

**CONTINUED FROM
PREVIOUS
FILM**

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**THE WRITING IN THIS
VOLUME IS TOO CLOSELY
BOUND INTO THE VOLUME
TO REPRODUCE IN ENTIRTY**

This should be minuted on by the Provincial Commissioner of Tanaland, the Secretary of Native Affairs, the Land Office, the Agricultural Department and the Public Works Department before the sanction of Government is accorded for the works to be proceeded with. The ill-advised execution of works along a river of this type may be attended with such far-reaching results that no effort should be spared ~~to avoid~~ on the one hand ^{to avoid} untoward developments which might involve Government in heavy expense for absolutely necessary remedial measures, or, on the other hand, to give concessionaires, if their presence on the Tana is permitted, the clearest possible statement as to the nature and extent of development which will meet with Government sanction. Otherwise they might be involved in heavy loss through inaugurating schemes which Government, in the interests of the enormous native population in the valley, or for other adequate reasons, might find it necessary to limit or disallow.

THE TIMBER ALONG
THE BANKS.

8. As regards the timber along the banks, it is not necessary for me to say much as Mr. Battiscombe is reporting on it in full detail. Both in quality and extent it was very disappointing. It would I consider be a liberal estimate to suggest that the supply, taking the value of the timber, proximity to the river, local cost of labour, and other factors into consideration

27A
242

- 9 -

amounts to one merchantable stick for every hundred yards of frontage. Still if this were so, the aggregate amount along that portion of the river, say the last three hundred miles, where it may be allowed that logging operations might be attempted under less pronounced disadvantages than on the upper reaches, would exceed ten thousand five hundred logs. It remains to be shown that the soft white wood, locally known as "lalafu" (Galla) or "malalai" (Pokomo) is at all in demand on the world's markets. If not, I think it would be out of the question to try and institute lumber operations in any shape or form on the river. Throughout the valley there appears to be no timber which resists white ants. We saw no fallen timber that was not rotting or being eaten. The cutting of an average of one tree per hundred yards of frontage, together with the necessary amount of scrub and bush to allow of its being got into the river, would not materially reduce the amount of shade along the river nor increase evaporation on the banks. No good argument can be advanced against the proposal to make use of this timber, if it becomes clear that there is any demand for it and that it is suitable for industrial purposes. It must be understood however that it does not occur as a "forest" which can be systematically worked, but merely as

a scattered and broken belt of timber which may be once cut over to fetch what it is worth. The region would then be left to recover, further exploitation being impossible until a fresh stock of "merchantable sticks" grew up. These trees are a striking and distinctive feature of the landscape along extensive stretches of the river. Briefly put, I do not consider the local conditions sufficiently favourable to make it worth while to sink capital in timber operations along the Tana. Actual loss might perhaps be avoided, and with favourable conditions prevailing on the river, a certain profit might be made, but the chances are that this would be slight and that the necessary capital could be better employed elsewhere and otherwise in the Protectorate.

H. McGregor

GENERAL REVIEW OF THE TANA VALLEY.

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HISTORICAL. The first European to gain accurate information as to the source of the Tana, and to see it in its upper reaches was the pioneer missionary Dr. Ludwig Krapf. Writing on November 26th. 1849 he says:-

"On my asking how deep the river was and whether there were no rocks in it, he (i.e. an Mamba chief Kivoi) stated that there were no rocks at all, and that the water reached a man's neck in the dry season whereas during the rains the river was impassable. He further stated that its ordinary breadth was about 200 yards. . . . This information gratified me much indeed, since I had long ago conceived the idea of penetrating the interior by that river, which is on the maps called Quilimancy, but should properly be written Kilimansi (kilima, "mountain", mansi, "water".) Mountain Water, referring as it appears to me, to the snow mountain Kenia -- as the Natives call the mountain and the white matter seen on it -- of Kikuyu, where the river Dana takes its rise, according to the universal report of the Natives".

2. Seven days later than this he saw Mount Kenia for the first time, "and it was indeed a very majestic sight. From the general mass two immense peaks are seen towering toward the sky like mighty pillars. The sight was overwhelming."

3. He was at this time in doubt as to whether the river Juba also did not have its rise on Kenia:

"From Kivoi and other people I learned that the Dana rises from the Kenia, by the melting of the snow with which it is covered. A number of smaller rivers and rivulets, coming from the same mountain, afterwards join the Dana which subsequently is said to divide into two branches. This either refers to the river Osi, which may perhaps be a branch of the Dana, or it may refer to the river Jub or Gashub which may descend from this mountain."

4. His first view of the River Tana was obtained under rather dramatic conditions on August 27th. 1851. Journeying towards it in company with the chief Kivoi, they were attacked by "robbers". Kivoi was murdered, and their party was scattered, whereupon the Rev. Doctor took to flight, breaking the stock off his double-barrelled gun by falling heavily with it. "So I determined to press forward to the river, towards which I was not now impelled by geographical curiosity but by extreme thirst. After a short march I saw the surface of the river gleaming through the trees and bushes on its banks with a pleasure which no pen can describe and which none but those that have been similarly placed can realize. The water was cool and pleasant After my thirst was satisfied, for want of waterbottles I filled the leather case of my telescope as well as the barrels of my gun, which was now useless to me;

"and I stopped up the mouths of the gun-barrels
 "with grass and with bits of cloth cut off my
 "trousers. The river was about 150 feet
 "in width. Its course, so far as I could see, is
 "serpentine running towards the East; but I do
 "not doubt that it makes great detours before it
 "arrives at the Indian Ocean. If its source
 "is 6000 feet above the level of the sea, it must
 "certainly take a very circuitous course, or we
 "must suppose it to form lofty cataracts before
 "it reaches the level of the sea."

B. After Mr. Denhardt's 1877 expedition,
 upon which a book has been published in German,
 the next tour of any extent on the Tana River
 was that of Mr. Piggott of the Imperial British
 East Africa Company, who ascended the river as
 far as the first rapids in 1889. He was follow-
 ed after a short interval by Mr. Smith of the
 Company. Later in the same year came the noto-
 rious expedition of Dr. Carl Peters. He started,
 from the beginning, to act upon the principle
 of "falling back upon the right of self preser-
 vation and the right of arms, which is every-
 where acknowledged in Africa, and simply of
 "taking what he required, where he found people
 "refusing to let him purchase" (at his own price?)
 "what they possessed." (1). The career of theft and
 bloodshed which constituted his traverse of the
 territories of the miserable agricultural
 peasants, entirely destitute of firearms, has
 been described with great candour. In the year
 1891 Commander Dundas with Messrs. Hebley and
 Bird Thomson ascended the navigable reaches by

Steam launch and thereafter continued up, partly by canoe, but mainly on foot and on the left bank, past Krapf's Crossing, where they moved over to the right bank for a short way, past the so called "Grand Falls", back to the left bank, and then across to Mount Kenia, on which they made a partial ascent from the South side.

Mr. Hobley published full notes on this journey of his in 1894. In 1895 the separation of the Lorian "Lake" (or swamp as we now term it) from the Jmana was established by Chanler and von Hohnel. In 1900 Mr. U.S. Haddie ascended the river from Kinakombe to the "Grand Falls", after passing which he proceeded Northwards to the Lorian Swamp. His caravan suffered considerable hardships, and experienced disease through running out of salt, as a substitute for which they were reduced to eating the gun-powder from

In 1893 the James Martin travelled down the river from Kinakombe to the sea.

their Snider cartridges. His report on this tour, with a map, was afterwards unfortunately lost. The portion of the river near the Mumoni Hills and the Grand Falls was visited during the last three or four years by several Administration officials at various times, from the Kitui and Embu sides, and also by Officers of the King's African Rifles. In 1908 a local resident (Mr. Vincent?) struck the river from the Eastern side of Kenia and travelled down the North bank, turning off when near the coast, to Lamu. We heard several accounts of his safari as we moved down. In December 1908 the Honourables Mr. G.K. Watts and Lieut. Colonel Montgomery ascended by canoe to Ngao. In January 1909 Mr.

In 1908 James Martin
 Fisher and Woodhouse
 ascended to the first
 rapids by steam launch
 but failed to navigate
 further. One missionary
 of the British Evangelical
 Church has also been up
 as far as the rapids.

G.N. Crisford was sent by Provincial Commissioner Mr. Gilkison to found a temporary station some 250 miles inland at a point which the latter had selected a short time previously. Later in the year Mr. Crisford was supported by Captain Eyre and Lieut. Booth of the 2nd. M.A.R., on account of the enormous Somali incursion from the North. The next visitors on the upper reaches of the river were ourselves.

GENERAL FEATURES OF THE VALLEY.

6. The outstanding feature of the Iana Valley is the extent to which it encroaches upon the elevated "Highlands" of the Protectorate. To one who has only travelled inland by the route of the Railway it comes as something of a surprise to find palms and other tropical vegetation flourishing close in under Mount Kenia in a climate presenting temperatures of 80° F. at 9 P.M. in the cold time of the year. The Highlands in this portion of the Protectorate may be considered to be bounded by a line which, starting from about Kiu on the Railway, runs across country somewhere past Kitui, and skirts closely round the North of Kenia. Although the river so soon attains low levels, the general fall of the country towards it is very gradual and at no time after passing the Mumoni Hills does it give one the idea of a large river draining an extensive valley, but rather of a stream wandering across a flat arid wilderness and maintaining a narrow fringe of green jungle

on its banks. The extremely limited area over which any amelioration of "wilderness" conditions prevails is striking. Frequently the belt of scrub and jungle (in the uninhabited parts) and of cultivation (in the inhabited parts) is only two or three hundred yards in depth. Outside this one sees, over immense areas, conditions closely resembling those with which we are so well acquainted in that portion of the Taru Desert traversed by the Uganda Railway. All the vegetation in it is of a drought-resisting type -- thick fleshy euphorbias, and thin dry bushes with "follage" approximating to spines instead of to leaves. This rough growth is probably deep-rooted or it would not be able to survive the protracted periods of drought which evidently occur throughout these regions. At the same time the soil is undoubtedly very fertile in almost all parts and enormous areas of country at present uninhabited might be rendered available for occupation and also highly productive by the execution of irrigation works. There seems little doubt that both cotton and fibre should do very well in this region. Irrigation might very well be instituted at many places between Fall No. 1 and the Mumoni Hills, again after emerging from the regions inhabited by the Wathaka, and again along the flat navigable reaches. It is perhaps unnecessary to say that no part of the Tana Valley can be considered "White Man's Country". It is a region at best for the planter and not for the settler. Even preferably it is a region for the duplication of conditions found in Egypt -- namely, the execution of irrigation works by Government and the subsequent working of the

of the improved areas by natives of the soil. In all the up-stream portions the tedious delay in getting produce from improved land back to the Railway, or down to the navigable reaches, would not be inviting to the white planter, to whom time is money, but a population of native cultivators, advised and directed by officials who would in any case have to be located among them for purposes of Administration, would add largely to the wealth of the Protectorate. It would be inadvisable, even if funds were forthcoming, to engage in works on any large scale. Small and simple projects, carried out one after the other as improved areas got fully occupied by native cultivators transferred from congested or useless regions elsewhere would be the safest and surest method of converting this enormous unproductive area into a prosperous and wealthy region. Down nearer the sea where coastwise communications allow of the importation of wage-earning labourers from other parts of the country or even from abroad, and where improved transport facilities on river and sea would allow of produce being readily placed on the world's markets, the case for the leasing of unoccupied lands to the wealthy planter is a strong one. Proper safeguards as to effective occupation being duly complied with, pronounced assistance might very properly be extended to suitable parties who might be willing to attempt development there. A planter sufficiently wealthy to be able to afford to change his staff, both of supervisors and labourers, as the climate rendered their further retention on the estate

undesirable, might hope to make the best use of such lands. If he possessed other holdings in better climates elsewhere in the Protectorate, and could employ his staff on these, when it was no longer possible to efficiently utilize their services on the river, his prospects would be improved. But for the "small man" and the resident settler, the Tana Valley is no place. The climate would, in my opinion, be too much of a handicap to be successfully borne up against. An East African Official may perhaps be pardoned for suggesting that Indian emigration into these regions should not be fostered unless it becomes reasonably clear that the improved areas, which may so easily be obtained along this valley, will not be required in the course of the next few generations as outlets for excess population from districts in the Protectorate already perilously near to population. It appears to me so certain that East Africa will be able to advantageously occupy this region at least as fast as funds become available for its improvement, that I recommend that it should be earmarked for African occupation unless the necessity for emigration-outlets from other parts of the Empire becomes much more urgent than we imagine it to be at present.

TRIBUTARIES. 7. It is clear that by far the greater portion of the Tana water is derived from Kenya. The contribution from Satima, (The Aberdare Range) comprises the Chania Mdogo at Nyeri, the Mathioya, the Marsgwa and the Thika. The combined discharge of these rivers, except

for a short time at periods of high flood, probably does not exceed one thousand cubic feet a second. In endeavouring to estimate the run-off of rainfall from the valley into the river, the whole stretch of the valley from the **Taka Hills** down to the sea may practically be neglected. When one takes into account its extreme flatness, the rousing monsoon winds that accompany the rainfall, the fierce sunshine that prevails for so great a portion of the year, the deep-rooted thirsty vegetation, the high mean annual temperature, and the fact that the banks, as is usually the case ~~with~~ in rivers traversing flat alluvial plains, are slightly higher than the immediately-adjoining country behind them, it appears impossible that any proportion so high as ten per cent of the rainfall on this portion of the basin could possibly find its way into the river. As regards the contribution from Kenia, it may be considered that half the mountain, namely the portion lying to the South of a N.E. and S.W. line through its summit, feeds the Tana. The other, and much drier, portion supplies the Guaso Nyiro and ultimately the Lorian Swamp.

8. The volume of the river appeared to dwindle as it approached the sea. It was only to be expected that this should be the case. There were no tributaries yielding any appreciable contribution of water in the last 420 miles from the coast. The quantity abstracted from the river to maintain the double belt of lush jungle along the banks must be considerable.

In the last paragraph reference has been made to atmospheric conditions which must give rise to heavy evaporation from the thirty square miles or so of water which constitute the surface of the river. Arguing from evaporation tests which are continually in progress at several of the P.W.D. offices in various parts of the Protectorate, it may be stated, as certain that the quantity of the water abstracted from the river by evaporation amounts on the average to at least one hundred cubic feet a second, day and night all the year round. It appeared to us moreover that at one or two points (See Part III May 14th.) a sudden diminution in the volume of the river occurred. On one occasion (May 13th.) this was explained by the fact that the river had forked and that a large portion of it was following another route behind the high opposite bank of the branch that we were on. At other times however no such explanation was forthcoming, and we could only conclude that a large portion of the river had gone underground, perhaps to reappear again at some other point lower down stream, or on the other hand to permanently vanish into the underground water system of the country of which so little is yet known. In either case, the occurrence is not one to strengthen hope in the utilization of the river for purposes of commerce.

9. The waterfalls, such as they are, on the river must be described as not at all striking from the spectacular point of view. We failed to observe any fall that might truthfully

be described as one "to be safely reckoned among the greatest waterfalls of the earth." (Carl Peters; "New Light on Dark Africa" Page 205 -- Ward Locke and Co. 1891.). nor were we so fortunate as to come across any scenery bearing even a remote resemblance to the stupendous cataract, some three hundred feet in height, a plate of which, by the artist Herr Hellgrewe, adorns the pages of the same work. The largest fall we saw on the Tsua was about twenty five feet in total height, and considered as one of the big rivers of a continent. The Tsua is a distinctly disappointing stream, -- in fact one might almost class it as insignificant. In the condition of declining flood in which we saw the river I consider that its discharge at Kipini would not be more than two thousand "cusecs". This implies the delivery of 3,200,000 cubic yards of fresh water at every tide at Kipini, so that this long waterway, draining a basin of some 40,000 square miles, has a discharge only about fifty per cent greater than our tiny river the Mersey, draining a basin of only 1722 square miles, and discharging an average of 2,250,000 cubic yards of fresh water at every tide. Comparing it with one or two other well-known rivers; it is found to be less than one-seventh of the Nile at Cairo in its lowest state in the month of April, less than one-ninth of the discharge of the Seine, and slightly more than the flow of the Agra Canal, from which, it is suggestive to note, a quarter of a million acres of land are irrigated on the right bank of the Jumna between Delhi and Agra.

10. Chances of being able to effect control of floods in the lowland portion, by impounding flood waters in the highland reaches, are not good. We saw no reservoir sites that could be described as satisfactory. As mentioned elsewhere, it is seldom that the river is flowing in a well formed valley. In the Diamond Hills, many sites suitable for the erection of high masonry dams could be found, always supposing that extensive borings, above and at the site, showed the underlying rock to be solid, and not fissured to a fatal extent. There, however, the configuration of the valley behind the dam would be bad, (See photos 2089, 2090) being both narrow and so steeply falling in the direction of the river's flow that no storage capacity would be obtained at all commensurate with the requirement of controlling the really large flood discharge of the Tana at the period of its highest rise. A certain alleviation of present flood conditions could no doubt be effected, but the cost that the work would involve puts all such projects entirely out of the question for the near future. In these mountainous regions moreover, detritus is evidently being carried down stream in immense quantity, and in the event of masonry dams being erected, collections of material behind them would be certain to occur and be troublesome to dispose of; and unless removed, a steady diminution of storage capacity behind the dams would be constantly proceeding. It may here be mentioned that during severe floods, a traveller by canoe on the lower reaches near the coast

finds that he has a water-horizon all round. The entire country is under water for miles, and only the double row of high trees and jungle mark the course of the main stream across the inundated area. The flooded area is said to be about seven hundred square miles. I have previously remarked in a minute (No. 10 of Secretariat Minute Paper No. 49/1907) upon the futility of proposals to control these floods by works situated at the mouth of the river.

11. As we passed down the valley, an attempt was made to arrive at some conclusion as to the amount of solid matter that the river was carrying down in suspension. It was not anticipated that figures obtained on a flying visit of this nature would be of any great value. Still certain deductions would be possible, and, with regard to territory which is ^{as} seldom visited as this part of the Protectorate, one feels that any recorded observations are better than a total lack of information. Hence the somewhat scrappy information as to meteorology, game, soil, jungle-growths, and other matters, that appears in Part III of this report. For the purpose of investigating the point now under remark, a number of weighed filter papers were carried, and a measured quantity of water, taken from the running stream, was passed through these papers on twenty-six occasions. Each one was then carefully dried, folded, and put away in an envelope. At the conclusion of the tour I re-weighed these muddy papers (at Liverpool University) and was disappointed to find that the original

weighing in Nairobi had not been done accurately. Some of the papers containing a considerable quantity of mud were of a less weight than the reported weight of the paper when clean. Their weights had been arrived at by weighing an entire packet and then dividing the total by the number of papers in it. As they were not superior papers, intended for quantitative work, this method was too rough, and rendered the observations valueless. A statement of the observations in tabular form is given on the next page:-

Sample No.	Date 1909	Camp	Quantity of water used	Weight of paper clean (grammes.)	Weight of paper and deposit (grammes.)
1.	Ap. 18	III	Half gallon	6.46	6.64
2.	Ap. 30	X	One gallon	5.98	6.07
3.	May 12	XXII	Half Gallon	6.20	6.48
4.	May 13	XXIII	" "	"	6.46
5.	May 14	XXIV	" "	"	6.18
6.	May 15	XXVI	" "	"	6.36
7.	May 17	XXVII	" "	"	6.39
8.	May 18	XXVIII	" "	"	6.09
9.	May 19	XXIX	" "	"	6.12
10.	May 20	XXX	" "	"	6.19
11.	May 21	XXXI	" "	"	6.29
12.	May 22	XXXII	" "	"	6.47
13.	May 23	XXXIII	" "	6.39	6.42
14.	May 24	XXXIV	" "	"	6.51
15.	May 25	XXXV	" "	"	6.98
16.	May 26	XXXVI	" "	"	6.36
17.	May 27	XXXVII	" "	"	6.37
18.	May 30	XL	" "	"	6.45
19.	June 3	XLII	" "	"	6.64
20.	June 5	XLVI	" "	"	6.41
21.	June 6	XLVII	" "	"	6.45
22.	June 9	L.	" "	"	6.61
23.	June 10	LI	" "	5.63	6.04
24.	June 11	LII	" "	5.63	6.00
25.	June 19	Kipini, at dead low wa- ter	" "	5.63	6.11
26.	-do-	Kipini at half ebb tide.	" "	5.63	6.08

12. The only conclusions that can be drawn from these observations are to be got by considering items 3 to 12 all together and items 13 to 22.

From the former it appears that ten papers together weighing 52 grammes weighed 63.03 grammes after the passage of five gallons of water through them. That is, between Camps XXII and XXXII the average quantity of suspended matter going down in the month of May was 1.03 grammes in five gallons, or 3.0 grains per gallon. Similarly between camps XXXIII and L it was 1.29 grammes in five gallons or 3.8 grains per gallon. This implies that material in suspension here is being moved downstream to the amount of forty-seven tons a year for every "cusec" (i.e. cubic feet per second) of the river's discharge. Probably the amount of material being rolled along the bed of the river is three times this quantity.

13. A more accurate investigation of silt-
movements in the river than has proved to be possible with the faulty equipment at my disposal, would have been of some interest in connection with future possible irrigation measures. The silt carried by the river would probably prove to be of value upon the land to which it was applied. A certain amount of silt when carried into irrigation channels is of use in promoting "self-puddling", which renders channels in loose soil watertight, and minimises losses due to percolation. On the other hand however, the deposit of undue quantities of silt

in irrigation canals and channels would of course necessitate heavy maintenance work to keep them open.

Tested chemically, the deposit on these papers gave strong indications of iron.

14. Mr. Crisford at Sankuri "boma" assured us that we were seeing the river in a comparatively clear state. He said that in time of real flood it came down thick and red. It had been so bad in this respect that he had been driven to sink a well on the bank in order to obtain drinking water in a slightly filtered condition for the station.

15. In the lowland portion, alteration of the river's course in the direction of increased sinuosity must be proceeding rapidly. Cracking, and subsequent falls, of the vertical earth banks were everywhere in evidence. Villages are for the most part built on concave bends in the bank so as to have deep water close alongside. The erection of any buildings of a permanent nature on concave stretches of the bank should be guarded against, at any rate until the rate of erosion at such a point has been carefully watched through one or two high floods.

16. Reference may also be made to the great change that has occurred at the outlet of the river within recent years. Formerly the river Ozi joined the sea at Kipini, and the Tana at a point some twenty miles to the South. The two rivers were however very close to one another at a point near the village of Belazoni.

The mouth of the Tana was however closed by a bar which rendered the passage of dhows a difficult matter. The broad estuary of the Ozi did not present the same objectionable features, and light-draught vessels could ascend it at any tide. To allow of vessels from the Ozi estuary getting into the Tana, a canal was cut by forced Pokomo labour under the direction of Sultan Hamad, the great-grandfather of the chief of the Witu rebels, some time prior to 1692. When Professor Gregory visited the mouth of the Tana in that year, during the rains, he found "on account of the high level of the Tana, a powerful torrent pouring along from that river to the Ozi." This is now the only channel of the river. The old channel has been silted up for more than two miles from its junction with this stream, in fact as far as the village of Panyamba.

Mr. Rule informed me that the East Africa Cotton Corporation were developing their ten thousand acres upon the assumption that the river would not be brought down the old channel again. The general level of their lands, in so far as he had taken levels over them, was about 18 inches below the bank of the old channel. He considered that the diversion of the river down its old bed again would render their lands ~~subject~~ subject to inundation and involve their undertaking in disaster. It was proposed to keep their area under perfectly controlled irrigation by pumping water on to it as required.

Down at Sadani, the old bed appears as an open tidal channel, down which little or no fresh water passes. It appears likely (see Part

Part III. June (1st.) that even this will shortly be closed at its junction with the sea by the sand which is continually drifting into it, and is not being removed as formerly by periodical floods. I am told that it was the case formerly that on the narrow tongue of foreshore which forms the last spit at the junction of the old course and the sea, there was for some extraordinary reason, not merely a large collection, but actually a bed of the blades of saw-fish. If they are still there they have been completely buried, for ~~we~~ we saw no sign of any.

17. Perhaps the most effective bar to the utilization of the river above Hamaye for purposes of commerce is to be found in the islands which frequently divide the stream up into a large number of branches of trifling size. Considering the extensive reaches over which the river separates up into narrow channels, running up to a dozen or more in number, the retention of the name "Seven Forks" on the map of the river is without point, and is likely to be misleading. It was probably applied by travelers who may have happened to see the view represented in photographs Nos. 2072, 2073. (See Part III, May 8th.). In certain parts of the valley it is a rare experience to get anything in the nature of a comprehensive view of the landscape. Sometimes for days together our general radius of vision, except for an occasional uninterrupted view across a stretch of the river that happened to be devoid of islands, never exceeded twenty or thirty yards. Thus any

traveller coming in sight of the bold rocky tor or hillock that we passed on our march of May 8th. would indeed have to be lethargic to resist the inclination to climb it and get a broad panoramic view above the overwhelming sea of bush that he had been cutting through. And there below him are "Seven Forks", indisputably, as seen in the photographs referred to above. To any one who was not under the necessity of minutely examining the river by pushing through the dense jungle that lines its banks, the fact that such forks and branches occur in endless profusion elsewhere along its course might very likely be unknown. In such a case he might quite well consider that the feature below him was one deserving the distinction of a special descriptive title. This is the only obvious explanation for the occurrence of so misleading a place-name as "Seven Forks" on the maps of this region. It is not mentioned on the chart which accompanies the published account of the Carl Peters Expedition, and it may in future advisedly be omitted from our maps.

