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SURVEY DEPARTMENT ANNUAL REPORT 1916-7

T.F.S.

Mr. Bottomley

H. Bottomley

Enclosure sent to Prof. Section W.O. for  
condemnation etc

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AFRICA PROTECTORATE  
No. 467

GOVERNMENT HOUSE,  
NAIROBI,  
BRITISH EAST AFRICA.

August 11th, 1917.

Sir,

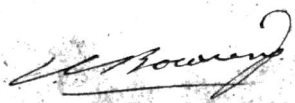
I have the honour to transmit herewith  
the Annual Report of the Survey Department  
for the year ending March 31st 1917.

Report

I have the honour to be,

Sir,

Your humble, obedient servant,



ACTING GOVERNOR.

THE RIGHT HONOURABLE

WALTER LONG, P.C., M.P.,

SECRETARY OF STATE FOR THE COLONIES,

DOWNING STREET,

LONDON, S.W.

INCLOSURE

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ANNUAL REPORT

of the

SURVEY DEPARTMENT  
East Africa Protectorate.FOR THE YEAR ENDING 31st MARCH, 1917.

- I. ORGANISATION.  
 II. WORK OF THE PAST YEAR.

Page 3.

T A B L E S.

	Page
I (a) List of Officers of the Survey Department March 31st 1917.	7 - 11.
I (b) List of Qualified Surveyors who have obtained Licence to survey in the East Africa Protectorate.	12.
II Cost of Survey Department for year ending 31st March 1917.	13.
III Expenditure & Revenue.	14.
IV. Comparative Annual Statement of cost of Survey.	15.
V. Comparative Annual Statement of Triangulation.	16.
VI. " " " " Topography.	17.
VII. List of published Topographical Maps.	18.
VIII.(a) Details of Cadastral Surveys for year ending 31st March, 1917.	19.
VIII.(b) Miscellaneous Surveys 1916-1917.	19.
IX. Comparative Annual Statement of Cadastral Surveys ordered and completed.	20.
X. Miscellaneous Maps and Plans made and issued for year ending 31st March 1917 with com- parison with previous years.	21.
X.(a) List of Maps issued to Military Departments from January 1916 to 31st March, 1917.	22.
XI. Leave of Staff of Survey Department. (1916-1917.)	23.
XII. Promotions, New appointments, resignations. (1916-1917.)	24.
XII.(a) Deaths.	24.
XIII. Comparative Table showing time spent by Drawing Office on Civil & Military work.	25.
XIV. List of Civil Servants at present serving locally in a Military capacity, and amount paid by Department for that period.	26-28.

## ORGANISATION.

In all Branches this is the same as last year.

## II. WORK OF PAST YEAR.

### Superintending Staff.

Major L.N.F.I. King, R.E. has been on active service during the whole year.

### TRIGONOMETRICAL & TOPOGRAPHICAL BRANCH.

The Staff have been on active service during the whole year.

Very little topographical work has been done; a certain amount of topo: work has been received from Administrative Officers pertaining chiefly to tribal boundaries, and revision of certain details which had been compiled in the past from various sources.

I understand that a certain amount of revision work has been done by the various Military Officers in connection with the local campaign, but such work has not been received in this Department.

### GADASTRAL BRANCH.

Almost all survey work has been suspended owing to demands made by the Military Authorities for men for the King's African Rifles, Transport and other branches of the Military Services.

Work of a very urgent nature only has been undertaken. A certain amount of field check has been necessary to finish off the laikipia and other large allotment surveys carried out by Licensed Surveyors.

The surveys to be carried out under the provision of the Land Titles Ordinance are almost at a stand-still owing to lack of staff.

Very little demarcation work has been possible as there are two demarcators only employed; one demarcator has been on leave since the 10th January, 1917.

The total staff of Indian demarcators consists of three only.

One man (an Indian) was engaged but proved unsatisfactory, and had to be removed.

The standard of survey has been maintained whilst the output is increasing owing to more systematic methods being adopted; this is natural as most of the men were new to the work, and are now becoming more efficient through experience and training.

A certain amount of Township work has been done during the year. Such has usually been done at the request of the Medical and Administrative Authorities.

Generally every man is being employed in the Computing and Examining Branch with a view to wiping off arrears, and to cope with public demands for land transfer surveys all of which undergo examination in the Survey Department.

over/

Four Licensed Surveyors are engaged on private work continuously, chiefly subdivisional work consequently a large number of comparatively small areas are changing hands. Such subdivisional work naturally entails a considerable amount of examination, and it is with difficulty the Department is able to keep pace with the demands.

I am pleased to note that licensed Surveyors generally show signs of conforming more closely with the Departmental Regulations in regard to methods of survey, recording in Field books, computations and the necessary checks, beaconing and breaking down the local triangulation, which considerably facilitates examination in this Department, and reduces delay and consequent annoyance to the public, to a minimum. Much of the delay in the past was not owing to shortage of staff so much as by the necessity of returning plans etc. to Licensed Surveyors for amendment, check survey and to furnish further data, generally omitted in the field notes or computations.

