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# SURVEY OF INDIA DEPARTMENT.

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List of Officers of the Senior Division, Survey of

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 Jan. 1887.	
							Y. M. D.	Y. M. D.
<b>Administrative Staff.</b>								
1	Col. G. C. DePrée, s.c.	Topogl.	P. C. H.	54 4 28	Oct. 20, 1854	Jan. 12, 1884	...	
1	Lt.-Col. H. R. Thuillier, B.E.	G. T. S.	P. H.	48 9 5	May 21, 1859	Oct. 1, 1884	...	
1	Col. J. Seonce, s.c.	Rev.	P. H.	50 8 29	Oct. 21, 1859	Jan. 1, 1879	...	
	„ C. T. Haig, B.E.	G. T. S.	Not passed	52 2 20	Sep. 22, 1859	Nov. 1, 1883	...	
	„ D. Macdonald, s.c.	Rev.	P. H.	51 0 21	Dec. 19, 1860	Jan. 1, 1887	...	
1	Major C. Strahan, B.E.	Topogl.	Not passed	43 7 25	Sep. 26, 1863	Jan. 10, 1884	...	
2	Lt.-Col. J. Waterhouse, s.c.	Topogl.	P. H.	44 5 8	July 23, 1866	Jan. 10, 1884	...	
3	Major M. W. Rogers, B.E.	G. T. S.	L. S.	44 10 26	July 30, 1866	Aug. 7, 1884	...	
	Lt.-Col. R. Beavan, s.c.	Rev.	P. H.	43 3 11	July 17, 1868	Nov. 10, 1884	...	
<b>SENIOR DIVISION.</b>								
<b>Deputy Superintendents.</b>								
<b>1st GRADE.</b>								
1	Col. C. T. Haig, B.E.	...	...	...	...	...	...	...
2	Lt.-Col. G. Strahan, B.E.	Topogl.	P. H.	47 10 24	July 2, 1862	Nov. 10, 1884	...	
3	Col. D. Macdonald, s.c.	...	...	...	...	...	...	
<b>2nd GRADE.</b>								
1	Col. F. Coddington, s.c.	Rev.	P. H.	48 7 10	Jan. 17, 1862	Oct. 27, 1878	...	
2	Major C. Strahan, B.E.	...	...	...	...	...	...	
3	Lt.-Col. W. Barron, s.c.	Rev.	P. H.	48 11 15	June 27, 1862	Aug. 7, 1884	...	
4	Col. H. C. B. Tanner, Bombay s.c.	Rev.	P. H.	51 5 15	Oct. 10, 1862	Oct. 1, 1884	...	
5	Lt.-Col. W. J. Heavyside, B.E.	G. T. S.	P. H.	46 2 27	March 1, 1866	Nov. 10, 1884	...	
6	Colonel A. Pallan, s.c.	G. T. S.	P. H.	50 9 0	Jan. 18, 1863	Nov. 28, 1884	...	
7	Lt.-Col. D. C. Andrew, s.c.	Rev.	P. H.	45 9 13	Dec. 30, 1862	March 10, 1886	...	
8	Lt.-Col. W. H. Wilkins, s.c.	Rev.	P. H.	45 2 26	April 27, 1863	Jan. 1, 1887	...	
<b>3rd GRADE.</b>								
1	Major J. E. Sandeman, s.c.	Rev.	P. H.	43 3 29	Oct. 6, 1864	Jan. 1, 1887	...	
2	Lt.-Col. W. F. Badgley, s.c.	Topogl.	P. H.	49 1 21	May 3, 1865	Dec. 14, 1880	...	

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

India Department, as it stood on 1st January 1887.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
1	2,666 10 8		Deputy Surveyor General	Officiating Surveyor General of India.
1	2,200 0 0		Deputy Surveyor General in charge, Revenue Branch. Dehra Dun	Officiating Deputy Surveyor General. In charge Trigonometrical Branch and Offices.
...	1,600 0 0	(a) Presidency, R60	Assistant Surveyor General	Deputy Superintendent, 1st grade, and Officiating Assistant Surveyor General. In charge Correspondence and Mathematical Instrument Offices, Head Quarters, Calcutta.
1	...		On furlough	For 1 year and 203 days, from 4th May 1886.
2	1,300 0 0	(b) Special local R200 and (c) inclusive of personal, R100.	Assistant Surveyor General	Officiating Deputy Superintendent, 2nd Grade, and Assistant Surveyor General. In charge Lithographic and Photographic Offices, Head Quarters, Calcutta.
3	...		On furlough	For 1 year and 185 days, from 21st March 1886.
...	1,100 0 0	(a) Presidency R60 and (b) inclusive of personal, R100.	Assistant Surveyor General	Officiating Deputy Superintendent, 3rd Grade, and Officiating Assistant Surveyor General. In charge Engraving, Cartographic and Map, Record and Issue Offices, Head Quarters, Calcutta.
1	...		Dehra Dun	Officiating Deputy Surveyor General. In charge Trigonometrical Survey Branch and Offices.
2	1,600 0 0		In charge No. 21 (Nicobar.)	Officiating Assistant Surveyor General.
3	...		Head Quarters, Calcutta	Officiating Assistant Surveyor General.
1	1,600 0 0		In charge No. 1 (Punjab)	Officiating Deputy Superintendent, 1st Grade.
2	...		On furlough	For 1 year and 203 days, from 4th May 1886.
3	1,300 0 0	(a) Presidency, R60	In charge No. 8 (Bengal and Orissa.)	
4	1,300 0 0		In charge No. 18 (Himalaya.)	
5	...		On furlough	For 347 days, from 12th February 1886.
6	1,300 0 0		In charge No. 17 (Guzerat)	
7	1,300 0 0		In charge No. 11 (Seoni.)	
8	1,300 0 0		In charge No. 3 (Raipur.)	
1	1,300 0 0		In charge No. 5 (Gorakhpur)	Officiating Deputy Superintendent, 2nd Grade.
2	1,300 0 0		In charge No. 19 (Madras)	Ditto ditto.

(a) Department of Agriculture, Revenue and Commerce Memorandum No. 213, dated 14th May 1878.  
 (b) Department of Agriculture, Revenue and Commerce Memorandum No. 731, dated 31st October 1873.  
 (c) Department of Revenue and Agriculture, No. 393S., dated 15th September 1882.

List of Officers of the Senior Division, Survey of India

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 Jan. 1887.	
				Y.	M. D.	Y.	M. D.	Y.	M. D.	Y.	M. D.
<b>SENIOR DIVISION</b>											
<b>—contd.</b>											
<b>Deputy Superintendents—contd.</b>											
<b>3RD GRADE—contd.</b>											
3	Major T. H. Holdich, B.E.	Topogl.	L. S.	43	10 16	July 23, 1866	April 29, 1883				
4	Lt.-Col. J. Waterhouse, S.C.										
5	Major M. W. Rogers, B.E.										
6	„ J. Hill, B.E.	G. T. S.	Not passed	46	0 7	Dec. 18, 1866	Oct. 1, 1884				
7	Mr. H. Hörst	Topogl.	Not passed	52	7 27	April 1, 1868	Nov. 10, 1884	28	7 27		
8	„ W. H. Cole, M.A.	G. T. S.	H. S.	49	0 16	{ Jan. 3, 1867A Sep. 1, 1867B }	Nov. 28, 1884	18	11 29		
9	Major A. W. Baird, B.E., F.R.S., A.I.C.E.	G. T. S.	P. H.	44	2 5	Dec. 4, 1868	March 10, 1886				
10	Major J. E. McCullagh, B.E.	G. T. S.	L. S.	44	9 5	Feb. 12, 1869	Jan. 1, 1887				
<b>4TH GRADE.</b>											
1	Lt.-Col. J. R. Wilmer, S.C.	Topogl.	H. S.	45	11 12	Aug. 24, 1869	July 1, 1882				
2	„ S. H. Cowan, S.C.	Rev.	P. H.	45	3 16	Jan. 19, 1867	April 29, 1883				
3	„ E. H. Steel, S.C.	Rev.	H. S.	45	7 26	Feb. 1, 1867	Jan. 10, 1884				
4	„ H. S. Hutchinson, S.C.	Rev.	P. H.	46	8 20	Aug. 13, 1867	Aug. 7, 1884				
5	Mr. E. C. Barrett	Rev.	H. S.	42	8 16	Dec. 30, 1868	Oct. 1, 1884	22	0 11		
6	Lt.-Col. R. Beavan, S.C.										
7	Col. R. G. Woodthorpe, B.E.	Topogl.	L. S.	42	3 8	July 14, 1871	Nov. 28, 1884				
8	Mr. G. H. Cooke	Rev.	L. S.	42	1 1	April 1, 1870	Oct. 22, 1885	18	0 15		
9	„ E. J. Jackson	Rev.	H. S.	43	0 0	Nov. 5, 1868	Oct. 26, 1885	16	9 7		

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

ment, as it stood on 1st January 1887—contd.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
5	300 0 0		On furlough	Balance of previous furlough, from 25th November 1886.
6	82 10 0	(a) Deputation R100.	Head Quarters, Calcutta	Officiating Deputy Superintendent, 2nd Grade.
7	300 0 0	(b) Burma, R125	On furlough	For 1 year and 185 days, 21st March 1886.
8	1,000 0 0		In charge Tidal and Levelling	
9			In charge No. 20 (Burma)	Joined the Junior Division, 1st September 1854. On furlough from 6th June 1879, and special extension till 12th September 1882. Service reckoned under new rules.
10			In charge Computing Party, Dehra Dun.	(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.
11			Mint Master, Bombay	Officiating.
12			On furlough	For 1 year, from 26th March 1886.
13			On furlough	For 1 year, from 10th November 1886.
14	1,100 0 0	(c) Inclusive of personal, R100.	In charge No. 4 (Basti)	Officiating Deputy Superintendent, 3rd Grade.
15			On furlough	For 1 year, from 10th November 1886.
16	1,100 0 0	(d) Burma, R200, and (e) inclusive of personal, R100.	In charge No. 7 (Akyab)	Officiating Deputy Superintendent, 3rd Grade.
17	1,000 0 0		In charge No. 6 (Assam)	Ditto ditto. Joined the Junior Division, 18th November 1868. Sick leave for 1 month, from 20th June 1869. Furlough for 2 years, from 27th August 1890 to 12th July 1882.
18			Head Quarters, Calcutta	Officiating Deputy Superintendent, 3rd Grade, and Officiating Assistant Surveyor General.
19	1,182 10 0	(b) Burma R125	In charge Kobo Valley	Officiating Deputy Superintendent, 3rd Grade.
20	1,000 0 0		In charge No. 9 (Jubbulpore)	Officiating Deputy Superintendent, 3rd Grade. Joined the Junior Division, 6th December 1866. Furlough for 2 years, from 22nd May 1890; extension for 12 days without pay.
21	1,000 0 0		In charge No. 12 (Saugor)	Officiating Deputy Superintendent, 3rd Grade. Joined the Junior Division, 20th 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 1891, and from 12th November 1885 to 23rd October 1886.

(a) Department of Revenue and Agriculture, No. 519-81-4, dated 18th September 1891.  
 (b) Ditto ditto, No. 171, dated 6th May 1890.  
 (c) Ditto ditto, No. 393S, dated 15th September 1882.  
 (d) Department of Finance and Commerce, No. 256, dated 16th April 1882.

List of Officers

Rank in Grade.	No.	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 served in present grade.
<b>SENIOR DIVISION</b>								
-concl'd.								
<b>Deputy Superintendents—concl'd.</b>								
4TH GRADE—concl'd.								
	10	Capt. St. G. C. Gore, B.E.	G. T. S.	Not passed	37 10 8	April 11, 1873	March 10, 1886	
	11	„ J. R. Hobday, s.c.	Topogl.	H. S.	36 5 16	Sep. 11, 1874	Jan. 1, 1887	
<b>Assistant Superintendents.</b>								
1st GRADE.								
	1	Capt. the Hon'ble M. G. Talbot, B.E.	†	H. S.	32 3 17	March 15, 1880	April 29, 1883	
	2	Lieut. F. B. Longe, B.E.	†	Not passed	30 2 2	March 15, 1880	Jan. 10, 1884	
	3	Capt. R. A. Wahab, B.E.	†	H. S.	31 8 18	Jan. 8, 1883	Aug. 7, 1884	
	4	Mr. E. C. Ryall	G. T. S.	Not passed	48 11 15	April 1, 1873	Feb. 1, 1883	31
	5	„ W. H. Patterson	Rev.	L. S.	48 3 6	Jan. 22, 1883	Oct. 1, 1884	24 11
	6	„ F. W. Kelly	Rev.	H. S.	53 4 5	Feb. 22, 1883	Nov. 10, 1884	31 41
	7	Lieut. H. M. Jackson, B.E.	†	H. S.	28 9 5	June 11, 1883	Nov. 28, 1884	
	8	„ W. H. Pollen, B.E.	†	L. S.	27 2 20	April 26, 1884	Oct. 22, 1885	
	9	„ G. B. Hodgson, s.c.	†	H. S.	28 2 4	Sep. 12, 1883	Oct. 26, 1885	
	10	„ S. G. Burrard, B.E.	†	L. S.	26 4 19	Sep. 2, 1884	Mar. 10, 1886	
	11	Mr. A. D'Souza	G. T. S.	Not passed	49 4 17	Oct. 1, 1884	Jan. 1, 1887	26 115B
<b>2ND GRADE.</b>								
	1	Mr. G. B. Scott	Rev.	H. S.	42 5 1	Nov. 10, 1884	Nov. 10, 1884	23 8 0
	2	„ J. Eccles, M.A.	†	Not passed	29 3 23	May 30, 1885	May 30, 1885	1 7 2
	3	Lieut. J. M. Fleming, s.c.	†	H. S.	28 4 19	July 3, 1885	July 3, 1885	
	4	Mr. T. A. Pope	†		28 6 10	Oct. 1, 1886	Oct. 1, 1886	0 3 0C
	5	Vacant.						
	6	Ditto.						

\* 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 January 1887—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.			
10	990 0 0		On special duty, Dehra Dun.	
11	850 0 0	(a) Burma, R125	In charge Upper Burma.	
1	990 0 0		On furlough	For 1 year, from 25th November 1884.
2	920 0 0	(b) Baluchistan, R100	In charge No. 15 (Baluchistan I)	Officiating Deputy Superintendent, 4th Grade.
3	990 0 0	(b) Baluchistan, R100	In charge No. 16 (Baluchistan II).	Ditto ditto.
4	850 0 0		In charge Coast	Ditto ditto. 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 1883, excluded.
5	850 0 0		In charge No. 14 (Mirzapur)	Officiating Deputy Superintendent, 4th Grade. 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.
6			On medical leave	For 6 months, from 13th November 1886. Joined the Junior Division, 4th December 1854. (A) Service reckoned under old rules. Special leave for 4 months, from 21st January 1858, which was overstayed from 21st May to 16th August 1858. Commencement of second service, 17th August 1858.
7	920 0 0	(a) Burma, R125	Upper Burma	Officiating Deputy Superintendent, 4th Grade.
8	920 0 0		In charge No. 10 (South Maratha)	Ditto ditto.
9	850 0 0	(c) Presidency, R60.	Head Quarters, Calcutta	Ditto ditto.
10	920 0 0		In charge. Astronomical Nos. 1 and 2 Parties.	Ditto ditto.
11	850 0 0		In charge No. 13 (Sambalpur)	Officiating Deputy Superintendent, 4th Grade. Joined the Junior Division, 19th February 1856. (B) Exclusive of 349 days' furlough, 77 days' leave on medical certificate, and 33 days' preparatory leave under new rules.
1	600 0 0	(d) Charge R100	In charge No. 2 (Bilaspur)	Officiating Assistant Superintendent, 1st Grade. Joined the Junior Division, 1st May 1883.
2	600 0 0		Computing Party, Dehra Dun	Officiating Assistant Superintendent, 1st Grade.
3	500 0 0		No. 18 (Himalaya)	On probation.
4	600 0 0	(c) Presidency, R100.	Head Quarters, Calcutta.	(C) Excludes previous service under Madras Government. Officiating Assistant Superintendent, 1st Grade.
5				
6				

(a) Department of Revenue and Agriculture, No. 171, dated 6th May 1880.  
(b) Ditto ditto No. 522-28-108, dated 15th December 1882.  
(c) Department of Agriculture, Revenue and Commerce Memorandum No. 213, dated 14th May 1878.  
(d) Ditto ditto No. 731, dated 31st October 1873.



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

No.	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 Jany. '87.
							Y. M. D.
<b>JUNIOR DIVISION.</b>							
<b>Surveyors.</b>							
<b>1ST GRADE.</b>							
<i>Salary R500.</i>							
	Mr. G. A. McGill . . . .	Topogl.	L. S.	48 8 7	April 8, 1855	Mar. 7, 1882	31 8 3
	D. Atkinson . . . .	Topogl.	. . . .	49 7 24	Aug. 4, 1856	Jan. 22, 1883	30 4 28
	F. Grant . . . .	Rev.	. . . .	50 9 6	July 11, 1856	Feb. 22, 1883	30 5 21
	C. Wood . . . .	G. T. S.	L. S.	44 5 10	May 6, 1858	April 1, 1883	28 5 10
	H. E. T. Keelan . . . .	G. T. S.	. . . .	43 9 1	Aug. 17, 1858	Oct. 29, 1883	20 9 0
	P. A. G. Cowley . . . .	Rev.	L. S.	44 11 15	Sep. 1, 1859	Nov. 1, 1883	25 3 14
	A. J. Wilson . . . .	Topogl.	L. S.	44 4 0	Oct. 1, 1860	June 2, 1884	26 6 0
	G. W. E. Atkinson . . . .	G. T. S.	. . . .	43 2 20	Aug. 1, 1859	Nov. 10, 1884	27 2 20
	S. M. Smylie . . . .	Rev.	L. S.	46 1 7	July 24, 1860	June 27, 1886	26 1 5
<b>2ND GRADE.</b>							
<i>Salary R400.</i>							
	Mr. W. Todd . . . .	G. T. S.	. . . .	48 1 21	Jan. 11, 1856	June 1, 1874	28 10 23A
	James Todd . . . .	Rev.	. . . .	52 7 19	Dec. 27, 1863	Feb. 22, 1883	21 3 19
	J. S. Pemberton . . . .	Rev.	L. S.	43 5 23	Oct. 6, 1860	Sep. 23, 1883	26 2 21
	H. R. Littlewood . . . .	Rev.	. . . .	43 1 25	Oct. 6, 1860	Oct. 29, 1883	26 2 26
	W. A. Wilson . . . .	Rev.	L. S.	43 7 12	Jan. 1, 1861	Nov. 1, 1883	26 0 0
	A. M. Lawson . . . .	Rev.	L. S.	47 11 29	Nov. 18, 1862	June 2, 1884	24 1 13
	E. S. P. Atkinson . . . .	Topogl.	. . . .	41 5 4	Aug. 13, 1861	March 1, 1885	18 1 2
	A. J. Gibson . . . .	Rev.	. . . .	45 1 0	May 1, 1861	March 1, 1885	25 7 27
	M. J. Ogle . . . .	Topogl.	. . . .	44 9 27	July 1, 1863	Nov. 15, 1885	21 9 27
	W. S. Buttress . . . .	Rev.	. . . .	42 10 12	Sep. 1, 1860	July 1, 1886	26 4 0
	F. Adams . . . .	Topogl.	. . . .	50 8 6	Oct. 1, 1860	April 1, 1883	30 1 27B
<b>3RD GRADE.</b>							
<i>Salary R350.</i>							
	Mr. W. R. Vyall . . . .	Rev.	. . . .	48 0 2	June 13, 1856	Jan. 23, 1883	28 6 18
	A. G. Wyatt . . . .	Topogl.	. . . .	41 10 6	Nov. 1, 1861	Feb. 22, 1883	24 2 6
	H. W. Psychers . . . .	G. T. S.	. . . .	44 0 18	April 8, 1862	March 12, 1883	24 8 23
	G. Belcham . . . .	G. T. S.	H. S.	41 10 15	Nov. 1, 1862	April 1, 1883	24 2 0

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

## India Department, as it stood on 1st January 1887.

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 26 <sup>th</sup> 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	. . . . .	No. 2 (Bilaspur).	
3	500 0 0	(b) Dehra Office, R50.	Computing Party . . . .	Service reckoned under old rules.
4	500 0 0	. . . . .	No. 18 (Himalaya) . . . .	Exclusive of 11 months and 13 days' furlough and 18 days' sick leave under new rules. For 15 months from 23rd March 1886. Furlough from 1st July 1882 to 9th October 1884.
5	. . . . .	. . . . .	On medical leave . . . .	Apprentice Draftsman from 1st January 1886.
6	500 0 0	. . . . .	Dehra Dun . . . .	
7	500 0 0	(b) Dehra Office, R50 .	Ditto . . . .	Service reckoned under old rules.
8	500 0 0	(a) Presidency house-rent, R45:	Head Quarters, Calcutta . . . .	Furlough from 8th November 1882 to 1 <sup>st</sup> March 1883.
1	400 0 0	(c) Baluchistan, R100 .	No. 16 (Baluchistan II) . . . .	(A) Inclusive of 2 years, which count as service out of 4 years 29 days' leave on medical certificate under old rules.
2	400 0 0	. . . . .	No. 9 (Jubbulpore) . . . .	Furlough in India, from 16th April 1884 to 30th September 1884. Overstayed privilege leave by 1 day in August 1874.
3	400 0 0	. . . . .	No. 1 (Punjab) . . . .	Overstayed privilege leave by 5 days in 1869.
4	400 0 0	(d) Burma, R100 .	No. 7 (Akyab). . . .	
5	400 0 0	. . . . .	No. 11 (Seoni). . . .	
6	400 0 0	. . . . .	No. 10 (South Maratha). . . .	
7	400 0 0	. . . . .	No. 18 (Himalaya) . . . .	Furlough for 1 year 3 months and 19 days from 26th July 1878 to 8th November 1880 and sick leave for 19 days in September 1880. Absent without leave for 3 days in 1878.
8	400 0 0	. . . . .	No. 12 (Saugor) . . . .	
9	400 0 0	(d) Burma, R100 .	Kubo V . . . .	Furlough to Europe for 1 year, from 1st November 1877 to 20th November 1878. Copyist from 1st to 30th September 1880.
10	400 0 0	. . . . .	No. 3 (Raipur) . . . .	
11	400 0 0	(a) Presidency house-rent, R30.	Head Quarters, Calcutta . . . .	(B) Inclusive of service as Sub-Surveyor, from 3rd November 1868 to 30th September 1880.
1	350 0 0	. . . . .	No. 12 (Saugor) . . . .	Furlough for 2 years from 1st August 1883.
2	350 0 0	(d) Burma, R100 .	Upper Burma . . . .	Furlough from 11th November 1883 to 6th November 1884.
3	350 0 0	(b) Dehra Office, R50 .	Computing Party . . . .	Service reckoned under old rules.
4	350 0 0	(e) Deputation, R50 .	Tidal and Levelling . . . .	Ditto ditto.

