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Governor 848
Belfield
1914
24th September
Last previous Paper.
1922-13

BLACKWATER PETER REPORT 1913

Trs with Map.

PRINTED FOR PARLIAMENT
Ed. 7792 1915

W. Fieldman

H & R

31/10/14

Ill Road

... to ... (see last page of R. Bagshaw's ... attached to 26106 ...)

Mr Bagshaw has seen & returned draft - see letter attached.

RF 10/10/14

at once

H. J. R.

11/11/14

*To ... 22 March 1915 ...
Copies to ...*

Ed. 7792 compiled by ...

26 Feb 1915

next subsequent Paper.

Nov 10th 14

Director:
BAGSHAW, M.H., D.P.H.
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TELEPHONE NO
5188 KENSINGTON.

TROPICAL DISEASES BUREAU

IMPERIAL INSTITUTE

LONDON, S.W.



Dear Burgess

753

I return the E. A.

Per ~~By~~ B.M.F. report & map.

I do not think that any useful
purpose would be served by printing
the map as I said over the telephone.

I return at the same time the 2 S

Sierra Leone Report.

Yours sincerely

Arthur G. Bagshaw

EAST AFRICA PROTECTORATE

NO. 848

GOVERNMENT HOUSE,
NAIROBI.

BRITISH EAST AFRICA.

September, 24th. 1914.

PRINTED FOR PARLIAMENT

7792

1915

Sir,

4
22/9/14
Annual Report. 57
(Muz.)
ment
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With reference to your despatch No. 309 of the 31st. of March, I have the honour to transmit herewith the Annual Report on Blackwater Fever in this Protectorate for the year 1913 together with a map showing the localities in which the various cases occurred.

2. It is somewhat difficult to give the European population in each area. The approximate figures are as follows:-

Locality.	European Population.
Muzeras.	10
Rabai.	15
Amman Hills.	10
Purua Hill.	10
Magadi.	50
Yonta.	25
Elbora Ravine.	5
Mombasa.	400

MacKinnon

THE RIGHT HONOURABLE

LEWIS HARCOURT, F.S., M.P.

SECRETARY OF STATE FOR THE COLONIES,

DOWNING STREET, LONDON S.W.

1311-20.

Mackinnon Road, nil.
Marsakani, nil.
Kiambu, 150
Kilindini (M. Vasa), 400

I have the honour to be,

Sir,

Your humble, obedient servant.

H. Conway Boyd

G O V E R N O R.

	January	February	March	April	May	June	July	August	September	October	November	December	Rate, Age and Sex.
Masera (M.F.)				1									Europ. 49. m. Recovery
Mohal (M.F.F.)							1						Doth. " 40. " Death.
Shimba Hills (M.F.F.)								1					Recovery " 26. " Recovery
Punda Hills (M.F.F.)									1				" " 21. " "
Mogadi (M.F.F.)							1						Doth. " 66. " Death
Yonke (M.F.F.)													Doth. m.s. Death
Kidoma Ravine (M.F.)									1				Europ. 25. m. Recovery
Mombasa (M.F.F.)		1											" m.s. Death
Mackinnon Road (M.F.)		1											Anglo-Ind. m.m. Recovery
Mariakani (M.F.)													Indian m.s. "
Mariakani (M.F.)				1									Indian m.s. "
Kisumu (M.F.)							1						Indian m.s. "
Kilindini (M.F.)										1			Indian m.s. "
Kilindini (M.F.)													Indian m.s. "
Kilindini (M.F.)													Indian m.s. "
Kilindini (M.F.)													Indian 27. f. "

The above table sets forth the recorded distribution, in regard to both time and place, of these cases of Malarial Fever which came under notice during the year 1911. Of the total number five were Europeans, one an Anglo-Indian, eight were Africans and one an African. The two manifestations of the disease noted against Mariakani occurred in the same individual. In respect of professional attendance eleven of the patients were seen by medical men and four by Junior Members of the Department. Thirteen of the patients were males, two were females.

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101.

Locality (of Physical Features)- So far as the locality is concerned, Eldama Ravine and Punda Mlia have an altitude each of over 5,000 feet while Maseras, Rabai, Shimba Hills, Magadi, Yoté, Kisumu, Kilindini, Mackinnon Road, and Mariakani lie at lower levels.