18. Coming to the navigable reaches, the outstanding fact that impresses itself upon the casual visitor is the Commercial stagnation which prevails on account of the absence of cleared paths along the river and the consequent complete inability for travellers and produce to move except in the small, cramped, and unstable Maus or canoes. Mention is made, later, of one district between two villages on the South bank where by dint of very hard work,

progress on foot with loads was possible at the rate of about 400 yards in an hour. (See Part III May 31st.) This was of course exceptional, but for all practical purposes the transport of produce along the bank is at present out of the question. Mention is also made of the excellent ten-foot cut made at another point, much lower down stream, by a half-Company of the 2nd King's African Rifles. The execution of such a cut along both banks of the river, supplemented by a brisk motor service on the water for the long distance transport of passengers and heavy merchandise, would probably revolutionise the entire region. As for travel by "mau", particularly when being "poude"-ed (poled) up-stream, it may be described as an occupation of simply intolerable tedium for anyone not prostrated by illness. It is however refreshing to watch the grace and skill with which these ungainly craft are managed by their sable pilots. Our only experience of going up-stream was a run of one hundred minutes' duration from Borobini up to Ngao, where we wished to meet the German missionaries and enquire from them as to the recent behaviour of the river.

19. Primitive agricultural methods that at present prevail would no doubt speedily disappear under the guidance and instruction of a sympathetic official provided with adequate means of travel on the river. Mr. Crisford informed us that throughout the entire population of Korokoro, the use of the "paddy-bund" in their rice fields was unknown. They actually

went to the almost inconceivable labour, after planting rice close to the edge of the bank at high flood, of taking up each individual plant and replanting it lower down the bank and nearer the water as the flood began to subside. This transplanting would be repeated three times, during the fall of the river, before the crop would be ready. We considered that with a little instruction in improved methods, the Wakerakoro could easily produce enough rice for the entire supply of the East African market, in addition to their own wants.

20. The damage done by Hippopotamus in riverside plantations has led to such vigorous reprisals on the part of the natives, that along the populated regions practically none are now to be seen. They were only numerous in those portions of the river where the banks were ^{un}inhabited and the stream fairly tranquil, and even ~~then~~ then they were pretty steadily hunted by Wandorobbo and Wakamba hunters. Until cultivation is started in such regions, it is to be hoped that subsequent travellers will molest these interesting and harmless animals as little as we did.

21. After the accounts that we had heard as to the prevalence of crocodiles, it is somewhat surprising to be able to report that throughout the entire journey we saw less than a dozen. It is mentioned later that the Wathaka people took precautions against crocodiles when watering their flocks. They also told us that adults, fording the river or bathing, were sometimes

carried away. On the other hand, Mr. Crisford's little dog swam about in the river at Sankuri in the most unconcerned style.

22. A striking feature with regard to the inhabitants of this valley is the greater degree of alertness and vigour displayed by the Galla-speaking populations up-stream than by the unfortunate Wapokome who inhabit the pestilential lower reaches. The Korokora villages look cleaner, and the people seem more prosperous, genial, and cheerful. It is true that the Wapokome had had a bad season and a shortage of crops on account of the ominous Somali incursion on the North bank. However this cannot be held to account for the marked difference of demeanour, which impresses even the casual traveller on a flying visit. With one exception, at the village of Kinyadu on June 14th., we received nothing but civility and assistance from the people we came in contact with, though on the other hand there was little of the engaging hospitality that one often experiences in Kikuyu and other parts of the country. It was well that we were carrying all our food, as we should not have been able to provision so large a caravan at that time of year by barter with these exceedingly keen traders. We saw practically no drunkenness among these tribes, and although we were frequently compelled, by the configuration of the ground, to pitch straggling camps, hard to supervise, from first to last we had none of our belongings stolen.

H. McGregor Ross

III DIARY.

OF THE TANA RIVER SAFARI.

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Tuesday April 13th. 1909. Went to the Native Hospital at Nairobi to enquire again as to the condition of an askari named Songoro, attached to the Nairobi Police Station, but temporarily off duty through illness. Captain Ewart had kindly offered to attach him to our caravan, if well enough to travel. He was the only man of the Galla tribe that I knew of in Government Service. The Medical verdict was however that he was too ill to travel.

April 14th. Battiscombe was now perfectly ready to start. His porters were engaged; food and blankets had been bought, and all loads and equipment were ready. As there was a certain amount of work at the office which I wished to get done before starting, it was arranged that Battiscombe should get under weigh with the combined safaris and that I should follow and overtake him. I selected a Kikuyu youth named Karera, who had been my headman on a safari round Mount Kenia in the previous year, as "nyapawa" and forty Wakikuyu from the gangs in the P.W.D. yard as porters. Battiscombe with 65 porters, chiefly Wanyamwezi "professionals", got away at noon intending only to go as far as the Karura Forest, so as to be clear of Nairobi. My contingent, leaving my

bungalow at about 5 P.M., joined him there soon after dark. Showers in the late afternoon.

April 15th. Engaged in Nairobi. Sheets of rain nearly all day.

April 16th. Busy all morning at the office and elsewhere. Called again with Captain Smith at the Native Hospital, where Dr. Chell again declared the Galla youth unfit to travel. At noon an old Kikuyu-Mdoroko named Muchiri put in an appearance. He had travelled with me on previous safaris. I told him he would find the caravan camped at the Thika River, 30 miles out, and he went off. I followed at 2.0 in a small Cape cart with a couple of mules, hired from Ali Khan. Bright sunny afternoon; the road dry and hard. Passed the Liola Swamp at 3.10, the KAMITI at 3.45, the RUIRO at 4.20, the THETA Swamp at 4.45, the NDARUGO, where heavy grade-work on the bridge approaches was in progress, at 5.10, the KOMO at 5.40, and finally come in sight of the camp, an imposing display of fires and tents, just at dusk, 6.10 P.M. This was alongside the road between the Ghania and Thika rivers (Camp I). Sat up writing till after midnight.

April 17th. Sent back a considerable mail to Nairobi by the Indian driver of the Cape cart, who proposed to return slowly and arrive there by about 4 P.M., instead of covering the 30 miles in 4 hours, 10 minutes, as on the previous day. Minimum temperature during the night out on the



grass had been 61° F. Caravan started at 6.0. Camped at the Saba Saba river at 1.10. (Camp II). C.W. Neligan, en route from Nyeri to Nairobi to attend a Court case there, arrived in the afternoon and camped with us. Wet and dry bulb thermometers, (hereafter denoted by "W and D", 67° F and 87° F at 3 P.M.; 64° and 67° at dusk.

A couple of Wakikuyu deserted in the evening, going in the direction of Kibalela's village. This did not inconvenience us as the final selection of porters was not to be made till we reached Nyeri, and as food had been consumed at the rate of some 2½ loads a night since the caravan started on the 14th., we were not short of men. Bright hot day. Passed a number of Indian camel-carts going towards Nairobi.

Sunday April 18th. 1909.

Min.Temp. 63° F. Rain during

night 0.11 inch. Started at 6.30. Crossed the MARAGWA at 9.15 by the new permanent-bridge. (Photo 2043). G.M. Cresswell, Acting Executive Engineer in the Kenia Province met us here, having ridden out by mule. We got to Fort Hall by midday (Camp III) and pitched our tents at the top of the parade ground. This was a dirty and somewhat verminous camping-place. Flies were troublesome, and generally speaking it presented in a concrete form a resume of the arguments against the allocation specified "camp-sites" for habitual use of by travellers along any certain line of communication. Any such camp-site should be of ample size, and

should be only used "in compartments", successive plots, after use for six months or less according to the traffic, being ploughed up, rolled, and left under grass again. Cresswell in the afternoon rode back to the MARACWA to pass a half-gallon of the river water through a weighed filter paper for me. This proved a long operation as the river was very turbid, being in flood and of a deep terracotta colour. Wrote to Reddie at Embu saying we hoped to meet him at Kutu's village in about eight days time, to get supplies of food and some more porters from him. Fine day. Very light breeze. Red sunset, with Kenia showing up clearly. W. and D. 68° and 76° at 4 P.M.

April 19th. No rain. The sun did not come out till about 11.0. The country was beautifully green — after the dismal brown stretches of the Fort Hall road. It was very fully cultivated and we met large numbers of Wakikuyu, both women and men, carrying produce. At 5 to 12 we reached the well-known camping-ground at the half-way house between Nyeri and Fort Hall. It is still referred to as WAMBUGU'S, although Wambugu himself has now left the locality and moved some few miles away. His brother WAMAIHYU came to see us. We did not make use of the rest-house as many of the objectionable features of the public camping place present themselves in an aggravated form in the case of a public rest-house unless it is under continuous and very capable supervision. Camped on



the grassy meadow alongside the house. (Photo 2044) W. and D. 66° and 78° at 4 P.M. We did not follow the new road from Fort Hall to Nyeri on this day's march as several of the bridges were not yet in, although the earthwork was nearly completed. The attempt would have involved the wading of several swollen streams.

April 20th.

No rain. Min. temp. 56° F. Took care to have all camp litter heaped on the fires before leaving the public camping place at Wambugu's. Started at 6.10. Dull morning. Kenia not in sight. Crossed the Gura River by the old foot-bridge at 7.45. Reached Nyeri boma at 11.0 (Camp V.). I sent out word to the villages of some of the men who had been on Kenia with me that I wanted numerous porters. Cresswell made arrangements for the supply of 140 loads of maize flour, and Battiscombe sent out a headman to engage a hundred porters for himself. As we were informed that the three tributaries on the South bank of the river the MATHIOYA, MARAGWA, and THIKA, were likely to be in high flood and therefore impassable, Cresswell set to work to design and build a collapsible canvas boat.

April 21st.

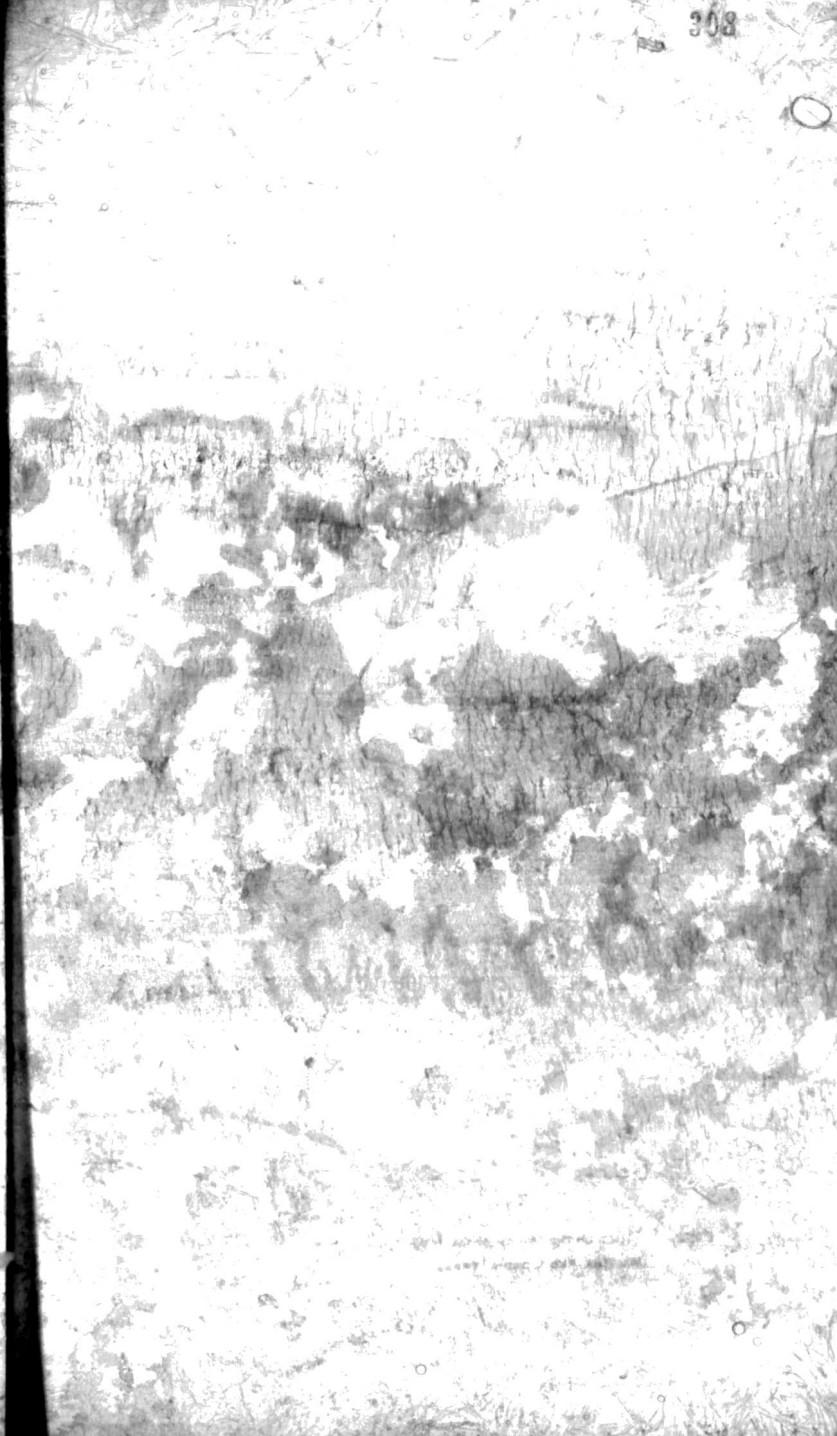
Engaging men and buying posho today. Visited the P.W.D. yard to inspect Cresswell's newly-installed 20 ft. diameter water-wheel (Photo 2051) for driving his shop. Also did a lot of official correspondence in my tent. Rain during the night 0.45 inch. Min. temp. 58° F. W. and D. 67° and 71° at 4 P.M.

April 22nd.

Rain during night 0.10 inch. Min. temp. 68°F. Kenia clear of clouds before sunrise, as on the previous morning. (Photo 2048). Doing official correspondence all morning. Engaged more men and went down to the P.W.D. yard in the afternoon to see the canvas boat launched. Work had been continued on it till after midnight. It floated high in the water and was quite watertight. Heavy rain at ~~midnight~~ night.

April 23rd.

Rainfall since the previous morning 0.39 inch. Min. temp. 68°F. I went on with official correspondence all morning. Battiscombe got one hundred porters off with loads of food in charge of his Mnyema headman Ali bin Juma with instructions to take the road through Wambugu's and Fort Hall and to meet us at the Tana River suspension bridge. In the early afternoon I got off a large mail to Nairobi and struck camp at 2.0. Battiscombe's sixty odd "professionals" went off down the Embu road. I took my 94 Wari-haya down by way of the P.W.D. Yard in order that four of them might pick up the portable canvas boat there. We started the measurement of our marches by a means of a Forest Department ^(measuring-wheel) perambulator reading to 10,000 yards and repeating. Sent a last telegram to Nairobi to say that the Galla youth Songoro, if well enough to travel, might still overtake us at the suspension bridge by leaving Nairobi next day. The canvas boat had to be carried open instead of collapsed as its paint was still wet. By the time it reached the ford on the Chania Mdego, Battiscombe



had got the camp pitched on the other side (Camp VI). The river was waist deep and running briskly.

April 24th.

Heavy rain during the night and up to 8 A.M. Amount 1.22 inches. Min. temp. 50° F. Did not leave till 8.30. On reaching the double lock bridge across the AMBONI found that one bay had broken down. (Photo 2052). Some of the men crossed it by sliding down rough jungle wood poles, and others forded the river, chest deep, along a stretched rope. It took upwards of two hours to get the caravan across, instead of the two or three minutes which would have been required if the bridge had been intact. A light N.E. wind brought up rain again before 1 o'clock. We continued along the banks of the river for about two miles. We were here on the North side in the region sometimes referred to as trans-
river from the position of the
Tana, though the double-lock bridge is known as the SAGANA. We passed along native tracks of red earth, extremely slippery when wet, past the East end of TUMU TUMU Hill and camped at 3.15 near a village known as ROKANGAB. (Camp VII) The rain stopped in the late afternoon. There was a light S.E. breeze at night.

Sunday April 25th. 1909.

Rain during the night 0.13 inch. Min. temp. 60° F. No wind. The peak of Kenia was in sight bearing 40° E of N (Mag). Started at 7.10 during a short burst of sunshine. Our path led almost due South, ~~HEAVILY~~ ~~running~~ almost continuously down-hill, along a spur stretching down towards the plains that lie to



the East of Fort Hall. Passed a small stream called the MIRIGO about four feet wide two feet deep and running about three miles an hour. Two and a quarter miles further on was another small stream, the KA THA KA ME. (The Little Blood River?). At about 1.0 we stepped out from the broken country of descending spurs and foothills on to an extensive plain traversed by the SAGANA (or Tana) and the NAGATTI or KAGATTI. There appeared to be heavy rain behind us up in the hills. In the afternoon we issued fishing tackle to some of our men and they fished patiently but without success. They chiefly used small grass-hoppers and crickets as bait. Numbers of Wakiraya had a swim in the Nagatti. We descended some 980 ft. on the 13 mile march today. This was camp VIII.

April 26th.

Rain at this camp 0.09 inch. Min. temp. 64° F. While we were at breakfast mist closed in on the hills around us and light rain began. Left at 7.0 and after a march of only a mile and a half came in sight of the white-painted standards of the hundred-foot-span suspension bridge erected by Crosswell some few months previously across the Tana (Photo 2055). Neither of us had approached the site from the trans-Tana side before, so we did not know how near we were to it when camping on the NAGATTI the previous afternoon. The bridge impressed our men considerably. Battiscombe's gun-bearer Abdullah said it reminded him of Cairo! (Unsolicited testimonial!). Ali bin Juma was waiting for us with his hundred porters and the loads

all intact. Among Battiscombe's "professionals" there was a party of eleven SOI-DISANT Baganda, actually natives of the island of UKERWA in the Victoria Nyanza. They fed, slept, and occupied one tent together. We felt fairly certain that one of them had small-pox, so we sent a runner in to the Medical Officer at Fort Hall. An Indian compounder named Kushall Ghend came out on a bicycle in the afternoon and confirmed our suspicions. Made a hammock with a blanket and two jungle-poles and had the sick man carried away to Fort Hall by four WAKERWE. We afterwards learned that this man recovered under treatment at Fort Hall. The Wakerwe returned in the evening with two bottles of Jay's fluid. The Nairobi contingent of my Wakikuyu porters were not very happy about this time as they had all been vaccinated at the Civil Hospital before leaving Nairobi and ninety per cent of them had "taken" properly. At 5.30 D. Betry Pigott turned up en route from Fort Hall to EMBU. He camped with us. Light breeze from the E. and N.E. during the day. Sky mostly overcast with light cloud.

April 27th.

Min. temp. 63° F. No rain. A light drizzling mist in the early morning. We had expected that Reddie would be passing today into Fort Hall from Embu, but we sent a message to him to say that we would wait for him at the bridge. Pigott left at 6.0 intending to get into Embu in the late afternoon. Battiscombe soaked the entire effects of his ten Wakerwe porters —

-- tents, bedding, clothing, goods and chattels-- in Jeyes Fluid. In the afternoon we moved camp to a higher and better site on the other side of the river and about half a mile down stream. (Camp X). We remained on this, the South, bank all the way to the sea, a distance of some 570 miles. About 4.0, a thin shower started far down on the N.E. slopes of Kenia, passed Southward over the MBE hills, and then swung up, extremely black and heavy behind the gneiss hill KITHOI or KIAMBICHO on which there is a Trig beacon (4553 ft.) just overlooking our camp. It tailed off however before reaching us. Max. temp. in sun and wind thereafter referred to merely as "Max temp." 82° F. "Light airs" all day -- no wind, properly speaking. Clouds moving slowly across the moon from the S.E. at night.

Our boys fishing with ground bait (meat) caught cat-fish today up to 8 lbs. in weight -- bright silver scales with aluminium-grey fins. The colour of the river was a dirty brown -- not nearly as red as the Maragwa was on April 18th. Its temperature, taken by Batterscombe some three hours after sunset, was 68° F.

April 28th.

Mis. temp. 64° F. Rainfall 0.07 inch.

Sky heavily overcast. No wind. Kenia not in sight. Batterscombe walked some seven miles down stream to see if the canvas boat might be sent down by water instead of being carried. He came to the conclusion that the placid stretches between portages were not sufficiently long to make it worth while to try to float the boat down.



He had come across a small tree simply laden with enormous caterpillars five inches or more long. (Photo 2056). He brought back a small branch with no less than nine of them on it. (Photo 2057). Climbed Kiambicho in the evening to determine the height of its basin above our camp and the river. Was engaged in writing in camp nearly all day and in the evening till after 11.0. Got a note from Reddie by runner to say that he would not be able to be with us till Saturday morning. Sunny day. Very light breeze. A very black and heavy shower came drumming across the plain from the East at 11 P.M. but it tailed off before reaching us. Battiscombe's cook caught seven of the bony catfish — 4 lbs. Two eels were also caught. Pig, water-buck, bushbuck, Chualer's reedbuck, zebra, kongoni, and numerous guinea-fowl near the camp. Hippo in the river.

April 29th.

Min. temp. 65° F. No rain. Lined up the entire caravan in the morning for a "quinine parade". Gave them about 10 grains each in the powder form. Battiscombe's men got a rope across the river in the morning and, with a block, I rigged up the canvas boat on it as a "flying bridge". Sent four men in to Fort Hall to be vaccinated. Collected a number of plants and grasses, and insects. Rain showers developed over the hills of MMK at 2.0 P.M. and stray showers passed Westward along the slopes of Kenia. Practically calm at the camp all day. No obvious motion of the clouds at night. Max. temp. 92° F. W. and D. 66° and 80° at 4 P.M.



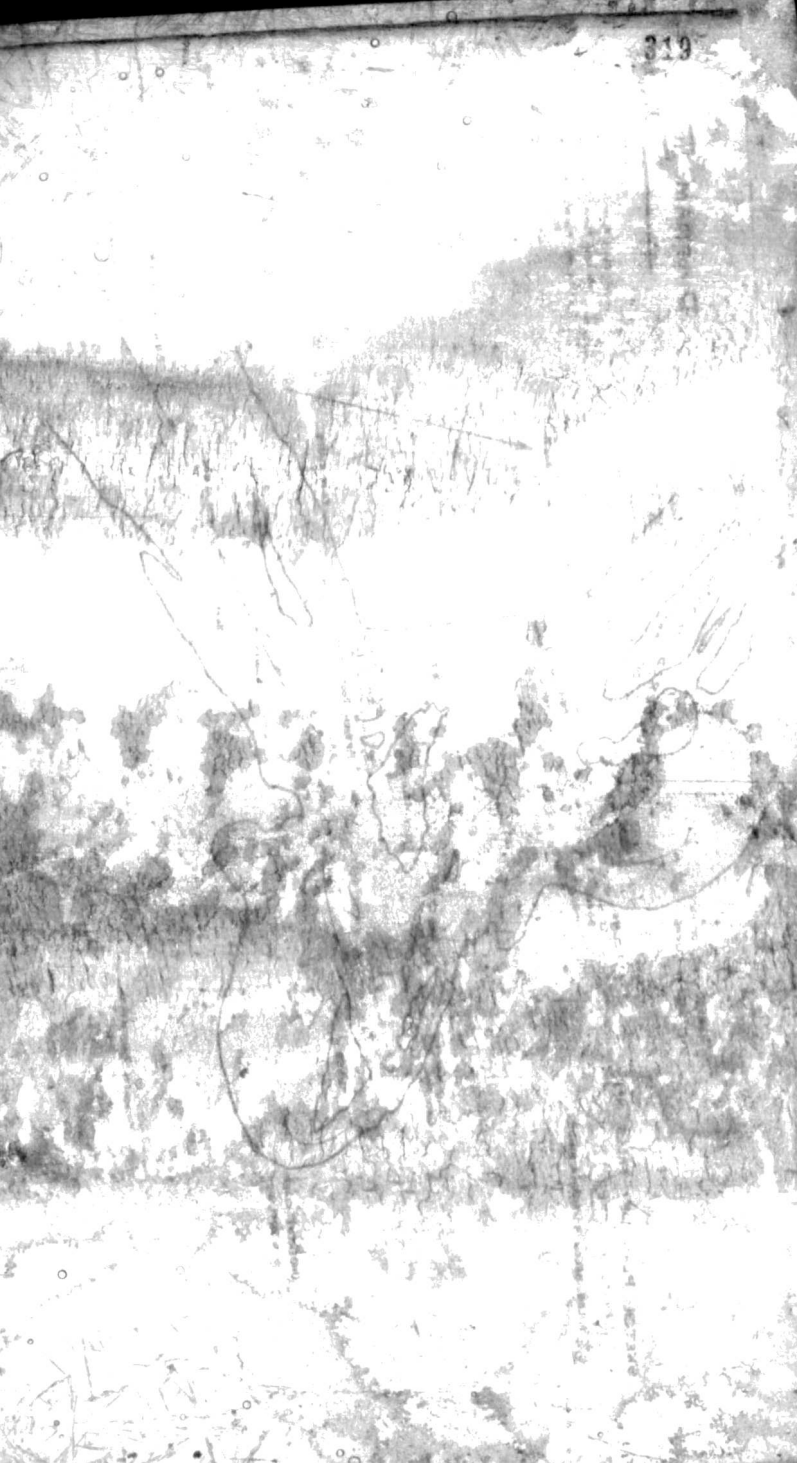
April 30th.

