

# LIST OF OFFICERS

IN

# THE SURVEY DEPARTMENTS

CORRECTED TO

1st JULY 1889.



CALCUTTA :  
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1889.



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Classified List of Officers of the Senior Division, Survey of

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of appointment to the present grade or post.	* Period of service counting towards pension on 1st July 1889.	
								Y. M. D.	Y. M. D.
<b>Administrative Staff.</b>									
1	1	Col. H. R. Thuillier, R.E.	G. T. S.	P. H.	51 3 5	May 21, 1859	Feb. 19, 1887	. . .	
1	1	Col. J. Sconce, S.C.	Rev.	P. H.	53 2 29	Oct. 21, 1859	Jan. 1, 1879	. . .	
1	1	Major General O. T. Hatg, R.E.	G. T. S.	Not passed	54 8 20	Sep. 22, 1859	Feb. 19, 1887	. . .	
		Lt.-Col. G. Strahan, R.E.	Topogl.	P. H.	50 4 24	July 2, 1862	Nov. 15, 1888	. . .	
		Lt.-Col. C. Strahan, R.E.					May 23, 1884	. . .	
		Col. J. Waterhouse, S.C.					Apl. 1, 1874	. . .	
		Lt.-Col. M. W. Rogers, R.E.					May 7, 1889	. . .	
<b>SENIOR DIVISION.</b>									
<b>Deputy Superintendents.</b>									
<b>1st GRADE.</b>									
3	1	Lt.-Col. G. Strahan, R.E.	Topogl.	P. H.	50 4 24	July 2, 1862	Nov. 10, 1884	. . .	
	2	Col. D. Macdonald, S.C.	Rev.	P. H.	53 6 21	Dec. 19, 1860	Jan. 1, 1887	. . .	
	3	Lt.-Col. C. Strahan, R.E.	Topogl.	Not passed	46 1 25	Sep. 26, 1863	Apl. 26, 1889	. . .	
<b>2nd GRADE.</b>									
8	1	Col. W. Barron, S.C.	Rev.	P. H.	51 5 15	June 27, 1862	Aug. 7, 1884	. . .	
	2	Col. H. C. B. Tanner, Bombay S.C.	Rev.	P. H.	53 11 15	Oct. 10, 1862	Oct. 1, 1884	. . .	
	3	Col. A. Pullan, S.C.	G. T. S.	P. H.	53 3 0	Jan. 18, 1863	Nov. 28, 1884	. . .	
	4	Col. W. H. Wilkins, S.C.	Rev.	P. H.	47 8 26	April 27, 1863	Jan. 1, 1887	. . .	
	5	Lt.-Col. J. E. Sandeman, S.C.	Rev.	P. H.	45 9 29	Oct. 6, 1864	Feb. 19, 1887	. . .	
	6	Bt. Lt.-Col. T. H. Holdich, R.E.	Topogl.	L. S.	46 4 16	July 23, 1866	March 26, 1889	. . .	
	7	Col. J. Waterhouse, S.C.	Topogl.	P. H.	46 11 8	July 23, 1866	Apl. 26, 1889	. . .	
	8	Lt.-Col. M. W. Rogers, R.E.	G. T. S.	L. S.	47 4 28	July 30, 1866	June 28, 1889	. . .	

\* Applies only to officers who are under the Unconventional Service Rules.

India Department, as it stood on 1st July 1889.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
1	3,000 0 0	. . . . .	Surveyor General of India.	On privilege leave for 3 months from 11th April 1889.
1	2,800 0 0	. . . . .	Deputy Surveyor General in charge, Revenue Branch, Calcutta.	Officiating Surveyor General of India from 11th April 1889, Simla.
1	. . . . .	. . . . .	On furlough . . . . .	For 1 year and 4 days, from 1st December 1888.
1	2,000 0 0	. . . . .	Offg. Deputy Surveyor General in charge, Trigonometrical Branch, Dehra Dun.	
1	2,200 0 0	. . . . .	Assistant Surveyor General	Officiating Deputy Surveyor General, in charge, Revenue Branch, and in charge, Engraving and Cartographic Offices, Calcutta.
2	1,300 0 0	(a) Special local R200	Assistant Surveyor General	In charge, Lithographic and Photographic Offices, Head Quarters, Calcutta.
3	1,543 8 0	(b) Presidency, R60	Assistant Surveyor General	In charge Correspondence and Mathematical Instrument Offices, Head Quarters, Calcutta.
1	. . . . .	. . . . .	Offg. Deputy Surveyor General in charge, Trigonometrical Branch.	
2	1,600 0 0	. . . . .	In charge No. 1 (Punjab).	
3	. . . . .	. . . . .	Head Quarters, Calcutta . . . . .	Officiating Deputy Surveyor General in charge, Revenue Branch.
1	. . . . .	. . . . .	On furlough . . . . .	For 1 year and 275 days, from 20th February 1889.
2	1,600 0 0	. . . . .	In charge No. 16 (Himalaya)	Officiating Deputy Superintendent, 1st Grade.
3	1,300 0 0	. . . . .	In charge No. 17 (Bombay Forests).	
4	1,300 0 0	. . . . .	In charge No. 3 (Nagpur).	
5	1,300 0 0	. . . . .	In charge No. 5 (Jhansi).	
6	1,482 10 0	. . . . .	In charge No. 15 Party (Baluchistan).	
7	. . . . .	. . . . .	Head Quarters, Calcutta . . . . .	Assistant Surveyor General.
8	. . . . .	. . . . .	Head Quarters, Calcutta . . . . .	Assistant Surveyor General.

(a) Department of Agriculture, Revenue and Commerce Memorandum No. 731, dated 31st October 1879.  
 (b) Ditto ditto ditto ditto ditto No. 213, dated 14th May 1878.

## Classified List of Officers of the Senior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st July 1889.
					Y. M. D.			Y. M. D.
<b>SENIOR DIVISION</b> —contd.								
<b>Deputy Superintendents—contd.</b>								
<b>3RD GRADE.</b>								
10	1	Major J. Hill, R.E.	G. T. S.	Not passed	48 6 7	Dec. 18, 1866	Oct. 1, 1884	...
	2	W. H. Cole, M.A.	G. T. S.	H. S.	51 6 16	{ Jan. 3, 1867 <sup>A</sup> Sep. 1, 1867 <sup>B</sup> }	Nov. 28, 1884	21 0 8
	3	Lt.-Col. A. W. Baird, R.E., F.R.S., A.I.C.B.	G. T. S.	P. H.	46 8 5	Dec. 4, 1868	Mar. 10, 1886	...
	4	Major J. R. McCullagh, R.E.	G. T. S.	L. S.	47 3 5	Feb. 12, 1869	Jan. 1, 1887	...
	5	Col. J. R. Wilmer, S.C.	Topogl.	H. S.	48 5 12	Aug. 24, 1869	Feb. 19, 1887	...
	6	Lt.-Col. S. H. Cowan, S.O.	Rev.	P. H.	47 9 16	Jan. 19, 1867	July 17, 1888	...
	7	Lt.-Col. E. H. Steel, S.O.	Rev.	H. S.	48 1 26	Feb. 1, 1867	Mar. 26, 1889	...
	8	Lt.-Col. H. S. Hutchinson, S.O.	Rev.	P. H.	49 2 20	Aug. 13, 1867	Apl. 26, 1889	...
	9	E. C. Barrett	Rev.	H. S.	45 2 16	Dec. 30, 1868	May 5, 1889	24 6 11
	10	Lt.-Col. R. Beavan, S.O.	Rev.	P. H.	45 9 11	July 17, 1868	June 28, 1889	...
<b>4TH GRADE.</b>								
11	1	G. H. Cooke	Rev.	L. S.	44 7 1	Apl. 1, 1870	Oct. 22, 1885	20 6 16
	2	E. J. Jackson	Rev.	H. S.	44 7 26	Nov. 5, 1868	Oct. 26, 1885	19 3 7
	3	Major St. G. C. Gore, R.E.	G. T. S.	Not passed	40 4 8	Apl. 11, 1873	Mar. 10, 1886	...
	4	Major J. R. Hobday, S.O.	Topogl.	H. S. and Colloquial Burmese.	38 11 16	Sep. 11, 1874	Jan. 1, 1887	...
	5	Capt. F. B. Longe, R.E.	†	Not passed	32 8 2	Mar. 15, 1880	Apl. 11, 1888	...
	6	Capt. R. A. Wahab, R.E.	†	H. S.	34 2 18	Jan. 8, 1883	July 17, 1888	...

\* Applies only to officers who are under the Uncovenanted Service Rules.  
† Joined the department after the amalgamation on the 1st January 1878.

## Department, as it stood on 1st July 1889—continued.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
	R a. p.			
1	...	...	On furlough	For 1 year and 5 months, from 18th May 1888.
2	1,300 0 0	...	In charge Computing	Officiating Deputy Superintendent, 2nd Grade. (A) Appointed on probation. Exclusive of service as Professor of Mathematics, Government College, Agra, from 14th April 1862 to end of February 1864. (B) Brought on the strength of the Department.
3	...	...	On deputation	Officiating Mint Master, Calcutta from 7th May 1889.
4	1,482 10 0	...	In charge, No. 19 (Madras)	Officiating Deputy Superintendent, 2nd Grade.
5	1,100 0 0	(a) Inclusive of personal, R100.	In charge No. 14 (Hoshangabad)	
6	1,100 0 0	(a) Inclusive of personal, R100, and (b) Presidency house-rent R60.	In charge No. 8 (Bengal and Orissa).	
7	1,100 0 0	(a) Inclusive of personal, R100.	In charge No. 2 (Bilaspur).	
8	1,100 0 0	(a) Inclusive of personal, R100.	In charge No. 10 (Bombay).	
9	1,000 0 0	...	In charge No. 6 (Assam)	Joined the Junior Division, 18th November 1882. Sick leave for 1 month from 20th June 1889. Furlough from 27th August 1880 to 12th July 1882.
10	1,100 0 0	(a) Inclusive of personal, R100.	In charge No. 20 (Burma).	
1	1,000 0 0	...	In charge No. 9 (Chanda)	Officiating Deputy Superintendent, 3rd Grade. Joined the Junior Division, 6th December 1865. Furlough for 2 years, from 22nd May 1880; extension for 12 days without pay.
2	1,000 0 0	...	In charge No. 12 (Saugor)	Officiating Deputy Superintendent, 3rd Grade. Joined the Junior Division, 26th September 1864. Sick leave from 4th July to 3rd August and from 19th August to 30th November 1867. Europe, medical certificate, from 23rd July 1871 to 10th November 1872. Furlough to Europe from 1st May 1880 to 3rd December 1881, and from 12th November 1885 to 23rd October 1886.
3	1,182 10 0	...	In charge Drawing Section, Dehra Dun.	Officiating Deputy Superintendent, 3rd Grade.
4	1,000 0 0	(c) Upper Burma, R100.	In charge No. 21 (Upper Burma).	Officiating Deputy Superintendent, 3rd Grade.
5	...	...	On furlough	For 18 months, from 16th November 1888.
6	...	...	On Military duty in Europe.	

(a) Department of Revenue and Agriculture, No. 393 S., dated 15th September 1882.  
(b) Department of Agriculture, Revenue, and Commerce Memorandum No. 213, dated 14th May 1878.  
(c) Department of Finance and Commerce, No. 759, dated 11th February 1886.

Classified List of Officers of the Senior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	Period of service counting towards pension on 1st July 1889.
					Y. M. D.			Y. M. D.
<b>SENIOR DIVISION</b>								
<i>—contd.</i>								
<b>Deputy Superintendents—concl'd.</b>								
<b>4TH GRADE—concl'd.</b>								
11	7	W. H. Patterson . . . .	Rev.	L. S.	50 9 6	Jan. 22, 1883	Feb. 1889	27 5-15
	8	F. W. Kelly . . . . .	Rev.	H. S.	55 10 5	Feb. 22, 1883	Mar. 26, 1889	33 65A
	9	Capt. H. M. Jackson, B.E.	†	H. S.	31 3 5	June 11, 1883	Apl. 26, 1889	. . .
	10	" G. B. Hodgson, S.C.	†	H. S.	30 8 4	Sep. 12, 1883	May 5, 1889	. . .
	11	" S. G. Burrard, B.E.	†	L. S.	28 10 19	Sep. 2, 1884	June 28, 1889	. . .
<b>Assistant Superintendents.</b>								
<b>1ST GRADE.</b>								
11	1	E. C. Ryall . . . . .	G. T. S.	Not passed	51 5 15	Apl. 1, 1873	Feb. 1, 1883	34 1 10
	2	A. D'Souza . . . . .	G. T. S.	Not passed	51 10 20	Oct. 1, 1884	Jan. 1, 1887	28 715B
	3	G. B. Scott . . . . .	Rev.	H. S.	44 11 1	Nov. 10, 1884	Feb. 19, 1887	26 2 0
	4	J. Eccles, M.A. . . . .	†	Not passed	31 9 23	May 30, 1885	Apl. 11, 1888	4 1 2
	5	Lieut. J. M. Fleming, S.C.	†	H. S.	30 10 19	July 3, 1885	July 17, 1888	. . .
	6	T. Archdale Pope . . . .	†	Telegu, Tamil.	31 0 10	Oct. 1, 1886	Feb. 15, 1889	2 3 0C
	7	Lieut. T. F. B. Renny-Tallyour, B.E.	†	. . . . .	28 0 23	Mar. 23, 1888	Mar. 26, 1889	. . .
	8	Lieut. R. J. H. L. Mackenzie, B.E.	†	. . . . .	25 2 18	Mar. 23, 1888	Mar. 27, 1889	. . .
	9	F. Grant . . . . .	Rev.	. . . . .	53 3 6	May 16, 1889	June 28, 1889	32 11 21
	10	Vacant.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	11	Do.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
6	<b>2ND GRADE.</b>							
	1	Lieut. W. J. Bythell, B.E.	†	. . . . .	. . . . .	May 29, 1889	May 29, 1889	. . . . .
	2	Vacant.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	3	Do.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	4	Do.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	5	Do.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
	6	Do.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .

\* Applies only to officers who are under the Uncovenanted Service Rules.  
† Joined the Department after the amalgamation on the 1st January 1879.

Department, as it stood on 1st July 1889—concluded.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
	<i>E a. p.</i>			
7	850 0 0	. . . . .	In charge No. 11 (Nimar)	Joined the Junior Division, 1st December 1851. Leave on private affairs from 1st May to 31st August 1862. Ditto to Europe from 20th July 1872 to 18th January 1873, and from 11th July 1879 to 2nd January 1880.
8	850 0 0	(a) Burma, R150	In charge No. 7 (Thongwa)	Joined the Junior Division, 4th December 1854. (A) Service reckoned under old rules. Special leave for 4 months from 21st January 1858, which was overstayd from 21st May to 18th August 1858. Commencement of second service, 17th August 1858. Medical leave from 13th November 1886 to 9th May 1887. Extension of 1 year's service from 27th August 1888.
9	990 0 0	(b) Upper Burma, R100.	No. 21 (Upper Burma)	
10	. . . . .	. . . . .	On furlough	For 2 years from 4th March 1889.
11	990 0 0	. . . . .	In charge 22, 23 and 24 Parties	
1	600 0 0	. . . . .	No. 24 (Upper Burma)	Joined the Junior Division, 25th April 1855. Two hundred and twenty-five days' sick leave included under old rules. Sick leave for 28 days, from 10th December 1889, excluded.
2	850 0 0	. . . . .	In charge No. 13 (Betul)	Officiating Deputy Superintendent, 4th Grade. Joined the Junior Division, 19th February 1866. (B) Exclusive of 349 days' furlough, 77 days' leave on medical certificate, and 33 days' preparatory leave under new rules.
3	850 0 0	. . . . .	In charge No. 4A (Srinagar)	Officiating Deputy Superintendent, 4th Grade. Joined the Junior Division, 1st May 1863.
4	850 0 0	. . . . .	22 and 23 Parties (Astronomical 1 and 11).	Officiating Deputy Superintendent, 4th Grade.
5	850 0 0	. . . . .	No. 3 (Nagpur)	Ditto ditto.
6	850 0 0	(c) Presidency, R80	Head Quarters, Calcutta	Officiating Deputy Superintendent, 4th Grade. (C) In charge, Map Record and Issue Office, Head Quarters, Calcutta. Excludes previous service under Madras Government.
7	920 0 0	(b) Upper Burma, R100.	No. 21 (Upper Burma)	Officiating Deputy Superintendent, 4th Grade. Joined appointment 1st April 1888.
8	920 0 0	(a) Baluchistan, R100	No. 15 (Baluchistan).	Officiating Deputy Superintendent, 4th Grade. Joined appointment 28th March 1888.
9	600 0 0	. . . . .	No. 2 (Bilaspur)	Joined the Junior Division, 11th July 1850.
10	. . . . .	. . . . .	. . . . .	. . . . .
11	. . . . .	. . . . .	. . . . .	. . . . .
1	570 0 0	. . . . .	No. 18 (Himalaya).	Joined appointment 29th May 1869.
2	. . . . .	. . . . .	. . . . .	. . . . .
3	. . . . .	. . . . .	. . . . .	. . . . .
4	. . . . .	. . . . .	. . . . .	. . . . .
5	. . . . .	. . . . .	. . . . .	. . . . .
6	. . . . .	. . . . .	. . . . .	. . . . .

(a) Department of Finance and Commerce No. 5826, dated 25th October 1888.  
(b) Department of Finance and Commerce No. 756, dated 11th February 1889.  
(c) Department of Agriculture, Revenue, and Commerce Memorandum No. 213, dated 14th May 1878.

## Classified List of Officers of the Junior Division, Survey of

No. sanctioned	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st July 1889.	
								Y. M. D.	Y. M. D.
<b>JUNIOR DIVISION.</b>									
<b>Surveyors.</b>									
<b>1st GRADE.</b>									
<i>Salary Rs500.</i>									
		<i>G. A. McGill</i>	Topogl.	L. S.	51 2 7	Apl. 8, 1855	Mar. 7, 1882	34 2 3	
1		D. Atkinson	Topogl.		52 1 24	Aug. 4, 1856	Jan. 22, 1883	32 10 28	
2		C. Wood	G. T. S.	L. S.	46 11 10	May 6, 1858	Apl. 1, 1883	30 11 10	
3		H. E. T. Keelan	G. T. S.		46 3 1	Aug. 17, 1858	Oct. 29, 1883	22 3 7	
4		A. J. Wilson	Topogl.	L. S.	46 10 0	Oct. 1, 1860	June 2, 1884	29 0 0	
5		G. W. E. Atkinson	G. T. S.		45 8 20	Aug. 1, 1859	Nov. 10, 1884	29 8 20	
6		S. M. Smylie	Rev.	L. S.	48 7 7	July 24, 1860	June 27, 1886	26 3 3	
7		J. S. Pemberton	Rev.	L. S.	45 11 23	Oct. 6, 1860	Nov. 24, 1887	28 8 21	
8		H. R. Littlewood	Rev.	{ L. S. Burmese }	45 7 25	Oct. 6, 1860	May 16, 1889	28 8 26	
<b>2ND GRADE.</b>									
<i>Salary Rs400.</i>									
1		W. Todd	G. T. S.		50 7 21	Jan. 11, 1856	June 1, 1874	31 4 23D	
2		W. A. Wilson	Rev.	L. S.	46 1 12	Jan. 1, 1861	Nov. 1, 1883	28 2 23	
3		A. M. Lawson	Rev.	L. S.	50 5 29	Nov. 18, 1862	June 2, 1884	26 7 13	
4		E. S. P. Atkinson	Topogl.		43 11 4	Aug. 13, 1861	Mar. 1, 1885	19 11 26	
5		A. J. Gibson	Rev.		47 7 0	May 1, 1861	Mar. 1, 1885	28 1 27	
6		M. J. Ogle	Topogl.		47 3 27	July 1, 1863	Nov. 15, 1885	24 3 27	
7		W. S. Buttress	Rev.		45 4 12	Sep. 1, 1860	July 1, 1886	28 10 0	
8		F. Adams	Topogl.		53 2 6	Oct. 1, 1860	Apl. 1, 1883	32 7 27C	
9		A. G. Wyatt	Topogl.		44 4 6	Nov. 1, 1861	Nov. 24, 1888	26 8 6	
10		H. W. Peychers	G. T. S.		46 6 18	April 8, 1862	May 13, 1889	27 2 23	
11		G. Belcham	G. T. S.	H. S.	44 4 15	Nov. 1, 1862	May 16, 1889	26 8 0	

\* Applies only to officers who are under the Uncovenanted Service Rules.

## India Department, as it stood on 1st July 1889.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
...	600 0 0		Chief Draftsman, Head Quarters, Calcutta.	Sick leave from 1st November 1871 to 28th February 1872. Service reckoned under old rules.
1	500 0 0	(a) Presidency house-rent, R45.	No. 8 (Bengal and Orissa)	Service reckoned under old rules.
2	500 0 0	(b) Dehra Office, R50.	Computing Dehra Dun	Service reckoned under old rules.
3	500 0 0		No. 9 Chanda	On furlough from 12th May 1888 to 5th May 1889. (A) Exclusive of 11 months and 13 days' furlough and 18 days' sick leave under new rules. Apprentice Draftsman from 1st January 1860.
4	500 0 0	(a) Presidency house-rent R45.	Head Quarters, Calcutta.	
5	500 0 0	(b) Dehra Office, R50	Drawing Office, Dehra Dun	Service reckoned under old rules.
6	500 0 0	(c) Presidency house-rent R45.	Head Draftsman, Head Quarters, Calcutta.	Furlough from 8th November 1882 to 11th March 1883.
7	500 0 0		No. 1 (Punjab)	Overstayed privilege leave by 5 days in June 1889.
8	500 0 0	(d) Burma, R75	No. 7 (Thongwa).	
1	400 0 0		No. 10 (Bombay)	(B) Inclusive of 2 years, which count as service out of 4 years 28 days' leave on medical certificate under old rules. For one year from 24th March 1889.
2			On furlough	
3	400 0 0		No. 17 (Bombay Forests).	
4	400 0 0	(a) Presidency house-rent R30.	Head Quarters, Calcutta.	Leave without allowance for 11 days in August 1888, 19 days in December 1888, and 5 days' medical leave in December 1888. Medical leave for 1 year 3 months and 13 days, from 26th July 1876 to 8th November 1877, and sick leave for 19 days in September 1867. Absent without leave for 3 days in January 1866.
5	400 0 0		No. 13 (Betul)	
6	400 0 0	(e) Upper Burma, R80.	No. 21 (Upper Burma)	Furlough to Europe for 1 year, from 21st November 1877 to 20th November 1878.
7	400 0 0		No. 3 (Nagpur)	Copyist from 1st to 30th September 1860.
8	400 0 0	(a) Presidency house-rent, R30.	Head Quarters, Calcutta	(C) Inclusive of service as Sub-Surveyor, from 3rd November 1866 to 30th September 1860.
9	400 0 0	(e) Upper Burma, R80.	No. 21 (Upper Burma)	Furlough from 11th November 1883 to 6th November 1884.
10	400 0 0	(b) Dehra Office, R50	Computing Dehra Dun	Service reckoned under old rules.
11	400 0 0	(f) Deputation R50 and (g) charge R100.	In temporary charge, No. 25 (Tidal and Levelling.)	Ditto ditto.

(a) Financial Resolution No. 704, dated 22nd February 1866.  
(b) Financial Resolution No. 3996, dated 22nd December 1864, and No. 2579, dated 30th November 1871.  
(c) Secretary of State's Despatch No. 13, dated 28th February 1889.  
(d) Department of Finance and Commerce, No. 5826, dated 25th October 1888.  
(e) Department of Finance and Commerce, No. 756, dated 11th February 1889.  
(f) Surveyor General's No. 9538-8, dated 28th September, 1888.  
(g) Secretary of State's Despatch No. 121 (Financial), dated 7th May 1885.

## Classified List of Officers of the Junior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st July 1889.	
								Y. M. D.	Y. M. D.
<b>JUNIOR DIVISION</b> —contd.									
<b>Surveyors—contd.</b>									
3RD GRADE. Salary R350.									
14	1	H. Dowman . . . . .	Rev.	. . . . .	43 0 20	Oct. 16, 1862	Sep. 5, 1883	26 8 1	
	2	E. G. Little . . . . .	Rev.	. . . . .	43 8 19	Jan. 1, 1860	Sep. 23, 1883	21 8 19A	
	3	H. T. Hanby . . . . .	Rev.	L. S.	42 8 12	Nov. 13, 1862	Oct. 29, 1883	26 7 18	
	4	L. J. Pocock . . . . .	G. T. S.	H. S.	45 9 5	July 10, 1863	Nov. 1, 1883	23 6 7B	
	5	A. Christie . . . . .	G. T. S.	H. S.	43 9 1	Aug. 7, 1863	June 2, 1884	21 3 4	
	6	W. J. O'Sullivan . . . . .	G. T. S.	. . . . .	45 4 17	Oct. 1, 1863	Oct. 1, 1884	23 4 17	
	7	W. W. McNair . . . . .	Topogl.	L. S.	38 9 18	Sep. 1, 1867	Nov. 10, 1884	15 9 10	
	8	N. C. Gwynne . . . . .	G. T. S.	. . . . .	46 3 25	Oct. 19, 1863	March 1, 1885	24 3 25	
	9	W. C. Price . . . . .	G. T. S.	. . . . .	43 0 8	Nov. 1, 1863	Nov. 15, 1885	21 0 8	
	10	C. H. McA'Fee . . . . .	G. T. S.	L. S.	39 7 15	Sep. 6, 1864	July 1, 1886	17 6 15	
	11	C. F. Hamer . . . . .	Topogl.	. . . . .	42 10 24	Aug. 3, 1863	Aug. 29, 1888	20 8 24	
	12	J. H. O'Donel . . . . .	Rev.	. . . . .	43 11 20	Oct. 1, 1863	Nov. 24, 1888	21 11 20	
	13	T. E. M. Claudius . . . . .	Topogl.	. . . . .	43 1 0	Aug. 1, 1863	May. 13, 1889	21 1 0	
	...	W. Stotesbury . . . . .	Topogl.	{ H. S. L. S. Canna- rese. }	41 11 6	Oct. 4, 1864	May 16, 1889	19 11 6	
	14	A. J. James . . . . .	Topogl.	L. S.	42 7 12	June 15, 1864	May. 16, 1889	20 7 12	
18									
4TH GRADE. Salary R300.									
	1	T. H. Rendell . . . . .	G. T. S.	. . . . .	44 11 9	Oct. 11, 1864	June . 1881	22 11 9	
	2	D. A. King . . . . .	Rev.	. . . . .	42 7 26	Apl. 12, 1864	Apl. 1, 1883	19 1 14	
	3	R. B. Smart . . . . .	Rev.	L. S.	42 0 2	Jan. 1, 1864	Sep. 5, 1883	20 0 2	
	4	F. Kitchen . . . . .	Topogl.	. . . . .	43 3 7	Oct. 1, 1864	Sep. 23, 1883	21 1 7C	
	5	Hugh Todd . . . . .	G. T. S.	. . . . .	41 10 15	July 15, 1865	Oct. 6, 1883	19 9 16D	
	6	E. J. Connor . . . . .	G. T. S.	B. S.	40 10 15	Mar. 1, 1865	Nov. 1, 1883	18 4 10E	

\* Applies only to officers who are under the Uncovenanted Service Rules.

## Department, as it stood on 1st July 1889—continued.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
				R a. p.
1	350 0 0	. . . . .	No. 9 (Chanda)	Absent without leave 3 days; sick leave 2 days in October 1865, 4 days in December 1865, and from 11th to 16th December 1866.
2	350 0 0	(a) Charge allowance R50.	In charge Balaghat Detachment	Apprentice from 1st January 1860 to 4th November 1862. (A) Exclusive of 7 years 9 months 11 days' service under 22 years of age.
3	350 0 0	(b) Charge allowance R100.	In temporary charge No. 4 (Eastern Bengal).	
4	350 0 0	. . . . .	No. 14 (Hoshangabad)	(B) Exclusive of 89 days' sick leave.
5	350 0 0	. . . . .	No. 14 (Hoshangabad)	Furlough from 18th November 1886 to 15th May 1887.
6	350 0 0	(c) Charge allowance R50.	In charge Chittagong Detachment.	
7	350 0 0	(d) Baluchistan, R80 .	No. 15 (Baluchistan)	Furlough for 1 year, from 28th March 1883. On duty in England for 3 months from 28th March 1884. Extraordinary leave for 6 weeks from 28th June 1884.
8	350 0 0	. . . . .	Drawing Office, Dehra Dun.	
9	350 0 0	(e) Presidency house-rent R30.	Head Quarters, Calcutta.	
10	350 0 0	. . . . .	Drawing Office, Dehra Dun	Sick leave for 1 month, from 30th December 1882. Passed the Poona C. E. College Examination in 1864.
11	350 0 0	. . . . .	No. 19 (Madras).	
12	350 0 0	(f) Assam, R50 .	No. 6 (Assam).	
13	350 0 0	(d) Baluchistan, R80 .	No. 15 (Baluchistan).	
...	400 0 0	. . . . .	Draftsman and Compiler, Head Quarters, Calcutta.	
14	350 0 0	(e) Presidency house-rent R30.	Lushai Detachment.	
1	300 0 0	. . . . .	Drawing Office, Dehra Dun.	
2	.....	. . . . .	On medical leave . . . . .	For 1 year from 20th December 1887. Extension for 9 months and 23 days. Apprentice from 12th April to 30th June 1864.
3	300 0 0	. . . . .	No. 8 (Bengal and Orissa)	Apprentice from 1st January to 31st December 1864.
4	300 0 0	(g) Upper Burma, R80 .	No. 21 (Upper Burma)	(C) Exclusive of 2 months' sick leave.
5	300 0 0	. . . . .	No. 19 (Madras)	(D) Exclusive of 30 days' sick leave.
6	300 0 0	. . . . .	No. 25 (Tidal and Levelling)	(E) Exclusive of 6 months and 5 days' leave on private affairs under new rules.

(a) Surveyor General's No. 20798., dated 20th November 1868.

(b) Department of Finance and Commerce No. 1235, dated 5th June 1865.

(c) Surveyor General's No. 20803., dated 20th November 1868.

(d) Department of Finance and Commerce No. 5828, dated 25th October 1868.

(e) Financial Resolution No. 704, dated 22nd February 1866.

(f) Department of Revenue and Agriculture No. 27S., dated 18th January 1884.

(g) Department of Finance and Commerce No. 750, dated 11th February 1889.

## Classified List of Officers of the Junior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st July 1889.	
								Y. M. D.	Y. M. D.
<b>JUNIOR DIVISION</b>									
—contd.									
<b>Surveyors—concl'd.</b>									
4TH GRADE—concl'd.									
Salary R300—concl'd.									
7		J. Connor . . . . .	Rev.	. . . . .	41 9 24	Feb. 15, 1865	June 2, 1884	19 9 24	
...		T. H. Dunne . . . . .	Rev.	L. S.	39 6 7	Feb. 15, 1865	Sep. 1, 1884	17 5 26	
8		J. Bond . . . . .	G. T. S.	. . . . .	39 5 24	Oct. 18, 1866	Oct. 1, 1884	17 5 4A	
9		C. D. Potter . . . . .	G. T. S.	L. S.	43 9 27	Oct. 29, 1866	Nov. 10, 1884	21 8 24B	
10		J. Newland . . . . .	Rev.	L. S.	51 10 26	Oct. 22, 1863	Mar. 1, 1885	25 8 10	
11		C. Tapsell . . . . .	Topogl.	L. S.	44 7 17	Aug. 2, 1864	July 1, 1886	22 7 17	
12		J. A. Barker . . . . .	Topogl.	. . . . .	43 2 18	Sep. 1, 1865	Aug. 1, 1886	21 2 18	
13		E. A. Wainwright . . . . .	Topogl.	. . . . .	41 0 23	May 1, 1866	Nov. 24, 1887	19 0 23	
14		R. C. D. Ewing . . . . .	Rev.	H. S.	41 0 20	June 9, 1866	Aug. 29, 1888	16 11 25	
15		W. J. Cornelius . . . . .	Topogl.	L. S.	40 3 1	Aug. 15, 1866	Nov. 24, 1889	18 3 1	
16		G. W. Jarbo . . . . .	Rev.	L. S.	41 9 15	Nov. 1, 1866	Dec. 3, 1888	19 9 0	
...		P. J. W. Doran . . . . .	Topogl.	L. S.	40 1 27	Feb. 1, 1867	May 13, 1889	17 5 3	
17		J. R. Scott . . . . .	Rev.	L. S.	40 3 27	Jan. 19, 1867	May 13, 1889	18 3 27	
18		J. McHatton . . . . .	Rev.	L. S.	39 11 14	July 1, 1867	May 16, 1889	16 11 14	
41		<b>Assistant Surveyors.</b>							
		1st GRADE.							
		Salary R200 rising to R250.							
1		H. T. Kitchen . . . . .	Topogl.	L. S.	41 0 23	Nov. 1, 1867	Apl. 1, 1881	19 0 23	
2		J. H. Wilson . . . . .	Topogl.	L. S. } Elementary Standard, Burmese.	43 0 23	Apl. 1, 1868D	Apl. 1, 1881	20 10 23E	
3		J. Hickle . . . . .	G. T. S.	L. S.	40 5 17	Apl. 29, 1868	Apl. 1, 1881	17 11 17	
4		S. O. Madras . . . . .	Rev.	. . . . .	38 10 16	July 6, 1868	Apl. 1, 1881	16 10 16	
5		G. D. Cusson . . . . .	G. T. S.	L. S.	42 9 7	May 8, 1868	Apl. 1, 1881	19 9 7F	
6		T. F. Freeman . . . . .	Rev.	L. S.	38 3 27	Sep. 9, 1868	Apl. 1, 1881	13 8 27	
...		G. C. Swiney . . . . .	Rev.	. . . . .	40 0 4	Sep. 17, 1868	Apl. 1, 1881	18 0 4	
7		J. S. Swiney . . . . .	Rev.	. . . . .	38 6 12	Jan. 5, 1869	Apl. 1, 1881	16 6 12	
8		C. P. Torrens . . . . .	G. T. S.	. . . . .	38 0 12	Dec. 12, 1868	Apl. 1, 1881	16 0 10G	
9		W. Robert . . . . .	Topogl.	. . . . .	38 10 2	Aug. 21, 1869	Apl. 1, 1881	16 10 2	
10		T. Shaw . . . . .	Rev.	L. S.	36 7 15	Apl. 21, 1869	Apl. 1, 1881	14 7 15	

\* Applies only to officers who are under the Uncovenanted Service Rules.