Eldama Ravine (7,145 ft.) is situated on a small eminence among the Maa Hills, being located in the neighbourhood of considerable stretches of forest.

Punda Mlia (4,560 ft. approx.) on the Nairobi-Fort Hall Road, is in rolling grass country, well watered, with bush and patches of marsh along the lines of the water courses.

Magadi (2,047 ft.) is situated in a hilly and waterless area, intersected with sandy plains covered with scrub.

Mariakani (632 ft.) is a station on the Uganda Railway. During the rainy season swamps are to be found in its neighbourhood.

Shimba Hills (1,476 ft.), Rabai (680 ft.), and Maseras (564 ft.) are all within a radius of twenty miles from Mombasa and may be described as being on the verge of the Taru wilderness.

Mackinnon Road (1,174 ft.) is a station on the Uganda Railway, situated in the Taru wilderness.

Kilindini and Mombasa are located on Mombasa Island, the latter presenting considerable areas of cultivation as well as a certain amount of bush. The town of Mombasa is on its eastern side and mangoes grow on its northern and western shores.

Kisumu (3,000 ft.) is situated on the shores of Kavirondo Gulf at the Lake Terminus of the Uganda Railway. Swampy and bush-covered areas are to be found in its neighbourhood.

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All the above places, except Eldoma Ravine, are situated in areas classed as unhealthy.

(b) Occurrence of a series of cases in any one place:-

None of the cases reported, so far as is known, forms part of a series. The disease has, however, before now manifested itself at Mante and Kisumu.

(c) Insect Fauna:-

The undernoted insects have been found at the following places mentioned in the opening table:-

Maseras:- Mosquitoes are reported by one of the patients as having been troublesome at this place. Anophelines have been also observed here.

Mabai:- *Pangonia comata*, Aust.; *Haematopota pertinens*, Aust.; *Haematopota lactans*, Aust.;

Shimba Hills:- *Glossina pallidipes*; *Haematopota lactans*, Aust.; *Tabanus yaeniola*, P. de B.; *Ornithodoros Moubata*; *Culicoides* and *Anopheles*.

Punda Hill:- *Haematopota hirta*; *Culex pipiens*; *Anopheles mauritianus*.

Magadi:- *Dorcacloemus woodhousei*, Aust.; *Haematopota tumidicornis*, Aust.; *Haematopota vittata*, Leach; *Hippobosca capensis*, Olf.; *Hippobosca maculata*; *Hippobosca struthionis*, Jans.; *Lyperosia minuta*, Bezzi; *Lyperosia*, sp. Nov.; *Ochlerotatus quasiunivittatus*, Theo.; *Olfersia pilosa*, Macq.; *Stomoxys calcitrans*; *Tabanus Rufis*, Jans.

Yante: - Anophelinae have been observed close to the present station during the rains.

Mogoa Ravine: - Hippoboscus maculata; Haemaphysalis sp.
Callicines.

Mombasa Island: - Culex pipiens, L. Var. pallidiceps; Culex tigris; Glossina pallidipes; Glossina austeni, newst; Stegomyia fasciata; Banksinella luteolateralis; Pyretophorus costalis; Tabanus.

Mackinnon Road: - Mosquitoes, in the wet season.

Mariakani: - Mosquitoes, in wet season.

Kisumu: - Mansonia uniformis; Azorerhynchus mauritanus; Pyretophorus costalis; Banksinella luteolateralis; Culex tigris; Tabanus africanus, Gray; Haematopota unicolor, vic.; Culex, sp. incert.

Kilindini: - Vide Mombasa Island.

2. Seasonal Variation: - Nine of the recorded cases occurred in the cool season of the year, i.e. between the months of April and September inclusive.

3. Personal History (a) Medical History: - In fourteen of the cases histories of previous malaria are given. The fifteenth, it may be remarked, comes from Kisumu and probably had a like history. One of the patients - he who had two manifestations of Blackwater in the year under review - is noted as a "regular quinine taker", another was habitually administered five grains twice a week, and the remainder either took the

the drug irregularly or when they thought they had need of it.