Min. temp. 60° F. No rain. Red sunrise. Collecting and writing during the day. Again climbed Kiambicho in the evening, taking three aneroids up. On getting back I found that the Galla Youth Songoro had arrived in camp, having been permitted to start from Nairobi on April 28th. (See May 1st) Light wind all day, veering about from E. by N. to S.E. Karria showed up in the evening. (Photo 2059). Max. temp. 84° F. W. and D. 67° and 79° at 4 P.M. The river rose about four inches today. Sharp rain came up from the S.E. at night.

May 1st.

Min. temp. 64° F. Rainfall 0.43 inch. Word came into our camp at daylight that Reddie was quite near, so during the morning, after the rain had stopped at about 8 A.M., we sent off 135 Wakikuyu carrying food. Reddie got in about noon. He brought us sixty three-quarter-loads of food, but all the men who had been carrying it from Embu refused or tried to go on with us — even only for eight or ten days. Afterwards some eight or ten of them returned and volunteered to come with us. All the same we had to leave 24 loads behind in charge of two men. Reddie went on to Port Hall and we left at 9:30. Passed a considerable fall about 1 1/2 hour after starting. Pitched camp at the junction of the Thana and Mathioya (Camp XI). There were an extraordinary number of cockchafers flying about just at sunset. Karera my headman issued "posho" to 213 Wakikuyu at night. Some rain came up from the South at 8.0 P.M. We got lot of information







Falls; the "Seven Forks" and so on, but when we found a few days later that for whole days' marches on and the river was one succession of cataracts, the idea had to be abandoned. On leaving this "Fall No. 1," we overtook the 25 men returning ~~with~~ with loads from Camp X. Got to the Mathiys just as the last boatload of posho-loads was going across. (Photo 2002). The two men whom we had left behind at Camp X had had lions rearing near them during the night. We had been told at Fort Hall home that lions were troublesome a few miles out on the Embu road, but we had not seen or heard any while at Camp X. In the afternoon the last of the loads of food which Crosswell had brought for us and which we had left behind for lack of porters arrived by two parties, of 30 and 15 men respectively. Of the former lot 22 returned home at once. The latter party of 16 agreed to come with us for five marches only. Distributed posho to 266 men at night, not counting Battiscombe's "professionals". Several showers were passing erratically about the district in the afternoon. We only got a few drops in camp. (Camp XII). W. & D. 71° and 81° F. at 4 P.M. Mackerel sky in the evening, with a very slow drift across the moon from the S.E.

May 3rd. Min. temp. 63° F. Rainfall say, 0.01 inch. Kenia summit was in sight, bearing 10° E. of N. (Mag.). Got away at 6.35. Our party comprized cooks, private servants, (house-boys and gun-bearers), askaris (to escort a large portion of our party back from the Mumoni hills), Forest

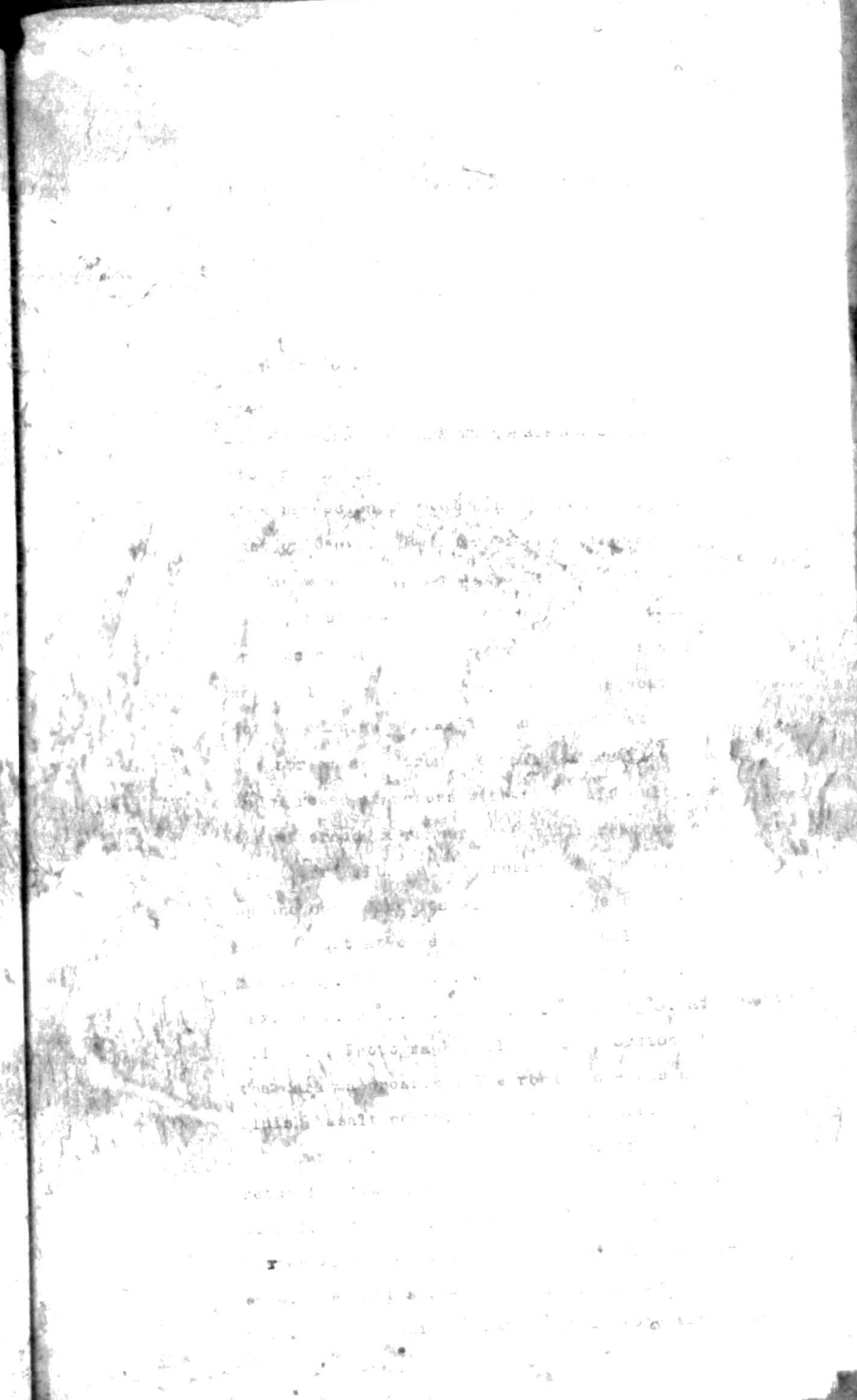


orderlies, the "professionals", between twenty and thirty "ma-boy" — the unrecognized "private servants" of certain of the askaris and professionals, carrying their bedding, and cooking and washing-up for them — and lastly the Wakikuyu porters. I counted them as they filed out of camp. There were 362 altogether. Our intention was to arrive at the so-called "Grand Falls" with 100 loads of food, and to do, first double marches, and then hard single marches, down the South bank to the sea. We had heard much of the dense bush that we should have to cut through, and in view of a telegram which we had received from Lamu saying that "mahindi" (i.e. maize) is only obtainable "in small quantity up the river. No other grain in May," we considered it inadvisable to start Eastward from the "Grand Falls" with a smaller supply than this. One traveller had told us that on one occasion when he had been near the Mumoni Hills, four days' hard cutting had carried him to a point two miles distant from where he started. To make quite sure of not running out of supplies we had asked the Provincial Commissioner at Lamu to send a few loads of food up by canoe into the Korokoro district to await us about at the place marked "DALADU" on the maps. (See June 5th.).

Having got the boat up out of the river and "collapsed" it, we walked down the right bank of the Mathioya to its confluence with the Tana — both of them here placid streams — and after a march of 6½ miles in which we passed several minor rapids, come to the MARAGWA confluence.

As it was clearly going to take several hours to get our large party across, Battiscombe was pitching camp on the far side when I arrived walking at the rear of the caravan. (Camp XIII.) Here also we had to send back a small party to bring in fourteen or fifteen loads unavoidably left behind in the morning at Camp XII. The route across the Maragwa consisted of poles from rough barked trees laid from one to another of a succession of boulders and rocky ledges, just on the lip of a very steep cascade, or broken waterfall, apparently fifty feet high at least, though we could not see to the bottom on account of the thick growth of palms and scrub clothing the slope. The canvas boat could not be carried across here as we had it carried a short stream away from the fall and Battiscombe and I rowed it across with some difficulty. In the afternoon a runner with mails reached us from Fort Hall. He had crossed the Maragwa high up and come down its right bank. He started back almost at once with a small mail that we had ready. Light N.E. wind during the day. Max. temp. 90° F. W. and D. 71½° and 61½° F. at 5.15 P.M. Photograph 2061 shows a portion of the Maragwa crossing. The rock there was a dark bluish basalt containing long feldspars.

During the day we met numbers of Wakikuyu returning from the Kitui and Mumoni districts with livestock which they had obtained, in barter with the Wakamba, for agricultural produce. They all spoke of the scarcity of the rains in Ukambani and said that in some districts



they had failed so completely that no seed had been sown. The futility of "Road Passes" was well exemplified in the case of two of these parties. A caravan of between twenty and thirty men were walking behind the possessor of a pass made out at Kitui for bearer*and two others. One of our askaries stopped this party and demanded their pass. Being unable to read, he could not discover that it was a permit for three men only, so he allowed the party to proceed. Another party with sheep and goats bolted on catching sight of an askari. Evidently they held an impression that trading with a neighbouring tribe was a risky adventure which could only be carried to a successful conclusion if luck enabled them to avoid the government authorities and all their representatives. They were probably much surprized at being able to emerge from the bush after the caravan had passed, and collect all their live-stock again. There seems little doubt that among the disadvantages of a system which insists upon travel not being undertaken without previous application for a passport, must be included, in a country such as East Africa, a serious limitation of inter-tribal commerce. Strong arguments are needed to justify the perpetuation of any legislation which acts as a deterrent to legitimate trade and a handicap to the employer of labour.

It was worthy of remark that though the grass near the Maragwa junction was shoulder-high, it was free from ticks. It appeared not to have been burnt for several*seasons* back.

A reedbuck and a kongoni that were shot were free from ticks. Buffalo spoor which had first appeared at the Mathioya junction was here very prevalent. Numerous mpala -- one herd numbering sixty or eighty. Spoor of one or two lions but no traces of rhino. The country out a short way from the river presented scattered bushy trees -- admirable stalking country.

May 4th.

(Min. temp. 64° F. No dew, the sky having been heavily overcast all night. By way of reducing our loads we issued two days posho to all our men before starting in the morning. This amounted to 312 lbs. Batiscombe then went off with the caravan. I climbed up a low grassy hill to see if I could see back up the river. It appeared as a thick brown stream about 80 feet or 100 feet wide flowing placidly in a valley about a mile wide across tops, with gently sloping sides heavily covered with acruce trees and dense jungle. Raphia palma made their first appearance along the river at this confluence. The river then wound away in a general direction of 95° E. of N. for some four miles, when it turned to about 160° E. of N. Just before this bend we stepped through a gently-flowing little tributary about twelve feet wide and one foot deep, probably not a permanent stream. ~~There~~ Three distinct varieties of soil occurred on this march: -- first grey to blackish, with grass shoulder high, then light red and sandy with gneiss pebbles appearing on the surface, and thirdly a very rich red soil. Camp XIV was pitched on an extensive grassy flat alongside the river. (Photo 2064) The mean of five



Diagram III

1000 2000 3000

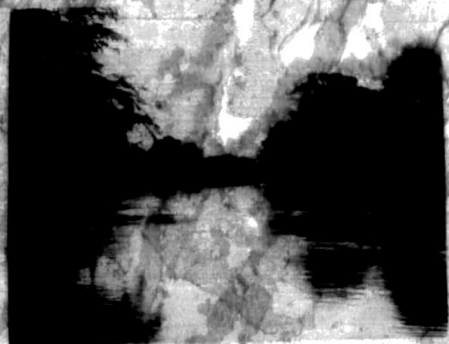
Distance: 250 feet

1000 2000 3000

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SECTION 1000 2000 3000



No. 2065. A PLACID REACH NEAR THE THICK JUNCTION.

float experiments indicated a velocity of four feet a second. (150 feet, measured, in 37 1/2 seconds.) Trees overhung the water and from their branches ~~we~~ we measured a depth of 16 feet at a short distance from the bank, which presented a vertical face of earth ten feet high. The river was 120 feet wide, so that if the depth and rate we measured were merely local ones, but fairly uniform throughout the channel, the discharge here would be upwards of 8000 cubic feet a second. A few drops of rain came up on a sharp breeze from the S.E. in the late afternoon. The breeze at night was from the N.W. W. and D. 67° and 76° at 4 p.m.

May 5th.

Min. temp. 66° F., Rainfall, 0.01 inch.

Very light dew. Battiscombe issued three days' posho to the "professionals" in the morning and I issued more than 200 lbs. to the Wakikuyu contingent, being their rations up to the evening of the 7th. This enabled us to go off carrying all our loads, and leaving none behind, as on the last two days, for a second trip. On the march I fell behind to measure and photograph the river. (Photo 2065) It was a placid stream 200 feet wide. When I reached the Thika, Battiscombe had got all the loads across. It was 90 ft. wide and no more than four feet deep at the worst part so all the men had waded, and the boat had not been required. Made a rough measurement of the discharge of the Thika in the afternoon. Its cross-section was as shown in diagram III. The discharge was about 530 cubic feet a second. W. and D. 64° and 75° at 6.30 P.M. Bright sunny morning. The sky was overcast from



midday onwards. We saw giraffe (two), water-
buck, bushbuck, kongoni, zebra, impala, warthog,
and small brown reboleys today. Hippo in the
river were numerous. Ticks were very numerous,
a large brown variety predominating. A few
few of the small red ones were seen. On the
succeeding days specimens were collected for
submission to the Chief Veterinary Officer.
~~W. and D. 67 and 70 at 1000~~

May 6th.

Min. temp. 64° F. No rain. No dew. We got
away at 6.30. Our general course was E.S.E. and
S.E. for about 4 hours, when the river turned
sharply to the N.E. in rolling country covered
with thin scrub and low bushes. We put up a
female rhino with a young calf. They trotted
along our line in short grass at about 40 yards
distance — a fine sight. Immediately afterwards
we disturbed a sleeping male at very close
quarters. He hurried away to about twenty yards
distance, regarded us wearily for about a mi-
nute and then turned and galloped off. He had an
inferior horn so we did not stop him. After
pitching camp in the afternoon Batiscombe
killed and landed a hippo. (Photo 2066.) It was
entirely eaten, chiefly by the "professionals".
We shot kongoni and waterbuck today as hide was
much in demand among the men for sandals. On the
completion of the march, which was one of nine and
three quarter miles only, we were covered with
ticks. The large brown variety still largely
predominated. This was camp XVI. ~~W. and D. 67 and 70 at 1000~~

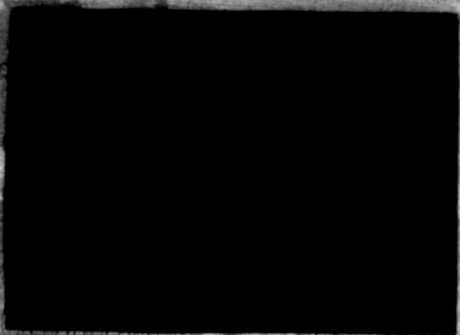
May 7th.

Min. temp. 66°. No rain. Practically no dew.
Got away at 6.30. There were no native tracks
but many game paths. The soil varied from a



UPWARDS OF TWO HUNDRED MEN HAULING A
DEAD HIPPO UP THE STEEP BANK AT CAMP XVI





No 2067. A LARGE LANG TORTOISE WEIGHING UPWARDS OF 30 LBS.



No 2068. CAMP SITE BEING CARRIED IN DEARER BUSH.



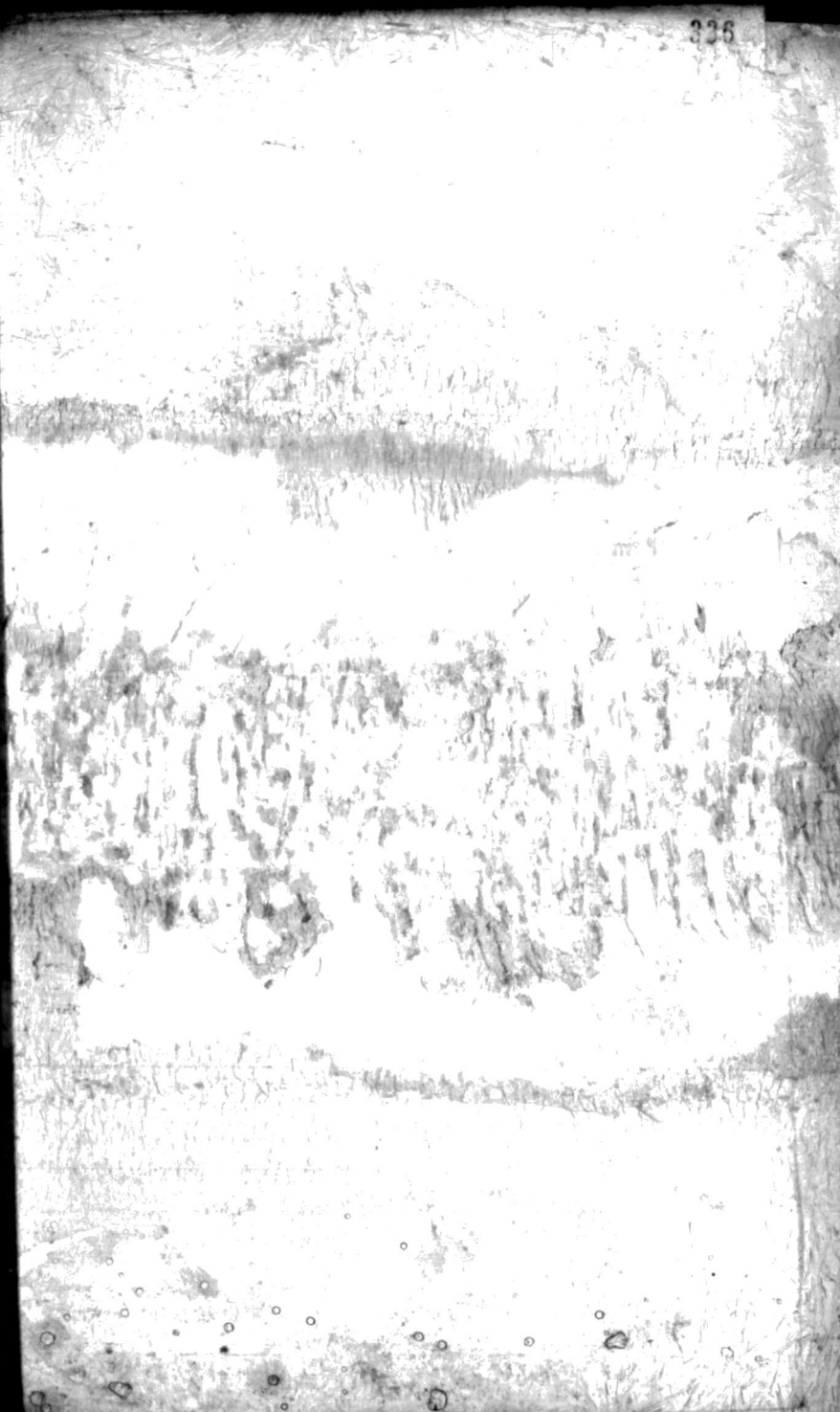
No 2069. THE FIRST ROCKY BARRIER AT CAMP XXI.

light earth-colour to reddish. We saw two solitary rhino, a party of four (male, female and two calves) water buck (very numerous) duiker, dik-dik, mpala, eland (two), monkeys, baboons, tortoises (two varieties -- large, Photo 2067, and small) numerous hippo in the river, and frequent spoer of giraffe. At first we were in grass, very full of ticks, later among scrub acacia trees, and in thorn bush which gradually increased in ~~the~~ denseness as we proceeded, the ticks at the same time diminishing in number. Towards the end of the march we were chopping a path, and as there was no open ground for a camp, a site had to be cleared. The foreground in photo 2068 gives some idea of the denseness of the bush in this part. (Camp XVII.) Some Wakikuyu killed a puff-badder five feet long.

The sky was overcast with light cloud practically all day. Wind was not felt till about 10.0, when it blew refreshingly, changing suddenly from the N.E. to S.E. ~~W. and 70-80 m.p.h.~~

We passed a shoal and a well-formed island on the 10 $\frac{1}{2}$ mile march to-day, and where we camped there was an extensive exposure of rock across the bed of the stream. The river passed over this in a number of shallow branches, none of which appeared to be of any considerable volume. (Photo 2069) Heavy work would be required here to make provision for the passage of even medium-sized logs.

May 8th. Min. temp. 64° F. No rain. The sixteen men who had arranged to come with us for five days only (See May 2nd.) were this morning paid up,





No 2070

FALL No. 2.



No 2071

FALL No. 3.

somewhat to their surprise, and allowed to return. They were given posho for their return journey and advised to cut up-stream to the bridges on the Fort Hall road if they found the Thika, Maragwa or Mathioya in flood. We distributed 300 lbs. of food to Wakikuyu to reduce our loads and got away at 7.20. The bush was thicker than on the previous day and although slashers were vigorously used by a party in advance of the caravan, our rate of march did not exceed one mile an hour. We passed long slender islands in the river and at about a mile and a half from camp came to a peculiar narrow strip of quite open forest along the bank. Three and a quarter miles from camp we found the river going over a six-foot ledge. (Photo 2070.) This stretched completely across the river. We considered that this might be the "Schweinfurth Fall" of Peters, but in the absence of any certain knowledge on the point referred to it was merely as Fall No. 2. A few hundred yards below it there occurred another fall (Fall No. 3. Photo 2071.) Here there occurred a fall of twelve feet on a number of branches of the river separated by rocky islands. No great volume of water went over any one of the branches that we could see from our bank. Five and a half miles from camp there was a noisy rapid with a total fall of five feet. There was a considerable island half way across it and we could not see the left hand branch clearly. A thousand yard further down we came to a hillock of grey Schistose rock. Any sort of an eminence was an unusual feature along the banks,



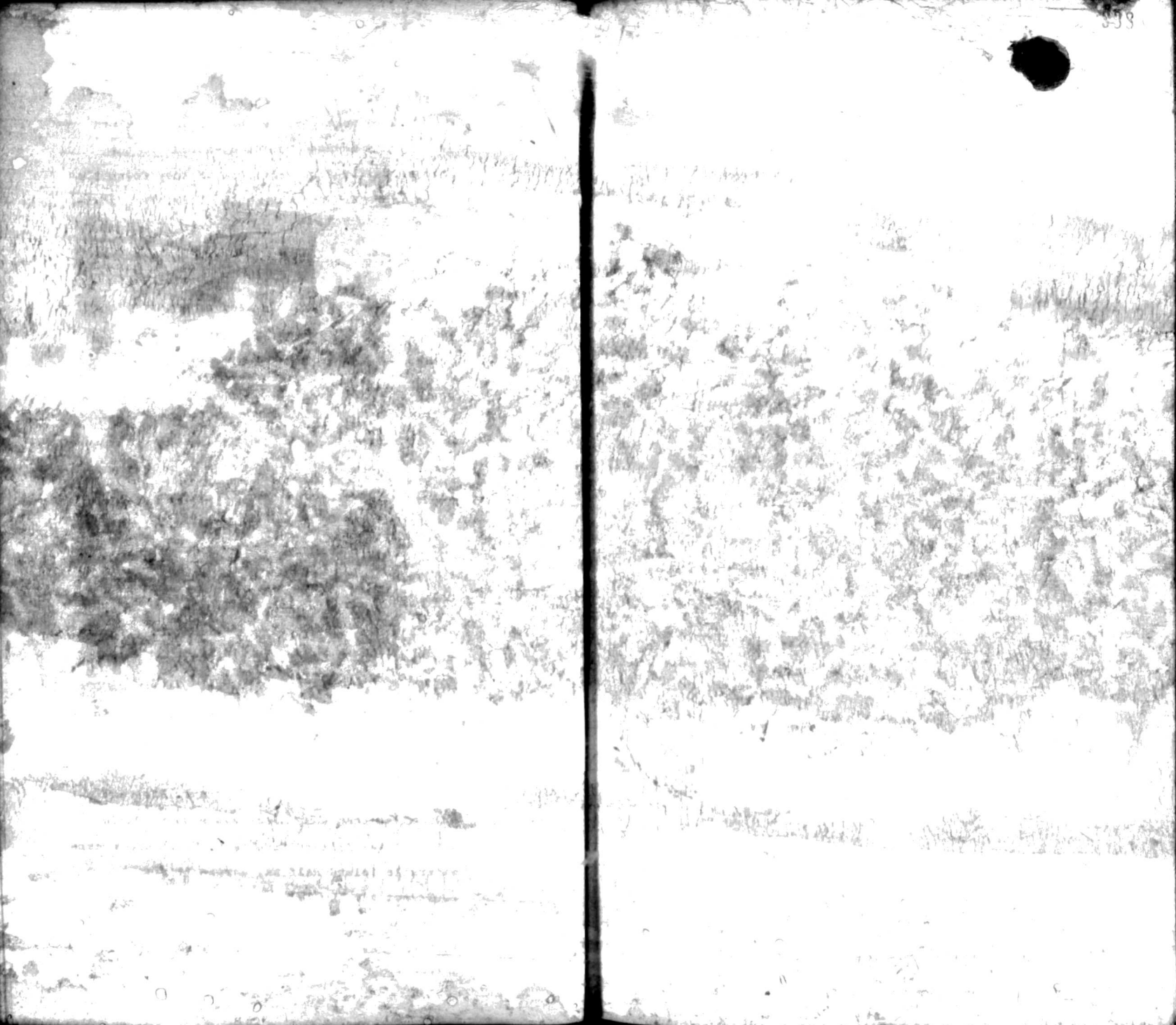
N° 207

FALL N°2



N° 207

FALL N°3

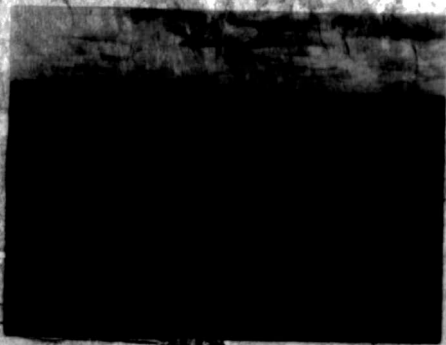


THE SEVEN FORKS (?)

