

[Handwritten text in various orientations, including "this direction would...", "gypt, the question...", "Rough Notes to...", "System of...", "already...", "their control over...", "to den...", "read...", "aim consisted...", "be elected from...", "annated in various...", "ated by the E...", "ality was to be...", "rovide for the rev...", "ected represent...", "As app...", "fficultie...", "andi...", "and considering...", "not based...", "as festa...", "allinon...", "ink...", "aperi...", "ass int...", "this direction would...", "gypt, the question...", "Rough Notes to...", "System of...", "already...", "their control over...", "to den...", "read...", "aim consisted...", "be elected from...", "annated in various...", "ated by the E...", "ality was to be...", "rovide for the rev...", "ected represent...", "As app...", "fficultie...", "andi..."

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C0533/374

ORDER NO. → FN/E207

CAMERA NO. → 19

OPERATOR. → SP

REDUCTION. → 12

EMULSION NO. → 321022

DATE. → 29/2/72

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8 119 (contd)

DIE, contd.

The "stack" method of procedure was adopted (vide para 102)

8 120 "100 Kms."

Lt. Col. King & Capt. Clifford shared observing and booking.

LAT. - British, 5 prs, range 04.24

LONG. - British, 2 sets, range 00.01 Secs

AZ. - British, 3 prs, range 13"

Observations were made at the head of the demarcation "cut". This latter was found to be slightly out of position, and instructions were given to the demarcation and survey party whereby true position and alignment would be recovered in 10 Kilometres.

The Italian Mission did not participate.

8 121. "LIBOI Road."

Lt. Col. King and Capt. Clifford shared observing and booking.

LAT. - British, 7 prs, range 05.23

LONG. - British, 2 sets, range 00.05 Secs

AZ. - British, 3 prs, range 7"

The Italian Mission did not participate.

The "stack" method of procedure was adopted (vide para 102.)

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§ 119. (contd)

DIF (contd)

The "stock" method of procedure was adopted (vide para. 102)

§ 120. "100 Kms."

Lt. Col. King & Capt. Clifford shared observing and booking.

LAT - British, 5 prs., range 04."4
LONG - British, 2 sets, range 00.01 Secs.
AZ - British, 3 prs., range 13"

Observations were made at the head of the demarcation line. This latter was found to be slightly out of position and instructions were given to the demarcation and survey party whereby true position and alignment would be recovered in 10 Kilometers.

The Italian Mission did not participate.

§ 121.

"LIBOF 8000"

Lt. Col. King and Capt. Clifford shared observing and booking.

LAT - British, 7 prs., range 05."3
LONG - British, 2 sets, range 00.05 secs
AZ - British, 3 prs., range 7"

The Italian Mission did not participate.

The "stock" method of procedure was adopted.

(vide para. 102.)

§ 119. (contd)

DIF. contd)

The "stock" method of procedure was adopted (vide para. 102).

§ 120. "100 Kms."

Lt. Col King & Capt Clifford shared observing and booking.

LAT - British, 5 prs, range 04 "4
LONG - British, 2 sets, range 00.01 Secs.
AZ - British, 3 prs, range 13"

Observations were made at the head of the demarcation line. This latter was found to be slightly out of position and instructions were given to the demarcation and survey party whereby true position and alignment would be recovered in 10 Kilometers.

The Italian Mission did not participate.

§ 121.

"LIBOZ"

Lt. Col. King and Capt. Clifford shared observing and booking.

LAT - British, 7 prs, range 05 "3
LONG - British, 2 sets, range 00.05 secs
AZ - British, 3 prs, range 7"

The Italian Mission did not participate.

The "stock" method of procedure was adopted.

(vide para. 102.)

§ 122. TABDA. -

Lt. Col. King & Capt. Clifford shared
observing and booking.

LAT - British, 1 pr.

LONG - British, 1 set.

The Italian Mission observed rough corroborative
values.

The fixation of this point was made as a control
for compass and sound traverses.

§ 123. RAMA GUDA.

Lt. Col. King and Capt. Clifford shared
observations and booking.

LAT - British, 5 prs., range 02."1.

Br. val - It. val = + 02."90

LONG - British, 2 sets, range 00.07
secs.

Br. val - It. val = - 00."27

AZ - British, 3 prs. range 7"

The "stock" method of procedure was
adopted (vide para. 102)

§ 124. DADO HARE.

A fixation of this place was made by the Italian
Mission without the participation of the British Mission,
but no evidence was supplied whereby the accuracy of the
work could be gauged. The resulting values were used
as a control for compass traverses.