After a careful examination of Nairobi surveys I find that a complete rectification survey will be required as soon as it is possible to do the work. Nairobi has been laid out piecemeal, and the old work was not connected to any other previous work. Much of the work was badly done, and as most of the boundary marks have now disappeared, it is difficult to decide whether encroachment has occurred, or whether any particular plot was badly laid out.

I have already pointed out in previous reports the trouble which must be experienced owing to the removal of the boundary marks by property owners when about to build or fence.

In most Colonies the owners generally preserve the marks erecting fences in such manner that no disturbance is necessary, and when about to build employing a Licensed Surveyor to verify the boundary marks, and set substitute marks for the guidance of the builder, thus ensuring against encroachment. The public in this Protectorate do not seem to respect boundary marks of any description, and I am convinced they will not until legislation is enacted to prevent removal of beacons. In new townships, as now laid out, the removal of boundary marks is not so objectionable, as standard bases are laid down in every street to which every boundary mark is referred. The intersections are demarcated by a block of concrete 18" X 12" X 12" set under ground to a depth of 18 inches to 24 inches.

An iron bar is set therein with a centre point mark thereon to demarcate the actual intersection.

Such base lines are parallel to the property alignments.

A Surveyor re-establishing or verifying any property boundaries works directly off the Standard, ignoring boundary marks.

The saving in time by adopting this principle is enormous, particularly so to Government as oft-times plots are laid out some years ahead of sale.

Frequently the whole of the plots in a township are not purchased at Auction - the unsold plots may be standing vacant for some years; the boundary marks are frequently removed, knocked out, or rot.

The Surveyor re-establishing simply works off the Standard, and replaces with ease, whereas if such Standards were not laid down he would have to work off such boundary marks as are left, oft-times finding that it is necessary to work back from some distance away; in addition he feels somewhat doubtful if the points available are themselves reliable.

Computing Branch.

The work of this Branch has been considerably curtailed owing to several members being away on Military duty, others having resigned, or on leave. I have been able to secure the services of one licensed Surveyor to assist in examination work.

The output of work per man monthly has considerably increased over that of previous years, chiefly owing to the large number of subdivisions dealt with, the better allocation of work, and Surveyors complying with the Regulations to a greater extent than in the past. Considerable time is still lost by Computers having to break off during the process of checking to attend to other urgent checking work.

This will be reduced to a minimum in the course of time as it is anticipated that all work will be brought up to date, consequently the necessity to break off and attend to other work will cease. All work will be attended to in order of priority, and very little delay will be experienced by the public.

Much yet remains to be done before the up-to-date stage arrives.

Triangulation Charts on 1/125,000 scale with tabulated lists of Co-ordinates have not yet been completed nor can the work be proceeded with until conditions resume the normal.

A vacancy created by the transfer of one man to the Bacteriological Department was filled by the transfer of a Draughtsman.

One vacancy caused by resignation has not yet been filled.

Mr. J.H. MacBreen, a Senior Computer, was transferred from the Computing Office to act as Chief Draughtsman, and has given complete satisfaction.

Drawing Office.

The work of this Branch has proceeded very satisfactorily.

The Chief Draughtsman - Mr. Panting - joined the King's African Rifles on January 29th 1917.

The Cadastral Charts have been kept up to date.

The preparation of Deed plans is up to date also - very little delay being experienced.

Clerical Branch.

This Branch has been very severely handicapped owing to lack of staff, there being one European only assigned by two Coasteer clerks.

Mr. Palmer, who is AGI Office Superintendent, has been compelled to work overtime every day, including Saturdays and Sundays.

The work of this Branch has not materially decreased since the war broke out.

The correspondence, inwards and outwards, is almost the same as in pre-war days.

The only vital difference is in the issue of stores. In this sub-branch there has been a marked decrease in the work owing to the absence of Surveyors on Military duty.

I append schedules showing the output of survey work, cost per acre of work carried out, Plans and Maps sold etc., which I trust will be sufficiently explanatory.

In conclusion I beg to record with regret the death of Mr. H.F. Surgey, Asst. Junior Staff Surveyor. Mr. Surgey received a Commission in the Arab Rifles, and

Contd/-.

358

and was killed in action,  
He was a very promising officer, capable and painstaking,  
and reliable.  
His loss is a severe blow to the Department.

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TABLE I (a)

LIST OF OFFICERS OF THE DEPARTMENT 31st MARCH, 1917.