In six of the patients at least, quinine had been taken just prior to the onset of the haemoglobinuria. One of the patients had undergone treatment for ep. Urethritis the month prior to the onset of haemoglobinuria. As far as Europeans are concerned, their period of residence in the Protectorate varies between ten months and fifteen years.

Previous Movements and Personal Conditions:- A perusal

of the histories of the various cases gives one to think that they show evidence of a want of self-attention so far as the treatment of malaria and malarial infection is concerned. It would appear to have followed occupations which either brought them into close contact with the jungle or exposed them to the attacks of mosquitoes and the vicissitudes of outdoor life.

Microscopic examination of the blood:- Subtertian

parasites were found in a blood film taken from one of the patients prior to the development of blackwater. Films made after its onset in nine of the cases were noted as negative on examination. In five either no record was made or no examination instituted.

From a consideration of the information afforded by the available histories of the cases under notice it may be stated that, probably, the patients

(a) had been infected with malaria prior to the development of haemoglobinuria,

and that the majority of them,

(b) have no record of having taken quinine systematically,

- (c) manifested the disease in localities rated as unhealthy,
and (d) followed outdoor occupations.

In conclusion I have the honour to transmit herewith the medical histories and an entomological list wherefrom this report has been mainly compiled. I also forward a map whereon are marked the places mentioned in connection with the cases.

J. A. Haran,
for
Principal Medical Officer.

March
~~at Fort Hell~~ *March* a planter, admitted
 the case came from jungle hills in the Fort Hill
 District. He had been only 20 months in the country
 and temperate in his habits, and there was no history of
 contact with native women. He had had several severe
 attacks of malaria and had taken quinine very irregularly.

History of attacks.

On March 3rd and 4th he felt poorly and thought he
 had another attack of fever. Took quinine, grs. xv, that
 day and repeated it next day. On the 8th he vomited and
 noticed his urine very dark red and sent to Fort Hill
 to get medical advice. Blood opened 2 1/2 times that
 day. Yesterday he had a rigor, temperature 104.6.
 Complaints of pains across the loins.

On admission, temperature 101.5 at 80, A.M. Slight
 jaundice present. Tongue dry and coated.

Spleen large and hard and reaches almost half way
 to the umbilicus. Other organs nor al.

Urine dark red and transparent. Albumen abundant.
 Blood cells absent. Mucic abundant.

No parasites found in the blood.

Treatment.

He was put on to Sternberg's treatment.

cod. liver, grs 100

hyd. perchlor, gr 1/3

Aq ad. ʒii

of which ʒi pt. was to be given every two hours.

Plenty of bland fluids were to be given and he was
 put on to a milk diet.

Bowels opened well with an enema.

March 8-13. Urine ^{3 times} passed during the night. No vomiting

and he seems quite comfortable. Temperature rose to 101 last evening, but is normal to-day. Urine less red. *March* 9-13. No further rise of temperature. Urine still contains albumen but is no longer red. He passed no stool in the last 24 hours.

Very comfortable.

11-13. No albumen in urine now. Temperature remains down and he is very comfortable.

He was discharged fit on 24-3-13 and went for a trip to England.

Has since returned and has kept in good health.

No quinine was given during his stay in hospital, but he was instructed to take small doses regularly for three months after discharge.

Locality.

Funda Hill is situated in a rolling grass country, well watered, with bush and patches of marsh along the lines of the water courses.

No other cases occurred in the locality.

The following biting insects have been noted in the district:-

Anopheles hirs.

Culex pipiens.

Anopheles mauritianus.

The case occurred during the dry season before the onset of the rains.

Ed. John I. Gilks.

Medical Officer.

patient

~~...~~ act 55, Male, a planter, admitted 4-4-13. This ~~case~~ had been 13 years in the country and had constantly been moving about. He had recently come from Nagadi. He was a married man and there ~~is~~ no history of contact with native women. Heavy drinker.

Had suffered frequently from malaria, especially in the past two years, and gave a history of getting up at nights to pass urine.

History of attack.