N^o 2072

N^o 2072

LOOKING DOWN - STREAM FROM THE HILLOCK ABOVE CAMP XVIII



N^o 2074. LOOKING DOWN STREAM FROM THE HILLOCK ABOVE CAMP XVIII.

MADE THE MEN SEARCHING FOR A NATIVE SHAMBA ON THE LEFT BANK.

of the river. This was about 200 feet high commanding extensive views down stream (Photo 2072-3.) and up (Photo 2074.) We halted just beyond this. (Camp XVIII) I climbed the hillock again at sunset to see if Kenia was in sight.

The view down stream with its green dunes has been noticed by the natives.

It was obscured by cloud but it lay approximately 284° E. of N. (Mag). Max. temp. 95° F. Wind D. 66° and 71° 140°

We saw numerous indications of rhino, buffalo, and giraffe all day. Hippo in the river were numerous, in schools of ten or a dozen. They appeared tame and inquisitive, and we did not molest them in any way.

In the morning we saw our first crocodiles in the river.

Sunday May 9th. 1909. Min. temp. 67°. No rain. No dew.

Overcast sky. Red sunrise. We got away at 6.30. The country was fairly open thorn bush, and we got along at about 2 miles an hour, doing a considerable amount of chopping. I walked up sloping ground to the right of our line of march to try and get a distant view of the Mungoni Hills. As I was sitting down, sketching their outline, a full giraffe walked down wind on to me. He was only 35 yards away (measured) when the birds on his back fluttered away and frightened him, whereupon he ambled off. Unfortunately I had not my camera with me. Three rhino were in sight, moving slowly away from the route of the caravan. The river here was one long succession of cascades. One of them might be considered to amount to a water-fall (Fall No. 4.) For the most part the river was flowing E.N.E. and N.E., though twice it took turns due East. Five miles from camp, a tributary appeared to come in on the other bank, flowing N.E. were

THE EVERETT COLLECTION



No 2072

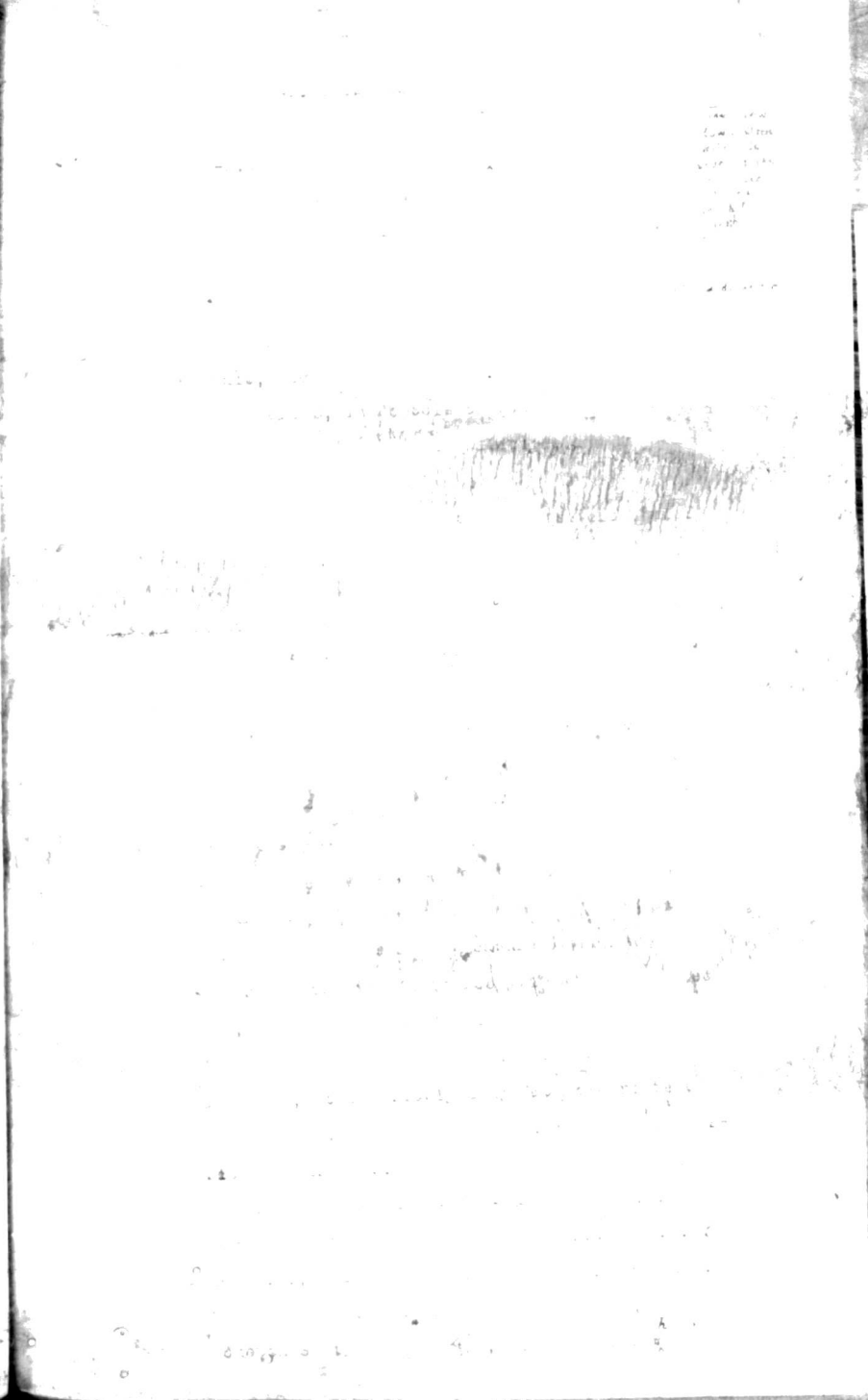
No 2073

VIEW FROM THE MOUNTAIN ABOVE CAMP XV



VIEW FROM THE MOUNTAIN ABOVE CAMP XV

THE EVERETT COLLECTION





it joined the main stream. At six miles we crossed the dry bed of a tributary, where a coarse agglomerate was exposed. After a slow march of $8\frac{1}{2}$ miles we camped on a low grassy island, a few feet from the bank we were on. For the most part the island was only a foot or two above water level. This was Camp XIX.

Max. temp. 101° F. W. and 73° and 88° F. at 4 P.M. There was a light and variable breeze from the S.E. all day. On this and other days while we were in thick bush a party of the "professionals" was sent away as soon as the camp was pitched to cut a track for the first mile or two of the next day's march, keeping always near the river.

We also saw eland, mpala, and numerous waterbuck to-day.

May 10th.

Min. temp. 62° . No rain. No dew. Red sunrise. The river had risen three or four inches. Got away at six with jungle-cutters ahead. Every step of the march had to be chopped. There were practically no bushes that were devoid of thorns. We were surprised on getting away from camp to find that we were travelling South. We were now on a stretch of the river that was only shown as a dotted line on the maps, but we had expected that it would be flowing East and North. However at 1800 yards from camp it was actually flowing S. by W. In the first three hours we did ~~not~~ only $3\frac{1}{2}$ miles. At 9.15 we came to a rather imposing fall. (Fall No. 5 Photo 2075.) It was in two branches, the left-hand one, seen in the photo, being a cascade rather than a fall.



No 2075

FALL NO. 5
LEFT HAND BRANCH

front of the...
one of the...
...
...

The drop on the right-hand branch was about 15 feet. Below this the river was a tempestuous rapid about 150 ft. wide, heading S.S.W., between banks, and round islands, filled with screw-pines and raphia palms. (Photo 2077.) By 11 o'clock, after five hours' marching, the parambulator registered 5 miles 200 yards. There was here another fall (Fall No. 6 Photo 2078.) about 35 feet in height.

The photograph shows the righthand branch only. At 5 1/2 miles from Camp the river turned to the E. by N. Half a mile further on I climbed a hillock of ~~grey~~^{light} grey schistose rock about four hundred feet in height. We camped close by, having done a little more than 6 1/2 miles, and in the afternoon both Battiscombe and I re-ascended the hill to take photographs from the top. The view up stream is shown in photo 2080, looking E. by N. The view down stream, with ~~at least~~ "seven falls" ~~is shown in photo 2079.~~ is shown in photo 2079.

Close to camp was another imposing cataract, which we called Fall No. 7. (Photo 2081.) So much of the river hereabouts presented an appearance as broken and tempestuous as this, that there was difficulty in deciding what should be merely described as cataracts and what should be considered a waterfall.

We saw no game all day, though fresh traces of rhino were common. A large herd of cow and calf elephants, without any bulls, had passed along our route down-stream a day or two previously. Heavy tamarind trees, baobabs, and *Sansivera* fibre were common all day. W. and D.

1902. Dec.

of this were

and the

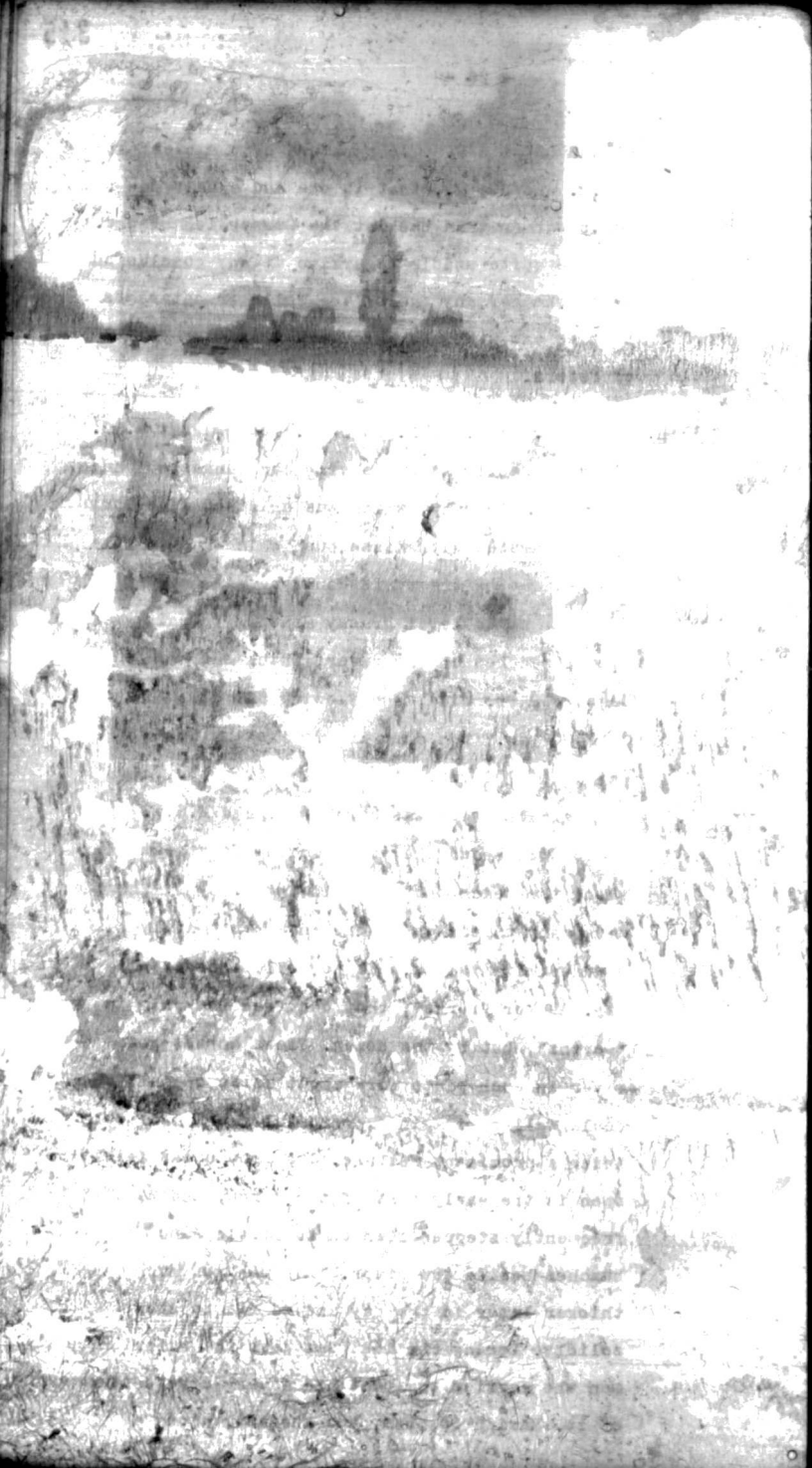
of the

68° and 83° at 5 P.M. Temperature of the river at 9 P.M. was 69½° F., that is one and a half degrees warmer than back at the Suspension bridge. We were quite unable to arrive at any conclusion as to whether any one of the falls or cataracts that we saw might be the "Carl Alexander Falls" of Peters.

May 11th.

Min. temp. 64° F. No rain. Got away at 6.15.

Almost directly after leaving our congested and uncomfortable camp, which was on steep side-long ground covered with dense bush which had to be chopped out before tents could be pitched, we came out on to level grassy meadows fringing a placid reach of the river, which was here at least 300 ft. wide, and flowing ~~on~~ silently. At 3400 yds. from camp it was flowing S. by E. while at 2700 yds. it was going S. by W. The general direction was however E. and N.E. Photo 2022 shows the view looking up stream along the reach that was flowing S. by W. There were many stretches of broken water heavily studded with islets, but no real cascades all day. As for "forks", they occurred not only in "sevens", but by the dozen. Views across the river in such parts were about as "tropical" as could well be imagined, graceful raphia palms being a prominent feature. The ground was fairly open in the early part of the march, and we frequently stepped down on to little sand beaches beside the river. The bush got much thicker later in the day and we had to chop solidly. During the last few days the unfortunate men who carried the boat had a very severe time of it. Having to push, two abreast, along a



narrow cut in thorn bush, scarcely sufficiently wide for one, they themselves, their clothes, and the canvas of the boat, all suffered considerable damage. The boat was not a popular institution at all, and the crew was changed every trip. It was the turn of the "professionals" to carry it to-day, and they did not get into camp till 7.30 P.M. We had to send out lamps to them. We did less than nine miles today. We saw numerous hippo in the river. Battiscombe's neck got a fright by walking on to a sleeping rhino, which went off with a great explosion. Far back along our long line of porters, a rhino charged through the caravan twice, horns one load of flour, completely burst and spread out another, and then went off, happily without hurting anybody. An akari walked along with the boatmen every day as a slight measure of protection from rhinos.

By this time both Battiscombe and I had issued considerable quantities of fishing tackle to our men, and large numbers of fearfully bony cat-fish, running up to two and three pounds in weight, were caught here.

S.E. wind nearly all day. W. and D. 69° and 91° at 2 P.M., 71° and 89° at 4 P.M.

Shot a large snake in the afternoon. It was about seven feet long and four inches thick, black, clouded with patches of yellowish-brown.

Our camp, No. XXI, was on the edge of a shallow backwater. As there was no fear of crocodiles here, for we could see to the bottom of the water, most of the Wakikuyu bathed. (Photo 2083.)



May 12th. Min. temp. 70°. No rain. No dew. Sky heavily overcast. Very colourless sunrise. Left at 6.20. Although at 3½ miles from camp the river was flowing due South, its general direction was N.E. and E.N.E. Broken water and numerous islets prevailed all along the march which today amounted to 11½ miles. The bush was slightly more open and much less thorny. Along by the river, acacia trees up to four and six feet in diameter were common. Raphia palms almost disappeared. Saw no game except numerous hippo. W. and D. 70° and 84° at 4 P.M. Hot and sunny all day. No breeze worth mentioning. Temp. at 9 P.M. was 80° F. This was camp XXII.

May 13th. Min. temp. 66° F. No rain. No breeze. We set off at 6.10 doing 2½ miles in the first hour in a N.N.W. direction. The river was broad and placid, though going at upwards of three miles an hour. After 3½ miles, islands exhibiting screw-pines and raphia palms again put in an appearance in broken water and cascades. The river up to here had been running in a wonderfully straight course. It then turned S.W. The bush got thicker and more tangled, though noticeably less thorny than on the last four marches. Our pace came down to less than one mile an hour, and the cutting party in front had heavy work. Now and then we got distant views of the Numoni Hills above the sea of bush, and at 11 o'clock we saw distant mist-covered uplands to the N.W. by H. — the foothills of Kenia. After 6½ miles it became quite obvious that the river had bifurcated and that we were following the



N^o 2084 THE MUMONI HILLS CLOUD-CAPPED
LOOKING DOWN STREAM

smaller branch. On making enquiries among our porters, an Mramba named Mumu, employed as nurseryman in the Forest Department, corroborated this observation. He said that on the other and larger branch there was a lake called Katwanguhi. It is probable that this is nothing much more than a placid reach some two or three hundred feet wide. The righthand branch, which we were following, was too full and violent to be passable, so we could not go over to sea. At a lower state of the river this could easily be done however. The confluence of the two branches took place within half a mile. The dense bush covering the entire country prevented our seeing anything of the other branch. We camped on a grassy flat beside the river after doing 12 miles. (Camp XXIII) Latterly it had been running N. and S. by N. W. and E. 75° and 85° E. at 4 P.M. A Northerly wind sprang up in the late morning.

May 14th.

Min. temp. 69° F. No rain. No breeze. Turned out at 4.30. We started away at 5.55, the general course of the river being N.N.E. The river was now flowing in a pronounced valley, the bank we were on being so steep and running up so high that we were shaded from the rising sun till after seven o'clock. The ground was very broken. Sometimes we were several hundred feet above the river. At other times we descended to the water, and walked along little sandy beaches, where there was the spoor of crocodile, water-buck, buffalo, baboon, and a very small cat of some sort. A mile and a quarter from camp we



got a good view of the prominent hill Viambère, away to the W. by S. on the other bank. It appears in photograph 2085. For the second mile of our march the river was placid. Elsewhere it was broken and tumbling. The greenness and leafiness of this region, after the dry thorn scrub that we had been going through for some days past, was a noticeable feature. Some four miles from camp we became convinced that some of the river must have disappeared underground. Sometimes it narrowed down among rocks to a breadth of only thirty feet. It is true that heavy stones, thrown in at such places, could not be heard to plump upon the bottom, but the river nevertheless did not present the appearance of an impetuous torrent of water pouring through a narrow constriction in its course, but rather that of a gentle rippling rapid where water was not passing in any striking quantity. It would be a matter of extreme interest to have the river accurately gauged here by floats, soundings, and current-meter, and again at a point higher up, say near the Thika, where we imagined that its discharge might be something like 8,000 "cusecs".

At 5½ miles the river took a sharp turn to the N.W. We here saw a couple of natives — the first since the afternoon of May 6th. — but we could not get into communication with them. At 5¾ miles we crossed a dry tributary valley coming down from E.N.E. (The "Kaguyu"?) The best available path led up and down the very steep loose banks, which were covered with thick bush. It was a matter of some difficulty

got a good view of the prominent hill somewhere away to the N. by E. on the other bank. It appears in photograph 2025. For the second mile of our march the river was placid. Elsewhere it was broken and tumbling. The greenness and leafiness of this region, after the red iron scrub that we had been going through for some days past, was a noticeable feature. Some four miles from camp we became convinced that some of the river must have disappeared underground. Sometimes it narrowed down among rocks to a breadth of only thirty feet. It is true that heavy stones, thrown in at such places, could not be heard to plump upon the bottom, but the river nevertheless did not present the appearance of an impetuous torrent of water pouring through a narrow constriction in its course, but rather that of a gentle rippling rapid where water was not passing in any striking quantity. It would be a matter of extreme interest to have the river accurately gauged here by floats, soundings, and current-meter, and again at a point higher up, say near the Thika, where we imagined that its discharge might be something like 8,000 "cusecs".

At 5 1/2 miles the river took a sharp turn to the N. E. We here saw a couple of natives — the first since the afternoon of May 21. — but we could not get into communication with them. At 6 1/2 miles we crossed a dry tributary valley coming down from E. N. E. (The "Kaguru"?) The best available path led up and down the very steep loose banks, which were covered with thick bush. It was a matter of some difficulty

to find a tolerably flat place large enough to pitch a tent on. After going a little more than 6 1/2 miles we camped on a narrow strip of grass close beside the river. (Camp XXIV.) The appearance of the river at this point, looking up stream, is shown in photo 2086.

The most striking feature of this day's march was the excellent view we got of Kenia. At 3 miles from camp it lay in a direction 314° E of N. (Mag) The crags on Rotundu bore $323\frac{1}{2}^{\circ}$ E. After passing the Kugaya and entering upon the long and remarkably straight reach to the N.N.W. in which the river passes the Mumeni Hills, Kenia lay constantly in view above the lefthand slopes of the valley. By about 11 o'clock cloud rolled up and hid it.

Bright hot day. W. and N. 68° and 91° at 4 P.M. A sharp breeze suddenly sprang up at 8 P.M., blowing down the valley.

We saw no game today, and no hippo.

May 15th.

Min. temp. 69° F.

Today we decided to make our final selection of porters for the march down to the sea, and to send back all the extra men whom we had brought to carry loads of food. All those I selected were willing to go, and numbers of those who were being sent back pleaded hard to be allowed to come with us. We ~~did~~ did not wish to have this large contingent, in charge only of two askaris, returning through inhabited country if it was possible to avoid it, and as we considered that we were near the borders of the Thaka country we decided to send them back out further delay. Before they started away

to find a tolerably flat place large enough to pitch a tent etc. After going a little more than 5 miles we camped on a narrow strip of grassy plain beside the river. (Camp XXIV.) The appearance of the river at this point, 1300 ft. above stream, is shown in the sketch.

The most striking feature of this day's march was the excellent view of the mountains. At 11 miles from camp we saw in the distance the peaks of the range. Round about 3250 ft. After crossing the pass and entering the plain we were rewarded by a magnificent view of the valley. The river is seen in the distance, and the slopes of the valley are covered with a thick carpet of grass. The view is indeed magnificent.

At 12 miles from camp we saw the peaks of the range. The view is indeed magnificent. The river is seen in the distance, and the slopes of the valley are covered with a thick carpet of grass. The view is indeed magnificent.

Today we decided to make a final selection of porters for the march down to the sea, and to send back all the extra men whom we had brought to carry loads of food. All those selected were willing to go, and numbers of those who were being sent back pleaded hard to be allowed to come with us. We did not wish to have this large contingent, in charge only of two mules, returning through inhabited country if it was possible to avoid it, and as we considered that we were near the borders of the Thaka country we decided to send them back without further delay. Before they started away at

about midday we deprived them of all their sticks and "rungu"-s (knobkerries), as Karera reported that the Meranga contingent were spoiling for a fight with the Nyeri men. Most of these weapons had been cut and fashioned in the jungle we had been traversing, and when we threw the whole pile of them into the river most of them sank. I detained a Masai askari who was one of the return escort until 4 P.M. and went on writing in my tent. Sent off the askari with a large official mail for Nairobi at 4.20 and then struck my tent and followed Battiscombe who had gone forward earlier in the afternoon. The departure of these men left us under the necessity of starting double marches again. We had however one hundred and thirty six fewer mouths to feed every evening. The total number sent back, including the "professionals" "ma-bey", upon whose return Battiscombe insisted, was 179. We gave them rations for seven nights, thus allowing for eight marches up to their arrival at Nyeri, where they were to be paid off. I got away at 4.45 P.M. The path went up and down the steep and very loose hillsides to a troublesome extent, but after a march of only 2900 yards, I came to an excellent camp that Battiscombe had pitched on a grass-covered sandy flat down by the river. Not knowing how long I should be detained over my writing, he had selected the first suitable spot for a camp that he came across. It had been about a two hours' march for the first party that had the bush-cutting to do.