Office	Name	Salary	Allowance	Date of first appointment	Date of present	Remarks	
<b><u>SUPERINTENDING STAFF.</u></b>							
Director of Surveys	Major L.E.F.I. King.R.E.(2)	800	Nil	25. 3. 1914	25. 3. 1914	Free Quarters *** **	
Office Supt.	A. Rehn (1) & (2)	315	...	4. 1. 1908	4. 1. 1908		
4 Clerks	A.B. Balmer (1) & (3)	250	H.A. £.40.	21. 7. 1912	1. 4. 1916		
	H. Vickerstaff (1) & (2)	170	" " £.40	28. 3. 1913	1. 5. 1914		
	C.G. Mure (1) & (2)	160	" " £.40	7. 6. 1915	1.11. 1915		
	Vacant	150	" " £.40				
1 3rd Grade Clerk	A.J. De Mello (1)	118	Nil	1.12. 1908	1. 4. 1912		
1 4th Grade Clerk	R.F. De Souza	72	...	1. 9. 1912	1. 1. 1915		
<b><u>TRIG. AND TOPO. BRANCH.</u></b>							
Deputy Director	Major H.E. Kemphorne.D.S.O., (1) & (2)	600	Dy. £60, H.A. £.80 & T.A. Rs.4-p.d.	8.12. 1911	19. 5.1914		
Asst. Director	Major D. Cree.R.E., M.C.	525	Nil	29. 4. 1914	29. 4.1914	Free Quarters Temp. with Army in Europe.	
6. Surveyors	2nd Cpl. F.G. Loxton.R.E.(2)	250	H.A. £.40	29.12. 1911	29.12.1911		
	Cpl. A.R. Turner.R.E. (2)	250	" " £.40	15. 6. 1912	15. 6.1912		
	2nd Cpl. H.O. Jones.R.E.(2)	215	" " £.40	27. 1. 1913	27. 1.1912		
	L.Cpl. P.W. Shields.R.E.(2)	215	" " £.40	24. 1. 1913	24. 1.1913		
	L.Cpl. C.W. Bird.R.E. (2)	215	" " £.40	15.10. 1913	15.10.1913		

- (1) Pensionable.
- (2) Seconded for Military Service.
- (3) Ag. Office Superintendent.

Note: H.A. = House Allowance  
T.A. = Travelling Allowance  
Dy = Duty Allowance.

TABLE 1 (a)

Continued.

Office	Name	Salary	Allowance	Date of first Appointment.	Date of present Rank	Remarks.
<u>CADASTRAL BRANCH.</u>						
Deputy Director	A.E. Townsend (1)	500-25-500	By 450 & T.A.Rs.4.	12. 7. 1905	28.12.1908	Free Quarters.
Asst. Dir.	T.H. Galbraith (1 & 2)	400-20-500	By 440, H.A. 500 & T.A.Rs.4.	18. 7. 1905	28.12.1908	Temp. with Army in Europe.
<u>SURVEYORS.</u>						
District (3)	G. Woodruff (3)	500-20-550	Nil	13. 9. 1906	1. 7. 1910	
	A.G. Baker	...	...	26. 8. 1907	14. 4. 1912	
(1)	C.G. Gilbert (2)	...	...	19. 9. 1912	1. 2. 1913	
	Vacant	400-20-500	...			
Senior Staff (5)	F.S.G. Molony	455-15-505	...	22. 1. 1912	1. 2. 1913	
	A. Bessler	...	...	17.12. 1906	1. 4. 1914	
	C.T. Cogle	...	...	17. 7. 1912	1. 4. 1914	
	F.B. Sallenden (2)	...	...	12. 8. 1912	1. 4. 1914	
(3)	F.V.E. Flint (2)	...	...	18. 1. 1915	16. 1. 1915	
	W. Gemmill (2)	425-15-475	...	12.10. 1914	1. 7. 1915	
	W.H. Sainsbury	...	...	10. 2. 1915	10. 2. 1915	
	Vacant	...	...			
Junior Staff (8)	J. Marsengo	410-10-450	...	1. 4. 1907	1. 4. 1907	
	E.V. Nelson (2)	...	...	9. 4. 1913	9. 4. 1913	
	C.K. Taylor (2)	...	...	1. 9. 1910	16. 1. 1914	
	S.H. Ramsey (2)	...	...	12. 8. 1912	1. 2. 1913	
	G. Taylor (2)	...	...	9. 1. 1912	1. 4. 1914	

(1) Pensionable

(2) Seconded for Military Service.

(2) Acting Asst. Director of Surveys, G.S.R.

Note:-

H.A. = House Allowance

T.A. = Travelling Allowance

Dy = Duty Allowance.

TABLE I (a)

Continued.

Office	Name	Salary	Allowance	Date of first Appointment	Date of present rank	Free Quarters.
	<b><u>SURVEYORS. Contd.</u></b>					
Junior Staff.						
(4)	I. Lewison (2)	410-10-400	Nil	1. 2. 1911	1. 4. 1914	
	L.C. Wright	...	...	21. 4. 1912	1. 4. 1914	
	M.W. Hayes	...	...	12. 10. 1911	2. 1. 1915	
	A.G. Stevens (2)	370 10 420	...	18. 6. 1912	21. 7. 1915	
	W.F. Low	...	...	1. 2. 1907	22. 6. 1915	
	C.H.V. Hall (2)	...	...	10. 9. 1912	1. 12. 1915	
	Vacant	...	...			
Asst. Jr. Staff						
(10)	S. B. Willis (2)	220	...	5. 8. 1914	5. 8. 1914	
	W.C. Tappin	220	...	14. 9. 1911	14. 9. 1911	
	G.B. Campbell (2)	220	...	1. 12. 1914	1. 12. 1914	
	V. McInerhill (2)	220	...	21. 11. 1914	21. 11. 1914	
	H.V. Blackston (2)	220	...	12. 8. 1912	17. 8. 1915	
	H.C. Reichenbach (2)	220	...	1. 5. 1914	1. 11. 1915	
	J. Robinson (2)	220	...	22. 2. 1915	19. 6. 1915	
	H.L.A. Tonnet	220	...	14. 5. 1914	1. 4. 1915	
	Vacant	220	...			
	Vacant	220	...			
Indian						
4th Grade	Abdul Quadir Khan	RS20-120 p.m.	H.A. RS20,	27. 6. 1907	27. 6. 1907	
Do	S.S. Kabir Shah	" "	Nil	28. 11. 1912	28. 11. 1912	
Do	Mansoor Din	" "	...	15. 10. 1912	15. 10. 1912	
Do.	C.H. Isaacs	" "	...	15. 1. 1917	15. 1. 1917	
Natives Assl.	A. J. FARRAR	RS-50 p.m.	Nil	1. 5. 1911	1. 5. 1911	

(2) Seconded for Military Service.