§ 125. WAR DOD.

Lt. Col. King and Capt. Clifford shared observing and booking.

LAT. - British, 2 prs., range 01."1

LONG. - British, 1 set.

The Italian Mission did not participate.

The fixation of this point was made as a control for compass and sound traverses.

§ 126. DAMBALA.

Lt. Col. King and Capt. Clifford shared the observing and booking.

LAT. - British, 6 prs., range 02."4

LONG. - British, 2 sets, range 00.10.secs.

A Z - British, 2 prs., range 2"

The Italian Mission did not participate.

The "stock" method of procedure was adopted.

(vide para. 102)

§ 127. SARA and ZERO CINQUANTA.

Lt. Col. King and Capt. Clifford shared the observing and booking.

LAT. - British, 5 prs., range 01."2

Br. val. - It. val. = + 03."29

LONG. - British, 4 sets, range 00.40.secs.

Br. val. - It. val. = + 00."22

AZ - British, 2 prs., range 11"

The above-mentioned observations were made at SARA.

A theodolite traverse, about 1 1/2 miles in length was then

§ 127 (contd)

made for the purpose of establishing the pivotal point,
ZERO CINQUANTA.

As it was thought that the value of the azimuth
might have been lost in the course of the traverse, the
British Mission observed for azimuth again at the
pivotal point, the 2 pairs using a range of 16°.

Alignment pickets were then laid out for
subsequent demarcation towards the north and also
towards the south.

§ 128

WALA LDU

Lt. Col. King & Capt. Clifford shared
observing and booking.

LAT. - British, 2 prs., range 01."2

Br. val - It. val = + 00."01

LONG. - British, 1 set.

Br. val - It. val = + 05."25

The fixation of this point was made as a station
for compass and ground traverses.

§ 129

DID BANGA

Lt. Col. King & Capt. Clifford shared
observing and booking.

LAT. - British, 7 prs., range 01."6

LONG. - British, 3 sets, range 00.22 secs.

A Z - British, 3 prs., range 2"

§ 129. (contd.)

The Italian Mission did not participate. The observations were made at the head of the demarcation "cut". The latter was found to be so nearly correct in position and azimuth that no change was made.

§ 130. Control of Heights.

Three aneroid barometers were set at NAIROBI and carried directly by motor car to WAKER. One ceased to function on arrival, but the other two behaved normally, and 6 sets of readings taken over a period of 5 days gave the height of WAKER as 14,000 feet. All heights on the boundary were based on this determination.

§ 131. Wireless Telegraphy.

Wireless Telegraphy was employed mainly for the reception of the long wave time signals, but also for press, and latterly for the interception of telegrams addressed to the Commission.

At various times nearly all the high power stations in the world were picked up.

The time signals employed throughout were the rhythmic series of PARIS OBSERVATORY transmitted by BORDEAUX (LY). These fitted in very conveniently at about 22h. 50 L.M.T. in the middle of astronomical

observations, with the result that it was possible to eliminate all consideration of the rate of the chronometer; while the morning signals provided a most convenient check on the chronometer. These were also the strongest time signals emitted from any station.

The series transmitted by LYON (YN) were tried several times in 1925, but were weaker. They were discontinued in 1926.

Those from NAUEN (POZ) were tried, but were inconvenient, as at 14h 30 L.M.T. interference from atmospheric was often considerable, and by 2h 30 astronomical work was long since over.

The new procedure introduced by PARIS OBSERVATORY in 1926 was a marked improvement on the former system. Reception and comparisons were facilitated, while computations were considerably simplified.

For convenience in picking up signals, a half-chronometer watch was kept at G.M.T.

In the earlier stages of the work, time signals were taken in the operator's tent. But, as this meant carrying the chronometer backwards and forwards from the astronomical station in the middle of observations, a 100 ft. head-phone lead was later utilised to enable the signals to be received at the Booker's table without moving the chronometer.

The regularity and strength of the BORDEAUX

time signals deserve comment. Only on one occasion did they fail to come through, on the night of 9.2.1926 probably due to a fault on the land line between PARIS and BORDEAUX.

These signals could generally be heard clearly with the phones laid on the table, while on numerous occasions they were received audibly without using aerial or earth; even in the G.P.O., NAIROBI, though NAIROBI was recently declared by a Wireless Commission to be in a "blind area".

Press was taken daily, when battery power permitted, from RUGBY and NAUEN, both of which transmit in English.

