that they could discover (for it was not divulged) of their opponents' case, to the examination of several counsel of great eminence. Sir Hugh Cairns and Sir Robert Phillimore in consultation, and after careful investigation of the precedents, expressed an unqualified opinion in their favour. Sir Roundell Palmer at once arrived at a similar conclusion, and Mr. Harris Prendergast, author of the well-known works on Prize Law, gave an opinion to the same effect.

Soon after the transmission of this memorial to the Treasury, it became known that one of counter-claimants had reprinted the document and forwarded some adverse comments on it to the authorities. General Whitlock's prize-agents requested permission to inspect and answer those comments, but this act of justice was refused. It is understood, however, that the Treasury Board admitted the cogency of the arguments, the accuracy of the facts, and the importance of the legal opinions conveyed in the Prize Agent's memorial; but when a short delay was requested, in order to obtain further documents from India, it was thought right to answer in the negative. Nevertheless, a delay of three months was conceded, to enable those who advocated the interests of the Bombay troops to shake, if possible, the case of the memorialists. Eventually a long reply was drawn up and forwarded from the India Department to the Treasury. Its contents were not communicated to General Whitlock's friends, but it is understood that the chief aim of this document was to establish military association between the Madras and Bombay divisions on political grounds. It was known that the political officer (Sir Robert Hamilton, Bart.) who was attached to Sir Hugh Rose's force had been invited to furnish a report on the subject, while no information had been asked from the political officer attached to General Whitlock's force. The Prize Agents of the Madras Division therefore felt it their duty to protest against the reception of this onesided evidence, and, in the spring of 1862, they again solicited from the Treasury a copy of the documents by which the claim of their opponents had been supported; knowing that their own case, and every argument which they had put forth, had been subjected to hostile scrutiny for some months, and to very careful criticism. But they were not then allowed to see any part of the case of their antagonists, and the Treasury Board, in reply to this application, observed that all the necessary facts of the case had now been elicited, and that no further arguments or statements could be received.

The whole case was then referred for the opinion of your Majesty's law officers, whose decision was for some time delayed by the illness of Sir John Harding; and when his appointment devolved on Sir R. Phillimore, who had already pronounced an opinion in favour of the exclusive claim of Sir George Whitlock's force, it was thought expedient to consult another counsel of great eminence in the place of Sir R. Phillimore, and Dr. T. Twiss was accordingly selected.

The opinion of your Majesty's law officers, there is reason to believe, was pronounced with more than ordinary unanimity in favour of the claim put forth by Sir George Whitlock's troops, to the exclusion of all claim by Sir Hugh Rose.

In the meantime other prize-money, captured on the western side of Central India, was by your Majesty's Royal Warrants (dated 2d October 1862) distributed. These captures were made at Dhar, Surun, Nurgoond, Shorapore, Hulgullee, and Khandeish, and the prize in each case was awarded to the takers, on the strictest principle of actual capture. In the case of Dhar, which was evacuated by the rebels when about to be stormed by Colonel Stuart, and in which a valuable prize was acquired by the Malwa Field Force (afterwards better known as the 1st brigade of the Central India Field Force, commanded by Sir Hugh Rose), the principle of actual capture was so rigidly applied, that a part of the capturing division, which had been detained by the Resident in order to keep in check a neighbouring body of the enemy, was not allowed to participate, as it happened to be about 20 miles distant at the time of this capture.

In August 1862, the opinion of your Majesty's law officers on the case of the Banda and Kirwee Booty is believed to have been delivered, and shortly afterwards the warrants granting the booty of Dhar, Nurgoond, &c. to the actual captors were proclaimed.

At this juncture it appears that Sir Hugh Rose, whose case had been so fully, powerfully, and advantageously advocated, applied through the Indian Government for permission to set forth, after this four years' contest, his claim to a portion of the Kirwee Booty; and this request (although General Whitlock's representatives, it will be recollected, had been refused a short delay) was granted, and a delay of more than half a year was conceded in order to allow General Rose to establish his claim: but up to the present moment that claim, it is ascertained, has not been set forth, and no memorial or application on the part of Sir Hugh Rose, or the troops serving under him, has been presented to your Majesty, or to the Lords Commissioners of your Majesty's Treasury, on the subject of the Banda and Kirwee Booty.

Moreover, your petitioner has not only to complain that the statements which had been put forward on behalf of any constructive claimants had altogether been withheld and concealed from your petitioner until the 16th March 1863, but when a part of these documents was at length produced, it was ascertained that a very important paper (viz., an extract from Sir Patrick Grant's letter of instructions to Sir G. C. Whitlock) had been placed before the authorities in a shape which has now been discovered not to be authentic.

In the month of March 1863, the Lords Commissioners of your Majesty's Treasury were pleased to furnish your petitioner with copies of memorandums (dated the 2d October 1861, 26th July 1859, and 8th February 1862) of General Lord Clyde, late Commander in Chief of your Majesty's forces in India, and a memorandum of Sir Robert Hamilton on the subject of the Banda and Kirwee Booty and the claims of the forces under Sir Hugh Rose to participate in the distribution. The scope of those memorandums is to show that the divisions under the respective orders of Sir Hugh Rose and Major General Whitlock were a combined force employed in the execution of one specific service, under instructions common to both. Your petitioner admits that if General Whitlock's force was by any official document placed under the orders of the Commander in Chief of Bengal by the Supreme Government, and if the representations of Field Marshal Lord Clyde are in other respects accurate, the Madras and Bombay divisions would be justly regarded as acting under the supreme command of that officer. But the letter of instructions, dated 17th November 1858, addressed by the Commander in Chief of the Madras Army to General Whitlock, expressly says, "You will receive your instructions direct from, and make your reports direct to, Army Head Quarters;" and these instructions, as your petitioner respectfully submits, indicate in the clearest manner that General Whitlock held a command wholly independent of and unconnected with Sir Hugh Rose and his division—a state of facts which, taken in connexion with the distinct and separate natur of the operations by which this capture was effected, shuts out, according to all precedents, any claim of Sir Hugh Rose and his division to participate as constructive captors in the Banda and Kirwee Booty now awaiting your Majesty's warrant of distribution.