TABLE I (a).

Continued.

Office	Name	Salary	Allowance	Date of first Appointment	Date of present rank	Remarks
	<u>ACCOUNTING OFFICE.</u>					
Chief Computer	J. H. Williams (1)	180-20-400	H.A.L.50	10. 8. 1909	1. 3. 1910	
Computers (10)	A. E. Adams	50-80-850	H.A.L.60	9.11. 1911	9. 11. 1911	
	S. H. Mc Ewen (3)	4. . . . .	. . . . .	20.12. 1911	20. 12. 1911	
	F. J. Coe (2)	. . . . .	. . . . .	9. 1. 1912	1. 4. 1912	
	H. Mc Thornhill (2)	. . . . .	. . . . .	14. 6. 1910	1. 4. 1912	
	H. Hops	. . . . .	. . . . .	20. 6. 1914	20. 6. 1914	
	F. G. Kirse	. . . . .	. . . . .	17. 8. 1914	17. 8. 1914	
	J. W. Walker (2)	. . . . .	. . . . .	6. 8. 1914	6. 8. 1914	
	W. Woods (2)	. . . . .	. . . . .	6. 8. 1914	1. 4. 1915	
	Vacant	. . . . .	. . . . .			
	Vacant	. . . . .	. . . . .			
Pupil Draughtsman Clerk	T. Davidson (2)	48	Nil	19. 2. 1915	19. 2. 1915	
	S. P. O'Farrell	180-16 tri- annually-206	H.A.L.40	14. 8. 1915	14. 8. 1915	
	<u>DRAWING OFFICE.</u>					
Chief Draughtsman	C. J. B. Panting (1 & 2)	250-20-350	H.A.L.60	15. 8. 1908	15. 8. 1908	
Draughtsmen (9)	W. W. B. Ritching	180-16 tri- annually-206	H.A.L.40	25. 2. 1914	25. 2. 1914	
	J. Downey	. . . . .	. . . . .	20. 5. 1914	20. 5. 1914	
	C. C. Simpson (2)	. . . . .	. . . . .	5. 8. 1914	5. 8. 1914	
	H. C. Walsh (2)	. . . . .	. . . . .	10. 9. 1913	10. 9. 1913	
	H. H. S. Barry (3)	. . . . .	. . . . .	10. 10. 1914	10. 10. 1914	
	F. J. E. Wood	. . . . .	. . . . .	20. 8. 1915	20. 8. 1915	
	Vacancy	. . . . .	. . . . .			
	Vacancy	. . . . .	. . . . .			
	Vacancy	. . . . .	. . . . .			
Draughtsman for Public-Works Office	F. G. Robinson	. . . . .	. . . . .	1. 9. 1913	1. 9. 1913	

TABLE I (a)

Continued.

Office	Name	Salary	Allowance	Date of first Appointment	Date of present rank	Remarks
	<u>DRAWING OFFICE. Contd.</u>					
Tracer	A. I. Bux	Rs45-120 p.m.	H.A.Rs.20	15. 8. 1904	15. 8. 1904	
"	Behari Lal	.. ..	" Rs.2	1. 8. 1903	1. 8. 1903	
"	I. Masudin	.. ..	Nil	24. 1. 1912	24. 1. 1912	
"	Fateh Mahomed	.. ..	"	24. 6. 1912	24. 6. 1912	
"	Ami Chand	.. ..	"	1. 8. 1912	1. 8. 1912	
"	Hyat Mahomed	.. ..	"	1. 12. 1915	1. 12. 1915	
"	C. B. Asin	.. ..	"	7. 12. 1915	7. 12. 1915	
"	S. Ghandi	.. ..	"	8. 1. 1917	8. 1. 1917	
"	S. T. Patel	.. ..	"	15. 12. 1916	15. 12. 1916	
"	Pashawari Lall	.. ..	"	15. 1. 1917	15. 1. 1917	

TABLE I (b)  
 List of Qualified Surveyors who have obtained  
 License to survey in the East Africa Protectorate.