(a) Financial Resolution No. 704, dated 22nd February 1866.  
 (b) Financial Resolution No. 3096, dated 22nd December 1864, and No. 2579, dated 30th November 1871.  
 (c) Department of Revenue and Agriculture, No. 522S, dated 15th December 1882.  
 (d) Department of Home, Revenue and Agriculture, No. 171, dated 6th May 1880.  
 (e) Surveyor General's No. 8533-8, dated 29th September 1885.

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

Names of Officers.	Branch to which originally posted.	Passed in Vernacular.	Ago.	Date of appointment to the Department.	Date of promotion to the present grade.	*Period of service counting towards pension on 1st Jan. '87.	
			Y. M. D.			Y. M. D.	
<b>JUNIOR DIVISION</b>							
—contd.							
<b>Surveyors—contd.</b>							
3RD GRADE—concl'd.							
Salary R350—concl'd.							
5	Mr. H. Dowman . . . .	Rev.	. . . .	40 6 20	Oct. 16, 1862	Sep. 5, 1883	24 2 1
6	„ E. G. Little . . . .	Rev.	. . . .	41 2 19	Jan. 1, 1860	Sep. 23, 1883	19 2 19A
7	„ H. T. Hanby . . . .	Rev.	L. S.	40 2 12	Nov. 13, 1862	Oct. 29, 1883	24 1 18
	„ L. J. Pocock . . . .	G. T. S.	H. S.	43 3 5	July 10, 1863	Nov. 1, 1883	21 0 7B
	„ A. Christie . . . .	G. T. S.	H. S.	41 3 1	Aug. 7, 1863	June 2, 1884	19 1 18
10	„ W. J. O'Sullivan . . . .	G. T. S.	. . . .	42 10 17	Oct. 1, 1863	Oct. 1, 1884	20 10 17
11	„ W. W. McNair . . . .	Topogl.	L. S.	36 3 18	Sep. 1, 1867	Nov. 10, 1884	13 3 10
12	„ N. C. Gwynne . . . .	G. T. S.	. . . .	43 9 25	Oct. 19, 1863	March 1, 1885	21 9 25
13	„ W. C. Price . . . .	G. T. S.	. . . .	40 6 8	Nov. 1, 1863	Nov. 15, 1885	18 6 8
14	„ C. H. McA'Fee . . . .	G. T. S.	L. S.	37 1 15	Sep. 6, 1864	July 1, 1886	15 0 15
4TH GRADE.							
Salary R300.							
1	Mr. C. F. Hamer . . . .	Topogl.	. . . .	40 4 24	Aug. 3, 1863	July 13, 1878	18 2 24
2	„ J. H. O'Donel . . . .	Rev.	. . . .	41 5 20	Oct. 1, 1863	Oct. 22, 1879	19 5 20
3	„ T. E. M. Claudius . . . .	Topogl.	. . . .	40 7 0	Aug. 1, 1863	Jan. 1, 1880	18 7 0
4	„ A. J. James . . . .	Topogl.	L. S.	40 1 12	June 15, 1864	Nov. 22, 1880	18 1 12
	„ T. H. Rendell . . . .	G. T. S.	. . . .	42 5 9	Oct. 11, 1864	June 7, 1881	20 5 9
	„ J. T. U. Cozen . . . .	Rev.	. . . .	46 3 22	May 16, 1863	Feb. 22, 1883	22 3 4
	„ D. A. King . . . .	Rev.	. . . .	40 1 26	April 12, 1864	April 1, 1883	18 1 25
	„ W. Stotesbury . . . .	Topogl.	{ H. S. L. S. Canna- rese. }	39 5 6	Oct. 4, 1864	July 21, 1883	17 5 6
8	„ R. B. Smart . . . .	Rev.	L. S.	39 6 2	Jan. 1, 1864	Sep. 5, 1883	17 6 2
9	„ F. Kitchen . . . .	Topogl.	. . . .	40 9 7	Oct. 1, 1864	Sep. 23, 1883	18 7 7C
10	„ Hugh Todd . . . .	G. T. S.	. . . .	39 4 15	July 15, 1865	Oct. 6, 1883	17 3 16D
11	„ E. J. Connor . . . .	G. T. S.	L. S.	38 4 15	March 1, 1865	Nov. 1, 1883	15 10 10E

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

## Department, as it stood on 1st January 1887—continued.

No. existing in each grade.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
5	350 0 0	. . . .	No. 9 (Jubbulpore) . . . .	Absent without leave 9 days' sick leave 2 days in October 1865, 4 days in December 1865, and from 11th to 16th December 1866.
6	350 0 0	. . . .	No. 5 (Gorakhpur) . . . .	Apprentice from 1st January 1860 to 4th November 1862.
7	350 0 0	. . . .	No. 4 (Basti).	(A) Exclusive of 7 years 9 months 11 days' service under 22 years of age.
8	350 0 0	. . . .	No. 14 (Mirzapur) . . . .	(B) Exclusive of 89 days' sick leave.
9	. . . .	. . . .	On furlough . . . .	For 7 months from 18th November 1886.
10	350 0 0	. . . .	No. 4 (Basti).	
11	350 0 0	(a) Baluchistan, R100 .	No. 16 (Baluchistan II) . . . .	Furlough for 1 year from 28th March 1893. On duty in England for 3 months from 28th March 1894. Extraordinary leave for 6 weeks from 28th June 1884.
12	350 0 0	. . . .	Dehra Dun.	
13	350 0 0	. . . .	No. 4 (Basti).	
14	350 0 0	. . . .	Trigonometrical Branch Office, Dehra Dun	Sick leave for 1 month from 30th December 1892. Passed the Poona C. E. College Examination in 1864.
1	300 0 0	. . . .	No. 14 (Mirzapur).	
2	300 0 0	(b) Assam, R50 . . . .	No. 6 (Assam).	
3	300 0 0	(a) Baluchistan, R100 .	No. 15 (Baluchistan I).	
4	300 0 0	. . . .	No. 19 (Madras).	
5	300 0 0	. . . .	Dehra Dun.	
6	. . . .	. . . .	On Medical leave . . . .	For 6 months from 10th November 1886. Sick leave from 8th to 31st October 1878, and for 6 months from 12th November 1879. On furlough in India for 6 months, from 29th May to 25th October 1893. On leave without allowances from 1st July to 30th September 1885.
7	300 0 0	(b) Assam, R50 . . . .	No. 6 (Assam) . . . .	Apprentice from 12th April to 30th June 1864.
...	400 0 0	. . . .	Draftsman and Compiler, Head Quarters, Calcutta.	Rs. 10 short drawn.
8	300 0 0	. . . .	No. 8 (Bengal and Orissa) . . . .	Apprentice from 1st January to 31st December 1864.
9	300 0 0	(c) Burma, R100 . . . .	Upper Burma . . . .	(C) Exclusive of 2 months' sick leave.
10	300 0 0	. . . .	No. 19 (Madras) . . . .	(D) Exclusive of 30 days' sick leave.
11	300 0 0	. . . .	Tidal and Levelling . . . .	(E) Exclusive of 8 months and 5 days' leave on private affairs under new rules.

B (a) Department of Revenue and Agriculture, No. 522S., dated 15th December 1882.  
 (b) Ditto ditto No. 27S., dated 18th January 1884.  
 (c) Department of Home, Revenue and Agriculture, No. 171, dated 6th May 1880.

List of Officers of the Junior Division, Survey

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 Jan. '87.
					Y. M. D.			Y. M. D.
<b>JUNIOR DIVISION</b>								
<i>—contd.</i>								
<b>Surveyors—concl'd.</b>								
4TH GRADE—concl'd.								
Salary ₹300—concl'd.								
12		Mr. J. Connor . . . .	Rev.	. . . .	39 3 24	Feb. 15, 1865	June 2, 1884	17 3 24
13		„ T. H. Dunne . . . .	Rev.	L. S.	37 0 7	Feb. 15, 1865	Sep. 1, 1884	14 11 26
14		„ J. Bond . . . .	G. T. S.	. . . .	36 11 24	Oct. 18, 1866	Oct. 1, 1884	14 11 4A
15		„ C. D. Potter . . . .	G. T. S.	L. S.	41 3 27	Oct. 29, 1866	Nov. 10, 1884	19 2 24
16		„ J. Newland . . . .	Rev.	L. S.	49 4 26	Oct. 22, 1863	March 1, 1885	23 2 10
17		„ C. Tapsell . . . .	Topogl.	L. S.	42 1 17	Aug. 2, 1864	July 1, 1886	20 1 17
18		„ J. A. Barker . . . .	Topogl.	. . . .	40 8 18	Sep. 1, 1865	Aug. 1, 1886	18 8 18
<b>Assistant Surveyors</b>								
1ST GRADE.								
Salary ₹200, rising to ₹250.								
1		Mr. E. A. Wainright . . .	Topogl.	. . . .	38 6 23	May 1, 1866	July 13, 1878	16 6 23
2		„ R. C. D. Ewing . . . .	Rev.	H. S.	38 6 20	June 9, 1866	Aug. 1, 1878	15 2 6
3		„ W. J. Cornelius . . . .	Topogl.	L. S.	37 9 1	Aug. 15, 1866	July 8, 1879	15 9 1
4		„ G. W. Jarbo . . . .	Rev.	L. S.	39 3 15	Nov. 1, 1866	Jan. 1, 1880	17 3 0
...		„ P. J. W. Doran . . . .	Topogl.	L. S.	37 7 27	Feb. 1, 1867	July 6, 1880	14 11 3
5		„ J. R. Scott . . . .	Rev.	L. S.	37 9 27	Jan. 19, 1867	Nov. 22, 1880	15 9 27
6		„ J. McHatton . . . .	Rev.	L. S.	37 5 14	July 1, 1867	April 1, 1881	14 5 14
7		„ H. T. Kitchen . . . .	Topogl.	. . . .	38 6 23	Nov. 1, 1867	April 1, 1881	16 6 23
8		„ J. H. Wilson . . . .	Topogl.	L. S. Elementary standard Burmese.	40 6 23	April 1, 1868C	April 1, 1881	18 4 23D
9		„ J. Hickie . . . .	G. T. S.	L. S.	37 11 17	April 29, 1868	April 1, 1881	15 5 17
10		„ S. O. Madras . . . .	Rev.	. . . .	36 4 16	July 6, 1868	April 1, 1881	14 4 16
11		„ G. D. Cunson . . . .	G. T. S.	L. S.	40 3 7	May 8, 1868	April 1, 1881	17 3 7E
12		„ T. F. Freeman . . . .	Rev.	L. S.	35 9 27	Sep. 9, 1868	April 1, 1881	11 2 27
13		„ G. C. Swiney . . . .	Rev.	. . . .	37 6 4	Sep. 17, 1868	April 1, 1881	15 6 4
14		„ J. S. Swiney . . . .	Rev.	. . . .	36 0 12	Jan. 5, 1869	April 1, 1881	14 0 12
15		„ C. P. Torrens . . . .	G. T. S.	. . . .	35 6 12	Dec. 12, 1868	April 1, 1881	13 6 12
16		„ W. Robert . . . .	Topogl.	. . . .	36 4 2	Aug. 21, 1869	April 1, 1881	14 4 2
17		„ T. Shaw . . . .	Rev.	L. S.	34 1 15	April 21, 1869	April 1, 1881	12 1 15

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

of India Department, as it stood on 1st January 1887—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.			
12	300 0 0	(a) Assam, R50 . . . .	No. 6 (Assam).	
13	300 0 0	. . . . .	Doing duty as instructor under C. P. Government.	Absent without leave 1 day, and sick leave for 10 days in October 1865.
14	300 0 0	. . . . .	Coast . . . . .	(A) Exclusive of 20 days' sick leave.
15	300 0 0	. . . . .	No. 14 (Mirzapur) . . . .	(B) Exclusive of 33 days' sick leave.
16	300 0 0	. . . . .	No. 17 (Gujarat).	
17	300 0 0	. . . . .	No. 3 (Raipur).	
18	300 0 0	(b) Burma, R100 . . . .	No. 7 (Akyab).	
1	300 0 0	(c) Baluchistan, R100 . . . .	No. 15 (Baluchistan I) . . . .	Offg. Surveyor, 4th Grade.
2	. . . . .	. . . . .	On furlough . . . . .	For 1 year from 17th September 1885. Extension for 12 months.
3	300 0 0	. . . . .	No. 14 (Mirzapur) . . . .	Offg. Surveyor, 4th Grade.
4	300 0 0	(b) Burma, R100 . . . .	No. 7 (Akyab) . . . . .	Offg. Surveyor 4th Grade. Sick leave for 15 days, from 26th May to 9th June 1869.
..	325 0 0	. . . . .	Draftsman, Head Quarters, Calcutta.	On special duty to survey the boundary between Sylhet District and the Maharaja of Hill Tipperah's territory.
5	250 0 0	. . . . .	No. 2 (Bilaspur).	
6	250 0 0	. . . . .	No. 2 (Bilaspur) . . . . .	Furlough for 1 year, from 1st January to 31st December 1879.
7	250 0 0	. . . . .	No. 14 (Mirzapur).	
8	250 0 0	(b) Burma, R100 . . . .	No. 20 (Burma) . . . . .	(C) Commencement of second service. (D) Exclusive of 2 months' sick leave from 1st July 1869. Appointed Draftsman from 15th May 1863.
9	250 0 0	. . . . .	No. 11 (Seoni) . . . . .	Exclusive of 6 months' sick leave.
10	250 0 0	(d) Presidency house- rent, R20.	Head Quarters, Calcutta.	
11	250 0 0	. . . . .	Dehra Dun . . . . .	(E) Exclusive of furlough for 364 days, from 1st November 1879 to 30th October 1880.
12	250 0 0	. . . . .	No. 5 (Garakhpur) . . . .	Sick leave for 2 years from 1st May 1880; extension for 9 months without pay up to 31st January 1883.
13	250 0 0	. . . . .	Doing duty as Instructor under C. P. Government.	
14	250 0 0	(b) Burma, R100 . . . .	No. 7 (Akyab).	
15	250 0 0	(b) Ditto . . . . .	No. 20 (Burma).	
16	250 0 0	. . . . .	No. 18 (Himalaya).	
17	250 0 0	. . . . .	No. 8 (Bengal and Orissa).	

(a) Department of Revenue and Agriculture No. 27S., dated 18th January 1884.  
(b) Department of Home, Revenue and Agriculture, No. 171, dated 6th May 1880.  
(c) Department of Revenue and Agriculture No. 522S., dated 15th December 1882.  
(d) Financial Resolution No. 704, dated 22nd February 1866.

## List of Officers of the Junior Division, Survey

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 Jan. '87.
					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.								
18		Mr. C. W. Wilson . . . .	Rev.	L. S.	41 1 22	June 21, 1867A	April 1, 1881	18 8 22
19		„ E. J. Martin . . . .	Rev.	„ . . . .	35 10 15	Sep. 16, 1867	April 1, 1881	13 2 15
20		„ C. W. F. Seyers . . . .	Rev.	„ . . . .	43 4 15	Dec. 1, 1864	June 7, 1881	21 4 15
21		„ W. H. Penrose . . . .	Rev.	L. S.	35 2 24	Aug. 11, 1869	Nov. 1, 1882	12 8 19
22		„ G. E. Parker . . . .	Rev.	„ . . . .	36 10 18	Nov. 18, 1870	Jan. 17, 1883	14 10 18
23		„ G. Campbell . . . .	Rev.	„ . . . .	38 5 19	Jan. 1, 1864	Jan. 22, 1883	15 5 9
24		„ W. C. G. Burekley . . . .	Topogl.	„ . . . .	35 2 9	Dec. 1, 1871	Feb. 22, 1883	13 2 9B
25		„ G. T. Hall . . . .	G. T. S.	L. S.	35 0 29	Nov. 22, 1872	April 1, 1883	13 0 29
26		„ G. Vander Beck . . . .	Topogl.	L. S.	37 3 15	July 1, 1872	April 30, 1883	15 3 15
27		„ R. Todd . . . .	Topogl.	„ . . . .	41 5 20	Nov. 1, 1863	July 21, 1883	19 5 19
28		„ J. Murphy . . . .	Rev.	„ . . . .	34 5 19	Nov. 22, 1868	Aug. 10, 1883	12 5 19
29		„ R. A. Gibson . . . .	Topogl.	L. S. Burmese.	32 5 26	Dec. 1, 1870	Sep. 5, 1883	10 5 26
30		„ A. W. Smart . . . .	Rev.	„ . . . .	35 10 1	Dec. 1, 1871	Oct. 6, 1883	13 10 1
31		„ W. M. Kelly . . . .	Rev.	L. S.	32 4 25	Oct. 1, 1872	Nov. 21, 1883	10 4 25
32		„ A. Kitchen . . . .	Topogl.	„ . . . .	33 11 4	Oct. 1, 1872	Dec. 1, 1883	11 11 4
33		„ E. P. S. Hill . . . .	Rev.	H. S., L. S., Persian.	31 5 15	Nov. 16, 1872	June 2, 1884	9 5 15
34		„ R. K. Dickinson . . . .	Rev.	L. S.	35 5 6	April 16, 1873	Sep. 1, 1884	13 5 6
35		„ P. White . . . .	Topogl.	L. S.	36 2 23	Oct. 1, 1872	Oct. 1, 1884	12 0 150
36		„ E. Graham . . . .	Topogl.	L. S.	33 2 0	Aug. 11, 1873	Nov. 10, 1884	11 2 0
37		„ G. A. Knight . . . .	T. pogl.	„ . . . .	32 8 9	Aug. 11, 1873	March 1, 1885	10 8 9
38		„ H. Corkery, B. A., LL. B.	G. T. S.	L. S.	35 4 10	Nov. 20, 1873	April 1, 1886	9 2 3D

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

## of India Department, as it stood on 1st January 1887—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.			
18	250 0 0	„ . . . .	No. 1 (Punjab) . . . .	(A) Commencement of second service. Sick leave for 3 months from 1st March 1869, and 2 months from 1st August 1869.
19	250 0 0	(a) Presidency house-rent, R20.	Head Quarters, Calcutta . . . .	Furlough from 1st April to 30th November 1882. Office Assistant from 18th September 1867 to 31st July 1870.
20	230 0 0	„ . . . .	No. 13 (Sambalpur).	
21	„ . . . .	„ . . . .	On medical leave . . . .	Leave on medical certificate, from 22nd October to 29th November 1883, and for 6 months from 3rd August 1836.
22	230 0 0	„ . . . .	Doing duty as Instructor under C. P. Government.	
23	230 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.
24	230 0 0	(b) Baluchistan, R100 .	No. 15 (Baluchistan I) . . . .	(B) Inclusive of special leave to Europe on full pay for 1 year 10 months and 26 days, from 26th April 1876 to 2nd March 1878.
25	230 0 0	„ . . . .	No. 12 (Saugor).	
26	230 0 0	„ . . . .	No. 3 (Raipur) . . . .	Apprentice Draftsman, from 11th October 1870 to 30th July 1872.
27	250 0 0	„ . . . .	No. 19 (Madras) . . . .	Suspension from 11th May to 6th June 1883.
28	230 0 0	„ . . . .	No. 5 (Gorakhpur) . . . .	Office Assistant, from 22nd November 1868 to 31st October 1871.
29	230 0 0	(c) Burma, R100 .	Upper Burma . . . .	Previous service on probation in G. T. S., from 1st October 1868 to 30th June 1870. Apprentice Draftsman, Surveyor General's Office, from 10th October to 30th November 1870. Probationary Assistant Surveyor, 1 December 1870.
30	230 0 0	„ . . . .	No. 5 (Gorakhpur) . . . .	Three months' sick leave from 8th July 1880.
31	230 0 0	(a) Half scale local, R13-12-9.	No. 10 (South Maratha) . . . .	Re-appointed to the Department, 1st October 1878, after employment in the Forest Department, from 1st November 1877 to 3 September 1878.
32	230 0 0	(b) Baluchistan, R100 .	No. 15 (Baluchistan I).	
33	220 0 0	„ . . . .	Doing duty as Instructor under C. P. Government.	
34	220 0 0	„ . . . .	No. 10 (South Maratha) . . . .	Apprentice from 1st April 1872 to 15th April 1873
35	210 0 0	„ . . . .	No. 11 (Seoni) . . . .	(C) 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 5th November 1883 to 4th February 1884.
36	210 0 0	(b) Baluchistan, R100 .	No. 16 (Baluchistan II) . . . .	Previous service as Sub-Surveyor from 1st November 1872.
37	210 0 0	(a) Half scale local R12-9-7.	No. 17 (Gujarat).	
38	200 0 0	„ . . . .	Tidal and Levelling . . . .	(D) Exclusive of leave without pay, from 21st March to 13th November 1878, and of period on furlough (with pay) from 12th April 1882 to 12th April 1884, and without pay thereafter to 25th July 1885.