Arrangements were made with the Kenya Postal Service for telegrams addressed to the British Section of the Commission to be transmitted by the MOMBASA Wireless Station. for 3 days in succession at a fixed hour. As this station works at 1200 m. wave-length, a 3-valve receiving set was made up, which intercepted the signals at loud speaker strength, sometimes when being broad-casted for the Commission, and frequently when in normal transit via the KISMAYU wireless station. Considerable time was saved by the reception of telegrams in this way.

Atmospheric were less of an obstacle than had been expected. On only one occasion did they prevent the reception of the time signals.

They were at their worst for about a month prior to the breaking of each rains; but once the rains broke, there was no serious interference.

Atmospherics cont.

From 14h 00 to 22h 00 L.M.T. was the worst period of the day, after which the atmospheric gradually died off, until at 2h. 30 L.M.T. (NAUEN time signals) they were almost nil.

The strength of signals received varied but little from place to place, but was stronger between WAJER and the WEBI DAUA. This may be due to geological reasons, as the WAJER and EL WAK regions are on lime stone, with permanent water within 50 feet of the surface.

Interference with the BORDEAUX-time signals was experienced from RUGBY sending out press at 20h 00 G.M.T. Until the Rhythmic Beats, RUGBY was silent; but simultaneously with the start of the Beats, RUGBY opened up, and, owing to its power and the insufficient difference in wave-length, could not be eliminated, tuning out at such a moment not being feasible. In consequence, the reception both of the Rhythmic Beats and of the press was interfered with.

If RUGBY started earlier, BORDEAUX could be tuned in against him. But, if RUGBY were to start 5 or 10 minutes later, there would be no interference with either set of signals.

Immediately on arrival at an astronomical station,

①
RIVINGTON TIME SIGNAL PROCEEDINGS. 336

RAMA GUDA.

P.M. 7. 10. 1926

16 59 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17 00 26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01 38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02 51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
271	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Chron. T.

H M S	Analysis	Est. No.
16 59 41	37 1/2	33
59 51 1/2	34 1/2	35
17 00 26	36 1/2	37
01 02 1/2	35 1/2	14
01 38	37 1/2	38
02 15 1/2	35 1/2	36
02 51		37

G.S.T. at G.M.S. a	13 01	29-76
A.M. Signal	02 00	02-77
P.S. ...	02 03	29-03
Approx. G.S.T. ...	21 03	48-98
Zero Error (cor.)	+	00-01

Time G.S.T. 21-04-48-27

7) 07 18.5
17 01 02.64

7) 1123
16.14

10.547 Interval

2 1.58 46 83

G.H.S.D.

2 T. 1.58 46 83

10.547 Z

2 1.58 46 83

208 51 = 1.707 57 02

2.207 54 22
158.93

1.701 57 90

G.S.T. of zero

2 02 38.93

21 03 48.99

21 03 48.99

21 03 48.99

Mean Dot Chron. T. of 7

21 06 27.92

G.S.T. of 7

21 04 39.29

17 01 02.64

Chron T. of

16 59 14.00

Mean Chron. Error on G.S.T.

14 05-25-28 slow

14 05-25-29

given by a string of trial dots.

A few seconds previous to receipt of the zero dot, the observer started tapping with a pencil point on the top left hand "0" of the diagram, in time with the chronometer full second ticks, simultaneously counting to himself the value of each tick as it occurred.

In due course the wireless dots began to introduce themselves. The observer continued his automatic behaviour until a synchronisation occurred at 16. H. 59 m. 14 s., when he quickly wrote the figures 14 instead of tapping on this tick. He now made his next tap on the next "0" to the right and continued the motion in that direction; but his taps now occurred with the wireless dots and no longer with the ticks of the chronometer. Simultaneously with the completion of the 10th such movement to the right, a wireless dot was prolonged into a "long dot". This wireless epoch was immediately marked with a "X". The tapping business continued, however, to the end of the line and along the next line until the half second tick of the chronometer synchronised with a wireless dot, when a stroke was made through the corresponding "0". This completed one cycle.

The observer then started another cycle, tapping on the left hand "0" of the third line. Before a synchronisation occurred, the second wireless "long dot"

arrived, and this same "0" was immediately marked with an "X" as a record of the event.

The observer then quickly restarted his tapping and counting on the "0" immediately beneath, being just in time to record the next synchronisation. On this occasion his subsequent taps had to cover the complete line and most of the next before the half second synchronisation occurred, and thence again for another line, before completing the cycle with a wireless "long dot" at "X".

The next cycle was somewhat similar.

The last cycle began on the left hand "0" of the last line but one, and ended on the final "long dot" at "X", the series of dots having been completed before the next half second synchronisation took place.