## Department, as it stood on 1st July 1889—continued.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
7	300 0 0	(a) Assam, R50 . . . . .	No. 6 (Assam).	
...	. . . . .	. . . . .	On deputation, Central Provinces.	Absent without leave 1 day, and sick leave for 10 days in October 1865.
8	300 0 0	. . . . .	No. 25 (Tidal and Levelling) . . . . .	(A) Exclusive of 20 days' sick leave.
9	300 0 0	. . . . .	No. 18 (Himalaya) . . . . .	(B) Exclusive of 33 days' sick leave.
10	300 0 0	. . . . .	No. 11 (Nimar).	
11	300 0 0	. . . . .	No. 10 (Bombay).	
12	300 0 0	(b) Burma, R75 . . . . .	No. 20 (Burma).	
13	300 0 0	. . . . .	Drawing Office Dehra Dun.	
14	300 0 0	. . . . .	No. 8 (Bengal and Orissa)	Furlough from 17th September 1865 to 11th September 1867.
15	300 0 0	. . . . .	Drawing Office, Dehra Dun.	
16	300 0 0	(b) Burma, R75 . . . . .	No. 7 (Thongwa) . . . . .	Sick leave for 15 days, from 28th May to 9th June 1869.
...	325 0 0	. . . . .	Draftsman, Head Quarters, Calcutta.	
17	. . . . .	. . . . .	On deputation, Central Provinces.	
18	300 0 0	. . . . .	No. 2 (Bilaspur) . . . . .	Furlough for 1 year, from 1st January to 31st December 1879.
1	300 0 0	(c) Presidency house-rent R30.	Head Quarters, Calcutta . . . . .	Officiating Surveyor, 4th Grade.
2	250 0 0	(b) Burma, R75 . . . . .	No. 20 (Burma) . . . . .	Officiating Surveyor, 4th Grade. (D) Commencement of second service.
3	250 0 0	(d) Upper Burma, R80.	No. 24 (Upper Burma) . . . . .	(E) Exclusive of 2 months' sick leave from 1st July 1869. Appointed Draftsman from 15th May 1863. Exclusive of 6 months' sick leave.
4	250 0 0	(c) Presidency house-rent R20.	Head Quarters, Calcutta.	
5	250 0 0	. . . . .	No. 10 (Bombay) . . . . .	(F) Exclusive of furlough for 364 days, from 1st November 1879 to 30th October 1880. Sick leave for 2 years, from 1st May 1880; extension for 9 months without pay up to 31st January 1883.
6	250 0 0	. . . . .	No. 5 (Jbansi) . . . . .	
...	. . . . .	. . . . .	On deputation, Central Provinces.	
7	250 0 0	(b) Burma, R75 . . . . .	No. 7 (Thongwa).	
8	250 0 0	(b) Ditto R75 . . . . .	No. 20 (Burma) . . . . .	(G) Exclusive of 2 days' overstayed privilege leave.
9	250 0 0	. . . . .	No. 18 (Himalaya).	
10	250 0 0	. . . . .	No. 4A (Srinagar).	

(a) Department of Revenue and Agriculture, No. 278., dated 18th January 1884.

(b) Department of Finance and Commerce, No. 5826, dated 25th October 1888.

(c) Financial Resolution No. 704, dated 22nd February 1886.

(d) Department of Finance and Commerce, No. 756, dated 11th February 1889.

## Classified List of Officers of the Junior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st July 1889.
					Y. M. D.			Y. M. D.
<b>JUNIOR DIVISION</b> —contd. <b>Assistant Surveyors</b> —contd. 1st GRADE—contd. Salary R200 rising to R250— contd.								
11		C. W. Wilson . . . . .	Rev.	L. S.	43 7 22	June 21, 1867A	Apl. 1, 1881	21 2 22
12		E. J. Martin . . . . .	Rev.	. . . . .	38 5 13	Sep. 16, 1867	Apl. 1, 1881	15 3 13
13		C. W. F. Seyfers . . . . .	Rev.	. . . . .	45 10 15	Dec. 1, 1864	June 7, 1881	23 10 15
14		W. H. Penrose . . . . .	Rev.	L. S.	37 8 24	Aug. 11, 1869	Nov. 1, 1882	15 1 17
...		G. E. Parker . . . . .	Rev.	. . . . .	39 4 18	Nov. 18, 1870	Jan. 17, 1883	17 4 18
15		G. Campbell . . . . .	Rev.	. . . . .	40 11 19	Jan. 1, 1864	Jan. 22, 1883	17 11 9
16		W. C. G. Barckley . . . . .	Topogl.	. . . . .	37 8 9	Dec. 1, 1871	Feb. 22, 1883	15 8 9B
17		G. T. Hall . . . . .	G. T. S.	L. S.	37 6 29	Nov. 22, 1872	Apl. 1, 1883	15 6 29
18		G. Vander Beck . . . . .	Topogl.	L. S.	39 9 15	July 1, 1872	Apl. 30, 1883	17 9 15
19		R. Todd . . . . .	Topogl.	. . . . .	43 11 20	Nov. 1, 1863	July 21, 1883	21 11 19
20		J. Murphy . . . . .	Rev.	. . . . .	36 11 19	Nov. 22, 1868	Aug. 10, 1883	14 11 19
21		A. W. Smart . . . . .	Rev.	. . . . .	38 4 1	Dec. 1, 1871	Oct. 6, 1883	16 4 1
22		W. M. Kelly . . . . .	Rev.	L. S.	34 10 25	Oct. 1, 1872	Nov. 21, 1883	12 10 25
23		A. Kitchen . . . . .	Topogl.	. . . . .	36 5 4	Oct. 1, 1872	Dec. 1, 1883	14 5 4
...		E. P. S. Hill . . . . .	Rev.	H.S., L.S., Persian.	33 11 15	Nov. 16, 1872	June 2, 1884	11 11 15
24		R. R. Dickinson . . . . .	Rev.	L. S.	37 11 6	Apl. 16, 1873	Sep. 1, 1884	15 11 6
25		E. Graham . . . . .	Topogl.	L. S.	35 8 0	Aug. 11, 1873	Nov. 10, 1884	13 8 0
26		G. A. Knight . . . . .	Topogl.	. . . . .	35 2 9	Aug. 11, 1873	Mar. 1, 1885	13 2 9
27		W. A. Fielding . . . . .	. . . . .	L. S.	40 1 3	May 1, 1868 Oct. 1, 1887C	Apl. 1, 1881	19 1 13
...		P. A. Peters . . . . .	Rev.	L. S.	34 6 23	Nov. 1, 1873	May 14, 1886	12 6 23
28		P. F. Prunty . . . . .	G. T. S.	. . . . .	34 16 6	May 9, 1874	May 14, 1886	12 6 6

\* Applies only to officers who are under the Uncovenanted Service Rules.

## Department, as it stood on 1st July 1889—continued.

No. existing in each grade.	Con-solidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
	R a. p.			
11	250 0 0	. . . . .	No. 13 (Betul) . . . . .	(A) Commencement of second service. Sick leave for 3 months from 1st March 1869, and 2 months from 1st August 1869.
12	250 0 0	(a) Presidency house-rent R20.	Head Quarters, Calcutta . . . . .	On medical leave for 6 months from 13th April 1868. Furlough from 1st April to 30th November 1862. Office Assistant from 16th September 1867 to 31st July 1870.
13	240 0 0	. . . . .	No. 13 (Betul).	
14	250 0 0	(b) Burma, R75 . . . . .	No. 20 (Burma) . . . . .	Leave on medical certificate, from 22nd October to 28th November 1883, and for 6 months from 3rd August 1886 to 2nd February 1887.
...	. . . . .	. . . . .	On deputation, Central Provinces.	
15	250 0 0	. . . . .	No. 1 (Punjab) . . . . .	Office Assistant, from 1st January 1864 to 20th February 1874. Furlough for 1 year, from 22nd September 1881 to 21st September 1882
16	250 0 0	(b) Baluchistan, R80 . . . . .	No. 15 (Baluchistan) . . . . .	(B) Inclusive of special leave to Europe on full pay for 1 year 10 months and 26 days, from 7th April 1876 to 2nd March 1878.
17	250 0 0	. . . . .	No. 12 (Saugor).	
18	250 0 0	. . . . .	No. 3 (Nagpur) . . . . .	Apprentice Draftsman, from 11th October 1870 to 30th July 1872.
19	250 0 0	. . . . .	No. 19 (Madras) . . . . .	Suspension from 11th May to 6th June 1883.
20	250 0 0	. . . . .	No. 5 (Jhansi) . . . . .	Office Assistant, from 22nd November 1868 to 31st October 1871.
21	250 0 0	. . . . .	No. 5 (Jhansi) . . . . .	Three months' sick leave from 8th July 1880.
22	250 0 0	(a) Half scale local, R15-0-0.	No. 10 (Bombay) . . . . .	Re-appointed to the Department, 1st October 1878, after employment in the Forest Department, from 1st November 1877 to 30th September 1878.
23	250 0 0	. . . . .	Drawing Office, Dehra Dun.	
...	. . . . .	. . . . .	On deputation, Central Provinces.	
24	240 0 0	. . . . .	No. 10 (Bombay) . . . . .	Apprentice from 1st April 1872 to 15th April 1873.
25	240 0 0	(b) Baluchistan, R80 . . . . .	No. 15 (Baluchistan) . . . . .	Previous service as Sub-Surveyor from 1st November 1872.
26	240 0 0	(a) Half scale local, R14-6-4.	No. 10 (Bombay).	
27	250 0 0	. . . . .	No. 18 (Himalaya) . . . . .	(C) Date of re-appointment. Inclusive of services in the Bombay Secretariat from 1st April 1888 to 30th September 1887.
...	. . . . .	. . . . .	On deputation, Straits Settlement.	
28	230 0 0	. . . . .	No. 18 (Himalaya).	

(a) Financial Resolution No. 704, dated 22nd February 1886.

(b) Department of Finance and Commerce No. 5826, dated 25th October 1889.

## Classified List of Officers of the Junior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st July 1889.
					Y. M. D.			Y. M. D.
<b>JUNIOR DIVISION</b>								
—contd.								
<b>Assistant Surveyors—</b>								
—contd.								
<b>1ST GRADE—concl'd.</b>								
Salary R200 rising to R260—concl'd.								
29		P. White . . . . .	Topogl.	L. S.	38 8 23	Oct. 1, 1872	Oct. 1, 1884	14 6 15A
30		J. Keating. . . . .	G. T. S.	. . . .	35 1 27	June 1, 1874	July 1, 1886	13 1 27
31		C. S. Kruel . . . . .	Rev.	L. S.	35 8 6	July 24, 1874	Aug. 1, 1886	13 7 19
32		S. F. Norman . . . . .	G. T. S.	. . . .	34 10 23	Sep. 1, 1874	Apl. 1, 1887	12 10 23
33		C. Norman . . . . .	G. T. S.	L. S.	33 1 12	Oct. 12, 1874	Apl. 1, 1887	11 1 12
34		D. Campbell . . . . .	Topogl.	. . . .	36 7 13	Nov. 1, 1874	Apl. 1, 1887	14 7 13
35		L. F. Berkeley . . . . .	Rev.	L. S.	34 0 3	Aug. 16, 1875	Nov. 24, 1887	12 10 3
36		G. P. Tate . . . . .	†	L. S.	32 11 9	Mar. 12, 1878	Aug. 29, 1888	10 11 9
37		J. M. Kennedy . . . . .	G. T. S.	. . . .	32 7 28	Aug. 19, 1875	Nov. 1, 1888	10 7 28
38		P. C. H. Smart . . . . .	†	. . . .	33 9 15	Apl. 18, 1878	Nov. 24, 1888	10 9 6
39		R. F. Warwick . . . . .	G. T. S.	L. S.	34 3 6	July 2, 1875	May. 9, 1889	10 12 9B
40		A. George . . . . .	†	L. S.	36 5 18	Oct. 15, 1878	May 13, 1889	10 8 170
41		W. H. D. Ewing . . . . .	†	L. S.	31 10 7	Apl. 15, 1878	May 16, 1889	9 8 6D
<b>2ND GRADE.</b>								
Salary R160 rising to R200.								
1		B. M. Wilson . . . . .	Rev.	. . . .	41 2 17	Nov. 15, 1872	Apl. 1, 1881	17 5 0
2		C. George . . . . .	†	L. S.	36 6 24	Sep. 5, 1878	Dec. 1, 1883	14 6 24
3		R. W. Senior . . . . .	†	L. S.	28 7 18	Dec. 21, 1878	Oct. 1, 1884	6 5 25
4		J. A. Higgs . . . . .	†	L. S.	30 2 13	Sep. 12, 1881	Nov. 28, 1884	7 1 7
5		O. D. Smart . . . . .	†	. . . .	31 9 15	Oct. 1, 1881	Mar. 1, 1885	9 7 0
6		A. Ewing . . . . .	†	. . . .	27 6 0	Nov. 16, 1881	Oct. 1, 1885	5 6 0
7		M. Gastand . . . . .	†	. . . .	27 3 24	May 1, 1882	Oct. 30, 1885	5 3 24
8		P. Beechey . . . . .	†	L. S.	27 11 14	Dec. 1, 1882	Apl. 1, 1886	5 11 14
9		E. F. Berkeley . . . . .	†	L. S.	24 8 10	Sep. 1, 1883	May 14, 1886	2 8 10
10		B. R. Hughes . . . . .	†	L. S.	23 0 18	Oct. 15, 1883	July 1, 1886	1 0 18
11		F. W. Moore . . . . .	†	. . . .	24 6 11	Dec. 13, 1883	July 1, 1886	2 6 11
12		J. P. Barker . . . . .	† <sup>2</sup>	. . . .	23 10 10	Dec. 23, 1883	Aug. 1, 1886	1 10 10

\* Applies only to officers who are under the Uncovenanted Service Rules.  
† Joined the Department after the amalgamation on 1st January 1878.

## Department, as it stood on 1st July 1889—continued.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
	R a. p.			
29	230 0 0	. . . . .	No. 11 (Nimar) . . . . .	(A) Exclusive of sick leave for 3 months, from 21st October 1878. Leave extended for 3 months; further extension of leave without pay up to 17th August 1879. On half-pay list, from 18th August 1879 to 31st August 1880. On sick leave for 1 year, from 17th October 1881. Extension to 28th January 1883. On sick leave for 3 months, from 6th November 1883 to 4th February 1884.
30	230 0 0	(a) Upper Burma R80 .	No. 24 (Upper Burma).	
31	220 0 0	. . . . .	No. 8 (Bengal and Orissa)	Sick leave, from 6th to 22nd February 1879.
32	220 0 0	(b) Half scale local, R13-3-2.	No. 17 (Bombay Forests).	
33	220 0 0	(b) Ditto 13-3-2 .	No. 17 (Bombay Forests).	
34	220 0 0	. . . . .	No. 14 (Hoshangabad) . . . . .	Joined as a Sub-Surveyor on 3rd July 1872.
35	210 0 0	. . . . .	No. 4 (Eastern Bengal).	
36	200 0 0	(c) Baluchistan, R80 .	No. 15 (Baluchistan) . . . . .	Apprentice from 1st March 1874 to 11th March 1878.
37	200 0 0	(a) Upper Burma, R80 .	No. 21 (Upper Burma).	
38	200 0 0	. . . . .	No. 2 (Bilaspur) . . . . .	Sick leave from 8th April to 14th September 1883.
39	200 0 0	. . . . .	No. 4 (Eastern Bengal) . . . . .	(B) Exclusive of leave on medical certificate for 2 months, from 10th October to 9th December 1877. Also for 6 months, from 1st May to 31st October 1879. Also for 4 months and 25 days, from 30th August 1881. Also from 16th August 1882 to 14th August 1883.
40	200 0 0	. . . . .	No. 9 (Chanda) . . . . .	(C) Exclusive of previous service as Sub-Surveyor.
41	200 0 0	. . . . .	No. 1 (Punjab) . . . . .	(D) Exclusive of 2 months and 1 day's suspension, from 28th May to 1st July 1880, and sick leave from 2nd to 28th July 1880.
1	192 0 0	(b) Presidency house-rent R20.	Head Quarters, Calcutta . . . . .	Apprentice from 1st February to 14th November 1872.
2	192 0 0	. . . . .	No. 11 (Nimar) . . . . .	Previous service as Sub-Surveyor from 18th August 1874.
3	...	. . . . .	On medical leave . . . . .	For 4 months from 8th May 1889.
4	184 0 0	. . . . .	No. 8 (Bengal and Orissa)	On medical leave, from 7th March 1888 to 18th November 1888. Previous service as apprentice from 31st July 1878.
5	184 0 0	. . . . .	No. 3 (Nagpur) . . . . .	Includes service in the temporary or Cadastral Establishment without interruption, from 1st December 1879 to 30th September 1881.
6	184 0 0	. . . . .	No. 9 (Chanda).	
7	184 0 0	(d) Assam, R40 . . . . .	No. 6 (Assam).	
8	176 0 0	(c) Burma, R75 . . . . .	No. 7 (Thongwa).	
9	176 0 0	. . . . .	No. 4A (Srinagar).	
10	184 0 0	(a) Upper Burma, R80 .	No. 24 (Upper Burma).	
11	176 0 0	. . . . .	No. 2 (Bilaspur).	
12	176 0 0	. . . . .	No. 4A (Srinagar).	

(a) Department of Finance and Commerce, No. 756, dated 11th February 1889.  
(b) Financial Resolution No. 704, dated 22nd February 1886.  
(c) Department of Finance and Commerce, No. 5826, dated 25th October 1888.  
(d) Department of Revenue and Agriculture, No. 278, dated 18th January 1884.



## Classified List of Officers of the Junior Division, Survey of India

No. sanctioned.	No. existing in each grade.	Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Age.	Date of appointment to the Department.	Date of promotion to the present grade.	* Period of service counting towards pension on 1st July 1889.
					Y. M. D.			Y. M. D.
		<b>JUNIOR DIVISION</b> —concl'd. <b>Assistant Surveyors—</b> concl'd. <b>2ND GRADE—concl'd.</b> Salary R160 rising to R200— concl'd.						
13		N. Bedford . . . . .	†	. . . . .	27 11 15	Jan. 10, 1884	Apr. 1, 1887	5 5 21
14		T. J. J. Mills . . . . .	†	. . . . .	25 6 1	Mar. 14, 1884	Apr. 1, 1887	3 6 1
15		P. J. Serrao . . . . .	†	. . . . .	27 11 28	Apr. 24, 1884	Nov. 24, 1887	5 2 6
16		J. Smith . . . . .	†	. . . . .	25 9 17	Aug. 1, 1884	Aug. 29, 1888	3 9 17
17		T. W. Babonau (Jr.) . . . . .	†	L. S.	22 11 21	Jan. 15, 1884	Apr. 1, 1887	0 8 29
18		W. E. Johnson . . . . .	†	. . . . .	27 9 16	Aug. 18, 1884	Nov. 1, 1888	4 10 15
19		W. V. Skilling . . . . .	†	L. S.	22 2 6	Nov. 24, 1884	Nov. 24, 1888	0 2 6
20		A. B. Smart . . . . .	†	. . . . .	23 9 4	Feb. 25, 1885	May 9, 1889	1 9 4
21		C. G. Lee . . . . .	†	. . . . .	22 10 8	Mar. 1, 1886	May 13, 1889	0 10 8
22		F. S. Bell . . . . .	†	. . . . .	24 9 2	Sep. 24, 1886	May 6, 1889	2 9 2
		<b>3RD GRADE.</b> Salary R120 rising to R160.						
1		F. E. Warde . . . . .	†	. . . . .	37 9 24	Nov. 13, 1884A	Nov. 13, 1884	4 7 19
2		H. A. Charrier . . . . .	†	L. S.	24 8 8	Apr. 21, 1884	Apr. 21, 1884	2 7 26
3		F. P. Walsh . . . . .	†	. . . . .	22 7 10	Mar. 4, 1886	Mar. 4, 1886	0 7 10
4		F. B. Powell . . . . .	†	. . . . .	24 10 21	Sep. 23, 1886	Sep. 23, 1886	2 9 8
5		Yusaf Sharif, Khan Bahadur . . . . .	†	. . . . .	42 6 14	June 16, 1867	Dec. 1, 1886	20 6 13
6		Rai Hira Singh, Bahadur . . . . .	†	. . . . .	37 10 0	Nov. 13, 1873	Mar. 12, 1887	15 5 18
7		J. A. T. Haddock . . . . .	†	Elementary Standard, Burmese.	25 8 16	Nov. 26, 1887	Nov. 26, 1887	1 9 5
8		J. H. Murphy . . . . .	†	. . . . .	19 11 6	Nov. 1, 1887	Nov. 1, 1887	. . . .
9		W. J. Baker . . . . .	†	. . . . .	22 10 14	Jan. 25, 1888	Jan. 25, 1888	0 10 14
10		C. G. S. Wood . . . . .	†	L. S.	21 0 0	Aug. 2, 1884	Aug. 2, 1884	. . . .
11		C. S. Gasper . . . . .	†	. . . . .	20 10 21	Mar. 2, 1888	Mar. 2, 1888	. . . .
12		C. H. G. Johnson . . . . .	†	. . . . .	20 0 17	Nov. 13, 1888	Nov. 13, 1888	. . . .
13		H. G. Shaw . . . . .	†	. . . . .	27 4 11	Jan. 1, 1889	Jan. 1, 1889	5 4 11B
14		Vacant . . . . .						
15		Ditto . . . . .						
16		Ditto . . . . .						
17		Ditto . . . . .						
18		Ditto . . . . .						
19		Ditto . . . . .						
20		Ditto . . . . .						
21		Ditto . . . . .						
22		Ditto . . . . .						

\* Applies only to officers who are under the Uncovenanted Service Rules.  
† Joined the Department after the amalgamation on 1st January 1878.

## Department, as it stood on 1st July 1889—concluded.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
	R a. p.			
13	176 0 0	. . . . .	No. 5 (Jhansi).	
14	176 0 0	. . . . .	No. 19 (Madras).	
15	168 0 0	. . . . .	No. 12 (Saugor).	
16	160 0 0	(a) Assam, R40	No. 6 (Assam).	
17	. . . . .	. . . . .	. . . . .	Extraordinary leave for 6 months, from 9th April 1889.
18	160 0 0	. . . . .	No. 4 (Eastern Bengal).	
19	160 0 0	. . . . .	No. 5 (Jhansi).	
20	160 0 0	(b) Presidency house-rent R20.	No. 8 (Bengal and Orissa).	
21	160 0 0	. . . . .	No. 4 (Eastern Bengal)	Previous service in the Cadstral Establishment without interruption, from 1st December 1883 to 28th February 1886.
22	160 0 0	. . . . .	No. 1 (Punjab).	
1	136 0 0	. . . . .	No. 14 (Hoshangabad)	(A) Date of re-appointment.
2	136 0 0	. . . . .	No. 11 (Nimar)	Leave without pay, from 2nd to 13th May 1889.
3	136 0 0	. . . . .	No. 1 (Punjab).	
4	136 0 0	. . . . .	No. 4A (Srinagar).	
5	136 0 0	(c) Baluchistan, R80	No. 15 (Baluchistan)	Joined as Sub-Surveyor, 16th June 1867.
6	128 0 0	(c) Baluchistan, R 80	No. 15 (Baluchistan)	Joined as Sub-Surveyor. Previous service in G. T. O. Printing Section from 1st October 1871. Sick leave from 7th February to 6th April 1889.
7	128 0 0	(c) Burma, R75	No. 7 (Thongwa).	
8	128 0 0	. . . . .	No. 5 (Jhansi).	
9	120 0 0	. . . . .	No. 3 (Nagpur).	
10	128 0 0	(b) Presidency house-rent R20.	Head Quarters, Calcutta	Without allowances, from 12th May 1886 to 11th January 1889.
11	120 0 0	. . . . .	No. 8 (Bengal and Orissa).	
12	120 0 0	. . . . .	No. 13 (Betul)	On probation.
13	120 0 0	. . . . .	Computing Dehra Dun	(B) Includes previous service in the Meteorological Department without interruption from 1st January 1883 to 31st December 1886.
14	. . . . .	. . . . .	. . . . .	
15	. . . . .	. . . . .	. . . . .	
16	. . . . .	. . . . .	. . . . .	
17	. . . . .	. . . . .	. . . . .	
18	. . . . .	. . . . .	. . . . .	
19	. . . . .	. . . . .	. . . . .	
20	. . . . .	. . . . .	. . . . .	
21	. . . . .	. . . . .	. . . . .	
22	. . . . .	. . . . .	. . . . .	

(a) Department of Revenue and Agriculture, No. 27S., dated 18th January 1884.  
(b) Financial Resolution No. 704, dated 22nd February 1886.  
(c) Department of Finance and Commerce, No. 5826, dated 25th October 1886.

## Names of Administrative and Technical Offices of the Survey of India Department, as they stood on 1st July 1889.

Names of Offices and Sections.	Nature of Current Operations.	Administrative Superintendent.
<b>Head Quarters, Calcutta.</b>		
<i>Administrative.</i>		
Surveyor-General's . . . . .	Accounts, Correspondence . . . . .	} A. S. G., S. G. O.
Deputy Surveyor-General's, Topo. . . . .	Ditto . . . . .	
Ditto, Rev. . . . .	Ditto . . . . .	
Map Record and Issue . . . . .	Correspondence, Receipts and Issues . . . . .	A. S. G., D. O.
<i>Technical.</i>		
Drawing and Compiling . . . . .	Mapping . . . . .	} A. S. G., D. O.
Engraving . . . . .	On copper by hand . . . . .	
Lithographic and Printing . . . . .	Mapping, Litho. and Type Printing . . . . .	} A. S. G., Photo.
Photozincographic . . . . .	Photo. Reproduction and Zinc Printing . . . . .	
Mathematical Instrument . . . . .	Repairing, storing and Issue . . . . .	A. S. G., S. G. O.
<b>Trigonometrical Branch, Dehra Dun.</b>		
<i>Administrative.</i>		
Deputy Surveyor-General's, Trigonometrical Branch . . . . .	Accounts, Correspondence . . . . .	D. S. G., Trig.
<i>Technical Sections.</i>		
Computing . . . . .	Reduction and Publication . . . . .	Ditto.
Drawing and Compiling . . . . .	Mapping . . . . .	Ditto.
Meteorological . . . . .	. . . . .	Ditto.
Photozincography . . . . .	Photo. Reproduction and Zinc Printing . . . . .	Ditto.
Printing . . . . .	Letter-press Printing . . . . .	Ditto.
Solar Photography . . . . .	Solar Photography . . . . .	Ditto.
<b>Head Quarters Office, Simla.</b>		
<i>Administrative.</i>		
Surveyor General's . . . . .	Direction and Correspondence . . . . .	S. G.

## Names of Field Parties of the Survey of India Department, as they stood on 1st July 1889.

Number of Party.	Locale of Operations.	Abbreviation.	Nature of Current Operations.	Administrative Superintendent.
No. 1 . . . . .	Punjab . . . . .	Punj. . . . .	Traversing and Compilation . . . . .	D. S. G., Rev.
„ 2 . . . . .	Bilaspur . . . . .	Bil. . . . .	Cadastral . . . . .	Ditto.
„ 3 . . . . .	Nagpur . . . . .	Nag. . . . .	Traversing . . . . .	Ditto.
„ 4 . . . . .	Eastern Bengal . . . . .	East. Beng. . . . .	Cadastral . . . . .	Ditto.
„ 4A . . . . .	Srinagar . . . . .	Sri. . . . .	Ditto . . . . .	Ditto.
„ 5 . . . . .	Jhansi . . . . .	Jhansi . . . . .	Ditto . . . . .	Ditto.
„ 6 . . . . .	Assam . . . . .	Assam . . . . .	Ditto . . . . .	Ditto.
„ 7 . . . . .	Thongwa . . . . .	Thongwa . . . . .	Ditto . . . . .	Ditto.
„ 8 . . . . .	Bengal and Orissa . . . . .	Beng. . . . .	Cadastral and Special . . . . .	Ditto.
„ 9 . . . . .	Chanda . . . . .	Chanda . . . . .	Traversing . . . . .	Ditto.
„ 10 . . . . .	Bombay . . . . .	Bom. . . . .	Topographical . . . . .	Ditto.
„ 11 . . . . .	Nimar . . . . .	Nimar . . . . .	Traversing . . . . .	Ditto.
„ 12 . . . . .	Saugor . . . . .	Saug. . . . .	Ditto . . . . .	Ditto.
„ 13 . . . . .	Betul . . . . .	Betul . . . . .	Ditto . . . . .	Ditto.
„ 14 . . . . .	Hoshangabad . . . . .	Hoshang. . . . .	Forests . . . . .	D. S. G., Trig.
„ 15 . . . . .	Baluchistan . . . . .	Bal. . . . .	Topographical . . . . .	D. S. G., Topo.
„ 17 . . . . .	Bombay . . . . .	Bom. For . . . . .	Forests . . . . .	Ditto.
„ 18 . . . . .	Himalaya . . . . .	Him. . . . .	Topographical . . . . .	D. S. G., Trig.
„ 19 . . . . .	Madras . . . . .	Mad. . . . .	Forests . . . . .	D. S. G., Topo.
„ 20 . . . . .	Burma . . . . .	Bur. . . . .	Ditto . . . . .	Ditto.
„ 21 . . . . .	Upper Burma . . . . .	U. Bur. . . . .	Topographical . . . . .	Ditto.
„ 22 . . . . .	Southern India . . . . .	Ast. I . . . . .	Latitude Observations . . . . .	D. S. G., Trig.
„ 23 . . . . .	Ditto . . . . .	Ast. II . . . . .	Ditto . . . . .	Ditto.
„ 24 . . . . .	Upper Burma . . . . .	U. Bur. . . . .	Triangulation . . . . .	Ditto.
„ 25 . . . . .	Indian . . . . .	Tidal . . . . .	Tide Registering and Leveling . . . . .	Ditto.

Disposition List of Officers of the Survey of India Department, attached to the Head Quarters Offices at Calcutta and the Trigonometrical Branch Office at Dehra, 1st July 1889.

Name of Office.	Administrative Officers.	Officers of the Senior Division.	Officers of the Junior Division.	Class.	Grade.	Date of appointment.	Detail of superintendence and remarks.
Surveyor-General of India . . .	Colonel H. R. Thuillier, B.E.	. . . . .	. . . . .	. . . . .	. . . . .	Feb. 19, '87	On privilege leave for 3 months, from 11th April 1889. Direction of all Offices and Superintendence of—
Deputy Surveyor-General, in charge Topographical Branch.	Colonel J. Sconce, S.O., officiating.	. . . . .	. . . . .	. . . . .	. . . . .	Apl. 11, '89	No. 15 Party (Baluchistan).
(Offices, Calcutta and Simla.)						Ditto	No. 17 Party (Bombay Forests). No. 19 Party (Madras). No. 20 Party (Burma). No. 21 Party (Upper Burma). Lushai Detachment.
Deputy Surveyor-General, in charge Revenue Branch.	Col. J. Sconce, S.O. Officiating Surveyor-General of India, Lt.-Col. C. Strahan, B.E., officiating.	. . . . .	. . . . .	. . . . .	. . . . .	Jan. 1, '79	Superintendence of—
Office, Calcutta.						Apl. 11, '89	No. 1 Party (Punjab). No. 2 Party (Bilaspur). No. 3 Party (Nagpur). No. 4 Party (Eastern Beng.) No. 4A (Srinagar). No. 5 Party (Jhansi). No. 6 Party (Assam). No. 7 Party (Thongwa). No. 8 Party (Bengal and Orissa). No. 9 Party (Chanda). No. 10 Party (Bombay). No. 11 Party (Nimar). No. 12 Party (Saugor). No. 13 Party (Betul).

Disposition List of Officers of the Survey of India Department, attached to the Head Quarters Offices at Calcutta and the Trigonometrical Branch Office at Dehra, 1st July 1889—continued.