Your petitioner therefore humbly prays that your Majesty will be pleased to take these circumstances into your gracious consideration, and to order that, according to established precedents in cases of this nature—more especially in the case of the Ava Prize-money, where the scheme of distribution was altered, in deference to the opinion of the law officers of the Crown, in favour of the actual captors of that booty—the whole of the prize-money resulting from the booty captured solely by Major General Whitlock's division may be granted exclusively to the troops actually engaged under his orders in the operations by which it was acquired; or, if it should be thought that there is any reasonable doubt or dispute as to the equitable claim, according to law or custom, of other troops to share in this capture, your petitioner entreats that your Majesty, with the advice of your Privy Council, will be pleased to refer the decision of this case to the judgment of your High Court of Admiralty, under the provisions of the statute in that behalf (3rd and 4th of your Majesty's reign, chapter 65, clause 22), or to the judgment of the Judicial Committee of your Majesty's Right Honourable Privy Council, under the provisions of the statute in that behalf (3rd and 4th of William 4, chapter 42, section 4).

And your petitioner will ever pray, &c.,

Chandos F. Clifton,
Late Major and Captain 12th Royal Lancers,
Prize Agent to Sir G. C. Whitlock's Division.

Council Office, Whitehall,
31 July 1863.

Gentlemen,

I AM directed by the Lord President of the Council to acknowledge the receipt of your letter of the 15th instant, addressed to myself, and enclosing a petition, addressed to the Queen's Most Excellent Majesty, by Major Chandos Clifton, Prize Agent to Major General Whitlock's division, with reference to the Banda and Kirwee Booty, praying that Her Majesty will be pleased to refer the decision of this case to the judgment of the Court of Admiralty, or to the judgment of the Judicial Committee of the Privy Council; and I am to state that neither in form nor in substance does this application appear to his Lordship to fall within the jurisdiction of Her Majesty in Council.

A similar application was argued before the Lords of the Council on the 9th and 10th July 1833, in the case of the Army of the Deccan (reported in Knapp's P. C. C., vol. II., p. 102); and the result of that discussion was that the Lords of the Council declined to entertain it, and recommended his Majesty to refer the memorials back to the Lords Commissioners of his Majesty's Treasury. This course is well established by precedent: and without the direct concurrence of the Lords Commissioners of the Treasury, the Lord President must decline to recommend Her Majesty to refer this memorial to the Judicial Committee, under the special powers of the 3 & 4 Will. 4, c. 41.

I am therefore directed to return this petition to your hands.

I am, &c.
(signed) *Henry Reeve*,
Registrar, Privy Council.

Messrs. Gregory and Co.

COPY

COPY of TREASURY MINUTE, dated 5 August 1863.

WRITE to Major Chandos Clifton that the decision communicated by the Treasury Letter of the 14th ultimo had been taken before Lord Palmerston's announcement in the House to which reference is made in his letter, and formed therefore a part of the correspondence which his Lordship undertook to lay before the House. A subsequent Minute of this Board, however, directed the suspension of any action in the matter until the correspondence shall have been laid before Parliament.

With reference to the request now preferred, that the decision on this case should be referred to the judgment of the Judicial Committee of the Privy Council, state that my Lords concur in the opinion of the Lord President, that neither in form nor in substance does this application fall within the jurisdiction of Her Majesty in Council.

My Lords have already decided on the application of the Prize Agents of General Whitlock's force for a reference of the question to the High Court of Admiralty.

Major *Clifton* to the Assistant Secretary to the Treasury.

Sir, Army and Navy Club, 15 December 1863.

I. As I have been informed that a statement with respect to the claim of the Central India Field Force to share in the booty captured at Banda and Kirwee, has recently been forwarded from his Excellency Sir Hugh Rose, late commander of that force, and now Commander in Chief in India, I beg respectfully to represent that this controversy may be indefinitely prolonged if written statements are to be received, at dates so remote from the commencement of this inquiry, from parties claiming to participate in the prize-money, and that it would not only [*as the Lords of the Treasury have substantially admitted in their Minute of 4th January* 1862] have been more equitable, but would ultimately have expedited the settlement of this question, to have submitted the matter for judicial investigation, as we have urgently solicited,* so that the actual facts might have been elicited by open and unimpeachable evidence. It is more than nineteen months ago since it was announced to me, in a letter† from the Secretary to the Treasury, that the discussion was finally closed, and that no further representations could be received. I cannot, therefore, suppose that any further statement from the parties who claim as constructive captors can at this late date be considered admissible; but if any fresh paper put forth by Sir Hugh Rose, or any other opponent, is now to be received, I shall feel much obliged (though I would earnestly deprecate any continued prolongation of this controversy) if I may be permitted to have a copy of those documents and of any other official papers which may have been forwarded by the Government of India, as I should wish to submit any observations which may be necessary with as little delay as possible: for it cannot be questioned that great inconvenience, to say the least, has arisen from a premature decision on the merits of this case, while the statements put forward by the friends of Sir Hugh Rose were unseen, and therefore unrefuted, by the advocates of Sir George Whitlock and his troops, who had never on their part observed or desired the slightest concealment as to the facts or arguments on which their claim was based.

II. I must avail myself of this opportunity to represent most respectfully, for the information of the Lords Commissioners of Her Majesty's Treasury, that on examining the papers respecting the Banda and Kirwee Booty which have recently

---

* *See* my letter dated 15 March 1863, Parliamentary Papers, No. 28. page 68. *See* also the petition to Her Majesty in Council, dated 15 July 1863. *See* also the petition to the House of Commons, signed by Major General Sir G. Whitlock, K.C.B., and four general officers of his force, presented to Parliament by Sir Stafford Northcote, Bart., on 14 July 1863.

† *See* letter from Mr. Peel to Major Chandos Clifton, dated 17 March 1862.

recently been printed by order of the House of Commons,* important errors have been discovered,† some of which are *merely typographical*,‡ and others of a more material character, which relate to precedents and to matters of fact having an essential bearing on the merits of this controversy.