The next step was to mark up the values of the wireless epochs against each "X", viz. 61, 122, 183, 244 and 305.

The numerical value of each dot of synchronisation was then obtained by counting backwards or forwards from the appropriate "X", viz. 51, 89, 124, 161, 197, 235 and 271. The value of each half second synchronisation was then written against its corresponding stroke, counting

narrative form in Part I.

125. Dividing the boundary line with theodolite.

At each main control point a line of pickets was invariably laid out by the party that fixed the position of the point. These pickets were generally actually in the line of the boundary; but, if not, the value of the swing angle was made available. For sighting purposes, a nail was driven into the head of each picket. When it was desired to throw out more pickets ahead, the following procedure was adopted. The theodolite being centred over the most advanced picket, the telescope was directed at the last two or three pickets, the nails on which should all appear in the same vertical line.

The forward pickets, to the requisite number, were then placed in position. Under the direction of the observer at the theodolite, the telescope was swung through 180° in azimuth, once on each face, and not transited, as a precaution against the introduction of error due to faulty collimation. The setting out of pickets was so arranged that at least two back pickets were available for the alignment of the theodolite telescope.

Taking into consideration the method of survey adopted for the fixation of the main control points, it could not be expected that two demarcation parties approaching each other from opposite directions should exactly meet without some final adjustment of direction. The procedure generally adopted was as follows. When the two parties were separated by about 8 kilometres, a Verry light was fired at night from one of the "out" heads and

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§ 135 (Contd.)

was observed by a theodolite set over one of the alignment pickets near the other "out" head. Then, on the assumption that both parties had been preserving the correct azimuth, both directions were equally deflected in accordance with the angle observed with the theodolite. This procedure was repeated when the "out" heads were about 4 kilometres apart. The final adjustments were made in one or more corrections based on observations to a flag on a tall pole.

§ 136. Linear measurements along the Boundary.

Measurements along the boundary line were all surface measurements, effected with an ordinary steel tape. All crossings of tracks were noted in passage, and these served as a control to the topographical work discussed later.

All these surface measurements were adjusted to agree with the computed distances between the main control points fixed by the Headquarter party.

§ 137. Topographical Traverses.

The ordinary compass sound and wheel traverses were adopted in the first instance for surveying tracks and other topographical detail. The compass was the arm liquid type; the sound was the call of an un-aided human voice; the wheel was provided with a distance recording apparatus. The length of legs depended on the density of the bush and was varied to suit the hearing. These traverses when plotted were adjusted to fit control points. The British M.C.Os., however, soon developed a system which tended to greater speeds.

They first trained themselves to a uniform rate of walking, and then by experiment established a time scale which automatically absorbed the increased length of each leg due to curves met on the track, and allowed them to plot direct on to the field sheets. It was found that the normal traverses fitted the control work without further correction.

In all traverses effected by the Headquarter party, distances were measured by wheel. The system adopted by this party was somewhat novel and is perhaps worthy of record.

The wheel-man was always ahead of the surveyor, and the "shouter" behind him. Each time the surveyor reached the position of halt of the wheelman, he started him again on his forward route with instructions as to what the cyclometer should read at the next halt. He then took his bearing to the "shouter", who stood at the next station behind him. A whistle was the signal for two "shouts", the first to turn the surveyor in the right direction, and the second to enable him to take the compass bearing. If the second shout proved insufficient, another whistle drew forth a third. A double whistle was the signal for the "shouter" to advance. The stations were marked on the ground by the wheelman, in some suitable manner, generally by a cross scratched in the sand or mud.

As the surveyor was mounted on a mule, he was able to overtake the wheelman before each halt; and, as he only delayed him long enough to read the cyclometer and tell him what the reading should be at the next halt, the pace of advance could be regulated to the normal speed of a caravan.

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344
§ 137 (Contd.)

These traverses were usually confined to the surveying of detail within the frontier zone, eight kilometres in total breadth, but they were occasionally of some considerable length, as, for instance, the survey of the LAK DERA between BENANI and A-O, and various surveys extending on both sides of the boundary from ZERO CINQUANTA to the sea. Such traverses rendered the fixation of control points at FARBA, DADO HARE, WAR DOD and WASA IDU of particular value.

The form lines defining the relief of the country were based on barometric heights, corrections being taken from a table prepared by the N.O.Co. after careful observation of the diurnal wave.

§ 138. Plane Table:

This method of survey could not be adopted, except in the hilly country towards the north end of the coastal belt, the flat plains elsewhere rendering it quite inapplicable.

§ 138.1. Division of Demarcation and Survey Duties between the two Missions.