Name of Office.	Administrative Officers.	Officers of the Senior Division.	Officers of the Junior Division.	Class.	Grade.	Date of appointment.	Details of superintendence and remarks.
Deputy Surveyor-General, in charge Trigonometrical Branch.	Major-General C. T. Haig, B.E., on furlough. Lt.-Col. G. Strahan, B.E., officiating.	. . . . .	. . . . .	. . . . .	. . . . .	Feb. 19, '87	Superintendence of Offices at Dehra and of— No. 14 Party (Hoshangabad). No. 18 Party (Himalaya). No. 22 Party (Ast. I). No. 23 Party (Ast. II). No. 24 Party (Upper Burma). No. 25 Party (Tidal & Leveling).
Doing duty . . . . .		Major St. G. C. Gore, B.E.	. . . . .	D. Sup.	4th	Apl. 17, 89	Offg. 3rd Grade in charge, Drawing Section.
		W. H. Cole, M.A.	. . . . .	D. Sup.	3rd	Feb. 23, 89	Offg. Dy. Supdt., 2nd Grade. In charge Computing.
			C. Wood . . . . .	S.	1st	May 1, 85	Computing.
			G. W. E. Atkinson . . . . .	S.	1st	Sep. 1, 70	Drawing Section.
			H. W. Peychers . . . . .	S.	2nd	Sep. 1, 71	Computing.
			N. C. Gwynne . . . . .	S.	3rd	Oct. 1, 86	Drawing Section.
			C. H. McA'Fee . . . . .	S.	3rd	Feb. 1, 85	Ditto.
			T. H. Rendell . . . . .	S.	4th	Aug. 1, 86	Ditto.
			E. A. Wainwright . . . . .	S.	4th	Oct. 2, 88	Ditto.
			W. J. Cornelius . . . . .	S.	4th	Oct. 1, 87	Ditto.
			A. Kitchen . . . . .	A. S.	1st	Oct. 1, 88	Ditto.
			H. G. Shaw . . . . .	A. S.	3rd	Jan. 1, 89	Computing.
Offices, Dehra and Mussoorie.							
Assistant Surveyor-General, Drawing and Engraving Offices.	Lt.-Col. C. Strahan, B.E.	. . . . .	. . . . .	D. Sup.	1st	May 23, '84	Offg. Deputy Surveyor-General in charge, Revenue Branch.
			G. A. McGill . . . . .	S.	1st	Dec. 20, 82	Date of appointment as Chief Draftsman.
			A. J. Wilson . . . . .	S.	1st	Mar. 26, 88	
			S. M. Smylie . . . . .	S.	1st	Nov. 24, 88	
			E. S. P. Atkinson . . . . .	S.	2nd	June 14, 88	
			F. Adams . . . . .	S.	2nd	June 1, 77	
			W. C. Price . . . . .	S.	3rd	Mar. 1, 89	
			W. Stolesbury . . . . .	S.	3rd	June 24, 84	
			A. J. James . . . . .	S.	3rd	Sep. 1, 84	Date of appointment as Draftsman.
			P. J. W. Doran . . . . .	S.	4th	Nov. 11, 88	
						Oct. 25, 83	
						Jan. 1, 85	Date of appointment as Draftsman.
			H. T. Kitchen . . . . .	A. S.	1st	Nov. 26, 88	Offg. Surveyor, 4th Grade.
			S. O. Madras . . . . .	A. S.	1st	May 7, 84	
			E. J. Martin . . . . .	A. S.	1st	Dec. 1, 82	
			C. G. S. Wood . . . . .	A. S.	3rd	Feb. 1, 89	
Office, Calcutta.							

Disposition List of Officers of the Survey of India Department, attached to the Head Quarters Offices at Calcutta and the Trigonometrical Branch Office at Dehra, 1st July 1889—concluded.

Name of Office.	Administrative Officers.	Officers of the Senior Division.	Officers of the Junior Division.	Class.	Grade.	Date of appointment.	Details of superintendence and remarks.
Assistant Surveyor-General, Surveyor-General's Office, and Mathematical Instrument Office.	Lt.-Col. M. W. Rogers, R.E.	. . . .	. . . .	D. Sup.	2nd	May. 7, '89	
Offices, Calcutta.							
Assistant Surveyor-General, Lithographic and Photographic Offices.	Col. J. Waterhouse, S.O.	. . . .	. . . .	D. Sup.	2nd	Dec. 1, '66 Dec. 17, 86	
Office, Calcutta.		T. Archdale Pope.	. . . .	A. Sup.	1st.	Oct. 14, 86	Offg. Deputy Superintendent, 4th Grade.
Assistant Surveyor-General, Map Record and Issue Office.	Lt.-Col. C. Strahan, R.E.	. . . .	. . . .	D. Sup.	1st	Nov. 4 '87	Offg. Deputy Surveyor-General in charge, Revenue Branch.
Office, Calcutta.		T. Archdale Pope.	. . . .	A. Sup.	1st.		Offg. Deputy Superintendent, 4th Grade, in temporary charge.
			B. M. Wilson	A. S.	2nd	Nov. 1, 82	

List of Technical and Ministerial Officers of the Survey of India Department drawing Rs. 100 and above, as it stood on 1st July 1889.

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
	Y. M. D.		₹ a. p.			
<b>HEAD QUARTERS OFFICES, CALCUTTA.</b>						
<b>Correspondence Office.</b>						
T. W. Babonau . . .	45 4 7	Registrar . .	500 0 0	Aug. 9, 1861	Apl. 1, 1887	
A. E. Byrn . . .	51 7 0	Head Assistant Personal allee.	300 0 0 100 0 0	Oct. 9, 1854	Jan. 1, 1874	
M. Francis . . .	52 4 18	Head Clerk . .	300 0 0	Jan. 13, 1855	June 1, 1889	Short-drawn R40.
E. D. Algar . . .	37 2 13	Ditto . . .	250 0 0	Dec. 30, 1878	Dec. 1, 1888	Ditto R30.
H. H. Fenwick . . .	36 7 21	Head Accountant.	225 0 0	Apl. 20, 1883	Dec. 1, 1888	Ditto R30.
H. R. Vallis . . .	39 4 12	Map Curator . .	200 0 0	Mar. 5, 1869	June 1, 1889	
J. A. Vallis . . .	40 10 21	Senior Examiner	175 0 0	Apl. 1, 1871	Aug. 1, 1888	Ditto R10.
T. E. Ware . . .	43 1 1	Clerk . . .	150 0 0	Sep. 21, 1871	July 17, 1886	
Kali Podo Banerjee . . .	49 8 4	Do. . . .	125 0 0	Jan. 1, 1859	Sep. 1, 1885	
Bancy Madhub Banerjee . . .	45 3 0	Do. . . .	125 0 0	Mar. 20, 1868	Aug. 1, 1886	
Doorga Narain Ghose, B.A.	42 7 0	Junior Examiner	100 0 0	Apl. 5, 1869	Mar. 1, 1886	
Bama Churn Chuckerbutty . . .	52 1 18	Clerk . . .	100 0 0	Jan. 1, 1859	Dec. 1, 1886	
Ram Kristo Chunder . . .	49 9 0	Do. . . .	100 0 0	May 14, 1857	Feb. 1, 1889	
<b>Drawing Office.</b>						
G. A. McGill . . .	. . . .	Chief Draftsman	600 0 0	. . . .	. . . .	See page 23.
S. M. Smylie . . .	. . . .	Head ditto . .	500 0 0	. . . .	. . . .	Ditto. Exclusive of house-rent R45.
P. J. W. Doran . . .	. . . .	Draftsman . .	325 0 0	. . . .	. . . .	See page 23.
<b>EUROPEAN DRAFTSMEN.</b>						
W. Green . . .	49 9 20	Draftsman . .	300 0 0	Jan. 1, 1862	Dec. 5, 1888	Short-drawn R25.
A. J. Musgrove . . .	31 4 10	Ditto . . .	250 0 0	Apl. 22, 1877	Dec. 5, 1888	Short-drawn R60.
J. R. Adels . . .	42 3 16	Ditto . . .	200 0 0	Mar. 23, 1866	Sep. 1, 1874	
R. Sinclair . . .	27 6 29	Ditto . . .	150 0 0	June 1, 1880	Dec. 5, 1888	Short-drawn R15.
A. S. Bateman . . .	31 7 26	Ditto . . .	100 0 0	Dec. 6, 1882	Oct. 1, 1887	

List of Technical and Ministerial Officers of the Survey of India Department drawing R100 and above, as it stood on 1st July 1889—continued.

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
	Y. M. D.		R a. p.			
<b>HEAD QUARTERS OFFICES, CALCUTTA</b> —contd.						
<b>Drawing Office</b> —concl'd.						
<b>NATIVE DRAFTSMEN.</b>						
Hari Hur Sen . . .	58 3 23	Draftsman .	150 0 0	Feb. 5, 1857	June 15, 1889	Extension of 2 years' service from 9th March 1886. Further extension for 1 year. Further extension for 1 year.
Moresh Chunder Shaw .	52 6 25	Ditto .	125 0 0	Dec. 1, 1856	June 15, 1889	
Muttinlah . . .	46 9 16	Ditto .	100 0 0	Dec. 29, 1862	June 15, 1889	Short-drawn R5.
<b>Additional Establishment, Drawing Office.</b>						
W. Stotesbury . . .	. . .	Draftsman .	400 0 0	. . . .	. . . .	See page 23.
Vacant . . .	. . .	Ditto .	300 0 0	. . . .	. . . .	
<b>Engraving Office.</b>						
G. G. Palmer . . .	59 5 9	Head Engraver	800 0 0	Sep. 5, 1872	Sep. 22, 1887	
W. Donaldson . . .	48 7 23	2nd Engraver	700 0 0	Nov. 6, 1868	Jan. 1, 1884	
D. L. Mitchell . . .	48 7 5	3rd ditto .	. . . .	Sep. 21, 1872	Sep. 22, 1887	Medical leave to Europe for 8 months, from 16th April 1888. Extension for 6 months. Further extension for 5 months. Exclusive of house-rent, R50.
J. Fulford . . .	45 11 26	4th ditto .	450 0 0	Oct. 10, 1872	Sep. 22, 1887	Ditto ditto.
T. B. Rodger . . .	37 9 24	5th ditto .	400 0 0	Aug. 20, 1872	Sep. 22, 1887	
S. M. Coard . . .	30 10 11	6th ditto .	350 0 0	Feb. 1, 1875	June 1, 1889	
A. W. N. James . . .	29 5 11	7th ditto .	300 0 0	Mar. 15, 1878	June 1, 1889	
A. E. Coard . . .	27 8 29	8th ditto .	. . . .	Mar. 15, 1878	May 6, 1888	On furlough for 1 year from 25th September 1888.
E. C. Ollenbach . . .	28 5 8	9th ditto .	200 0 0	Aug. 1, 1879	June 1, 1889	
E. Earle . . .	25 3 11	10th ditto .	150 0 0	May 1, 1880	June 1, 1889	
L. H. Musgrove . . .	25 2 4	11th ditto .	100 0 0	July 1, 1882	Jan. 1, 1888	
F. R. C. Scallan . . .	18 7 28	12th ditto .	100 0 0	Aug. 11, 1884	Sep. 1, 1888	Short-drawn R60.
W. T. Collins . . .	30 8 1	Copper-plate Printer.	150 0 0	Jan. 6, 1880	May 1, 1884	
Abdul Wahid . . .	41 2 27	1st Native Engraver.	110 0 0	Aug. 1, 1869	Dec. 1, 1888	Ditto R10.
Joy Kristo Shaw . . .	40 8 28	2nd ditto .	100 0 0	Aug. 1, 1869	Aug. 1, 1883	
<b>Lithographic Office.</b>						
<b>DRAWING SECTION.</b>						
H. L. Lepage . . .	46 1 15	Head Assistant	450 0 0	July 15, 1871	Dec. 1, 1881	
Ambica Churn Makerjee	35 6 0	Examiner .	100 0	July 10, 1878	May 1, 1889	Short-drawn R10.

List of Technical and Ministerial Officers of the Survey of India Department drawing R100 and above, as it stood on 1st July 1889—continued.

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
	Y. M. D.		R a. p.			
<b>HEAD QUARTERS OFFICES, CALCUTTA</b> —contd.						
<b>Lithographic Office—concl'd.</b>						
<b>LITHOGRAPHIC PRESS SECTION.</b>						
D. Deas . . .	33 9 21	Head Lithographic Printer.	300 0 0	Nov. 29, 1883	Nov. 29, 1888	
S. U. Ravenscroft . . .	20 4 10	Asst. ditto .	100 0 0	Dec. 1, 1887	Aug. 1, 1888	Short-drawn R60.
<b>TYPOGRAPHIC SECTION.</b>						
E. D'Pyvah . . .	39 3 16	Head Printer .	100 0 0	Aug. 1, 1868	Nov. 1, 1884	
<b>Mathematical Instrument Office.</b>						
<b>WORKSHOP SECTION.</b>						
T. Bolton, F. R. A. S., London.	44 5 21	Mathematical Instrument-maker.	. . . .	Sep. 16, 1867	Nov. 11, 1879	Furlough for 2 years, from 9th April 1889.
F. Marshall . . .	33 5 23	Assistant Mathematical Instrument-maker.	500 0 0	Jan. 3, 1881	Jan. 3, 1887	Offg. Mathematical Instrument-maker. Acting allowance R120 in addition to pay.
T. R. Theakstone . . .	20 6 6	Ditto .	300 0 0	June 4, 1888	June 4, 1888	
<b>CORRESPONDENCE SECTION.</b>						
C. O. Gray . . .	28 4 15	Head Clerk .	200 0 0	Feb. 4, 1879	Nov. 1, 1888	Ditto. R30.
M. C. Belletty . . .	34 5 0	2nd Clerk .	100 0 0	Apr. 15, 1878	Dec. 1, 1888	Ditto. R20.
<b>STORE SECTION.</b>						
W. Campagnac . . .	30 9 11	Store-keeper .	150 0 0	Apr. 1, 1882	Nov. 1, 1888	Short-drawn R20.
<b>Photographic Office.</b>						
<b>NORMAL ESTABLISHMENT.</b>						
<b>Negative Section.</b>						
G. G. Dempster . . .	36 6 25	Photographer (Officiating).	330 0 0	July 16, 1873	Oct. 3, 1887	Inclusive of house-rent, R30. Short-drawn R60.
<b>Photo. Transfer Printing Section.</b>						
J. Harrold . . .	54 1 8	Photographer .	330 0 0	Mar. 19, 1873	Mar. 11, 1880	Inclusive of house-rent, R80.
<b>Silver Printing Section.</b>						
T. Lloyd . . .	34 7 24	Photographer (Officiating).	200 0 0	July 16, 1873	Nov. 1, 1887	Short-drawn R71.
<b>Heliogravure and Collo-type Section.</b>						
A. W. Turner . . .	36 8 13	Photo. Engraver	400 0 0	May 1, 1885	May 1, 1889	Ditto. R20.
<b>Zinc Printing Section.</b>						
B. Mackenzie . . .	48 4 7	Zincographer .	. . . .	Nov. 24, 1867	Nov. 24, 1879	Furlough for 2 years, from 7th May 1888.
<b>General Office Establishment.</b>						
W. Moore . . .	30 7 27	Store-keeper .	200 0 0	Sep. 15, 1883	Feb. 1, 1889	Short-drawn R20.

*List of Technical and Ministerial Officers of the Survey of India Department drawing R100 and above, as it stood on 1st July 1889—concluded.*

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
	Y. M. D.		R a. p.			
<b>HEAD QUARTERS OFFICES, CALCUTTA</b>						
<i>—concl'd.</i>						
<b>Photographic Office—concl'd.</b>						
<b>CADASTRAL ESTABLISHMENT.</b>						
<i>Negative Section.</i>						
C. Marshall . . . . .	53 11 11	Photographer .	330 0 0	Mar. 20, 1874	Apl. 1, 1885	Inclusive of house-rent, R30.
L. Lagnier . . . . .	39 1 0	Ditto .	200 0 0	Feb. 1, 1876	Feb. 1, 1881	Inclusive of house-rent, R20.
Ismail Khan . . . . .	41 4 0	Asst. ditto (Officiating).	100 0 0	May 1, 1868	Oct. 3, 1887	Short-drawn R20.
<i>Photo. Transfer Printing Section.</i>						
R. George . . . . .	43 1 27	Photographer .	330 0 0	Feb. 1, 1876	Feb. 1, 1888	Inclusive of house-rent, R30.
<i>Zinc Printing Section.</i>						
J. Watson . . . . .	54 8 17	Zincographer .	330 0 0	Nov. 24, 1867	Mar. 1, 1880	Inclusive of house-rent, R30.
E. A. LeFranc . . . . .	32 6 20	Ditto .	330 0 0	Nov. 15, 1876	Jan. 1, 1888	{ Ditto ditto.
J. B. Mackenzie . . . . .	24 2 15	Asst. ditto .	100 0 0	Oct. 1, 1880	Aug. 1, 1888	{ Short-drawn R40.
<i>General Office Establishment.</i>						
H. Haward . . . . .	39 4 20	Head Assistant	500 0 0	Nov. 16, 1883	Nov. 16, 1886	Short-drawn R100.
<b>TRIGONOMETRICAL BRANCH OFFICE, DEHRA DUN.</b>						
<i>Computing Section.</i>						
Ganga Pershad . . . . .	48 6 0	Computer .	250 0 0	Mar. 13, 1857	Sep. 1, 1888	
Cally Mohun Ghose . . . . .	46 2 0	Ditto .	170 0 0	Nov. 6, 1865	Nov. 14, 1888	
Cally Coomar Chatterjee . . . . .	47 2 0	Ditto .	125 0 0	Aug. 12, 1865	July 1, 1886	
Amba Pershad . . . . .	46 11 16	Ditto .	115 0 0	July 26, 1865	Sep. 1, 1888	
Soshi Bhooshun Shome . . . . .	39 8 16	Ditto .	110 0 0	Apl. 15, 1872	Mar. 1, 1888	
Shiv Nath Saha . . . . .	38 9 1	Ditto .	110 0 0	Nov. 26, 1873	Mar. 1, 1888	
Mizaji Lal . . . . .	39 5 1	Ditto .	110 0 0	Feb. 14, 1872	Sep. 1, 1888	
Tarapodo Mookerjee . . . . .	50 1 0	Ditto .	105 0 0	May 21, 1862	Sep. 1, 1888	
Umbica Churan Shome . . . . .	45 11 16	Ditto .	105 0 0	Feb. 8, 1867(b)	Sep. 1, 1888	(b) Date of appointment to Educational Department. Joined Computing Office, Survey of India, 10th April 1868.
<i>Drawing Section.</i>						
H. Sindon . . . . .	40 6 29	Draftsman .	105 0 0	Jan. 1, 1865	Sep. 1, 1888	
<i>Photozinc. Section.</i>						
C. G. Ollenbach . . . . .	58 5 13	Zincographer .	300 0 0	Jan. 1, 1850(c)	Feb. 1, 1883	(c) Appointed to Survey of India, 1st November 1865.
<i>Printing Section.</i>						
B. V. Hughes . . . . .	49 7 0	Printer .	250 0 0	Nov. 1, 1880(d)	July 1, 1886	(d) Date of appointment to Survey of India. Previous Military service excluded.
<i>Correspondence Section.</i>						
F. A. D' Rozario . . . . .	39 11 28	Head Clerk .	250 0 0	Oct. 14, 1874	July 1, 1889	Short-drawn R20.
<i>Solar Photographic Section.</i>						
C. F. Guthrie . . . . .	28 3 17	Asst. Solar Photographer.	100 0 0	Nov. 1, 1880	Oct. 1, 1888	



## Disposition List of Officers of the Survey of India

No. of Party.	Locale and nature of operations.	Administrative Superintendent.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
		D. S. G.				
1	Punjab (Traverse.)	Rev.	Col. D. Macdonald, s.c.	D. Sup.	1st	Jan. 16, '89
			J. S. Pemberton	S.	1st	Oct. 21, 85
			G. Campbell	A. S.	1st	Sep. 21, 82
			W. H. D. Ewing	A. S.	1st	Dec. 1, 87
			F. S. Bell.	A. S.	2nd	Sep. 24, 86
			F. P. Walsh	A. S.	3rd	Mar. 4, 86
	Recess quarters, Simla					
2	Bilaspur (Cadastral.)	Rev.	Lt.-Col. E. H. Steel, s.o.	D. Sup.	3rd	Nov. 24, '87
			F. Grant	A. Sup.	1st	Nov. 1, 79
			J. McHatton	S.	4th	Jan. 1, 80
			P. C. H. Smart	A. S.	1st	Oct. 1, 85
			F. W. Moore	A. S.	2nd	Oct. 1, 85
				Recess quarters, Mussoorie.		Professional Establishment (Permanent)
			Cadastral ditto (Temporary)			
3	Nagpur (Traverse.)	Rev.	Col. W. H. Wilkins, s.o.	D. Sup.	2nd	Nov. 4, '85
			Lt. J. M. Fleming, s.c.	A. Sup.	1st	Nov. 13, 88
			W. S. Buttress	S.	2nd	Oct. 1, 85
			G. Vander Beek	A. S.	1st	Nov. 1, 85
			O. D. Smart	A. S.	2nd	Feb. 20, 88
			W. J. Baker	A. S.	3rd	Jan. 25, 88
	Recess quarters, Mussoorie.					
4	Eastern Bengal (Cadastral.)	Rev.	H. T. Hanby	S.	3rd	May 1, '70
			L. F. Berkeley	A. S.	1st	Aug. 16, 75
			R. F. Warwick	A. S.	1st	Nov. 1, 85
			W. E. Johnson	A. S.	2nd	Aug. 18, 84
			W. J. O'Sullivan	S.	3rd	Nov. 1, 88
			C. G. Lee	A. S.	2nd	Nov. 1, 88
	Chittagong Detachment (Cadastral.)		Professional Establishment (Permanent)			
	Recess quarters, Hazaribagh		Cadastral ditto (Temporary)			

## Department, attached to Field Parties, 1st July 1889.

SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.		
30	1	300	1	12	68,500	
15	1	175	1	20	} 1,47,800	
96		464				
32	2	250	1	8	76,900	Offg. Depy. Supdt., 4th Grade.
19	1	218	1	17	} 1,24,000	In temporary charge.
420		515				



Disposition List of Officers of the Survey of India Department,

No. of Party.	Locale and nature of operations.	Admi- nistrative Superin- tendent.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
		D. S. G.				
4A	Srinagar (Cadastral.)	Rev.	G. B. Scott . . . . .	A. Sup.	1st	Nov. 28, '87
			T. Shaw . . . . .	A. S.	1st	Dec. 1, 88
			E. F. Berkeley . . . . .	A. S.	2nd	Oct. 1, 87
			J. P. Barker . . . . .	A. S.	2nd	Nov. 1, 88
			F. B. Powell . . . . .	A. S.	3rd	Dec. 20, 87
			Recess quarters, Monghyr . . . . .			Professional Establishment (Permanent) . . . . .
			Cadastral ditto (Temporary) . . . . .			
5	Jhansi (Cadastral.)	Rev.	Lt.-Col. J. E. Sandeman, s.c. . . . .	D. Sup.	2nd	Nov. 1, '83
			T. F. Freeman . . . . .	A. S.	1st	Oct. 1, 76
			J. Murphy . . . . .	A. S.	1st	July 2, 83
			A. W. Smart . . . . .	A. S.	1st	Oct. 1, 85
			N. Bedford . . . . .	A. S.	2nd	Jan. 10, 84
			W. V. Skilling . . . . .	A. S.	2nd	Oct. 1, 85
			J. H. Murphy . . . . .	A. S.	3rd	Nov. 1, 87
			Recess quarters, Naini Tal. . . . .			Professional Establishment (Permanent) . . . . .
			Cadastral ditto (Temporary) . . . . .			
6	Assam (Cadastral.)	Rev.	E. C. Barrett . . . . .	D. Sup.	3rd	July 25, '83
			J. H. O'Donel . . . . .	S.	3rd	Oct. 29, 83
			J. Connor . . . . .	S.	4th	Oct. 29, 83
			M. Gastaud . . . . .	A. S.	2nd	Oct. 1, 86
			J. Smith . . . . .	A. S.	2nd	Nov. 1, 84
			Recess quarters, Shillong . . . . .			Professional Establishment (Permanent) . . . . .
			Cadastral ditto (Temporary) . . . . .			

attached to Field Parties, 1st July 1889—continued.

SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
Sub-Survey- or. and Compu- ters.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkun- dazes and Peons.		
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Offg. Depy. Supt., 4th Grade.
5	1	80	1	5	} 47,300	
30	1	147	. . . . .	. . . . .		
19	2	140	1	19	} 97,300	
260	. . . . .	650	. . . . .	. . . . .		
22	. . . . .	137	1	8	} 1,11,200	
160	. . . . .	225	. . . . .	. . . . .		

Disposition List of Officers of the Survey of India Department,

No. of Party.	Locale and nature of operations.	Administrative Superintendent	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
		D. S. G.				
7	Thongwa (Cadastral.)  Recess quarters, Rangoon.	Rev.	F. W. Kelly . . . . .	D. Sup.	4th	Sep. 6, '87
			H. R. Littlewood . . . . .	S.	1st	Oct. 21, 85
			G. W. Jarbo . . . . .	S.	4th	Nov. 1, 80
			J. S. Swiney . . . . .	A. S.	1st	Apl. 14, 82
			P. Beechey . . . . .	A. S.	2nd	Nov. 1, 86
			J. A. T. Haddock . . . . .	A. S.	3rd	Nov. 26, 87
			Professional Establishment (Permanent) . .			
Cadastral ditto (Temporary) . .						
8	Bengal and Orissa (Cadastral.)  Recess quarters, Calcutta.	Rev.	Lt.-Col. S. H. Cowan, s.c. . . . .	D. Sup.	3rd	Feb. 20, '89
			D. Atkinson . . . . .	S.	1st	Dec. 1, 86
			B. B. Smart . . . . .	S.	4th	Nov. 1, 81*
			R. C. D. Ewing . . . . .	S.	4th	Sep. 12, 87
			C. S. Kraal . . . . .	A. S.	1st	Nov. 15, 88
			J. A. Higgs . . . . .	A. S.	2nd	Nov. 19, 88
			A. B. Smart . . . . .	A. S.	2nd	Oct. 1, 85
			C. S. Gasper . . . . .	A. S.	3rd	Mar. 2, 88
Professional Establishment (Permanent) . .						
Cadastral ditto (Temporary) . .						
9	Chanda (Traverse.)  Recess quarters, Kampti	Rev.	G. H. Cooke . . . . .	D. Sup.	4th	Oct. 26, '85
			H. E. T. Keelan . . . . .	S.	1st	May 14, 89
			H. Dowman . . . . .	S.	3rd	Nov. 1, 85
			A. George . . . . .	A. S.	1st	Nov. 1, 86
			A. Ewing . . . . .	A. S.	2nd	Nov. 1, 85
			Professional Establishment (Permanent) . .			
Cadastral ditto (Temporary) . .						
10	Bombay (Topo.)  Recess quarters, Poona	Rev.	Lt.-Col. H. S. Hutchinson, s.c. . . . .	D. Sup.	3rd	Oct. 22, '87
			W. Todd . . . . .	S.	2nd	Oct. 1, 88
			C. Tapsell . . . . .	S.	4th	Mar. 1, 88
			G. D. Cusson . . . . .	A. S.	1st	Oct. 1, 88
			W. M. Kelly . . . . .	A. S.	1st	Nov. 1, 79
			G. A. Knight . . . . .	A. S.	1st	Oct. 1, 88
			R. R. Dickinson . . . . .	A. S.	1st	May 1, 86
			Professional Establishment (Permanent) . .			
Cadastral ditto (Temporary) . .						

attached to Field Parties, 1st July 1889—continued.

SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundages and Peons.		
25	1	149	1	18	} 1,70,400	
158	1	280	...	...		
20	1	200	1	16	} 1,53,800	
170	...	450	...	...		
...	...	...	...	...	...	Offg. 3rd Grade.
35	1	330	1	14	68,100	
19	1	190	1	12	75,600	

Disposition List of Officers of the Survey of India Department,

No. of Party.	Locale and nature of operations.	Administrative Superintendent.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
		D. S. G.				
11	Nimar (Traverse.)	Rev.	W. H. Patterson . . . . .	D. Sup.	4th	Sep. 1, '88
			J. Newland . . . . .	S.	4th	Aug. 1, 88
			P. White . . . . .	A. S.	1st	Oct. 1, 83
			C. George . . . . .	A. S.	2nd	Oct. 1, 85
			H. A. Charrier . . . . .	A. S.	3rd	Feb. 14, 89
	Recess quarters, Poona					
12	Saugor (Traverse.)	Rev.	E. J. Jackson . . . . .	D. Sup.	4th	Oct. 29, '86
			P. J. Serrao . . . . .	A. S.	2nd	Mar. 1, 89
	Balaghat Detachment (Traverse.)		E. G. Little . . . . .	S.	3rd	Nov. 1, 88
			G. T. Hall . . . . .	A. S.	1st	Nov. 1, 88
	Recess quarters, Naini Tal					
13	Retul. (Traverse.)	Rev.	A. D'Souza . . . . .	A. Sup.	1st	Apl. 11, '86
			A. J. Gibson . . . . .	S.	2nd	Nov. 1, 87
			C. W. Wilson . . . . .	A. S.	1st	Dec. 1, 87
			C. W. F. Seyers . . . . .	A. S.	1st	Nov. 1, 85
			C. H. G. Johnson . . . . .	A. S.	3rd	Nov. 12, 88
	Recess quarters, Poona					
14	Hoshnugabad (Forest.)	Trig.	Col. J. R. Wilmer, s.c. . . . .	D. Sup.	3rd	Oct. 23, '88
			L. J. Pocock . . . . .	S.	3rd	July 1, 85
			A. Christie . . . . .	S.	3rd	Oct. 1, 87
			D. Campbell . . . . .	A. S.	1st	Apl. 17, 88
			F. E. Warde . . . . .	A. S.	3rd	May 1, 87
	Recess quarters, Mussoorie					

attached to Field Parties, 1st July 1889—continued.

SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.		
30	1	227	1	13	61,700	
						Offg. 3rd Grade.
30	1	324	1	11	59,300	
						Offg. Depy. Supdt., 4th Grade.
25	1	250	1	8	66,900	
40	2	805	1	14	62,000	

Disposition List of Officers of the Survey of India Department,

No. of Party.	Locale and nature of operations.	Administrative Superintendent.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
		D. S. G.				
15	Baluchistan (Topo.)	Topo.	Bt. Lt. Col. T. H. Holdich, B.E.	D. Sup.	2nd	Nov. 3, '88
			Lt. R. J. H. L. Mackenzie, B.E.	A. Sup.	1st	Oct. 1, 88
			W. W. McNair	S.	3rd	Oct. 1, 88
			T. E. M. Claudius	S.	3rd	Oct. 1, 83
			W. C. G. Barkley	A. S.	1st	Oct. 1, 85
			E. Graham	A. S.	1st	Oct. 1, 88
			G. P. Tate	A. S.	1st	Oct. 1, 88
			Yusuf Sharif Khan Bahadur	A. S.	3rd	Apl. 1, 89
Rai Hira Sing Bahadur	A. S.	3rd	Feb. 15, 88			
Recess quarters, Mussoorie.						
17	Bombay Forests (Forests.)	Topo.	Col. A. Pullan, s.c.	D. Sup.	2nd	Oct. 30, '86
			A. M. Lawson	S.	2nd	Oct. 1, 88
			S. F. Norman	A. S.	1st	Sep. 1, 74
			C. Norman	A. S.	1st	Oct. 12, 74
Recess quarters, Poona						
18	Himalaya (Topo.)	Trig.	Col. H. C. B. Tanner, Bom. s.c.	D. Sup.	2nd	Aug. 19, '86
			Lt. W. J. Bythell, B.E.	A. Sup.	2nd	July 1, 89
			C. D. Potter	S.	4th	Nov. 1, 87
			W. Robert	A. S.	1st	Sep. 1, 78
			W. A. Fielding	A. S.	1st	Oct. 1, 87
			P. F. Prunty	A. S.	1st	Sep. 1, 86
Recess quarters, Simla						
19	Madras (Forests.)	Topo.	Major J. R. McCullagh, B.E.	D. Sup.	3rd	June 21, '88
			C. F. Hamer	S.	3rd	Nov. 1, 87
			Hugh Todd	S.	4th	Oct. 1, 76
			R. Todd	A. S.	1st	Oct. 1, 82
			T. J. J. Mills	A. S.	2nd	Oct. 1, 84
Recess quarters, Ootacamund.						

attached to Field Parties, 1st July 1889—continued.

SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.		
6	1	183	1	6	92,200	Offg. Depy. Supdt., 4th Grade.
26	2	137	1	12	76,400	
28	1	160	1	8	71,000	Offg. 1st Grade.
22	1	208	1	27	67,200	Offg. 2nd Grade.