III. For example, it is stated in the letter from the War Office,§ dated 20th July 1861, that the Deccan Booty was thrown into one mass, and that Sir Thomas Hislop only received the share of a subordinate officer; but the real fact is, that all the booty taken in the daily operations of the troops‖ was awarded exclusively to the actual captors, while Lord Hastings and the Grand Army shared, as constructive captors, only in that portion of the booty which consisted of bank deposits and assets of that character, or of treasure discovered at Nassick and elsewhere after the cessation of hostilities. Of the booty allotted to constructive captors, Sir Thomas Hislop, as second in command, received a larger proportion¶ than other generals of division; but it appears to me that he received the *commander-in-chief's share* of the booty taken in the daily operations of his army, so that this precedent, if I interpret it aright, like those of Serampore and of the Mahratta Booty of 1803, would entirely bar the claim not only of Sir Hugh Rose but also of the late Lord Clyde.

IV. It is further remarked by the Secretary of State for War that the booty which was awarded to the Deccan army on the principle of actual capture was acquired after considerable resistance on the part of the enemy. But this is not the fact. There was no serious resistance at Poorunder and at most of the hill-forts, and no question, I believe, was ever raised (as this statement from the War Office would imply) as to the degree of resistance encountered at any of those places where captures were made; the only distinction drawn being that which I have already indicated between booty** regularly taken in the field, which was wholly allotted to the actual captors, and that species of property†† which being previously lodged to the Peishwa's account in the treasury of the East India Company, or being afterwards secured by the civil power after the termination of the campaign, eventually accrued to the State as a war-droit of the Crown, and was therefore divided, as the general result of the war, on the principle of constructive capture, between the armies of the Marquess of Hastings and Sir Thomas Hislop. It appears to me that the fundamental error into which the Secretaries of State for War and for India have fallen on this point has chiefly led to the erroneous judgment which they have expressed on the merits of the Kirwee case.

** *Rs.* 24,29,892.-.9.
†† *Rs.*88,51,169.14.

V. It is at least desirable that these facts should be clearly ascertained, because great stress has been laid by the authorities on the precedent of the Deccan case; and this precedent, as Sir R. Palmer‡‡ has distinctly stated, rules strongly in favour of the claim which has been preferred by Sir George C. Whitlock's troops.

‡‡ *See* Sir R. Palmer's opinion, Parliamentary Papers, page 25.

VI. In the letter dated Horse Guards, 13th February 1862,§§ written by Major General Forster at the desire of His Royal Highness the Field Marshal Commanding-in-Chief, in which reference is made to a previous letter‖‖ not included in the published papers, it is remarked that His Royal Highness was led to pronounce in favour of Sir Hugh Rose and the troops under his command, in consequence of the testimony of the late Field Marshal Lord Clyde, who had a personal interest in this controversy. The Duke of Cambridge was of opinion that Lord Clyde had proved—among other erroneous statements which I could have

§§ Parliamentary Papers, No. 12, p. 28.
‖‖ Dated 20 January 1862.

---

* No. 498, dated 24 July 1863, on the motion of the Right Honourable Lord Stanley and Sir Stafford Northcote, Bart.

† In the memorial to the Treasury, dated 28 March 1863 (Parl. Papers, page 79), for "*Generals Rose and Clyde . . . were prosecuting separate campaigns*," we ought to read, "*Generals Rose and Whitlock . . . were prosecuting separate campaigns.*"

‡ At page 80 of the original edition of the Parliamentary Papers, paragraph 44 of Major Clifton's memorial, dated 28 March 1862, is wholly unintelligible; and in the map appended to the same Paper, the notes showing the real extent of Sir R. Hamilton's political authority are omitted. Colonel Erskine's letter is also wanting in this edition of the Papers.

§ Parliamentary Papers, No. 4, page 8. See Letter from Sir E. Lugard to the Under Secretary of State for India. This assertion appears in an extract from Mr. Prendergast's work on Prize and Booty; but Mr. Prendergast, it will be seen, has rectified this statement in his opinion, recorded at page 37 of the Parliamentary Papers.

‖ *See* Minute of the Lords of the Treasury, dated 16 January 1826.

¶ *See* "Distribution of the Deccan Booty," Parliamentary Papers, No. 726 (*Mr. Warburton*), ordered to be printed 11 August 1832.

have readily refuted if I had been permitted to scrutinize, as my own case had been scrutinized, his Lordship's memorandum—"firstly, that General Whitlock did not hold any independent command within the theatre of war." The evidence of Sir P. Grant and others distinctly controverts this point, and there appears to be no evidence to prove it (for the documents F. G.* appended to Lord Clyde's memorandum, have reference to entirely different operations carried on *fifteen months after the fall of Kirwee*),† except a note which had been incorporated in an extract (*marked A*) from the letter of instructions issued to Brigadier General Whitlock on assuming his command. This letter, it has now been clearly ascertained, was not written at Lord Clyde's but at Sir Patrick Grant's headquarters, and the note to which His Royal Highness has attached so much importance is not in the original letter, but appears to have been subsequently added in the course of this discussion.

See also Major Clifton's memorial, 28 March 1863, paras. 30 and 31, Parliamentary Papers, 77.

† *i. e.*, the divisions or districts through which his route *to the theatre of war* lay.‡

With regard to the second point,§ which is thought by His Royal Highness to be proved by Lord Clyde's memorandum, it appears to me to be far too vague and general in its tenor to materially affect the issue of this question, for all the other columns engaged in the Indian war have exclusively divided their own captures; yet it may be fairly predicated of any two contiguous divisions of the army, that "the operations of the one column were directly influenced by the operations of the other,"‖ as, for example, Lord Clyde himself has stated that the operations of the captors of Jhansi were directly influenced by the operations of Sir H. Roberts, and the operations of Lord Clyde, as captor of Lucknow, were directly influenced and aided by the operations of Colonel Rowcroft, who has not been permitted to share in the booty of Lucknow.

Parliamentary Papers, No. 12. page 28.

With respect to the third point,¶ which is supposed by the Field Marshal Commanding in Chief to have been established to his satisfaction, viz., "that before and after the capture of Kirwee Major General Whitlock was in direct communication and co-operation with Sir Hugh Rose:" this seems to rest chiefly on the assertion of Lord Clyde, who was not a disinterested witness. The evidence, it appears to me, avails to show that Major General Whitlock was not in direct communication with Sir Hugh Rose, and that co-operation between the two columns, as Mr. J. P. Willoughby** has observed, was found to be practically impossible.

¶ Parliamentary Papers, No. 12, page 28.