As we considered that there would be no



other unfordable tributaries to cross, we dismantled the canvas boat and sent its framework in pieces back to Crosswell at Nyeri. Its canvas had suffered severely in the last week's traverse of the thorn-bush country.

Saw no game today except numerous baboons and monkeys, scrutinizing our operations from the other bank of the river. This evening for the first time a fish other than the ubiquitous bony cat-fish was caught. It was a type indistinguishable from the fish known as "changu", which is caught in quantities at Mombasa — much better eating than the cat-fish.

The surface-velocity of the river here was four miles an hour.

Sunday May 16th, 1909. Min. temp. 75° F. No rain. No dew.

We stacked upwards of 60 loads in the camp to wait for a second trip, and got away at 6.5 following the river in a N.N.W. direction. At 4000 yards from camp we got a view of Kenia bearing 311° E. of N. (Mag.) We only got 2½ miles done in the first two hours. The river was here flowing fast in a very narrow rock bed with occasional rapids. There were numerous excellent sites for a thirty or forty-foot span bridge. One is shown in photo 2089. In fact a 25 feet span would almost suffice at this point. All along the river here there were vertical rock banks to a height of ten feet or so above water, and then steeply-sloping earth banks densely covered with bush. At 4½ miles from camp it was going N. by E. After about 6½ miles we cleared a patch of bush and pitched an uncomfortable and congested camp (No. XXVI.) upon some gently

other unfordable tributaries to cross, as dis-
mantled the canvas boat and sent its framework
in pieces back to Gresswell at Nyeri. Its can-
vas had suffered severely in the last week's
traverse of the thorn-bush country.

Saw no game today except numerous baboons
and monkeys, scrutinizing our operations from the
other bank of the river. This evening for the
first time a fish other than the ubiquitous
bony cat-fish was caught. It was a type indis-
tinguishable from the fish known as "changu",
which is caught in quantities at Mombasa — much
better eating than the cat-fish.

The surface-velocity of the river here
was four miles an hour.

Sunday May 16th, 1909. Air temp. 75° F. No rain. No dew.

We stacked upwards of 50 loads in the camp to
wait for a second trip and got away at 6.5
following the river in a N.W. direction. At
4000 yards from camp we got a view of Kenia
bearing 311° E. of N. (true). We only got 20 miles
done in the first two hours. The river was here
flowing fast in a very narrow rock bed with
occasional rapids. There were numerous excellent
sites for a thirty or forty-foot span bridge.
One is shown in photo 2089. In fact a 25-foot
span would almost suffice at this point. All
along the river here there were vertical rock
banks to a height of ten feet or so above water,
and then steeply-sloping earth banks densely
covered with bush. At 42 miles from camp it was
going N. by E. After about 64 miles we cleared
a patch of bush and pitched an uncomfortable
and congested camp (No. XXVI.) upon some partly

other unfordable tributaries to cross, we dismantled the canvas boat and sent its framework in pieces back to Gresswell at Meri. Its canvas had suffered severely in the last week's traverse of the thorn-bush country.

Saw no game today except numerous baboons and monkeys, scrutinizing our operations from the other bank of the river. This evening for the first time a fish other than the ubiquitous bony cat-fish was caught. It was a type indistinguishable from the fish known as "nanpu", which is caught in quantities at Bombasa — much better eating than the cat-fish.

The surface-velocity of the river here was four miles an hour.

Sunday May 1st, 1909. Min. temp. 75° F. No rain. No dew. We stacked upwards of 60 loads in the camp to wait for a second trial and got away at 6.5 following the river in a N.W. direction. At 1000 yards from camp we got a view of Meri bearing 311° E. of N. (true). We only got 24 miles done in the first two hours. The river was here flowing fast in a very narrow rock bed with occasional rapids. There were numerous excellent sites for a thirty or forty-foot span bridge. One is shown in photo 2089. In fact a 25 feet span would almost suffice at this point. All along the river here there were vertical rock banks to a height of ten feet or so above water, and then steeply-sloping earth banks densely covered with bush. At 42 miles from camp it was going N. by E. After about 64 miles we cleared a patch of bush and pitched an uncomfortable and congested camp (No. XXVI.) upon some gently



sloping ground about 20 ft. above the river. Some of the men sent back to do the second trip did not get in before dark.

Fine sunny day. Light S.E. breeze. W. and D. 70° and 86° at 4 P.M. The character of the river changed somewhat in the latter part of the march. It became more placid and widened out considerably. (Photo 2090)

May 17th.

Min. temp. 71°. No rain. No dew. Being engaged in checking and counting all loads, we did not get away till 6.30. A short distance from our camp we came upon an open space which looked as if it had been cleared and camped upon by Europeans before. The bush was now more scattered, and our radius of vision along the ground was frequently as much as thirty or forty yds. My Ndorobbo saw a small dik-dik. We had seen no game except hippo and baboons since the 11th. The bush was very green and leafy and comparatively free from thorns. Song birds were in evidence again.

At two miles from camp we passed a dry tributary coming in from the S.E. The river was flowing in a wonderfully straight course, and N.N.E. For 3½ miles it was placid and silent. It then turned N.E. and broken water appeared with grey schistose boulders. There were steep earthy banks of dirty red soil containing much rock. The slopes were densely bush-covered and crowned by numerous baobabs. We only went 4½ miles today so that even the second trip with the excess food-loads was completed by 4 P.M. We then paraded the party and had another issue of quinine. Ten grains all round, and no one

Some of the ...

The ... river ...

... ..

... ..

... ..

allowed to split our camp, No. XXVII, was in the flat sandy bed, about sixteen feet wide, of a dry tributary. W. and D. 71° and 86° P. at 4 P.M.

May 18th.

Min. temp. 69° F.

Turned out at 4.30. Got away at 5.45. The bush was not very dense and we did $2\frac{1}{2}$ miles in the first hour. The river continued very placid. (photo 2091.) At $\frac{1}{2}$ miles 600 yards from camp we caught sight of Kenia bearing 298° P of N. (Mag.) Rotundu bore 310° E. Four hundred yards further on we came to an old camp of the K.A.R. who had been in this region (from Kitui?) about a year previously. For upwards of an hour we were able to follow an old cut of theirs, only slightly overgrown. The undergrowth generally was thicker, but it was short, and the tangle overhead was less. At times we walked on a thick bed of fallen leaves — quite a novelty. At $5\frac{1}{2}$ miles, islands and tumbling water re-appeared. At $6\frac{1}{2}$ miles a noisy tributary, said to be the Mutonga, came in on the other bank from the W.N.W. (Photo 2092.) Several times hereabouts we felt convinced that a branch of the river must have gone round islands apparently forming the high opposite bank, or else must have gone underground. The river here turned first E. by N. and at $6\frac{1}{2}$ miles to the E.S.E. By 10.30 we had done the unusual distance of $7\frac{1}{2}$ miles so we camped, as this meant some 22 miles' walking for those porters who had to do the second trip, and, considering the nature of the ground, we thought this enough. (Camp XXVIII.) W. and D. 73° and 86° at 4 P.M. Bright hot day. No game. No hippos.

May 19th.

Min. temp. 68°. Turned out at 4.30. Got away at about 5.30, heading E.S.E. for $\frac{1}{2}$ mile, when the river turned N.E. again. Here shambas appeared in the distance down a long reach of the river. At $2\frac{1}{2}$ miles from camp we stepped out into open shamba land. It was a great pleasure to be able to walk upright again instead of everlastingly crouching and stooping. We soon met a couple of Wathaka natives. They were entirely unexcited and quite genial. We here had an excellent view down-stream to Kincheki or Kicheki (Photo 2094.) — the "Mount Krupp" of Peters. A number of dry tributaries came in along here — at 4800 yards from the E.N.E., at 9000 yards from the E., at 9800 yards — the Kamatungo, from the E., and at 12300 yards — the Kamengia (Photo 2098) — from the E.N.E. From 6400 yards onwards the river headed with wonderful regularity N. by E. generally broad and placid.

There was a good deal of native cultivation along the banks of the river. At one place we saw the vertical bundle of sticks and sheaves shown in photograph 2096. It was perched on some rocky ground in the middle of a shamba and we were told it was in the nature of a "scarecrow" to frighten hippos, away from the shambas. One can only come to the conclusion that if the hippos are terrified at this apparition, they must be very highly-strung pachyderms!

At 11.0 we camped on the bank of the river among tamarinds and dôm-palms. We had done $8\frac{1}{2}$ miles. This meant about 27 miles marching for the men who had to do the double trip, and some

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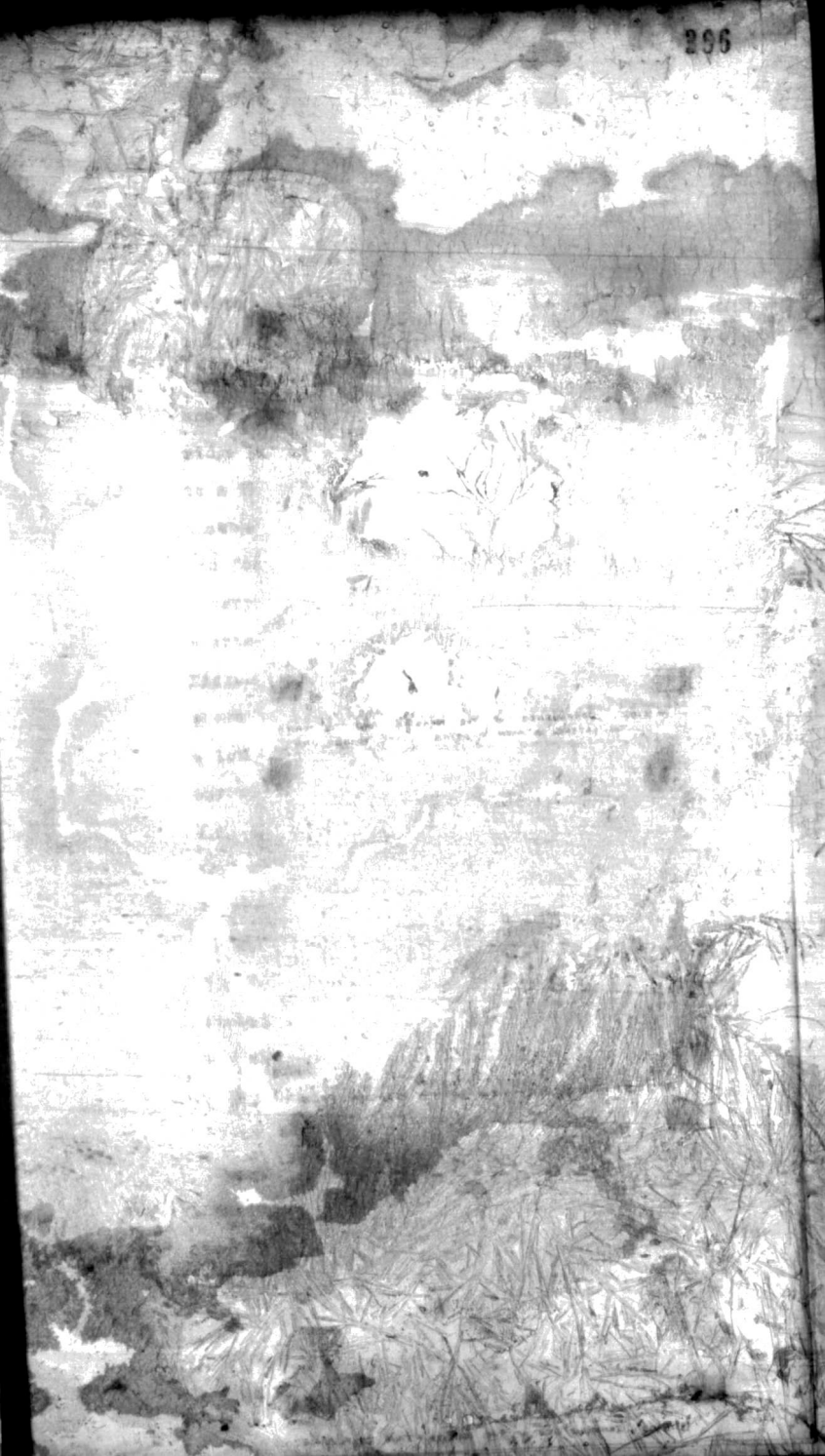
of them did not get in before nightfall. The common house fly which had not been in evidence at all in the thorn-bush country, where perhaps there are enough spiders to keep them down (1), were again a source of annoyance at this camp.

A local chief named Tutu wa Ngerikeri visited us, and a minor chief named Muturi presented us with a sheep. Several natives visited the camp to ask for medicine.

From this camp, No. EXIX, Kicheki was just opposite to us, across the river. (Photo 2100) From the Kamengia, a distant hill said to be Kiangombe, bore S.W. by W..

In the morning our caravan startled a heavy animal in the bush close at hand. Battscombe's gun-bearer and the Nderobbo said its spoor was that of Greater Kudu. We saw no other game. A crocodile drifted past our camp. The natives said that they killed many people in the river, and we noticed that boys who brought down flocks of goats to the river at sunset, kept up a constant rain of stones into the water while the goats were drinking. The river was about two hundred feet wide, flowing placidly between vertical earth banks about six feet high. According to the natives the river never rose to the top of the banks even in the heaviest flood.

The day was warm and sunny. Temperature in the sun at noon ran up to 125° F. Wet and dry bulbs (in the shade, as always) registered 73° and 98° at 3 P.M., and 69° and 91° at 4 P.M. A strong S.E. wind which was perceptibly hot, sprang up suddenly at sunset and blew up a lot of dust. The Mumboi Hills behind us to the South (Photo 2095.) appeared to be getting rain.



May 20th.

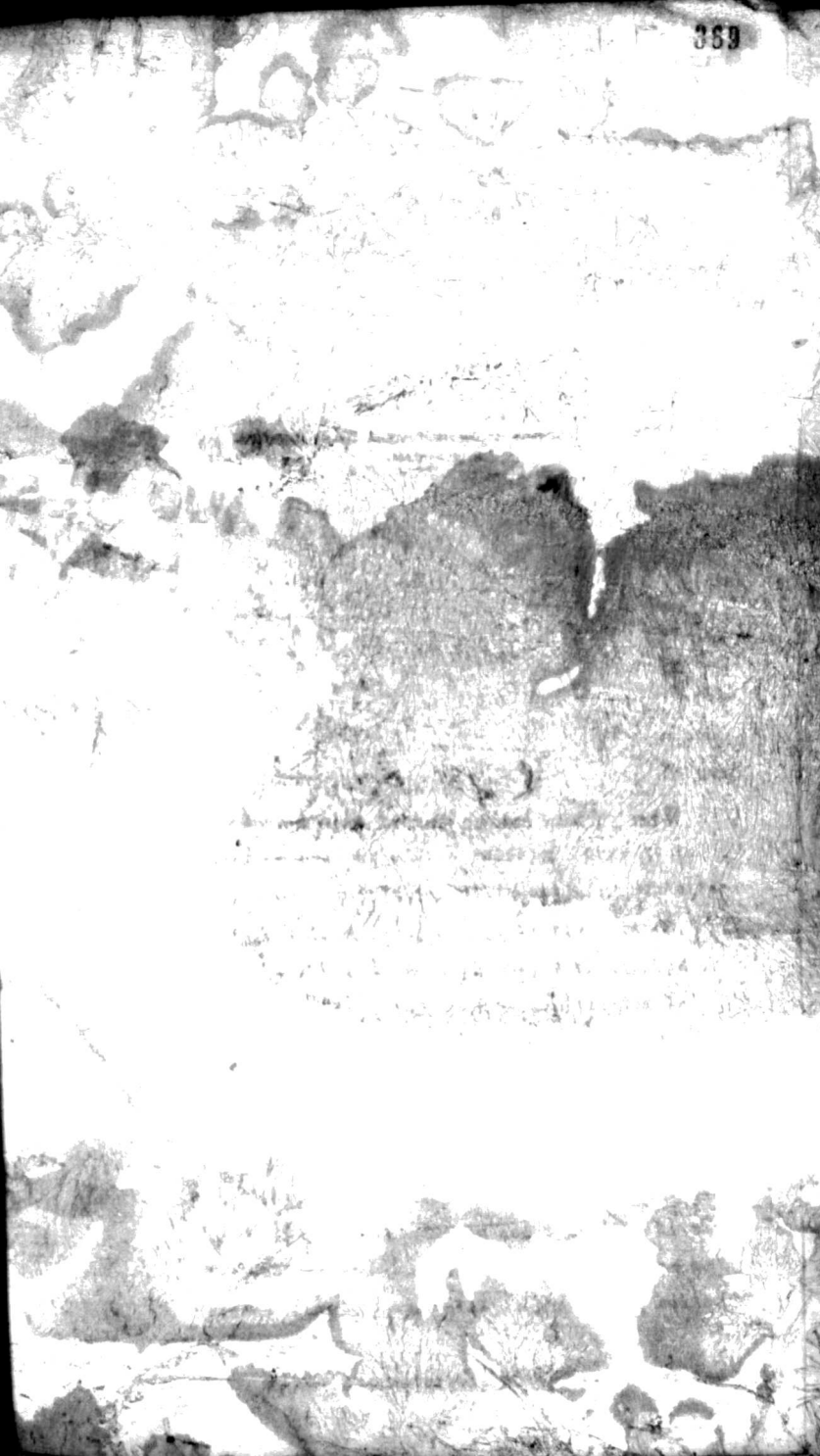
Min. temp. 72° F. Turned out at 4.30. The sky was more heavily overcast than on any previous morning. Just as it began to get light, a heavy ~~cloud~~ cloud-cap formed on Kickeki. We stacked 25 loads to wait for a second trip and got away at 5.55, going N.N.E. A mile from camp the river took a short turn to the N. by W. and back again. At 2400 yards we passed over a ridge of gneiss running E. and W. and then came to a Thaka village (Photo 2101) — neatly-thatched conical-roofed huts in ~~groups~~ threes and fours, each ~~group~~ cluster surrounded by a very dense thorn boma. Soon after we had started, a thin veil of rain developed over Kickeki and quickly spread across to our bank, where it continued till about 9.0. We passed a low hill called Kamugongo, some six miles on our right hand. A hill called Mutéwa lay to the N.E. by E. and the hills called Kikingo on the North bank of the river lay N.E. by N. from us. We crossed dry tributaries at 2800 yards and 3½ miles from camp, the latter coming in from the S.E. At 5 miles, a much lower hill than Kickeki, called Ntuge, appeared round its Northern shoulder. At 6 miles the river took a decided bend to the E.N.E. and later to the E.S.E. We could now hear that we had reached the so-called "Grand Falls". We crossed on fallen trees over a narrow branch of the river on to an island and got a good view of the Falls. (Photo ^{2102, 2103} 2105) They turned out not to be on the Tana at all but on the Khasita, a tributary from Kenia coming in here from the E.N.E. There were also cascades of some fifteen feet in total.

height on the Tana at this point. (Fall No. 6)
They could not be well seen from the South bank
which we were on. On leaving here we had to do
bush-cutting again, through dry twiggy growth,
noticeably devoid of thorns. Camped after doing
7 miles, and sent back for the excess loads. I
returned to the Falls in the afternoon to get
photographs and rock samples. Warm sunny after-
noon. Temperature 110° F. W. and D. 74° and 91°
at 4 P.M. A local chief named Mtu wa Ngulia
came to see us in the afternoon. One of the
"professionals", doing the double trip today,
did not get into camp at night. A search party
sent out with lamps failed to find him. This
was Camp XXX.

A third type of fish was caught by the men
today -- a gelatinous-looking, dull grey fish
with an enormous round mouth. Very ugly type.

May 31st.

Min. temp. 71° F. Clear white sky at day-
break. Pink sunrise. A "fog-banner" hung on
Kiceki till after 7.0 A.M. the mist moving
briskly under a S.E.W. breeze. As the missing
"professional" did not come in by daylight,
Battiscombe and I went back with small parties
by different routes. He was found by Battiscom-
be's party. He had only run a bad thorn into his
foot -- a matter of every-day occurrence with
most of the party -- and had slept out in the
bush beside his load all night. He was a very
languid and weedy Uganda, much given to smoking
bhang. He was able to walk into camp, where he
received much helpful advice (?) from the
caravan in general for keeping us waiting.
Battiscombe issued six days' rations to each

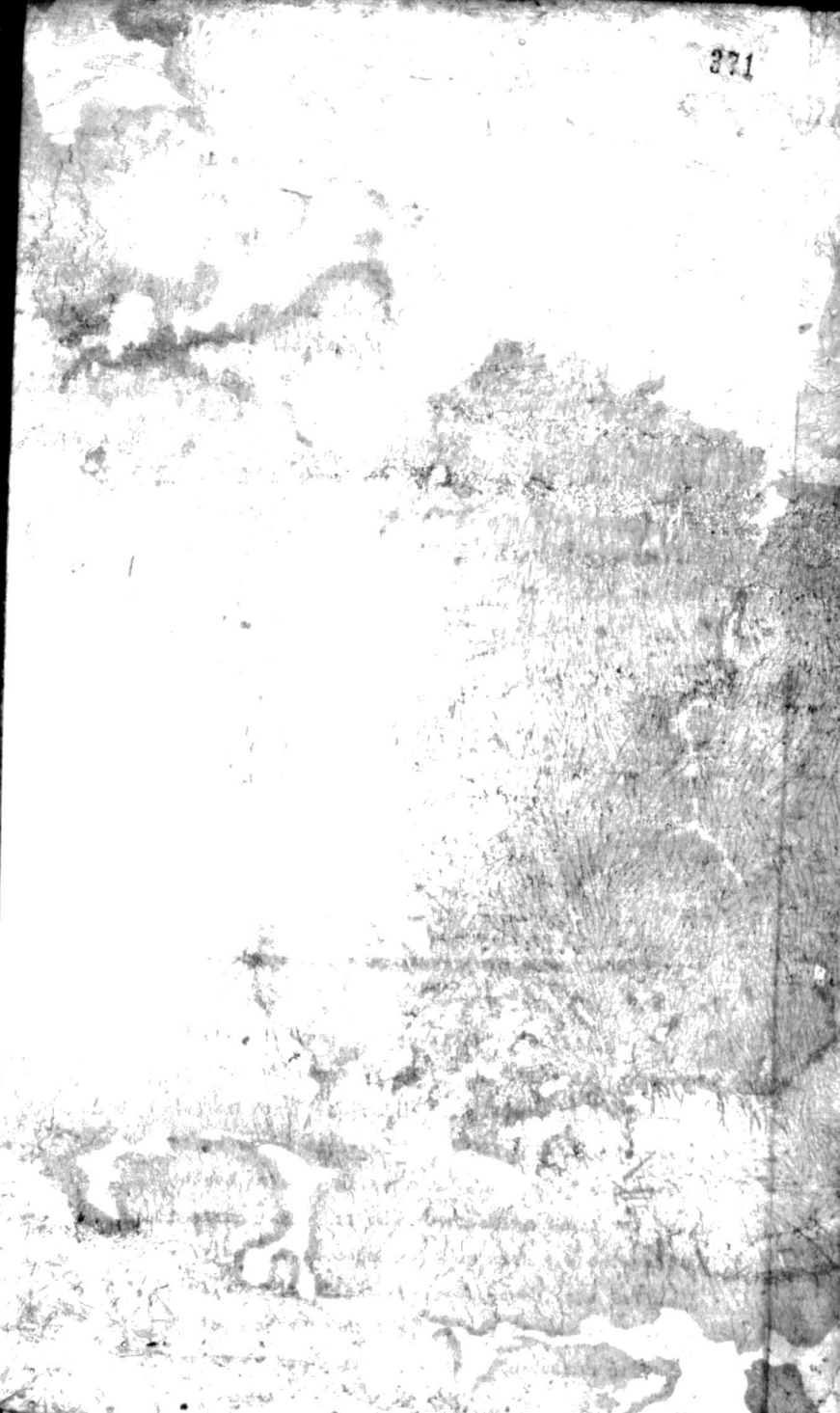


of the "professionals" I issued two days' flour to the more improvident Wakikuyu, and by making up heavy loads we were able to move off with all our gear -- the end of the double marches. Two of Battiscombe's best "professionals" were carrying loads which scaled 106 lbs. and 110 lbs.

Others were carrying 90 lbs. Several of the Wakikuyu were carrying 70 lbs. and one of them over 80 lbs. Rouliticed and bandaged the Mganda's foot, and left at 10.10, going E. The river was much broken up by ledges and boulders. (Photo 2106) A distant range of hills across the river to the N.N.E. was called Iyanta. At 2½ miles the river was going E.S.E., about 120 feet wide with flood marks at least eight feet above the present level. We were here passing through shamba-land belonging to a certain Munda wa Gura. At times we walked alongside the river on little beaches of soft sand (Photo 2107) or over extensive reefs of rock. At 1.0 we passed the drinking place of Chief Beiboi's cattle. From mile 4½ to 6, the river ran E. by E., and then E. by S. We then camped in the bed of a broad dry tributary beside a noisy little rapid on the river. Two local chiefs Munda wa Mawenge, and Kirema wa Mangotya, a son of Beiboi's, came to see us.