Disposition List of Officers of the Survey of India Department,

No. of Party.	Locale and nature of operations.	Admi- nistrative Superin- tendent.	Officers of the Senior and Junior Divisions.	Class.	Grada.	Date of appointment to Party.
		D.S. & C.				
20	Burma (Topo.)	Topo.	Lt.-Col. E. Beavan, s.c.	D. Sup.	3rd	Dec. 20, '88
			J. A. Barker	S.	4th	Dec. 1, '87
			J. H. Wilson	A. S.	1st	Nov. 1, '77
			C. P. Torrens	A. S.	1st	Nov. 1, '82
			W. H. Penrose.	A. S.	1st	Apr. 1, '87
	Recess quarters, Rangoon					
21	Upper Burma (Topo.)	Topo.	Major J. R. Hobday, s.c.	D. Sup.	4th	Mar. 20, '86
			Capt. H. M. Jackson, R.E.	D. Sup.	4th	Nov. 1, '88
			Lt. T. F. B. Renny-Taiyoure, R.E.	A. Sup.	1st	Apr. 1, '88
			M. J. Ogle	S.	2nd	Nov. 1, '88
			A. G. Wyatt	S.	2nd	Jan. 1, '87
			F. Kitchen	S.	4th	Oct. 1, '86
			J. M. Kennedy	A. S.	1st	June 14, '86
	Recess quarters, Rangoon					
22	Southern India (Astronomical I)	Trig.	Capt. S. G. Burrard, R.E.	D. Sup.	4th	May 3, '89
			J. Eccles, M.A.	A. Sup.	1st	Nov. 1, '88
	Recess quarters, Mussoorie					
23	Southern India (Astronomical II)	Trig.	Capt. S. G. Burrard, R.E.	D. Sup.	4th	May 3, '89
			J. Eccles, M.A.	A. Sup.	1st	Nov. 1, '88
	Recess quarters, Mussoorie.					

attached to Field Parties, 1st July 1889—continued.

Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Annual Cost of Party.	REMARKS.
21	2	521	2	11	1,01,900	
						Offg. 3rd Grade.
						Offg. Depy. Supdt., 4th Grade.
9	1	136		2	91,900	
						Offg. Depy. Supdt., 4th Grade.
1	1	20	1	...	20,000	
						Offg. Depy. Supdt., 4th Grade.
...	1	20	...	...	30,500	

Disposition List of Officers of the Survey of India Department,

No. of Party.	Locale and nature of operations.	Administrative Superintendent.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
		D. S. G.				
24	Upper Burma (Triangulation).	Trig.	Captain S. G. Burrard, B.E.	D. Sup.	4th	June 11, '89
			E. C. Ryall	A. Sup.	1st	Oct. 6, 85
			J. Hickie	A. S.	1st	Oct. 1, 88
			J. Keating	A. S.	1st	Oct. 1, 88
			B. R. Hughes	A. S.	2nd	Oct. 1, 88
	Recess quarters, Mussoorie.					
25	India, &c. (Tidal and Levelling).	Trig.	G. Belcham	S.	2nd	Sep. 1, 79
			E. J. Connor	S.	4th	Dec. 1, 77
			J. Bond	S.	4th	June 1, 88
	Recess quarters, Poona					

attached to Field Parties, 1st July 1889—concluded.

SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.		
2	1	89	1	91	56,000	
						In temporary charge.
18	1	35	...	10	52,100	

Disposition List of Officers of the Survey of India Department,  
temporarily transferred to other Departments, or on furlough,  
&c., 1st July 1889.

Officers of the Senior Division.	Officers of the Junior Division.	Class.	Grade.	Province to which transferred.	REMARKS.
		<i>On Deputation.</i>			
Lt.-Col. A. W. Baird, B.E.	. . . . .	D. Sup.	3rd	. . . . .	Offg. Mint Master, Calcutta.
Captain R. A. Wahab, B.E.	. . . . .	D. Sup.	4th	. . . . .	Employed on Military duty in Europe.
	T. H. Dunno . . . . .	S.	4th	Central Provinces . . . . .	On deputation.
	J. R. Scott . . . . .	S.	4th	Ditto . . . . .	Ditto.
	G. C. Swiney . . . . .	A. S.	1st	Ditto . . . . .	Ditto.
	G. E. Parker . . . . .	A. S.	1st	Ditto . . . . .	Ditto.
	E. P. S. Hill . . . . .	A. S.	1st	Ditto . . . . .	Ditto.
	P. A. Peters . . . . .	A. S.	1st	Straits Settlements	Ditto.
		<i>On Furlough, &amp;c.</i>			
Maj.-Genl. C. T. Haig, B.E.	. . . . .	D. S. G.	...	. . . . .	For 1 year and 4 days, from 1st December 1888.
Colonel W. Barron, S.C.	. . . . .	D. Sup.	2nd	. . . . .	For 1 year and 275 days, from 20th February 1889.
Major J. Hill, B.E.	. . . . .	D. Sup.	3rd	. . . . .	For 1 year and 5 months, from 18th May 1888.
Capt. F. B. Longe, B.E.	. . . . .	D. Sup.	4th	. . . . .	For 18 months, from 16th November 1888.
Capt. G. B. Hodgson, S.C.	. . . . .	D. Sup.	4th	. . . . .	For 2 years, from 4th March 1889.
	W. A. Wilson . . . . .	S.	2nd	. . . . .	For 1 year, from 24th March 1889.
	D. A. King . . . . .	S.	4th	. . . . .	For 1 year, from 20th December 1887. Extension for 9 months and 23 days.
	E. W. Senior . . . . .	A. S.	2nd	. . . . .	On medical leave for 4 months, from 8th May 1889.
	T.W. Babonau Jr. . . . .	A. S.	2nd	. . . . .	Extraordinary leave for 6 months, from 8th April 1889.

## Statements of the Services of Officers in the Survey of India.

Corrected up to 1st July 1889.

**COLONEL H. R. THULLIEB**, *Royal Engineers (Bengal), Surveyor-General of India*.—Joined the Honourable East India Company's Military College, Addiscombe, 11th June 1855; obtained his commission as 2nd Lieutenant, 12th June 1857; on duty at the Royal Engineering Establishment, Chatham, from 1st August 1857 to February 1859; promoted to 1st Lieutenant, 27th August 1858; arrived in India, 29th April 1859; appointed to the Survey Department as 2nd Assistant, Great Trigonometrical Survey, 21st May 1859; attached to the Great Indus Series Party from 20th November 1859 to 28th February 1861; promoted to 1st Assistant, 1st February 1861; transferred to the Kashmir Survey and employed thereon from 1st March 1861 to 28th February 1862; appointed to the charge of the Levelling Party, 1st March 1862; appointed to the charge of the East Calcutta Longitudinal Series Party, 1st September 1862; employed on that undertaking till its completion in November 1867; then commenced the Brahmaputra series; designation of appointment changed to Surveyor, 3rd grade, 1st April 1866; promoted to 2nd grade, 1st September 1869; designation changed to Deputy Superintendent, 2nd grade, 1st September 1869; Captain, 10th November 1869; employed on the Brahmaputra series triangulation till October 1870; then transferred to the charge of the Kumaon and Garhwal Topographical Survey; furlough to Europe, 14th March 1871; promoted to Deputy Superintendent, 1st grade, 18th July 1871; returned to India from furlough, 9th March 1873; resumed charge of the Kumaon and Garhwal Survey party in October 1873; employed on the survey of the Debra Dun and Jaunsar-Bhawar districts till April 1876; reverted to Deputy Superintendent, 2nd grade, 1st April 1874, under reorganization of the department, and officiated as Deputy Superintendent, 1st grade, from that date; appointed to officiate as Superintendent, Great Trigonometrical Survey, 4th April 1876; Major, 7th October 1876; reverted to Officiating Deputy Superintendent, 1st grade, 1st November 1876; transferred to the charge of the Mysore Topographical Survey in March 1877; promoted to Deputy Superintendent, 1st grade, 27th October 1878, under the reorganization of 1878; furlough to Europe from 17th November 1879 to July 1881; on special duty at Poona, July to October 1881; resumed charge of the Mysore Topographical Survey, November 1881; Brevet Lieutenant-Colonel, 7th October 1883; appointed to officiate as Deputy Surveyor-General, in charge Revenue Branch, from 5th March 1884; confirmed, 1st October 1884; appointed to officiate as Surveyor General of India from 24th February 1886; Lieutenant-Colonel, 12th August 1886; confirmed as Surveyor-General of India, 19th February 1887; Colonel, 7th October 1887. On privilege leave for 3 months, from 11th April 1889.

**COLONEL JAMES SCORCE**, *Bengal Staff Corps, Officiating Surveyor-General of India*.—Joined the Honourable East India Company's Military College at Addiscombe, February 1852; date of first commission as 2nd Lieutenant, Bengal Artillery, 9th December 1853; landed in India, 2nd April 1854; promoted to 1st Lieutenant, 23rd September 1857; appointed to Bengal Horse Artillery, 11th February 1858; appointed Adjutant, 4th Battalion, Bengal Artillery, 15th July 1859; appointed Assistant Revenue Surveyor in the Bundelkhand Revenue Survey, 21st October 1859; transferred to the Royal Artillery, May 1861; appointed to the charge of 1st Division, Central Provinces Revenue Survey at Jubbulpore, 27th June 1862; promoted to Revenue Surveyor (now Deputy Superintendent of Survey), 3rd grade, 24th January 1863; promoted to 2nd Captain, Royal Artillery, 3rd April 1863; transferred to the charge of 3rd Division, Central Provinces Revenue Survey at Saugor, 13th November 1863; proceeded on furlough to Europe on sick certificate, 25th July 1864; returned from furlough and appointed to do duty in the Office of Superintendent, Revenue Survey, Calcutta, 16th March 1866; appointed to the charge of 6th Division, Lower Pro-



vinces Revenue Survey at Hazaribagh, 3rd November 1866; promoted to Deputy Superintendent of Survey, 2nd grade, 6th November 1868; transferred as Captain to Bengal Staff Corps, 8th March 1869; proceeded on furlough to Europe, 28th March 1872; returned from furlough and appointed to do duty in the Office of Superintendent of Revenue Surveys, Calcutta, 5th November 1873; appointed to the charge of the 3rd Division, Lower Provinces Revenue Survey at Midnapur, 6th December 1873; promoted to Brevet Major, 9th December 1873; transferred to the charge of the 8th Division, Revenue Survey (Western Soane Irrigation) at Arrah, 16th March 1876; promoted to Major, Bengal Staff Corps, 11th October 1876; appointed Deputy Surveyor-General, 1st January 1879; promoted to Lieutenant-Colonel, Bengal Staff Corps, 9th December 1879; Colonel, 9th December 1883; on furlough to Europe from 14th March 1884 to 7th March 1886; resumed charge of his office as Deputy Surveyor-General, Revenue Branch, on 11th March 1886. Officiating Surveyor-General of India from 11th April 1889.

*War Services.*—Served with the 1st Battalion, Bengal Artillery, and No. 17, Light Field Battery, at the siege and capture of Delhi in September 1857; in action with the rebels at Bulandshahr in October 1857; in action with the rebels at Agra, 10th October 1857; served during the operations leading to the relief of Lucknow by the Army under Sir Colin Campbell in October and November 1857; in action with the rebels at Cawnpore on 5th November 1857; in action with the rebels at Shumshabad, near Futtegarh, in January 1858; at Alumbagh during the capture of Lucknow in March 1858; has received a mutiny medal with clasps for "Delhi," "Relief of Lucknow," "Capture of Lucknow."

**MAJOR-GENERAL CHARLES THOMAS HAIG, *Royal Engineers (Bombay), Deputy Surveyor-General.***—Obtained his first commission from the Honourable East India Company's Military College at Addiscombe, 8th June 1854; on duty at the Royal Engineering establishment, Chatham, 1st August 1854; left Chatham, 9th April 1855; Lieutenant, 24th May 1856; arrived at Bombay, 5th July 1856; joined the Bombay Sappers and Miners at Poona forthwith; commanded a company of that corps with the Persian Expeditionary Force, 1856-57; returned to India, October 1857; started same month in command of a company of the Bombay Sappers and Miners to join the Rajputana Field Force, with which he was afterwards appointed Staff Officer of Engineers; in May 1858 was appointed Assistant Executive Engineer at Neemuch; 22nd September 1859, appointed 2nd Assistant in the Great Trigonometrical Survey of India; joined the Bombay Party, at Rajkot, 15th October 1859, but was employed with the Okhamandal Field Force in the taking of Dwarka till December 1859; assumed charge of the Bombay Party, March 1860, and was employed therewith in Kathiawar, Gujarat, Meywar, Malwa, the Deccan and Kanara, until March 1866; promoted to 1st Assistant, 1st February 1861, and to Captain, 12th April 1862; on furlough from 14th April to 13th October 1865; assumed charge of the Northern Bombay Party, March 1866; engaged in the Survey of Bombay and the Topographical Survey of Kathiawar till September 1869; promoted to Deputy Superintendent, 2nd grade, 1st October 1867; on furlough from 30th September 1869 to 22nd September 1871; assumed charge of the Gujarat Party and engaged in its Topographical Survey till June 1884, with the exception of furlough from 31st March 1877 to 30th October 1878, and deputation as Commissioner to the Venice Geographical Exhibition from 14th April to 7th November 1881; promoted to Major, 5th July 1872, and to Lieutenant-Colonel, 23rd January 1877; Officiating Deputy Superintendent, 1st grade, 1st November 1879; promoted to Colonel, 1st July 1881; again officiated as Deputy Superintendent, 1st grade, from 27th November 1881 to 31st December 1882, and from 12th February 1883. Confirmed in that grade, 1st November 1883; appointed Officiating Deputy Surveyor-General, in charge Trigonometrical Branch, 1st October 1884; confirmed 19th February 1887; on furlough for 1 year and 4 days from 1st December 1888. Promoted to Major-General, 30th November 1888.

*War Services.*—Served with Persian Expeditionary Force, 1856-57; present at the battle of Khushab, and at the taking of Mohamera—medal and clasp; served with the Rajputana Field Force, 1857-58; present at the siege and assault of Kota—medal and clasp; served with the Okhamandal Field Force, 1859; present at the siege of Dwarka.

**LIEUTENANT-COLONEL GEORGE STRAHAN, *Royal Engineers (Bengal), Officiating Deputy Surveyor-General, in charge Trigonometrical Branch.***—Obtained his commission from the Honourable East India Company's Military College at Addiscombe on 10th December 1858; on duty at Royal Engineering Establishment at Chatham, February 1st, 1859; remained under instruction at the establishment till June 1860; arrived in India, November 20th, 1860; remained with the Sappers and Miners at Roorkee from 6th December 1860 till March 1861; employed in the Irrigation Branch, Public Works Department, till July 2nd, 1862; appointed on 2nd July 1862 to Survey Department; served as Assistant in the

Gwalior and Central India Survey for two years; assumed charge of No. 7 Party, Rajputana Survey, 1st September 1864; \* sick leave to England, from 10th November 1867 to 6th July 1869; promoted to Captain, January 14th, 1871; appointed Deputy Superintendent, 3rd grade, November 10th, 1867; appointed Deputy Superintendent, 2nd grade, October 26th, 1870; transferred to charge of No. 8 Party, Mysore Survey, 1st October 1875; furlough to Europe on private affairs, from May 1st, 1877, to April 15th, 1879; assumed charge of No. 2 Party, Khandesh Survey, June 4th, 1879, and of Mysore Topographical Party, 1st November 1879; promoted to rank of Major, 27th May 1881; received charge of No. 2 Astronomical Party, 4th November 1881; Officiating Assistant Surveyor-General in charge, Engraving and Cartographic Offices, Head-quarters, Calcutta, from 27th April 1883 to 24th July 1883; assumed charge of No. 2 Astronomical Party, 1st August 1883; furlough to Europe for one year from 7th May 1884, with extension for 6 months; promoted to Deputy Superintendent, 1st grade, 10th November 1884. On duty in Europe from 10th April to 4th August 1885, inclusive (period to count as service, *vide* Secretary of State's letter No. 231, dated 3rd September 1885). In charge, Astronomical No. 2 Party, 13th November 1885, and of the Andaman Survey likewise from 18th May 1886. Nomenclature of Party changed to Nicobar, 1st October 1886; made over charge of No. 2 Astronomical Party on the 15th October 1886; promoted to Lieutenant-Colonel, 8th September 1886; made over charge of No. 21 Party (Nicobar) and resumed that of No. 23 Party (Astronomical II), 1st October. Charge of No. 22 Party (Astronomical I) from 1st to 30th November 1887. Made over charge of No. 23 Party (Astronomical II), 13th July 1888 afternoon; Officiating Assistant Surveyor-General in charge, Mathematical Instrument Office, and Surveyor-General's Office, from 23rd July to 8th October 1888. Appointed Officiating Deputy Surveyor-General and assumed charge of the Trigonometrical Branch on the afternoon of the 14th November 1888.

**COLONEL DONALD MACDONALD**, *Bengal Staff Corps, Deputy Superintendent, 1st Grade.*—Date of first commission as Ensign in Bengal Infantry, 20th October 1853; landed in India, 1st December 1853; posted to 25th Regiment, Native Infantry; served with the 25th Native Infantry, 21 year at Allahabad and 4½ years in Burma, during which period he officiated as Quarter-Master and was appointed Adjutant; promoted to Lieutenant, 18th January 1856; proceeded to Europe on medical certificate from 20th May 1859 to 12th August 1860; joined the Survey Department, 19th December 1860; served as Assistant Revenue Surveyor in the Dinagepur District, and afterwards in Manbhoom; Captain, 1st January 1862; received charge of a Survey Party in 1863; entered Staff Corps, 13th August 1864; promoted Revenue Surveyor, 1st January 1865; promoted Deputy Superintendent, 3rd grade, 1st April 1866; superintended the survey of Manbhoom from 1863 to 1866; took this party up to Lakhimpur in Assam, and started the survey there; transferred in March 1867 to Sind, and superintended the survey of District Shahbunder and portion of Thar Parkar, and Hyderabad; transferred with this party to Kurnal in 1870; promoted to Officiating Deputy Superintendent, 2nd grade, 12th March 1871; furlough on private affairs from 18th January 1872 to 14th January 1874; Major, 20th October 1873; on return took charge of the Goalpara Survey till 1875, when that party was broken up; transferred to charge of North Deccan Survey at Poona; again transferred in 1877 to charge of Sirsa Survey; promoted Deputy Superintendent, 2nd grade, 1st January 1878; Lieutenant-Colonel, 20th October 1879; on breaking up of that party in 1879 was posted to charge of North-West Frontier Survey, which he held from 1879 to 1884; surveyed portions of Dehra Ismail Khan, Rawalpindi, Mozaffargurh and Hissar Districts; Colonel, 20th October 1883; furlough on private affairs from 7th March 1884 to 23rd February 1886; on return from furlough was posted to Head-quarters Office in Calcutta as Officiating Assistant Surveyor-General, in charge of Mathematical Instrument Office, and Surveyor-General's Office; Officiating Deputy Superintendent, 1st grade, 9th March 1886; confirmed, 1st January 1887; confirmed as Assistant Surveyor-General, 26th September 1887. Assumed charge of No. 1 Party (Punjab) on the 16th January 1889.

**LIEUTENANT-COLONEL CHARLES STRAHAN**, *Royal Engineers (Bengal), Officiating Deputy Surveyor-General, in charge Revenue Branch.*—Date of first commission, 8th June 1860; landed at Calcutta, October 1862; appointed to Survey Department as Military 2nd Assistant, and attached to No. 1 Party, 26th September 1863; took charge of reconnoitring party in Bhutan under General Tytler in October 1865; promoted to Assistant Surveyor, 1st grade, 1st April 1866; rejoined No. 1 Party, 16th July 1866; promoted to Surveyor, 3rd grade, 1st December 1867; furlough to Europe from 2nd December 1871 to 27th October 1873; promoted to Captain, 20th August 1872; Officiating Deputy Superintendent, 2nd grade, from 4th January to 31st March 1874, from 1st February to 4th October 1878, from 27th October 1878 to 21st April 1879, and

from 1st November 1879 to 13th March 1880; furlough to Europe from 27th March to 10th October 1880; Officiating Deputy Superintendent, 2nd grade, from 18th October 1880 to 9th January 1884; promoted to Brevet-Major, 2nd March 1881; to Major, 1st July 1881; officiated as Assistant Surveyor-General, in charge Cartographic and Engraving Offices, from 24th July 1883; promoted to Deputy Superintendent, 2nd grade, 10th January 1884; confirmed as Assistant Surveyor-General, 23rd May 1884; Officiating Deputy Superintendent, 1st grade, from 3rd December 1884 to 12th November 1885; furlough to Europe from 4th May 1886 to 23rd October 1887; resumed charge of his office as Assistant Surveyor-General in charge, Drawing and Engraving Offices, Calcutta, 24th October 1887. Officiating Deputy Superintendent, 1st grade, from 1st November 1888 to 25th April 1889. Confirmed 26th April 1889, promoted to Lieutenant-Colonel, 1st July 1888; Officiating Deputy Surveyor-General, in charge Revenue Branch, from 11th April 1889.

*War Services.*—Served with the Bhutan Field Force, in charge of reconnoitring party, under General Tytler, from October 1865 to 16th July 1866—medal and clasp; served with the Peshawur Field Force in Afghanistan, under Sir Samuel Brown, from March 1879 to end of first campaign in June 1879—medal—Brevet of Major.

**COLONEL WILLIAM BARRON**, *Bengal Staff Corps, Deputy Superintendent, 2nd Grade.*—Received a commission in the Bengal Artillery as 2nd Lieutenant on 11th December 1858; arrived in the country, 4th February 1859; did duty with the Bengal Artillery at Meerut and Peshawur till end of March 1860; did duty with the Peshawur Mountain Train Battery during April and May 1860; rejoined the Artillery Division at Peshawur, June 1860, and continued there till appointed to the Peshawur Mountain Train Battery on 22nd August 1861; served with it at Murdan and Abbottabad till 3rd July 1862; appointed Assistant Revenue Surveyor in the Revenue Survey, 27th June 1862, and joined on 4th July 1862; joined the Bengal Staff Corps, 4th July 1862; Assistant Superintendent, 1st grade, 27th June 1866; surveyed in the Delhi, Peshawur, and Hazara Districts till 15th December 1866; held charge of the North-West Frontier Survey from 12th October to 15th December 1866; took charge of the 2nd Division, Lower Provinces, at Dibrugarh, Assam, on 1st February 1867; Officiating Deputy Superintendent, 3rd grade, 6th November 1868; continued surveying in the Lakhimpur District till 8th December 1869; leave on medical certificate to Europe from 6th January 1870 to 3rd April 1871; promoted to Captain, 11th December 1870; appointed Deputy Superintendent of Survey, 3rd grade, on 1st April 1870; on return from furlough took charge of the North-West Frontier Revenue Survey on 17th April 1871; surveyed in the Dera Ghazi Khan District till 15th October 1873; transferred to the 4th Division, Revenue Survey, and took charge on the 13th November 1873; continued in charge till the 31st October 1883, during which time surveyed districts Budaun (on scale of 4"=1 mile), Moradabad, Ghazipur, Ballia, and part of Benares (cadastrally on scale of 16"=1 mile); promoted to Major, 11th December 1878; Officiating Deputy Superintendent, 2nd grade, from 27th November 1881 to 2nd December 1881, again from 7th November 1882 to 8th January 1883, and from 12th February 1883 up to 31st October 1883; furlough, private affairs, for 2 years, from 9th November 1883; confirmed as Deputy Superintendent, 2nd grade, 7th August 1884; promoted to Lieutenant-Colonel, 11th December 1884; returned from furlough and received charge of No. 8, Revenue Party, Mozufferpore, subsequently called Bengal and Orissa Cadastral Survey, 16th November 1885. On deputation to Government Straits Settlement from afternoon of 14th May 1887. Resumed charge of No. 8 Party (Bengal and Orissa), 30th August 1887; Officiating Deputy Superintendent, 1st grade, from 15th November 1888; Colonel, 11th December 1888. Furlough on private affairs for 1 year and 275 days, from 20th February 1889.

Favourably mentioned in Despatch No. 7, dated India Office, London, 5th May 1870, from the Right Honourable the Secretary of State for India, to His Excellency the Right Honourable the Governor General of India in Council, for his work in the Lakhimpur District.

Received the thanks of the Government of India for compiling a "Hand-book of Instructions for Cadastral Survey Parties employed in the combined operations of Survey and Settlement in the North-Western Provinces."—Letter No. 213 S., dated Simla, 11th June 1884, from the Under-Secretary to the Government of India (Revenue and Agricultural Department), to the Surveyor-General of India.

*War Services.*—Served with the Peshawur Mountain Train Battery in the Mahsud Waziri Expedition during April and May 1860, and the forcing of the Burrara Pass; served as Assistant Surveyor with the Umbeyla Expedition, October 1863; severely wounded in the action at the Eagle's Nest Picket on 26th October 1863—wound pension for life—medal with North-West Frontier and Umbeyla clasps.

**COLONEL H. C. B. TANNER**, *Bombay Staff Corps, Officiating Deputy Superintendent, 1st Grade.*—Obtained his commission in the Bombay Artillery from the Honourable East India Company's

Military College at Addiscombe on the 8th June 1854; joined the Survey Department from the E Brigade, Royal Horse Artillery, as Assistant in the Sind Revenue Survey on 10th October 1862; transferred with the Sind Party to Chanda, Central Provinces; the party became the 4th Division, Central Provinces Revenue Survey, in February 1865; sick leave from 18th February to 13th March 1866; furlough to Europe from 14th March 1866 to 11th May 1867; after rejoining from furlough, on duty in the Head-quarters Office, Calcutta, from 11th May to 23rd June 1867; assumed charge of the 3rd Division, Central Provinces Revenue Survey, at Saugor, 24th June 1867; transferred with the party to the Nimar District in November 1867; Officiating Deputy Superintendent, 3rd grade, 6th November 1868; promoted to Deputy Superintendent, 3rd grade, 1st April 1870; assumed charge of the Bombay City Survey in addition to his other duties, December 1869; transferred with the 3rd Division, Central Provinces Survey, to Bhawalpur; designation of party changed to 1st Division, Bhawalpur Revenue Survey, November 1870; transferred to the Topographical Party, which accompanied Sir Charles Brownlow's column to the Lushai Hills, from 1st November 1871 to 30th April 1872; on return from the Lushai Expedition transferred to charge of 4th Division, Central Provinces, 29th August 1872; designation of party altered to 11th Deccan Topographical Party, 1st October 1872; promoted to Major, 8th June 1874; furlough on private affairs on 25th August 1876; rejoined 11th Division, Deccan Survey, on expiration of furlough, 28th April 1877; ordered to join the Khyber column, under Lieutenant-General Sir Samuel Brown, as Surveyor, November 1878; joined the Great Trigonometrical Survey Office at Mussooree on completion of Afghanistan campaign in June 1879; on special duty to Gilgit from July 1879 to 18th April 1882; promoted to Lieutenant-Colonel, 22nd November 1879; furlough for 6 months, 19th April 1882; assumed charge of Darjeeling and Nepal Boundary Parties, 1st November 1882; Officiating Deputy Superintendent, 2nd grade, from 7th November to 31st December 1882, and from 14th March 1883 to 30th September 1884; promoted to Colonel, 8th June 1884; and to Deputy Superintendent, 2nd grade, 1st October 1884; services placed under the disposal of the Foreign Department for employment with the Tibet Mission from May 1886. Rejoined the Department, 18th August 1886, and assumed charge of the Himalaya Party on the 19th idem. Officiating Deputy Superintendent, 1st grade, from 20th February 1889.

*War Services.*—Accompanied the Persian Expeditionary Force of 1856 as Subaltern in No. 5 Light Field Battery, and was present at the landing at Halila Bay, the taking of Reshire and Bushire and the battle of Kushat—medal and clasp—accompanied a force despatched after the rebels from Kurrachee to Nugger Parker in May 1859; accompanied Sir Charles Brownlow's column during the Lushai Expedition in November 1871 as Surveyor—clasp—mentioned in despatches, and received the thanks of the Government of India; accompanied Sir Samuel Brown's column, 1st Division, Peshawur Valley Field Force, as Surveyor, from the commencement to the termination of hostilities in 1878-79.

**COLONEL AYRTON PULLAN, Bengal Staff Corps, Deputy Superintendent, 2nd Grade.**—Appointed a Cadet of Infantry, February 1856; landed in India, 29th April 1856; date of first commission as Ensign, 14th June 1856; Lieutenant, 26th December 1856; Officiating Quarter-Master, 4th Sikh Infantry, July 1857; sick leave from Delhi Field Force, 12th September to 30th November 1857; appointed Adjutant, Berry's Sikhs, November 1857; Adjutant, Gornkpur Military Police, January 1858; Adjutant, Benares Horse, January 1859; appointed to the Staff Corps, 18th February 1861; attached to Her Majesty's 8th Hussars, November 1861; Doing Duty Officer, 14th Bengal Cavalry, January 1862; officiated as Assistant Political Agent and Bazar Master, Morar, from April to June 1862; Doing Duty Officer, 8th Bengal Cavalry, June 1862; appointed 2nd Assistant, Great Trigonometrical Survey, 18th January 1863; promoted to 1st Assistant (designation changed to Assistant Surveyor, 1st grade), 1st October 1866; promoted to Captain, 14th June 1868; furlough to Europe for two years, 31st December 1869; Assistant Superintendent, 1st grade, and Officiating Deputy Superintendent, 3rd grade, Great Trigonometrical Survey, 11th December 1871; appointed to the charge of the Kathiawar Survey, 6th April 1873; promoted to Major, 14th June 1876; confirmed Deputy Superintendent, 3rd grade, 1st January 1878; furlough to Europe for one year from 13th May 1878; returned to duty, 19th April 1879; resumed charge of Kathiawar Survey, 26th April 1879, on completion of which in 1879-80 commenced the survey of Cutch; promoted to Lieutenant-Colonel, 14th June 1882; officiated as Deputy Superintendent, 2nd grade, from 1st November 1883; confirmed, 28th November 1884; employed on Cutch Survey until its completion in 1886; promoted to Colonel, 14th June 1886; assumed charge of Gujarat Survey on 30th October 1886.

*War Services.*—Served as Orderly Officer to Brigadier Johnstone on the march from Jullundur to Delhi, June 1867; served with the 4th Sikh Infantry throughout the siege of Delhi—severely

wounded—medal and clasp—also mentioned in despatches three times during the Indian rebellion, and received the thanks of Sir C. Wingfield, Chief Commissioner of Oudh, for the defence of the town of Bansee when attacked by an insurgent force, July 1858 (horse wounded).

**COLONEL WILLIAM HENRY WILKINS, Bengal Staff Corps, Deputy Superintendent, 2nd Grade.**—Joined the Bengal Artillery, 12th December 1857; arrived in the country, 28th January 1858; promoted to 1st Lieutenant, 27th August 1858; joined Thomason College, Roorkee, 12th March 1861; obtained 1st class certificate, &c., 27th August 1862; privilege leave until 1st November 1862, on which date received general leave in India for three months, afterwards extended to six months; commanded the garrison battery in Agra Fort (the 20 days' leave not expended was never cancelled), 11th April 1863; joined the Fyzabad Revenue Survey as Assistant on probation, 27th April 1863; confirmed as Assistant Revenue Surveyor, and appointed to Staff Corps from 11th May 1864; joined 1st Division, Central Provinces Revenue Survey, 13th November 1864; promoted to Assistant Superintendent, 1st grade, 27th April 1867; Captain, 12th December 1869; Assistant Superintendent, in charge of 1st Division, Central Provinces Survey, 3rd August 1870 to 16th December 1870; joined the 2nd Division, Punjab Revenue Survey, 1st July 1871; Officiating Deputy Superintendent, 3rd grade, 13th May 1871 to 24th September 1871; received charge of 2nd Division, Punjab Revenue Survey, 20th October 1871; Officiating Deputy Superintendent, 3rd grade, from 18th January 1872 to 3rd March 1872, and from 28th March 1872 to 18th March 1877; received charge of Midnapur Revenue Survey, 1st December 1876; received charge of Dearah Survey, 7th December 1877; Major, 12th December 1877; confirmed as Deputy Superintendent, 3rd grade, 27th October 1878; received charge of Bassein District (British Burma) Cadastral Survey on 25th November 1881; received personal allowance of ₹100 from 15th February 1883 until promotion to Deputy Superintendent, 2nd grade; on furlough to Europe from 8th June 1883; promoted to Lieutenant-Colonel, 12th December 1883; returned from furlough and attached to Head-quarters, Calcutta, from 14th March 1884; Officiating Deputy Superintendent, 2nd grade, from 7th August 1884; confirmed 1st January 1887. Transferred to charge of Raipur District Traverse Survey, and superintending Detached Party working in District Sambalpur from 4th November 1885. Colonel, 12th December 1887.