With reference to the fourth point, which merely concerns the personal claim of Lord Clyde to share as Commander in Chief, I have now to submit that if any regard is to be paid to the precedent of 1803, when Lord Lake did not share in Sir A. Wellesley's prize—or to the case of the Deccan, when Lord Hastings did not share in the booty taken in the daily operations of Sir T. Hislop's army—or to the case of Serampore, where the officer in chief command of the force did not share—or to the case of Khelat, where Sir J. Keane did not share in General Willshire's prize, the claim of Lord Clyde to share as Commander in Chief in the Kirwee Booty is completely negatived.

VII. In the letter from Major General Pears (dated India Office, 14th Aug., 1861),†† Sir C. Wood recommends that the booty taken at Dhar (like that captured at several other places in Central India) should be confined to the actual captors, and that *a part of the capturing division* which, having been detained by important operations against a neighbouring chief, was only 20 miles distant, and marching rapidly on the place, should be excluded. In the next paragraph, however, Sir C. Wood gives it as his opinion that in the Kirwee Prize, which was taken by the Madras division (*an entirely separate, distinct, and independent force*), the troops under Sir Hugh Rose, who were 200 miles distant, engaged in a distinct enterprise, and marching in an opposite direction, and also the troops under Sir H. Roberts, who were equally unconnected with the Madras force and still more remote, should be allowed to share in the captured property. As no reason is assigned for these widely conflicting judgments, and as the plea of combination or common enterprise, which is the sole or main argument set up against

†† Parliamentary Papers, page 11, No. 5.

‡ The expression "within the theatre of war," which occurs in the interpolated note, and which is adopted in the Report of His Royal Highness, is found only in Lord Clyde's memorandum, and in no other paper.

‖ "Secondly, that the operations effected by the Madras Column in Bundlecund were directly influenced by the operations of the troops under Sir Hugh Rose."—Parliamentary Papers, No. 12, page 28.

** See his Minute or Dissent, in which nearly one-half of the Council of India concurred.—Parliamentary Papers, page 48.

against our claim, clearly applies to the Dhar case, and does not apply to the Kirwee campaign, I am wholly at a loss to understand what principle, if any, can have guided the Secretary of State for India in Council in pronouncing these apparently irreconcileable opinions upon these two cases, which are only not parallel because combination is clearly made out in the Dhar case, and is as clearly contradicted in that of Kirwee.

VIII. It may be proper, moreover, to point out that the decision of the Secretary of State for India, which ruled* that the booty taken in Central India "should be shared between the three divisions commanded respectively by Major-Generals Rose, Whitlock, and Roberts" was recorded before the Prize Agents of the Madras division, or any other persons on their behalf, had had any opportunity of representing in detail the real facts and merits of the case to the authorities who were supposed to be judicially examining the question; and a similar remark applies to the reports which have been furnished by the Horse Guards and the War Office.

* 14 August 1861. Parliamentary Papers, page 11.

IX. In the letter from Major-General Pears to the Secretary of the Treasury, dated India Office, 22d March 1862, No. 1184,† there are several points which, I respectfully submit, I am bound to notice. It is asserted, in the 9th paragraph, that the political assistants with Major-General Whitlock (Major Erskine, and afterwards Major Ellis) were subordinate to Sir R. N. Hamilton, who accompanied Sir Hugh Rose. But it appears that Major Erskine was not subordinate to Sir R. Hamilton, that Major Ellis was a refugee in Sir G. Whitlock's camp, and that Mr. F. O. Mayne, the Special Commissioner of the Banda district, was the civil officer who accompanied General Whitlock throughout his operations at Kirwee, and who was entirely independent of Sir R. Hamilton.

† Parliamentary Papers, No. 15, page 41.

X. It is stated, in paragraph 14, that Sir C. Wood is not aware that the Lords of the Treasury had expressly laid it down that the principle of actual capture ought to be primarily observed in estimating prize claims, yet a declaration to that effect is recorded in the well-known Minute of the Lords of the Treasury, dated 5th February 1823,‡ at the commencement of the Deccan controversy:—

‡ Deccan Case, 4to. edition, vol. ii. page 1.

My Lords . . . are of opinion that the most just and equitable principle of distribution will be to adhere, as nearly as the circumstances of the case will admit, to the principle of actual capture, and that although they are aware that the principle of constructive capture must, under certain circumstances, in a degree be admitted, the disposition should be to limit rather than extend that principle.—Deccan Case, quarto edition, Vol. II., page 1.

XI. There are several precedents of Indian prize-money—such as the booty taken at Serampore,§ and in the Mahratta war of 1803, and in Nepaul in 1813, and at Kittoor in 1824, and at Ava in 1826, and in Coorg in 1835—which rule in favour of the principle of actual capture; yet the only precedents cited by the Secretary of State for India in Council are, first, the case of Moultan, which, as Mr. J. P. Willoughby‖ has shown, is in one important particular inapplicable, inasmuch as the Moultan force had been duly incorporated, before the capture of Moultan, in the Army of the Punjab; and, secondly, the case of Khelat, where the principle of actual capture was alone recognised.

XII. In the cases of Delhi and Lucknow, the principle of actual capture was apparently the rule which governed the distribution of the prize-money. I am not aware that any corps were permitted to share but those which were actually present at the capture, or which *belonged to those divisions*,¶ and were engaged in *those operations*, by which the capture was effected: a very different condition,

§ In the case of Serampore, which was captured without resistance, the troops which were in position on the other side of the river at the time of the capture were not allowed to share. This precedent is nearly parallel to the recent case of the Dhar Prize-money, in which none but the troops actually present were allowed to share.

‖ *See* his Minute or Dissent, dated 31 March 1862, in which nearly one-half of the Council of India concurred.—Parliamentary Papers, page 48.

¶ Mr. Willoughby's Minute shows that actual capture was the principle adopted in the case of Delhi; and it also appears that the troops at Cawnpore were a portion of the force which, under the personal command of Lord Clyde, captured Lucknow.

tion, I imagine, from that which Sir Charles Wood suggests when he states, in paragraph 26, that the precedents of Delhi and Lucknow lead him to the conclusion that "all troops who" in any way* "contribute to the capture of the property are entitled to share"—for it is scarcely possible to conceive a wider interpretation than this of the doctrine of constructive capture.