361

Name	Date of License.
F.A. Van Breda	March 28th, 1904
J.H. Gailey	...
D.O. Roberts	...
J.A. Coryell	May 18th, 1905
A.S. Frow	April 9th, 1906
A.A. Ortlepp	April 30th, 1906
E.R.A. O'Meara	July 24th, 1906
F.H. Jordan	August 21st, 1907
V.H. Webber	October 4th, 1907
F.W. Lind	June 3rd, 1910
W.M. Nightingale	May 1st, 1911
T.J. Murray	November 10th, 1911
J.C. Coverdale	December 13th, 1911
H.H. Shaw	March 27th, 1912
E.G.H. Kohler	April 22nd, 1912
W.E. Kolbe	August 17th, 1912
A.H.F. Duncan	September 10th, 1912
W.G. Stanley	December 12th, 1912
M.H. Smith	December 21st, 1912
E.A. Leonard	March 27th, 1912
R. Pizzighelli	March 27th, 1912
W. St. C. Brockway	April 20th, 1912
W. Gemmill	April 20th, 1912
F.E. Buckman	April 20th, 1912
W.H. Sainsbury	August 1st, 1912
E. Spence	August 10th, 1912
F.W.H. Flint	September 5th, 1912
F.H. Tophar	October 6th, 1912
G.C. Cakes	August 10th, 1912
G.T. Cogle	March 5th, 1917
L.C. Wright	April 24th, 1917.

TABLE II.  
COST OF SURVEY DEPARTMENT FOR YEAR ENDING 31st MARCH, 1917.

PERSONAL EMPLOYMENTS.	ESTIMATES		EXPENDITURE.	
	£.	5s.	£.	5s.
SUPERINTENDING STAFF.		2,322		2,322
TRIGONOMETRICAL & TOPOGRAPHICAL BRANCH.		2,305		2,305
CADASTRAL BRANCH.	14,494		12,297	
COMPUTING OFFICE.	4,310		2,740	
DRAWING OFFICE.	2,030	21,234	2,307	12,000
Total Personal Employments.		27,121		27,121
OTHER CHARGES.		12,104		4,002
Grand Total.		40,225		27,000
Comparative annual accounts for year ending March 31st	1912	29,125		29,000
	1913	44,023		22,000
	1914	22,222		22,122
	1915	30,000		29,722
Note:-	1912			21,222
	1911	24,000		20,722
	1911	22,222		21,722
	1910	21,721		19,000
	1909	21,722		19,000
	1908	17,000		19,000
The actual amount spent on Coast Land Settlement Surveys £.s.5d.				

TABLE III.  
EXPENDITURE AND REVENUE.

Year Ending March 31st	Trio and Two-Branch		Cadastral Branch		Revenue
	Estimated Expenditure	Actual Expenditure	Estimated Expenditure	Actual Expenditure	
	£.	£.	£.	£.	£.
1905	8,508	8,087	12,347	12,028	2,308
1906	8,416	8,487	12,049	12,177	800
1910	8,029	8,571	12,084	12,161	1,428
1911	8,797	7,348	12,738	12,460	4,787
1912	8,846	8,790	16,280	14,808	2,028
1913	8,726	8,078	22,025	21,867	1,100
1914	8,321	7,888	24,106	24,872	4,028
1915	8,842	8,207	26,080	27,422	1,128
1916	8,804	8,788	21,161	22,110	200

SURVEY DEPARTMENT

Year Ending 31st March	Estimated Expenditure	Actual Expenditure	Revenue
	£.	£.	£.
1917	40,206	27,298	428.

DETAIL OF REVENUE 1917.

Survey Fees	£.
	218
Sale of Maps	108
Sale of War Office Maps	16
Total	<u>428</u>



TABLE IV.  
 COMPARATIVE ANNUAL STATEMENT OF COST OF SURVEY.

Year ending March 31st.	Triangulation Shillings per square mile.	Topography Shillings per square mile.	Cadastral Surveys Pence per acre.
1908.	14.3	...	2.71
1909.	11.6	...	3.73
1910.	14.6	16.2	8.61
1911.	8.6	6.5	5.21
1912.	13.4	11.0	6.36
1913.	6.8	8.0	4.51
1914.	7.3	10.4	6.08
1915.	5.9	...	6.15
1916.	...	...	12.18
1917.	...	....	11.80

TABLE V.  
COMPARATIVE ANNUAL STATEMENT OF TRIANGULATION.

Year ending	No.	MAJOR TRIANGLES		No.	MINOR TRIANGLES	
		Average triangular error, seconds.	Area in sq. miles		Average triangular error, sec. ss.	Area in sq. miles
1908	30	1. 77	7,330	102	3.51	3,010
1909	27	1. 11	5,634	6	1.26	600
1910	26	1. 46	736	20	2.68	1,117
1911	26	1. 69	4,321	75	3.02	4,339
1912	18	1. 08	2,628	22	3.10	2,016
1913	55	2. 73	3,300	20	3.72	1,323
1914	53	2. 16	7,622	20	3.79	2,300
1915	7	2. 20	773	1	1.40	85
1916	.	.. ..	...	.	.. ..	..
1917	.	.. ..	...	.	.. ..	..

TABLE VI.