Ever since 23-4-13 he has been having fever. On 1-5-13 the blood showed sub-tertian parasites and was given two injections of quinine, grs. x, ^{sc} intra-muscularly. The day before admission he passed urine looking like pure blood. Vomited once.

On admission, T. 97.4, P. 98, R. 22. Tongue coated. Face and conjunctivae jaundiced.

Circulatory system degenerate.

Spleen and liver not felt.

Mil found in blood slides.

Treatment.

He was put on a milk diet with plenty of bland fluids to be taken by mouth and given a half drachm of nuxia bicarb. in water every three hours.

5-5-13. Bowels opened after a small dose of salts.

Vomiting at intervals. No urine passed since admission. Pulse good. Put on to rectal injections of caline O_2 every two hours.

6-5-13. Only one ounce of urine passed since admission. Urine dark red and goes almost solid on boiling. Microscopically it is full of debris with a very few blood cells.

7-9-13. No more urine passed. Had intravenous injection of saline of last night and again today.

Vomiting. Pulse remains good.

8-9-13. Had passed a little urine which is clearer and less albuminous. No vomiting now. Taking fluids well. Two pints of saline infused intravenously last night. He is getting puffy.

9-9-13. Passing a few drachms of urine.

11-9-13. Urine very scanty, only one ounce passed in the past 24 hours, but it is not red and is much clearer as regards albumen, weaker.

13-9-13. Urine increasing in amount but the general condition is worse. Extremities edematous.

15-9-13. Urine increasing rapidly in amount and is quite clear but he is worse in himself.

17-9-13. Urine passed - 48 ounces in the past 24 hours, and there is only a trace of albumen present. Edema increasing.

18-9-13. Very twitchy to-day face and arms constantly working. Urine passed is over a hundred ounces in the past 24 hours. Died a pint this morning.
Very ill indeed.

20-9-13. Had several fits during yesterday afternoon and evening, and died at 5 p.m. from uraemia.

Temperature remained normal during his stay in hospital.

Locality.

Mogadi is situated in a hilly and mountainous country intersected with sandy plains covered with scrub, waterless.

No other cases were noted as occurring in the locality.

The following biting insects have been recorded.

Chlorostoma maculivittatus, Thoms.

Chlorostoma wassmanni, Aust.

Chlorostoma tumidicornis, Aust.

Hippoboscus capensis, Alf.

" insulana.

" struthionis.

Lyperosia finuta, Bezzi.

" sp. nov.

Chlorostoma pilosa, Meq.

The case occurred after the rains.

J. L. Gilke.
Chief Officer.

Male

~~_____~~, Indian. Admitted 3-2-1913,
Died 7-2-1913.

I. Locality.

- (a) ~~_____~~. Thick bush in parts. Mango trees.
Mangrove swamps. All cultivated in parts.
- (b) No other cases had occurred in the same house.
- (c) Insect fauna: Mosquitoes, and ~~_____~~
and ~~_____~~ ^{and} ~~_____~~ _{at some points.}

II. Seasonal Variation.

February, dry season.

III. Personal History.

- (a) Not a regular quinine-taker. Patient had suffered from malaria previously. He stated that he had been suffering from fever for some three days previous to his admission to hospital. On admission his temperature was 100 and the urine of a port wine colour. He had very bad jaundice and his bowels were constipated. Pulse feeble and rapid. On 4-2-1913 his temperature came down to 99, but the general condition got worse, the urine retaining the same colour and diminishing in quantity, having passed only about eight ounces during the day. Vomiting was a marked symptom making it difficult to retain any food. On 5-2-13 the patient showed symptoms of collapse after having passed a very restless night. Urine evacuated got less in quantity but lighter in colour. Vomiting continued the same. On 6-2-13 there was no change in the symptoms and the patient

continued in the same state. On 7-2-13 the patient died of Cardiac Failure.

- (b) The deceased was an engineer on a Government launch which travels up and down the Coast.
- (c) No parasites were found in blood.

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J. Fugh
Medical Officer.

~~Mule~~ Anglo Indian. Admitted 25-2-1913.
Discharged 10-4-1913.

I. Locality.

- (a) Washermen Road Railway Station. Scrub forest.
No swamps in neighbourhood.
- (b) No other case had occurred in same house.
- (c) Insect fauna: Mosquitoes (Culiseta and Anopheles) in wet season.