* The real words are, "*Contributed in any manner.*"

XIII. With reference to the communications received from the Government of India,† which in several important instances have negatived the claims of corps setting up a plea of joint-capture to share in the Kirwee Prize, I will only remark, in order that this letter may not be unnecessarily lengthened, that with respect to the claim put forth by Sir H. Roberts and his troops to share in the prize captured by Sir Hugh Rose, it appears that Sir W. Mansfield‡ was of opinion that this claim could not be established, as "the force under Sir H. Roberts was not in any way under the command of his Excellency Sir Hugh Rose, and did not therefore more co-operate with him than the troops concentrated under Lord Clyde on the lines of the Ganges and the Jumna. If Lord Clyde's forces share, then the Rajpootana Field Force should share, but, his Excellency believes, not otherwise." This reasoning, which is sound and clear, must equally exclude Sir Hugh Rose from sharing in the prize captured by Sir George Whitlock. It also appears from these papers that the General Prize Committee at Calcutta, considers that the claim of Sir H. Roberts is quite as good as that of Sir H. Rose, and, according to Sir W. Mansfield, the force under Lord Clyde is equally entitled, with the troops under General Roberts, to share in the Central India Prize Fund. It appears, therefore, that no satisfactory rule can be laid down, if the principle of actual capture, which has been observed in all other cases in the late Indian war, should now, in the case of Kirwee only, be arbitrarily set aside.

† Parliamentary Papers, No. 19, page 53 et ss.

‡ Parliamentary Papers, page 54, No. 3.

XIV. With regard to the position of the civil or political officers who respectively assisted Sir Hugh Rose and Sir George Whitlock, the observations which I have already made will show that there is a very serious mistake in the letter written by Mr. G. E. Cochrane to the Secretary to the Treasury, dated India Office, 22d July 1862.§ It will be remembered that Sir R. N. C. Hamilton, who was the political officer employed to accompany Sir Hugh Rose, has stated, though his statement is *sufficiently* contradicted by himself (*see* paragraph 4 of his Report), that his political authority extended over the Banda and Kirwee districts, which were really not in any way within his jurisdiction, but under the authority of the Special Commissioner, Mr. F. O. Mayne, C.B. The statements of Sir R. Hamilton and of Mr. Cochrane, with reference to this point, are directly contradicted both by Colonel Erskine and by Mr. Mayne, who asserts, in his letter dated 25th June 1862,‖ "That as civil and political officer in the Banda district (in which Kirwee is situated), I was not in any way subordinate to Sir R. N. C. Hamilton, the Governor General's Agent at Indore, attached to General Rose's camp, and that neither Sir Hugh Rose nor Sir Robert Hamilton, directly or indirectly, had anything to do with General Whitlock's operations against Kirwee." He also observes in a subsequent letter, dated 27th March 1863:¶ "*Sir R. Hamilton had no power or authority whatever to direct the operations of Sir G. Whitlock's column in my district, from the date of my arrival in that officer's camp. If he had possessed this power, what necessity would there have been for him to 'apply to the Governor General' to move up a part of General Whitlock's force*** *to Calpee?*" It is, I think, matter of regret that Mr. Cochrane's letter should have been laid before the Lords Commissioners of Her Majesty's Treasury without first allowing me the opportunity of examining the correctness of his statement.

§ Parliamentary Papers, page 65.

‖ Parliamentary Papers, No. 20, page 64.

¶ Parliamentary Papers, No. 35, page 80.

XV. I must also observe that it would, I think, have enabled their Lordships more accurately to ascertain the real facts of this case—which appear to have been much misrepresented, and to have been laid before the law officers of the Crown in some respects, as I must needs infer, incorrectly—if I could have had permission,†† several months ago, to see the Reports which have been drawn up in the Public Departments for the purpose of rectifying those statements which I have now shown to be erroneous, and others which I consider to be equally inaccurate. I pass

** *Vid* Sir R. Hamilton's memorandum of 20 March 1862.

†† In the instance of the Deccan Booty, the draft of the case submitted by the trustees to the law officers of the Crown was previously communicated to the counsel of Sir T. Hislop.—*See* the petition of Mr. Atcheson, law agent for the Army of the Deccan. Deccan Case, 4to. edition, vol. ii., and Appendix to this letter.

pass by these at present, because I cannot but hope that although, in the month of March 1863, the Lords of the Treasury appear to have arrived at a conclusion adverse to the Madras Force, on the strength of *ex parte* representations which I had not then been allowed to controvert or to inspect, their Lordships may now see reason to admit that the claim of Sir G. C. Whitlock's troops to the whole of the Banda and Kirwee Booty is founded, as the law officers of the Crown, I believe, have unanimously declared, on precedent and equity, and that their Lordships will either revert to the alternative of a judicial trial of this case, as contemplated in their Minute dated 4th January 1862, or that they will think it right to advise Her Majesty to grant this property, exclusively, to the force which actually captured it, after a gallant action and under severe suffering, in the hottest days of an Indian midsummer. As the essential facts on which this claim is founded have in no respect been impugned, and as the law officers of the Crown have pronounced with remarkable unanimity in our favour, notwithstanding the very grave disadvantages under which our case came before them, it seems to me incredible that this controversy can be decided against Sir G. Whitlock and his troops without a fair and open trial, more especially as it appears, from the Treasury Minute already quoted, dated 4th January 1862,* that if the main facts of the case had been (*as they have not been*) controverted, and if the law officers of the Crown had been (*as they have not been*) divided in opinion, the Lords of the Treasury would have thought it equitable to submit the matter for judicial investigation to the High Court of Admiralty. I cannot therefore believe it possible, when the leading facts on which I rested the claims of the Madras troops have been fully substantiated, and when the law officers have one and all determined in our favour, that the Lords of the Treasury will think proper to record an adverse decision, and to refuse the alternative of a judicial investigation.

Parliamentary Papers, page 27.

XVI. I will only further observe, that as the Lords of the Treasury, in their Minute of 4th January 1862,† have not merely recognised the analogy between naval and military captures, but have even gone so far as to seek for a principle of distribution, in this case, from the regulation respecting booty captured by revenue cruisers, enacted by the Statute 33 Geo. III. c. 66 s. 10, which Lord Stowell quoted with approbation in the case of the *Helen*,‡ I must beg to call attention to a dictum of that great jurist, which appears to be far more applicable to the conditions of this controversy.