## COMPARATIVE ANNUAL STATEMENT OF TOPOGRAPHY.

Year ending March 31st	Scale 1/62500 sq. miles	Scale 1/125000 sq. miles	Scale 1/250000 sq. miles	Remarks.
1907	...	...	2,222	Lumber, good reconnaissance only
1908	447	...	...	Uasin Gishu, good reconnaissance only.
1908	631	...	...	do do do
1909	242	...	...	Nairobi.
1910	464	...	...	Malindi.
1910	...	2,242	...	Kisumu, Bungoma and Takasungu.
1911	683	...	...	E.W. of Nyeri. Published on 1/125000 scale.
1911	...	1,987	...	Nakuru, E.W. of Nyeri and Fort Hall.
1911	...	...	3,576	Rumuruti and Naivasha; and 4,900 sq. miles reconnaissance E. of Kenya.
1912	...	1,081	...	Coast, Trans Ezoia and 300 sq. miles reconnaissance in MARAGET.
1912	...	...	8,220	Coast E. of Mombasa, Kilom and Uasin Gishu.
1912	...	1,188	...	Ol Doinyo Sabuk.
1912	...	...	15,800	Machakos's, Maringo (northern 1/2 sheet), Uasin Gishu (1/2 sheet), Mombasa (1/2 sheet) and 1,000 sq. miles reconnaissance E.E. of Kibeezi.
1914	...	350	...	North Kenya.
1914	...	720	...	Coast Survey Tang River.
1914	...	...	3,000	Environment, Elmal and Kenya.
1915	...	...	1,800	Lumwa and Optik.
1916	...	...	...	Nil
1917	...	...	...	Nil

## LIST OF PUBLISHED TOPOGRAPHICAL MAPS.

Date	Scale	Description
1907	1/100,000	Anglo German Boundary.
1909	1/250,000	Reconnaissance Lumbwa-Sotik.
1910	1/62,500	Five Maps Usain Gishu.
	1/62,500	Nairobi Sheet.
	1/125,000	Sheet South A.37/G.2 Nairobi.
	1/62,500	Malindi Sheet.
1911	1/125,000	South A.37/V.2 Manges.
	1/125,000	South A.37/V.4 Takaungu.
	1/125,000	South A.37/A.4 Niandarawa.
1913	1/250,000	Provisional South A.37/U Vol. (2/E4.)
1913	1/125,000	South A.37/A.1 Nakuru.
	1/125,000	South A.37/B.2 Fort Hall.
	1/125,000	South A.37/A.2 Nyeri.
	1/250,000	Provisional North A.37/I Meru.
	1/250,000	Provisional South A.37/E Kenya.
	1/250,000	Provisional South A.37/C Mansola.
	1/250,000	South A.37/H Mwachakos. Provisional.
	1/250,000	Provisional South A.37/I Kitui.
	1/250,000	Provisional South A.37/H Makindu.
	1/250,000	Provisional South A.37/O Yatta Plateau.
1914	1/250,000	South A.37/A Nakuru and Naivasha.
	1/250,000	North A.37/S Baringo.
	1/250,000	North A.37/Q Eigan. Provisional.
	1/250,000	North A.37/X Usain Gishu.
	1/250,000	South A.37/D Mombasa.
	1/250,000	South A.37/V & W Mackinnon Road-Malindi.
		Provisional.
	1/250,000	North A.37/R Sekerr. Provisional.
1916	1/1,000,000	North A.37 & part of A.38 Marsabit.
	1/1,000,000	South A.37, A.38 & part of B.37 Mombasa-Nairobi
1916	1/250,000	South A.37/H Mwachakos.
	1/2,000,000	East Africa Protectorate. General Plan.
	1/250,000	South A.37/E Karungu. Provisional.
	1/250,000	South A.37/F " " "
	1/250,000	North A.37/W Muias.
	1/250,000	Nagadi District.

## TAIL OF CADASTRAL SURVEYS FOR YEAR ENDING 31st MARCH, 1917.

Description	No.	Acres
Agricultural & Grazing Farms & Concessions and Original surveys cut up into smaller areas	62	170,807
Reserves.	20	8,122
Resurveys and Revised Surveys.	21	60,248
Township Plots (Govt. & Private & Locations.)	280	682
Road Surveys.	4	5
Forest Surveys.	-	-
Township Contour Surveys	2	217
Check Surveys	26	-
Private subdivision of Farms into smaller areas.	128	77,742
Govt. & Private subdivision of township plots & locations	1,216	326
East Land Surveys. Malindi Swabab.	-	-
" Mombasa Mainland.	-	-
" Jubaland	1	14,772
" Tanaaland	218	1,082
" Mombasa Island	80	211
" Reserves.	2	166
" Demarcations	622	5,822
Total	2,440	238,165

TABLE VIII (b).

## MISCELLANEOUS SURVEYS 1916-1917.

Class of Survey	Area Acres	Length of Traverse	Remarks.
Langulation	- ?	-	-
cidental traverses	- ?	22,200 ft	?
ane Table Surveys	-	-	-
pection & Sundry Surveys	-	-	twelve

TABLE II.

## COMPARATIVE ANNUAL STATEMENT OF CADASTRAL SURVEYS ORDERED AND COMPLETED.

Year ending March 31st.	Surveys completed between April 1st and March 31st.		Surveys ordered but not completed on March 31st. Acres.
	No. of areas.	Total acreage.	
1908.	1,182.	322,760	280,000
1909.	224.	1,161,522	280,000
1910.	208.	552,261	312,000
1911.	482.	424,252	1,212,000
1912.	1,024.	690,222	1,202,727
1913.	976.	1,022,022	1,720,202
1914.	2,042.	1,202,212	2,422,472
1915.	1,227.	1,224,272	1,222,222
1916.	2,002.	414,222	1,472,221
1917.	2,420.	222,122	1,177,022.