(a) Financial Resolution, No. 704, dated 22nd February 1868.

(b) Department of Revenue and Agriculture, No. 5228, dated 15th December 1882.

(c) Department of Home, Revenue and Agriculture, No 171, dated 0th May 1880.

## List of Officers of the Junior Division, Survey

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 Jan. '87.
								Y. M. D.
<b>JUNIOR DIVISION</b>								
—contd.								
<b>Assistant Surveyors—</b>								
—contd.								
1ST GRADE—concl'd.								
Salary R200, rising to R250—concl'd.								
..		Mr. P. A. Peters . . . .	Rev.	L. S.	32 0 23	Nov. 1, 1873	May 14, 1886	10 0 23
39		„ P. F. Prunty . . . .	G. T. S.	„ . . .	32 0 6	May 9, 1874	May 14, 1886	10 0 6
40		„ J. Keating . . . .	G. T. S.	„ . . .	32 7 27	June 1, 1874	July 1, 1886	10 7 27
41		„ C. S. Kraal . . . .	Rev.	L. S.	33 2 6	July 24, 1874	Aug. 1, 1886	11 1 19
2ND GRADE.								
Salary R160, rising to R200.								
1		Mr. B. M. Wilson . . . .	Rev.	„ . . .	38 8 17	Nov. 15, 1872	April 1, 1881	14 11 0
2		„ S. F. Norman . . . .	G. T. S.	„ . . .	32 4 23	Sep. 1, 1874	April 30, 1883	10 4 23
3		„ C. Norman . . . .	G. T. S.	L. S.	30 7 12	Oct. 12, 1874	Oct. 6, 1883	8 7 12
4		„ D. Campbell . . . .	Topogl.	„ . . .	34 1 13	Nov. 1, 1874	Nov. 1, 1883	12 1 13
5		„ L. F. Berkeley . . . .	Rev.	L. S.	32 4 3	Aug. 16, 1875	Nov. 13, 1883	10 4 3
6		„ G. P. Tate . . . .	†	L. S.	30 5 9	Mar. 12, 1878	Nov. 21, 1883	8 5 9
7		„ J. M. Kennedy . . . .	G. T. S.	„ . . .	30 1 28	Aug. 19, 1875	Nov. 24, 1883	8 1 28
8		„ P. C. H. Smart . . . .	†	„ . . .	31 3 15	April 18, 1878	Dec. 1, 1883	8 3 6
9		„ C. George . . . .	†	L. S.	34 0 24	Sep. 5, 1878	Dec. 1, 1883	12 0 24
10		„ R. F. Warwick . . . .	G. T. S.	L. S.	31 9 6	July 2, 1875	March 1, 1884	7 7 29A
11		„ A. George . . . .	†	L. S.	31 11 18	Oct. 15, 1878	Sep. 25, 1884	8 2 17B
12		„ R. W. Senior . . . .	†	L. S.	26 1 18	Dec. 21, 1878	Oct. 1, 1884	4 1 18
13		„ W. H. D. Ewing . . . .	†	„ . . .	29 4 7	April 15, 1878	Nov. 10, 1884	7 2 6C
14		„ J. A. Higgs . . . .	†	L. S.	27 8 13	Sep. 12, 1881	Nov. 28, 1884	5 3 10
15		„ O. D. Smart . . . .	†	„ . . .	29 3 15	Oct. 1, 1881	March 1, 1885	7 1 0
16		„ A. Ewing . . . .	†	„ . . .	25 0 0	Nov. 16, 1881	Oct. 1, 1885	3 0 0
17		„ M. Gastaud . . . .	†	„ . . .	24 9 24	May 1, 1882	Oct. 30, 1885	2 9 24
18		„ P. Beechey . . . .	†	L. S.	25 5 14	Dec. 1, 1882	April 1, 1886	3 5 14
19		„ E. F. Berkeley . . . .	†	L. S.	22 2 10	Sep. 1, 1883	May 14, 1886	0 2 10
20		„ B. R. Hughes . . . .	†	L. S.	20 6 18	Oct. 15, 1883	July 1, 1886	„ . . .
21		„ F. W. Moore . . . .	†	„ . . .	22 0 11	Dec. 13, 1883	July 1, 1886	0 0 11
22		„ J. P. Barker . . . .	†	„ . . .	21 4 10	Dec. 23, 1883	Aug. 1, 1886	„ . . .

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

## of India Department, as it stood on 1st January 1887—continued.

No. existing each.	Consolidated Salary.	Extra allowances, if any.	Survey Party or Office to which at present attached.	REMARKS.
	R a. p.			
..	„ . . .	„ . . .	„ . . .	
39	200 0 0	„ . . .	On deputation, Straits Settlement. No. 18 (Himalaya).	
40	200 0 0	„ . . .	No. 21 (Nicobar).	
41	200 0 0	„ . . .	No. 13 (Sambalpur) . . . .	Sick leave, from 6th to 22nd February 1879.
1	192 0 0	(a) Presidency house-rent R20.	Head Quarters, Calcutta . . . .	Apprentice from 1st February to 14th November 1872.
2	184 0 0	(a) Half scale local, R11-0-7.	No. 17 (Gujarat).	
3	184 0 0	(a) Ditto 11-0-7	Ditto.	
4	184 0 0	„ . . .	No. 21 (Nicobar) . . . .	Joined as a Sub-Surveyor on 3rd July 1872.
5	184 0 0	„ . . .	No. 4 (Basti).	
6	184 0 0	(b) Baluchistan, R100 .	No. 16 (Baluchistan II) . . . .	Apprentice from 1st March 1874.
7	184 0 0	(c) Burma, R100 .	Upper Burma.	
8	184 0 0	„ . . .	No. 2 (Bilaspur) . . . .	Sick leave from 8th April to 14th September 1883.
9	184 0 0	„ . . .	No. 11 (Seoni) . . . .	Previous service as Sub-Surveyor from 16th August 1874.
10	176 0 0	„ . . .	No. 4 (Basti) . . . .	(A) 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.
11	168 0 0	„ . . .	No. 9 (Jubbulpore) . . . .	(B) Exclusive of previous service as Sub-Surveyor.
12	176 0 0	„ . . .	No. 21 (Nicobar).	
13	176 0 0	(c) Burma, R100 .	No. 20 (Burma) . . . .	(C) 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.
14	176 0 0	„ . . .	No. 8 (Bengal and Orissa) . . . .	Previous service as apprentice from 31st July 1878.
15	168 0 0	„ . . .	No. 10 (South Maratha) . . . .	Includes service in the temporary or Cadastral establishment without interruption, from 1st December 1879 to 30th September 1881.
16	168 0 0	„ . . .	No. 9 (Jubbulpore).	
17	168 0 0	„ . . .	No. 6 (Assam).	
18	160 0 0	„ . . .	No. 7 (Akyab).	
19	160 0 0	„ . . .	No. 14 (Mirzapur).	
20	160 0 0	(b) Baluchistan, R100 .	No. 16 (Baluchistan II).	
21	160 0 0	„ . . .	No. 2 (Bilaspur).	
22	160 0 0	„ . . .	Ditto.	

(a) Financial Resolution No. 704, dated 22nd February 1866.  
(b) Department of Revenue and Agriculture No. 522S, dated 15th December 1882.  
(c) Department of Home, Revenue and Agriculture, No. 171, dated 6th May 1880.

## 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 Jan. '87.
					Y. M. D.			Y. M. D.
		<b>JUNIOR DIVISION</b>						
		—concl'd.						
		<b>Assistant Surveyors—</b>						
		concl'd.						
		<b>3RD GRADE.</b>						
		Salary R120 rising to R160.						
22		1 Mr. G. S. Willis . . . . .	†	. . . . .	22 6 4	Feb. 25, 1883	Feb. 25, 1883	0 6 4
		2 „ N. Bedford . . . . .	†	. . . . .	25 5 15	Jan. 10, 1884	Jan. 10, 1884	2 11 21
		3 „ T. W. Babonau (Jr.) . . . . .	†	L. S.	20 5 21	Jan. 15, 1884	Jan. 15, 1884	. . . . .
		4 „ T. J. J. Mills . . . . .	†	. . . . .	23 0 1	March 14, 1884	Mar. 14, 1884	1 0 1
		5 „ H. A. Charrier . . . . .	†	L. S.	22 2 8	April 21, 1884	April 21, 1884	0 2 8
		6 „ P. J. Serrao . . . . .	†	. . . . .	25 5 28	April 24, 1884	April 24, 1884	2 8 6
		7 „ J. Smith . . . . .	†	. . . . .	23 3 17	Aug. 1, 1884	Aug. 1, 1884	1 3 17
		8 „ W. E. Johnson . . . . .	†	. . . . .	25 3 16	Aug. 18, 1884	Aug. 18, 1884	2 4 15
		9 „ W. V. Skilling . . . . .	†	L. S.	19 8 6	Nov. 24, 1884	Nov. 24, 1884	. . . . .
		10 „ F. E. Warde . . . . .	†	. . . . .	35 3 24	Nov. 13, 1884 <sup>a</sup>	Nov. 13, 1884	2 1 19
		11 „ A. B. Smart . . . . .	†	. . . . .	21 3 4	Feb. 25, 1885	Feb. 25, 1885	. . . . .
		12 „ G. H. Powell . . . . .	†	L. S.	22 0 2	Mar. 18, 1885	Mar. 18, 1885	0 0 2
		13 „ C. G. S. Wood . . . . .	†	L. S.	18 6 0	Aug. 2, 1884	Aug. 2, 1884	. . . . .
		14 „ F. P. Walsh . . . . .	†	. . . . .	20 1 10	Mar. 4, 1886	Mar. 4, 1886	. . . . .
		15 „ C. G. Lee . . . . .	†	. . . . .	20 4 8	Mar. 1, 1886	Mar. 1, 1886	. . . . .
		16 „ F. S. Bell . . . . .	†	. . . . .	22 3 2	Sep. 24, 1886	Sep. 24, 1886	0 3 2
		17 „ C. H. Millner . . . . .	†	. . . . .	23 2 8	Oct. 2, 1886	Oct. 2, 1886	0 2 29
		18 „ F. B. Powell . . . . .	†	. . . . .	22 4 21	Sep. 23, 1886	Sep. 23, 1886	0 3 8
		19 Munshi Yusuf Sharif . . . . .	†	. . . . .	40 0 14	June 11, 1867	Dec. 1, 1886	18 0 13
		20 Vacant . . . . .		. . . . .	. . . . .	. . . . .	. . . . .	. . . . .
		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.

## India Department, as it stood on 1st January 1887—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.			
1	136 0 0	(a) Burma, R100 . . . . .	No. 7 (Akyab).	
2	136 0 0	. . . . .	No. 5 (Gorakhpur).	
3	136 0 0	. . . . .	No. 3 (Baipur).	
4	136 0 0	. . . . .	No. 19 (Madras).	
5	136 0 0	. . . . .	No. 1 (Seoul).	
6	136 0 0	. . . . .	No. 17 (Gujarat).	
7	136 0 0	(b) Assam, R40 . . . . .	No. 6 (Assam).	
8	136 0 0	. . . . .	No. 4 (Basti).	
9	136 0 0	. . . . .	No. 5 (Gorakhpur).	
10	128 0 0	. . . . .	No. 18 (Himalaya) . . . . .	(A) Date of re-appointment.
11	128 0 0	(c) Presidency house-rent, R20.	No. 8 (Bengal and Orissa).	
12	128 0	. . . . .	No. 18 (Himalaya).	
13	. . . . .	. . . . .	Extraordinary Leave . . . . .	Without allowances for 20 months, from 12th May 1886.
14	120 0 0	. . . . .	No. 1 (Punjab).	
15	120 0 0	. . . . .	No. 8 (Bengal and Orissa).	
16	120 0 0	. . . . .	No. 1 (Punjab).	
17	120 0 0	. . . . .	No. 8 (Bengal and Orissa).	
18	120 0 0	. . . . .	No. 5 (Gorakhpur).	
19	120 0 0	. . . . .	Dehra Dun. . . . .	B Joined as Sub-Surveyor, 11th January 1867.
20	. . . . .	. . . . .	. . . . .	
21	. . . . .	. . . . .	. . . . .	
22	. . . . .	. . . . .	. . . . .	

(a) Department of Home, Revenue and Agriculture, No. 171, dated 6th May 1880.  
(b) Department of Revenue and Agriculture, No. 278., dated 18th January 1884.  
(c) Financial Resolution No. 704, dated 22nd February 1886.

## Names of Administrative and Technical Offices of the Survey of India Department as they stood on 1st January 1887.

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>		
Drawing and Compiling . . . . .	Mapping . . . . .	Do.
Meteorological . . . . .	. . . . .	Do.
Photozincography . . . . .	Photo. Reproduction and Zinc Printing . . . . .	Do.
Printing . . . . .	Letter-press Printing . . . . .	Do.
Solar Photography . . . . .	Solar Photography . . . . .	Do.
<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 January 1887.

Number of Party.	Name of Party.	Abbreviation.	Nature of Current Operations.	Administrative Superintendent.
<b>Revenue and Topographical Parties.</b>				
No. 1 .	Punjab . . . . .	Punj. . . . .	Traversing and Compilation . . . . .	D. S. G., Rev.
" 2 .	Bilaspur . . . . .	Bil. . . . .	Cadastral . . . . .	Ditto.
" 3 .	Raipur . . . . .	Raip. . . . .	Traversing . . . . .	Ditto.
" 4 .	Basti . . . . .	Basti . . . . .	Cadastral . . . . .	Ditto.
" 5 .	Gorakhpur . . . . .	Gorakh. . . . .	Ditto . . . . .	Ditto.
" 6 .	Assam . . . . .	Assam . . . . .	Ditto . . . . .	Ditto.
" 7 .	Akyab . . . . .	Aky. . . . .	Ditto . . . . .	Ditto.
" 8 .	Bengal and Orissa . . . . .	Beng. . . . .	Cadastral and Special . . . . .	Ditto.
" 9 .	Jubbulpore . . . . .	Jub. . . . .	Traversing . . . . .	Ditto.
" 10 .	South Maratha . . . . .	S. Mar. . . . .	Topographical and Forest . . . . .	Ditto.
" 11 .	Sconi . . . . .	Seo. . . . .	Traversing . . . . .	Ditto.
" 12 .	Saugor . . . . .	Saug. . . . .	Ditto . . . . .	Ditto.
" 13 .	Sambalpur (!) . . . . .	Samb. . . . .	Ditto . . . . .	Ditto.
" 14 .	Mirzapur . . . . .	Mirz. . . . .	Topographical and Cadastral . . . . .	D. S. G., Trig.
" 15 .	Baluchistan I . . . . .	Bal. I . . . . .	Topographical . . . . .	D. S. G., Topo.
" 16 .	Baluchistan II . . . . .	Bal. II . . . . .	Ditto . . . . .	Do.
" 17 .	Gujarat . . . . .	Guj. . . . .	Topographical and Forest . . . . .	Do.
" 18 .	Himalaya . . . . .	Him. . . . .	Topographical . . . . .	D. S. G., Trig.
" 19 .	Madras . . . . .	Mad. . . . .	Ditto . . . . .	D. S. G., Topo.
" 20 .	Burma . . . . .	Bur. . . . .	Forest . . . . .	Do.
" 21 .	Nicobar . . . . .	Nic. . . . .	Topographical . . . . .	D. S. G., Trig.
" Detmt.	Upper Burma . . . . .	U. Bur. . . . .	Reconnaissance . . . . .	D. S. G., Topo.
" Detmt.	Kubo Valley . . . . .	Kub . . . . .	Ditto . . . . .	Do.
<b>Trigonometrical Parties.</b>				
" No numbers necessary."	Astronomical No. 1 . . . . .	Ast. 1 . . . . .	} Latitude Observations . . . . .	D. S. G., Trig.
	Do. No. 2 . . . . .	Ast. 2 . . . . .		
	Coast . . . . .	Coast . . . . .	Minor Triangulation . . . . .	Do.
	Computing . . . . .	Comp. . . . .	Reduction and Publication . . . . .	Do.
	Tidal and Levelling . . . . .	Tidal . . . . .	Tide Registering and Levelling . . . . .	Do.

(!) N.B.—This is only a ½ Party at present.

Disposition List of Officers of the Survey of India Department, attached to the Head Quarters Offices at Calcutta and Dehra, 1st January 1887.

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 . . . . .	Lt.-Colonel H. R. Thuillier, B.E., Officiating.*	. . . . .	. . . . .	. . . . .	. . . . .	Feb. 25, '86	Direction of all Offices and Superintendence of—
Deputy Surveyor General, in charge of Topographical Branch.	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Ditto	No. 15 (Baluchistan I) Party. No. 16 (Baluchistan II) Party. No. 17 (Gujarat) Party. No. 19 (Madras) Party. No. 20 (Burma) Party. Kubo Valley Detachment. Upper Burma Detachment.
Personal Assistant. (Office, Calcutta and Simla.)	. . . . .	Licut. G. B. Hodgson, s.c.	. . . . .	A. Sup.	1st	Sep. 8, 85	Offg. Deputy Supdt., 4th grade.
Deputy Surveyor General, in charge Revenue Branch.	Col. J. Sconce, s.c.	. . . . .	. . . . .	. . . . .	. . . . .	Jan. 1, '79	Superintendence of— No. 1 (Punjab) Party. No. 2 (Bilaspur) Party. No. 3 (Raipur) Party. No. 4 (Bastl) Party. No. 5 (Gorakhpur) Party. No. 6 (Assam) Party. No. 7 (Akyab) Party. No. 8 (Bengal & Orissa) Party. No. 9 (Jubbulpore) Party. No. 10 (South Maratha) Party. No. 11 (Seoni) Party. No. 12 (Saugor) Party. No. 13 (Sambalpur) Party.
Office, Calcutta.							