Parliamentary Papers; Ibid.

‡ Robinson's Admiralty Reports, vol. III., pp. 224, 229.

"The gentlemen have resorted," said Lord Stowell, in the case of the *Vryheid*, "to the general principle of a common enterprise. Common enterprise is a general principle, and it has been contended that where ships are associated in a common enterprise, that circumstance is sufficient to entitle them to share equally and alike in all prizes that are made, but certainly this cannot be maintained to the full extent of these terms. Many cases might be quoted in which ships so associated would not share. Suppose a case, that ships going out on the same enterprise, and using all their endeavours to effectuate their purpose, should be separated by a storm or otherwise, no one would then pretend that they should share in each other's captures."—The "Vryheid," 2, Robinson's Admiralty Reports, page 27.

XVII. Admitting, as we must, the proposition to which the highest authorities have assented, that the rules which govern the distribution of naval prize are not inapplicable to the principles of military booty, it by no means seems so clear that any practical analogy can be drawn between captures made by the revenue cruisers, which are ships not regularly commissioned to make war, and the booty taken during regular hostilities by the duly commissioned corps of the most loyal army in British India, which served under Sir G. Whitlock. The booty captured by the vessels of the Revenue Department was placed at the absolute disposal of the Crown by a special Act of the Legislature, because it was found that the temptation to make rich prizes was apt to divert the revenue cruisers from their normal duties. I would respectfully hope that this consideration cannot in any way be thought to apply to the gallant force which fought in India under Sir G. Whitlock, nor to those operations which earned for that officer and his troops the thanks of the Imperial Parliament.

XVIII. Recurring, however, to the dictum of Lord Stowell, which I have just cited, I would beg to point out, for the consideration of the Lords Commissioners

sioners of the Treasury, that even if combination or a common enterprise could be proved between the forces of Sir Hugh Rose and Sir George Whitlock, this circumstance alone, if the forces were afterwards separated, "would not entitle them to share equally and alike in each other's captures." But the argument on our side has always gone further than this, for I have most clearly proved that there was no common enterprise, or special conjunction, or actual co-operation between Sir Hugh Rose and Sir George Whitlock. The evidence which proves this assertion has not been shaken, while the evidence set forth by our opponents has been seriously impugned.

XIX. Upon reconsideration of all the facts which have now been established, I am persuaded that the Lords of the Treasury must necessarily arrive at the conclusion, for which I have so long and earnestly contended, that no combination of these two columns either did or could, under the circumstances of the case, happen in the field, and therefore, to use the argument successfully employed in a very similar case by Sir Thomas Hislop, their Lorships cannot resolve to decree that their subsequent union, *on paper*, shall attain its object of confounding their claims to prize.

I have also the honour to request a copy of the unpublished letter from the Horse Guards to the War Office, dated 20th January 1802, which is referred to in Major-General Forster's letter,* under date 13th February 1862.

* *See* Enclosure to Parliamentary Papers, No. 12, page 28.

I have, &c.
Chandos F. Clifton,
Late Major and Captain H.M. 12th Royal Lancers,
Prize Agent to Major-General Sir G. C. Whitlock's Division.

APPENDIX.

(Immediate.)

COPY of Mr. *Maule's* Letter (Deccan case), to *W. Harrison*, Esq., Counsel for Sir T. Hislop.

My dear Sir, Lincoln's Inn, 4 July 1823.

THE Trustees appointed by Her Majesty's Warrant for the distribution of the Deccan Prize, have been pleased to direct me to entrust the enclosed to the law officers of the Crown for their opinion, having first communicated the case to Lieutenant General Sir Thomas Hislop.

As I know that despatch is of great importance, I take the liberty of forwarding it to you in the first instance, conceiving that if I were to communicate with Sir Thomas Hislop, he would refer the case, in a more circuitous route, to yourself and Dr. Jenner.

I have to request that no time may be lost in returning to me the case, and acquainting me whether Sir Thomas Hislop has any observations to make respecting it.

I am, &c.
(signed) *Geo. Maule.*

W. Harrison, Esq., &c. &c.

COPY of TREASURY MINUTE, dated 6 January 1864.

LET a copy of the communication from Sir H. Rose to Lord Palmerston, enclosed in the letter from the India Office of 8th August last, be sent as requested.

BANDA AND KIRWEE BOOTY.

COPY of further CORRESPONDENCE on the subject of the BANDA and KIRWEE BOOTY, between the India Office and the Treasury Board (in continuation of Parliamentary Paper, No. 498, of Session 1863).

(*Lord Stanley.*)

Ordered, by The House of Commons, *to be Printed*,
12 *February* 1864.

[*Price* 9 *d.*]

Under 12 *oz.*

EAST INDIA (REMUNERATIVE WORKS).

RETURN to an Address of the Honourable The House of Commons, dated 1 June 1865;—*for*,

"ABSTRACT STATEMENT of REMUNERATIVE WORKS in *Madras* from 1857–58 to 1862–63, published in 'Supplement to the Gazette of India, Calcutta, 7 January 1865.'"

India Office,
2 June 1865.

W. T. THORNTON,
Secretary Public Works Department.

ABSTRACT STATEMENT of REMUNERATIVE WORKS in *Madras* from 1857–58 to 1862–63.