The landscapes in the afternoon were particularly arid-looking and stony. We traversed much ground being cleared and broken up by the Wathaka for new shambas. At about 5½ miles we passed a conspicuous hill on the bank, called Muguryandugu.

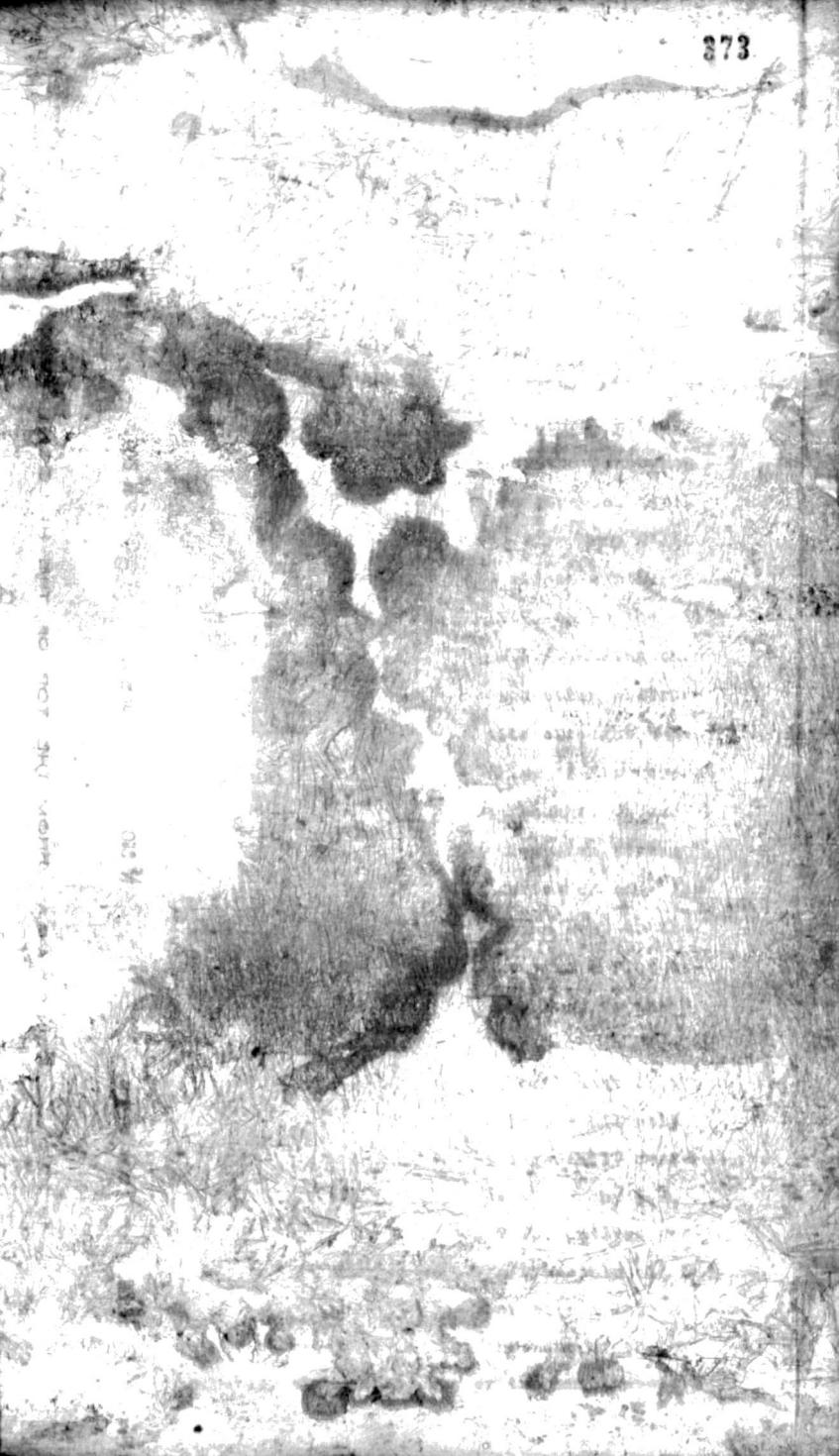
We saw one waterbuck today. Spurflowl and



and Egyptian geese were seen in the morning. In a little sandy nullah we killed a handsome slender snake in the afternoon. It was about 6 feet long and one inch thick, a yellowish green in colour with narrow grey longitudinal stripes running its full length on the back. The top of its head was a bright brick-red and it had black beady eyes. W and D. 70° and 87° at 5 P.M.

May 22nd.

Min. temp. 68° F. Turned out at 4.30, the temperature then being 72° F. Got away at 5.55 going E. by S. through extensive clearings for shambas. Mtana and Mwele were the chief things that were being grown. The banks had now become steep and the bush troublesome. Wathaka natives, who had been walking along with us in some numbers for the last day or two, assured us that it would be much quicker to diverge to the right and rejoin the river a mile or two farther down. There were bold hills, called Kangai, close to the North bank at this point. A prominent hill called Siri some two miles away to the S.S.W. had an immense rock, shaped like a bird's beak, sticking out on the S.W. side near its summit. The collection of arid looking sharply pointed hillocks lying in the Kitui direction to the South was remarkable. (Photo 2108) The river where we left it was going E.S.E. We re-joined it at 4 miles from camp. There was here a steep rocky hillock overlooking the river, so leaving Battiscombe to go on with the caravan. I climbed it with the old Ndorobbo, the Galla youth, and a Nandi boy, to see if we could get a view of Kenia from the top. The climb proved



to be troublesome as the hill was steep and covered with prickly euphorbia, and we had omitted to provide ourselves with a slasher. The top was of smooth bare rock, weathering into slabs, and very rotten. (Sample taken) We got a good view of Kenia however, lying $21\frac{1}{2}^{\circ}$ E of N (Mag.) A dry river bed, winding in from the S. by W. and presenting a stretch of yellow quartz sand, was a prominent feature in the landscape close at hand. I took the panoramic photo. Nos. 2109-10-11. Clouds obscured Kenia before 10 o'clock. The river, from Camp XXXI, appeared to flow N.S.E. till within a mile of this hill. It then turned N.N.E. up to the hill, and after passing it turned N.E., being then wider, and freer from rocks and other obstructions. It was not flowing quite straight but crossing and recrossing the line of its general direction in about half-mile reaches. On our South bank of the river the view down stream was remarkable. With the exception of some low hummocks of rock some three miles away to the S.W., the country stretched away as a flat uninteresting waste of grey-green bush to the far horizon, which was as clear-cut and regular as that of the ocean. On the North bank of the river a very sharply-pointed little hillock, which we afterwards found to immediately overlook "Krapf's Crossing", bore N.N.E. by $\frac{1}{2}$ E. We descended the hill at 10. The natives pronounced its name "N-Gero." An irascible old lady, threshing maize on a flat rock with a long supple stick, told us that the name of the dry tributary was Muicho. One or two small pools

UNITED STATES DISTRICT COURT
 DISTRICT OF COLUMBIA
 IN RE: [Illegible Name]
 Defendant

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standing in the sand were salt. We then followed the caravan and overtook them at L-Q. The two Wathaka chiefs who had been walking along with us, wished to return from here, as it was the limit of their district. At $1\frac{1}{2}$ miles the river turned N.E. We camped after going nearly $14\frac{1}{2}$ miles. W. and D. 70° and 92° at 5 P.M.

Sunday May 23rd. 1909. Min. temp. 69° . Started out at 4.30. No rain. No dew. W. and D. at 5 A.M. 65° and 89° . We got away at 5.45, going N.E. by E. At $1\frac{1}{2}$ miles from camp the sharp pointed hill seen from the top of N-goro the previous morning was about one mile on our left. At $3\frac{1}{2}$ miles we came to the ford known as Krapf's Crossing? The native trade-route from Kitui across to Meru crosses here. There were however no indications that it was a much-frequented route. The sharp little peak, lying W.S.W. from here, is shown in photograph 2112. The rock here was a dark grey schist weathered to a reddish ~~stone~~ ^{hue} on the surface. (Sample taken.) The route across this somewhat difficult ford is minutely described in Mr. Hobley's diary of his tour up this portion of the river in 1899. Passage can only be effected by contriving a rough pole bridge over one narrow arm of the river, otherwise impassable. Native trade would be greatly assisted by the erection of a very rudimentary structure of a permanent nature over this one little channel. The remainder of the crossing can be forded, waist deep in places. Successive caravans have utilized all the light pole trees conveniently near, and the passage of the river must be a matter of considerable delay to





old Mkramba hunter, who again accompanied us, advised us to march across this bend instead of following it round. Away from the river a trifle, the ground was more open, with patches of bare earth here and there. At 12 1/2 miles the range called Tynia lay due West of us. Mikond palms were numerous along by the river here with occasional bare open spaces of some slight extent (Photo 2114) among them. At 15 1/2 miles, islands re-appeared. After doing 16 1/2 miles we camped. There was plenty of open ground for tents here. The growth consisted principally of thin acacia trees and scattered thorny bushes on bare ground, a noticeable feature being the fantastic display of thorns on some of the prickly euphorbia bushes. (Photo 2115.) There were again traces of rhino about. The old Ndogrobbo and three of the men said they saw a lion. We shot a snake about four feet long which the men said was a black mamba. W. and D. 72° and 87° at 5 P.M. Elevation of β Centauri at culmination 30° 11', the temperature being 80 F.

May 25th.

Min. temp. 70° F. Turned out at 4.30. No rain and no dew, as usual. Clear sky at sunrise. Started at 5.45. We had to do a certain amount of bush cutting and thus only did 2000 yards in the first hour. The banks of the river were very steep, in some places almost precipitous and upwards of one hundred feet in height. We climbed on to one or two tons of reddish schist, much decomposed. The view up-stream from one of these is shown in photo 2116. We could not see Kenia or Kicheki. Some reaches of the river headed as far round as S.E. but the general course was

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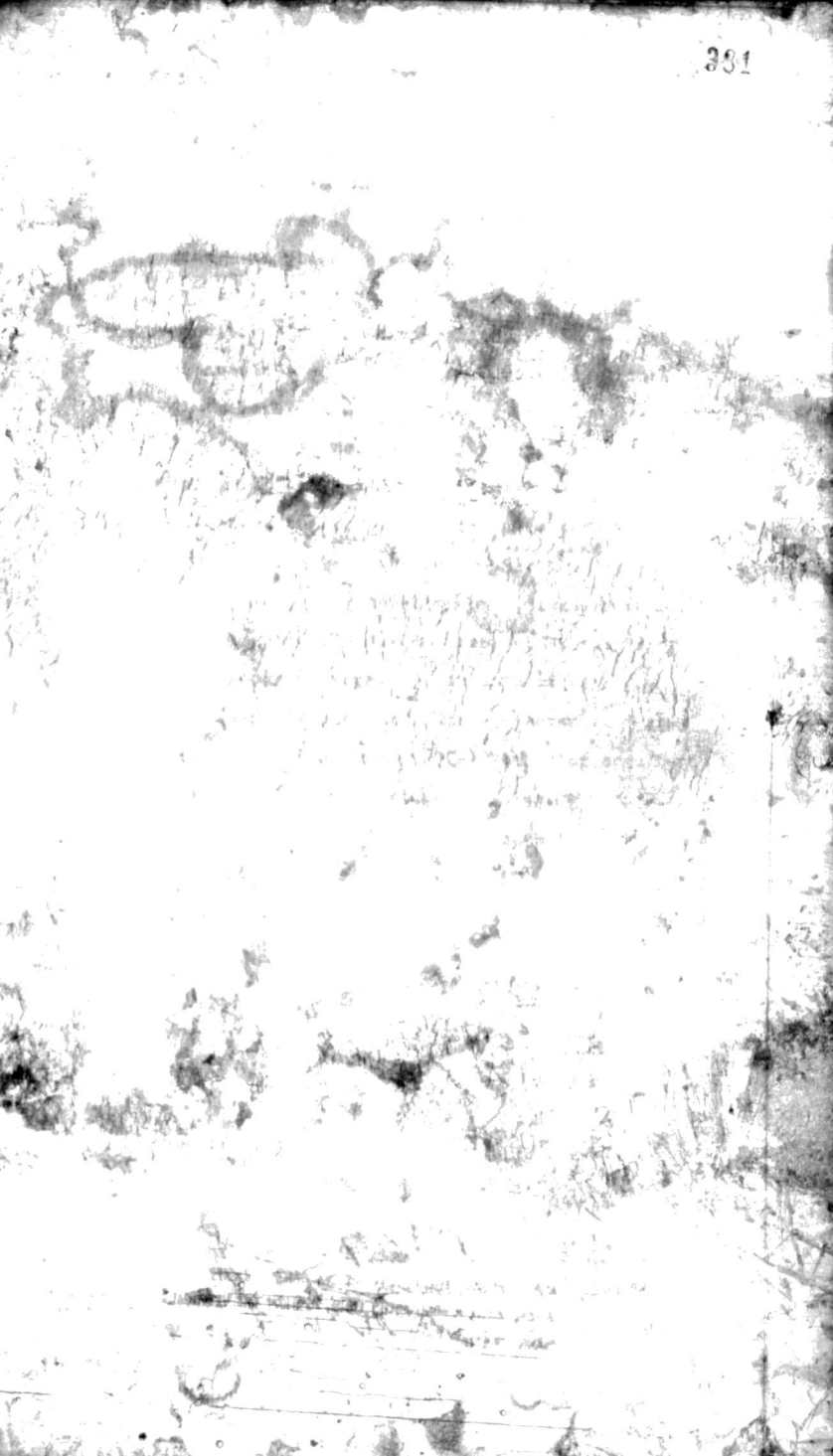
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approximately East. Off this rocky ground after about $5\frac{1}{2}$ miles, we came down on to alluvial flats covered with bush, which was seldom really dense. In places the ground was covered with pebbly gravel (gneiss). Elsewhere we had the conditions of the previous afternoon -- scattered acacia bush standing on bare sandy ground, flat, level, and destitute of any kind of growth. The river, fringed with mikoma trees, had vertical earth banks about ten feet high. In the afternoon the cutting became more severe, the ground near the river being thickly covered with tall grass, ten-foot-high bush, immense numbers of young and old mikoma trees and a tangle of dead woody undergrowth. In this we put up a female rhino and calf, which however went away without giving any trouble. Camped on some bare sandy flats after doing $11\frac{1}{2}$ miles. W. and P. 72° and 87° at 5 P.M. We saw frequent fresh traces of elephant, buffalo, rhino, giraffe and water-buck during the day. Saw a few small dik-dik and put up a baby leopard in some long grass. The sun was frequently behind clouds during the day and the sky was quite overcast at night. An erratic South Easterly breeze prevailed during the day and increased to a good S.E. wind by about 9 P.M.

It was not only on our side of the river that the banks consisted of almost vertical cliffs fifty feet ~~or~~ or more in height. Photograph 2117 gives the view that we obtained across the river at a point $7\frac{1}{2}$ miles from Camp XXIV.



May 26th.

Min. temp. 70° F. No rain at new day sky at sunrise. Left at 8.15 going S.E. The old Mamba hunter did not come any farther with us as we were taking him off his "beat." In a patch of thick bush we put up a heavy animal which our men declared to be Greater Kudu. The country was uneven and hummocky frequently covered with gravel, or coarse bits of granite and quartz. Acacias and mikindu palms continued along the river. After going S.E. for 2½ miles and then North for nearly a mile, the river turned sharp to the E.S.E. In the later part of this day's march the river was running wonderfully straight and S.E. or S.S.E. About six miles away on the North bank there was a low range of quartz (?) hills, running up here and there to a low but prominent top. The march was chiefly through scattered bush which occasionally became fairly thick. The idea that is intended to be conveyed by the description "Scattered" bush is country of the type shown in photograph 2118. Camped, after doing 13½ miles, on a grassy bank commanding an excellent view across the river, which was here quite placid, and 400 feet wide. The day's march was a pleasant one as the sky was overcast and we were walking against a refreshing S.E. breeze, which as on the previous day, increased in force at night. W. and P. 70° and 87° at 5 P.M. Altitude of α Crucis at culmination 33° 30', the temperature then being 81° F.

Large numbers of dik-dik, and blue-breasted vulturines about, on this march.

May 26th.

Min. temp. 76°F. No rain. No dew. Clear sky at sunrise. Left at 7.46 going N.E. The old Mkamba hunter did not come any farther with us as we were taking him off his "beat." In a patch of thick bush we put up a heavy animal which our men declared to be Greater Kudu. The country was uneven and hummocky frequently covered with gravel, or coarse grits of gneiss and quartz. Acacias and mikiudu palms continued along the river. After going N.E. for 3 1/2 miles and then North for nearly a mile, the river turned sharp to the E.S.E. In the later part of this day's march the river was running wonderfully straight and S.E. or E.S.E. About six miles away on the North bank there was a low range of quartz (?) hills, running up here and there to a low but prominent top. The march was chiefly through scattered bush which occasionally became fairly thick. The idea that is intended to be conveyed by the description "Scattered" bush is country of the type shown in photograph 2118. Camped, after doing 13 1/2 miles, on a grassy bank commanding an excellent view across the river, which was here quite placid, and 460 feet wide. The day's march was a pleasant one as the sky was overcast and we were walking against a refreshing S.E. breeze, which as on the previous day, increased in force at night. W. and D. 70° and 87° at 5 P.M. Altitude of Q. Crucis at culmination 33° 30'. the temperature then being 81°F.

Large numbers of dik-dik, and blue-breasted vulturines about, on this march.



May 27th. Min. temp. 74°. No rain. No dew. Turned out at 4.30. The high wind of the previous evening had died down to a light breeze from the S.E. There was a thin veil of cloud over the sky — not enough to obscure the stars. Started at 5.45. All day we travelled through a "twiggy" region, as distinct from a grassy one. There were considerable quantities of game about, but it was quite impossible to get a shot at them while on the march through this type of growth, and the ground was too hard and gravelly to show spoor. At 1½ miles the river turned N.E., came back to E. and S.E. and took another northerly turn at 4½ miles. At 6½ miles we came to more open country and passed an extensive salt lick. Reefs and boulders of schistose rock here appeared in the river. These confused ledges and projections of rock in the bed became more numerous as we went on, (Photo 2119) and at 8½ miles there was a four-foot rapid. From 10½ miles on, the river swung to and fro in about half-mile reaches across the general direction of E. by S. Two prominent Sandstone(?) hills which we had had in sight since early morning were now passed some three miles on our right. The river all along here was broad and placid with occasional sandbanks. Climbed up a low ridge of boulders and took photograph 2120. The hills in the Thaka country had cloud on them and Kenia was not in sight. Camped after doing a little more than 14 miles. Strong S.E. wind all day. W. and D. 70° and 85° at 6 P.M. Elevation of G. Crags at culmination 33° 30'. This was Camp XXXVII. Dik-dik were very nume-



rous in the bush today. We put up oryx and zebra in the bush, and also a very heavy dark animal, almost certainly buffalo. We also saw eland in the afternoon.

It was however deplorable country to shoot in. One's radius of vision in the bush was seldom more than thirty yards. Animals were never seen for more than an instant, passing between bushes. Enormous numbers of guinea-fowl were seen.

May 28th.

Min. temp. 73°. Turned out at 4.30. W. and D. 67° and 73° at 4.50 A.M. No rain. No wind. Started off at 5.36 going S.E. Throughout the morning's march the river was never quite silent, and at 4½ miles islands and rocks occurred. We were now reaching the region marked "Dense Forest" on the maps. The general course of the river was E.S.W. and S.E., though at 10½ miles it took a turn to the E.N.E. After this point it was placid. In the afternoon, although we made considerable use of elephant paths, we had to do a lot of cutting. Of real timber forest we saw none. Rather we were in rich tropical jungle. (Photo 2121.) We camped, after 12½ miles, on a peculiar little grassy flat, about five acres in extent, surrounded by a ring of high bush. It had clearly been awash during high flood on the river. This however was not in sight and a troublesome cut through dead woody jungle was necessary, to get to st. W. and D. 72° and 85° at 5 P.M. Elevation of Cru. is at culmination 33° 31'. The sun did not come out till 7.30 A.M. It was then a hot sunny day. Early in the morning there were such enormous numbers of

small grey doves on the bushes that we felt sure that a migration must be in progress. The ground all day was very stony, the soil being red, in patches, and elsewhere grey and dusty. We saw Lesser Kudu, water buck, a single Waller's Gazelle and innumerable dik-dik today.

May 29th.

Min. temp. 20°. Was engaged in changing the plates in my camera before daylight so we did not get away till 6.0. Started off S.E. through very dry "twiggy" leafless bush. There was very fresh spoor of elephant in all directions. Following a line of this at some short distance from the route of the caravan I came on to a couple of rhino. Did not disturb them as they had inferior horns. Shortly before rejoining the caravan I got a good view of Kenia, lying 272½ E. of M/ while Rotunda lay 274½ E. It looked smaller and more ethereal than it normally appears when seen from Nairobi. A couple of Granti that I shot here appeared to be a distinctly smaller type than the one met with on the Athi Plains. The soil today was less clean and more earthy than hitherto. At times it was deep brown, but for the most part, and particularly over exposures of lime kankur, it was dust-coloured. The bush became almost leafless — merely a collection of dry brittle twigs. In pushing through this, a stout stick was much more handy and serviceable than a slasher. Towards midday we decided to move in N.E. towards the river as the day was hot and the men were wanting water. Here and there we were able to make use of a short length of elephant path through the eight-foot-high twig bushes. Suddenly

the bush-cutters in front of us whispered "Tembo, Eana!" ("Elephant, Sir!") and slipped to the rear. A male elephant, partly concealed in a patch of scrubby trees, was standing about twenty yards directly in front of us. This was Battiscombe's first elephant, and it did not move from the spot where it had been standing. While the trucks were being cut out, we allowed two parties to push on, without their loads, through the bush in front to the river. Towards three o'clock, one party managed to find us again by shouting vigorously. They had got somewhat lost and had not found water. Up to 4 P.M. there was no sign of the other party, so we stacked their loads, left two men in charge and led off by W. with the compass, whistling and shouting at intervals for the lost men. We heard one or two answering yells far away on our left. My old Ndorobbo affirmed that they were not the voices of our men, but being in such completely uninhabited country we did not believe him. We again saw several of the very large spiders, with webs running almost to a square yard in size, which we had met with in the thorn-bush country behind. The light was now falling, and in some of the thick patches of jungle it was becoming inconveniently gloomy, when just a few minutes after six we emerged out of scrub and jungle into a shamba of mahindi and pumpkins. A few steps farther, and we came on to the river flowing silently, and E.N.E., below vertical earth banks, three or four feet high. We at once sent back water and food to the two men left behind in the jungle. The missing party also turned up.

They had got completely lost in the bush, a very easy matter, and had been wandering about since midday. Three natives also visited us. They turned out to be Wakórokóro i. e. natives of the Kórokóro region, a community speaking the Galla dialect, and quite distinct from the Wapokóro of the lower reaches of the river. These were the men whose voices the old Kóro-robo had heard on the left of our line of march. Up to this time the Galla youth Songóro had been useful chiefly in carrying geological specimens and hammer, and occasionally a fire-arm (See photo. E115 above) and in helping me in the evenings to press botanical specimens, but from here onwards until we came in contact with Kiswahili-speaking populations quite near the coast he was simply invaluable to us, interpreting and conducting negotiations with a directness, intelligence, and lack of verbosity which were quite remarkable. We now learned that we had reached Hameye (pronounced in three syllables.) This was Camp XXXIX.

Elevation of α Centauri at culmination was $29^{\circ} 37'$.

Numerous Zebra and Granti in the twiggy country behind the fringe of jungle along the river. Also — as recounted above — elephant and rhino.

For perhaps a fortnight back from this date we always had Dysentery in the camp, sometimes a dozen cases or so. We almost persuaded ourselves that we could trace a connection between dysentery and the eating of fish. Certainly some of the heaviest fish eaters among our servants and the "professionals" ~~were~~

to be the worst afflicted, but on the other hand cases occurred among the Wakikuyu who did not eat any fish or shot game — merely their 1½ lb. of flour a day.

Sunday May 30th, 1909. Min. temp. 63° F. (We had felt quite chilly the previous evening!) Temperature at sunrise 66° F. W. and D, at 7 A.M. 66° and 74°. We indulged in a "Europe morning" in camp today and did not have breakfast till 8.30. We could not get away early, as we were waiting for the men who had slept in the jungle with the food-loads left there. More natives came into our camp. They told us that Dahara Munio Doriti, the last stony reach on the river, was behind us. (N.B. The "g"-s in these words of Galla origin are pronounced with a distinct roll.) Likewise that the first village, Kete, on the South bank, and the first, Raiba, on the North, were close behind us on the up-stream side. It appeared then that the rapids we had been passing on the 29th, and which appeared to us, in comparison with what we had been seeing higher up river, quite insignificant, were actually what had been christened the Hargazo and other falls by previous travellers up-stream, to whom the occurrence of any rapids or falls would be a very striking feature after a journey on foot, or worse still by canoe, up the apparently unending leagues of the winding unbroken river that now lay between us and the sea. All the men having arrived, we started away at 8.0 along the bank of the river through shambas of mahindi, kunde (beans), and bananas.