\* Colonel G. C. DePree, Surveyor General (on furlough).

Disposition List of Officers of the Survey of India Department, attached to the Head Quarters Offices at Calcutta and Dehra, 1st January 1887—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.	Col. C. T. Haig, R.E. (Officiating).	. . . . .	. . . . .	D. Sup.	1st	Oct. 1, '84	Superintendence of Offices at Dehra and of— Astr. No. 1 Party. Astr. No. 2 Party. Coast Party. Tidal and Leveling Party. No. 14 (Mirzapur) Party. No. 18 (Himalaya) Party. No. 20 (Nicobar) Party.
Doing duty . . . . .	. . . . .	W. H. Cole, Esq., M.A. Capt. St. G. C. Gore, R.E.	. . . . .	D. Sup.	3rd	Jan. 12, 84	In charge Computing Party. Superintendence of A. B. C. Mapping.
.. .. .	. . . . .	J. Eccles, Esq., M.A.	. . . . .	Offg. A. Sup. S.	1st	July 26, 85	Computing Party.
.. .. .	. . . . .	Mr. C. Wood	. . . . .	S.	1st	May 1, 65	Computing Party. Drawing Office.
.. .. .	. . . . .	.. A. J. Wilson	. . . . .	S.	1st	Oct. 1, 85	Ditto.
.. .. .	. . . . .	.. G. W. E. Atkinson.	. . . . .	S.	1st	Sep. 1, 70	Ditto.
.. .. .	. . . . .	.. H. W. Peychers	. . . . .	S.	3rd	Sep. 1, 71	Computing Party. Drawing Office.
.. .. .	. . . . .	.. N. C. Gwynne	. . . . .	S.	3rd	Oct. 1, 86	Ditto.
.. .. .	. . . . .	.. C. H. McA'Fee.	. . . . .	S.	3rd	Feb. 1, 85	Ditto.
.. .. .	. . . . .	.. T. H. Rendell	. . . . .	S.	4th	Aug. 1, 86	Ditto.
.. .. .	. . . . .	.. G. D. Cusson	. . . . .	A. S.	1st	Oct. 1, 86	Ditto.
Offices, Dehra and Mussoorie.		Munshi Yusuf Sharif.	. . . . .	A. S.	3rd	Nov. 1, 86	On duty.
Assistant Surveyor General, Drawing and Engraving Offices.	Lt.-Col. R. Beavan, s.c. (Officiating).	. . . . .	. . . . .	D. Sup.	4th	Apr. 17, 86	Officiating Deputy Superintendent, 3rd grade.
.. .. .		Mr. G. A. McGill.	. . . . .	S.	1st	Dec. 20, 82	Date of joining S. I. O.
.. .. .		.. S. M. Smylie	. . . . .	S.	1st	Mar. 12, 83	Date of appointment as Chief Draftsman.
.. .. .		.. F. Adams	. . . . .	S.	2nd	June 1, 77	
.. .. .		.. W. Stotesbury.	. . . . .	S.	4th	June 24, 84	Date of joining S. I. O.
.. .. .		.. P. J. W. Doran	. . . . .	A. S.	1st	Sep. 1, 84	Date of appointment as Draftsman.
.. .. .		.. S. O. Madras.	. . . . .	A. S.	1st	Oct. 25, 83	Date of joining S. I. O.
.. .. .		.. E. J. Martin	. . . . .	A. S.	1st	Jan. 1, 85	Date of appointment as Draftsman.
.. .. .			. . . . .	A. S.	1st	May 7, 84	
.. .. .			. . . . .	A. S.	1st	Dec. 1, 82	
Office, Calcutta.							



Disposition List of Officers of the Survey of India Department, attached to the Head Quarters Offices at Calcutta and Dehra, 1st January 1887—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. Office, Calcutta.	Col. D. Macdonald, s.c., (Officiating.)	.	.	D. Sup.	1st	Mar. 21, '86	Deputy Superintendent, 1st grade.
Assistant Surveyor General, Lithographic and Photographic Offices. Office, Calcutta.	Lt.-Col. J. Waterhouse, s.c.	.	.	D. Sup.	3rd	Dec. 1, '66 Dec. 17, 86	Officiating Deputy Superintendent, 2nd grade.
		T. A. Pope, Esq.	.	A. Sup.	2nd	Oct. 14, 86	Officiating Assistant Superintendent, 1st grade.
Map, Record and Issue Office. Office, Calcutta.	Lt.-Col. R. Beavan, s.c. (Officiating).	.	.	D. Sup.	4th	Apl. 17, 86	Officiating Deputy Superintendent, 3rd grade.
			Mr. 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 January 1887.

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
<b>SURVEY OF INDIA OFFICES.</b>			R a. p.			
<b>Correspondence Office.</b>						
Mr. T. W. Babonau	42 10 7	Registrar	500 0 0	Aug. 9, 1861	April 1, 1886	Short drawn R20.
„ A. E. Byrn	49 1 0	Head Assisunt Personal allee.	300 0 0 100 0 0	Oct. 9, 1854	Jan. 1, 1874	
„ M. Francis	49 10 18	Head Clerk	300 0 0	Jan. 13, 1855	July 17, 1886	Short drawn R50.
„ E. D. Algar	34 8 13	Ditto	250 0 0	Dec. 30, 1878	Nov. 23, 1886	Ditto R50.
„ H. H. Fenwick	34 1 21	Head Accountant.	225 0 0	April 20, 1883	Nov. 23, 1886	Ditto R50.
„ H. R. Vallis	36 10 12	Map Curator	200 0 0	Mar. 5, 1869	Sep. 1, 1886	Ditto R30.
„ J. A. Vallis	38 4 21	Head Clerk	175 0 0	April 1, 1871	July 17, 1886	Ditto R25.
„ T. E. Ware	40 7 1	Clerk	150 0 0	Sep. 21, 1871	July 17, 1886	
Babu Kali Podo Banerjee	47 2 4	Do.	125 0 0	Jan. 1, 1859	Sep. 1, 1885	
„ Nancy Madhub Banerjee.	42 9 0	Do.	125 0 0	Mar. 20, 1868	Aug. 1, 1886	
„ Doorga Narain Ghose.	40 1 0	Do.	100 0 0	April 5, 1869	Mar. 1, 1886	
„ Bama Churn Chuckerbutty.	49 7 18	Do.	100 0 0	Jan. 1, 1859	Dec. 1, 1885	Short drawn R5.
Mr. H. R. D'Mello	28 1 7	Do.	100 0 0	April 1, 1883	Aug. 21, 1885	
<b>Drawing Office.</b>						
Mr. G. A. McGill	.	Chief Draftsman	600 0 0	.	.	See page 23.
Vacant	.	Head ditto	450 0 0	.	.	
Mr. P. J. W. Doran	.	Draftsman	325 0 0	.	.	See page 13.
<b>EUROPEAN DRAFTSMEN.</b>						
Mr. W. Green	47 3 20	Draftsman	250 0 0	Jan. 1, 1862	Sep. 1, 1874	
„ J. R. Adels	39 9 16	Ditto	200 0 0	Mar. 23, 1866	Sep. 1, 1874	
„ A. J. Musgrove	28 10 10	Ditto	150 0 0	April 22, 1877	May 1, 1886	
„ R. Sinclair	25 0 29	Ditto	100 0 0	June 1, 1880	Dec. 1, 1883	
„ A. S. Bateman	29 1 26	Ditto	100 0 0	Dec. 6, 1882	Oct. 1, 1886	Short drawn R5.
<b>NATIVE DRAFTSMEN.</b>						
Munshce Sonallah	52 9 7	Draftsman	160 0 0	Mar. 31, 1854	Jan. 1, 1874	
„ Nabi Baksh	47 0 0	Ditto	150 0 0	Mar. 1, 1859	Feb. 1, 1875	

List of Technical and Ministerial Officers of the Survey of India Department, drawing ₹100 and above, as it stood on 1st January 1887—continued.

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
<b>SURVEY OF INDIA OFFICES—contd.</b>						
<b>Drawing Office—concl'd.</b>						
<b>NATIVE DRAFTSMEN—concl'd.</b>						
Babu Hari Hur Sen	55 9 23	Draftsman	125 0 0	Feb. 5, 1857	May 1, 1876	Extension of 2 years' service from 9th March 1886.
„ Mohesh Chunder Shaw.	50 0 25	Ditto	100 0 0	Dec. 1, 1856	May 1, 1880	
<b>Additional Establishment, Drawing Office.</b>						
Mr. W. Stotesbury	. . .	Draftsman	400 0 0	. . . . .	. . . . .	Short drawn R10. See page 23.
<b>SUB-SURVEYOR ON DUTY.</b>						
Babu Madhu Sudun Dutt	50 10 7	Sub-Surveyor	100 0 0	Dec. 15, 1858	Oct. 1, 1865	
<b>Engraving Office.</b>						
Mr. C. W. Coard	56 2 29	Superintendent of Engravers.	1,000 0 0	Nov. 4, 1868	Feb. 1, 1886	Exclusive of house-rent R100. On furlough to Europe for 12 months from 6th June 1886. Exclusive of house-rent R50.
„ W. Donaldson	46 1 23	2nd Engraver	. . .	. . . . .	. . . . .	Ditto ditto.
„ G. G. Palmer	56 11 9	3rd ditto	550 0 0	Sep. 5, 1872	Dec. 1, 1882	Exclusive of house-rent R50. Short drawn R10.
„ D. L. Mitchell	46 1 5	4th ditto	550 0 0	Sep. 21, 1872	Jan. 1, 1886	Exclusive of house-rent R50. Ditto ditto.
„ J. Fulford	43 5 26	5th ditto	450 0 0	Oct. 10, 1872	Jan. 1, 1887	Exclusive of house-rent R50. Short drawn R10.
„ T. B. Rodger	35 3 24	6th ditto	350 0 0	Aug. 20, 1872	Aug. 1, 1884	Exclusive of house-rent R50. Ditto ditto.
„ A. G. Palmer	33 4 1	7th ditto	300 0 0	April 1, 1874	May 1, 1880	
„ S. M. Coard	28 4 11	8th ditto	250 0 0	Feb. 1, 1875	May 1, 1885	
„ A. W. N. James	26 11 11	9th ditto	200 0 0	Mar. 15, 1878	Aug. 1, 1885	
„ A. R. Coard	25 2 29	10th ditto	150 0 0	Mar. 15, 1878	April 1, 1885	
„ A. D. M. Chamarette	23 7 26	11th ditto	100 0 0	Mar. 15, 1878	April 1, 1882	Leave without allowance for 6 months from 6th July 1886.
„ E. C. Ollenbach	25 11 8	12th ditto	100 0 0	Aug. 1, 1879	Aug. 1, 1882	Leave on p. a. for 6 months from 19th July 1886.
„ W. T. Collins	28 2 1	Copper-plate Printer.	150 0 0	Jan. 6, 1880	May 1, 1884	
Babu Russic Lal Roy	52 5 20	1st Native Engraver.	125 0 0	Sep. 1, 1869	Sep. 1, 1877	
„ Joy Kristo Shaw	38 2 28	2nd ditto	100 0 0	Aug. 1, 1869	Aug. 1, 1883	
<b>Lithographic Office.</b>						
<b>DRAWING SECTION.</b>						
Mr. H. L. Lepage	43 7 15	Head Assistant	450 0 0	July 15, 1871	Dec. 1, 1881	
Babu Ambica Churn Mukerjee	33 0 0	Examiner	100 0 0	July 10, 1878	May 1, 1886	Short drawn R25.

List of Technical and Ministerial Officers of the Survey of India Department, drawing ₹100 and above, as it stood on 1st January 1887—continued.

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
<b>SURVEY OF INDIA OFFICES—contd.</b>						
<b>Lithographic Office—concl'd.</b>						
<b>LITHOGRAPHIC PRESS SECTION.</b>						
Mr. D. Deas	31 3 21	Head Lithographic Printer.	300 0 0	Nov. 29, 1883	Nov. 29, 1886	Short drawn R20.
„ B. Wilson	26 5 28	Asst. ditto	100 0 0	Mar. 1, 1883	Jan. 1, 1886	Short drawn R10.
<b>TYPOGRAPHIC SECTION.</b>						
Mr. E. D'Pyvah	36 9 16	Head Printer	100 0 0	Aug. 1, 1868	Nov. 1, 1884	
<b>Mathematical Instrument Office.</b>						
<b>WORKSHOP SECTION.</b>						
Mr. T. Bolton, F. S. Sc., London.	41 11 21	Mathematical Instrument-maker.	750 0 0	Sep. 16, 1867	Nov. 11, 1879	
„ F. Marshall	30 11 23	Assistant Mathematical Instrument-maker.	500 0 0	Jan. 3, 1881	Jan. 3, 1886	Short drawn R25.
<b>CORRESPONDENCE SECTION.</b>						
Mr. M. O'Brien	54 1 27	Head Clerk	200 0 0	Mar. 10, 1859	Mar. 1, 1872	
„ W. Campagnac	28 3 11	2nd Clerk	100 0 0	April 1, 1882	April 1, 1886	Short drawn R20.
<b>STORE SECTION.</b>						
Mr. C. O. Gray	25 10 15	Store-keeper	150 0 0	Feb. 4, 1879	Oct. 1, 1885	
<b>Photographic Office.</b>						
<b>NORMAL ESTABLISHMENT.</b>						
<i>Negative Section.</i>						
Mr. J. Mackenzie	49 6 1	Photographer	330 0 0	June 1, 1862	June 1, 1874	Inclusive of house-rent, R30.
<i>Photo. Transfer Printing Section.</i>						
Mr. J. Harrold	51 7 8	Ditto	330 0 0	Mar. 19, 1873	Mar. 11, 1880	Ditto ditto.
<i>Silver Printing Section.</i>						
Mr. G. G. Dempster	34 0 25	Ditto	200 0 0	July 16, 1873	April 1, 1884	Ditto ditto R20.
<i>Heliogravure and Collo-type Section.</i>						
Mr. A. W. Turner	34 2 13	Photo. Engraver	400 0 0	May 1, 1885	May 1, 1886	Short drawn R80.
<i>Zinc Printing Section.</i>						
Mr. B. Mackenzie	45 10 7	Zincographer	330 0 0	Nov. 24, 1867	Nov. 24, 1879	Inclusive of house-rent, R30.
<i>General Office Establishment.</i>						
Mr. W. Moore	28 1 27	Store-keeper	200 0 0	Sep. 15, 1883	Aug. 1, 1886	Short drawn R60.

*List of Technical and Ministerial Officers of the Survey of India Department, drawing ₹100 and above, as it stood on 1st January 1887—concluded.*

Names.	Age.	Designation.	Salary.	Date of appointment in Government service.	Date of appointment to present pay.	REMARKS.
<b>SURVEY OF INDIA OFFICES—concl'd.</b>	Y. M. D.		R a. p.			
<b>Photographic Office—concl'd.</b>						
<b>CADASTRAL ESTABLISHMENT.</b>						
<i>Negative Section.</i>						
Mr. C. Marshall . . .	51 5 11	Photographer .	330 0 0	Mar. 20, 1874	April 1, 1885	Inclusive of house-rent, R30.
„ L. Lagnier . . .	36 6 0	Ditto .	200 0 0	Feb. 1, 1876	Feb. 1, 1881	Ditto ditto R20.
„ T. Lloyd . . .	32 1 24	Asst. ditto .	100 0 0	July 16, 1873	July 1, 1881	
<i>Photo. Transfer Printing Section.</i>						
Mr. R. George . . .	40 7 27	Photographer .	330 0 0	Feb. 1, 1876	Feb. 1, 1886	{ Inclusive of house-rent, R30. { Short drawn R40.
<i>Zinc Printing Section.</i>						
Mr. J. Watson . . .	52 2 17	Zincographer .	330 0 0	Nov. 24, 1867	Mar. 1, 1880	Inclusive of house-rent, R30.
„ E. A. LeFranc . . .	30 0 20	Ditto .	330 0 0	Nov. 15, 1876	Jan. 1, 1886	{ Ditto ditto. { Short drawn R80.
„ J. B. Mackenzie . . .	21 8 15	Asst. ditto .	100 0 0	Oct. 1, 1880	Aug. 1, 1886	Short drawn R20.
<i>General Office Establishment.</i>						
Mr. H. Haward . . .	36 10 20	Head Assistant	500 0 0	Nov. 16, 1883	Nov. 16, 1886	Short drawn R100.
<b>Trigonometrical Branch Office.</b>						
<i>Computing Section.</i>						
Babu Ganga Pershad . . .	46 0 0	Computer .	240 0 0	Mar. 13, 1857	Feb. 1, 1883	
„ Cally Mohun Ghose	43 8 0	Ditto .	200 0 0	Nov. 6, 1865	Feb. 1, 1883	On furlough in India for 15th months from 19th July 1886.
„ Cally Coomar Chatterjee.	44 8 0	Ditto .	125 0 0	Aug. 12, 1865	July 1, 1886	
„ Amba Pershad . . .	44 5 16	Ditto .	105 0 0	July 26, 1865	July 1, 1886	
„ Soshi Bhooshun Shome.	37 2 16	Ditto .	105 0 0	April 15, 1872	July 1, 1886	
„ Shiv Nath Saha . . .	36 3 1	Ditto .	105 0 0	Nov. 26, 1873	July 1, 1886	
„ Tarapodo Mookerjee.	47 7 0	Ditto .	100 0 0	May 21, 1862	Feb. 1, 1883	
„ Umbica Churan Shome.	43 5 16	Ditto .	100 0 0	Feb. 8, 1867(a)	Feb. 1, 1883	(a) Date of appointment to Educational Department. Joined Computing Office, Survey of India, 10th April 1868.
<i>Photozinc. Section.</i>						
Mr. C. G. Ollendach . . .	55 11 13	Zincographer .	300 0 0	Jan. 1, 1850(b)	Feb. 1, 1883	(b) Appointed to Survey of India, 1st November 1866.
<i>Printing Section.</i>						
Mr. B. V. Hughes . . .	47 0 30	Printer .	250 0 0	Nov. 1, 1880(c)	July 1, 1886	(c) Date of appointment to Survey of India. Previous Military service excluded. Short drawn R50.
<i>Correspondence Section.</i>						
Mr. F. A. D' Rozario . . .	37 5 28	Head Clerk .	250 0 0	Oct. 14, 1874	July 1, 1885	
<i>Drawing Section.</i>						
Mr H. Sindon . . .	38 0 29	Draftsman .	100 0 0	Jan. 1, 1865	July 1, 1886	

Disposition List of Officers of the Survey of India

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
Trigonometrical Parties not numbered.	Astronomical No. 1 . . . . . (Latitude observation)	Trig.	Licut. S. G. Burrard, B.E.	A. Sup.	1st	Oct. 9, '85
	Recess quarters, Mussoorie					
	Astronomical No. 2 . . . . . (Latitude observation).	Trig.	Lieut. S. G. Burrard, B.E.	A. Sup.	1st	Oct. 1, '86
	Recess quarters, Mussoorie.					
Coast . . . . . (Triangulation) . . . . .	Trig.		E. C. Ryall, Esq. . . . .	A. Sup.	1st	Oct. 6, '85
			Mr. J. Bond . . . . .	S.	4th	Aug. 1, 86
Recess quarters, Mussoorie.						
Tidal and Levelling . . . . . (Tide registering and Great Levelling.)	Trig.		Major J. Hill, B.E. . . . .	D. Sup.	3rd	Dec. 29, '85
			Mr. G. Belcham . . . . .	S.	3rd	Sep. 1, 79
			„ E. J. Connor . . . . .	S.	4th	Dec. 1, 77
			„ H. Corkery, B.A., LL.B. . . . .	A. S.	1st	July 29, 85
Recess quarters, Poona						

Department, attached to Field Parties, 1st January 1887.

SUBORDINATE ESTABLISHMENT.						Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Apothecary.		
...	...	...	...	...	...	...	Offg. Depy. Supdt., 4th grade.
1	1	14	1	6	...	19,600	
...	...	...	...	...	...	...	Offg. Depy. Supdt., 4th grade.
1	...	15	...	6	...	20,000	
...	...	...	...	...	...	...	Offg. Depy. Supdt., 4th grade.
...	1	70	1	9	...	28,700	
...	...	...	...	...	...	...	Offg., 2nd grade.
17	2	34	...	10	...	57,100	

Disposition List of Officers of the Survey of India Department,

attached to Field Parties, 1st January 1887—continued.