The total length of the boundary is 681 Km. Of this, 407 Km. were demarcated by the British Mission, the remaining 274 Km. by the Italian Mission.

Each Mission made a topographical survey along those portions of the boundary which it demarcated.

Additional survey work was performed as follows:—
by the British Mission—

traverse from WAJER DIMA to EL WAK.

traverses in the area of WAJER BOR.

traverses of the LAK DERA basin from BENANI to A-O.

and

91
245

§ 138.A. (Contd.)

and thence through TABDA, KAMOR JILA, KAWITI to ZERO CINCQUANTAS extensive traverses on both sides of the boundary between ZERO CINCQUANTAS and the sea.

By the Italian Mission:

traverse of the WEBI DANA from MALKA RJE to DOLA.

traverse connecting MALKA RJE - YAQALI - DAMBA - EL WAK.

traverse from SEHENI to EL WAK.

traverse from ARMADU to DIF.

numerous traverses in the area ARMADU - TABDA - KAMOR JILA - YAQALI - DAMBA - EL WAK.

By the
C.I.A.

§ 139. Inaccuracy of existing maps.

The original Treaty map, which embodied the best available information, was very inaccurate in places. WAJER proved to be as much as 14 miles out of position in longitude, SEHENI, 20 miles and ILBOI somewhat less, while DIF was over 14 miles out in latitude. This matter need not, however, be laboured here, as a comparison of the boundary Map, produced by this Commission, with maps of earlier epochs will show.

§ 140. The Boundary "Lane".

This lane, which was cut throughout the length of the boundary, was approximately 12 feet broad and clear of all loose brushwood, but, in the first instance, was not cleared of stumps. However, since the departure of the Commission from Africa, much of the lane has been adapted to a motor road.

The

The method of cutting and maintaining direction varied from time to time, but the following method was introduced later and proved very successful. There were two British N.C.Gs. on the job at the same time. A was in charge of the forward cutting party, whilst B attended to the directing theodolite and the rear cutting party. The controlling idea was that the forward party should be distributed along the line as much as possible, cutting out such scrub and trees as were obviously in the way; and that the rear party should make good the lanes. Distribution naturally involved difficulty of supervision, but a certain amount was essential as the working "face" of the lane was very small.

A was provided with a "flag man" who carried a long bamboo pole surmounted by a piece of white canvas. This man was constantly shifted forward, his position on the line being regulated by the first instance with a compass, and at certain intervals more accurately by B who held his theodolite as far back as possible in order to see over the "over" ahead. The forward cutting party was guided by a number of short posts set approximately in the line by A, starting on to the tall flag in front. The rear cutting party picked up the parties of their working face from posts set up by A. The breadth of the lanes was controlled by a headman who was provided with a template, and it was his business to superintend the dressing of the sides of the lane. For this latter duty and for the final tidying up of the lane, the convalescents or slightly indisposed were employed. The labourers were paraded and marched to the site of work and were again paraded previous to dismissal.

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§ 141. Movement of Camp.

Every endeavour was made to reduce the wastage of time due to the distance separating camp from the site of work. Usually 2 kilometres was the limit appointed. The consequent movements of camp were frequent, but, as these were effected by the transport personnel, it was not uneconomical. All tents were struck and everything laid out ready for the transport staff to take charge before the labourers marched out for the day's work. Camp was again reinstalled in its new position, in time for the mid-day meal and rest. On occasions the labourers bivouacked on the site of their work.

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§ 142. Boundary Pillars, Cairns, etc.

In addition to marking the boundary by a lane cut through the vegetation pillars and cairns have been distributed throughout its length. Main pillars were built at both terminals of the boundary, at all pivotal points and at approximately every intermediate interval of 30 kilometres. These were numbered consecutively from the north. Each pivotal pillar was furnished with a small pointer pillar set in each direction of the boundary. One large cairn was built on the flank of PINNO where the boundary passes. Small cairns and small pillars were built at approximately every 10 kilometres and elsewhere to accentuate the boundary where it crosses tracks of any importance and also where it crosses grass-land in which the lane becomes otherwise ill-defined. The map produced by the Commission shows the particular type of beacon used in each instance.

The materials used and the method of construction adopted with regard to pillars varied with the progress of demarcation. In the north the following system was adopted. The pillar, which was of cement masonry, was rectangular in horizontal section, being about 2'6" by 2' at the base and slightly tapering as it rose to a slightly weathered top. The height was about 3'.