NAME OF WORK.	Year.	CAPITAL. Estimated Value of Works.	REVENUE. Net Income for the Year, after Paying 4 per Cent. Interest on Capital. Amount.	Rate per Cent. on Capital.	Net Charge for the Year, including Payment of 4 per Cent. Interest on Capital. Amount.	Rate per Cent. on Capital.	AGGREGATE FINANCIAL RESULT. Profit.	Loss.
		Rs.	*Rs.*		*Rs.*		*Rs.*	*Rs.*
(1.) Godavery Anicut with subsidiary works	1857–58	32,61,105	3,68,240	11·3	- -	- -	40,32,058	—
	1858–59	31,78,116	6,52,705	20·6	- -	- -	44,80,311	—
	1859–60	32,11,683	9,54,824	29·7	- -	- -	54,01,867	—
	1860–61	32,07,372	18,06,376	56·3	- -	- -	71,74,256	—
	1861–62	32,38,357	13,83,441	42·7	- -	- -	85,23,413	—
	1862–63	33,77,504	14,59,921	43·2	- -	- -	94,98,398	—
(2.) Kistna Anicut	1857–58	13,26,007	68,650	5·2	- -	- -	2,245	—
	1858–59	14,25,312	69,461	4·9	- -	- -	52,826	—
	1859–60	15,44,309	1,50,526	9·7	- -	- -	1,72,155	—
	1860–61	16,31,721	1,27,744	7·8	- -	- -	2,66,208	—
	1861–62	17,28,457	1,74,510	10·1	- -	- -	4,04,605	—
	1862–63	19,12,699	2,11,500	11·05	- -	- -	5,77,335	—
(3.) Pennair Anicut	1857–58	1,24,634	- -	- -	4,230	3·3	13,118	—
	1858–59	1,29,781	8,144	6·2	- -	- -	- -	28,738
	1859–60	1,74,548	- -	- -	8,387	4·8	- -	39,475
	1860–61	2,19,929	- -	- -	10,178	4·6	- -	49,653
	1861–62	2,54,728	- -	- -	958	0·3	- -	50,611
	1862–63	2,55,513	- -	- -	1,760	0·6	- -	52,371
(4.) Buchagoundanahully Anicut	1858–59	11,477	- -	- -	466	4·0	- -	6,054
	1859–60	11,964	- -	- -	821	6·9	- -	6,875
	1860–61	11,964	985	8·4	- -	- -	- -	5,910
	1861–62	11,964	875	7·3	- -	- -	- -	5,035
	1862–63	11,964	900	7·5	- -	- -	- -	3,412
(5.) Palar Anicut in Madras	1858–59	38,953	4,180	10·7	- -	- -	25,193	—
	1859–60	39,283	5,596	14·2	- -	- -	30,729	—
	1860–61	39,462	- -	- -	1,571	4·0	29,160	—
	1861–62	39,264	- -	- -	1,578	2·6	27,582	—
	1862–63	1,96,413	5,777	4·2	- -	- -	33,339	—
(6.) Coratoor and Casaveram Anicut	1858–59	38,111	- -	- -	164	·5	47,506	—
	1859–60	36,746	26,559	72·2	- -	- -	74,065	—
	1860–61	36,746	- -	- -	2,571	7·0	71,494	—
	1861–62	36,746	- -	- -	1,657	4·5	69,837	—
	1862–63	36,746	6,753	18·3	- -	- -	76,590	—
(7.) Palar Anicut in North Arcot	1857–58	5,15,977	- -	- -	17,010	3·2	- -	38,866
	1858–59	5,39,946	- -	- -	12,366	2·2	- -	48,536
	1859–60	5,39,946	- -	- -	18,830	3·4	- -	67,366
	1860–61	5,43,213	- -	- -	17,140	3·1	- -	84,506
	1861–62	5,79,391	- -	- -	18,966	3·2	- -	1,03,472
	1862–63	6,39,213	- -	- -	16,584	2·5	- -	1,20,056

ABSTRACT STATEMENT of Remunerative Works in *Madras* from 1857-58 to 1862-63—*continued.*

NAME OF WORK.	Year.	CAPITAL. Estimated Value of Works.	REVENUE. Net Income for the Year, after Paying 4 per Cent. Interest on Capital. Amount.	Rate per Cent. on Capital.	Net Charge for the Year, including Payment of 4 per Cent. Interest on Capital. Amount.	Rate per Cent. on Capital.	AGGREGATE FINANCIAL RESULT. Profit.	Loss.
		Rs.	*Rs.*		*Rs.*		*Rs.*	*Rs.*
(8.) Ponnie Anicut	1857-58	47,481	- -	- -	2,610	5·4	- -	141
	1858-59	47,481	- -	- -	872	1·8	- -	4,380
	1859-60	47,762	- -	- -	1,796	3·7	- -	6,126
	1860-61	47,762	- -	- -	2,633	5·5	- -	8,758
	1861-62	57,763	- -	- -	2,324	4·0	- -	11,082
	1862-63	83,009	- -	- -	1,291	1·5	- -	12,373
(9.) Cheyar Anicut	1857-58	12,088	- -	- -	950	7·	5,782	—
	1858-59	12,088	2,134	17·6	- -	- -	17,183	—
	1859-60	12,088	635	5·2	- -	- -	17,818	—
	1860-61	46,018	- -	- -	1,986	4·3	7,829	—
	1861-62	47,518	- -	- -	1,575	3·3	6,254	—
	1862-63	47,518	- -	- -	391	0·8	5,863	—
(10.) Lower Coleroon Anicut, in South Arcot	1857-58	1,16,469	3,34,528	287·2	- -	- -	46,66,589	—
	1858-59	1,16,469	3,72,098	319·4	- -	- -	49,38,687	—
	1859-60	1,16,469	3,30,158	283·4	- -	- -	52,68,845	—
	1860-61	1,16,469	3,67,786	315·8	- -	- -	56,36,630	—
	1861-62	1,16,469	3,98,316	341·9	- -	- -	60,34,946	—
	1862-63	1,16,469	3,99,244	342·7	- -	- -	64,34,190	—
(11.) Vellar Anicut	1857-58	82,156	61,534	74·3	- -	- -	5,28,824	—
	1858-59	82,156	69,017	84·0	- -	- -	5,97,841	—
	1859-60	82,156	70,348	85·6	- -	- -	6,68,189	—
	1860-61	82,156	81,944	100·3	- -	- -	7,50,133	—
	1861-62	82,156	94,011	114·4	- -	- -	8,44,144	—
	1862-63	82,156	1,01,803	123·9	- -	- -	9,45,947	—
(12.) Ragavaiyen Channel	1857-58	8,023	29,284	365 0	- -	- -	2,19,508	—
	1858-59	7,443	30,012	403·2	- -	- -	2,48,940	—
	1859-60	7,443	24,463	328·6	- -	- -	2,73,403	—
	1860-61	7,443	30,330	407·5	- -	- -	3,03,733	—
	1861-62	7,443	30,762	413·3	- -	- -	3,34,495	—
	1862-63	62,281	32,087	51·5	- -	- -	3,66,582	—
(13.) Teruvadi Anicut	1857-58	11,455	25,130	219·3	- -	- -	2,27,568	—
	1858-59	11,455	24,975	218·0	- -	- -	2,52,543	—
	1859-60	11,455	20,591	179·7	- -	- -	2,73,134	—
	1860-61	11,455	30,403	265·4	- -	- -	3,03,537	—
	1861-62	11,455	29,437	256·9	- -	- -	3,32,974	—
	1862-63	11,455	30,788	268·7	- -	- -	3,63,762	—
(14.) Vicravandi Anicut	1857-58	13,716	1,583	11·5	- -	- -	- -	709
	1858-59	13,716	1,625	11 8	- -	- -	916	—
	1859-60	13,716	2,531	18·4	- -	- -	3,447	—
	1860-61	13,716	4,324	31·5	- -	- -	7,771	—
	1861-62	13,716	4,508	32·8	- -	- -	12,279	—
	1862-63	13,716	4,733	34·5	- -	- -	17,012	—
(15.) Upper Coleroon Anicut, in Tanjore	1857-58	2,39,866	15,93,239	664·2	- -	- -	76,96,199	—
	1858-59	2,39,865	17,50,902	729·9	- -	- -	94,47,101	—
	1859-60	2,39,865	5,06,101	210·9	- -	- -	99,53,203	—
	1860-61	2,39,865	5,19,003	216·4	- -	- -	1,04,72,206	—
	1861-62	2,39,865	5,72,050	238·4	- -	- -	1,10,44,256	—
	1862-63	2,39,866	6,37,533	265·7	- -	- -	1,16,81,808	—
(16.) Lower Coleroon Anicut, in Tanjore	1857-58	2,25,190	5,802	2·6	- -	- -	1,61,111	—
	1858-59	2,25,190	- -	- -	20,375	9·0	1,40,739	—
	1859-60	2,25,190	- -	- -	2,793	1·2	1,37,945	—
	1860-61	2,25,190	4,969	2·1	- -	- -	1,42,914	—
	1861-62	2,25,160	10,308	4·5	- -	- -	1,53,222	—
	1862-63	2,25,190	10,757	4·7	- -	- -	1,63,980	—