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
1	Punjab (Traverse.)	Rev.	Lt.-Col. F. Coddington, s.c.	D. Sup.	2nd	Mar. 3, '84
			Mr. J. S. Pemberton.	S.	2nd	Oct. 21, 85
			„ C. W. Wilson	A. S.	1st	Oct. 1, 84
			„ G. Campbell	A. S.	1st	Sep. 21, 82
			„ F. P. Walsh	A. S.	3rd	Mar. 4, 86
			„ F. S. Bell	A. S.	3rd	Sep. 24, 86
	Recess quarters, Simla.					
2	Bilaspur (Cadastral.)	Rev.	G. B. Scott, Esq.	A. Sup.	2nd	Oct. 1, '88
			Mr. F. Grant	S.	1st	Nov. 1, 78
			„ J. R. Scott	A. S.	1st	Jan. 1, 86
			„ J. McHatton	A. S.	1st	Jan. 1, 80
			„ P. C. H. Smart	A. S.	2nd	Oct. 1, 82
			„ F. W. Moore	A. S.	2nd	Oct. 1, 83
			„ J. P. Barker	A. S.	2nd	Oct. 1, 86
	Recess quarters, Mussoorie.		Professional Establishment (Permanent)			
			Cadastral ditto (Temporary)			
	Raipur (Traverse.)	Rev.	Lt.-Col. W. H. Wilkins, s.c.	D. Sup.	2nd	Nov. 4, '88
			Mr. W. S. Buttress	S.	2nd	Oct. 1, 85
			„ C. Tapsell	S.	4th	Nov. 1, 83
			„ G. Vander Beek	A. S.	1st	Nov. 1, 86
			„ T. W. Babonau (Jr.)	A. S.	3rd	Jan. 15, 84
	Recess quarters, Mussoorie.					
4	Dasti (Cadastral.)	Rev.	Lt.-Col. S. H. Cowan, s.c.	D. Sup.	4th	Dec. 11, '83
			Mr. H. T. Hanby	S.	3rd	May 1, 70
			„ W. J. O'Sullivan	S.	3rd	Aug. 1, 85
			„ W. C. Price	S.	3rd	Oct. 1, 80
			„ L. F. Berkeley	A. S.	2nd	Aug. 16, 76
			„ B. F. Warwick	A. S.	2nd	Nov. 1, 85
			„ W. E. Johnson	A. S.	3rd	Aug. 18 84
	Recess quarters, Naini Tal.		Professional Establishment (Permanent)			
			Cadastral ditto (Temporary)			

SUBORDINATE ESTABLISHMENT.						Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Apothecary.		
29	1	265	1	12	...	66,600	Offg. 1st grade.
17	1	175	1	19	...	1,30,900	Offg. 1st grade.
96	...	464	...	...	...		
34	2	218	1	7	...	65,600	
21	1	218	1	17	...	1,47,800	Offg. 3rd grade.
420	...	619	...	...	...		

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class	Grade.	Date of appointment to Party.	SUBORDINATE ESTABLISHMENT.					Annual Cost of Party.	REMARKS.
							Surveyors and Inspectors.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.		
5	Gorakhpur (Cadastral.)	Rev.	Major J. E. Sandeman, s.c.	D. Sup.	3rd	Nov. 1, '83	..	..	..	..	..	..	Offg. 2nd grade.
			Mr. E. G. Little	S.	3rd	Apl. 1, '77	..	..	..	..	..	..	
			„ 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.	3rd	Jan. 10, '84	..	..	..	..	..	..	
			„ W. V. Skilling	A. S.	3rd	Oct. 1, '85	..	..	..	..	..	..	
			„ F. B. Powell	A. S.	3rd	Nov. 1, '86	..	..	..	..	..	..	
	Recess quarters, Naini Tal.			Professional Establishment	(Permanent)	..	19	2	140	1	19	..	1,56,100
				Cadastral ditto	(Temporary)	..	260	..	709	..	..	..	
6	Assam (Cadastral.)	Rev.	E. C. Barrett, Esq.	D. Sup.	4th	July 25, '80	..	..	..	..	..	..	Offg. 3rd grade.
			Mr. J. H. O'Donel	S.	4th	Oct. 29, '83	..	..	..	..	..	..	
			„ D. A. King	S.	4th	Nov. 1, '84	..	..	..	..	..	..	
			„ J. Connor	S.	4th	Oct. 29, '83	..	..	..	..	..	..	
			„ M. Gastaud	A. S.	2nd	Oct. 1, '86	..	..	..	..	..	..	
			„ J. Smith	A. S.	3rd	Nov. 1, '84	..	..	..	..	..	..	
	Recess quarters, Shillong			Professional Establishment	(Permanent)	..	22	1	137	1	8	..	1,11,200
				Cadastral ditto	(Temporary)	..	68	..	225	..	..	..	
7	Akyab (Cadastral.)	Rev.	Lt. Col. H. S. Hutchinson, s.c.	D. Sup.	4th	Oct. 12, '83	..	..	..	..	..	..	Offg. 3rd grade.
			Mr. H. R. Littlewood	S.	2nd	Oct. 21, '86	..	..	..	..	..	..	
			„ J. A. Barker	S.	4th	Oct. 1, '88	..	..	..	..	..	..	
			„ G. W. Jarbo	A. S.	1st	Nov. 1, '80	..	..	..	..	..	..	Offg. Surveyor, 4th grade.
			„ J. S. Swiney	A. S.	1st	Apl. 14, '82	..	..	..	..	..		
			„ P. Beechey	A. S.	2nd	Nov. 1, '89	..	..	..	..	..	..	
			„ G. S. Willis	A. S.	3rd	Oct. 1, '84	..	..	..	..	..	..	
	Recess quarters, Rangoon.			Professional Establishment	(Permanent)	..	21	1	149	1	18	..	1,98,300
				Cadastral ditto	(Temporary)	..	120	1	307	..	..	..	

Disposition List of Officers of the Survey of India Department,

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class	Grade.	Date of appointment to Party.
8	Bengal and Orissa (Cadastral.)	Rev.	Lt.-Col. W. Barron, s.c.	D. Sup.	2nd	Nov. 16, '85
			Mr. D. Atkinson	S.	1st	Dec. 1, '86
			" R. B. Smart	S.	4th	Nov. 1, '81
			" T. Shaw	A. S.	1st	Jan. 14, '86
			" J. A. Higgs	A. S.	2nd	Dec. 1, '86
			" A. B. Smart	A. S.	3rd	Oct. 1, '85
			" C. G. Lee	A. S.	3rd	Mar. 1, '86
			" C. H. Milner	A. S.	3rd	Oct. 2, '86
Recess quarters, Calcutta			Professional Establishment (Permanent)			
			Cadastral ditto (Temporary)			
9	Jubbulpore (Traverse.)	Rev.	G. H. Cooke, Esq.	D. Sup.	4th	Oct. 26, '85
			Mr. J. Todd	S.	2nd	Oct. 1, '85
			" H. Dowman	S.	3rd	Nov. 1, '85
			" A. George	A. S.	2nd	Nov. 1, '86
			" A. Ewing	A. S.	2nd	Nov. 1, '85
Recess quarters, Mussoorie.						
10	South Maratha (Topo.)	Rev.	Lt. W. H. Pollen, R.E.	A. Sup.	1st	Oct. 20, '85
			Mr. A. M. Lawson	S.	2nd	Nov. 1, '79
			" W. M. Kelly	A. S.	1st	Nov. 1, '79
			" R. R. Dickinson	A. S.	1st	May 1, '86
			" O. D. Smart	A. S.	2nd	Oct. 1, '85
Recess quarters, Poona.						
11	Seoni (Traverse)	Rev.	Lt.-Col. D. C. Andrew, s.c.	D. Sup.	2nd	Nov. 20, '85
			Mr. W. A. Wilson	S.	2nd	Oct. 1, '86
			" J. Hickie	A. S.	1st	Nov. 1, '79
			" P. White	A. S.	1st	Oct. 1, '83
			" C. George	A. S.	2nd	Oct. 1, '85
Recess quarters						

Attached to Field Parties, 1st January 1887—continued.

SUBORDINATE ESTABLISHMENT.						Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Apothecary.		
20	1	200	1	16	...	1,03,800	
71	...	214	...	...	...		
...	...	...	...	...	...	...	Offg. 3rd grade.
35	...	330	1	14	...	58,200	
...	...	...	...	...	...	...	Offg. Depy. Supdt., 4th grade.
21	1	190	1	15	...	64,100	
...	...	...	...	...	...	...	
30	1	227	1	13	...	66,600	

Disposition List of Officers of the Survey of India Department

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
12	Saugor (Traverse.)	Rev.	E. J. Jackson, Esq. . . . .	D. Sup.	4th	Oct. 29, '86
			Mr. A. J. Gibson . . . . .	S.	2nd	Nov. 1, '86
			„ W. R. Vvall . . . . .	S.	3rd	Oct. 1, '86
			„ G. T. Hall . . . . .	A. S.	1st	Nov. 30, '74
			„ H. A. Charrier . . . . .	A. S.	3rd	Oct. 1, '84
Recess quarters.						
13	Sambalpur (1) (Traverse.)	Rev.	A. D'Souza, Esq. . . . .	A. Sup.	1st	Apl. 11, '86
			Mr. C. W. F. Seyers . . . . .	A. S.	1st	Nov. 1, '86
			„ C. S. Kraal. . . . .	A. S.	1st	Oct. 1, '86
Recess quarters, Nagpur						
			Professional Establishment			
			(Permanent) . . .			
			(Temporary) . . .			
14	Mirzapur (Topo.)	Trig.	W. H. Patterson, Esq. . . . .	A. Sup.	1st	Nov. 11, '86
			Mr. L. J. Pocock . . . . .	S.	3rd	July 1, '86
			„ C. F. Hamer . . . . .	S.	4th	Aug. 3, '86
			„ C. D. Potter . . . . .	S.	4th	July 1, '86
			„ W. J. Cornelius . . . . .	A. S.	1st	Nov. 1, '86
			„ H. T. Kitchen . . . . .	A. S.	1st	Nov. 1, '66
			„ E. F. Berkeley . . . . .	A. S.	2nd	Oct. 1, '86
Recess quarters, Mussoorie.						
15	Baluchistan I. (Topo.)	Topo.	Lt. F. B. Longe, R.E. . . . .	A. Sup.	1st	Oct. 1, '86
			Mr. T. E. M. Claudius . . . . .	S.	4th	Oct. 1, '83
			„ E. A. Wainright . . . . .	A. S.	1st	June 10, '85
			„ W. C. G. Barkley . . . . .	A. S.	1st	Oct. 1, '85
			„ A. Kitchen . . . . .	A. S.	1st	Oct. 1, '83
Recess quarters, Mussoorie.						

(1) N.B.—This is only a 1/4 Party at present.

attached to Field Parties, 1st January 1887—continued.

SUBORDINATE ESTABLISHMENT.						Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Apothecary.		
30	3	324	1	11	...	59,100	Offg. 3rd grade.
17	...	154	1	7	...	37,200	Offg. Dy. Superintendent, 4th grade.
15	1	70	...	...	...		
18	...	200	1	10	...	57,500	Offg. Depy. Supdt., 4th grade.
8	1	150	1	1	...	82,100	Offg. Depy. Supdt., 4th grade. Offg. Surveyor, 4th grade.



Disposition List of Officers of the Survey of India Department

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
16	Baluchistan II (Topo.)	Topo.	Capt. R. A. Wahab, B.R.	A. Sup	1st	Oct. 1, '86
			Mr. W. Todd	S.	2nd	Oct. 1, 85
			„ W. W. McNair	S.	3rd	Oct. 1, 86
			„ E. Graham	A. S.	1st	Oct. 1, 86
			„ G. P. Tate	A. S.	2nd	Mar. 12, 78
			„ B. B. Hughes	A. S.	2nd	Oct. 1, 86
Recess quarters, Mussoorie.						
17	Gujarat (Topo.)	Topo.	Col. A. Pullan, s.c.	D. Sup.	2nd	Oct. 30, '86
			Mr. J. Newland	S.	4th	Sep. 1, 85
			„ G. A. Knight	A. S.	1st	June 19, 85
			„ S. F. Norman	A. S.	2nd	Sep. 1, 74
			„ C. Norman	A. S.	2nd	Oct. 12, 74
			„ P. J. Serrao	A. S.	3rd	Oct. 1, 84
Recess quarters, Poona						
18	Himalaya (Topo.)	Trig.	Col. H. C. B. Tanner, s.c.	D. Sup.	2nd	Aug. 19, '86
			Lt. J. M. Fleming, s.c.	A. Sup.	2nd	Sep. 21, 86
			Mr. H. E. T. Keelan	S.	1st	Apl. 29, 86
			„ E. S. P. Atkinson	S.	2nd	Jan. 1, 87
			„ W. Robert	A. S.	1st	Sep. 1, 78
			„ P. F. Prunty	A. S.	1st	Sep. 1, 86
			„ F. E. Warde	A. S.	3rd	Sep. 1, 86
			„ G. H. Powell	A. S.	3rd	Oct. 1, 85
Recess quarters, Simla						
19	Madras (Topo.)	Topo.	Lt.-Col. W. F. Badgley, s.c.	D. Sup.	3rd	Nov. 4, '86
			Mr. A. J. James	S.	4th	Oct. 1, 76
			„ Hugh Todd	S.	4th	Oct. 1, 76
			„ R. Todd	A. S.	1st	Oct. 1, 84
			„ T. J. J. Mills	A. S.	3rd	Oct. 1, 84
Recess quarters, Ootacamund.						

attached to Field Parties, 1st January 1887—continued.

SUBORDINATE ESTABLISHMENT.						Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Apothecary.		
6	1	110	1	7	...	52,100	Offg. Depy. Supdt., 4th grade.
26	2	170	1	41	...	73,900	
10	1	{ 60 40	1 Temp.	} 12	...	65,700	
5	1	122	1	80	...	95,000	Offg. 2nd grade.  { For 7 months 50,000. „ 5 „ 45,000.

Disposition List of Officers of the Survey of India Department

No. of Party.	Name of Survey.	D. S. G. and Superintendent of Branch.	Officers of the Senior and Junior Divisions.	Class.	Grade.	Date of appointment to Party.
20	Burma (Topo.)	Topo.	H. Hörst, Esq. . . . .	D. Sup.	3rd	Dec. 14, '86
			Mr. J. H. Wilson . . . . .	A. S.	1st	Nov. 1, '77
			„ C. P. Torrens . . . . .	A. S.	1st	Nov. 1, '77
			„ W. H. D. Ewing . . . . .	A. S.	2nd	Oct. 1, '86
			Recess quarters, Rangoon..			
21	Nicobar (Topo.)	Trig.	Lt.-Col. G. Strahan, R.E. . . . .	D. Sup.	1st	Oct. 1, '86
			Mr. J. Keating . . . . .	A. S.	1st	Nov. 1, '83
			„ D. Campbell . . . . .	A. S.	2nd	Nov. 1, '83
			„ R. W. Senior . . . . .	A. S.	2nd	Aug. 1, '86
			Recess quarters, Mussoorie.			
Det.	Upper Burma  Mandalé . . . . .	Topo.	Capt. J. R. Hobday, s.o. . . . .	D. Sup.	4th	Mar. 20, '86
			Lt. H. M. Jackson, R.E. . . . .	A. Sup.	1st	Nov. 5, '86
			Mr. A. G. Wyatt . . . . .	S.	3rd	Jan. 1, '87
			„ F. Kitchen . . . . .	S.	4th	Oct. 1, '86
			„ R. A. Gibson . . . . .	A. S.	1st	Nov. 17, '86
			„ J. M. Kennedy . . . . .	A. S.	2nd	June 14, '86
Det.	Ktibo Valley . . . . .	Topo.	Col. R. G. Woodthorpe, R.E. . . . .	D. Sup.	4th	Oct. 1, '86
			Mr. M. J. Ogle . . . . .	S.	2nd	Oct. 1, '86

attached to Field Parties, 1st January 1887—concluded.

SUBORDINATE ESTABLISHMENT.						Annual Cost of Party.	REMARKS.
Sub-Surveyors and Computers.	Writers.	Flagmen and Carriers.	Hospital Assistant.	Burkundazes and Peons.	Apothecary.		
18	2	330	2	11	...	1,25,000	
3	1	88	1	4	...	34,800	
...	...	...	...	...	...	...	Offg. Depy. Supdt., 4th grade.
...	...	...	...	...	...	...	On deputation to Mandalé Town Survey.
8	1	53	...	2	...	43,600	
...	...	...	...	...	...	...	Offg. 3rd grade.
1	1	20	1	2	1	17,900	

## Disposition List of Officers of the Survey of India Department temporarily transferred to other Departments, or on furlough, &c., 1st January 1887.

Officers of the Senior Division.	Officers of the Junior Division.	Class.	Grade.	Department to which transferred.	REMARKS.
<i>On Deputation.</i>					
Major A. W. Baird, B.E.		D. Sup.	3rd	Financial Department.	Offg. Mint Master, Bombay.
	Mr. T. H. Dunne	S.	4th	Govt., Central Provinces.	
	„ G. C. Swiney	A. S.	1st	Ditto.	
	„ G. E. Parker	A. S.	1st	Ditto.	
	„ E. P. S. Hill	A. S.	1st	Ditto.	
	„ P. A. Peters	A. S.	1st	Government, Straits Settlement.	
<i>On Furlough, &amp;c.</i>					
Colonel G. C. DePrée, S.C.		S. G.			For 213 days, from 7th March 1886. Extension for 15 days. Further extension for 6 months.
Major C. Strahan, B.E.		A. S. G. D. & E. Offices.			For 1 year and 203 days, from 4th May 1886.
Lt.-Col. W. J. Heaviside, B.E.		D. Sup.	2nd		For 347 days, from 12th February 1886.
Major T. H. Holdich, B.E.		D. Sup.	3rd		Balance of previous furlough, from 25th November 1886.
„ M. W. Rogers, B.E.		A. S. G. Corrs. & M. I. O.			For 1 year and 185 days, from 21st March 1886.
„ J. R. McCullagh, B.E.		D. Sup.	3rd		For 1 year, from 26th March 1886.
Lt.-Col. J. R. Wilmer, S.C.		D. Sup.	4th		For 1 year, from 10th November 1886.
„ E. H. Steel, S.C.		D. Sup.	4th		For 1 year, from 10th November 1886.
Capt. the Hon'ble M. G. Talbot, B.E.		A. Sup.	1st		For 1 year, from 25th November 1886.
F. W. Kelly, Esq.		A. Sup.	1st		For 6 months, from 13th November 1886.
	Mr. P. A. G. Cowley.	S.	1st		For 15 months, from 23rd March 1886.
	„ A. Christie.	S.	3rd		For 7 months, from 18th November 1886.
	„ J. T. U. Coxen	S.	4th		For 6 months, from 10th November 1886.
	„ R. C. D. Ewing	A. S.	1st		For 1 year, from 17th September 1885. Extension for 12 months.
	„ W. H. Penrose	A. S.	1st		For 6 months, from 3rd August 1886.
	„ C. G. S. Wood	A. S.	3rd		Extraordinary leave without allowance for 20 months, from 12th May 1886.
	Baboo Cally Mohun Ghose.	Computer.			For 15 months, from 19th July 1886.

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

Corrected up to 1st January 1887.