In later construction, the pillars were rendered more shapely by building them within a wooden mould, and afterwards making good any irregularities of the faces with cement. Stone, however, became increasingly rare as the work advanced from north to south, until the coast was reached. Consequently there was a long spell during which recourse had to be made to other materials. The substitute was sand and cement with varying aggregates, for which quite latterly portions of tree trunks were utilised. These were roughly shaped as a core to the pillar, were placed on a cement foundation, the wooden mould was then superimposed and the outer skin of cement and sand 1 to 6 was inserted.

In regions where stone was absent, small pillars of cement and sand, about 2' in height, took the place of cairns.

The construction of cairns needs only a passing word of description. The special cairn on FINNO was about 6' in height built on a circular base of about 6' diameter. The smaller cairns were only about 2' in height on a circular base of 2' diameter.

Stone and water were sometimes found on the site of construction, but more often had to be carried considerable distances by camel transport.

§ 143. Spelling of Names.

It was decided that the British Mission should use the R.G.S. II system of transcription for geographical names, but a copy of this was not available until August, 1926.

All names occurring in the British work that could be identified have been adjusted accordingly, as well as those of the names collected by the Italian Mission that were made available in Africa. The remainder of those from the Italian work were transcribed, as well as was the possible, in Italy, and all these appear in the Name Book prepared by the British Mission and lodged with the Geographical Section, General Staff, War Office.

The spelling of place-names on the Boundary Map presented a problem that was not settled for some time, as the Italians are not familiar with the R.G.S. II system and Italian spelling would be meaningless, or even misleading, to most British officials. It was ultimately decided that for the names of places lying in British territory the R.G.S. II system should be used, and Italian spelling for those in Italian territory; while important localities, such as EL WAK, lying astride the boundary, should be given in both methods.

As a result of this decision, it was thought necessary to compile a gazetteer which would also state the method of spelling applied to each name and its other form. Appendix IV of the Agreement.

§ 144.

The names shown on the previous existing maps of East Africa are given according to personal whim, and in many cases they do not even approximate to the correct name. This is particularly the case in the Galla and Somali areas.

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§ 144 (Contd.)

of Kenya. It was therefore considered desirable to obtain R.G.S. II versions of the names recorded on all available map documents in a strip of country approximately 1 degree wide astride the boundary.

In the absence of a Topographical Survey in Kenya, much could be done by Administrative and K.A.R. officers towards extending this belt of names, spelt under an approved official system. In any case, all offices of the Government Administration, Police, Military, etc. should be in possession of copies of the appropriate P.C.G. publications.

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§ 145.

It was thought likely that the names of certain of the more important localities might have become conventionalised, and the Director of Land Survey approached the matter. His reply however showed clearly that the matter has never received serious consideration.

§ 146.

The verification of the names was a task of some magnitude. The method employed was fairly exhaustive. 2 officers, 1 interpreter and the greatest possible assortment of tribes and sections from the area under examination constituted the committee. In every case an approximation to the name was available. The locality was described and every likely variation of this approximation was proposed until the place was identified by one or more natives. The argument then proceeded until the natives, particularly those whose habitat was nearest the locality, were in agreement. The name was then written down, as well as its language and meaning. A single name not infrequently took 15 minutes.

§ 147.

§ 147.

The R.G.S. II system was found to be admirable, with the qualification that there is no means of differentiating between long and short vowels or of indicating accented syllables.

§ 148.

Blue Prints of map, produced in Kenya.

It was the intention that, on the completion of field work, tracings of the survey on a convenient scale, should at once be made available to the KENYA Survey Department, wherefrom blue prints might be made for the immediate use of the Administration and the Military Force. Unfortunately the Italian Mission did not fulfil its contract in this respect, and it was only possible to produce tracings of the survey work executed by the British Surveyors. The delay was not very great and these happily occurred chiefly in a region of no great consequence.

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§ 149. Final Reproduction of the Map of the Commission.

The final reproduction of the map was made, under the auspices of the Commission, at the Istituto Geografico Militare in MILANO, and this occupied a period of time (8 months) which was absolutely unwarranted.

The delay was caused in the first instance by the facts that a considerable amount of the Italian field work had not been plotted when the Commission reassembled in ITALY, and that the officer who was responsible for this work was not made further available for some time later. Again, when the work was eventually plotted, it was found to contain so many errors that it had to be plotted again.

The method of drawing for reproduction was out-of-date and slow. The pattern was carefully drawn up completely in black in the first instance. Black line

plates

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§ 149. (Contd.)

plates were prepared from this by helio-zincography, and the black impressions pulled from these plates were used as a temporary measure to illustrate the memorandum drawn up by the Political Commission.