**War Services.**—Served with the Cawnpur Field Force during February and March 1858.

**LIEUTENANT-COLONEL J. E. SANDEMAN, Bengal Staff Corps, Deputy Superintendent, 2nd Grade.**—Joined the Royal Military College at Addiscombe in 1860; obtained a commission as Ensign in the Bengal Infantry on the 7th June 1861; arrived in India in October 1861; was attached for duty to Her Majesty's 90th Light Infantry; promoted to Lieutenant, 19th May 1862; 10th October 1862 passed the P. H. examination in Hindustani; had leave in India, private affairs, 15th December 1862 to 12th February 1863; by G. O. C. C., dated 23rd March 1863, was permitted to study at the Civil Engineering College at Roorkee; in September 1864 passed the College final examination, and obtained certificate qualifying for employment as an Engineer in the Department of Public Works; was appointed to the Survey Department, and joined appointment at Nagpur on the 6th October 1864; from 17th February 1866 was transferred to 2nd Division, Oudh Survey, and from 13th November 1866 to North-Western Frontier Survey Party in the Punjab; joined the Staff Corps on the 9th May 1867; served in the Punjab till 1870; furlough to England from 14th March 1870 to 16th February 1872; rejoined his appointment at Nagpur as Assistant Superintendent of Survey on 21st February 1872; held charge of the 2nd Division, Central Provinces Revenue Survey, from 19th June to 10th August 1872; from 1st October 1872 was transferred to the Moradabad Cadastral Survey; in March 1873 was transferred to Bengal, and took over charge of the Midnapur Survey from 21st March 1873; promoted to Captain, 7th June 1873; made over charge of the Midnapur Survey in December 1873, and proceeded to join the Goalpara Survey in Assam; in October 1874 was appointed to the Behar Irrigation Survey as Assistant Superintendent; from 1st October 1875 obtained charge of the Darjeeling Waste Lands Survey, which after two months was converted into Dhanwar Estate Survey; with this party surveyed cadastrally the Dhanwar Estate in Hazaribagh, a portion of the Chota Nagpur Estate in Lohardugga, and the Government Estate of Barkagarh in Lohardugga; from the 1st December 1878 assumed charge of the British Burma Cadastral Survey; Officiating Deputy Superintendent, 3rd grade, from 15th May to 7th November 1876, and from 14th July 1877; confirmed, 1st January 1879; promoted to rank of Major, 7th June 1881; furlough to Europe from 9th August 1881 to 30th October 1882; appointed to do duty in the Head-quarters Office, Calcutta, from 4th November 1882; received personal allowance of ₹100 until promotion to Deputy Superintendent, 2nd grade, 15th February 1883; assumed charge of Mirzapur and Gorakhpur Districts Cadastral Survey, North-Western Provinces, from 1st November 1883; Officiating Deputy Superintendent, 2nd grade, from 24th September 1884; confirmed, 19th

February 1887; promoted to Lieutenant-Colonel, 7th June 1887; overstayd privilege leave by three days in October 1887.

*War Services.*—Served with the Black Mountain Expedition in Hazara under Major-General Alfred Wilde, from 15th August to 31st October 1868; was present at the advance from Munna Kaduna, and the taking of the Machai Peak; assisted in surveying the route taken by the force, and the surrounding country, under the direction of Colonel H. C. Johnstone, and compiled a map of the same—received the Frontier medal.

**BREVET LIEUTENANT-COLONEL T. H. HOLDICH, *Royal Engineers, Deputy Superintendent 2nd Grade.***—Commissioned Lieutenant, R.E., 17th December 1862; arrived in India, 3rd March 1865; appointed Assistant to Officer in charge, Field Survey Operations in Bhutan, October 1865; appointed Assistant Superintendent, 2nd grade, Topographical Survey of India, 23rd July 1866, and attached to the Rajputana Party; assisted to make the first surveys of the Sambhur Lake District; attached to special party for service in Abyssinia, December 1867; proceeded to England on special duty from Abyssinia, June 1868; Assistant Superintendent, 1st grade, 15th December 1868; returned to India on 4th May 1869, and joined Gwalior and Central India Topographical Survey; acted in charge of the party from 1871 to 1873; Officiating Deputy Superintendent, 3rd grade, from 11th August to 3rd November 1873, and again from 15th December 1873 to 14th May 1877; appointed to charge of Vizagapatam Agency and Central Provinces Survey on 15th December 1873; completed the survey of districts east of the Godavari river, including part of Bustar and Gondwana; Captain, 4th June 1876; furlough to England for 2 years when the party was broken up, 14th May 1877; recalled for service with Southern Afghanistan Field Force in December 1878; Officiating Deputy Superintendent, 3rd grade, from 15th January to 13th June 1879, and from 1st November 1879 to 28th April 1883; Brevet-Major, 2nd March 1881; special leave to England for 3 months, from 1st November 1880; assumed charge of the Kohat District Topographical Survey on 15th February 1881; Deputy Superintendent, 4th grade (new), 1st July 1882; Deputy Superintendent, 3rd grade, 29th April 1883; completed survey of Kohat District in April 1883, having carried out the following trans-frontier explorations and surveys whilst in charge of the party—survey of the unmapped portions of the Adamkhel Afridi country—exploration of passes leading from Meranzai valley into the Urakzai Hills—survey of Kaffir-Kot at all passes from Bannu, crossing the frontier to north and west, completing the frontier survey to Bannu—exploration of route from Bannu to Ghazni, including survey of Darwar, Birmal, and country west of Waziristan—survey of Gomal river and contiguous passes to junction of Zhob and Gomal—survey of Takht-i-Suliman mountain and passes north of it, including the Sherani country—exploration of Eastern Afghanistan to Lake Abistada—survey of the Vehowa basin and routes across the Suliman range, thus completing the frontier survey as far south as Vehowa; appointed to charge of Baluchistan frontier party in October 1883; furlough to Europe for 1 year from 8th March 1884; recalled for service with the Zhob valley expedition in July 1884; transferred to charge of Afghan Boundary Survey in September 1884; Officiating Deputy Superintendent, 2nd grade, from 3rd December 1884 to 6th November 1885, and from 21st April to 19th November 1886; returned to India, 1st November 1886; on duty at India Office for writing Afghan Boundary Commission Report for 4 months, from 25th November 1886. Availed himself of the unexpired portion of furlough from 25th March 1887. Extension on medical certificate, from 10th November 1887 to 14th April 1888. Brevet Lieutenant-Colonel, 16th February 1887; posted to the charge of Drawing Office, Trigonometrical Branch, on 14th April 1888; Officiating Deputy Superintendent, 2nd grade, from 17th July 1888; confirmed, 26th March 1889. Was in charge of No. 16 Party (Baluchistan II) from 18th to 30th September 1888, after which date the party was disbanded. In charge No. 15 Party (Baluchistan) from 3rd November 1888, in addition to his other duties. Relieved of charge of Drawing Section, Dehra Dun, 17th April 1889.

*War Services.*—Served on special duty during the Bhutan campaign from October 1865 to close of campaign; present with the Buxa column to its furthest advance, and subsequently with the Dewangiri column; despatches not published—frontier medal and clasp for Bhutan; served on special survey duty during the Abyssinian campaign from December 1867 to close of campaign; mentioned in despatches, and services commended by Secretary of State for War—medal. Served on special survey duty during the first period of the Afghan campaign in Southern Afghanistan; completed the Topographical survey of the Kadanai valley and the route from Pishin to India *via* Thal-Chotiali; mentioned in despatches; services commended by Governor General in Council and Secretary of State for India; appointed to charge of survey operations in Northern Afghanistan during second period of campaign; present at Kabul during the winter of 1879-80; siege and defence of Sherpur; appointed Assistant Field Engineer during the defence; mentioned in despatches; present during the occupation of the Lughman Valley Expeditions to Kohistan, Logar, Wardak, &c.—medal with clasp for Kabul; services commended by

Governor General in Council and Secretary of State for India; Brevet-Major, March 1881; served in charge of survey operations during the Waziri expedition of 1881; present during skirmish when survey party was attacked on Shaidar mountain; mentioned in despatches; Takht-i-Suliman survey expedition, December 1883; led the flanking party up the mountain by night, which dispersed the Kedarzais who held the summit.

*Literary Work.*—Contributed to the records of the Royal Geographical Society and the Encyclopædia Britannica on the subject of the geography of Afghanistan and the Indian frontier; contributed also occasional papers to the journal of the Royal United Service Institute, of which the principal was a paper read in 1878, advocating instruction in Indian and continental methods of topography at the military schools of England; instruction in the use of the plane table being now universal: this paper may possibly claim to have been useful towards its introduction. Lectures on Geographical Surveying at Royal Engineers' Institute, Chatham, in February 1888. Received the Gold Medal of the Royal Geographical Society for Afghan Boundary Commission Surveys in May 1887.

**COLONEL JAMES WATERHOUSE**, *Bengal Staff Corps, Deputy Superintendent, 2nd Grade, and Assistant Surveyor-General.*—Joined the service as 2nd Lieutenant, Bengal Artillery, 10th June 1859; arrived in the country, 11th October 1859; services placed temporarily at the disposal of the Foreign Department for special duty, 15th November 1861; left regimental duty, 16th January 1862; returned to regimental duty, 21st December 1862; appointed Officiating Commissary of Ordnance, 3rd class, 13th April 1866; services placed at the disposal of the Government of Bengal, 5th June 1866; appointed Assistant Revenue Surveyor, Lower Provinces, 27th June 1866; services placed at the disposal of the Government of India, Home Department, 7th July 1866; appointed Assistant Surveyor with superintendence of the photo-zincographic operations in the Office of the Surveyor General of India, 18th July 1866; joined the Survey Department, 22nd July 1866; leave on medical certificate to Europe, 25th March 1867 to 17th February 1869; re-appointed Assistant Surveyor, 2nd grade, 17th February 1869; gazetted Lieutenant in Bengal Staff Corps, 9th October 1869; promoted to 1st grade Assistant Superintendent of Survey from 17th June 1870; promoted to Captain, Staff Corps, 10th June 1871; attached to Colonel Tennant, R.E., for duty with the Indian Eclipse Expedition from 21st November 1871 to 8th January 1872; attached to Colonel Tennant, R.E., for duty in observing the Transit of Venus from 10th October 1874 to 1st January 1875; in charge, Indian Eclipse Expedition to Nicobar Islands from 11th March to 18th April 1875; Officiating Deputy Superintendent of Survey, 3rd grade, from 26th March 1875; reverted to Assistant Superintendent, 1st grade, 19th September 1876; Officiating Deputy Superintendent of Survey, 3rd grade, from 23rd November 1877; reverted to Assistant Superintendent, 1st grade, 7th January 1878; Officiating Deputy Superintendent, 3rd grade, from 1st February 1878; on special duty in Europe from 10th October 1878 to 8th November 1878; Officiating Deputy Superintendent, 3rd grade, from 9th November 1878 to 6th May 1879, and from 1st November to 11th December 1879; furlough to Europe on private affairs from 12th December 1879; resumed charge of the Photographic Office, Calcutta, 26th December 1881; Officiating Deputy Superintendent, 3rd grade, from 26th December 1881; promoted to Deputy Superintendent (new), 4th grade, 1st July 1882; continued to officiate as Deputy Superintendent, 3rd grade; confirmed 10th January 1884; Officiating Deputy Superintendent, 2nd grade, from 3rd December 1884 up to 6th November 1885; promoted to the rank of Lieutenant-Colonel, 10th June 1885; furlough to Europe for 250 days from 21st March 1886; extension for 18 days; returned from furlough, 14th December 1886; resumed charge of the Photographic and Lithographic Offices, Calcutta, 17th December 1886. Officiating Deputy Superintendent, 2nd grade, from 1st January 1887 up to 23rd October 1887, and again from 1st September 1888 to 25th April 1889. Confirmed 26th April 1889. Promoted to Colonel, 10th June 1889.

*Literary Works.*—Wrote a report on the Cartographic Applications of Photography as used in the Topographical Departments of the Principal States in Central Europe, containing notes on the European and Indian Surveys, and on the application of Photography to surveying—published by the Superintendent, Government Printing, Calcutta, 1870; also a pamphlet on "The Application of Photography to the Reproduction of Maps and Plans by Photo-mechanical and other Processes," originally submitted to the Geographical Congress at Paris in 1875, but published, *in extenso*, in the Journal of the Asiatic Society of Bengal, Part II, No. 2, 1878; also papers relating to Surveys in Afghanistan, Tidal Surveys, Spectroscopic Photography and Photo-mechanical Printing in Asiatic Society's Journal, and a series of papers on Photozincography published in the Photographic News, 1881 to 1884.

**LIEUTENANT-COLONEL MALCOLM W. ROGERS**, *Royal Engineers, Deputy Superintendent, 2nd Grade, and Assistant Surveyor-General.*—Joined the service as a Gentleman Cadet in February 1860; appointed Lieutenant in the Royal Engineers, 18th December 1861; served

as Division Officer, Cork, Ireland, from 1864 to 1865; landed in India, 20th October 1865; served with the Bengal Sappers and Miners until 4th July 1866; appointed Assistant Surveyor, 2nd grade, Great Trigonometrical Survey of India, on 5th July 1866; promoted to Assistant Surveyor, 1st grade, 5th December 1866; Officiating Deputy Superintendent, 3rd grade, from 18th December 1870; reverted to Assistant Superintendent, 1st grade, 1st November 1872; Officiating Deputy Superintendent, 3rd grade, from 6th April 1873; furlough on private affairs from 1st November 1873; Captain, 11th December 1873; returned to India and appointed Officiating Deputy Superintendent, 3rd grade, 28th October 1874; reverted to Assistant Superintendent, 1st grade, from 1st January 1878; Officiating Deputy Superintendent, 3rd grade, from 15th February 1878; reverted to Assistant Superintendent, 1st grade, 26th April 1879; Officiating Deputy Superintendent, 3rd grade, 12th December 1879; furlough to Europe for 1 year and 4 days, 1st May 1880; returned from furlough, 15th June 1881; Officiating Deputy Superintendent, 3rd grade, 15th June 1881; promoted to rank of Brevet-Major, 2nd March 1881; to Major, 18th December 1881; and to Deputy Superintendent (new), 4th grade, 1st July 1882, continuing to officiate as Deputy Superintendent, 3rd grade; officiated as Assistant Surveyor-General in charge Mathematical Instrument Office and Correspondence Office, Headquarters, Calcutta, from 19th April 1883; confirmed, 23rd May 1884; confirmed as Deputy Superintendent, 3rd grade, 7th August 1884; furlough to Europe for 1 year and 185 days from 21st March 1886. Returned from furlough on the 18th September 1887 and posted on duty in the Trigonometrical Branch Office at Dehra Dun on the 26th September 1887. In charge computing party from 6th January to 9th April 1888. Posted to No. 25 Party (Tidal and Levelling) from 10th April, and assumed charge thereof on 16th May 1888; Officiating Deputy Superintendent, 2nd grade, from 1st November 1888 to 27th June 1889; confirmed 28th June 1889; promoted to half-pay Lieutenant-Colonel on 18th December 1888. Appointed Assistant Surveyor-General in charge Surveyor-General's Office and Mathematical Instrument Office from 7th May 1889.

*War Services.*—Served as Survey Officer with the 1st Division of the Quetta Field Force under Lieutenant-General D. Stewart, C.B., from 12th November 1878 to November 1879—mentioned in despatches—medal—Brevet of Major.

**MAJOR J. HILL, Royal Engineers, Deputy Superintendent, 3rd Grade.**—Obtained his commission as Lieutenant in the Royal Engineers; joined at Chatham on the 25th June 1862, and after serving at the S. M. E., Chatham, and on the Plymouth Defences, arrived in India on the 10th December 1865; joined Bengal Sappers and Miners at Roorkee, 27th January 1866; appointed Assistant Surveyor (then designation for Assistant Superintendent), 2nd grade, Great Trigonometrical Survey of India, 4th December 1866; posted to Kumaon and Garhwal Series, Great Trigonometrical Survey, 28th December 1866; sick leave to Europe from 11th November 1868 to 30th October 1869; promoted to Assistant Superintendent, 1st grade, Great Trigonometrical Survey, 30th October 1870; assumed charge of the Kumaon and Garhwal Series, 11th February 1871; Officiating Deputy Superintendent, 3rd grade, 1st April 1871; reverted to substantive appointment of Assistant Superintendent, 1st grade, 4th April 1872; Officiating Deputy Superintendent, 3rd grade, 23rd August 1873; relieved of charge of Kumaon and Garhwal Series, 1st October 1873; assumed charge of Bombay Party, 28th October 1874; Local Captain, 25th June 1874; reverted to substantive appointment of Assistant Superintendent, 1st grade, 28th October 1874; relieved of charge of Bombay Party, 19th October 1879; furlough to Europe from 20th January 1875 to 27th January 1877; promoted to Captain, 16th September 1875; rejoined appointment in India, 28th January 1877; assumed charge of the Eastern Frontier Series, 17th March 1877; Officiating Deputy Superintendent, 3rd grade, 1st April 1878; reverted to substantive appointment of Assistant Superintendent, 1st grade, 22nd April 1879; furlough to Europe for 182 days, 26th May 1879; returned from furlough and resumed charge of Eastern Frontier Series, 25th December 1879; Officiating Deputy Superintendent, 3rd grade, from 9th April 1880; promoted to Major, 25th June 1882; Deputy Superintendent, 4th grade, 1st July 1882; continued to officiate as Deputy Superintendent, 3rd grade, up to 8th January 1883, and again officiated in the same grade from 12th February 1883 up to 30th September 1884; assumed charge of Tidal and Levelling Party, 4th April 1884; attached to Afghan Boundary Commission, 1st September 1884; promoted to Deputy Superintendent, 3rd grade, 1st October 1884; assumed charge of Konkan Topographical Survey Party, 2nd October 1884; temporarily transferred to the charge of the Tidal and Levelling Party, 6th July 1885; resumed charge of South Mahratta Topographical Survey Party, 23rd October 1885; re-transferred to Tidal and Levelling Party, 29th December 1885, and assumed charge thereof, 20th January 1886; Officiating Deputy Superintendent, 2nd grade, from 22nd April to 31st October 1886, and from 20th November to 8th December 1886, and again from 15th May 1887 up to 29th August 1887. Furlough to Europe for 1 year and 5 months, from 18th May 1888.



**WILLIAM HAMMOND COLE, M.A., CANTAB., F.R.A.S., F.R.G.S.,** *Officiating Deputy Superintendent, 2nd Grade.*—Appointed to the Educational Department, North-Western Provinces, direct from England, 14th April 1862, as Professor of Mathematics at the Government College, Agra; sick leave from 9th September to 8th November 1863; permitted to resign appointment from 1st March 1864 on account of continued ill-health; after nearly three years' residence at Mussooree as Mathematical Master at Mr. Maddock's School was re-appointed to the Government service, 3rd January 1867, as Probationary Assistant Surveyor in the Great Trigonometrical Survey of India, and Assistant to the Officer in charge of the Computing Office, being at the same time placed in charge of the Photozincographic Branch of the Computing Office, Dehra; appointed Assistant Surveyor, 2nd grade, on 1st September 1867; conducted the duties of the Computing Office in all its branches from middle of December 1867 to beginning of April 1868, during the absence of Mr. J. B. N. Hennessey, M.A.; designation changed to Assistant Superintendent of Survey, 1st September 1869; promoted to 1st grade, 4th December 1870; officiated as Deputy Superintendent, 3rd grade, from 1st April 1871 to 16th December 1871; officiated again in this grade from 2nd November 1873 to 30th September 1874; officiated again as Deputy Superintendent, 3rd grade, and held charge of the Computing Office from 4th January 1875 to 27th March 1876; furlough on private affairs from 27th March 1876 to 21st March 1877; on amalgamation and reduction of the three branches of the Survey Department on the 1st January 1878, reverted to the 2nd grade of Assistant Superintendent, officiating in 1st grade; again promoted to 1st grade, 27th October 1878; officiated as Deputy Superintendent, 3rd grade, from 14th December 1880 to 14th June 1881, and again from 24th April to 14th May 1882; promoted to Deputy Superintendent, 4th grade, 1st July 1882; officiated as Deputy Superintendent, 3rd grade, from 7th November to 5th December 1882, and again from 20th April 1883 to 27th November 1884; officiating in charge Head-quarters Office, Dehra Dun, and Survey Detachment in Kashmir, 12th February 1883; confirmed with effect from 12th January 1884; promoted to Deputy Superintendent, 3rd grade, 28th November 1884. Charge of Coast Party from 1st July to 1st August 1887 in addition to his other duties. Furlough to Europe from 12th January 1888 to 16th February 1889. Rejoined Trigonometrical Branch Office and assumed charge of the Computing Party, 23rd February 1889. Officiating Deputy Superintendent, 2nd grade, from the same date. In charge of the Drawing Section from 11th March to 8th April 1889.

*Literary Works.*—Took part in the compilation of Volumes I to IV, IVA, and VI to VIII of the "Account of the Operations of the Great Trigonometrical Survey of India," to which he contributed several Mathematical and Scientific papers in the form of Appendices, also in the compilation of the 21 Volumes of "Synopsis of the Results of the Operations of the Great Trigonometrical Survey of India;" translated from the German, "Hansen's Treatise on the Method of Minimum Squares generally and in its Application to Geodesy," in connection with the final reduction of the triangulation of India by this method; also made several other translations of a minor character in connection with his official work.

**LIEUTENANT-COLONEL ANDREW WILSON BAIRD, F.R.S., A.I.C.E., F.R.G.S.,** *Royal Engineers Deputy Superintendent, 3rd Grade.*—Joined the service, 18th December 1861, as Lieutenant, R.E.; arrived in India, 4th March 1863; served with the Bombay Sappers and Miners from 2nd April till 4th May 1864, when he was appointed to Bombay Public Works Department as Probationary Assistant Engineer; Assistant Engineer, 2nd grade, 28th March 1865; promoted to 1st grade, 1st April 1865; employed up to December 1865 in the Harbour Defences of Bombay, and held charge of the works at Poupir and the construction of the Middle Ground and Oyster Rock batteries; appointed Special Assistant for Reclamations, 7th December 1865; constructed the Workshops and Boat Basins, and erected all the machinery for the Government Reclamation Works at Mody Bay; promoted to Executive Engineer, 4th grade, 2nd October 1867; appointed Assistant Field Engineer with the Abyssinian expedition, 30th January 1868; returned from Abyssinia, July 1868; continued under Military Department till November 1868, to arrange for the disposal of the Railway stores and Engineer stores and plant, sent back from Abyssinia; appointed to the Trigonometrical Survey of India as Assistant Surveyor (corresponding to present Assistant Superintendent), 2nd grade, 4th December 1868; employed on Triangulation in the Kathiawar and Gujarat Parties, 1868 to 1870; furlough to England for 1 year and 7 months on medical certificate, 14th May 1870; in July 1871, while on furlough, was specially employed by order of the Secretary of State to study the practical details of Tidal Observations, and their Reductions by Harmonic Analysis, as carried on under the superintendence of Sir William Thomson; promoted Assistant Superintendent, 1st grade, October 1871; on return to India in April 1872 did duty with the Kathiawar Party; in November 1873 organized the Bombay Tidal and Levelling Party; employed until March 1874 in carrying out a reconnaissance of the Gulf of Cutch and in selecting sites for the three Tidal Observatories, and afterwards engaged in Bombay in fitting up, modifying, and testing

the Tide gauges; Local Captain, 18th December 1873; Captain, 4th April 1874; under the reorganization of the Department, reverted to Assistant Superintendent, 2nd grade, May 1874; completed the Tidal Observations on Gulf of Cutch, and dismantled the observatories in June 1875; employed on the connected Levelling Operations in Kathiawar and Gujarat up to the end of season 1875-76; on special duty in England from September 1876 to May 1877, carrying out the calculations for reducing total observations of Gulf of Cutch; by order of the Secretary of State remained at Aden (*en route* to India) to report on the Tidal Observations which had been taken there by the Public Works Department, and to arrange for future observations; returned to India, June 1877; in July 1877 was appointed to the general superintendence and control of Tidal Observations upon the Indian coasts, and was empowered to make all arrangements in direct communication with the Governments of the Maritime provinces: these operations have gradually been extended until twenty Tidal Observatories (in India, Burma, and Ceylon) have been simultaneously at work, and some six thousand miles of Levelling Operations of precision have been carried out; promoted to Assistant Superintendent, 1st grade, 1st January 1879; on deputation as Commissioner, Venice Geographical Congress and Exhibition in August and September 1881; the Survey of India exhibited a complete set of Tidal apparatus, diagrams, &c., and thus was represented in class II, Hydrography, in which class a Diploma of Honour was awarded to the Department; furlough to Europe for 1 year and 148 days, from 16th October 1881; promoted to Major, 18th December 1881; Deputy Superintendent, 4th grade (new), 1st July 1882; returned from furlough and resumed charge, Tidal and Levelling Operations, 20th April 1883; Officiating Deputy Superintendent, 3rd grade, from 29th May 1883 to 3rd April 1884; leave to Europe on urgent private affairs, 4th April 1884 to 28th September 1884; Officiating Deputy Superintendent, 3rd grade, and resumed charge, Tidal and Levelling operations, from 1st October 1884; Officiating Master of the Mint, Calcutta, from 11th July to 12th October 1885, and from February to 30th September 1886; Officiating Mint Master, Bombay, from 1st October 1886 to 5th January 1887; reverted to the Survey Department, and after return from privilege leave appointed to officiate as Assistant Surveyor-General, from 8th June 1887. Furlough, private affairs, for 11 months and 9 days, from 11th November 1887 afternoon to 19th October 1888. Officiating Mint Master, Bombay, from 20th October 1888 to 22nd December 1888; Officiating Deputy Superintendent, 2nd grade, from 23rd December 1888. Promoted to half pay Lieutenant-Colonel on 18th December 1888. On duty at Head-quarters from 1st January 1889. Officiating Mint Master, Calcutta, from 7th May 1889.

**War Services.**—Served with the Abyssinian Field Force in 1868 as Assistant Field Engineer and appointed Traffic Manager of the Railway; mentioned in despatches for zeal and management in bringing safely and expeditiously troops and baggage for embarkation—medal.

**Acknowledgment of Services by Government.**—Thanks of Government of Bombay for articles in the *Bombay Gazetteer* on Gulf of Cutch and Little Runn,—G. O. No. 139, 13th July 1881; thanks of Government of Bombay for contribution to the Statistical Account of Kathiawar in the *Bombay Gazetteer*, G. O. No. 2744, 4th August 1884; recommended to the Secretary of State by Sir H. Thuillier, the Chief of the Indian Commission, that services at the Venice Congress should be suitably recognized; Secretary of State's cordial acknowledgments of the same, letter No. 1347, 15th December 1881, and thanks of Government of India also conveyed in No. 11 Ex., Revenue, Agriculture, and Commerce Department, 13th January 1882; special mention of services in Government of India Resolution of Great Trigonometrical Survey Operations in 1873-74, also in 1874-75; elected Fellow, Royal Society, May 1885; medal of the 1st class awarded by the Geographical Congress at Venice in 1881 for organization and improvements in Tidal Observations; elected Associate, Institute Civil Engineers, May 1881.

**Literary Work of a Public or Official character.**—Articles on the Gulf of Cutch, Little Runn, and Gulf of Cambay for the *Bombay Gazetteer*. Notes on the Harmonic Analysis of Tidal Observations published by order of the Secretary of State, London, 1872. Paper on the Tidal Observations of the Gulf of Cutch read before the British Association, 1876. Account of the Tidal Disturbances caused by the Volcanic Eruption at Krakatoa (Java) in August 1883, presented to the Royal Society. Auxiliary Tables (two Pamphlets) to facilitate the calculations of, Harmonic Analysis of Tidal Observations published in India, 1879 and 1882. Joint Report with Professor G. H. Darwin, F.R.S., &c., &c., of the results of the Harmonic Analysis of Tidal Observations presented to the Royal Society and reprinted from their Proceedings, March 1885. Account of the Spirit-Levelling Operations of the Great Trigonometrical Survey of India read before the British Association in 1885, and afterwards printed among the supplementary papers of the Royal Geographical Society. Manual of Tidal Observations published at the expense of the British Association. Tide Tables for India Ports prepared annually by Major Baird and Mr. Roberts of the Nautical Almanac Office by order of the Secretary of State for India.

**MAJOR J. R. McCULLAGH, Royal Engineers, Officiating Deputy Superintendent, 2nd Grade.**—First commission, 18th December 1861; joined at Chatham, February 1862; joined at Belfast, June 1864; landed at Calcutta, 20th October 1865; joined Head-quarters, Bengal Sappers and Miners, Roorkee, 27th October 1865; Officiating Doing Duty Officer, 27th January 1866; Command of Detachment, 1st and 3rd Companies, B. S. and M., at Pesbawur, 30th April 1866; passed Lower Standard, Hindustani; Permanent Doing Duty Officer, 4th July 1867; Officiating Adjutant and 2nd-in-Command, B. S. and M., 17th April 1868; appointed to the Public Works Department, 6th November 1868; appointed to the Great Trigonometrical Survey of India, 1st March 1869, as Assistant Surveyor, 2nd grade; officiating in charge, Guzerat Party, ten months, 1870-71; Assistant Superintendent, 1st grade, 1st January 1872; Captain, 11th December 1873; under the re-organization, became Assistant Superintendent, 2nd grade, 1st April 1874; furlough to Europe from 1st November 1873 to 27th October 1874; Officiating Assistant Superintendent, 1st grade, 28th October 1874; charge of No. 1 Extra Party, 13th November 1874; Officiating Assistant Superintendent, 1st grade, in charge No. 9 Party, Mysore Topographical Survey, 1st August 1875; reverted, 12th April 1877; Officiating Assistant Superintendent, 1st grade, in charge No. 8 Party, Mysore Topographical Survey, 27th April 1877; furlough to Europe, with six months' duty at Chatham in addition, from 5th November 1877 to 5th May 1879; Officiating Assistant Superintendent, 1st grade, 6th May 1879, and attached to Mysore Topographical Survey; promoted to Assistant Superintendent, 1st grade, on 14th December 1880; joined Hanthawaddy District Cadastral Survey in British Burma on 2nd June 1881, and received charge of party on 1st August 1881; promoted to Major, 18th December 1881; Deputy Superintendent (new), 4th grade, 1st July 1882; Officiating Deputy Superintendent, 3rd grade, from 1st November 1883 to 23rd March 1884, and again from 4th April to 15th March 1886; assumed charge of Mysore Topographical Survey, 20th March 1884; furlough to Europe for one year, from 26th March 1886, on medical certificate; extension of 6 months. Further extension of 6 months. Deputy Superintendent, 3rd grade, from 1st January 1887. Returned from furlough and held temporary charge of No. 4 Party (Basti), from 25th January to 4th May 1888. Transferred to No. 19 Party (Madras), from 5th May 1888, and assumed charge on the afternoon of 20th June 1888. Officiating Deputy Superintendent, 2nd grade, from 15th November to 22nd December 1888, from 20th to 22nd February 1889, and from 7th May 1889.

**War Services.**—Appointed Assistant Field Engineer to the Bhutan Field Force, and to command No. 2 Company, B. S. and M., 3rd January 1866—medal and clasp.

**COLONEL JOHN RANDAL WILMER, Bengal Staff Corps, Deputy Superintendent, 3rd Grade.**—Joined the service as Lieutenant in the Royal Artillery on the 22nd June 1859; joined the Battery at Guernsey, 1st August 1859; arrived in India on 27th October 1860; Acting Adjutant, 11th Brigade, Royal Artillery, for one month, May 1863; held command of G-11, Royal Artillery, from 22nd September 1864 till 24th March 1866 (one year and six months); leave on private affairs, 7th May 1866 to 7th August 1866 (three months); Acting Adjutant, 11th Brigade, September and October 1867; embarked for England with G-11, Royal Artillery, on 20th November 1867; leave on private affairs, 18th February 1868 to 18th April 1868; returned to India and joined 3-22nd Royal Artillery, 28th April 1869; officiated as a 3rd class Commissary of Ordnance, from 22nd June 1869 to 23rd August 1869; appointed to Staff Corps, 24th August 1869; Assistant Superintendent, Topographical Survey, 24th August 1869; sick leave from 19th December 1871 to 2nd March 1872; promoted to Brevet Captain, 22nd June 1871; promoted to Assistant Superintendent, 1st grade, Topographical Survey, 28th August 1872; substantive Captain in Staff Corps, 24th August 1873; appointed to charge of No. 5 Topographical Survey Party, 12th October 1874; reverted to Assistant Superintendent, 2nd grade, on amalgamation of the Surveys; Officiating Assistant Superintendent, 1st grade, 1st January 1878; promoted to Major, 22nd June 1879; promoted to Assistant Superintendent, 1st grade, 24th April 1882; promoted to Deputy Superintendent (new), 4th grade, 1st July 1882; Officiating Deputy Superintendent, 3rd grade, from 5th to 13th March, 30th April to 8th May, 7th to 24th August, and from 24th September 1884 up to 31st October 1886; promoted to the rank of Lieutenant-Colonel, 22nd June 1885; appointed to charge of Baluchistan Survey Party from 1st October 1885 to 31st October 1886; furlough to Europe for 1 year, from 10th November 1886, on medical certificate. Extension of 6 months. Further extension for 6 months. Promoted to Deputy Superintendent, 3rd grade, 19th February 1887. Returned from furlough 18th October 1888, and assumed charge of No. 14 Party (Hoshangabad) on the 23rd idem. Promoted to Colonel 22nd June 1889.