II. Seasonal Variation.

February, dry season.

III. Personal History.

- (a) Took quinine occasionally. Had suffered from malaria previously.
- (b) Patient works as a Permanent Day Inspector on the railway. This necessitates frequent journeys on the railway.
- (c) No parasites found in blood.

Admitted to hospital on the morning of 25-2-13 accompanied by the Sub-Assistant Surgeon from Vei.

On admission the temperature was 100°. The patient was badly jaundiced and the urine of a port wine colour. He stated that the urine had developed that colour a day previous to his admission to hospital, after taking quinine, grains 20, for a dose. The next day the temperature came down to normal and the urine assumed a lighter colour. The urine was analysed and found to contain albumen. Since the fall of the temperature the patient made an uninterrupted recovery and was discharged as cured on 10-4-1913.

870

Male
~~Age 40~~, Indian. Admitted 4-6-1913.
Discharged 13-6-1913.

I. Locality.

- (a) Mariakani. Station on the Uganda Railway. Forest, Swamps in neighbourhood in wet season.
- (b) No other case occurred in same house.
- (c) Insect fauna: Mosquitoes (culex and anopheles) in wet season.

II. Reasonable Variation.

June, rainy season.

III. Personal History.

- (a) A regular quinine-taker. Has had several attacks of malaria previously.
- (b) Patient is a fuel contractor for the Railway. He spends most of his days in the forest cutting wood.
- (c) No parasites found in blood.

Admitted in hospital on 4-6-13 suffering from fever of three days duration. The urine of a port wine colour. He was very badly jaundiced and the bowels constipated; the next day the bowels moved after an aperient and the urine became lighter in colour. Vomiting was a very troublesome symptom. The fever which was 104° on the day of admission came down to 99°. On the third day the fever came down to normal. All the symptoms showed signs of improvement and after that the patient made an interrupted recovery. The patient was discharged on the 13-6-13 as cured.

[Signature]
Medical Officer.

77/77 ~~Amir Singh, Indian. Admitted~~ 22-7-1913.

Discharged 28-7-1913.

This is the same patient as Case 5.

I. Locality.

Same as previous case.

II. Seasonable Variation.

July, end of rainy season.

III. Personal History.

(a) Blackwater fever one day previous. Patient had been told to take 5 grains quinine daily when he left hospital after his previous attack. He was admitted for the second time to hospital for blackwater fever. He stated that he was suffering from fever for a week and that he passed urine of a port wine colour since last night. The temperature on admission was 101.6. Markedly jaundiced. Vomiting troublesome. Next day the temperature came down to normal and vomiting became less troublesome. Since then the temperature kept at normal and the patient was discharged as cured on the 28-7-13.

(b) Fuel contractor, Uganda Railway.

(c) Parasites not found in blood.

77/77
 J. J. Pugh.
 Medical Officer.

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 Asar Singh, Indian. Admitted: 22-7-1913.
 Discharged 28-7-1913.

This is the same patient as Case 5.

I. Locality.

Same as previous case.

II. Seasonable Variation.

July. End of rainy season.

III. Personal History.

- (a) Blackwater fever one day previous. Patient had been told to take 5 grains quinine daily when he left hospital after his previous attack. He was admitted for the second time to hospital for blackwater fever. He stated that he was suffering from fever for a week and that he passed urine of a port wine colour since last night. The temperature on admission was 101.5. Markedly jaundiced. Vomiting troublesome. Next day the temperature came down to normal and vomiting became less troublesome. Since then the temperature kept at normal and the patient was discharged as cured on the 28-7-13.
- (b) Fuel contractor, Uganda Railway.
- (c) Parasites not found in blood.

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 J. J. Pugh.
 Medical Officer.

74/ ~~Basant Singh~~ ^{Mari}, Indian. Admitted 18-6-1913.

Died 25-6-1913.

I. Locality.

- (a) Deceased had been residing at Kisumu in the Public works Department landies. Lake shore, low scrub, swampy.
- (b) other cases have occurred at Kisumu. Some years ago the disease was common.
- (c) Insect fauna. Mosquitoes (anophelines and culicines), flies (haematopota ^{and} tabanidae).