On the date of signature of this present report, the Italian Authorities are in process of reproducing the same map in colour, the plates for the various colours being obtained by "stepping out" on exact facsimiles of the original plates.

In due course this coloured map will be completed and will be the official map of the Commission.

NOTES ON THE NEW FRONTIER

from an

ADMINISTRATIVE STANDPOINT.

§ 150. Inspection.

It is recommended that the boundary line be inspected by administrative officers and by police patrols, to keep the "lane" open, and to repair such pillars and cairns as may have been destroyed by the natives. Some cases of destruction have already been reported, as the limitation of grazing areas was not popular with certain sections of the Marehan, Mohamed Zubeir, and Abdulla.

§ 151. Boundary and Motor Road.

The new frontier cut has already been utilized by the Italian Government as a motor road, after improvement, especially through the tsetse fly belt near the coast.

In the southern portion where tsetse fly abounds, the Government of Kenya is recommended to use motor transport from the port of KIUNGA to the interior, along the boundary cut, for the purpose of rationing the interior districts. Owing to the nature of the soil such transport could only be used in the dry season. This route for motor lorries would bring WATER, via DIP and the boundary motor track, within two hundred miles of the British port of KIUNGA, and reduce the distance between MOYALE and a British port by a considerable distance.

§ 152. Trade.

At the present time all the trade conveyed by motor transport is finding an exit at the Italian port of KISMAYU, via the DIP - AFMADU road opened by the Italians after the Cession

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§ 153. DIF Waterholes.

The concession of the use of the waterholes at DIF, on the British side of the line on the WAJER - KISMAYU road, to the Italian police post at DIF on the Italian side, will require surveillance by the British administration of WAJER district.

As DIF has become an important customs port of entry, owing to the new motor road to KISMAYU, and also, the use of the frontier for caravans, it is suggested that the KENYA Government establish a permanent police post there, and that a well or bore-hole be sunk.

§ 154. Two Special Points under the Treaty of Cession.

Of the most important points decided by the Tubaland Commission, those under Articles 6 and 9 require particular attention:-

(a) That there is to be no trans-frontier grazing or movement of tribes during the rainy season for pasturage into British territory.

(b) The limitation as to the number of persons who may proceed into British territory on the plea that they are separated from their families.

These two points want careful consideration by the KENYA Government.

§ 155. Three unruly Chiefs.

With regard to the trans-frontier grazing, a great deal of intrigue and evasion will be attempted by Sultan Osman Gali of the Mohamed Zubeir, ex-Sultan Hassan Othman of the Abdulla, and Chief Ababalla of the Gurreh.

All these headmen have gone over to the Italian side and are now paid chiefs under the Italian Administration.

§ 155. (Contd.)

The two years, during which the Commission worked on the frontier, was occupied by these anti-British chiefs in agitating among the tribes along the frontier to take no notice of the demarcated frontier and also to refuse to recognize the ownership of waterholes by British sections of those tribes in question, as demarcated by the new frontier line and beacons.

§ 156. Post at KOLBIO advocated.

It will be found that unless a British police post is maintained in the neighbourhood of KOLBIO, the Maghbul and Tellemugga tribes will be constantly moving with their stock from WAKA EM in Italian territory to the TAMA River in British territory.

This will make administrative work very difficult, and absolutely defeat the veterinary regulations, as Jubaland has always been a centre of cattle diseases.

§ 157. Control of Illicit Customs.

The permanent establishment of police frontier posts at EL WAK, DIP, KOLBIO will facilitate the control of illicit custom entries and will also keep in check the large illicit export ivory trade.

§ 158. Illegal Migration.

Italian policy has been entirely to ignore the first part of the agreement in the Treaty of Cession, under Art. 9, viz. -

"The two Governments undertake that they will respectively endeavour to prevent any migration of Somalis or other natives across the frontier defined in Art. I."

The Italian Government have ignored this part of the Treaty for two reasons:-

(a) They wish to attract as many nomads with their flocks and herds as possible, as Italy has a shortage of meat stock in her territories, both in Europe and Africa.

(b) Italy has constituted herself the protector of the Somali people and issued a proclamation to this effect; thus, any disaffected chiefs or sections of tribes, on the British side of the frontier, are invited and welcomed to remove themselves with their stock to the Italian side of the frontier. The whole of the agitation for trans-frontier grazing by Osman Geli was supported by the Italian Government, to induce the Somali people to believe that the Italian Government was sympathetic to their interests.

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Unless the present situation of the Garret and Abdulla territories between the two Central Governments is, it will lead to inter-tribe friction between the two local Governments in Africa.