**LIEUTENANT-COLONEL S. H. COWAN, Bengal Staff Corps, Deputy Superintendent, 3rd Grade.**—Cadet at the Military College, Addiscombe, from January 1858; received commission as Lieutenant, Bengal Artillery, 9th December 1859; arrived in India, 9th April

1860; served with Bengal Artillery Depôt at Meerut, April 1860; posted to 4th Company, 3rd Battalion, Bengal Artillery; served with D Battery, 16th Brigade, Royal Artillery, February 1861; appointed in the Ordnance Department, 4th October 1866; admitted to Staff Corps, 19th January 1867; appointed Assistant Superintendent, 3rd grade, in the 4th Division Survey, Bengal, 19th January 1867; appointed Assistant Superintendent, 2nd grade, 17th March 1868; went on furlough to Europe, 30th May 1870; promoted to Captain (Brevet), 9th December 1871; returned from furlough, 3rd May 1872; transferred to 1st Division (Assam) Survey, 1st June 1872; promoted to Captain, 24th December 1872; went on sick leave to Europe, 16th July 1875; returned from Europe, 7th November 1876; transferred to Behar Irrigation Survey, 30th November 1876; transferred to Head-quarters Office, 1st March 1878; transferred to take charge of Cachar Survey, 23rd November 1878; transferred to Head-quarters Office, Photographic Branch, 14th November 1879; promoted to Major, 9th December 1879; on special duty, Surveyor-General's Office, Photographic Branch, Calcutta, from 26th December 1881; assumed charge, Hooghly River Survey, 7th April 1882, and held it up to 24th July 1883; Assistant Superintendent, 1st grade (new), 1st July 1882; personal allowance of R100, 1st April 1881 till promotion to Deputy Superintendent, 2nd grade; Officiating Deputy Superintendent, 4th grade (new), from 1st July 1882 up to 28th April 1883, and confirmed in that grade, 29th April 1883; furlough to Europe from 7th August 1883; assumed charge of Benares and Basti Districts (Cadastral) Survey, North-Western Provinces, from 11th December 1883; Officiating Deputy Superintendent, 3rd grade, from 6th to 13th March 1884, and again from 16th September 1884 to 16th July 1888; promoted to Lieutenant-Colonel, 9th December 1885. Confirmed as Deputy Superintendent, 3rd grade, from 17th July 1888. Transferred to the charge of No. 8 Party (Bengal and Orissa), from 20th February 1889.

**LIEUTENANT-COLONEL EDWARD HARRIS STEEL, Bengal Staff Corps, Deputy Superintendent, 3rd Grade.**—Received commission as Lieutenant, Bengal Artillery, from the Royal Military College at Addiscombe on 8th June 1860; arrived in India, 11th October 1860; leave on medical certificate to hills north of Kumaon from 10th June to 1st November 1861; leave on medical certificate to Europe from May 1865 to June 1866, after Bhutan campaign; appointed Assistant Superintendent of Survey, 2nd grade, Survey Department, 1st February 1867, in Assam; leave to Europe on medical certificate, December 1867 to December 1868; returned to Regiment of Royal Artillery; re-appointed and rejoined Survey Department as Assistant Superintendent, 2nd grade, on 26th January 1869; admitted to Staff Corps, 26th January 1869; Captain, Staff Corps, 26th January 1873; in charge 2nd Division, Revenue Branch, from 2nd November 1876 to 19th April 1877, and again from 18th July to 18th November 1877; Officiating Assistant Superintendent, 1st grade, from 1st to 11th January 1878, again from 1st February to 6th May 1879; Officiating Assistant Surveyor-General, 17th March 1878 to 9th October 1879; Officiating Assistant Superintendent, 1st grade, from 20th June to 10th October 1879; in charge of Gwalior and Central India Topographical Party from 20th October 1879 to 18th October 1880; promoted to Major, 8th June 1880; Officiating Assistant Superintendent, 1st grade, from 1st November 1879 to 7th December 1881; personal allowance of R100, 1st April 1881 until promotion to Deputy Superintendent, 2nd grade; transferred to charge of Bassein District Survey from 20th November 1880; furlough on medical certificate from 8th December 1881; extension for 6 months; further extension for 4 months and 10 days; Assistant Superintendent (new), 1st grade, 1st July 1882; returned from furlough, 22nd October 1883; Officiating Deputy Superintendent, 4th grade, from the same date; assumed charge of Aligarh and Etah Districts Topographical Survey, North-Western Provinces, 27th October 1883 to 26th January 1884; confirmed as Deputy Superintendent, 4th grade, from 10th January 1884; superintending detached parties working in Dehra Dun, Chhattisgarh, and Ajmere, from 27th January 1884; resumed charge of Aligarh and Etah Districts Topographical Survey, North-Western Provinces, 7th August 1884; Officiating Deputy Superintendent, 3rd grade, from 3rd December 1884 to 15th November 1885; transferred to charge of Bilaspur District Cadastral Survey, 4th November 1885, together with superintendence of Ajmere Survey Detachment; Officiating Deputy Superintendent, 3rd grade, from 21st January 1886 to 25th October 1886; promoted to Lieutenant-Colonel, 8th June 1886; furlough to Europe (on medical certificate) from 10th November 1886. Returned from furlough and resumed charge of No. 2 Party (Bilaspur), 24th November 1887; Officiating Deputy Superintendent, 3rd grade, from the same date up to 25th March 1889; confirmed, 26th March 1889.

**War Services.**—Served with Khasi and Jaintia Field Force from December 1862 to May 1863; served with Bhutan Field Force from November 1864 to April 1865; present at taking of Dewangiri—medal and clasp.

**LIEUTENANT-COLONEL H. S. HUTCHINSON, Bengal Staff Corps, Deputy Superintendent, 3rd Grade.**—Cadet at the Military College, Addiscombe, from January 1858 to December

1859; appointed a Lieutenant in the Bengal Artillery on 9th December 1859; landed in India, 9th April 1860; served with the Artillery at Meerut, Lahore, and Peshawur up to 9th April 1865; appointed to No. 1 Light Field Battery, Punjab Irregular Force, on 10th April 1865, per G. G. O. No. 380 of 1865; served with it at Bannu and Dera Ismail Khan up to 12th August 1867; appointed as Probationary Assistant Superintendent of Survey in the 3rd Division, Central Provinces, on 13th August 1867, and appointed to the Staff Corps on the same date; promoted to 2nd grade Assistant Superintendent of Survey on 13th August 1868; served with the 3rd Division up to 20th May 1870; furlough to Europe on medical certificate from 21st May 1870 to 31st December 1871; promoted to local rank of Captain on 9th December 1871; served with the 4th Division, Central Provinces Survey, from 1st January 1872 to 30th September 1872; appointed to 11th Deccan Topographical Survey on 1st October 1872; promoted to substantive rank of Captain on 25th March 1873; Officiating Assistant Superintendent of Survey, 1st grade, from 1st January 1878; promoted to Major, 9th December 1879; served with Ghazipur Cadastral Survey from 1st January to 3rd April 1881; in temporary charge of the Darjeeling Survey Party from afternoon of the 8th April 1881; on duty, Headquarters Office, Calcutta, from 2nd August 1881; furlough on medical certificate from 29th August 1881 to 27th October 1882; Assistant Superintendent (new), 1st grade, 1st July 1882; personal allowance of ₹100 from 1st April 1881 until promotion to Deputy Superintendent, 2nd grade; Officiating Deputy Superintendent, 4th grade, from 29th October 1882 up to 6th August 1884; doing duty in the Head-quarters Office, Calcutta, from 30th October to 25th November 1882; transferred to Bassein District Cadastral Survey, 26th November 1882; received charge of this Survey, 29th May 1883; confirmed in the 4th grade of Deputy Superintendent, 7th August 1884; Officiating Deputy Superintendent, 3rd grade, from 6th July to 12th October 1885; transferred to charge of Akyab District Cadastral Survey, 22nd October 1885; Officiating Deputy Superintendent, 3rd grade, from 26th October to 6th November 1885; promoted to Lieutenant-Colonel, 9th December 1885; Officiating Deputy Superintendent, 3rd grade, from 3rd February to 8th March 1886, and from 10th March 1886 up to 25th April 1889; confirmed 26th April 1889. Assumed charge of No. 10 Party (South Mahratta), 22nd October 1887.

**EDWIN CLIFFORD BARRETT, Deputy Superintendent, 3rd Grade.**—Joined the Right Bank Indus-Sind Revenue Survey as Probationary Assistant Surveyor, 18th November 1862; Sub-Assistant, 3rd grade, 1st January 1864; transferred to Central Provinces (Chanda District) Survey, 1st February 1865; passed the examination laid down in G. O. P. C. No. 244, dated 19th April 1861, as prescribed for the Senior Department, and appointed Assistant Superintendent, 2nd grade, 30th December 1868; sick leave for one month from 20th June 1869; transferred to the Raipur District Survey (2nd Division, Central Provinces), 1st November 1869; passed the Higher Standard Examination in Hindustani, 20th October 1871; was one of the staff of Survey officers who accompanied the Right Column, Lushai Expeditionary Force, in 1871-72; officiated as Assistant Superintendent, 1st grade, from 30th December 1871 to 3rd March 1872; transferred to the 1st Division, Bahawalpur, from 1st June 1872; transferred to the 4th Division, North-Western Provinces, 1st October 1872; officiated as Assistant Superintendent, 1st grade, from 6th July 1873 to 4th November 1873, and again from 1st December 1873 to 14th January 1874; transferred to the Khurda Estate Survey, Orissa, 1st November 1876; in charge of the Khurda Estate Survey from 22nd July to 12th November 1877; Officiating Assistant Superintendent, 1st grade, from 1st April 1878; in charge of the Cuttack District Irrigation Survey from 23rd May to 28th November 1878; transferred to the 6th Division, North-Western Provinces, from 1st December 1878; transferred to Ghazipur Survey, 20th July 1879, thence to Bassein Survey, British Burma, 11th November 1879; furlough to Europe, 27th August 1880 to 12th July 1882; subsidiary leave from 13th to 23rd idem; doing duty in the Head-quarters Office, Calcutta, from 24th July to end of October 1882; Assistant Superintendent (new), 1st grade, 1st July 1882; Officiating Deputy Superintendent, 4th grade, from 24th July 1882 up to 30th September 1884; transferred to Burma Topographical Survey, British Burma, 1st November 1882; assumed charge of Hooghly River Survey which afterwards went to Assam and became Kamrup District, subsequently called Assam (Cadastral) Survey, 25th July 1883; confirmed in the 4th grade of Deputy Superintendent from 1st October 1884; Officiating Deputy Superintendent, 3rd grade, from 16th March 1886 up to 4th May 1889; confirmed 5th May 1889.

**War Services.**—Served with the Right Column, Lushai Expeditionary Force, in 1871-72—medal and clasp, and received the thanks of the Government of India.

**LIEUTENANT-COLONEL REGINALD BEAVAN, Bengal Staff Corps, Deputy Superintendent, 3rd Grade.**—Appointed as Ensign, 4th May 1860, General List, Infantry; 11th June 1860, arrived in India; attached for duty to 19th Foot at Benares; leave on medical certificate to Europe from 15th October 1860 till 11th October 1862 (exclusive); 1st January 1862,

promoted to Lieutenant; in 1861, went through a course of instruction at the School of

Musketry, obtained extra first class certificate; on return to India was attached \* to 23rd Fusiliers at Fyzabad; marched with them to Agra; 27th March 1863, appointed Musketry Instructor to the 19th Hussars at Lucknow; marched with them to Meerut; held this appointment till 15th April 1865; leave on private affairs to the hills; 12th July 1865, took up the appointment of Quarter-Master, 22nd Punjab Native Infantry, at Umballa; marched to Morar in May 1866; attended the officers' surveying class at Roorkee in the winter of 1867-68, first class certificates for surveying and field engineering; 9th September 1867, appointed to the Bengal Staff Corps; 17th July 1868, appointed to the Topographical Survey Department as Assistant Surveyor, 2nd grade (this appointment was afterwards cancelled and made probationary); joined No. 6 Party, Khasi, Garo, and Naga Hills Survey at Cherrapunji; 9th November 1869, promoted to Assistant Surveyor, 2nd grade; 1st May 1870, transferred to Revenue Branch and joined Hazaribagh Survey Party; 1st October 1870, transferred to Bahawalpur Party; 1st December 1870, transferred to Dera Ghazi Khan Survey; furlough (medical certificate) to England from 25th November 1871 to 22nd November 1872; joined 1st Division, Central Provinces Survey, 29th November 1872; on detached duty at Chandgurb from February to May 1873; on detached duty at Ahiri, Chanda District, during the field season of 1873-74; transferred to Dera Ismail Khan Survey, 1st October 1874; worked in Dera Ismail Khan, Bunnoo and Rawal Pindi Districts, and in the winter of 1877-78 in the Jowaki country and Kohat Pass; reduced to Assistant Superintendent, 3rd grade, 1st January 1878, by the operation of the new organisation of the Survey Department; 13th May 1878, officiating 1st grade Assistant Superintendent; 5th October, reverted to officiating 2nd grade; 27th October, promoted to 2nd grade (third time); 27th October, officiating 1st grade; 28th November, reverted to 2nd grade; 22nd December, officiating 1st grade; 4th February 1879, reverted to 2nd grade; promoted to Major, 4th May 1880; organised and took charge of the Baluchistan Topographical Survey from 27th July 1880; Officiating Assistant Superintendent, 1st grade, from 17th November 1880 to 30th June 1882; Assistant Superintendent (new), 1st grade, 1st July 1882; Officiating Deputy Superintendent, 4th grade, from 1st July 1882 up to 9th November 1884; assumed charge of No. 1 Topographical Party, 1st October 1883; promoted to Deputy Superintendent, 4th grade, from 10th November 1884; Officiating Deputy Superintendent, 3rd grade, from 21st March 1886 up to 7th June 1887; Officiating Assistant Surveyor-General in charge Cartographic, Engraving, and Map Record and Issue Offices from 17th April 1886; promoted to Lieutenant-Colonel, 4th May 1886; furlough from 8th June 1887 to 6th December 1888. Returned from furlough on the 7th December 1888. Officiating Deputy Superintendent, 3rd grade, from that date up to 27th June 1889; confirmed 28th June 1889. Assumed charge of No. 20 Party (Burma) on the 20th December 1888.

*War Services.*—Attached to the Army operating in Southern Afghanistan from October 1878—medal; accompanied General Biddulph's Division to Girishk; mentioned in Lieutenant-General D. M. Stewart's despatches and in Field Force Order by General Biddulph, dated 6th March 1879; engaged surveying in Southern Afghanistan and Baluchistan till 1st April 1880, and again from 27th July 1880; accompanied the Marri Field Force under Brigadier-General C. MacGregor in October and November 1880; accompanied the Bozdar Field Force under Brigadier-General H. C. Wilkinson in November and December 1881.

G. H. COOKE, *Officiating Deputy Superintendent, 3rd Grade.*—Arrived in India in 1865; joined the Survey Department as Sub-Assistant, 1st class, 6th December 1866; Assistant Revenue Surveyor, 3rd class, on 6th December 1869; Probationary Assistant Superintendent, 1st April 1870; Assistant Superintendent, 2nd grade, 10th May 1871; served in the Hazaribagh District Survey until October 1871; from November 1871 to May 1872, with Lushai Expeditionary Force; examination leave for three months, from 5th June 1872 to 4th September 1872; transferred to Head-quarters from 5th September 1872; from 1st November 1872, special duty, Chittagong; in June 1873, transferred to Naini Tal, for the completion of the survey of the Naini Tal Sanitarium on the scale of 16 inches = 1 mile; in November 1873 was transferred to the 9th Bilaspur District Survey, and completed the survey of Aheri Zamindari; under the reorganization of 1st April 1874, Officiating Assistant Superintendent, 3rd grade; in November 1874, joined the Azimgarh District (Cadastral) Survey; on 1st April 1876, transferred to Goorgaon District Survey; in November 1876, transferred to Deccan Survey; held charge of the survey from 22nd August 1877 to 2nd January 1878; Officiating Assistant Superintendent, 2nd grade, from 1st January 1878; again took over charge of Deccan Survey on 12th September 1878; furlough from 22nd May 1880 to 8th June 1882; promoted to Assistant Superintendent, 2nd grade, on 14th December 1880; transferred to Meerut, &c., Districts (Topographical) Survey, and joined 9th June 1882; Assistant Superintendent (new), 1st grade, 1st July 1882; Officiating Deputy Superintendent, 4th grade, 1st

July to 31st October 1882; 2nd and 3rd November 1882; from 7th idem up to 31st December 1882; 14th March 1883, and from 20th April 1883 up to 21st October 1885; transferred to Benares, &c., Districts (Cadastral) Survey, 17th October 1883; appointed to do duty at the Head-quarters, Calcutta, from 17th August 1884; transferred to the Basti District (Cadastral) Survey, 1st May 1885; held temporary charge of Cutch Party, Topographical Survey, from 11th August 1885; confirmed as Deputy Superintendent, 4th grade, 22nd October 1885; assumed charge of Jubbulpore District Traverse Survey, 26th October 1885; Officiating Deputy Superintendent, 3rd grade, from 22nd April 1886 to 23rd October 1887; from 4th to 23rd November; from 25th to 29th November 1887; from 6th to 24th January 1888; from 11th February to 13th April 1888; and from 16th May 1888 up to the present time.

*War Services.*—On 1st November 1871 was deputed on special service with Right Column, Lushai Expeditionary Force; received a medal and the thanks of the Government of India; served a second year in the Lushai country with Major Lewin, Political Officer, and connected the work done by the Survey officers attached to the Right and Left Columns of the Lushai Expeditionary Force.

**EDWIN JAMES JACKSON, Officiating Deputy Superintendent, 3rd Grade.**—Arrived in the country, 26th June 1864; joined the Department as Senior Sub-Assistant Revenue Surveyor, 26th September 1864; Probationary Assistant Superintendent, 1st April 1866; Assistant Superintendent, 2nd grade, 5th November 1868; sick leave from 4th July to 3rd August 1867; sick leave from 19th August to 30th November 1867; sick leave to Europe from 23rd July 1871 to 10th November 1872; in temporary charge of the 2nd Division, Revenue Survey (Assam), 20th January to 13th February 1873, or about January 1873; special duty, defined the Naga Frontier Boundary common to District Sibsagar, from December 1873 to May 1874; Cachar Tea Grants Survey from 28th November 1874 to April 1875; relaying the old boundaries to the north-west of Faridpur, which had been washed away by the River Ganges during the past 20 years; employed on this work from February 1877 to April 1877; transferred to 5th Division Survey from 1st July 1877; on furlough from 1st May 1880 to 3rd December 1881; transferred to No. 2 Party, Hanthawaddy District, British Burma; Assistant Superintendent (new), 1st grade, 1st July 1882; Officiating Deputy Superintendent, 4th grade, afternoon of 18th November 1882; reverted to Assistant Superintendent, 1st grade, from 6th December 1882; Officiating Deputy Superintendent, 4th grade, from 29th April 1883 up to 25th October 1885; in charge of No. 2 Revenue Party, Hanthawaddy District Survey, British Burma, from 19th February 1884; confirmed as Deputy Superintendent, 4th grade, 26th October 1885; furlough to Europe from 12th November 1885 to 23rd October 1886; appointed to the charge of Saugor Traverse Survey from 29th October 1886; Officiating Deputy Superintendent, 3rd grade, from 27th October to 16th December 1886, from 1st to 4th January 1887, and from 15th May 1887 to 25th September 1887; again from 21st June 1888.

**MAJOR ST. GEORGE CORBET GOBE, Royal Engineers, Officiating Deputy Superintendent, 3rd Grade.**—Joined the service, 8th January 1870; arrived in India, 15th November 1872; appointed Assistant Superintendent, 2nd grade, Great Trigonometrical Survey of India, 25th March 1873; joined the Great Trigonometrical Survey at Dehra Dun on 11th April 1873, and attached to the Dehra Dun Survey Party; Officiating Assistant Superintendent, 1st grade, from 2nd November 1873; by consolidation scheme of 1st April 1874 became Assistant Superintendent, 3rd grade, officiating 2nd grade; reverted to 3rd grade from 28th October 1874; Officiating 2nd grade from 4th January 1875; transferred to Topographical Department for work, 15th October 1875, and attached to the Bhopal and Malwa Survey; transferred to Gujarat Party, Great Trigonometrical Survey, 5th January 1878; appointed to officiate in charge Gujarat Party, 2nd September 1878; relieved of the charge of Gujarat Party, October 1878; ordered on service to Afghanistan, 3rd January 1879; reverted to Assistant Superintendent, 3rd grade, 26th April 1879; Officiating Assistant Superintendent, 2nd grade, from 16th July 1879 to 10th December 1880; furlough to Europe for two years from 11th December 1880; promoted to Captain, 8th January 1882; Assistant Superintendent (new), 2nd grade, 1st July 1882; promoted to Assistant Superintendent, 1st grade, 10th October 1882; appointed to do duty at Head-quarters, Calcutta, from 13th December 1882; Officiating Deputy Superintendent, 4th grade, from 29th May 1883 to 9th March 1886; attached to the Afghan Boundary Commission, 26th August 1884; confirmed as Deputy Superintendent, 4th grade, 10th March 1886; Officiating Deputy Superintendent, 3rd grade, from 4th May to 17th August 1886; returned to India, 23rd November 1886; Officiating Deputy Superintendent, 3rd grade, 26th October 1886, and from 20th November to 8th December 1886; appointed to superintend the final mapping connected with the Afghan Boundary Commission at Dehra Dun; Brevet-Major, 16th February 1887; Officiating Deputy Superintendent, 3rd grade, 7th June 1887 up to 29th August 1887, and again from 7th January 1889; employed on Military duty in Europe from 15th February 1888 to 6th January 1889. Pro-

moted to Major, 26th May 1889; posted to Trigonometrical Branch Office, Drawing Section, 7th January 1889, and to charge thereof from 17th April 1889.

*War Services.*—Served with the Afghanistan Field Force, Quetta Column, from 9th February 1879 to 15th May 1880; accompanied Sir D. Stewart's column in its march from Kandahar to Kabul as Officer in charge of Survey; present at the action of Ahmed Khel, near Ghazni, and of Urzu Shabiz at Ghazni.

MAJOR JAMES RAMSAY HOBDAJ, *Bengal Staff Corps, Officiating Deputy Superintendent, 3rd Grade.*—Ensign, 2-25th King's Own Borderers, 13th January 1869—G. O. C. C., 3rd March 1869, p. 88; date of arrival in India, 31st March 1869; 2nd Wing Subaltern on probation, 30th Regiment, Bengal Infantry, 20th March 1871—G. O. C. C., 4th April 1871, p. 165; 1st Wing Subaltern on probation, 38th Regiment, Bengal Infantry, 6th May 1871—G. O. C. C., 16th May 1871, p. 242; Officiating Wing Officer, 38th Regiment, Bengal Infantry, in addition to his other duties, from 21st November 1872 to 5th January 1873—G. O. C. C., 19th December 1872 p. 609; Station Staff Officer, Buxa, Bhutan, 16th March 1873 to 18th September 1874—G. O. C. C.; 5th April 1873, p. 170; Officiating Wing Officer, 38th Regiment, Bengal Infantry, in addition to his other duties, from 6th April 1873 to 27th June 1873—G. O. C. C., 9th July 1873; General leave from 12th July 1873 to 17th November 1873—G. O. C. C., 16th August 1873, p. 330, and G. O. C. C., 23rd December 1873, p. 559; Assistant Superintendent, 3rd grade (on probation), Topographical Survey Department, 11th September 1874—Revenue, Agriculture, and Commerce Department, No. 538 of 11th September 1874; Assistant Superintendent, 3rd grade, Topographical Survey Department, 7th July 1875—Revenue, Agriculture, and Commerce Department, No. 505 of 19th July 1875; Officiating Assistant Superintendent, 2nd grade, Survey of India, from 1st to 10th January 1878, 1st to 5th February 1878, 15th February to 28th April 1878; furlough for 2 years from 29th April 1878; recalled to duty to join Afghan Field Force, 15th December 1878; left England, 25th December 1878; arrived at Bombay, 15th January 1879; Officiating Assistant Superintendent, 2nd grade, from 15th January 1879 to 3rd February 1879; medical certificate for one year, from 1st December 1879; Officiating Assistant Superintendent, 2nd grade, from 3rd April 1881 to 30th June 1882; promoted to the rank of Captain, 13th January 1881; Assistant Superintendent (new), 2nd grade, 1st July 1882; Officiating Assistant Superintendent, 1st grade, from 1st July 1882 to 14th April 1883; promoted to Assistant Superintendent, 1st grade, 15th April 1883; Officiating Deputy Superintendent, 4th grade—from 25th July 1883 to 21st October 1883, from 25th October 1883 to 23rd March 1884, and from 4th April 1884 to 31st December 1886; in charge Andaman Topographical Party, from 1st November 1883 to 19th March 1886; in charge Upper Burma Topographical Party, from 20th March 1886; Officiating Deputy Superintendent, 3rd grade, from 4th May to 17th August, 26th October, and from 19th to 22nd November 1886; confirmed as Deputy Superintendent, 4th grade, 1st January 1887; Brevet-Major, 1st July 1887; Officiating Deputy Superintendent, 3rd grade, from 17th July 1888 to 6th January 1889; 20th to 22nd February 1889; and from 7th May 1889. Promoted to Major, 13th January 1889.

*War Services.*—Served with Kandahar Field Force, Southern Afghanistan, from 13th February to 31st October 1879; accompanied column under Brigadier-General Palliser to Khakrez Valley—medal. Served with Upper Burma Field Force from 2nd April 1886 to end of Campaign, mentioned in despatches of Major-General Sir George White, v.c., k.c.b. Services acknowledged by the Commander-in-Chief and Chief Commissioner.—medal with clasp and Brevet Majority.

CAPTAIN FRANCIS BACON LONGE, *Royal Engineers, Deputy Superintendent, 4th Grade.*—Lieutenant, 2nd February 1876; appointed to India Establishment, 1st November 1878; arrived in India, 15th January 1879; appointed Supernumerary Assistant Superintendent, 3rd grade, Survey of India, 15th March 1880; Assistant Superintendent (new), 2nd grade, 1st July 1882; confirmed in the Survey Department, 13th September 1882; officiated as Assistant Superintendent, 1st grade, from 13th September 1882 to 9th July 1884; held charge of the Deccan Party from 6th October to 21st November 1883; confirmed, 10th January 1884; officiated as Deputy Superintendent, 4th grade, from 6th to 13th March 1884, and again from 26th August 1884 to 10th April 1888; appointed to do duty at Head-quarters, Calcutta, 17th January 1885; in charge Suakim Expeditionary Survey, from 4th March 1885; attached to the Tidal and Levelling Operations, 19th June 1885; transferred to the charge of the South Mahratta Survey Party, 6th July 1885; re-transferred to the Tidal and Levelling Operations, 19th October 1885; again in charge South Mahratta Survey Party, 29th December 1885; in charge of Baluchistan No. 1 Party, from 1st November 1886; promoted to Captain, 2nd February 1887; overstayed privilege leave by 5 days, 12th to 16th September 1887. Confirmed as Deputy Superintendent, 4th grade, 11th April 1888; Officiating Deputy Superin-



tendent, 3rd grade, from 1st September 1888 to 22nd October 1888, and from 1st to 15th November 1888. Furlough for 18 months, from 16th November 1888.

*War Services.*—Joined the Head-quarters of the Bengal Sappers and Miners in the Khyber at Jalalabad in February 1879; served as Assistant Field Engineer attached to the 7th Company, Bengal Sappers and Miners, with the Kurram and Kabul Field Forces from March 1879 till 14th March 1880, and was present at the battle of Charasia, 8th October 1879, and the actions round Kabul from 10th to 23rd December; served as Assistant Superintendent of Survey with Kabul and Kandahar Field Forces from 15th March 1880 to the close of the campaign in May 1881, and was present at skirmish at Saidabad on 26th April 1880; marched with the Force under Sir F. Roberts from Kabul to Kandahar, and was present at the battle of Kandahar, 1st September; twice mentioned in despatches of Sir F. Roberts and received the thanks of the Governor General—medal and 3 clasps and bronze star; served as Survey Officer with the Suakim Expeditionary Force from 4th March 1885 to 1st June 1885—medal and clasp.

**CAPTAIN ROBERT ALEXANDER WAHAB, Royal Engineers, Deputy Superintendent, 4th Grade.**—Obtained his commission as Lieutenant in the Royal Engineers, 29th April 1873; joined at Chatham, 1st January 1874; arrived in India, 8th March 1876; attached to Madras Sappers and Miners from March 1876 till December 1880; appointed Assistant Engineer, 1st grade, Public Works Department, Military Works Branch, January 1881; temporary Executive Engineer, 4th grade, March 1882; appointed Assistant Superintendent, 2nd grade, Survey of India, 8th January 1883; Officiating Assistant Superintendent, 1st grade, from 1st February 1883 up to 6th August 1884; promoted to Assistant Superintendent, 1st grade, from 7th August 1884; in charge, No. 3 Topographical Party, Baluchistan Survey, from 19th to 31st August 1884; posted to Zhob Valley Expedition Party, 1st September 1884; assumed charge of that party, 14th September 1884; and charge of No. 3 Topographical Party, Baluchistan Survey, 17th December 1884; Officiating Deputy Superintendent, 4th grade, from 26th August 1884 up to 16th July 1888. Confirmed, 17th July 1888. Promoted to Captain, 8th January 1885; transferred to Gorakhpur District (Cadastral Survey), 8th November 1885; assumed charge of Himalaya Party, 21st April 1886; assumed charge of Baluchistan No. 2 Party on the forenoon of 30th September 1886, and made over charge of the same on the afternoon of the 17th September 1886; Officiating Deputy Superintendent, 3rd grade, from 15th November 1888 to 22nd December 1888. Returned from Hazara Field Force and posted to Trigonometrical Branch Office, 23rd November 1888; proceeded on Military duty to Europe, 23rd February 1889.

*War Services.*—Served in the 1st Afghan Campaign from 9th January to 9th June 1879 as Assistant Field Engineer and Adjutant, Royal Engineers, Peshawur Valley Field Force; 2nd Afghan Campaign, October 1879 to August 1880, as Assistant Field Engineer—medal. Expedition against Mahsud Waziris in April and May 1881 as Assistant Field Engineer, and in charge of R. E. Park. Served in Zhob Valley Expedition, 1884, as Survey Officer—mentioned in despatches. Served with Hazara Field Force, 1888, as Survey Officer—mentioned in despatches.

**WILLIAM HENRY PATTEBSON, Deputy Superintendent, 4th Grade.**—Appointed Junior Sub-Assistant Revenue Surveyor, 1st December 1851, and posted to the Rechnab Doab (Punjab) Revenue Survey; transferred to the Sindh Sagar Doab Revenue Survey, 1st October 1855; promoted to 3rd grade, 1st October 1855; transferred to the Derajat (Trans-Indus) Survey, 1st July 1856; promoted to 2nd grade, 1st May 1857; promoted to 1st grade, 1st January 1859; honourable mention in the Punjab Administration Report for 1859-60; thanks of the Lieutenant-Governor of the Punjab and of the Government of India; transferred to the 1st Division (Oudh) Revenue Survey, 1st October 1859; promoted to Assistant Revenue Surveyor, 3rd grade, 1st January 1862; on deputation at Head-quarters Office (Drawing Branch), Calcutta, 1st September 1862; promoted to 1st grade, 1st January 1866; designation changed to Civil Assistant, 3rd grade, 1st April 1866; transferred to 2nd Division (Oudh) Revenue Survey, 18th April 1866; during 1867-68 detached to make a survey of the cantonments, civil station, and city of Cawnpore, on the scale of 12 inches to the mile, and revision of the plan of the Lucknow Cantonments with additions of environs 2 miles all round, on the scale of 8 inches to the mile; promoted to Civil Assistant, 2nd grade, 1st January 1868, and to Surveyor, 1st grade, 1st January 1871; transferred to the 1st Division, Lower Provinces Survey (Assam), 1st April 1871; appointed to the temporary charge of the 1st Division, Lower Provinces Survey, from 24th April to 12th June 1872; on duty at the Presidency Office, 29th January 1873; rejoined 1st Division, Lower Provinces Survey in Assam, February 1873; appointed to the temporary charge of the 1st Division, Lower Provinces Survey, from 25th November 1873 to 7th January 1874, and to the charge of the Survey of Lakhiraj holdings in Districts Darrang and Kamrup, with deputation allowance of Rs50 per mensem, from 1st

December 1874 to 18th June 1879; services recognised by the Chief Commissioner, Assam, in Land Revenue Administration Report of District Darrang, season 1875-76; services placed at the disposal of the Chief Commissioner, Assam, for employment under the Settlement Officer, Cachar, 3rd January 1880; appointed Chief Draftsman, Surveyor-General's Office, Calcutta, 8th August 1882; promoted to Assistant Superintendent, 2nd grade, 22nd January 1883; transferred to No. 5 Topographical Party (District Mirzapur), 1st February 1883; Officiating Assistant Superintendent, 1st grade, from 1st February 1883 to 30th September 1884; promoted to Assistant Superintendent, 1st grade, 1st October 1884; assumed temporary charge of No. 2 Party, Bhopal and Malwa Topographical Survey, from 5th August to 27th October 1884; re-transferred to No. 5 Topographical Party, Mirzapur District; assumed charge of No. 2 Party, Bhopal and Malwa Topographical Survey, from 24th November 1884 to 26th October 1885, and of Mirzapur Topographical Survey Party, from 11th November 1885 to 31st August 1888 (Nomenclature of Party changed to Hoshungabad, 1st October 1887); appointed to the charge of No. 11 Party, Central Provinces Traverse Survey, 1st September 1888. Officiating Deputy Superintendent, 1st grade, from 16th September 1884 up to 14th February 1889; confirmed, 15th February 1889.