ABSTRACT STATEMENT of Remunerative Works in *Madras* from 1857-58 to 1862-63—*continued.*

NAME OF WORK.	Year.	CAPITAL. Estimated Value of Works.	REVENUE. Net Income for the Year, after Paying 4 per Cent. interest on Capital. Amount.	Rate per Cent. on Capital.	Net Charge for the Year, including Payment of 4 per Cent. Interest on Capital. Amount.	Rate per Cent. on Capital.	AGGREGATE FINANCIAL RESULT. Profit.	Loss.
		Rs.	*Rs.*		*Rs.*		*Rs.*	*Rs.*
(17.) Kaniempolliem Anicut	1857-58	42,970	- -	- -	1,080	2·5	- -	31,218
	1858-59	42,970	- -	- -	1,681	3·9	- -	32,899
	1859-60	42,970	- -	- -	1,953	4·5	- -	34,852
	1860-61	42,970	- -	- -	2,230	5·2	- -	37,082
	1861-62	42,970	- -	- -	1,787	4·1	- -	38,869
	1862-63	42,970	- -	- -	1,248	2·9	- -	40,117
(18.) Pennamakal Dam -	1857-58	28,718	253	·8	- -	- -	- -	3,871
	1858-59	23,468	1,711	7·2	- -	- -	- -	5,645
	1859-60	22,851	490	1·9	- -	- -	- -	5,813
	1860-61	22,233	- -	- -	6,968	31·4	- -	13,390
	1861-62	21,615	- -	- -	4,541	21·	- -	18,568
	1862-63	20,998	1,489	7·	- -	- -	- -	17,686
(19.) Pundyar Anicut -	1861-62	46,850	2,616	5·5	- -	- -	9,170	—
	1862-63	46,850	434	0·9	- -	- -	9,604	—
(20.) Eastern Coast Canal -	1858-59	4,97,417	1,946	·3	- -	- -	4,39,708	—
	1859-60	4,97,417	- -	- -	7,576	1·5	4,32,132	—
	1860-61	4,97,417	- -	- -	8,867	1·8	4,23,265	—
	1861-62	5,04,091	- -	- -	4,421	0·8	4,18,844	—
	1862-63	5,04,091	2,483	·4	- -	- -	4,21,231	—
(21.) Chaddapully Channel, in the District of Coimbatore - -	1862-63	24,898	- -	- -	3,928	15·7	- -	19,021
(22.) Pulingaroyen Channel, in the District of Coimbatore - -	1862-63	15,284	- -	- -	8,301	54·3	- -	35,821
(23.) Travancottah Channel, in the District of Coimbatore - -	1862-63	11,126	- -	- -	2,074	18·6	- -	2,074

REMARKS.

The net income has been calculated by assuming, as the standard of comparison, the average of the revenue derived from the land capable of irrigation by the anicut for five years previous to the construction of the work, and setting down all excess above that average, less the cost of repairs, interest on capital, and other charges as the increase due to the anicut in subsequent years. In thus fixing the income, other causes independent of irrigation, such as improved cultivation, increase of population, &c., have not been taken into account.

Further, this net annual profit includes the assessment of the land, as well as the value of the water actually supplied, and attributes all increase in the land revenue to the work, being so far a more favourable mode of calculation than is strictly correct; but on the other hand, it leaves out of account all increase in other sources of revenue, viz., salt, abkarry, &c., though these may be affected by the improved condition of the people, consequent on the more profitable character of irrigated cultivation.

Where a work has been kept in proper repair, and all the maintenance and conservancy charges added to such expenses, no deduction has been made on account of deterioration by wear and tear from the capital expended in the work.

(signed) *R. Strachey*, Colonel, R. E.,
Secy. to Govt. of India, P. W. D.

EAST INDIA (REMUNERATIVE WORKS).

ABSTRACT STATEMENT of REMUNERATIVE WORKS in *Madras*, from 1857-58 to 1862-63, published in the "Supplement to the Gazette of India, Calcutta, 7th January 1865."

(*Mr. John Benjamin Smith.*)

Ordered, by The House of Commons, *to be Printed,*
8 *June* 1865.