Furthermore, the whole of Mr. K. ... master's idea, he was consulted that the frontier ... now laid down would be a tribal one, will have been defeated.

... ver, ... alian Government had scrupulously carried out its obligations under Article 9 of the Treaty of Cession, there would have been no cause for these remarks, or for any future administrative difficulties along the line of frontier between KENYA and SOMALILAND:

PART VII.

MISCELLANEOUS.

§ 159. Health.

In general, health was very good; but the very hot, bone-dry climate proved a great strain on the nerves of several of the Europeans.

Following the exceptionally heavy "short" rains in November, 1925, there was a very great deal of Malaria, principally among the Somali personnel. One man died at EL WAK. At MALKA RIE, at the end of January, 1926, there were so many cases that H.Q. was completely immobilized for some days. This abnormal sickness continued until about March, 1926, when it ended as a result of the general drying up of the country.

After this, the native personnel never suffered to any degree from sickness.

In mid-December, 1925, Sergeant Foster went sick and very nearly died through the absence of skilled attention. His life was saved by the unselfish nursing of Lieutenant Watson (Escort Officer), the only other European in camp, who was fortunate in diagnosing the complaint as pneumonia after several days of treatment for fever.

At Imas 1925, Mr. Kane developed a bad attack of fever at EL WAK.

In mid-January, 1926, and again at the end of the same month, Lieut.-Colonel King had severe attacks of fever at MALKA RIE.

In mid-February, Captain Clifford suffered an attack of sunstroke at FINQU, due to a defect in the

construction

§ 159. (Contd.)

construction of his tent, followed a few days later by a light attack of fever.

Lieut.-Colonel King also experienced a sunstroke at this place owing to exposure.

Lieutenant Watson also suffered from fever during February.

Corporal Higson went on the sick list in February with a rather indefinable complaint, which was probably due to excess of sun: and he was not properly recovered from it until the middle of March.

In the middle of June, 1926, Lieut.-Colonel King developed a bad abscess on the jaw, while returning to the boundary from KISMAYU. He was obliged to return to KISMAYU for medical treatment, and did not rejoin the Commission until the middle of July.

In June, 1926, all 3 B.N.G.O.s. developed skin trouble, particularly on the shine, feet and hands. This was no doubt due to shortage of European rations and resultant loss of health and moral, aggravated by the irritation caused by grass seeds.

In January, 1927, one personal servant (of an interpreter) died of beri-beri.

In mid-February, 1927, Captain Clifford went down to a light attack of fever, followed 24 hours later by Captain Erskine with a very bad one. Captain Clifford then underwent a series of attacks at steadily increasing intervals, the last of which was in November, 1927.

At LAMU, in March, Sergeant Foster and Lance-Sergeant Higson were on the sick list for several days with fever.

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§ 159. (Contd.)

At the end of March, 1927, on his way to MAIROBI, Lieut. Colonel King had a second severe attack on the jaw for which he received attention immediately on arrival in MAIROBI.

Starting in March, 1926, Europeans were issued with the Italian anti-malarial drug "Esanofele" to be taken after meals on when occasions are suitable for prostrating fever.

§ 160. Matters of Scientific Interest.

A collection of beetles was made and sent to Monsieur Charles Alluaud, the collector Franco. He reported a total of 18 species, of which *Chlaenius Cliffordi*, *Chlaenius* *Trimerus* *Oxytarsus*, *Cryptopterus* *Tetracha*, and *Tran-* species (*Chlaenius*, subsp. *epistrophus*) were hitherto unknown.

§ 161.

The ground in the neighbourhood of JIBICHILAOWA was a mass of water-buck scrub, and one buck (*Cobus elipsiprionus*) was shot. It was not known previously the water-buck are to be found between the Rivers TANA and JURA.

§ 162.

2 duck of a stiff-tailed variety were seen at JIBICHILAOWA. 1 was shot, but the skin was stolen by a kite while drying. They would appear to be the rare *Eriamthura Maccoa*, belonging to the Pochard group of duck.

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§ 163.

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§ 168.

Large herds of the rare "arabie" (Hunter's Hartebeest, *Bosotragus Hunteri*) were encountered in the DAMBALA area. Lance-Sergeant Higson shot a very fine specimen with about 27½ in. horns, and Captain Clifford 2 with horns about 26½ and 25½ in.; the 2 latter have been authenticated by Rowland Ward.

Lieut. Col. J. H. ...
Senior ...
Jubaland ...

London.

10⁵ February, 1928.

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