We reached the village of Hamnye at 9.0. Just as we at the head of the caravan stepped into the village, a canoe came up-stream with an askari in it, a messenger to us with notes from G.N.Crisford, who, we found, was in camp at Sankuri, with two officers of the King's African Rifles. (2nd. Batt.) It was irksome to find ourselves in touch with the representatives of civilization some two hundred miles "sooner" than we had expected, but the askari in question turned out nevertheless to be an interesting character. We were afterwards informed by Mr. Crisford that the man was a Hypnotist and had been known to mesmerise Wapokomo, lay them on the ground and light a little fire on their bodies as a demonstration of his powers! He was remarkable for the possession of an extraordinarily deep and powerful voice. He brought a letter from Mr. Crisford enjoining us to remain on the South bank, as there had been a large incursion of Somalis from the North — upwards of fifteen thousand we were afterwards told — along the other bank. Hence the presence of the K.A.R. officers at Sankuri. Mr. Crisford also very thoughtfully sent us the last local newspaper that he had received. It turned out however to be one that we had seen before we started! This helps to give an idea of the extent to which an official stationed at Sankuri is isolated, in the present primitive condition of transport facilities on the lower reaches of the river. This question is referred to in greater detail in a separate communication. After waiting for about twenty minutes, and

answering a rain of question from our men, while a short reply to Mr. Crisford was written, the askari with two canoe-men in a Mau, as the river-canoes were locally called, poled off down stream. Unbounded astonishment of the Wakikuyu, who had never seen a craft of any sort afloat before, The village (Photos 2126) was a neat and tidy collection of conical huts of straw, a dozen or more in all. There were numerous goats and fowls wandering about. Two or three small maus were tied up to the bank. We passed through this village and immediately stepped into very thick and tangled jungle, studded with occasional "Lalaftu" trees running to a diameter of eighteen or twenty inches in many cases. This tree in several particulars closely resembled poplar. We kept near the river, chopping without intermission, but we only did one thousand yards in two and a half hours! The bush was comfortably free from thorns, but a species of biting ant called "Maji Moto" (Hot water) was very prevalent and caused much amusement from time to time among those portions of the caravan who happened not to be attacked by it. Early in the afternoon we stopped, as we proposed to strike off on a different course the next day, and moreover we wished the men to have a certain amount of time before sundown so that numbers of the "professionals" might wash their clothes, as after their labours inside the dead elephant two days previously, their condition was such that it was a matter of discomfort to be within fifteen yards or so of them! Thus we only did 2½ miles today. It

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It was a long and laborious matter to make a clearing of sufficient size to pitch our tents in. Few of the men tried to pitch theirs, but slept out, as had been the case every night since we got lower and warmer levels. This was Camp XL.

May 31st.

(Whit Monday.) Min. temp. 68 F. Turned out at 4.30. Our intention today was to cut out from the river Southwards and try to get into more open "twiggy" country which we imagined was probably there (Compare our experience on May 29th.), then do a long march Eastwards, and cut back to the river in the evening. However almost immediately on leaving camp the country became much more open. One's radius of vision was seldom as much as fifteen or twenty yards, but the ground was sufficiently open to pitch tents on after cutting out a few bushes. If we had continued a half mile further the previous day, we should have escaped the labour of clearing a camp-site. A thousand yards from camp we passed a village of three huts, called Werabis, at 2½ miles another called Afambukot. The river was going E.S.E. By 8.15 we had done four miles and reached a village called Balambal, where the river was going S.E. by S. There was some suspicion of a path through this open bit of country, but it ceased at Balambal, and the bush got rapidly denser. We therefore tried to put our original proposal into practice, by leaving the river, and heading off South or S. by E. The belt of scrub however appeared to be thicker here than it had been back near Hameys, and after wasting the



the rest of the morning in trying to get out of it, we gave up the attempt and decided that we might as well be cutting eastward along the river. We had a short halt on getting back to the river. Mosquitoes were in evidence among the thick undergrowth. There were large numbers of woodlice on the ground, and some very large black bees were to be seen. On starting again we found ourselves in extraordinarily dense bush. There were no such things as separate bushes, lines of loose growth, or partially blocked tracks in it. The whole was one matted mass of green ropy vegetation from eight to sixteen feet high. At times our men, ~~some~~ on all fours, chopped a low tunnel through tickets of woody undergrowth, dead for want of light, in which the gloom was so profound that the few minute pencils of sunlight that struggled through, showed up like points of fire on the ground. In such a patch, the cutting party would perhaps advance six yards in twenty minutes. The loads, on arriving there, were put down and pushed along the ground by men following on their hands and knees. At other times, some of the light Wakikuyu, with a "shove behind", hauled themselves up on to bushes ten and twelve feet high. (Photo 2127.) Other men followed, loads were handed up, and the caravan advanced over a ~~swaying~~ swaying mattress of vegetation, beaten down under the sticks of the "professionals", and the weight of all our party, to a thickness of five or six feet. In such country the parambulator could not of course be used, but we were certainly not doing more than a mile in four hours.

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hours. In this way, by 4.30 we arrived opposite an island on which lay the village of Bura Danaa. (11 huts.) Some natives came across in a canoe and encouraged us with the information that the North bank of the river was much more open than the one we were on! Battiscombe and I, with Songoro the Galle, and our gun-bearers, were ferried across to the island. We walked with some old men along to the down-stream end of it and were shown a partial clearing for a shamba on the South bank about a mile farther on than where our men were resting. As the one or two inferior "maus" that were available could only take two men and four loads at one trip, or perhaps three men without loads, and as it took them at least ten minutes to pole up-stream from the clearing we had seen, we decided that it would not be feasible to send the caravan down by water, so sending our own two tents, and our cooks, down by canoe, we returned to the men at 4.45 and continued the "march" (sic.) Darkness came on to us before we had got far. Under the brakes of dead jungle-wood it was pitch black. The cutters felt for branches with their hands and then chopped at them till they gave. We had the moonlight shining through in patches as the sunlight had been doing earlier in the day. Songoro came alongside us in a canoe a few feet away, but of course completely out of sight, to say that the tents were pitched in front. We sent him back to them to bring a lamp to assist the cutting party. In about twenty minutes he came back to us with it, sprawling over the bushes. With this we got on

a little better, but even so it was ten minutes to eight before we got through into the camp, and a quarter past nine before the last men got in. We were thankful that we had a dry moonlight night for the termination of our Bank Holiday outing, and that mosquitoes were not very numerous in the bush. We issued a double ration of flour to the cutting party, who had had an arduous day. Some of the Bura Dansa people brought us some bananas for sale. Turned in at 11.0 Clear moonlight night. This was Camp XII. We considered that the day's march amounted to $7\frac{1}{2}$ miles.

W. and D. 68° and 74° at 9.30 P.M.

June 1st.

Min. temp 63° We did not turn out till 5.30. There was dew on the grass. A slender black snake about eighteen inches long was killed in my tent. The Bura Dansa men told us that the country in front was not as bad as what we had come through the previous day. The reason for the unusual density of the jungle over that small area is not obvious. Not only was it the thickest growth that we saw anywhere on the tour, but for jungle devoid of thorns it was the most nearly "impenetrable" of anything that I had seen in nine years' travels in the Protectorate.

Before starting, we checked our posho and other loads. None were missing. We got away at 6.45. The river was going S.E. Half a mile from camp we came to a village of eight huts called Galangala. We were here on light-brown dry soil, among scattered bush. At $1\frac{1}{2}$ mile we passed a couple of untidy-looking huts which comprised

the village of Tismarafat. At 2½ miles we passed a peculiar vertical shelf of brown earth about eight feet high running for a short distance parallel to the bank of the river and a few feet away from it. Natives of Bura Dansa, walking along with us, said that the river sometimes came up along its base. This would involve a rise of at least four feet above the level at which we saw it. The ground here which might be said to be composed of very soft rock, or of hard-caked soil, gave strong indications of lime. The place was called Afonkónwat. For a thousand yards or so from this point there was a sudden change of soil — light red and sandy with the dry "twiggy" vegetation of the "barra" (wilderness) which lies inland away from the river. Then the light brown soil recommenced. Under the remains of big tree-fires we saw that this had burnt to "soorki". At 3½ miles we passed a small village called Nandilli, and 600 yards farther on we came to Borat or Borati. We had been enquiring from our guides as to the site of the old station of "Balarti" of the Imperial British East Africa Company. So at 4½ miles they took us sharp to the left until, after a little bush cutting, we reached the actual bank of the river. They said that its site was exactly opposite, across the 200 ft. or so of water which constituted the breadth of the river at this point. They said that the remains of mudwalls were still standing there; also that the country was much more open on the other side. From the first villages down to here the river had been full of islands, but

from here onwards it was said to proceed for a considerable distance as a single stream without branches. Its direction was S.E. At $6\frac{1}{2}$ miles we passed Odo Bedda and 1100 yards below it Abur. At $8\frac{1}{2}$ miles we reached Kashe, the "Kassin" of the maps. From here onwards we had to do a good deal of cutting and our rate of march was reduced. At 4.30 after doing nearly $10\frac{1}{2}$ miles we pitched camp (No. XIII.) in a clearing, cut and burnt in preparation for a new shamba.

W. and D. 71° and 83° at 5 P.M.

On this march we saw elephant spoor one day old (going down-stream), fresh buffalo spoor, and that of very big pig. We saw only bush-buck.

In the afternoon we sent Songoro and Abdullah, Battiscombe's Forest Orderly, down stream in a passing Mau to look at the country ahead. It was very thick bush all the way. An old man working in a shamba informed them that the bush was pathless and very thick. He also said that a tributary or a series of waterholes came in at Kiko, some miles below us, and that by cutting out to this and sleeping there for one night, we should get farther down stream than by trying to follow the bank. Songoro found two Wapokomo who volunteered to show us the way, so we decided to adopt this course, as we did not look forward to a repetition of the experiences of Whit Monday.

June 2nd.

Min. temp. 70° F. The two Wapokomo guides having turned up, we started at 6.10 heading inland away from the river. We were taken along

a very rambling course, often going W., and once even E. There were large numbers of fine borassus palms about and numerous deeply-shaded pools of standing water, the whole district corresponding closely with one's ideas of what tropical jungle should be like. The ground was covered with very fresh elephant spoor, but though travelling very quietly, and in advance of the caravan, we saw no sign of the animals themselves. After walking about thus for 3 1/2 miles, our guides struck a ford on the central line of swamps and water holes. The jungle then ^{became} thin/d_{own}, and we got into scattered acacia scrub on grey dusty soil. We then proceeded Eastward against a good S.E. wind which had sprung up at about 7 A.M. We met two Wapokomo hunters — one of them a very ancient and wrinkled old man — engaged in building a thorn boma (enclosure) for some of their hunting operations. We were here skirting the South side of an extensive swamp whose margins were free of bush. We saw a herd of fifty or sixty buffalo moving Eastward on the far side. After wading through several arms of this swamp we came upon dry ground at what appeared to be ~~the~~ its Eastward termination. Went round to the North side and camped at 3.0 having done 11 1/2 miles. The water of the swamp was clear but not altogether tasteless. Our camp (No. XLIII) was in low bushy country. W. and D. 70° and 90° at 4 P.M., 69° and 87° at 5 P.M. Temperature at 9 P.M. was 80° F.

Along these swamps, in addition to the very prevalent elephant spoor, we saw buffalo,

oryx, lesser kudu, (female only), zebra, bush-buck, ostrich, baboons, Granti, and Petersi.

Several of the men had high fever at night. From here onwards until the end of the safari we were never without a certain number of fever cases.

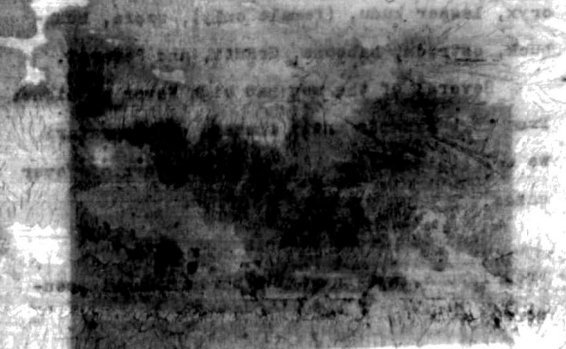
The mosquitoes at this camp were very troublesome, biting easily through khaki trousers.

June 3rd.

Min. temp. 68° F. Our Wapokomo guides called this spot Dider herbalet. We left at 6.55 on a winding course, probably E. N.E. in general direction, and at 7.0 struck the river a short distance beyond Kiko. We had been travelling through open bush country with scattered acacia trees. (Photo 2129) A mau was lying tied up to the bank. We engaged its owners to take three of our sick men down stream. On leaving Nyeri we had had visions of using the canvas boat on these reaches of the river for this very object, but even if it had survived the passage of the thorn-bush country it would have been a matter of almost physical impossibility to get it through some of the bush that we had met with before striking navigable reaches on the river.

In taking this short cut across the "barra" we had passed the village of Shambalaracha on the river and the island of Odo Lagal (Odo means "island" in the Galla dialect.)

Just below here, the river forked again. After about an hour's march we came upon a well-built Galla youth tending a flock of goats.



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Standing on one leg (Photo 2130) on a low mound of bare grey earth, leaning upon his forked shepherd's crook and surrounded by a healthy looking herd of goats, he looked, in the blazing sunshine, an entirely Eastern product. He was the first of the nomad Wajalla of the "barra" that we met. He did not know what tribe my Wakikuyu belonged to, and asked if they were Masai. He said that a village of Gurur was close by on the bank of the river. There were exposures of the grey lime kunkur along this march. At 5 to 3 we came upon our three sick men, who had landed from the mau at a dry tributary which had a broad sandy bed. As we had much washing, sewing, mending, and writing to do, we camped then, having done fifteen miles. (Camp XLIV.) W. and D. 70° and 90° at 4.0, 69° and 88° at 5.0. Elevation of G. Crucis at culmination $33^{\circ} 39'$. Baboons made a great noise in the trees at night. We saw elephant spoor one day old on the road — heading downstream.

Our clothing gathered a great collection of ^{burrs} and grass spines on this march, but no ticks. We had not seen any ticks since May 8th.

June 4th.

Throughout this tour we had an askari guard on at night to guard against the theft of food from the store tent by our own men. I was awakened at 3 A.M. to receive the report of a young Masai askari that we had, to the effect that the stars were all shining and there were no clouds in the sky, but the moon "had gone out." I had omitted to tell them the previous evening that there was to be an eclipse of the moon. With the exception of a narrow edging on the

on the right limb, the moon was in the penumbra. It set before the shadow moved off.

Turned out at 4.30. Min. temp. 73°. I had a hole dug three feet deep in the bed of the river. Coarse yellow river sand all the way. Some nodules of hard grey limestone in it were said by our guides to come from a place called Chari Malki Malsat, not far away. On hard ground presenting thin scattered bush and sarsivera fibre on a light dusty soil, we did 3½ miles in the first hour. We then passed into an extraordinary profusion of low borassus palms. (Photo 2132) It turned out that the explanation of this low stunted growth was the native practice of cutting them in the production of intoxicating liquor. We passed Odo Kachura at 4½ miles and Kachum at 5½ miles. The groves of borassus palms ceased about here. We completed 10 miles before 10 A.M. A stiff breeze was blowing from the South. A low but prominent hill appeared some ten miles away on our right hand, i.e. to the West. We passed on to light brown soil, much cracked on the surface, presenting low scattered bushes of a very dry and "twiggy" type. This continued up to 12½ miles when palms and trees appeared again. The river was here going W.S.W., returning ^{to} S.E. after a short distance. We passed over a stretch of black swampy ground much trodden up by the feet of buffalo. The afternoon march was through bush slightly thorny, and acacia trees of a slender "pole" appearance. Wiry grass grew in ragged separate tufts, ^{reached} to a uniform grey colour, and the country

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generally looked quite uninviting. Our first indication of the proximity of the temporary station of Sankur or Sankuri was the voice of the psychic freak (See May 30th.) roaring orders to canoe-men. A moment later we met Mr. G.N. Crisford, Acting District Commissioner on the Tana, on the bank. We left our caravan to camp on the South bank and went across in a mau to the temporary boma on the other side. (Photo 2135.) We pitched our tents in the fenced enclosure of the station. Lieut. Booth, 2nd. K.A.R. was also at the boma. The numerous Somalis who had been on the river for some months previously, had disappeared Northwards three days before. A strong wind blew up-stream from the South in the evening. It felt quite chilly, although its temperature was 80° F. W. and D. 70° and 81° W. at 7 P.M. 66° and 76° at 10 P.M.

Elevation of α Centauri at culmination was 29° 53'. The day's march was 20½ miles.

On this march we again met with ticks — the first since May 8th. — but only three or four of them. They were almost flesh-coloured, and so small that it was not easy to see them. Their presence became known only when one happened to rub them up "the wrong way" after they had dug themselves into one's skin.

June 5th.

Min. temp. 71° F. The high wind of the previous night had fallen. W. and D. at 6.30 A.M. were 68½° and 72°. Stayed about the Boma all morning. There were 21 loads of food waiting for us at the Boma (See May 3rd.) These were ferried across to the camp on the other side.

The breeze freshened during the morning, blowing up a fairly straight reach of the river directly on to the station, which faced S. by E. We got away from the station, where Mr. Crisford had entertained us most hospitably, just before noon. Our path lay to the South over very friable light brown soil laced with deep cracks, gaping about six inches wide at the surface. Tall stiff straw grass, more than six feet high, grew on this — densely in places. After about four miles of this we came on to light sandy soil with scattered acacia trees and a low twiggy growth about eighteen inches high with slender brown thorns. (Acanthus?) After six miles we were in low scrub and dry leafless bushes six or eight feet high and, happily, not often thorny. Ten miles from camp we passed Odo Boidat with a low hill of coarse grit in a line matrix. We then entered a region of low sandhills or rather gravel-hills, which had small pillars of-cemented grit left sticking up upon them by the denudation of the rest. After a march of 11 miles we arrived at a series of water-holes, with cool clear water deeply overshadowed by bushes. This was not far from Kurush on the river. W. and D. 67° and 76° at 9.30 P.M. No mosquitoes at night. This was camp XLVI.

Saw no game today. The view from the highest of the gravel hills at Odo Boidat was one of desolation. No sign of animal life of any description.

Sunday 6th. June 1909. Min. temp. 66° F. Turned out at 4.40 A.M. W. and D. at 5 A.M. were 63° and 66° F.

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We started off at 6.40 S.S.W., then S. by W., and finally headed away S. by E. through low leafless bushes and scrubby twisted acacia trees (Photo 2136) — altogether most unlovely country, and something like Taru Desert at its worst. At 7½ miles I climbed a hillock of indurated brown earth, on the chance of being able to get a distant view of Kenia from it. No sign of life and no view of Kenia. At 9½ miles we went in to the river bank opposite the small village of Ipōsa. Strips of giraffe-meat were hanging on a frame in the village to sun-dry. Two guides who had come with us from Sankūri to show us to the Kurush water-holes wished to return from here, and we had some difficulty in getting any one to show us the most direct path farther on. The same deplorable country continued, occasionally crossed by a sweep of river gravel. At 17½ miles we had a short halt beside a very English-looking backwater, with firm low banks fringed with the poplar-like Lalafu trees. (Photo 2137.) Immediately on starting from here our guide informed that the fringe of jungle along the river became much deeper and that we should have a laborious "cut", to get to water for our camp if we went any further. So we camped about at half past two having done a little more than 18 miles. W. and D. 72° and 86° at 4 P.M.

Elevation of β Centauri at culmination 30° 41½'. In the morning we saw the spoor of a considerable herd of elephants (cows and calves only) going in to the bank of the river and returning out again. We also saw the spoor of a large lion.

June 7th.

Min. temp. 71° F. Turned out at 4.30. An item of note was that the wind was blowing then, from the S.S.W., whereas it did not usually rise till about 7 A.M. Higher up, clouds were going briskly across the moon, from the N.E.K. We got away at 5.40, going S. and S. by E., through an uninteresting wilderness of dry sticks with, very occasionally, a green-leaved "Mawaki" tree standing up to a height of twelve feet or so. We did more than 12½ miles before 10 A.M. Low down to the South the sky was a dull slate colour with livid puffs of grey cloud standing out on it. By 9 A.M. the wind had increased almost to half a gale. We met a Msanja hunter, but had a completely uninteresting march of 18½ miles. Walked about for two hours or more in the bush after pitching camp, but saw nothing except one small reddish buck, which I failed to get, and numerous dik-dik. A guide who was with us today said there was much game across on the North bank, but none on our side. W. and D. 69½° and 79° at 7 P.M., 68½° and 76° at 9 P.M. Elevation of β Centauri at culmination was 30° 53'.

June 8th.

Rhine moving through the dry brittle bushes close to camp, woke me at 1.30. I sent the old Nderobhe out to investigate by moonlight, but they moved away. A few heavy drops of rain fell — the first that we had had since May 20th., Near Kicheki. It did not amount to 0.01 inch in the gauge by morning. W. and D. at 1.30 A.M., 70½° and 75°; at 5 A.M. 70½° and 72°. Min. temp. 72° F. We did not get away till 6.5. We only did 3½ miles in the first two hours.

The country soon after leaving camp suddenly presented green bushes and low trees, but relapsed to bare ground and dry twigs and bushes after 4 miles. At 11.30 we headed in through scrub to the river. Battiscombe shot a puff adder which was lying with only its head projecting from a hole. It wriggled out at a great rate for about a dozen yards, when it came to a stop and the men cut its head off. It was about four feet long and three inches thick. The river was, for a short distance, here going West. We then continued the march through dry scattered bush. On finally turning in Eastwards to get to the river we found ourselves in troublesome woody bush which had to be chopped through. It was five o'clock before we reached the bank opposite Kidore. Two Malakote men came to camp and agreed to guide us down to Bura next day. An erection of brushwood poles or stakes about five feet high, and planted in the ground round a space about five feet long and two feet wide, indicated we were told, a Pokomo grave. The stakes almost touched one another and were not quite vertical, but converged inwards towards their upper extremities. We had seen several of these structures on the march, erected, quite inconspicuously, in very out-of-the-way places. W. and D. 70° and 80° at 7 P.M. The sky was heavily overcast all day. Elevation of β Centauri at culmination was 31° 1'. This was Camp XLIX.

Today we saw gerenuk (i.e. Waller's gazelle: *Galla name, Gugarito*), lesser kudu, male and female (*Galla name: Gadam*), Petersi (*Galla*

name, Hidi), oryx, pig — grey with a coarse yellowish mane — and numerous dik-dik. Guinea fowl were about in prodigious numbers, but were extraordinarily wild. With regard to the rhine, which visited the camp in the early morning. It may be mentioned that on a hunt of between two and three hours duration in the late afternoon of the previous day no spear or indications of rhine had been seen anywhere in the neighbourhood.

Today for the first time since we entered the Mumoni Hills on May 14th, we heard a hippo blowing in the river. It would appear that they have been hunted so vigorously in the navigable and populated reaches of the river as to have become reduced in numbers, and very wary and undemonstrative in their behaviour. The day's march down stream was nearly 14 miles though the caravan making unnecessary deviations in the bush, walked 15½ miles by the perambulator.

June 9th.

Min. temp. 73° F. Turned out at 4.30. No rain. No dew. No mosquitoes. One of my men had had a bad attack of nettlerash and was generally unwell, so I had him sent down river in a mau to the place where we should camp in the evening. The two Malakote guides did not turn up till 6.5. They took us straight out west from the river and then turned down South. In the morning we were on open bare hard ground, where scattered spreading mimosa bushes — in shape like a shallow inverted cone, apex on the ground — allowed us a range of vision of as much as sixty or eighty yards on the average. In the afternoon we walked among grey leafless

bushes on compact grey earth. Once or twice we had stretches of soil of the brown variety fissured with cracks at the surface, and we saw one slight spread ^{of} gravel.

At 7½ miles we came to a considerable backwater at a place called Jirah. At 11½ miles happening to be on the bank of the river, an askari passing up-stream in a mau happened to see us. He was taking a mail, to Sankuri and had a telegram for Battiscombe from Fort Hall reporting the progress of the man we had sent in with smallpox. Our guide seemed to know all the tracks well and by 4 o'clock we camped near Bura after a march of 12½ miles. We got there before the mau with the sick man in it did. This was Camp L. W. and D. 70° and 79° at 6 a.m.

The Wapo. one here had fish traps in the river — the first we had seen. With reference to the types of fish found in the river — our men had only caught four varieties — Mr. Crisford at Sankuri had told us that there were several kinds of fish which never took bait and could only be got by netting or trapping.

Today, in marked contrast to the previous one, we saw no guineafowl. We saw bushbuck, lesser kudu, Walleri, and three giraffe.