MISCELLANEOUS MAPS AND PLANS MADE AND ISSUED FOR YEAR  
ENDING 31st MARCH 1917 WITH COMPARISON WITH PREVIOUS YEARS.

	No.	Approx Value £.
<b>CONVEYANCE &amp; OCCUPATION LICENSE PLANS.</b>		
1. To Conveyance Land Office Deed Plans	1,602	462
2. To " Occupation License Plans	12	2
3. To Recorder of Titles' Deed Plans	257	66
4. To Public	52	20
<b>MISCELLANEOUS MAPS &amp; CADASTRAL SHEETS.</b>		
1. To Government Departments.	1,796	269
2. To Military	148	18
3. To General Public.	692	77
<b>WAR OFFICE MAPS.</b>		
1. To Government Departments.	560	50
2. To Military	84	6
3. To General Public.	120	17
<b>Total.</b>	<b>5,122</b>	<b>1,002</b>
	1916	1,178
	1915	1,264
	1914	1,222
	1913	1,022
	1912	1,042
	1911	212
	1910	622
	1909	522
	1908	222

Note:-

See separate list of Maps issued  
to Military Departments in S.E.A.  
Campaign (not included in this Table.)

LIST OF MAPS ISSUED TO MILITARY DEPARTMENTS  
FROM JANUARY 1916 to MARCH 31st 1917.  
No. S.E.A. CAMPAIGN. (Not included in TABLE X).

Description	No.
War Office Maps (Military Stock)	66,110
Lithos. (Topographical Section)	18,765
Total	<u>84,875</u>



TABLE XI

## LEAVE OF STAFF OF SURVEY DEPARTMENT 1916-1917.

Name	Rank	From	To
Y. E. Galbraith	Asst. Director of Surveys. C. Mr.	10th December, 1916	31st March, 1917
F. S. O'Molony	Senior Staff Surveyor	15th October, 1916	31st March, 1917
L. C. Wright	Junior Staff Surveyor	1st April, 1916	30th May, 1916
F. G. Kinnella	Computer	23rd December, 1916	31st March, 1917
H. L. A. Tonnet	Asst. Junior Staff Surveyor	26th January, 1917	31st March, 1917
W. W. B. Kitching	Draughtsman	15th October, 1916	31st March, 1917
H. Vickerstaff	Clerk	26th November, 1916	31st March, 1917
Azis Bux	Tracer	7th December, 1916	31st March, 1917
Abdul Quadir Khan	Indian Surveyor	10th January, 1917	31st March, 1917
Asif Chand	Tracer	7th December, 1917	31st March, 1917
Fattah Hanood	Tracer	20th September, 1916	31st March, 1917

Note:- Leave granted to Mr. W. E. Low, Junior Staff Surveyor, to be spent in the Country, from 1st March to 31st March, 1917.

TABLE III.

PROMOTIONS, NEW APPOINTMENTS AND RESIGNATIONS 1916-1917.

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PROMOTIONS.

V. Woods to Computer  
H.L.A. Tonnet to Asst. Junior Staff Surveyor

NEW APPOINTMENTS

Nil.

LEFT DEPARTMENT (temporarily)

T. M. Galbraith, Asst. Director of Surveys. C.Br. joined forces in Europe.  
H. Vickerstaff, Clerk, joined forces in Europe.

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TABLE XII (a)

DEATHS.

Captain H. N. Surgey, Arab Rifles, killed in action in local war.

## COMPARATIVE TABLE SHOWING TIME SPENT BY DRAWING OFFICE ON CIVIL AND MILITARY WORK.

Name	Time spent on Office	Time spent on Military	VERTICALS		Sick leave	Leave	Total hours actually including Overtime	Total of normal hours possible.	Remarks
	1.	2.	3.	4.	5.	6.	7.	8.	
C. Panting (C.D.)									Mobilised as Lieut. R.A.R. on 29.1.17.
A. Beasler	1711	18	2	3	-	-	1731	1726	
F. G. Robinson	1077	849	28	492	-	-	2046	1726	
E. E. Kitching	826	24	2	3	34	34	899	828	On leave 15.10.16
C. C. Simpson	410	444	-	10½	26	-	834½	892	Mobilised. 7.10.16.
J. Downey	1680	8	-	2	24	16	1689	1726	
R. H. S. Farry	722	30	2	-	74	-	764	826	Discharged. Mil. Serv. 7.10.16
J. F. O'Farrell	1353	-	20½	2	224	149	1451	1726	
F. J. E. Wood	1486	12	-	4½	258	-	1472½	1726	
Woods W.	108	-	-	-	-	-	108	108	Discharged for Mil. Serv. 10.1.17 Transferred to C. Col. 2.17.
ALIZ BAK	1116	10	2½	6½	40	12	1125	1164	On leave 7.12.16.
F. Mahomed	266	422	10	147	-	12	857	822	On leave 21.9.16.
Imamuddin	1652	20	52	2	10	44	1732	1726	
Behari Lal	1665	18	10	10	3	37	1703	1726	
Ami Chand	909	276	-	2	-	-	1187	1164	On leave 7.12.16.
Kyat Mahomed	1866	27	-	8	32	74	1820	1721	
C. B. Amin	1068	-	-	-	-	6	1068	1092	Comm:work 16.8.16
Fashawari Lal	366	-	-	-	-	6	366	362	Do do 17.1.17.
B. T. Patel	498	-	-	-	-	6	498	502	Do do 15.12.16.
H. L. Chandi	408	-	-	-	-	6	408	414	Do do 3. 1.17.