**COLONEL GEORGE CHARLES DEPRÉE, Bengal Staff Corps, Surveyor General of India.**—Joined the late Honourable East India Company's Seminary at Addiscombe in February 1848; appointed 2nd Lieutenant of the Bengal Artillery on 9th December 1850; arrived in India, 18th June 1851, and joined the Artillery at Dum-Dum; leave on private affairs from 28th June to 15th November 1851; proceeded in December 1851 with the 6th Company, 9th Battalion, Artillery, on service to Arakan with the Pegu Field Force; surveyed on a large scale the station of Kyouk-Phyoo for the use of the Officer Commanding; ordered to examine and report upon the Tonghoop Pass between Arakan and Burma, as to its practicability for the passage of 150 elephants required by the force in Pegu, for which duty received letter of thanks by order of His Excellency the Governor General, Lord Dalhousie; appointed Assistant Executive Officer, Chittagong and Arakan Road, 30th November 1853; sick leave in India from 17th June to 5th December 1854; appointed Assistant Surveyor, Ganjam Topographical Survey, 20th October 1854; employed on the survey of the Cuttack Tributary Mehals, 12th March 1856; 1st Lieutenant on the 21st January 1856; appointed to the charge of the Ganjam Topographical Survey in March 1856; at the same time *ex-officio* Assistant Commissioner, Cuttack Division, 13th September 1856; organised No. 2 Ganjam Topographical Party in 1857; transferred from No. 1 to No. 2 Ganjam Topographical Party in 1858; owing to the mutiny in 1858 employed in running a series of triangles to define the coast line of the Bay of Bengal; 2nd Captain, 27th August 1858; leave on medical certificate to Europe, 10th January 1859 to 2nd April 1860; completed the survey of Cuttack, and commenced that of the Chota Nagpur Division, the designation of No. 2 Ganjam Party being changed to No. 4 Topographical Party, Chota Nagpur Division Survey; appointed *ex-officio* Assistant Commissioner, Chota Nagpur Division; during a long period decided many boundary disputes between the estates of the Rajahs of the Tributary Mehals; joined the Staff Corps, 19th February 1861; appointed Deputy Superintendent, 1st grade, Topographical Survey, on 20th October 1866; Major, 28th June 1868; furlough to Europe on private affairs, from 5th December 1868 to 8th December 1870; employed on the survey of a part of the Central Provinces and Rewah; appointed *ex-officio* Assistant Commissioner, Central Provinces, and Assistant Magistrate; on the completion of the survey of the Central Provinces in 1877, No. 4 Topographical Party being disbanded, appointed to the charge of No. 7 Topographical Party, Rajputana and Simla Survey; employed on the survey of the cantonments of Subathu and Kasauli on large scale, and on the survey of hill roads about Simla, 1878, as well as of the country of Bickaneer; Lieutenant-Colonel, 9th December 1876; Colonel, 1st July 1881; furlough to Europe from 9th December 1881 to 27th December 1882; returned to India, 28th December 1882, and appointed Deputy Surveyor General in charge Topographical Surveys, from 1st January 1883; officiated as Surveyor General from 12th February 1883 up to the 11th January 1884; confirmed, 12th January 1884; furlough to Europe on private affairs for 213 days, from 7th March 1886. Extension for 15 days, further extension for 6 months.

*War Services.*—Served with the Pegu Field Force in 1852-53—medal.

**LIEUTENANT-COLONEL H. R. THUILLIER, R.E. (Bengal), Officiating Surveyor General of India.**—Joined the Honourable East India Company's Military College, Addiscombe, 11th June 1857; obtained his commission as 2nd Lieutenant, 12th June 1857; on duty at the Royal Engineer 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 Dehra 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 to 3rd April 1876; 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 Survey 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.

**COLONEL JAMES SCONCE**, *Bengal Staff Corps, Deputy Surveyor General, in charge Revenue Branch.*—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 Jubulpore, 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 Surveys, Calcutta, 16th March 1866; appointed to the charge of 6th Division, Lower Provinces 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.

*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."

**COLONEL CHARLES THOMAS HAIG**, *Royal Engineers (Bombay), Offg. Deputy Surveyor General, in charge Trigonometrical Survey Branch.*—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 Kattywar, Guzerat, 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 Kattywar 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 Guzerat 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 to 31st October 1883, and confirmed in that grade, 1st November 1883; appointed Officiating Deputy Surveyor General, in charge Trigonometrical Survey Branch, 1st October 1884.

*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), Deputy Superintendent, 1st Grade.*—Obtained his commission from the Honourable East India Company's Military College at Addiscombe on 10th December 1858; on duty at Royal Engineer establishment at Chatham, February 1st, 1859; remained under instruction at the establishment there 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

\* *Vide G. G. O. No. 606*, dated 26th September 1863,—*vide* General Report, 1860 to 1865, page 36, para. 160.

Survey, 1st September 1864; \* sick leave to England for 20 months, 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 Branches, 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.

*War Services.*—*Nil.*

**COLONEL DONALD MACDONALD**, *Bengal Staff Corps, Deputy Superintendent, 1st Grade.*—Date of 1st commission as Ensign in Bengal Infantry, 20th October 1853; landed in India, 1st December 1853; posted to 25th Regiment, Native infantry; served with the 23rd Native Infantry, 1 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 Manbloom; 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 Manbloom from 1863 to 1866; took this party up to Luckimpore in Assam, and started the survey there; transferred in March 1867 to Sind, and superintended the survey of District Shahbunder and portion of Thur Parker, 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 Account and Correspondence, Surveyor General's Office; Officiating Deputy Superintendent, 1st grade, 9th March 1886. Confirmed 1st January 1887.

*War Services.*—*Nil.*

**LIEUTENANT-COLONEL F. CODDINGTON, Bengal Staff Corps, Offg. Deputy Superintendent, 1st Grade.**—Joined the late Honourable East India Company's Military College at Addiscombe on 1st August 1855; received commission as 2nd Lieutenant in the Bengal Artillery on the 12th June 1857; arrived in India, 16th October 1857; promoted to 1st Lieutenant on the 27th April 1858; appointed to the Bengal Horse Artillery on the 23rd October 1858; services transferred to Royal Horse Artillery in May 1861; appointed an Assistant Surveyor in the Survey Department on the 13th January 1862, and transferred to Bengal Staff Corps from same date; appointed to the charge of a Survey Party, 3rd Division, Oudh, on the 1st January 1864; sick leave to Europe from the 10th December 1865 to 25th July 1867; promoted to Deputy Superintendent of Survey, 3rd grade, on the 26th July 1867; attached to Head-quarters Office from 26th July 1867 till the 15th November 1867; received charge of the 4th Division, Central Provinces Revenue Survey, on the 27th November 1867; promoted to Captain, 12th June 1869; raised and received charge of a new survey, 10th Division, Deccan, on the 1st November 1871; furlough to Europe from 29th March 1875 to 18th March 1877; appointed to do duty in the Head-quarters Office from 19th March 1877; promoted to Major, 12th June 1877; furlough on urgent private affairs, under Rule XI of 1863, from 16th February 1878; rejoined appointment in Head-quarters Office, 12th August 1878; promoted to Deputy Superintendent, 2nd grade, on the 27th October 1878; furlough on private affairs from 9th November 1882 to 28th February 1884; promoted to Lieutenant-Colonel, 12th June 1883; received charge of Punjab Revenue Party on 3rd March 1884; officiated as Deputy Superintendent, 1st grade, from 1st October 1884 to 8th March 1886, and from 10th March 1886 to 8th December 1886. Again from 1st January 1887.

*War Services.*—Served with the Cawnpore Field Force and at intrenched camp at Alumbagh and capture of Lucknow between 30th December 1857 and 23rd April 1858; medal with clasp for Lucknow.

**MAJOR CHARLES STRAHAN, Royal Engineers (Bengal), Deputy Superintendent, 2nd Grade, Assistant Surveyor General.**—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 Branches 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 for 1 year and 203 days from 4th May 1886.

*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.

**LIEUTENANT-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.

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 Peshawar Mountain Train Battery in the Mahsood Wuzereeh 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, Deputy Superintendent, 2nd 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 Mussoorie 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.

*War Services.*—Accompanied the Persian Expeditionary Force of 1856 as Subaltern in No. 5 Light Field Battery, and was present at the landing at Hadila 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.

**LT. COLONEL WILLIAM JAMES HEAVISIDE**, *Royal Engineers (Bengal), Deputy Superintendent, 2nd Grade*.—Obtained his commission as 2nd Lieutenant, Bengal Engineers, 10th June 1859, from the Royal Military College, Addiscombe; joined at Chatham, 1st August 1859; left Chatham in March 1861; granted three months' extension in England to study railway engineering; landed in Calcutta, 1st November 1861; joined Sappers and Miners at Roorkee (about) 15th December 1861; joined Agra and Bombay Road Division, Department Public Works, as Probationary Assistant Engineer, 15th September 1862; promoted to 2nd grade Assistant (about) 1st May 1863; transferred to 2nd Division, Allahabad, Department of Public Works, in August 1864; left Department of Public Works for field service on 14th February 1865; on return from service joined the Great Trigonometrical Survey, 3rd January 1866, as 2nd grade Assistant; posted to East Calcutta Longitudinal Series; assumed charge of No. 2 Astronomical Party, September 1866; promoted to 1st grade Assistant, Great Trigonometrical Survey, 1st March 1868; to Captain, 24th March 1871; and to Deputy Superintendent, 3rd grade, Great Trigonometrical Survey, 5th April 1872; on furlough from 30th October 1870 to 4th April 1872; assumed charge of Pendulum operations, and remained in charge until their completion; in joint charge of Longitude operations with Captain W. M. Campbell, R.E., November 1876; on furlough, from 16th November 1877 to 28th November 1878; joined the Southern Afghanistan Field Force, November 1878; returned to India, and assumed charge of Khandesh and Bombay Native States, Topographical Party, 24th October 1879; assumed charge of No. 1 Astronomical Party, 18th October 1880; Brevet Major, 2nd March 1881; promoted to Major, 1st July 1881; on furlough to Europe for 7 months from 28th April 1882; assumed charge of No. 1 Astronomical Party, 6th December 1882, and joint charge of the Longitude operations till 29th April 1884, when he took over charge of No. 2 Astronomical Party also; Officiating Deputy Superintendent, 2nd grade, from 29th April 1883 to 9th November 1884; confirmed as Deputy Superintendent, 2nd grade, 10th November 1884; on furlough, 12th February 1886; Lieut. Colonel, 11th December 1886.

**War Services**.—Served with the Left Centre Column, Bhutan Field Force, as Assistant Field Engineer, 1865-66—Frontier medal and clasp for Bhutan; served in 1878-79 with the Southern Afghanistan Field Force on special survey duty; joined Sir Donald Stewart's column at Kandahar, and accompanied the Thal Chotiali Force under Sir M. F. Biddulph on its return to India—mentioned in Thal Chotiali despatches—medal—brevet of Major.

**COLONEL AYTON 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, Gorukpur 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 Kattywar 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 Kattywar Survey, 26th April 1879; on completion of Kattywar Survey 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 to 27th November 1884; 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 1857; 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).

**LIEUTENANT-COLONEL DAVID CLAPHAM ANDREW, Bengal Staff Corps, Deputy Superintendent, 2nd Grade.**—Joined Royal Military College, Addiscombe, 7th February 1859; obtained a commission as Ensign in the General List of Bengal Infantry on 9th December 1859; arrived in India, 7th March 1860; by G. O. C. C., dated 9th April 1860, directed to do duty with Her Majesty's 77th Regiment; promoted to Lieutenant on the 10th September 1861; by G. O. C. C., dated 25th March 1862, ordered to join and do duty with the 21st Punjab Native Infantry; joined the Revenue Survey Department as Probationary Assistant Surveyor on the 30th December 1862; posted to the 3rd Division, Central Provinces Revenue Survey; appointment confirmed, 18th January 1864; joined Bengal Staff Corps, 18th January 1864; Assistant Superintendent, 1st grade, on the 30th December 1866; transferred to the Oudh Revenue Survey, June 1867; promoted to Captain on the 9th December 1871; appointed to the charge of the Nowgong District Revenue Survey, Assam, in October 1871; settled all the lakhirajdar dispute cases in the Nowgong District, Assam, demarcating the estates; transferred to the charge of the 2nd Division, Bhawalpur State Survey, October 1872, and to the 3rd Division in 1873, which latter was abolished in 1875; in October 1875 appointed to the charge of the Azumgarh Cadastral Survey which was abolished; appointed in October 1876 to the N.-W. Provinces Cadastral Revision Survey, and transferred in October 1877 to the Cuttack Cadastral Survey; promoted to Deputy Superintendent of Revenue Survey, 3rd grade, on the 1st January 1878; proceeded on furlough on medical certificate to Europe on the 28th May 1878; returned to India on the 12th June 1879, and employed in office of Deputy Surveyor General; placed in charge of Bassein District, British Burma Cadastral Survey, 11th November 1879; promoted to Major, 9th December 1879; transferred to No. 11 South Deccan Topographical Survey, subsequently called Seoni Traverse Survey, 20th November 1880; received personal allowance of ₹100, until promotion to Deputy Superintendent, 2nd grade, 15th February 1883; Officiating Deputy Superintendent, 2nd grade, from 5th to 23rd March 1884, and again from 30th April 1884 to 9th March 1886; promoted to Lieutenant-Colonel, 9th December 1885; confirmed as Deputy Superintendent, 2nd grade, 10th March 1886.

*War Services.*—*Nil.*

**LIEUTENANT-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 to 31st December 1886; transferred to charge of Raipur District Traverse Survey and superintending Detached Party working in District Sambalpur from 4th November 1885; confirmed as Deputy Superintendent, 2nd grade, 1st January 1887.

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

**MAJOR J. E. SANDEMAN, Bengal Staff Corps, Officiating 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 Engi-

neer 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 the 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 Goalparah 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; was promoted to Officiating Deputy Superintendent, 3rd grade, Survey of India, from 15th May 1876 to 7th November 1876, and from 14th July 1877 to 31st December 1877; officiated as a Deputy Superintendent, 3rd grade, from 1st January 1878; was promoted to Deputy Superintendent, 3rd grade, Survey of India, from 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 R100 until promotion to Deputy Superintendent, 2nd grade, 15th February 1883; assumed charge of Mirzapur and Gorakpur Districts Cadastral Survey, North-Western Provinces, from 1st November 1883; Officiating Deputy Superintendent, 2nd grade, from 24th September 1881 to the present time.

**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.

**LIEUTENANT-COLONEL W. F. BADGLEY, Bengal Staff Corps, Officiating Deputy Superintendent, 2nd Grade.**—Joined the service, 4th April 1857; arrived in Calcutta, 15th May 1857; doing duty with Her Majesty's 88th and 53rd Regiments to 25th November 1858; Lieutenant, 18th May 1858; Oudh Military Police, 26th November 1858; Adjutant, 26th Punjab Infantry, to 11th April 1865; appointed to the Topographical Survey on 8th May 1865, and joined No. 1 Party, employed in Rewah and Bundelcund, and remained with that party till October 1868; Assistant Superintendent of Survey, 8th May 1868; Captain, 4th April 1869; furlough, 23rd January 1869 to 21st January 1871; joined and received charge of No. 6 Topographical Party, employed in the Khasi, Garo, and Naga Hills on 8th June 1871, and remained in charge of that party up to 9th March 1882, with the exception of a period from October 1874 to August 1875, during which Major Godwin-Austen had charge; Major, 4th April 1877; on furlough to Europe for one year from 10th March 1882; extension for one year and 3 days; Lieutenant-Colonel, 4th April 1883; returned to duty, 13th March 1884, and took charge of Guzerat Party on 25th March 1884; Officiating Deputy Superintendent, 2nd grade, from 1st October 1884 to 15th November 1885, from 5th February to 8th March and from 10th March 1886; Officiating Assistant Surveyor General in charge, Photographic and Lithographic Offices, from 21st March 1886 to 28th October 1886; assumed charge of Madras Survey on 4th November 1886.

**War Services.**—Served as Ensign and Lieutenant in Central India and Oudh under Sir Hop Grant and Sir Colin Campbell; entered Cawnpore with the first detachment of the relieving force during the siege by the Gwalior contingent; on escort duty to Lucknow during the final siege, and present at several small engagements during the mutiny; employed with a party of the Military police on the Nepal frontier in attempting to capture the Nana; served in charge of the survey party with the northern column of the Lushai expedition and in some minor affairs on the Eastern frontier, and in one of these received four wounds—medals and clasp mentioned in despatches and received the thanks of Government on several occasions.

**MAJOR T. H. HOLDICH, Royal Engineers, Deputy Superintendent, 3rd 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, availed himself of the unexpired portion of furlough from 25th November 1886.

*War Services.*—Served on special duty during the Bhutan campaign from October 1865 to close of campaign; present with the Buxa column to its farthest 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 occasionally to the records of the Royal Geographical Society on the subject of the geography of Afghanistan and the Indian frontier; contributed also occasional paper to the journal of the Royal United Service Institute, of which the principal was a paper 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.

**LIEUTENANT-COLONEL JAMES WATERHOUSE, Bengal Staff Corps, Officiating 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 photozincographic 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 to 6th January 1878; 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 of the Surveyor General's 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, up to 9th January 1884; 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 of the Survey of India Department, Calcutta, 17th December 1886. Officiating Deputy Superintendent, 2nd grade, from 1st January 1887.

*War Services.*—*Nil.*

*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.

**MAJOR MALCOLM W. ROGERS, Royal Engineers, Deputy Superintendent, 3rd 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 1868; 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.

*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 2nd grade Assistant Surveyor, 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 Maratha 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, 21st April 1886.

*War Services.*—*Nil.*

**MR. HENRY HÖRST, Deputy Superintendent, 3rd Grade.**—Appointed Librarian and Accountant to the Thomason Civil Engineering College, Roorkee, 1st January 1853 up to September 1854; appointed as a 3rd class Sub-Assistant in the Great Trigonometrical Survey (without break of service), 1st September 1854; transferred to the Topographical Survey on Major-General Sir A. Waugh's retirement; promoted to the Senior Department, 1st April 1868; officiated as Surveyor, 3rd grade, from 16th October 1868 to 4th April 1869; promoted to Assistant Superintendent, 1st grade, 1st October 1869; officiated as Deputy Superintendent, 3rd grade, from 1st January to 11th October 1879; Furlough to Europe for 2 years from 5th June 1879; extension for 3 months, with further extension on subsistence allowance, till 12th September 1882; promoted to Deputy Superintendent (new), 4th grade, 1st July 1882; Officiating Deputy Superintendent, 3rd grade, from 13th September up to 31st December 1882, and from 14th March 1883 up to 9th November 1884; confirmed, 10th November 1884. *Services.*—Assisted in the Topographical Survey of the Jhelum and Rawal Pindi Districts till its completion; Gwalior and Central India Survey, Rajputana Survey, and in charge of same for nine months; Simla Survey, Bhopal and Malwa Survey; appointed to the charge of No. 2 Topographical Party or Khandesh and Bombay Native States Survey, 18th October 1874 to 4th June 1879; in charge of No. 7 Topographical Party from 14th December 1882, and commenced survey of Reserved Forests Tracts in Burma; Officiating Deputy Superintendent, 2nd grade, from 4th May to 17th August 1886.

*War Services.*—In charge of picket which repulsed night attack on the Murree Sanitarium in September 1857—Mutiny medal; gave information, through Captain W. G. Murray, to the General Commanding the Agra Division in 1862, which led to the seizure of Harbuns Ram, Soubah of Dholpur, and dispersion of 6,000 troops he had quietly collected in the Chumbal ravines for a revolt.

**MR. WILLIAM HAMMOND COLE, M.A., CANTAB., F.R.A.S., F.R.G.S., Deputy Superintendent, 3rd 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, Delhra; 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.

*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.

**MAJOR 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 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 Kattywar and Guzerat Parties, 1868 to 1870; furlough to England for one 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 Kattywar 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 re-organization 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 Kattywar and Guzerat 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 date.

*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 Kattywar in the *Bombay Gazetteer*, G. O. No. 2744, 4th August 1881; 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 *in the Press*. The British Association has voted £50 towards the publication of this book. 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, Deputy Superintendent, 3rd 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 Peshawur, 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. Deputy Superintendent, 3rd grade, from 1st January 1887.

*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.

**LIEUTENANT-COLONEL JOHN RANDAL WILMER, Bengal Staff Corps, Deputy Superintendent, 4th 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.

*War Services.*—*Nil.*

**LIEUTENANT-COLONEL S. H. COWAN, Bengal Staff Corps, Officiating 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 the present time; promoted to Lieutenant-Colonel, 9th December 1885.

**LIEUTENANT-COLONEL EDWARD HARRIS STEEL, Bengal Staff Corps, Deputy Superintendent 4th 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, Chattisgarh, 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.

*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, Officiating 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, Head-quarters 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 R100 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 the present time.

*War Services.*—*Nil.*

**MR. EDWIN CLIFFORD BARRETT, Officiating 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 1851, as proscribed 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 the present time.

**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, Officiating 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; \* By Presidency Division Order of 4th November 1862. 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 Chandgurh 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; 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.