June 10th. Min. temp. 69° F. Sky overcast with light clouds in a "mackerel sky" arrangement. Very grey sunrise. I sent the sick man by canoe again. Early in the morning we passed two little villages, Damaka and Ulluk. We passed through scrubby wood (Photo 2139) and jungle with occasional glades of tall leafless bush. There were enormous numbers of woodlice on the

ground. White ants also were distinctly in evidence and flies troubled us somewhat, for the first time since our camp at Malululu opposite Kichell. On reaching the village of Kibileri we saw a single cocconut tree, the farthest one from the sea, we were told. Our guide did not know the paths well, and twice we found ourselves returning along winding paths that we had traversed before. By midday we reached the end of the district known as Masa-Bubu and entered Malululu. The river was 330 feet wide. We soon struck an excellent cleared track, eight or ten feet wide, cut a short time previously by a half-company of the 2nd.K.A.R. on their journey up to Sankuri in connection with the Somali incursion on the North bank. However we wished to make an early stop so we turned into the village of Arete and camped there. A number of the "wazee" (elders) came and talked to us. They were genial conversationalists, but not otherwise strikingly hospitable. They ~~said~~^{said} they could sell us no bananas as they had been afraid for some months past, on account of the presence of the Somalis across the river, to work in their shambas on the other bank, with the result that the baboons had destroyed the entire crop. Numbers of the villagers came to me for medicine.

W. and D. 71° and 82° F. at 5 P.M. Temperature at 9 P.M. was 76°. Elevation of β Centauri at culmination was 31° 20'. The day's march was nearly 17 miles, though the distance along the river which is that given in Appendix I (in every case) was only 12½ miles. This was Camp II.

June 11th. Min. temp. 68°F. Got away at 5.48. We did a march of 21½ miles down the bank of the river today passing through a large number of villages. Each one in turn supplied us with a guide to show us the best path through the shambas to the next village. From the days of Carl Peters onwards, they have probably not had very happy experiences with passing caravans and they usually appeared relieved to see the last of us en route for the next village. So a guide was always forthcoming at once, without payment. As we passed through each village at the head of the caravan we informed the inhabitants that our long line of followers had been expressly warned against looting, and that if anything of the sort occurred they were to send a runner after us. (the Europeans) The first village Malabati was of note as possessing the largest grass hut we had seen on the river. (Photo 2141) It was of the usual Pokomo type, but 15 or 16 feet high. Precisely five miles from Arets, we came upon a small tributary about eight feet wide, one foot deep and running some four miles an hour. We were told that it was permanent and not merely drainage from swamp lands inundated at high flood. The morning march was chiefly through scrub woods, where the numbers of wood-lice on the ground were remarkable. Between the villages of Mbungoni and Kinyeni we passed the island of Vilusani. Near the latter village we were often walking along elevated "bunds" -- Old banks of the river -- with water on both sides of them. The river was said to cover certain of these banks

at high flood. This would involve a rise of eight feet. We passed many small rice fields and numerous patches of tall elephant-grass. At 4.0 we camped on the bank, opposite the village of Washakoni on an island. We had a long "shauri" with two garrulous old men as to hiring a couple of maus for sick men next day.

W. and D. 72° and 82° F. at 5 P.M.

7 1/2° and 76° F. at 9 P.M.

Elevation of β Centauri at culmination 31° 34 1/2'.

We saw no animals all day except baboons and monkeys.

The villages that we passed, and their distances from Arste, were as follows:-

Malabati, 2 miles 680 yards; Bububbu, 5 miles; Dafoma, 5 miles 1600 yards; Muhuru, on the North bank, 6 miles 1440 yards; Kikondoloni, with Gamawaki opposite to it on the North bank, 7 miles 480 yards; Mbugoni, 7 miles 1280 yards; Kinyeni with Marawaiyo opposite, 8 miles 1320 yards; Lakucha, 10 miles 1400 yards; Gamano on the North bank, 10 miles 1600 yards; Bohoni, (25 huts) 14 miles 1360 yards; Gathimu, (about 25 huts), 15 miles 1200 yards; Yosani (6 huts) 16 miles 1140 yards; Chewani (22 huts) 19 miles 60 yards; and Washakoni (7 huts) 21 miles 1000 yards.

June 18th. Min. temp. 68°. The two maus started down stream at 6.0 as we left. We had to move back from the river bank in order to get past one or two creeks which were too deep to be forded. The actual banks of the river appeared to be the only dry part of the country. Immediately behind

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them one had to walk through swamps and standing water. (Photo 2142) Our progress at first was very slow, and for more than an hour we were still in sight of our camping place. We passed through several belts of very wet jungle preserving enormous numbers of "Mitende" -- wild date trees. (Photo 2143) Underfoot we had little but black tenacious mud. Occasionally we got back to the bank of the river. In the swamp in the early morning we passed Galoya at 4 miles, Nkóne, at 7 miles, Mkinduni, at 10½ miles, Tenda, at 11 miles, Ndura, and at 13½ miles we reached the large village of Pumwani.

(Photo 2144) From here we started away along the banks, which were open, and in places fringed with handsome rows of tall borassus palms (Photo 2145.)

We had soon to move away from the bank on account of impassable creeks and flooded hollows. Passed Umbia at 15½ miles, Mazuni at 16½ miles. Mukumbi at 17½ miles, skirted past Dialini ~~was~~ without seeing it and got into Panjua at 19½ miles by 4.0 o'clock. We went on from here to Mjongwen, a march of fifty minutes, frequently through low woody jungle where much of the ground was under standing water. Only at three of the depressions which we had to cross was it anything like waist-deep, however. Just at six we camped in a shamba at Masalani. The men had been marching over heavy ground for 10½ hours, exclusive of halts, and had done more than 24½ miles. This is what the perambulator measured, and it had frequently had to be carried, not registering, across swamps. The Mzee

of Masalani was a cheerful middle-aged man named Póju. He brought a string of his villagers to our camp carrying firewood, of which there appeared to be very little in the vicinity. He also sent some men away up stream to bring more. They returned long after dark and the firewood was delivered in camp at 9.30 P.M. He also gave us six or eight loads of green bananas which we at once distributed to our men.

W. and D. 71° and 74° at 9.30 P.M. Elevation of α Centauri at culmination was $31^{\circ} 10\frac{1}{2}'$. The sky was overcast all day. Mosquitoes were not particularly troublesome at this camp (No. LIII). In the seven days which ended this evening the caravan had walked 134 miles.

Sunday June 13th. 1909. Min. temp. $70^{\circ}\frac{1}{2}$.

In the morning we gave suitable presents to Póju who had treated us with more hospitality than any one of the other natives along the river. We then had a somewhat monotonous march to Makere, a distance of $15\frac{1}{2}$ miles. At $3\frac{1}{2}$ miles we passed Chaponi, at $6\frac{1}{2}$ miles Bububu on the North bank. At $10\frac{1}{2}$ miles the country was more open with stretches of grass and scattered bush. At 13 miles we passed Mambasasa. At Makere we camped a short way from the Mission Station. We called to see the Rev. Wartenberg and his wife. They were having an anxious time with their baby who was ill.

On this march, or else in the camp at Makere, we picked up just one or two of the common brown ticks of which we had seen none for a whole month past.

The country we passed through today was not as wet as that of the previous march, though we had to wade several times. The Rev. Waitenberg told us that the country in front of us along by the river was simply an impassable morass. He said that there had been a moderate flood in May and that the river was going down. He told us there was a path round at some distance from the river, passing through the "barra" where it would probably be dry.

Mosquitoes were quite troublesome at night.

This was camp LIV.

W. and D. 74° and 84° F. at 4:30 PM The food supplies that we were now carrying were only enough for four days more.

June 14th.

Min. temp. 70° F. Rainfall 0.04 inch.

The sky was heavily overcast. Mosquitoes were very bad before daylight. We did not get away till 6.0. We went round the back of the Mission and struck into the "barra" along a well-marked track over hard ground and among scattered bushes, with here and there, clumps of boraassus palms. We then passed first into long grass and then into scrubby wood where we were overtaken by rain. Throughout the day, except for an interval from about 12.0 to 2.0 we were constantly attacked by mosquitoes. We returned to the river at the village of Mhopia at 10 $\frac{1}{2}$ miles. The rain now became heavier. We passed Miamnazini at 11 $\frac{1}{2}$ miles, Baboiya (on the other bank of the river), then Mbuji at 12 $\frac{1}{2}$ miles and Taloni at 13 $\frac{1}{2}$ miles. The river here was about 150 feet wide, with occasional timber

snags showing above the surface. We then proceeded through very stiff dry grass running six and eight feet in height. Passed Kinyadu at 14 1/2 miles. Here a guide led us adroitly round the back of an extensive banana plantation by which he was probably interested and which he no doubt thought would suffer during the passage of so large a caravan, and ^{when} we were well past it, skilfully bolted. At the back of the cultivated stretches here, there was an extensive plain covered with knee-deep grass. We marched across this, traversing some swampy ground, and camped after doing 18 1/2 miles. There were one or two huts where we camped, occupied by very nerveless people who merely seemed to want to have nothing to do with us. It does not seem possible that human beings of any breed could continue to live in such mosquito-infested swamps without becoming spiritless and degenerate. There was no comparison between these languid wretches and the cheerful musically-inclined Gallas of Kórokóro. There were some untidy patches of Muhogo cultivation near these huts. This was Camp LV. V. 2nd D 71° and 72° at 9 p.m.

June 15th.

Min. temp. 70°. Drizzling rain during the night amounting to 0.43 inch. On account of rain and mosquitoes we did not turn out till 5.30. Got away at 6.20 during a lull in the rain. It soon came on again however. Our path lay to about equal extents through patches of low scrubby wood and through tall rough grass about shoulder high. At times we skirted small rice fields, the largest one we saw being well under two acres. At 1 1/2 mile we passed Njao and at 6 miles Bindarini, the latter a very untidy-

looking dirty village. At 8 1/2 miles we passed Gongoni. Our path ~~was~~ in the patches of wood passed through a succession of pools, (Photo 2146) and at times was merely a long ~~shallow~~ trench in which we walked up to our knees in water. We were surprised to come suddenly upon a white-washed Mission house standing in a fenced enclosure containing an orchard of orange trees. This was Kulesa. We went in and saw the missionaries, Mr. and Mrs. Heyer and Mr. Schmidt. Mr. Heyer told us that the river had been in a moderately high flood for about five weeks, beginning in May. Other interesting information that we got from him was that he had dug three wells on the Mission land and found them all to be salt, and that the black mud of the district mixed with four parts of river sand made excellent sun-dried bricks. One of our men was here too ill to proceed so we sent him down stream in a mau. Showers continued to drive up from the South. We now got into the country intersected by creeks from the river and by swamps, and at 12 1/2 miles we came to a creek, 150 wide, which was too deep to ford. A mau belonging to a Galla whose hut was near at hand was tied up to the bank. We had passed another mau on a small branch of the creek some distance behind, so as these were very unstable craft and as my Wakikuyu with two exceptions had never been afloat before, we sent the Galla for the second mau, and lashed the two together. We thus got everything across in about 2 1/2 hours. The maus had to be paddled ~~down~~ as the water was too deep to pole them. While this was going on, heavy

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and continued rain came up at about 4.0 so we camped where we were.

Mosquitoes at night were decidedly bad.

I saw several anopheles.

Saw no game on the march today.

June 16th

Min. temp. 69° F. Did not turn out till 5.30 as the rain continued and the mosquitoes were distinctly bad. The rainfall not counting what we had on the previous day's march amounted to *0.11 inch*. We got away at 6.5. For some distance we skirted a long creek which was said to connect with the river at Umi. This region was known as Belissa and there were a number of Talla villages in it (Photo 2160) They ceased however after 4 miles, and we reached the bank of the river again at Sarseni, 6½ miles. Our sick man who had come down by canoe had slept here. Without trying to keep to the bank of the river and pass through Ngao, we took a track through the "barra" direct to Golbanti or Borobini. The ground was hard bare earth with a few scattered bushes about in places. We did 13½ miles by noon. It was a great pleasure to us all to be on a hard track again, instead of wading through water as on the last few days, or what was worse, trudging through black tenacious mud from which the water had recently run off. Some Wagalla passed us with their household effects loaded up on donkeys and an ox. (Photo 2150) We walked on in bright sunny weather, and against a rousing Southerly wind. At 21½ miles we came to a swamp which the men were able to wade, chest-deep. It however took a full hour to get the entire caravan across. This was the

Ashakababo Lake of the maps. We finally reached Borobini (24½ miles) at 5.40. The final approach to the village was along the narrow top of a long "bund" or embankment across a swamp. Mosquitoes were troublesome at night. Temperature in the wind at sunset was 73°, at 9 P.M. 70°.

Altitude of α Centauri at culmination was 32° 1'.
 W and D 70° and 73° at 7PM

We saw numbers of Topi Konponi today.

June 17th. Min. temp. 69°. No rain. Mosquitoes very troublesome in the early morning. We had brought away from the Kulesa Mission a packet of letters to be delivered at the Mission at Ngao. As we had however missed the latter place, by taking the short cut through the "barra" to Borobini, we got the caravan away, en route for Charra, and then Battiscombe and I set out in a mau, back up the river to Ngao. We started at 5.0, poling, not paddling, up the slow side of the river, that is, round all the convexities. We got there at 9.40, walked up the hill to the Mission station and delivered the letters. We there met the German missionaries G. Muhlhoff and his wife, Karl Becker, and D. Pfeifer. They questioned us closely about the regions we had traversed up the river, and showed us over their Mission premises and the church. They told us that the river had begun to rise in the beginning of May and had remained in moderate flood for five weeks. Mr. Muhlhoff expressed his entire willingness to take readings of rainfall and river-level if he were supplied by Government with the two necessary pieces of apparatus.

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PLATE 2151. THE BEACH AT NGAO.

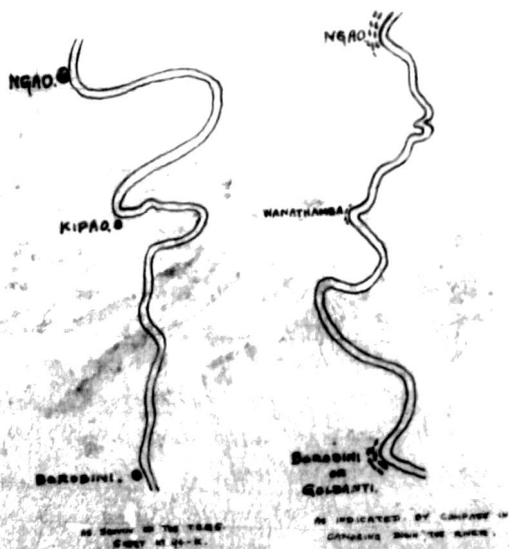


DIAGRAM IV.

SCALE: 1" = 1 MILE APPROX.

Mr. Wartenberg at Makere had told us that the annual rainfall there was only six inches (almost incredible) but here we were told that the rainfall was heavy. We were further informed that in very wet seasons the chains of swamps that started at Ashakababo was so extensive that it was possible to get from the Tana to the Sabaki without being in danger of actual want of water. The hospitable missionaries were much distressed at our refusal to stay for lunch. We returned to the beach at 10.45 however. (Photo 2151) The native part of the town looked dirty and ill-kept — nothing like as tidy, for instance as the Makadara portion of Mombasa. It took us from 10.50 to 11.55 to get back to Borobini. I noted, with a compass, the windings of the river to see whether the conditions above described were merely diagrammatic or an actual representation of existing conditions. From a comparison of diagram 4 with the map, it would appear that the former was the case. From Borobini, Batiscombe hurried down stream in the canoe to overtake the caravan and superintend the camping at Charra. I walked down with the Galla and Mandi boys and two Wakikuyu to continue the measurement of the road by perambulator. Throughout the safari, the man with the perambulator had been kept close either to Batiscombe or to me. On this occasion it turned out that I might have saved myself the trouble as it was quite impossible to use it. For the greater part of the afternoon I was over my boots in stiff tenacious black mud. It was a great relief to have, occasionally, only

to walk through water, under which the ground was not so sticky. We were among long grass nearly the whole time, with an occasional small rice-field or banana plantation. We passed Vokoni at 2.10 P.M., Hemani, 2.35; Tobwe, 3.10; Bisauni, 3.25; Nyanzai, 4.0; Chathoro, 4.20; Pitina, 4.50; Nduro, 5.0; Simkaro, 5.25; Maili, 5.45; Machamuma, 6.5; Mwlanders, 6.15; Hwinani, 6.25 and Belazoni, 6.35. We here met a Pokomo, sent back from the camp at Charra by Battiscombe, with a hurricane lamp. We passed Atili at 7.5 and our guide then diverged away from the river bank across increasingly wet country, and through two considerable swamps, one of them waist deep. Finally passed through "Watcham's plantation" and reached the camp among the houses of Charra at 9.10. The guide had taken the caravan nine hours. We considered it to be $11\frac{1}{2}$ miles. From three o'clock onwards the mosquitoes were awful.

The sky was overclouded nearly all day.

W. and D. at 9 P.M. were $70\frac{1}{2}^{\circ}$ and 75° F.

Our food supply here gave out at last, one night before our arrival at the sea. Battiscombe had however been able to buy a small quantity of rice for his "professionals" at a small Indian shop in the village.

June 18th. Min. temp. 72° . We did not turn out early as the mosquitoes were bad. Thus did not get away till 6.30. We passed back through "Watcham's shamba", as the natives term this property, and cut across country pretty well along the old course of the Tana. There were various small collections of huts scattered about here and there on backwaters and creeks.



"mirage". My Wakikuyu sampled the sea (Photo 2164) and found it to be salt, as they had been informed it was by Karera the headman, and the old Ngorebbe, who alone among them had seen it before. This was however to be explained by the fact that the country hereabouts was unlike Kikuyu, and generally hot and "bad". As for the quantity of the water in the sea, there was nothing astonishing about that. It was quite clear where it had all come from -- namely, from "Karinyaga" (Mount Kenia.) Had they not been walking, day by day, close beside it all the way down? Viewed thus as the fons et origo of the Seven Seas, or at least of the Indian Ocean, the Kikuyu country acquires a new importance! Shortly after 5.0 in a heavy downpour of rain we reached the extreme point of land opposite Kipini. There were however no craft on our side, and none came across before dark, so we had to camp where we were. A Mr. Black of the Telegraph Construction Department also had a small camp here. He was superintending the re-erection of the line along the shore. In places we had noticed that the wind had dug the loose sand away from the bases of the poles and almost left them hanging. He had dug a small water-hole, in which tolerably fresh water collected, provided it was not baled out too vigorously. There was however no water for all our men until about 9 P.M. when, at half-ebb, the river water began to come down. The day's march was 18 1/2 miles. This was Camp LIX.

June 19th.

Min. temp. 74° F. Clear sunrise. Fresh Southerly breeze. A galawa (sailing canoe with

with out-riggers) came across from Kipini before 7.0. We sent Songoro and Abdullah across with telegrams, and to arrange for several craft to come and ferry our party across. We walked up stream a short way to where the estuary narrowed down a trifle, and were taken across by three craft by about ten. (Photo 2157) A walk of about a mile brought us to the District Commissioner's house and we pitched camp (No. LX.) in front of it. On the arrival of the whole caravan we had a "quintic parade". We heard from Mr. Pinto the District Clerk who suffering severely from fever, that the half Company of the M.A.M. had started down from Sankuri some four or five days after we had left and that Mr. Crisford would also be returning soon. We bought fresh food supplies at Indian shops in the town.

By steady marching we had now reached the sea in ample time to get to Lamu to catch the usual German steamer on the 22nd. of the month back to Mombasa. We heard however by telephone from Mr. Gilkison, the Provincial Commissioner at Lamu, that the steamer was not running this month. I therefore determined to walk down the coast to Mombasa, and Battiscombe to go northward to inspect the forests at Witu.

Sunday June 20th. 1909. Min. temp. 74° F.

We stayed in camp today. The caravan had marched for the past ~~sixty-nine~~ ^{fifty} days without a break i.e. all the way from the Suspension bridge. The Wakikuyu, with the exception of eight or ten more or less de-tribalized individuals, had refused to eat shot meat throughout

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the safari and had therefore only had their daily ration of $1\frac{1}{2}$ lb. of maize flour to go on. They were thus distinctly lean, and about twenty of them had fever. Two or three also had dysentery and two of them nettle-rash. Photograph 2163 shows a group of them among sandhills on the occasion of their arrival at the sea ^{the} previous day.

We were engaged in writing all day, and packing up for our separation next morning. The wet and dry bulb thermometers during the day read as follows:-

8 A.M. 71° and 75° 9 A.M. 72° and 79. 10 A.M. 72½ and 79½. 11 A.M. 73° and 80. 1 P.M. 73½ and 80½. 2 P.M. 74° and 81. 3 P.M. 75½ and 80. 4 P.M. 74° and 79. 5 P.M. 72½ and 76.

June 21st. Min. temp. 71. Battscombe got away at about 5.0 en route for Lamu via Mkonumbi. The ferrymen did not wish us to start across till about 6.0, after the turn of the tide. All my party was across by 10.0. Had an enjoyable walk down the beach against a refreshing southerly wind. The beach here is hard and wide (Photo 2162) of the very white "sand" which is largely the powdered pumice-stone from Krakatoa. I sent a runner on in advance to Mr. Rule of Sadani to ask him if he would send his ~~rowing~~ ^{rowing} boat down the old channel of the Tana to the old mouth to put my party across there. After a march of 3½ hours we got to Sadani. My men went on to the old mouth of the Tana some eight miles further on. I followed them later, arriving there at sunset. It subsequently transpired that Mr. Rule's boat had been

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down, had however only waited till about 4.0, and had then returned to Sadani. We were therefore without drinking water and without means of getting across to the other side. At low water it is possible to ford the channel, but it would not be low tide until midnight. I had my tent pitched, but such a violent S.E. wind was blowing that I had to turn out towards midnight and have the fly taken off, as it threatened to carry away. Dry sand was blowing across the spit of land in a cutting sheet a yard high. In the morning (June 22nd.) it was still blowing hard. There has hitherto been an island half way across this channel, but there can be no doubt that the left bank upon which we were camped was, during that monsoon at any rate, advancing towards it at the rate of feet per week. Now that the river has ceased to flow down this channel, and there is only a gentle scour due to tidal waters running out, it seems certain that the island will soon be connected with the bank, unless the drifting sand is stopped by extensive planting. In fact, this ~~island~~ ^{mouth} will probably be closed altogether, leaving a strait of salt lagoons back through which we can reach Charva. My men dug several holes which failed to yield fresh water. However the boat arrived at 8.40 A.M. and by ten o'clock we were all across. (Photo 2164) An hour's walk brought us to a swamp where my men got water. They had had nothing to eat or drink since early the previous morning. So we camped early, at about 2.0, at the Formalhagt River which we were able to ford, chest deep. The wind

dropped to a dead calm at sunset.

June 23rd. Min. temp. 70°. We followed the telegraph line till it crossed the well known "Galla Road" which runs from Borebini on the Tana to Malindi. Passed through Fundisha and camped at Gongoni.
(Camp XLIII.)

W. and D. 71½ and 79° at 6 P.M.

June 24th. Min. temp. 70°.

Passed the Galla village of Boma Pundi, the town of Mambrui, the Spaki Ferry, and Malindi and went on to the new pier works at Casuarina Point. These are being separately reported on. At Malindi I took about twenty of my men to Moola Kubsh the local official of the Medical Department. Fever, anaemia, and dysentery were the principal ailments,

W. and D. 71½ and 76° at 9 P.M.

Mr. Sikes, Assistant Engineer in charge at Malindi camped out with me at the pier site.
(Camp XXIV.)

June 25th. Min. temp. 67°. Light cool breeze from the South at sunrise. Spent the day with Mr. Sikes, inspecting his work. Late in the afternoon we moved back into Malindi.

W. and D. 75½ and 79° at 10 A.M. 78½ and 84° at 12.30 P.M. and 78° and 82½ at 2.30 P.M.

June 26th. Left Malindi at 6.0. I diverged from the road in the morning and spent an hour or two in the ruined city of Gedde. Camped at Roka at night. 23 of my men were down with fever.

Sunday June 27th. 1909. Min. temp. 80°. Got away at 5.35. Passed Mwendia at 9.30. Got to Kiliri ferry at

10.0. It took 2 1/2 hours to cross here. Reached Takaungu ferry at 2.15 and pitched my tent at Takaungu. Camp LXVII.

W. and P. 72° and 78° at 3 P.M.

June 26th.

Min. temp. 70°. No Jew. Passed Furawitu, Jauri, Mwendo wa Panya, and reached the ferry of Shima la Tawa at 2.45. It took 1 1/2 hours to get across this ferry. A walk of about a mile then brought us to the Well of Uangi where I camped. (Camp LXVIII.) Twenty five of my men had fever tonight. Two or three of them were so bad that I visited them several times during the evening with medicines.

Striking features of this walk along the coast were

- (a) the extremely luxuriant growth of matama in the swamps. It ran up in height beyond the telegraph wire of the coast line, say twelve feet or so in height.
- (b) the ravages wrought in the plantations by wild pig.

June 29th.

After a walk of two hours we reached Thertown Ferry and were in sight of Mombasa (Photo 2174.) On the arrival of my caravan at the P.W.D. office I deposited all loads and marched 18 men off to the Matile Hospital where Dr. Robertson had them attended to. They were all able to leave for Nairobi with me next day and we arrived there at midday on Thursday July 1st.

The length of our march from Nairobi to Mombasa was 820 miles, and it took the caravan precisely 2 1/2 months to do it.

Franklin D. Rowland