II. Seasonable Variation.

August end of rainy season.

III. Personal History.

- (a) Not a regular quinine-taker.
- (b) on his journey down from Kisumu he had an attack of fever between Lunbwa and Bakuru. At this spot it is very cold at night and a chill coupled with the sudden change of altitude probably was the immediate cause of the attack.
- (c) No parasites found in blood.

On admission the temperature was 101° and vomiting was very troublesome. He passed a very small quantity of urine. On the 20-6-13 patient passed no urine. The temperature came down to 96°. On 22-6-13 patient passed only one ounce of urine. On 23-6-13 he passed no urine and hicough was very troublesome. On 25-6-13 Braemic convulsions set in and patient died from suppression of urine.

J. Pugh
Medical Officer.

Male
~~James Smith~~, Indian. Admitted 18-8-1913.

Died 25-8-1913.

I. Locality.

- (a) Deceased had been residing at Kisumu in the Public Works Department landies. Lake shore, low scrub, swampy.
- (b) Other cases have occurred at Kisumu. Some years ago the disease was common.
- (c) Insect fauna. Mosquitoes (anophelines and culicines), flies (haematopota ^{and} tabanidae).

II. Seasonable Variation.

August end of rainy season.

III. Personal History.

- (a) Not a regular quinine-taker.
- (b) On his journey down from Kisumu he had an attack of fever between Lumbwa and Nakuru. At this spot it is very cold at night and a chill coupled with the sudden change of altitude probably was the immediate cause of the attack.
- (c) No parasites found in blood.

On admission the temperature was 101° and vomiting was very troublesome. He passed a very small quantity of urine. On the 20-8-13 patient passed no urine. The temperature came down to 96°. On 22-8-13 patient passed only one ounce of urine. On 23-8-13 he passed no urine and hiccup was very troublesome. On 25-8-13 ~~br~~haemic convulsions set in and patient died from suppression of urine.

J. Pugh
 Medical Officer.

Male

Admitted 15-10-1913.
Discharged 29-10-1913.

I. Locality.

- (a) Kilindini. Congested district. Many mango trees, fairly well cleared of bush.
- (b) No other case has occurred in the same house, or in the immediate vicinity as far as can be ascertained.
- (c) Insect fauna. Mosquitoes, anophelids, culicid and stegomyia. Bugs numerous in the majority of the houses.

II. Seasonal Variation.

October. Dry season.

III. Personal History.

- (a) Not a regular quinine-taker. Has had several attacks of malaria previously.
- Patient was admitted to hospital at 2 p. m. on the 15-10-13 and stated that he was passing urine of a port wine colour. On admission his temperature was 98.6 and bowels were constipated, very anorexic. The next day his temperature rose to 101.5 and the urine was of a port wine colour. On the third day the temperature again came down and the urine became lighter in colour. The patient was discharged as cured on the 29-10-1913.

M. F. Fugh.
Medical Officer.

57 57

Name Female *Jejale*
Age 34 years
Residence railway brick quarters.
Station Filindini.

Previous History. She was suffering from malaria since a fortnight, she was not taking quinine regularly.

Present History. On 21-3-1913 at 10 a.m. suddenly she passed black urine, of which she was frightened and informed me at 11 a.m. when her husband came from duty.

Temperature. It rose to 102° in an hour's time and came down to 101° next morning, it gradually dropped down and on the morning of 4th day it was quite normal and never rose again.

Urine. It was dark red on first visit and after 24 hours' time it turned into red colour and gradually turned into high colour and yellow in next 24 hours' time.

Jaundice. There was slight jaundice.

Vomiting. Remained only for 12 hours and stopped itself.

Liver and Spleen. These were slightly tender and enlarged.

Kidneys. Were painful and tender on both sides.

Treatment. Medicinal.- Soda Bicarb. and Zn Hydrate; Perchloric mixture was given thrice daily.
 Dietetic.- Milk and soda water and barley water were given in frequent

and big quantities.
external. 7 Linniment Turbith was
rubbed over the kidneys and Tr:
Iodine was painted over the liver
and spleen.