**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.

**COLONEL ROBERT GOSSET WOODTHORPE**, *Royal Engineers, Officiating Deputy Superintendent, 3rd Grade*.—Joined the service, 25th June 1865; left Chatham, November 1867; employed in Works Department, Manufacturing District, in England till May 1869; arrived in India, 25th November 1869; joined the Head-quarters, Bengal Sappers and Miners, at Chakrata, 24th December 1869; served with them till 31st May 1871; joined the Topographical Survey, No. 4 Party, 18th July 1871; transferred to No. 6 Party for service with the Lushai Expeditionary Force, October 1871; had charge of the Survey Party with the Garo Expedition in field season 1872-73; accompanied Captain Badgley in the Naga Hills Survey during field season 1873-74; Officiating Assistant Superintendent, 1st grade, 11th August 1873; reverted to Assistant Superintendent, 3rd grade, 1st April 1874, on amalgamation with Revenue Survey; separate charge, Naga Hills Survey Party, during field season 1874-75; re-appointed substantive Assistant Superintendent, 2nd grade, with effect from 1st April 1874; employed in Head-quarters Office, Calcutta, as Assistant Surveyor General, in charge Lithographic Branch, from July till 31st October 1875; separate charge, Naga Hills Survey, 1875-76; on death of Captain Butler, Political Agent, in January 1876, appointed Political Officer with the Survey (extra allowance, R200 per mensem for this additional work, and thanks of the Governor General in Council and Secretary of State for India); charge of North Lakhimpur Topographical Survey, 1876-77 (thanks of the Governor General in Council); charge of North Brahmputra Topographical Survey, 1877-78; Captain, 22nd May 1878; Officiating 1st grade Assistant Superintendent, 28th May 1878; reverted to Officiating 2nd grade, 12th August 1878; transferred from No. 6 Topographical Party, September 1878; charge of Survey Party with the Frontier Expeditionary Field Force, Kuram Column; substantive 2nd grade Assistant Superintendent, 22nd December 1878; Officiating Assistant Superintendent, 1st grade, 1st January 1879; reverted to 2nd grade, 15th January 1879; furlough on private affairs for one year from 30th October 1880; promoted to rank of Brevet Major, 22nd November 1879, and to Brevet Lieutenant-Colonel, 2nd March 1881; appointed to charge of No. 6 Topographical Party from 3rd December 1881; Assistant Superintendent (new), 1st grade, 1st July 1882; Officiating Deputy Superintendent, 4th grade, 1st July 1882 to 8th January 1883, and from 12th February 1883 up to 27th November 1884; invested with the powers of a Magistrate of the 2nd class to be exercised within the Sub-Division of Karimganj, South Sylhet, and Halimganj in the District of Sylhet, 13th March 1883; confirmed as Deputy Superintendent, 4th grade, 28th November 1884; promoted to the rank of Colonel, 2nd March 1885; on special duty with the Gilgit Mission from 25th May 1885; Officiating Deputy Superintendent, 3rd grade, from 21st March 1886; in charge Kubo Valley Detachment from 1st October 1886.

*War Services*.—Served with the Left Column, Lushai Expeditionary Force, 1871-72,—Frontier medal with clasp for Lushai; served with the Garo Hills Expedition in 1872-73, and with the Naga Hills Punitive Expedition in 1875 (mentioned in despatches); joined the Kuram Column, Frontier Expeditionary Field Force, 1st Afghanistan Campaign at Kohat, 25th October 1878; present at the action on the Peiwar Kotal (slightly wounded); mentioned in despatches; 2nd Campaign from 28th September 1879 to date of evacuation of Kabul; present at Alikhel, 14th October; at Killa Kariz Mir on 10th, and Charda, 11th December 1879; attack of Takht-i-Shah, 13th; Asmai heights, 14th, and subsequent operations till 23rd December 1879, inclusive; skirmishes at Saidabad, 25th and 26th April 1880 (very slightly wounded); thanks of Governor General in Council and Secretary of State for India; mentioned in despatches of Generals Roberts and Ross.

**MR. 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 re-organisation 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 4th May 1886 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.

**MR. 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 for 1 year, 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 1st November to 16th December 1886; again from 1st January 1887.

**CAPTAIN ST. GEORGE CORBET GOBE, Royal Engineers, Deputy Superintendent, 4th 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 Guzerat Party, Great Trigonometrical Survey, 5th January 1878; appointed to officiate in charge Guzerat Party, 2nd September 1878; relieved of the charge of Guzerat 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, from 26th to 28th 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.

*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 Ahned Khel, near Ghuzni, and of Urzu Shabiz at Ghuzni.

- CAPTAIN JAMES RAMSAY HOBDAY, Bengal Staff Corps, Deputy Superintendent, 4th 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, Bhutau, 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 and from 19th to 22nd November 1886; confirmed as Deputy Superintendent, 4th grade, 1st January 1887.
- War Services.*—Served with Kandahar Field Force, Southern Afghanistan, from 13th February to 31st October 1879.
- CAPTAIN THE HONOURABLE MILO GEORGE TALBOT, Royal Engineers, Assistant Superintendent, 1st Grade.**—Lieutenant, 29th April 1873; appointed to India Establishment, 1st September 1876; arrived in India, 7th November 1876; appointed Supernumerary Assistant Superintendent, 3rd grade, Survey of India, 15th March 1880; Assistant Superintendent, 3rd grade, 24th April 1882; Officiating Assistant Superintendent, 1st grade, from 24th April to 14th May 1882; reverted to Officiating Assistant Superintendent, 2nd grade, from 15th May 1882; Assistant Superintendent (new), 2nd grade, 1st July 1882; Officiating Assistant Superintendent, 1st grade, from 1st July 1882 to 28th April 1883; promoted to Assistant Superintendent, 1st grade, 29th April 1883; officiating in charge No. 1 Central India and Rajputana Topographical Party, from 1st May 1883 to 30th September 1883; Officiating Deputy Superintendent, 4th grade, from 1st November to 10th December 1883, from 5th to 13th March and from 30th April to 8th May 1884; in charge No. 3 Topographical Party, Baluchistan Survey, from 29th April 1884 to 18th August 1884; Officiating Deputy Superintendent, 4th grade, from 7th August 1884 to 17th November 1886; attached to Afghan Boundary Commission, from 25th August 1884; promoted to the rank of Captain, 8th January 1885; returned to India, 1st November 1886; furlough to Europe for 1 year from 25th November 1886.
- War Services.*—Assistant Field Engineer, Jowaki Expedition, 1877-78; attached to 3rd Company, Bengal Sappers and Miners, 1st Afghan Campaign, November 1878 to conclusion of peace; took part in operations at Ali Masjid, 2nd Afghan Campaign, with General Roberts' Force from commencement; present at battle of Charasia, 8th October 1879; Assistant Field Engineer up to 14th March 1880; marched with the force under Sir Frederick Roberts from Kabul to Kandahar.
- LIEUTENANT FRANCIS BACON LONGE, Royal Engineers, Officiating 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 the present time; 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 Maratha Survey Party, 6th July 1885; re-transferred to the Tidal and Levelling operations, 19th October 1885; again in charge South Maratha Survey Party, 29th December 1885; in charge of Baluchistan No. 1 Party, from 1st November 1886.

*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, Officiating 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 Expedition, 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 the present time; 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.

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

**MR. EDWARD C. RYALL, *Officiating Deputy Superintendent, 4th 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 Rahoon 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 Mussoorie, 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 Head-quarters 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 up to the present time; in charge Coast Triangulation Survey, 6th October 1885.

*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.

**MR. WILLIAM HENRY PATTERSON, Officiating 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 ₹50 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, 11th November 1885; Officiating Deputy Superintendent, 4th grade, from 16th September 1884 up to the present time.

*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.

**MR. FREDERICK WILLIAM KELLY, Assistant Superintendent, 1st 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; 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 for 6 months from 13th November 1886.

**LIEUTENANT HUGH MILBOURNE JACKSON, Royal Engineers, Officiating 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 the present time; 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.

*War Services.*—*Nil.*

**LIEUTENANT WALTER HUNGERFORD POLLEN, Royal Engineers, Officiating Deputy Superintendent, 4th Grade.**—Obtained his commission as Lieutenant in the Royal Engineers, April 6th 1879; joined at Chatham, 2nd June 1879; served in the 24th Field Company, Royal Engineers, Aldershot till September 1882, and thereafter with the 26th Field Company at Shorncliffe arrived in India, 7th March 1883; served with the Bombay Sappers and Miners up to 6th April 1883; Extra Aide-de-Camp to the Governor General of India, from 6th April 1883 to 26th April 1884; appointed Assistant Superintendent, 2nd grade, Survey of India, 26th April 1884; Officiating Assistant Superintendent, 1st grade, from the same date, and posted to No. 1 Party, Central India and Rajputana Topographical Survey, 1st October 1884; Assistant Superintendent, 1st grade, sub. *pro tem.*, 3rd July 1885; transferred to Himalaya Survey Party, 1st October 1885; promoted to Assistant Superintendent, 1st grade, 22nd October 1885; Officiating Deputy Superintendent, 4th grade, 16th March 1886; assumed charge, Rajputana Topographical Survey, 1st April 1886; in charge of No. 10 South Mahratha Topographical Survey from 20th October to 8th December 1886; again from 1st January 1887.

*War Services.*—Served with the 26th Company, Royal Engineers, in the Egyptian Campaign August 9th to October 10th, 1882.

**LIEUTENANT GODFREY BECKETT HODGSON, S. C., Assistant Superintendent, 1st Grade.**—1st commission as 2nd Lieutenant, 2nd Battalion, Her Majesty's 22nd Cheshire Regiment, 1st May 1878; attached to the Regimental depôt 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 Almorah 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 Guzerat 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.

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

**LIEUTENANT SIDNEY GERALD BURBARD, 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, 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, 21st March 1886; assumed charge of Astronomical Party in addition to that of No. 1 Party, 15th October 1886.

*War Services.—Nil.*

**MR. 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 1865; promoted to Civil Assistant, 4th grade, on the re-organisation of the Department on 1st April 1866; was employed in Kattywar 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 Guzerat 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, 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 the same date.

**MR. G. B. SCOTT, Officiating Assistant Superintendent, 1st 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-tabling 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 Meker 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 of 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; 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, from 26th to 28th October and from 18th November to 8th December 1886; assumed charge of No. 2 Bilaspur District Cadastral Survey, 26th November 1886.

**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 Musjid, actions of Deh Sarak and Fattehabad; 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.

**MR. JOHN ECCLES, M.A., Officiating Assistant Superintendent, 1st 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 Headquarters 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, 30th May 1886.

**LIEUTENANT JOHN MURCHISON FLEMING, S.C., Assistant Superintendent, 2nd Grade (on probation).**—Obtained first commission on the 13th August 1879, as 2nd Lieutenant, 26th "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.

**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.

**MR. T. ARCHDALE POPE, *Officiating Assistant Superintendent, 1st 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; Acting Assistant Superintendent, 1st grade, 14th October 1886.

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# MYSORE REVENUE SURVEY DEPARTMENT.

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## General List of the Officers of the Mysore Revenue

1	2	3	4	5	6	7
Number sanctioned.	Number existing in each grade.	Name of Officers and names of substantive appointment.	Passed in the Vernacular.	Age.	Date of first appointment to the Department.	Date of appointment to the present grade.
			All have passed in the Vernacular.	Y. M. D.		
1	1	Colonel J. P. Grant, Superintendent . . .		48 9 0	Nov. 1, 1863	Jan. 15, 1868
1	1	Lieut.-Col. J. Rutherford, Depy. Superintendent . . .		44 11 12	Jan. 25, 1865	April 8, 1881
2	1	Mr. E. H. Butcher, Assistant Settlement Officer . . .		50 6 2	Oct. 2, 1865	April 1, 1881
	2	Lieut.-Col. G. Mackenzie, ditto . . .		45 5 28	Dec. 24, 1871	Oct. 24, 1883
2	1	Mr. J. P. Barker, Assistant Superintendent, 1st grade . . .		39 3 16	Dec. 22, 1866	Dec. 5, 1878
	2	Lieut.-Col. D. Cowie, ditto ditto ditto . . .	46 0 15	Dec. 3, 1870	Feb. 8, 1882	

## Survey Department on the 1st January 1887.

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.						
...	...	...	1,752 14 0	...	Bangalore.	
...	...	...	1,145 0 0	...	Kankánhalli.	
21 2 29	...	...	...	895 0 0	Mandya.	
...	...	...	962 14 0	...	Reverted to Military Duty.	
17 3 2	...	...	...	795 0 0	Seringapatam	
...	...	...	795 0 0	...	Mandya.	

## Disposition List of Officers of the Mysore Revenue

1	2	3	4	5	6	7	8
No. of Party.	Where employed.	STRENGTH OF SUBORDINATE ESTABLISHMENT IN ALL GRADES.					
		Sub-Surveyors.	English Clerks.	Karkuns.	Learners.	Mappers.	Peons.
Suptd.'s Office.	Mysore Province . . . . .	36	2	53	9	25	10
Depy. Suptd.'s Office.	Ditto . . . . .	...	2	8	...	...	4
	<i>Measuring Party.</i>						
A	Bangalore District . . . . .	47	...	3	3	...	2
D	Ditto . . . . .	34	...	3	3	...	2
F	Mysore District . . . . .	32	...	3	2	...	2
G	Ditto . . . . .	47	...	4	2	...	3
H	Bangalore District . . . . .	31	...	3	2	...	2
	<i>Classing Party.</i>						
C	Bangalore District . . . . .	...	...	..	...	...	...
E	Mysore District . . . . .	17	...	1	1	...	2
M	Ditto . . . . .	17	...	1	...	...	2
O	Ditto . . . . .	17	...	1	1	...	2
		278	4	80	23	25	31

## Survey Department on the 1st January 1887.

9	10	11	12	13	14
Annual cost of Party from 1st January to 31st December 1886.	Officer in charge.	No. in General List.	Rank and Grade.	Date of assuming charge.	REMARKS.
50,896 5 4	Col. J. P. Grant . . .	1	Superintendent . . .	Nov 1, 1863	
21,428 6 1	Lt.-Col. J. Rutherford.	2	Dy. Superintendent . .	July 1, 1865	
17,332 4 7	Mr. D. Appu Row . . .	...	Asst. Commissioner, 3rd Grade.	Aug. 1, 1882	
15,370 8 5	Mr. D. Sham Rao . . .	...	Asst. Superintendent, Local 3rd Grade.	Nov. 3, 1885	
16,183 9 0	„ M. S. Narain Rao . .	...	Ditto ditto . . .	Nov. 1, 1883	
21,094 7 7	„ H. Ramauj Iyengar . .	...	Ditto ditto . . .	May 27, 1884	
14,061 7 10	„ T. Abdulkarim . . .	...	Asst. Conservator . . .	Nov. 1, 1884	
19,288 6 0	Lt.-Col. G. Mackenzie . .	4	.....	...	Reverted to Military Duty from 1st November 1886.
17,427 8 4	„ E. H. Butcher . . .	3	Asst. Settlement Officer	Jan. 26, 1867	
15,736 11 3	„ J. P. Barker . . .	5	Asst. Superintendent, 1st Grade.	Dec. 1, 1867	
17,919 14 1	Lt.-Col. D. Cowie . . .	6	Ditto ditto . . .	Dec. 2, 1871	
2,26,739 8 6					





## GEOLOGICAL SURVEY OF INDIA.

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		Oldham, R. D. . . . .	76 78 86

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 appointment to the Department.	Date of promotion to the present grade.
1	1	H. B. Medlicott, A.M., F.R.S., F.G.S., Director, Geological Survey. <i>1st Grade—R800—50—1,100.</i>	. . . . .	Y. M. D. 57 4 29	Mar. 24, 1854 .	Apl. 1, 1878 .
4	1	William King, A.B., D.Sc., Superintendent, Geological Survey.	. . . . .	53 5 16	Mar. 4, 1857 .	Apl. 21, 1875 .
	2	R. Bruce Foote, F.G.S., Superintendent, Geological Survey.	. . . . .	52 3 9	Sept. 28, 1858 .	June 14, 1881 .
	3	F. R. Mallet, F.G.S., F.C.S., Superintendent, Geological Survey. <i>700—50—1,000.</i>	Oct. 5, 1868 .	45 10 19	Feb. 12, 1859 .	Apl. 11, 1883 .
	4	Theo. W. H. Hughes, C.E., A.R.S.M., F.G.S., Deputy Superintendent, Geological Survey. <i>2nd Grade—R500—40—700.</i>	Aug. 3, 1868 .	43 4 30	Nov. 11, 1862 .	Apl. 11, 1883 .
5	1	F. Fedden, A.R.S.M., F.G.S., Deputy Superintendent, Geological Survey.	Oct. 26, 1869 .	47 9 10	Oct. 1, 1860 .	Mar. 24, 1878 .
	2	C. A. Hacket, Deputy Superintendent, Geological Survey.	Oct. 5, 1868 .	53 5 20	Nov. 15, 1861 .	June 14, 1881 .
	3	C. L. Griesbach, F.G.S., Deputy Superintendent, Geological Survey.	Sept. 15, 1880 .	39 0 21	Nov. 11, 1878 .	Jan. 25, 1883 .
	4	R. D. Oldham, A.R.S.M., F.G.S., Deputy Superintendent, Geological Survey.	Aug. 1, 1881 .	28 5 2	Dec. 17, 1879 .	Apl. 11, 1883 .
	5	P. N. Bose, B.Sc., F.G.S., Deputy Superintendent, Geological Survey. <i>3rd Grade—R350—30—500.</i>	Not required to pass.	31 7 20	July 30, 1880 .	Apl. 1, 1884 .
6	1	Tom. H. D. LaTouche, A.B., Assistant Superintendent, Geological Survey.	June 5, 1882 .	31 2 2	Nov. 29, 1881 .	Nov. 29, 1881 .
	2	C. S. Middlemiss, A.B., Assistant Superintendent, Geological Survey.	Oct. 6, 1884 .	27 1 9	Dec. 29, 1883 .	Dec. 29, 1883 .
	3	E. J. Jones, A.R.S.M., Assistant Superintendent, Geological Survey.	June 2, 1884 .	27 3 28	Dec. 29, 1883 .	Dec. 29, 1883 .
	...	Vacant, Assistant Superintendent, Geological Survey.	. . . . .	. . . . .	. . . . .	. . . . .
1	...	Ditto ditto.	. . . . .	. . . . .	. . . . .	. . . . .
	...	Ditto ditto.	. . . . .	. . . . .	. . . . .	. . . . .
	...	<i>Separately graded. R500 rising to R1,000.</i> Vacant, Palaeontologist, Geological Survey.	. . . . .	. . . . .	. . . . .	. . . . .
5	...	<i>Non-graded Officers.</i> Vacant, Artist, Geological Survey	Not required to pass.	. . . . .	. . . . .	. . . . .
	1	W. R. Dion, Registrar, ditto	Ditto . . .	34 6 15	Dec. 12, 1870 .	Dec. 31, 1878 .
	2	Kishen Singh, Sub-Assistant, Geological Survey.	Ditto . . .	36 16 6	Jan. 7, 1874 .	Apl. 1, 1879 .
	3	Hira Lal, Sub-Asst., Geological Survey	Ditto . . .	35 5 2	Jan. 7, 1874 .	Apl. 1, 1879 .
	4	T. R. Blyth, Museum Assistant, Geological Survey.	Ditto . . .	27 8 7	Mar. 1, 1884 .	Mar. 1, 1884 .

Survey of India on the 1st January 1887.