*Leave* on private affairs from 1st May to 31st August 1862; leave on private affairs to Europe from 20th July 1872 to 18th January 1873; leave on private affairs to Europe from 11th July 1879 to 2nd January 1880.

*Special Powers.*—Vested with powers of a Deputy Collector under Regulation IX of 1833 in Districts Kamrup, Nowgong, and Darrang, 11th January 1872; vested with powers of Deputy Collector under Act V of 1875, B. C. (Surveys), in District Cachar, 19th February 1880.

*Military Services.*—As volunteer during the Mutiny of 1857-58; served against the Murree rebels—medal.

**FREDERICK WILLIAM KELLY, Deputy Superintendent, 4th Grade.**—Appointed Junior Sub-Assistant, 4th December 1854; promoted to Sub-Assistant, 1st January 1856, in the Punjab and Sind Surveys; special leave for four months from 21st January 1858, which was overstayed from 21st May to 16th August 1858; employed as Sub-Assistant, 2nd class, in the Bhurtpur and Bundelcund Surveys, 17th August 1858; promoted to Sub-Assistant, 1st class, 1st January 1861; transferred to 2nd Division, Oudh Survey, 3rd February 1861; promoted to Assistant Revenue Surveyor, 3rd class, 1st January 1864; promoted to Civil Assistant, 4th grade, 1st April 1866; transferred to Head-quarters Office, Calcutta, 18th September 1866; promoted to Civil Assistant, 3rd grade, 1st July 1867; promoted to Surveyor, 2nd grade, 1st July 1869; in temporary charge of Midnapur Survey from 2nd March to 19th June 1876; promoted to Surveyor, 1st grade, with personal allowance of ₹50, 8th July 1879. Passed Examination for Senior Division in Calcutta; promoted to 2nd grade Assistant Superintendent, 22nd February 1883; promoted to officiate as Assistant Superintendent, 1st grade, from the same date; transferred to Prome and Akyab Districts Cadastral Survey, British Burma; promoted to Assistant Superintendent, 1st grade, 10th November 1884; Officiating Deputy Superintendent, 4th grade, from 3rd December 1884 to 12th October 1885; officiated in charge, Burma Topographical Party, for 3 months, from 8th July 1885; re-transferred to Akyab District (Cadastral) Survey from 6th October 1885; Officiating Deputy Superintendent, 4th grade, from 26th October to 15th November 1885, and from 21st January 1886 to 31st October 1886; leave on medical certificate to Australia from 13th November 1886 to 9th May 1887; Officiating Deputy Superintendent, 4th grade, from 14th May 1887 up to 25th March 1889; held charge of No. 8 Party (Bengal and Orissa) from 15th May to 29th August 1887; appointed to the charge of No. 7 Party (Bassein), 6th September 1887; confirmed as Deputy Superintendent 4th grade, 26th March 1889.

*Literary Work.*—Practical Surveying for India.

**EDWARD C. RYALL, Assistant Superintendent, 1st Grade.**—Appointed Apprentice Draftsman, Surveyor-General's Office, Calcutta, 11th August 1854, and to the Great Trigonometrical Survey Department as 3rd class [Sub-Assistant, Great Trigonometrical Survey, on 26th April 1855, and posted to Head-quarters Office, Dehra Dun; subsequently, on October 1st of the same year, was attached to the Ragoon Meridional Series; on 1st October 1856, 2nd class Sub-Assistant, transferred to the Jhelum and Rawal Pindi Topographical Survey Party; served with that party up to May 1859; during the recess seasons of 1858 and 1859 of the Jhelum and Rawal Pindi Party was deputed to do field duty with the Kashmir Survey; January 1st, 1860, promoted to 1st class Sub-Assistant; transferred to the Kashmir Survey in June 1859; served with that survey up to 1st October 1864, and was then transferred to the East Calcutta Longitudinal Series; on November 1st, 1865, was posted to the Eastern Frontier Series Party; sick leave from 25th January to 7th September 1866; on return to duty was appointed to the Kumaon and Garhwal Topographical Party, 1st May 1867; assisted that party

in the large-scale surveys of Mussoore, Ranikhet, and Kosi Valley, and subsequently in the survey of the Dehra Dun District; appointed to charge of the Kumaon and Garhwal Party in March 1875; brought the field operations of that party to a close in September 1877, and was relieved of the charge of the party on 1st October 1878; posted to Surveyor-General's Field Headquarters Office, Dehra Dun, 1st October 1878, and on the 1st January 1879 transferred to the 3rd Division, North-Western Provinces Survey, Revenue Branch; transferred to Darjeeling Party, 1st September 1881; sick leave from 10th December 1883 to 4th January 1884; Officiating Deputy Superintendent, 4th grade, from 6th July 1885 to 14th November 1888; in charge Coast Triangulation Survey, 6th October 1885. Party transferred to Upper Burma to extend the principal triangulation of India into that Province, 1st October 1888; Officiating Deputy Superintendent, 3rd grade, from 16th November 1888 to 6th December 1888. Reverted to Officiating Deputy Superintendent, 4th grade, 7th December 1888; reverted to substantive appointment of Assistant Superintendent, 1st grade, 20th April 1889. Relieved of charge of No. 24 Party, 18th May 1889.

*Abstract showing the steps obtained by Mr. E. C. RYALL while in the Survey Department.*—Appointed 3rd class Sub-Assistant, 26th April 1855; 2nd class Sub-Assistant, 1st October 1856; 1st class Sub-Assistant, 1st January 1860; Junior Civil 2nd Assistant, 1st July 1862; Senior Civil 2nd Assistant, 1st January 1863; Surveyor, 2nd grade, 1st April 1869; Surveyor, 1st grade, 1st April 1871; Assistant Superintendent, 2nd grade (subsequently on 1st April 1874 designated 3rd grade), 1st April 1873; Officiating Assistant Superintendent, 2nd grade, 7th September 1879; reverted to 3rd grade on 9th October 1879; Officiating Assistant Superintendent, 2nd grade, from 1st November 1879; Assistant Superintendent (new), 2nd grade, 1st July 1882; Officiating Assistant Superintendent, 1st grade, from 1st July 1882 up to 31st January 1883; promoted to Assistant Superintendent, 1st grade, 1st February 1883.

*Military Service.*—As volunteer during the mutiny; served against the Murree rebels—medal.

*Literary Work.*—Report on Hundes or Nari Khorsam.

**CAPTAIN HUGH MILBOURNE JACKSON, Royal Engineers, Deputy Superintendent, 4th Grade.**—Received commission in Royal Engineers, 19th June 1877; under instruction at the S. M. E., Chatham, from 19th February 1878 to December 1879; served in the 7th Field Company, Royal Engineers (Chatham), from 20th March 1880 to 1st December 1880; transferred to the Indian Establishment, 1st February 1881; served with the Bengal Sappers and Miners at Roorkee, Calcutta, in the Naga Hills and at Rawal Pindi, from May 1st, 1881, to June 7th, 1883; appointed to Survey of India Department as Assistant Superintendent, 2nd grade, with effect from the 11th June 1883, and to officiate as Assistant Superintendent, 1st grade, from the same date; attached to the Kohat Survey Party; transferred to the Mysore Topographical Survey, 11th October 1883; officiated in charge of that party from 13th February to 19th March 1884; confirmed as Assistant Superintendent, 1st grade, 28th November 1884; on duty, Surveyor-General's Office, Simla, from 6th May 1885; transferred to Basti District (Cadastral) Survey, from 1st September 1885; Officiating Deputy Superintendent, 4th grade, from 5th to 6th November 1885, 3rd February to 8th March 1886, and from 10th March 1886 up to 25th April 1889; confirmed 26th April 1889; transferred to Mysore Topographical Survey, 8th March 1886; in charge of that party from 23rd March 1886, until the completion of the work; transferred to Upper Burma Detachment from 5th November 1886; promoted to Captain, 1st April 1888. In charge No. 20 Party (Burma), from 19th May 1888. Transferred to No. 21 Party (Upper Burma), from 1st November 1888.

**CAPTAIN GODFREY BECKETT HODGSON, Bengal Staff Corps, Deputy Superintendent, 4th Grade.**—First commission as 2nd Lieutenant, 2nd Battalion, Her Majesty's 22nd Cheshire Regiment, 1st May 1878; attached to the Regimental dépôt at Buttevant, County Cork, Ireland, till 26th September 1878; arrived in India, 21st October 1878, and joined Regiment at Allahabad; promoted to Lieutenant, 13th November 1878; appointed, on probation, to the Bengal Staff Corps, by Military Department No.  $\frac{606 \text{ S.}}{\text{A.}}$ , dated 14th July 1880, and attached as Officiating Wing Officer to 4th Goorkha Regiment then on field service in Afghanistan; appointed permanently to the Bengal Staff Corps, 15th September 1881, with rank from 13th November 1878; Officiating Quarter-Master, 4th Goorkhas, from 23rd December 1880 to 27th February 1883, when he exchanged, at his own request, to 3rd Goorkhas at Almorá; served with that regiment, till appointed to the Survey of India Department, as Assistant Superintendent, 2nd grade, on probation, 12th September 1883, and attached to Gujarat Party; confirmed as Assistant Superintendent, 2nd grade, and promoted Officiating 1st grade, 23rd July 1884; appointed to do duty at the Head-quarters, Calcutta, from 8th September 1885; confirmed as Assistant Superintendent, 1st grade, 26th October 1885; Officiating Deputy Superintendent, 4th grade, 21st March 1886 to 23rd November 1887 and from 25th to 29th November 1887;

reverted to Assistant Superintendent, 1st grade, 30th November 1887; Officiating Deputy Superintendent, 4th grade, from 6th January 1888; reverted to Assistant Superintendent, 1st grade, 25th January 1888; Officiating Deputy Superintendent, 4th grade, from 10th February 1888 (afternoon) up to 4th May 1889; confirmed 5th May 1889; promoted to Captain, 1st May 1889; furlough to Europe for 2 years, from 4th March 1889.

*War Services.*—Afghanistan, from 3rd August to 9th October 1880, as Officiating Wing Officer, 4th Goorkhas—medal.

**CAPTAIN SIDNEY GERALD BURHARD**, *Royal Engineers, Officiating Deputy Superintendent, 4th Grade.*—Obtained his commission as Lieutenant in the Royal Engineers, 6th April 1879; joined at Chatham, 2nd June 1879; Assistant Secretary to Ordnance Committee for Gunnery Experiments, April 3rd, 1881, to December 8th, 1882; landed in India, 10th January 1883; attached to Bengal Sappers and Miners up to 24th March 1883, when appointed to P. W. D., Baluchistan; Personal Assistant to Superintending Engineer and Secretary to Governor General's Agent for Baluchistan, from 2nd April 1883 to 1st September 1884; appointed Assistant Superintendent, 2nd grade, Survey of India, 2nd September 1884; Officiating Assistant Superintendent, 1st grade, from the same date, and posted to Trigonometrical Branch Office; transferred to Astronomical No. 1 Party (Electro Longitude Operations), 9th October 1885; assumed charge of the Party, 24th January 1886; promoted to Assistant Superintendent, 1st grade, 10th March 1886; Officiating Deputy Superintendent, 4th grade, from 21st March 1886 to 13th May 1887, from 15th May to 23rd October, and again from the 4th to 11th November 1887; assumed charge of Astronomical No. 2 Party (Latitude Operations) in addition to that of No. 1 Party, 15th October 1886; made over charge of No. 23 Party (Astronomical II Party) on the 1st October, and that of No. 22 Party Astronomical I on 1st November 1887; doing duty in the Trigonometrical Branch Office from 1st November 1887; Officiating Deputy Superintendent, 4th grade, from 15th February 1888 up to 27th June 1889; Confirmed 28th June 1889; in charge computing party from 10th April 1888; assumed charge of No. 23 Party (Astronomical II), 14th July 1888, and that of No. 22 Party (Astronomical I), 17th idem, and made over charge of both parties on the 1st November 1888; again assumed charge of Nos. 22 and 23 Parties (Astronomical I and II), 3rd May 1889, and of No. 24 Party (Upper Burma), 11th June 1889; promoted to Captain, 1st April 1889.

**ANGELO D'SOUZA**, *Officiating Deputy Superintendent, 4th Grade.*—Joined the Topographical Survey as 3rd class Sub-Assistant on the 19th February 1856, and was appointed to the Ganjam Topographical Survey; took part in the Survey of Sambalpur and Boad Districts, and assisted in the triangulation of the coast from Pooree to False Point in 1857-58; promoted to 2nd class Sub-Assistant on the 19th February 1859; transferred to the Assam Series, Trigonometrical Survey, 1st September 1859; carried on a minor Series, with a view of fixing the position of Gauhati, and completed a Topographical Survey of the Cossya plateau of about 1,000 square miles in area, on the scale of 4 miles to 1 inch; transferred to the Astronomical Party, Andaman Islands, on 23rd October 1861; promoted to 1st class Sub-Assistant on 8th January 1862; promoted to Senior Sub-Assistant on 18th September 1863; transferred to the Kattywar Party in October 1863; was employed in training the new hands for the Topographical Survey of that country; on account of the severe famine in Kattywar, the survey was placed in abeyance in 1864-65, and was then employed on the approximate work of the triangulation of Nasik District, Bombay Presidency; and in the following season (1865-66) was employed on the approximate work of the triangulation of the Island of Bombay, and also in executing a number of traverses as basis for the Cadastral Survey of Bombay; promoted to Civil 2nd Assistant, junior grade, on 1st January 1866; promoted to Civil Assistant, 4th grade, on the reorganization of the Department on 1st April 1866; was employed in Kathiawar in 1866-67 on the resumption of that survey and continued in the party till 1869; promoted to Surveyor, 3rd grade, in September 1869; furlough from October 1869 to September 1870; transferred to the Gujarat Party on the 27th September 1870; promoted to Surveyor, 2nd grade, on 1st December 1872; promoted to Surveyor, 1st grade, on 1st September 1875; transferred to the Coast Triangulation Party on 1st October 1883, and assumed charge of the party on the 16th October 1883; promoted to Assistant Superintendent, 2nd grade, on the 1st October 1884; appointed to officiate in the 1st grade with effect from the same date; transferred to Raipur District Survey, Central Provinces, from 1st October 1885; transferred to the charge of Sambalpur Detachment, which was raised to a full party from 1st October 1887 and designated No. 13 Party (Betul), Central Provinces, from 11th April 1886; Officiating Deputy Superintendent, 4th grade, from 4th May 1886 to 16th December 1886; confirmed as Assistant Superintendent, 1st grade, 1st January 1887; Officiating Deputy Superintendent, 4th grade, from 1st to 4th January 1887, from 7th June to 25th September 1887, from 11th to 13th April 1888, and from 16th May 1888.

**G. B. Scott, Officiating Deputy Superintendent, 4th Grade.**—Joined North-West Frontier Revenue Survey as a junior Sub-Assistant Surveyor on 1st May 1863; season 1863-64, triangulated portions of "Salt Range," District Shahpur; season 1864-65, Revenue Survey District, Eusafzai (Peshawar); seasons 1865-66-67, triangulating District Hazara; promoted to Sub-Assistant Surveyor, 4th grade, 1st January 1866, and to 3rd grade, on 15th December 1866; May to August 1868, plane-tableing sections of Kaghan Valley; promoted to Sub-Assistant, 2nd grade, on 15th December 1869; season 1869-70, attached to Revenue Survey, District Peshawur; season 1870-71, attached to Revenue Survey, District Dera Ghazi Khan; October 1871, transferred to Assam Revenue Survey; passed examination for Senior Division in Calcutta; season 1871-72, triangulated and plane-tabled portion of Mekir Hills, District Nowgong, Assam; promoted to Assistant Revenue Surveyor, 1st grade, 15th December 1871; season 1872-73, attached to District Darrang Revenue Survey; seasons 1873-74-75, Revenue and Topographical Survey of District Goalpara, Assam; promoted to Surveyor, 4th grade, 15th December 1874; during 1875 employed on 16" Survey of Cinchona Gardens at Darjeeling; season 1875-76, attached to Dhanwar Estate Cadastral Survey, District Hazaribagh; October 1876, transferred to Punjab Revenue Survey, Rawalpindi, and during season 1876-77 triangulated portion of Murree and Kahuta Tahsils; passed H. S. Examination in Hindustani in 1877; season 1877-78, plane-tabled portions of Murree and Kahuta Tahsils, and accompanied Jowaki Expedition; in 1878-79 with Khyber column Afghanistan Field Force; promoted to Surveyor, 3rd grade, 18th July 1879; during 1879-80, attached to Intelligence Branch, Quarter-Master General's Department, Afghanistan; rejoined Punjab Revenue Survey in June 1880; during 1880-81, employed on a 12" Survey of the hatted camp in "The Gullies;" surveyed a portion of country on the Chenab River disputed between Sealkot District and the Kashmir State; triangulated portion of Kala Chitta Range, District Rawal Pindi; during seasons 1882-83-84, attached to Forest Settlement Department, Punjab, to lay down boundaries of reserves in Rawal Pindi District; promoted to Surveyor, 1st grade, 5th September 1883; transferred to Baluchistan Topographical Party, 1st August 1884; during October and November 1884 accompanied Zhob Valley Expedition; promoted to Assistant Superintendent, 2nd grade, officiating 1st grade, 10th November 1884 up to 18th February 1887; in January 1885 deputed to Intelligence Branch of Quarter-Master General's Department, Simla, to compile Military and Railway Map of India; transferred to Bilaspur District (Central Provinces) Cadastral Survey, 1st October 1885; officiated as Deputy Superintendent, 4th grade, 26th October, and from 18th November to 8th December 1886; held charge of No. 2 Bilaspur District Cadastral Survey from 26th November 1886 to 23rd November 1887; confirmed as Assistant Superintendent, 1st grade, 19th February 1887; Officiating Deputy Superintendent, 4th grade, from 8th June to 29th August 1887; appointed to the charge of Srinagar Wards Estate Survey, afterwards called No. 4A Party (Srinagar), from 28th November 1887; Officiating Deputy Superintendent, 4th grade, from 21st June 1888.

**War and Trans-Frontier Services.**—In 1867, reconnoitred independent hill tracts of Allahi Nandihar, Tikari, and eastern slopes of Black Mountain; repulsed night attack on camp 23rd April.

In 1868, 11th August, repulsed attack by Allahiwal; presented with sword "for gallantry" by Punjab Government; accompanied Black Mountain Expedition—medal and clasp.

In 1869, reconnoitred independent tracts of Chilas and Kohistan between Indus and Kaghan.

In 1870, reconnoitred hill country round Peshawur District; fired on by Hassan Khel.

In 1871, reconnoitred small portion Bhutan hills touching on District Darrang, Assam.

In 1877, accompanied Jowaki Afridi Expedition; services cordially acknowledged by Viceroy, Commander-in-Chief, and Punjab Government.

In 1878-79, with Khyber Column in Afghanistan; present at attack on Ali Masjid, actions of Deh Sarak and Fettehabad; accompanied 1st and 2nd Bazar Valley Expeditions; mentioned in despatches; attacked by Mohmands near Michni while reconnoitring alternative routes to the Khyber; "conspicuous gallantry" displayed on the occasion cordially acknowledged by the Viceroy in Council; ascended summit of Sikaram, Safid-koh, 29th May 1879, and received congratulatory telegram from Commander-in-Chief, as having been the first European who had done so; services during campaign acknowledged by Secretary of State for India, by the Governor General, by the Commander-in-Chief, and by the Punjab Government—medal and clasp; personal allowance of R100 per month and special grant of R1,000; recommended by Viceroy and Commander-in-Chief for direct Captaincy in Staff Corps, which was disallowed by War Office.

During 1879-80, attached to Quarter-Master General's Department during 2nd Afghan Campaign; completed reconnaissance of Afridi and Mohmand countries; accompanied General

Tytler's Expedition against the Zaimukhts; services acknowledged by Commander-in-Chief; mentioned in despatches; during October and November 1884 accompanied Zhob Valley Expedition; services acknowledged by Governor General in Council.

*Literary Works.*—Reports on Tirah, Mohmand country, and various other parts of Afghanistan. } Intelligence Branch, Q. M. G.'s Department.  
 "Pathans of the North-Western Frontier." }  
 "A Surveyor's Narrative on Afghanistan." } Blackwood, 1879.  
 "Pushto Vocabulary" for Explorers.  
 "Trans-Frontier Exploration," U. S. I. of India.

**JOHN ECCLES, M.A.,** *Officiating Deputy Superintendent, 4th Grade.*—Appointed by Her Majesty's Secretary of State for India as an Assistant Superintendent, 2nd grade, Survey of India; landed at Calcutta, afternoon, 29th May 1885, and joined the Head-quarters Office on the 30th idem; transferred to the Computing Party, Dehra Dun, 26th July 1885; officiated in charge from 23rd September to 22nd December 1885; Officiating Assistant Superintendent, 1st grade, from 30th May to 19th November 1886, and Officiating Deputy Superintendent, 4th grade, from 20th to 22nd November 1886. Officiating Assistant Superintendent, 1st grade, from 23rd November 1886 up to the present time; transferred to No. 25 Party Tidal and Levelling, 1st November 1887; confirmed as Assistant Superintendent, 1st grade, 11th April 1888; Officiating Deputy Superintendent, 4th grade, 17th July 1888 to 6th January 1889, and again from 20th February 1889. Transferred to the charge of Nos. 22 and 23 Parties (Astronomical I and II), 1st November 1888; made over charge of both parties, 3rd May 1889; but attached to them.

**LIEUTENANT JOHN MURCHISON FLEMING, Bengal Staff Corps, Officiating Deputy Superintendent, 4th Grade.**—Obtained first commission on the 13th August 1879, as 2nd Lieutenant, 25th "King's Own Borderers"; Lieutenant in the same regiment, 21st June 1880; appointed on probation to the Bengal Staff Corps, and attached as Wing Officer to the 22nd Punjab Infantry, 22nd July 1882; appointed Officiating Wing Officer to the 4th Bengal Infantry, 4th October 1882; Officiating Quarter-Master, 4th Bengal Infantry, from 4th September 1883; appointed permanently to Bengal Staff Corps by G. G. O. No. 57 of 8th February 1884; Adjutant in same regiment from 15th April to 28th June 1885; appointed to Survey of India Department as Assistant Superintendent, 2nd grade, sub. *pro tem.*, 3rd July 1885, and on probation, 22nd October 1885; confirmed, 14th May 1887. Transferred to No. 18 Party (Himalaya), 21st September 1886; Officiating Assistant Superintendent, 1st grade, from 14th May 1887; confirmed, 17th July 1888; Officiating Deputy Superintendent, 4th grade, from 1st September 1888 to 22nd October 1888, and from 1st November 1888 to 22nd December 1888; Transferred to No. 3 Party (Nagpur) from 13th November 1888; Officiating Deputy Superintendent, 4th grade, from 20th February 1889.

*War Services.*—Served with 25th King's Own Borderers in the Khyber Line Field Force from 18th December 1879 to August 31st, 1880; expeditions against Mohmands and into Lughman Valley—medal.

**T. ARCHDALE POPE, Officiating Deputy Superintendent, 4th Grade.**—Second class Inspector of Police, Cuddapah, 17th July 1880 to 1st February 1881; passed the third class test in Telugu, 10th January 1881; probationary 2nd Assistant Superintendent, Madras Survey, doing duty in the Central Office, 2nd February 1881; transferred to No. II Party, Bellary, 9th February 1881; confirmed as 2nd Assistant Superintendent, 1st September 1881; on duty in the Central Office, Madras, 19th December 1881 to 1st March 1882; transferred to No. III Party, Madura, 2nd March 1882; passed the third class test in Tamil, 17th July 1882; transferred to No. I Party for the demarcation and survey of the Madura, Travancore boundary, 1st December 1882; privilege leave from 7th May to 6th July 1883; transferred to No. III Party, Tanjore, 7th July 1883; Acting Assistant Superintendent, 1st class, from 18th March to 18th June 1884; Assistant Superintendent, 1st class, from 3rd September 1884; in charge of Central Office, 1st October to 26th November 1885; Acting Deputy Superintendent, 2nd class, from 1st October to 26th November 1885; transferred to No. III Party, Trichinopoly, 3rd December 1885; privilege leave for 3 months from 1st July 1886; services placed at the disposal of the Government of India from 1st October 1886; Assistant Superintendent, 2nd grade, Survey of India; attached to the Photographic and Lithographic Offices, Calcutta, 14th October 1886; Officiating Assistant Superintendent, 1st grade, 14th October 1886 to 13th November 1888; Officiating Deputy Superintendent, 4th grade, from 14th November 1888; reverted to Officiating Assistant Superintendent, 1st grade, 7th December 1888; confirmed, 15th February 1889; Officiating Deputy Superintendent, 4th grade, from 27th March 1889.

**LIEUTENANT T. F. B. RENNY-TAILYOUR, Royal Engineers, Officiating Deputy Superintendent, 4th Grade.**—Received commission in Royal Engineers, 14th February 1883. Under instructions at the S. M. E., Chatham, from 28th March 1883 to 3rd January 1885. Transferred to the India Establishment, 2nd March 1885. Served with the Bengal Sappers and Miners at Roorkee from 4th April to 22nd September 1885; joined Military Works Department as Assistant Engineer, 2nd grade, sub. *pro tem.*; promoted to Assistant Engineer, 2nd grade, permanent, on 4th March 1886; passed prescribed examination for promotion to 1st grade on 1st January 1887; and passed colloquial examination in Hindustani, on 3rd January 1887; promoted Assistant Engineer, 1st, sub. *pro tem.*, on 7th January 1887; promoted Assistant Engineer, 1st grade, permanent, on 1st November 1887; joined the Survey Department as Assistant Superintendent, 2nd grade, on the afternoon of 31st March 1888, and was attached to No. 21 Party (Upper Burma); Officiating Assistant Superintendent, 1st grade, from 1st January 1889; confirmed, 26th March 1889; Officiating Deputy Superintendent, 4th grade, from 20th April 1889.

**War Services.**—Attached to (Queen's Own) Sappers and Miners, from 30th October 1885, for active service in Upper Burma, and was appointed an Assistant Field Engineer, Upper Burma Field Force, from 16th November 1885 to 31st March 1888. Accompanied the force under General Sir H. Prendergast, K.C.B., and was present at the taking of Mandalay; mentioned in despatches of Major-General Sir G. White, K.C.B., V.C.; was thanked by the Commander-in-Chief for Intelligence work in the field—medal with clasp.

**LIEUTENANT R. J. H. L. MACKENZIE, Royal Engineers, Officiating Deputy Superintendent, 4th Grade.**—Received his commission as Lieutenant, Royal Engineers, 25th July 1882. Arrived in India on the afternoon of the 2nd February 1887. On arrival in India was posted as attached Officer, Baluchistan Command, Military Works, and permanently posted to the Quetta Division. Posted to the Military Works Department as Assistant Engineer, 2nd grade, on the 7th March 1887. Elected to be paid according to the consolidated rate of pay in the Military Works Department. Passed the examination for promotion to Assistant Engineer, 1st grade, prescribed in paras. 9 to 13, Chapter II, Public Works Department Code, on 21st August 1887. Promoted from Assistant Engineer, 2nd grade, temporary, to Assistant Engineer, 2nd grade, permanent, from 1st November 1887. Reported his departure from the Quetta Division, Military Works, on the forenoon, 26th March 1888. Joined the Survey Department as Assistant Superintendent, 2nd grade, on the forenoon of 26th March 1888, and was attached to No. 16 Party (Baluchistan II). Transferred to No. 15 Party (Baluchistan) from 1st October 1888. Officiating Assistant Superintendent, 1st grade, from 1st January 1889; confirmed, 27th March 1889; Officiating Deputy Superintendent, 4th grade, from 7th May 1889.

**F. GRANT, Assistant Superintendent, 1st Grade.**—Appointed Junior Sub-Assistant Surveyor, 11th July 1856, and posted to the 1st Division, Central Provinces Revenue Survey at Jubbulpore; transferred with the Party during the Mutiny to the Survey of Nagpur and Wardha Districts, 1st November 1857; promoted to Sub-Assistant Revenue Surveyor, 3rd class, 1st June 1859; retransferred to Jubbulpore, 1st November 1860, and entrusted with charge of a minor camp, 1st January 1861; promoted to Sub-Assistant Revenue Surveyor, 2nd class, 1st April 1860, and received charge of a full camp, 1st November 1861; promoted to Sub-Assistant Revenue Surveyor, 1st class, 1st April 1862, and employed up to season 1873-74 in the Survey of Districts Narsingpur, Seoni, Hoshungabad, Chindwara and Betul in the Central Provinces, including one season's detached work in the Charwa Waste-land in District Hoshungabad; promoted to Assistant Revenue Surveyor, 3rd class, 1st January 1864; promoted to Civil Assistant Surveyor, 4th grade, 1st April 1866; promoted to the Surveyor, 3rd grade, 1st April 1869; promoted to Surveyor, 2nd grade, 1st April 1872; transferred with Party, now converted to the 8th Division, Western Soane Irrigation Survey, to District Arrah, 1st November 1874, and employed there till completion of the work in 1877-78, and had temporary charge of the Party for 3 months from 28th August to 26th November 1876; transferred to No. 6 Topographical Survey Party in South Sylhet to carry out some Revenue Topographical work, 1st November 1878; retransferred to the 2nd Division, Rohtak and Sirsa Survey, from 6th June 1879; transferred on 1st November 1879 to the Hanthawaddy District Cadastral Survey, British Burma, No. 2 Party, and was employed there and in the Revenue Topographical Survey of portion of District Shwegyn till season 1884-85; promoted to Surveyor, 1st grade, 22nd February 1883; transferred with Party back to India to the Bilaspur District Cadastral Survey, 1st November 1885; appointed to temporary charge of No. 9 Jubbulpore Traverse Party, for 3 months, from 3rd August 1886 to 2nd November 1888; rejoined No. 2 Bilaspur Cadastral Party, 17th November 1888; appointed Assistant Superintendent, 2nd grade, 16th May 1889; Officiating Assistant Superintendent, 1st grade from the same date; confirmed 28th June 1889.

**LIEUTENANT W. J. BYTHELL, *Royal Engineers, Assistant Superintendent, 2nd Grade.***—Received commission in Royal Engineers, 25th July 1882. Served in South Africa, November 1884 to October 1886; posted to Indian Establishment, and joined Bombay Sappers and Miners at Kirkee in October 1886; transferred to State Railways as Assistant Engineer, 2nd grade, July 1887; joined Sind-Pishin State Railway, 20th July 1887; served on Chaman extension at Killa Abdulla and Khojak Pass until 22nd May 1889; joined Survey Department, 29th May 1889.

***War Services.***—With Expedition to Bechuanaland under Sir Charles Warren, 1884-85, as Survey Officer, and served in Topographical and Intelligence Departments and on Transvaal Boundary Survey; honorably mentioned.