During period employed as Curator of Records.

List of Civil Servants at present serving in the  
 military capacity, and also at said time, and  
 for that period.

Name & Designation in military capacity.	Unit	Designation in Civil Party.	Period of Military Service.	Approximate Amount Paid.
<u>Superintending Staff.</u>				
Major E. N. P. I. King, R.E.	General Staff	Director of Surveys	One Year	1,000
Captain A. Rees	R.A. Coy	Office Superintendent	One Year	1,000
H. Vickerstaff	2nd Signallers	Clerk	One Year	40
C. S. Sore	R. A. S.	Clerk	One Year	40
<u>Trig. &amp; Topo Branch.</u>				
Major H. S. Leontovitch, R.E.	Staff Officer to Brigadier General, R.E.	Deputy Director, R.E.	One Year	10,000
Major D. Cree, R.E.	Royal Engineers	Asst. Dir. for T & F.	One Year	7,000
Lieut. A. R. Turner, R.E.	R. A. P. Coy	Surveyor I & I.	One Year	4,000
Lieut. H. O. Jones, R.E.	Do do do	Surveyor I & I.	One Year	4,000
Serjt. F. R. Hatfield, R.E.	Do do do	Surveyor I & I.	One Year	2,000
Serjt. C. W. Bird, R.E.	Do do do	Surveyor I & I.	One Year	2,000
			Carried Forward	24,000

Name & Description of Military Capacity.	Unit	Description of Civil Duty.	Period in Military Duty.	Approximate amount paid, \$.
Amount forward.				\$1,800
<u>Canadian Branch.</u>				
I. B. Cairns (Lieut.)	Force Intelligence	Asst. Director C.R.	9 months	7,052 50
C. G. Gilbert (Lieut.)	Force Intelligence	District Surveyor,	9 months	6,075
F. F. McInt (Tpt. Lieut.)	Force Intelligence	Senior Staff Surveyor	12 months	7,050
S. F. Ramsey (Capt. Lieut.)	Military Engineer	Senior Staff Surveyor	12 months	6,450
F. A. Nelson (Mech. Lieut.)	Force Intelligence	Senior Staff Surveyor	12 months	6,450
C. F. Taylor (Trooper)	Force Intelligence	Junior Staff Surveyor	12 months	6,450
C. J. V. Bell (Trooper)	Force Intelligence	Junior Staff Surveyor	12 months	5,560
G. Taylor (Despatch Rider)	Force Intelligence	Junior Staff Surveyor	12 months	6,450
I. J. Wilson (Trooper)	Force Intelligence	Junior Staff Surveyor	7 1/2 months	4,031 25
H. M. Harvey (Capt.)	Force Intelligence	Asst. Staff Surveyor	9 months	2,475
H. V. Theakston (Pte)	R.A. Pioneer Corps	Asst. Staff Surveyor	12 months	3,300
H. G. Reichembach (Agent)	Force Intelligence	Asst. Staff Surveyor	12 months	3,300
V. Mc Thornhill (Trooper)	R.A. Pioneer Corps	Asst. Staff Surveyor	12 months	3,300
		Carried forward		

Name & Designation in Military capacity.	Unit.	Designation in Civil Duty.	Period in Military Duty.	Approx. amt. paid.
<u>Spot: forward.</u>				12,145-75
<u>Cadstral Branch.</u>				
AG. Stevens, Lieut.	Uganda Police, S.M.	Junior Staff Surveyor.	9½ months	4,362-75
S.S. Willis. Desp. Rider.	*2 <sup>d</sup> Signallers.	Asst: " " "	6 "	1,650-00.
<u>Computing Office.</u>				
J.F. Walker. Gunner.	Calcutta Vol Battery.	Computer.	12 "	5,250-00.
H. McTherhill. Tpr.	R.A. Pioneers (Mtd.)	"	12 "	5,650-00.
F.J. Godden. Pioneer.	R.A. Pioneers.	"	12 "	5,650-00.
T. Davidson. Gunner.	R.A. Maxims.	Pupil.	12 "	720-00.
<u>Drawing Office.</u>				
G.J.A. Panting. Lieut.	R.A.R.	Ch: Draughtsman.	2 "	1,000-00.
H.C. Walsh. Sergt.	Royal Engineers.	Draughtsman.	12 "	3,225-00.
W. Woods. Tpr.	R.A.M.R.	"	9 "	4,650-00.
C.C. Simpson. Pnr.	R.A. Pioneers.	"	6 "	1,500-00.
R.H.S. Parry. Pnr.	"	"	6 "	1,500-00.
			Grand Total	Rs. 157,422-50