Period of service counting for pension.	Pay of substantive appointment.	Acting allowances.	Travelling, conveyance and house allowances.	Total pay and allowances.	Where employed at present.	REMARKS.
Y. M. D.	R a. p.	R a. p.	R. a. p.	R a. p.		
32 9 8	1,800 0 0	. . . . .	300 0 0	2,100 0 0	Office.	
29 6 27	1,100 0 0	. . . . .	60 0 0	1,160 0 0	Chhattisgarh.	
28 3 3	1,100 0 0	. . . . .	60 0 0	1,160 0 0	Bellary.	
27 6 25	1,100 0 0	. . . . .	60+150	1,310 0 0	Office.	
21 7 7	1,000 0 0	. . . . .	30 0 0	1,030 0 0	Hyderabad .	Deputed to Hyderabad to examine the country on behalf of the Hyderabad (Deccan) Company.
24 6 29	700 0 0	300 0 0	30 0 0	1,030 0 0	Vizagapatam	Officiating as Deputy Superintendent, 1st grade, vice Mr. Hughes.
24 10 18	700 0 0	. . . . .	30 0 0	730 0 0	Rajputana.	
8 1 20	620 0 0	. . . . .	30 0 0	650 0 0	Office.	
7 0 15	620 0 0	. . . . .	30 0 0	650 0 0	Rajputana.	
6 5 2	540 0 0	. . . . .	30 0 0	570 0 0	Chhattisgarh.	
5 1 2	500 0 0	. . . . .	30 0 0	530 0 0	Assam . . .	Officiating as Deputy Superintendent, 2nd grade, vice Mr. Fedden.
3 0 3	440 0 0	. . . . .	30 0 0	470 0 0	Kumaon.	
3 0 3	440 0 0	. . . . .	30 0 0	470 0 0	Burma.	
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Kept vacant to meet the pay of the Sub-Assistants.
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	Kept; vacant to meet charges for special palaeontological work.
. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	. . . . .	
12 1 4	400 0 0	. . . . .	. . . . .	400 0 0	Office.	
11 11 25	200 0 0	. . . . .	. . . . .	200 0 0	Mandla and Seoni.	
12 11 25	200 0 0	. . . . .	. . . . .	200 0 0	Chhattisgarh.	
2 10 0	120 0 0	. . . . .	. . . . .	120 0 0	Office.	

Disposition List of Officers of the Geological

NAMES OF OFFICERS.	Where employed.	Rank and Grade.	Date of first joining the Department.	STRENGTH OF ESTABLISHMENTS OF ALL GRADES.							Office Establishment.	
				Separately graded.	1st Grade.	2nd Grade.	3rd Grade.	Non-graded Officers	Clerks and Draftsmen.	Pressmen and Servants.	12	22
H. B. Medlicott, A.M., F.R.S., F.G.S.	Office . .	Director, Geol. Survey.	Mar. 24, 1854 .	2	4	5	6	5				
<i>1st Grade.</i>												
William King, A.B., D.Sc.	Obhatisgarh	Supdt., Geol. Survey.	Mar. 4, 1857 .	4 first grade Officers.	...	...	...	...	...	...	...	
E. Bruce Foote, F.G.S.	Bellary . .	Ditto . .	Sept. 28, 1858 .		...	...	...	...	...	...	...	
F. R. Mallet, F.G.S., F.C.S.	Office . .	Ditto . .	Feb. 12, 1859 .		...	...	...	...	...	...	...	
Theo. W. H. Hughes, C.B., A.B.S.M., F.G.S.	Hyderabad .	Depy. Supdt., Geol. Survey.	Nov. 11, 1862 .		...	...	...	...	...	...	...	
<i>2nd Grade.</i>												
F. Fedden, A.B.S.M., F.G.S.	Vizagapatam	Ditto . .	Oct. 1, 1860 .	5 second grade Officers.	...	...	...	...	...	...		
C. A. Hacket . . .	Rajputana .	Ditto . .	Nov. 15, 1861 .		...	...	...	...	...	...	...	
C. L. Griesbach, F.G.S.	Office . .	Ditto . .	Nov. 11, 1878 .		...	...	...	...	...	...	...	
E. D. Oldham, A.B.S.M., F.G.S.	Rajputana .	Ditto . .	Dec. 17, 1879 .		...	...	...	...	...	...	...	
P. N. Bose, B.Sc., F.G.S.	Chhattisgarh	Ditto . .	July 30, 1880 .		...	...	...	...	...	...	...	

Survey of India on the 1st January 1887.

Where employed during last three years.	Annual cost (salary and travelling allowance of Officers and their Subordinates, if any) from April 1885 to March 1886.	REMARKS.
1883-84. Office and special leave 1884-85. Special leave and Office. 1885-86. Office.	Salary and fixed allowance . . . . . R a. p. 25,200 0 0	
1883-84. Chhattisgarh and Office 1884-85. Office and Chhattisgarh 1885-86. Chhattisgarh . . . . .	Salary and fixed allowance. 14,220 0 0 Travelling allowance. 2,904 13 9 Hospital Assistant's pay, &c. 289 8 0 ----- 17,414 5 9	
1883-84. Karnul, Hyderabad and Bellary 1884-85. Bellary . . . . . 1885-86. Ditto . . . . .	Salary and fixed allowance. 14,220 0 0 Travelling allowance. 1,772 13 4 Hospital Assistant's pay, &c. 542 8 4 ----- 16,535 5 8	
1883-84. Office, Andamans, and furlough 1884-85. Furlough, Office, and Hazaribagh. 1885-86. Office and furlough.	Salary and fixed allowance. 16,020 0 0 Travelling allowance. 328 9 3 ----- 16,348 9 3	
1883-84. South Rewah, Korca, and Jhilmill. 1884-85. South Rewah . . . . . 1885-86. Ditto furlough, and Hyderabad.	Salary and fixed allowance. 3,165 0 0 Travelling allowance. 900 0 0 Hospital Assistant's pay, &c. 173 9 4 ----- 4,238 9 4	Deputed to Hyderabad to examine the country on behalf of the Hyderabad (Deccan) Company.
1883-84. Office and furlough 1884-85. Furlough. 1885-86. Ditto and Vizagapatam.		Offg. as Depy. Supdt., 1st grade, vice Mr. Hughes.
1883-84. Furlough . . . . . 1884-85. Ditto and Rajputana . 1885-86. Rajputana.	Salary and fixed allowance. 8,969 4 2 Travelling allowance. 2,143 8 0 ----- 11,112 12 2	
1883-84. Punjab and Afghanistan. 1884-85. Afghanistan. 1885-86. Ditto and Office.		
1883-84. Jaunsar and Andamans . 1884-85. Andamans and Rajputana . 1885-86. Rajputana.	Salary and fixed allowance. 7,124 12 6 Travelling allowance. 1,632 11 4 ----- 8,757 7 10	
1883-84. Chhattisgarh . . . . . 1884-85. Raipur . . . . . 1885-86. Chhattisgarh.	Salary and fixed allowance. 7,065 0 1 Travelling allowance. 2,347 10 0 ----- 9,412 10 1	

Disposition List of Officers of the Geological

NAMES OF OFFICERS.	Where employed.	Rank and Grade.	Date of first joining the Department.	STRENGTH OF ESTABLISHMENTS OF ALL GRADES.						
				Separately graded.	1st Grade.	2nd Grade.	3rd Grade.	Non-graded Officers.	Office Establishment.	
									Clerks and Draftsmen.	Freemen and Servants.
<i>3rd Grade.</i>				6 third grade Officers.						
Tom. H. D. LaTouche, A.B.	Assam . .	Asst. Supdt., Geol. Survey.	Nov. 29, 1881 . .		...	...	...	...	...	...
C. S. Middlemiss, A.B.	Kumaun . .	Ditto . .	Dec. 29, 1883 . .		...	...	...	...	...	...
E. J. Jones, A.B.S.M.	Burma. . .	Ditto . .	Ditto . . . . .		...	...	...	...	...	...
Vacant . . . . .	. . . . .	Ditto . .	...		...	...	...	...	...	...
Vacant . . . . .	. . . . .	Ditto . .	...		...	...	...	...	...	...
<i>Separately graded.</i>										
Vacant . . . . .	. . . . .	Palaeontologist, Geol. Survey.	...	...	...	...	...	...	...	
<i>Non-graded Officers.</i>				5 non-graded Officers.						
Vacant . . . . .	. . . . .	Artist, Geol. Survey.	...		...	...	...	...	...	...
W. R. Blon . . . . .	Office . . . . .	Registrar, Geol. Survey.	Dec. 12, 1870 . .		...	...	...	...	...	...
Kishen Singh . . . . .	Mandla and Seoni.	Sub-Asst., Geol. Survey.	Jan. 7, 1874 . .		...	...	...	...	...	...
Hira Lal . . . . .	Chhattisgarh	Ditto . .	Ditto . . . . .		...	...	...	...	...	...
T. R. Blyth . . . . .	Office . . . . .	Museum Asst. Geol. Survey.	Mar. 1, 1884 . .	...	...	...	...	...	...	

Survey of India on the 1st January 1887—concluded.

Where employed during last three years.	Annual cost (salary and travelling allowance of Officers and their Subordinates, if any) from April 1885 to March 1886.	REMARKS.
1883-84. Assam . . . . .	Salary and fixed allowance. 6,573 12 5	Offg. as Depy. Supdt., 2nd grade, vice Mr. Fedden.
1884-85. Ditto . . . . .	Travelling allowance. 1,936 0 0	
1885-86. Ditto.	8,509 12 5	
1883-84. Jaunsar and Kumaun . . . . .	Salary and fixed allowance. 5,306 2 2	
1884-85. Kumaun . . . . .	Travelling allowance. 2,666 3 9	
1885-86. Ditto.	7,972 5 11	
1883-84. Korea, Jhilmilli, and Chhindwara.	Salary and fixed allowance. 5,464 8 0	
1884-85. Chhindwara . . . . .	Travelling allowance. 3,553 4 0	
1885-86. Ditto and Burma . . . . .	Hospital Assistant's pay, &c. 119 4 2	
	9,137 0 2	Kept vacant to meet the pay of the Sub-Assistants.
Vacant . . . . .	. . . . .	
Vacant . . . . .	. . . . .	
		Kept vacant to meet charges of special palaeontological work.
Vacant . . . . .	. . . . .	
Vacant . . . . .	. . . . .	
1883-84. Office . . . . .	Salary . . . . . 231 4 7	
1884-85. Ditto.		
1885-86. Furlough and Office.		
1883-84. Gwalior . . . . .	Salary . . . . . 1,800 0	
1884-85. Furlough and Malwa . . . . .	Travelling allowance. 504 12 0	
1885-86. Ditto ditto and Mandla . . . . .	Chaprassi . . . . . 116 8 3	
	2,421 4 3	
1883-84. Korea, Jhilmilli & Chhattisgarh.	Salary . . . . . 2,400 0 0	
1884-85. Chhattisgarh . . . . .	Travelling allowance. 573 3 6	
1885-86. Ditto . . . . .	Chaprassi allowance. 175 11 9	
	3,148 15 3	
1884-85. Office . . . . .	Salary . . . . . 1,330 0 0	
1885-86. Ditto.		



## Statements of Services of the Geological Survey Officers.

Corrected up to 1st January 1887.

**MR. HENRY BENEDICT MEDLICOTT, A.M., F.B.S., F.G.S.**—Engaged by Dr. Oldham from the Geological Survey of Great Britain; joined appointment in India on 24th March 1854; in August 1854 appointed by Court of Directors as Professor of Geology, Roorkee College; re-attached to Geological Survey for the field season; 1854-55, Narbada Valley; 1855-56, Sub-Himalayas; 1856-57, Bundelkhand; 1857 to 1862, Sub-Himalayas; received the Indian mutiny medal for special service in Rohilkhand; in October 1862 left Roorkee and rejoined the Geological Survey as Deputy Superintendent for Bengal; 1862-63, South Rewah; 1863-64, Behar; 1864-65, Assam; officiated as Superintendent from 21st August to 13th November 1864; leave on private affairs from 10th May to 9th November 1865; 1865-66, Central India and Rajputana; 1866-67, Chota Nagpur, Chhattisgarh, Sambalpur; placed in the 1st grade on the introduction of grading in May 1866; 1867-68, Garo Hills; 1868-69, Hazaribagh, Sirgajah, Sohagpur, Chanda, Mohpani; 1869-70, Satpurus; 1870-71, Bundelkhand, Narbada Valley; officiated as Superintendent from 20th July to 5th September 1870; sick leave, 13th June to 2nd December 1871; 1871 to 1873, Satpurus; officiated as Superintendent from 16th July 1873 to 15th December 1874; 1873-74, Garo Hills; 1874-75, Betul coal-field, Nimar, Nepal; 1875-76, Nimar, Jamu Hills; appointed Superintendent on 1st April 1876; Fellow of the Calcutta University, and Member of the Faculty of Arts and Engineering, 17th April 1876; 1876-77, Mohpani and Satpura coal-borings; 1877-78, Reh Committee, and Nahan; 1878-79 and 1879-80, Office, Calcutta; 1880-81, Nahan, and Office, Calcutta; 1881-82-83-84, Office, Calcutta; extension of service for two years from 2nd August 1884; special leave from 9th May to 8th November 1884; 1884-85, Office, Calcutta; designation changed to Director of the Geological Survey of India; 1885-86, Office, Calcutta.

Has contributed to the Survey publications 5 Memoirs, 44 Records, and Manual of the Geology of India (in part).

**MR. WILLIAM KING, A.B., D.Sc. (*Honoris causâ*).**—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, Chhattisgarh.

Has contributed to the Survey publications 5 Memoirs and 23 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 Kurnul; 1883-84, Kurnul, 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.

Has contributed to the Survey publications 5 Memoirs, 15 Records, and 1 Palæontologia Indica.

**MR. FREDERICK RICHARD MALLET, F.G.S., F.C.S.**—Engaged by Dr. Oldham in England; joined the Geological Survey as Assistant on the 12th February 1859; and took up work in the Raniganj coal-field; 1859-60, in the Kharakpur Hills; in July 1860, made a trip to Tibet by Niti; 1860-61, Upper Sone Valley; in July 1861 made an excursion in Spiti; 1861-62, on the Upper Vindhyan in Bundelkhand and Rewah; 1862-63, on the Vindhyan in Mirzapur and Shahabad Districts; 1863-64, on the Vindhyan between Rewah and Saugor; June to September 1864, worked with Dr. Stoliczka in Spiti and Rupshu; 1864-65, worked the Vindhyan boundary from Jabalpur to Barwai; from 10th May to 9th November 1865, officiated as Deputy Superintendent of Bengal; 1865-66, on the Vindhyan and crystalline rocks between Chunar and Tehri in Bundelkhand; 1866-67, through Bhurtpur, Alwar, Bundi, and Guna to the Saugor District; 1867-68, the gneiss of Lower Bundelkhand; 1868-69, on the crystalline and transition rocks in the Mirzapur District; passed in the vernacular on 5th October 1868; on furlough for one year from 13th September 1869, with an extension on duty for three months and nine days to 21st December 1870; on his return journey stopped at Aden to report on the prospects of an artesian boring; 1871-72, in South Mirzapur and Rewah; officiated in the 2nd grade from 13th June to 3rd December 1871; officiated for three months as Curator of the Museum; during the recess seasons of 1871 and 1872, arranged and catalogued a large part of the mineral collections; promoted to the 2nd grade on 1st May 1872; 1872-73, on the crystalline and transition rocks of Northern Hazaribagh; recalled to arrange the mineral collection for the Vienna Exhibition; 1873-74, in the Sikkim Himalayas and Bhutan Duars; 1874, 1875, and 1876, examined and reported on the coal-fields of Upper Assam, received the thanks of the Assam Government; officiated in the 1st grade from 16th March to 25th April 1876; since 12th October 1875 has acted as keeper of the mineral collections, the systematic description of which involves much work in the laboratory; early in 1878 examined and reported on some coal and petroleum localities in Ramri, Cheduba, and Baronga Islands; leave on medical certificate from 25th July 1879 to 22nd October 1880; 1880-81, Museum; officiated in the 1st grade from 23rd October 1880 to 24th January 1883; examined and reported on a new copper mine in British Sikkim; officiated as Deputy Superintendent from 25th April 1882 to 10th April 1883; promoted to the 1st grade on 25th January 1883, and appointed Deputy Superintendent on 11th April 1883; 1882-83, Museum; also examined and reported on iron ores of Jabalpur; 1883-84, Museum, Andamans, Barren Island and Narcondam; furlough from 2nd May to 3rd November 1884; 1884-85, Museum and Hazaribagh; designation changed to Superintendent of the Geological Survey of India; 1885-86, Museum, Calcutta; furlough on medical certificate from 30th April to 21st November 1886.

Has contributed to the Survey publications 6 Memoirs and 39 Records.

**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 Kāranpura, Deogarh, Karharbāri, 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 Birbhūm 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 Umariā-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. Schœne, 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 in connection with the Umariā coal mines 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 to examine the country in behalf of the Hyderabad Deccan Co. from 25th November 1886.

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

**MR. FRANCIS FEDDEN, A.R.S.M., F.G.S.**—Engaged in England by Dr. Oldham; joined the Survey as Assistant on the 1st October 1860; deputed to Burma; employed there until 1864; attached to the Salween surveying expedition in 1864-65; surveyed parts of Manbhūm and Hazaribagh in 1865-66; transferred to Central Provinces in 1866-67; on private affairs leave from 4th May to 5th December 1867; engaged in the survey of Cutch in 1867, 1868, and 1869; passed in the vernacular on 26th October 1869; surveyed parts of the Central Provinces, East Berar, and the Nizam's Territories in 1869, 1870, 1871, and 1872; leave on medical certificate from 26th May 1872 to 22nd January 1874; officiated in the 2nd grade from 16th July 1873 to 17th December 1874; resumed work in the Wardha coal-fields, 1874; transferred to the survey of Sind, 1874, 1875, 1876 and 1877; officiated in the 2nd grade from 29th March 1875 to 24th October 1876; transferred to survey of Kattywar, 1877-78; officiated in the 2nd grade from 1st November 1877 to 23rd March 1878; promoted to 2nd grade on 24th March 1878; leave on furlough from 7th June to 20th November 1878; resumed work in Kattywar, 1878-79, officiated as Curator from 25th July 1879 to 22nd October 1880; officiated in the 1st grade from the 22nd August to the 14th October 1879, and from 3rd April to 15th October 1880; 1880-81, 1881-82, Kattywar; 1882-83, Kattywar, Guzrat, and Museum; officiated in the 1st grade from 8th June 1882 to 22nd February 1883, and from 28th March to 10th May 1883; 1883-84, Museum; acted as Curator from 21st January to 7th March 1884; officiated in 1st grade from 29th April to 12th November 1884; acted as Curator from 29th April to 7th November 1884; furlough from 22nd November 1884 to 8th November 1886; designation changed to Deputy Superintendent of the Geological Survey of India; officiated as 1st grade Deputy Superintendent from 9th November 1886; 1886, Vizagapatam.

Has contributed to the Survey publications 1 Memoir and 1 Record.

**MR. CHARLES AUGUSTUS HACKET.**—Engaged in England by Dr. Oldham; joined the Geological Survey as Assistant on the 15th November 1861; 1861, 1862, and 1863, in the Sone Valley; 1864, 1865, 1866, and 1867, on the Vindhyaṅs in Central India; 1867, 1868, and 1869 on the Vindhyaṅs and Aravalis between Bhartpur and Neemuch; passed in the vernacular on 5th October 1868; 1869, 1870, 1871, and 1872, on the Transition and Gondwana Rocks in Jabalpur and



South Rewah; 1872-73, Narsingpur and Hoshungabad; officiated in the 2nd grade from 3rd June 1873 to 15th December 1874; 1873-74, Rajputana; leave on furlough and medical certificate from 3rd August 1874 to 1st November 1875; 1875, 1876, 1877, 1878, and 1879, the Aravalis in Rajputana and Punjab; officiated in the 2nd grade from 16th March to 26th April 1876, and from 24th March 1878 to 13th June 1881; 1880-81, Rajputana, towards Neemuch and Oodeypore; promoted to 2nd grade from 14th June 1881; 1881-82, Rajputana; leave on furlough from 20th November 1882 to 17th November 1884; 1884-85, Rajputana; designation changed to Deputy Superintendent of the Geological Survey of India; 1885-86, Rajputana; officiated as Deputy Superintendent, 1st grade, from 27th April to 8th November 1886.

Has contributed to the Survey publications 5 Records.

**MR. CARL LUDOLF GRIESBACH, 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, Himalaya; 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, Himalaya 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, Office.

Has contributed to the Survey publications 2 Memoirs and 7 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.B.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.

Has contributed to the Survey publications 4 Memoirs and 14 Records.

**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, Chhattisgarh.

Has contributed to the Survey publications 1 Memoir and 2 Records.

**MR. THOMAS HENRY DIGUES LA TOUCHE, B.A. (Camb.)**—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 5th June 1882; officiated in 2nd grade from 8th June 1882 to 17th November 1884; 1882-83 to 1893-84, Assam; officiated in 2nd grade from 22nd November 1884; 1884-85, accompanied North-East Frontier Exploration party; and Assam; 1885-86, Assam.

Has contributed to the Survey publications 7 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 6th November 1886.

Has contributed to the Survey publications 2 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, Korea, 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.

Has contributed to the Survey publications 2 Records.

**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; 1874-1876, 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.

**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, Jhilmili, and Chhattisgarh; 1884-85-86, Chhattisgarh.

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