# MYSORE REVENUE SURVEY DEPARTMENT.

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## General List of Officers of the Mysore Revenue

1	2	3	4	5	6	7
Number sanctioned.	Number existing in each grade.	Names of officers and names of substantive appointments.	Passed in the vernacular.	Age.	Date of first appointment to the Department.	Date of appointment to the present grade.
1	1	Colonel J. P. Grant, Superintendent	All have passed in the vernacular.	Y. M. D.		
1	1	Lieut.-Col. J. Rutherford, Depy. Superintendent		51 3 0	Nov. 1, 1863	Jan. 15, 1868
2	1	Mr. E. H. Butcher, Assistant Settlement Officer		47 5 22	Jan. 25, 1865	April 8, 1881
...	2	Mr. J. P. Barker, Assistant ditto ditto		53 0 2	Oct. 2, 1865	April 1, 1881
				41 9 2	Dec. 22, 1866	Nov. 1, 1886

## Disposition List of Officers of the Mysore Revenue

1	2	3	4	5	6	7	8	9
Number.	Establishment.	Where employed.	STRENGTH OF SUBORDINATE ESTABLISHMENT IN ALL GRADES.					
			Sub-Surveyors.	English Clerks.	Karkuns.	Learners.	Mappers.	Peons.
1	Supdt.	Mysore Province	12	2	58	8	27	10
2	Depy. Supdt.	Ditto	...	2	8	...	...	5
3	A	Mysore and Bangalore Districts	32	...	3	...	...	2
4	D	Mysore District	37	...	3	...	...	2
5	F	Ditto	37	...	3	...	...	2
6	H	Bangalore and Mysore Districts	36	...	3	...	...	2
7	E	Kolar and Bangalore Districts	21	...	1	...	...	2
8	M	Ditto	18	...	1	...	...	2
TOTAL			193	4	80	8	27	27

## Survey Department on the 1st July 1889.

8	9	10	11	12	13	14
Period of service counting for pension.	Military pay and allowances.	Staff pay.	Aggregate pay and allowances.	Civil consolidated salary.	Where employed at present.	REMARKS.
Y. M. D.			R a. p.	R a. p.		
...	...	...	1,752 14 0	...	Bangalore.	
...	...	...	1,145 0 0	...	Ditto.	
23 8 29	...	...	...	895 0 0	Ditto	Returned from furlough on the 8th June 1889.
19 9 2	...	...	...	895 0 0	Ditto	

## Survey Department on the 1st July 1889.

10	11	12	13	14	15
Actual cost of Party from 1st July 1888 to 30th June 1889.	Officer in charge.	No. in General List.	Rank and Grade.	Date of assuming charge.	REMARKS.
R a. p.					
58,264 13 6	Col. J. P. Grant	1	Superintendent	Nov. 1, 1863	
23,673 12 3	Lt.-Col. J. Rutherford	2	Dy. Superintendent	July 1, 1865	
15,235 7 5	Mr. K. Ramaswamy Iyengar	...	Asst. Superintendent, 3rd grade	Nov. 1, 1887	
15,001 4 4	„ D. Sham Rao	...	Ditto 2nd grade	Nov. 3, 1885	
14,877 3 0	„ M. S. Narain Rao	...	Ditto ditto	Nov. 1, 1883	
15,115 2 11	„ T. Abdulkarim	...	Asst. Conservator	Nov. 1, 1884	
18,854 2 3	„ J. P. Barker	4	Asst. Settlement Officer	Dec. 1, 1867	
12,434 1 1	„ D. Appu Rao	...	Asst. Conservator	Aug. 1, 1882	
1,73,455 14 9					



## GEOLOGICAL SURVEY OF INDIA.

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<b>H</b>		Middlemiss, C. S. . . . .	76 78 85
Hira Lal . . . . .	76 80 86	<b>N</b>	
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Classified List of Officers of the Geological

Number sanctioned.	Number existing in each grade.	Names of Officers, and name of substantive appointment.	Passed in Vernacular.	Age.		Date of first joining the Department.	Date of promotion to the present grade.
				Y. M. D.			
1	1	William King, B.A., D.Sc., F.G.S., Director, Geological Survey.		55	11 16	Mar. 4, 1857	Apr. 27, 1887
	<i>1st Grade—R800—50—1,100.</i>						
	1	R. Bruce Foote, F.G.S., Superintendent, Geological Survey.		54	9 9	Sept. 28, 1858	June 14, 1881
	2	Theo. W. H. Hughes, C.E., A.R.S.M., F.G.S., Superintendent, Geological Survey.	Aug. 3, 1868	45	10 30	Nov. 11, 1862	Apr. 27, 1887
4	3	Vacant					
	<i>700—60—1,000.</i>						
	4	C. L. Griesbach, C.I.E., F.G.S., Deputy Superintendent, Geological Survey.	Sept. 15, 1880	41	6 21	Nov. 11, 1878	July 13, 1886
	<i>2nd Grade—R600—40—700.</i>						
5	1	R. D. Oldham, A.R.S.M., F.G.S., Deputy Superintendent, Geological Survey.	Aug. 1, 1881	30	11 2	Dec. 17, 1879	Apr. 11, 1883
	2	P. N. Bose, B.Sc., F.G.S., Deputy Superintendent, Geological Survey.	Not required to pass.	34	1 20	July 30, 1880	Apr. 1, 1884
	3	Tom. D. LaTouche, B.A., Deputy Superintendent, Geological Survey.	June 5, 1882	33	8 2	Nov. 29, 1881	Apr. 27, 1887
	4	E. J. Jones, A.R.S.M., Deputy Superintendent, Geological Survey.	June 2, 1884	29	9 26	Dec. 29, 1883	July 13, 1888
	5	C. S. Middlemiss, B.A., Assistant Superintendent, Geological Survey.	Oct. 6, 1884	29	7 9	Dec. 29, 1883	Apr. 1, 1889
6	<i>3rd Grade—R350—30—500.</i>						
	1	P. Lake, B.A., Assistant Superintendent, Geological Survey.	July 2, 1888	24	2 22	Sept. 27, 1887	Sept. 27, 1887
	2	P. N. Datta, B.Sc., F.G.S., Assistant Superintendent, Geological Survey.	July 1, 1889	31	4 17	June 25, 1888	June 25, 1888
	...	Vacant, ditto.					
	...	Ditto ditto.					
	...	Ditto ditto.					
5	<i>Separately graded. R500 rising to R1,000.</i>						
	1	Fritz Noetling, Ph. D., Palaeontologist, Geological Survey.	Oct. 1, 1889	31	11 15	Feb. 17, 1887	Feb. 17, 1887
	<i>Non-graded Officers.</i>						
	1	W. B. Bion, Registrar, Geological Survey	Not required to pass.	37	0 15	Dec. 12, 1870	Dec. 31, 1878
	2	Vacant, Artist, Geological Survey	Ditto				
	3	Kishen Singh, Sub-Assistant, Geological Survey.	Ditto	39	4 6	Jan. 7, 1874	Apr. 1, 1879
5	4	Hira Lal, Sub-Asst., Geological Survey	Ditto	37	11 2	Jan. 7, 1874	Apr. 1, 1879
	5	T. R. Blyth, Museum Assistant, Geological Survey.	Ditto	30	2 7	Mar. 1, 1884	Mar. 1, 1884

Survey of India on the 1st July 1889.

Period of service counting for pension.	Pay of substantive appointment.	Acting allowances.	Conveyance and house allowances.	Total pay and allowances.	Where employed at present.	REMARKS.
32 3 28	1,500 0 0			1,500 0 0	Head Quarters.	
30 9 3	1,100 0 0		60 0 0	1,160 0 0	Bellary.	
25 1 7	1,100 0 0		60 0 0	1,160 0 0	Mergul.	
10 7 20	700 0 0		30 0 0	730 0 0	On deputation	Deputed to Afghanistan.
9 6 15	700 0 0	50 0 0	30 0 0	730 0 0	Himalayas	Offg. as 1st grade Deputy Superintendent, vice Mr. Griesbach.
8 11 2	660 0 0		30 0 0	690 0 0	Balaghat.	
7 7 2	540 0 0		30 0 0	570 0 0	Assam.	
5 6 3	500 0 0		30+150 0 0	680 0 0	Head Quarters	Acting Curator.
5 6 3	500 0 0		30 0 0	530 0 0	Kumaun.	
1 9 3	380 0 0		None	380 0 0	Malabar.	
1 0 6	300 0 0		None	300 0 0	Himalayas	Includes a personal allowance of Rs. 66. 10. 8.
2 4 12	540 0 0		30 0 0	570 0 0	Burma.	
14 7 4	400 0 0			400 0 0	Office.	
14 5 25	200 0 0			200 0 0	Balaghat.	
15 5 25	200 0 0			200 0 0	Sirguja.	
5 4 0	150 0 0			150 0 0	Museum.	

## Disposition List of Officers of the Geological

NAMES OF OFFICERS.	Where employed.	Rank and Grade.	Date of first joining the Department.	STRENGTH OF ESTABLISHMENT OF ALL GRADES.						
				Separately graded.	1st Grade.	2nd Grade.	3rd Grade.	Non-graded Officers	Office Establishment.	
									Clerks and Draftsmen.	Pressmen and Servants.
William King, B.A., D.Sc., F.G.S.	Hd. Quarters	Director, Geol. Survey.	Mar. 4, 1857	2	4	5	6	5	12	24
<i>1st Grade.</i>										
R. Bruce Foote, F.G.S.	Dellary	Supdt., Geol. Survey.	Sept. 28, 1858	4 first grade Officers.	...	...	...	...	...	...
Theo. W. H. Hughes, C.E., A.R.S.M., F.G.S.	Mergui	Ditto	Nov. 11, 1862		...	...	...	...	...	...
Vacant	.....	.....	.....		.....	.....	.....	.....	.....	.....
C. L. Griesbach, C.I.R., F.G.S.	On deputation.	Depy. Supdt., Geol. Survey, 1st grade.	Nov. 11, 1878		...	...	...	...	...	...
<i>2nd Grade.</i>										
R. D. Oldham, A.R.S.M., F.G.S.	Himalayas	Ditto, 2nd grade.	Dec. 17, 1879	5 second grade Officers.	...	...	...	...	...	...
P. N. Bose, B.Sc., F.G.S.	Balaghat	Ditto	July 30, 1880		...	...	...	...	...	...
Tom D. LaTouche, B.A.	Assam	Ditto	Nov. 29, 1881		...	...	...	...	...	...
E. J. Jones, A.R.S.M.	Hd. Quarters	Ditto	Dec. 29, 1883		...	...	...	...	...	...
C. S. Middlemiss, B.A.	Kumaon	Ditto	Ditto	...	...	...	...	...	...	

## Survey of India on the 1st July 1889.

Where employed during last three years.	Annual cost (salary and travelling allowance of Officers and their Subordinates, if any) from April 1888 to March 1889.	REMARKS.
1886-87. Chhattisgarh and Office	Salary . . . . . R a. p. 18,000 0 0	
1887-88. Office and on tour . . . . .	Travelling allowance . . . . . 2,521 0 0	
1888-89. Ditto . . . . .	20,521 0 0	
1886-87. Bellary, Mysore and Office	Salary and fixed allowance . . . . . 14,220 0 0	
1887-88. Bellary . . . . .	Travelling allowance . . . . . 1,953 5 4	
1888-89. Ditto . . . . .	Hospital Assistant's pay, &c. . . . . 631 15 0	
	16,805 4 4	
1886-87. Hyderabad . . . . .	Salary and fixed allowance . . . . . 5,925 0 0	
1887-88. Ditto and Perak . . . . .	Travelling allowance . . . . . 1,685 12 8	
1888-89. Perak and Mergui . . . . .	Hospital Assistant's pay, &c. . . . . 106 1 0	
	7,716 13 8	
.....	.....	
1886-87. Office.	.....	
1887-88. Afghanistan . . . . .	.....	Deputed to Afghanistan.
1888-89. Ditto.	.....	
1886-87. Rajputana, Himalayas and Alwar.	Salary and fixed allowance . . . . . 9,550 5 1	
1887-88. Himalayas and Rajputana.	Travelling allowance . . . . . 1,791 3 3	
1888-89. Ditto.	11,341 8 4	Offg. as 1st grade Deputy Superintendent, vice Mr. Griesbach.
1886-87. Chhattisgarh and Jabalpur . . . . .	Salary and fixed allowance . . . . . 8,831 12 7	
1887-88. Jabalpur . . . . .	Travelling allowance . . . . . 2,287 10 0	
1888-89. Balaghat . . . . .	Hospital Assistant's pay, &c. . . . . 46 10 0	
	11,166 0 7	
1886-87. Assam and Kashmir . . . . .	Salary and fixed allowance . . . . . 2,245 0 0	
1887-88. Kashmir.	Travelling allowance . . . . . 971 15 0	
1888-89. Ditto and Assam . . . . .	3,216 15 0	
1886-87. Burma and Head Quarters . . . . .	Salary and fixed allowance . . . . . 7,635 10 6	
1887-88. Ditto Ditto . . . . .	Travelling allowance . . . . . 1,101 2 4	
1888-89. Head Quarters and Baluchistan	8,736 12 10	Acting Curator.
1886-87. Kumaon and Head Quarters . . . . .	Salary and fixed allowance . . . . . 6,599 0 6	
1887-88. Kumaon . . . . .	Travelling allowance . . . . . 2,210 0 0	
1888-89. Ditto.	8,809 0 05	

Disposition List of Officers of the Geological

NAMES OF OFFICERS.	Where employed.	Rank and Grade.	Date of first joining the Department.	STRENGTH OF ESTABLISHMENT OF ALL GRADES.							
				Separately graded.	1st Grade.	2nd Grade.	3rd Grade.	Non-graded Officers.	Clerks and Draftsmen.	Office Establishment.	
<i>3rd Grade.</i>				6 third grade Officers.							
P. Lake, B.A.	Malabar	Aest. Supdt., Geol. Survey.	Sept. 27, 1887		...	...	...	...	...	...	...
P. N. Datta, B.Sc., F.G.S.	Himalayas	Ditto	June 25, 1888		...	...	...	...	...	...	...
Vacant	...	Ditto	...		...	...	...	...	...	...	...
Vacant	...	Ditto	...		...	...	...	...	...	...	...
Vacant	...	Ditto	...		...	...	...	...	...	...	...
<i>Separately graded.</i>				5 non-graded Officers.							
F. Noetting, Ph. D.	Burma	Palaeontologist, Geol. Survey.	Feb. 17, 1887		...	...	...	...	...	...	...
<i>Non-graded Officers.</i>				5 non-graded Officers.							
W. B. Bion	Office	Registrar, Geol. Survey.	Dec. 12, 1870		...	...	...	...	...	...	...
Vacant	...	Artist, Geol. Survey.	...		...	...	...	...	...	...	...
Kishen Singh	Balaghat	Sub-Asst., Geol. Survey.	Jan. 7, 1874		...	...	...	...	...	...	...
Hira Lal	Sirguja	Ditto	Jan. 7, 1874	...	...	...	...	...	...	...	
T. B. Blyth	Museum	Museum Asst., Geol. Survey.	Mar. 1, 1884	...	...	...	...	...	...	...	

Survey of India on the 1st July 1889—continued.

Where employed during last three years.	Annual cost (salary and travelling allowance of Officers and their Subordinates, if any) from April 1888 to March 1889.	REMARKS.
	<i>R a. p. R. a. p.</i>	
1887-88, Bellary	Salary and fixed allowance . . . . . 4,843 0 6	
1888-89, Ditto and Malabar	Travelling allowance . . . . . 2,119 13 4	
	6,962 13 10	
1888-89, Head Quarters and Himalayas	Salary and fixed allowance . . . . . 3,174 7 9	
	Travelling allowance . . . . . 1,201 8 0	
	4,375 15 9	
1887-88, Head Quarters and U. Burma.	Salary and fixed allowance . . . . . 1,690 0 0	
1888-89, Upper Burma	Travelling allowance . . . . . 2,414 11 11	
	Interpreter's pay, &c. . . . . 684 11 5	
	4,789 7 4	
1886-87, Office	Salary . . . . . 4,800 0 0	
1887-88, Do.		
1888-89, Do.		
1886-87, Mandla and Sconi	Salary . . . . . 2,400 0 0	
1887-88, Chhindwara and Balaghat	Travelling allowance . . . . . 554 0 6	
1888-89, Balaghat	Chaprassi allowance . . . . . 147 0 0	
	3,101 0 6	
1886-87, Chhattisgarh.	Salary . . . . . 2,400 0 0	
1887-88, Ditto and Sirguja	Travelling allowance . . . . . 623 6 9	
1888-89, Sirguja	Chaprassi allowance . . . . . 142 3 9	
	3,165 10 6	
1886-87, Museum	Salary . . . . . 1,680 0 0	
1887-88, Ditto		
1888-89, Ditto		





## Statements of Services of the Geological Survey Officers.

Corrected up to 1st July 1889.

**MR. WILLIAM KING, B.A., D.Sc. (Royal, Ireland) F.G.S.**—Engaged in England by Dr. Oldham, and joined appointment as Assistant on the Geological Survey on 4th March 1857; in May 1858, attached to Madras Party in the Nilgiri Hills and South Arcot; 1859, Trichinopoly and Tanjore; 1860, Salem and Coimbatore; 1861, Kadapah District; 1862, North Arcot, Kadapah and Nellore, arranged the rock collections in the Madras Central Museum; 1863, Madras, North Arcot, and Nellore, delivered three public lectures at Nellore on the Geology of the District; 1864, Kadapah, Bellary, and Karnul Districts, delivered a course of lectures on Geology at the Civil Engineering College, Madras; 1864-65, Kadapah, Karnul and Raichur Doab; 1865-66, Kadapah and Karnul Districts, placed in the 2nd grade on the introduction of grading in May 1866; 1866-67, Bellary District; 1867, 1868, and 1869, Kadapah and Kistna Districts; appointed Deputy Superintendent for Madras, 15th November 1868; furlough from 17th September 1869 to 16th December 1870; 1870-71, Raichur Doab and Bhima Valley; officiated in the 1st grade from 13th June to 3rd December 1871; 1871-72, Godavari District and Nizam's Territories; discovered Singareni coal-field; 1872-73, Godavari and Vizagapatam Districts; deputed to Vienna in joint charge of the survey collections at the Exhibition; officiated in the 1st grade from 19th September 1872 to 20th April 1875; 1873-74, Godavari and Kistna Districts; 1874-75, Wynaad gold-field and Godavari District; promoted to 1st grade on 21st April 1875; 1875, 1876, 1877, 1878, and 1879, Godavari and Sironcha Districts and Nizam's Dominions, also the Wynaad gold-fields; 1880-81, Malabar Coast; furlough from 10th May 1881 to 9th July 1883; 1883-84, Chhattisgarh; Fellow of the Madras University, and Member of the Faculty of Engineering, 1884; officiated as Superintendent from 7th May to 12th November 1884; 1884-85, Chhattisgarh; designation changed to Superintendent of the Geological Survey of India; 1885-86-87, Chhattisgarh; appointed Director on 27th April 1887; 1887-88, extension of service granted for one year to July 1889; Darjiling Coal Field, Karharbali Coal Field, Jabalpur District, Rawalpindi oil, Dandot colliery, Baluchistan coal and oil, Madras coal, diamond and gold fields, and Office; 1888-89, extension of service granted to July 1890; Mohpani Coal Field, Sub and Lower Himalaya, Salt Range and Office.

Has contributed to the Survey publications 5 Memoirs and 24 Records.

**MR. ROBERT BRUCE FOOTE, F.G.S.**—Engaged in England for the Geological Survey; joined as Assistant on the 28th September 1858, deputed to Madras; 1859, in Trichinopoly, South Arcot, and Tanjore; 1860 and 1861, in Salem, Trichinopoly, and South Arcot; delivered a course of public lectures on Geology at the Civil Engineering College, Madras; 1862, in Salem, Coimbatore, South Arcot, and Chingleput, delivered a course of public lectures on Geology in the Civil Engineering College, Madras; 1863, North Arcot, Salem, Chingleput, arranged the palæontological collections in the Madras Museum; 1864, in Chingleput and North Arcot; 1865, in Kadapah, Karnul, Nizam's Territory; 1866, in Karnul, Nellore; placed in the 2nd grade on the introduction of grading in May 1866; 1867, in Nellore, Karnul, Kistna; leave on medical certificate from 29th May 1867 to 22nd October 1868; 1868-69, in Kistna District and Nizam's Territories; 1869-70, in Bellary, Nizam's Territories, Kaladgi; 1870-71, in Bellary, Nizam's Territories, Kaladgi, Belgaum; 1871-72, in Nizam's Territories, Kaladgi, Belgaum, Ratnagiri, Kolhapur; 1872-73, in Bellary, Dharwar, Kaladgi, Sholapur; deputed to Vienna Exhibition in joint charge of the survey collections; officiated in the 1st grade from 16th July 1873 to 17th December 1874; 1873-74, in Kaladgi, Belgaum, Kolhapur, Dharwar; examined the Dambal gold region; 1874-75, in Nellore; 1875, 1876, and 1877, in Nellore and Kistna; promoted to the 1st grade on 1st April 1876; 1877, 1878, and 1879, Trichinopoly, Tanjore, Pudukotta, Madura; furlough from 13th May 1879 to 6th December 1880; 1880-81, Madura, Tinnevely; officiated as Deputy Superintendent from 7th December 1880 to 13th June 1881; appointed Deputy Superintendent from 14th June 1881; 1881-82, Tinnevely; held charge of the current duties of the Office of the Superintendent, Geological Survey, from 23rd July to 22nd October 1882; 1882-83, Madura and Karnul; 1883-84, Karnul, Hyderabad and Bellary; Fellow of the Madras University and Member of the Faculty of Engineering, 1884; 1884-85, Bellary; designation changed to Superintendent of the Geological Survey of India; 1885-86, Bellary; 1887, deputed to examine principal

auriferous tracts in behalf of the Mysore Durbar, Bellary; officiated as Director from 27th June to 26th September 1887; 1888-89, Bellary and Kurnool Districts, Raichur Doab; extension of service granted to September 1890.

Has contributed to the Survey publications 5 Memoirs, 19 Records, and 1 Palæontologia Indica; also translation from the German of two papers by Dr. Waagen on the geographical distribution of fossil organisms in India, and on the carboniferous glacial period.

**MR. THEODORE WILLIAM HUGHES HUGHES, C.E., A.R.S.M., F.G.S.**—Appointed in England by the Secretary of State on 16th October 1862; joined the Survey as Assistant on the 11th November 1862; 1862-63, in the Sone Valley; 1863-64, the Jherria coal-field; 1864-65, the Bokaro coal-field; 1865, 1866, 1867, and 1868, the Káranpura, Deogarh, Karharbári, Ithkuri and Daltonganj coal-fields; 1868, 1869, 1870, and 1871, the Wardha Valley coal-fields; passed in the vernacular on the 3rd August 1868; reported for Government, North-Western Provinces, on roofing slates for barracks, Ranikhet, 1869; accompanied Governor General (Lord Mayo) during tour of Wardha Valley coal-field and opening of Mayo colliery, March 1870; reported for Government, Central Provinces, on lead ore at Sleemanabad, June 1870; pointed out over 20 sites for bore holes in the districts of Chanda and Wún—coal proved in all; also assisted officers of His Highness the Nizam to select positions; leave on medical certificate from 1st July 1871 to 8th November 1872; 1872-73, Bandar and Wardha coal-fields; on special duty with Mr. Banerman, visiting the iron deposits of the Central Provinces; officiated as Deputy Superintendent from 9th November 1872 to 17th December 1874; during July to September 1873, made a trip in Tibet by Niti and Milam; in October 1873, reported on the Kumaon iron ores; in November 1873 reported for the Bengal Iron Company on the Raniganj Field; 1873-74, Wardha Valley coal-field; recommended and indicated sites for borings in the Bandar Field which proved coal; received thanks of Government, Central Provinces; reported for Messrs. Apcar and Company on boring sites in the Raniganj Field, also for Messrs. Burn and Company on the Birbhumi iron ores; 1874-75, the Pranhita and Jangaon Valleys, and the Wún coal-fields; 1873-74-75, indicated more bore sites in Wún District; promoted to the 2nd grade from 21st April 1875; 1875-76, the Godavari Valley; visited the Mohpani coal-field, and the trial borings for coal at Khappa and Moran River; accompanied the Superintendent during his observations of underground temperature; 1876-77, completed survey of the Kota-Maleri area; recommended borings for coal at Sandrapali,—Godavari River; reported for Bengal Coal Company on supposed occurrence of coal south of Karharbari Field; leave on furlough from 1st November 1877 to 14th October 1879; officiated in the 1st grade from 15th October 1879 to 6th December 1880; officiated as Deputy Superintendent for Bombay from 3rd April to 6th December 1880; 1879-80, 1880-81, 1881-82-83, South Rewah coal-fields; again visited Mohpani coal-field, and inspected new sinking, August 1880; officiated in the 1st grade and as Deputy Superintendent from 17th March 1881 to 7th June 1882; urged borings for coal at Umaria-Khalesar, Rewah State, and in valley of the Johilla River; pointed out sites which proved coal over large area, January 1882; reported for Government, Central Provinces, on coal outcrops in Mahanadi, Jabalpur District, May 1882; leave on furlough from 8th June 1882 to 22nd February 1883; officiated in 1st grade from 23rd February to 10th April 1883; officiated as Deputy Superintendent from 23rd February to 10th May 1883; promoted to 1st grade on 11th April 1883; superintending Rewah coal explorations from 1st March 1883; 1883-84, Korea and Jhilmilli; officiated as Deputy Superintendent from 29th April to 12th November 1884; in May 1884, reported for Messrs. Schöene, Kilburn and Co. on coal near Jainti River; received thanks of the Central India Agency; services placed at the disposal of the P. W. Department, Government of India, as Superintendent of the Umaria coal estate, with a deputation allowance of Rs. 200 a month, from 18th December 1884 to 31st December 1885; designation changed to Deputy Superintendent of the Geological Survey of India; 1886, South Rewah; officiated as Superintendent, 1st grade, from 27th April to 19th May 1886; furlough from 20th May to 24th November 1886; deputed to Hyderabad with consent of Secretary of State for India, to examine the country in behalf of the Hyderabad Deccan Co. from 25th November 1886 to 30th September 1888; appointed Superintendent on 27th April 1887; 1888-89, deputed to Perak and Mergui on tin exploitation.

Has contributed to the Survey publications 9 Memoirs and 21 Records.

**MR. CARL LUDOLF GRIESBACH, C.I.E., F.G.S.**—Appointed by the Secretary of State in England on 26th September 1878; joined as 3rd grade Assistant on 11th November 1878; took up the survey of the South Rewah coal-fields in November 1878; 1879, Himalayas; 1880, deputed to Afghanistan to report on gold at Kandahar and petroleum at Sibi; passed in the vernacular on 15th September 1880; officiated in the 2nd grade from 13th March to 7th November 1880; officiated in the 2nd grade from 17th March 1881 to 24th January 1883; 1881, Kumaun, Himalayas and Europe on duty; 1882-83, Garhwal and Himalayas; promoted to 2nd grade on 25th January 1883; accompanied Takht-i-Suleiman Expedition in December 1883; 1883-84-85-86, Punjab; attached to Afghan Boundary Commission; officiated in 1st grade and as Deputy

Superintendent from 7th May to 7th November 1884; designation changed to Deputy Superintendent of the Geological Survey of India; returned to India and rejoined the Geological Survey of India on 1st November 1886; officiated as 1st grade Superintendent from 1st to 24th November 1886; 1886-87, Office; appointed C.I.E. on 16th February 1887; officiated as Superintendent from 27th April 1887 to 13th January 1888; services placed at the disposal of the Foreign Department from 14th January 1888 for deputation as Geologist to H. H. the Amir of Kabul; promoted to be Deputy Superintendent, 1st grade, from 13th July 1888.

Has contributed to the Survey publications 2 Memoirs and 10 Records.

**War Services.**—On 6th March 1880 was deputed on special service under the orders of the General Commanding Southern Afghanistan; was present at the action of Girishk, 14th July, and the battle of Maiwand, 27th July; attached as Lieutenant to the 66th Regiment, Kandahar Field Force, Order No. 271, dated 29th July 1880, and was present throughout the siege of Kandahar and the battle of Kandahar, 1st September 1880; favourably mentioned in despatches; received the acknowledgment of the Government of India—medal and clasp.

**MR. RICHARD DIXON OLDHAM, A.R.S.M., F.G.S.**—Appointed in Europe by the Secretary of State on 6th November 1879; joined as 3rd grade Assistant on 17th December 1879; took up work in the Godavari Valley; 1880-81, Jaunsar and Sirmur; passed in the vernacular on 1st August 1881; 1881-82, on special service to Manipur; officiated in 2nd grade from 14th June 1881 to 10th April 1883; 1882-83 to 1883-84, Jaunsar and Andamans; promoted to 2nd grade on 11th April 1883; 1884-85, Andamans, on duty in Australia for 35 days after expiration of privilege leave, and North-East Rajputana; designation changed to Deputy Superintendent of the Geological Survey of India; 1885-86, North-East Rajputana; officiated as Superintendent, 1st grade, from 20th May to 31st October 1886; services placed at the disposal of the Foreign Department in connection with the mission to Tibet from 29th May to 8th August 1886; 1886-87, Rajputana, Himalayas, and Alwar; officiated as Deputy Superintendent, 1st grade, from 28th December 1887 to 13th January 1888; officiated as Superintendent from 14th January to 25th October 1888; officiated as Deputy Superintendent, 1st grade, from 26th October 1888; 1888-89, Rajputana and Himalayas.

Has contributed to the Survey publications 4 Memoirs, 20 Records, and Bibliography of Indian Geology.

**MR. PRAMATHA NATH BOSE, B.Sc. (Lond.), F.G.S.**—Appointed in Europe by the Secretary of State on 13th May 1880; joined as 3rd grade Assistant on 30th July 1880; 1880-81, 1881-82, 1882-83, Lower Narbada Valley and Chhattisgarh; officiated in 2nd grade from 2nd March 1882 to 31st March 1884; promoted to 2nd grade from 1st April 1884; 1883-84, Chhattisgarh; 1884-85, Raipur; designation changed to Deputy Superintendent of the Geological Survey of India; 1885-86-87, Chhattisgarh; officiated as Deputy Superintendent, 1st grade, from 14th January to 25th October 1888; 1888-89, Jabalpur and Balaghat.

Has contributed to the Survey publications 1 Memoir and 6 Records.

**MR. THOMAS HENRY DIGUES LA TOUCHE, B.A. (Cantab.)**—Appointed in Europe by the Secretary of State on 11th October 1881; joined in India as 3rd grade Assistant on 29th November 1881; 1881-82, Garo Hills; passed in the vernacular on 6th June 1882; officiated in 2nd grade from 8th June 1882 to 17th November 1884; 1882-83 to 1883-84, Assam; officiated in 2nd grade from 22nd November 1884 to 27th April 1887; 1884-85, accompanied North-East Frontier Exploration party, and Assam; 1885-86-87, Assam; appointed 2nd grade Deputy Superintendent from afternoon of 27th April 1887; deputed to Kashmir to inspect sapphire mines from 29th July 1887 to 8th February 1888, and from 1st April to 6th December 1888; 1889, Assam.

Has contributed to the Survey publications 10 Records.

**MR. EDWARD JAMES JONES, A.R.S.M.**—Appointed in Europe by the Secretary of State on the 20th September 1883; joined in India as 3rd grade Assistant on the 29th December 1883; 1884, Kora, Jhilmilli, and Chhindwara; passed in the vernacular on 2nd June 1884; officiated in 2nd grade from 29th April to 12th November 1884; 1884-85, Chhindwara, deputed to Kashmir to report on earthquake; 1885-86, Chhindwara and Burma; officiated as Deputy Superintendent, 2nd grade, and as Curator, from 27th April to 24th November 1886; 1886-87, Burma; officiated as Deputy Superintendent, 2nd grade, and as Curator from 28th June 1887 to 12th July 1888; promoted to be Deputy Superintendent, 2nd grade, from 13th July 1888; continued to act as Curator from 13th July to 25th October 1888; 1887-88, Head Quarters; 1888-89, Head Quarters, and Baluchistan; Officiated as Curator from 22nd June 1889.

Has contributed to the Survey publications 1 Memoir and 4 Records.

**MR. CHARLES STEWART MIDDLEMISS, B.A. (Cantab.)**—Appointed in Europe by the Secretary of State on the 20th September 1883; joined in India as 3rd grade Assistant on the 29th December 1883; 1884, Jaunsar and Kumaun; officiated in 2nd grade from 7th May to 7th November 1884; passed in the vernacular on 6th October 1884; 1884-85, Kumaun, deputed to report on the Bengal earthquake; 1885-86, Kumaun; officiated as Deputy Superintendent, 2nd grade

from 20th May to 8th November 1886; 1886-87, Kumaun; officiated as 2nd grade Deputy Superintendent from 27th April 1887 to 31st March 1889; 1888-89, Kumaun; promoted to be Deputy Superintendent, 2nd grade, from 1st April 1889.

Has contributed to the Survey publications 8 Records.

**MR. FRITZ NOETLING, Ph.D. (Berlin U.)**—Appointed in Europe by the Secretary of State on 20th January 1887; joined in India as Palæontologist on 17th February 1887; 1887, Head Quarters; 1888-89, Burma; passed in Hindustani by the Lower Standard on the 1st October 1888 at Mandalay.

Has contributed to the Survey publications 1 Record.

**MR. PHILIP LAKE, B.A. (Cantab.)**—Appointed in Europe by the Secretary of State on 9th December 1886; joined in India as 3rd grade Assistant Superintendent on the afternoon of 27th September 1887; 1887-88-89, Bellary and Malabar; passed in the Vernacular by the Lower Standard on the 2nd July 1888 at Bellary.

**MR. PARVATI NATH DATTA, B.Sc. (Lond.), F.G.S.**—Appointed in Europe by the Secretary of State on 27th April 1888; joined as 3rd grade Assistant Superintendent on the 25th June 1888; 1888-89, Head Quarters and Himalayas; passed in the Vernacular by the Lower Standard on the 1st July 1889 at Calcutta.

**MR. WILLIAM ROBERT BION.**—Joined the Survey as Librarian on 12th December 1870; appointed Head Clerk as well as Librarian on 1st August 1873; appointed Registrar on 31st December 1878; compiled and carried through the press a catalogue of the books in the Library of the Geological Survey of India, 1884; furlough from 18th April to 28th September 1885.

**LALA KISHEN SINGH.**—Joined the Survey as an Apprentice on 7th January 1874; 1874-76, Museum, Calcutta; 1876-77, 1877-78, and 1878-79, Sub-Himalaya; appointed Sub-Assistant on 1st April 1879; 1879-80, Punjab; 1880-81 to 1883-84, Gwalior; furlough from 1st October 1884 to 30th September 1885; 1885-86, Malwa, Mandla, and Seoni; 1887-88-89, Chhindwara and Bulaghat.

**LALA HIRA LAL.**—Joined the Survey as an Apprentice on 7th January 1874; 1874 to 1876, Museum; 1876-77, Sind; 1877-78, Satpura and Museum; 1878-79, Museum and Sirguja; appointed Sub-Assistant on 1st April 1879; 1879-80, Museum; 1880-81 to 1882-83, Museum and South Rewah; 1883-84, Korea, Jhilmilli, and Chhattisgarh; 1884-85-86-87, Chhattisgarh; 1888-89, Sirguja.

**MR. THOMAS RAMSAY BLYTH.**—Joined the Survey as Museum Assistant on 1st March 1884.