477
Ed. Harrichan Das
Sub Assistant Surgeon.

CASE 10.

Female aged 27

Name ~~Madrasam Chand.~~
Age 27.
Residence Railway quarters.
Station Kilindini.

Previous History. She was suffering from chronic malaria since two months and having attacks now and then during the period. She was not taking quinine except a few times when she was suffering with severe attacks.

Present History. On 27-9-1913 at 8 a.m. when going round to see the cases in quarters, she reported me that she had passed black urine. On examination I came to know that it was a typical urine of black water fever.

She took 10 grains of quinine beforehand.

For 1st 24 hours it was between 102° and 103°; for next 24 hours it was between 100° and 102°; for next 24 hours it was between 99° and 101°; for next 24 hours it was between 98° and 100°. After next 24 hours evening temperature came down to normal. On 7th day there was no rise of temperature.

Temperature.Urine.

It was black for 1st 24 hours and turned into dark red in next 24 hours, it was red for next 24 hours and turned into high colour for next 24 hours. On the 5th day the urine passed in its normal colour.

Jaundice.

There was slight jaundice which subsided on the third day.

Vomiting.

It was troublesome 1st 12 hours, in next 12 hours she was keeping in milk and soda and not the barley water. On third day it was

totally checked by an application of a mustard plaster.

Delirium.

There was no delirium in the period of disease.

Liver and spleen.

Were enlarged and tender to touch.

Kidneys.

They were painful and tender to touch over both sides.

Treatment.

Medicinal. Soda bicarb. and liq. hydrarg. per-
chloride mixture was given 3 times a day.

Dietetic. Milk and soda water and barley water were given in frequent and big quantities. Ice was given to check the vomiting.

External. Mustard plaster was applied over the pit of stomach to check the vomit, kidneys were kept warm by means of liniment camph. and cotton wool. Iodine was painted over liver and spleen.

21/11
11
Dr. Markishan Das,
Sub Assistant Surgeon.

A Lay Missionary, ~~aged 40~~, aged 40. Had suffered from frequent attacks of malaria. He had been in the habit of taking quinine irregularly.

Length of time in the country - 7 years.

He had been living at Nazeres many months.

This was his first attack of blackwater fever, which came on suddenly after a large dose of quinine.

He was admitted into hospital on the third day of illness. No telegram or message of the sort was sent to us to meet him or to make any arrangements for his reception. He was extremely jaundiced and stated that he had been vomiting since the day before. The urine though dark was not the brick-batter colour which was said to have been the condition the previous day.

Pulse - weak and inclined to be thready.

Blood - no parasites found.

The next day the urine, in fair quantity, was not clearer, but vomiting persisted and hiccup commenced which were continuous until just before death the following day.

Treatment - Searey's mixture. Absolute rest. Hot packing to the loins. Sine etc. transfusion. Injection of strychnine and one of Morphine gr. 5 on the first day.

The fatal termination of this case in spite of the clearing up of the urine and with no suppression, emphasizes the danger of giving the patient.

On the third day of illness the man was carried to Nazeres station about 7 miles, and then shaken up in the train. On arrival at Coimbra he was put in a trolley in a sitting position and jolted off to the hospital.

Dr. C. . .

Medical Officer.

The Principal Medical Officer,

Nairobi

Sir,

In reply to your No. 25/7th, I have the honour to give you the following particulars of a Blackwater Fever case, ~~...~~, treated by me at the Mombasa ~~...~~ Hospital in May 1923.

1. The patient, aged 49, just previous to his attack had been living at the Government Farm, Mazaras, for about three weeks.
2. He then accompanied the Director of Agriculture in the direction of Fort Heits Creek, Mtwapa, Preretown, and Mlongwe. The weather was wet, and on one occasion he had to wade through water to the boat. The patient was then suffering from malaria, but did not pick up. Heavy doses of quinine - probably 25 to 35 grs. per day were taken, for three days before the Blackwater attack.
3. Mosquitoes had been troublesome at Mazaras, and at hotel in Mombasa, where the attack came on.
4. The patient's first attack of malaria occurred in St. Vincent, West Indies, in 1880, and during the remainder of his thirteen years residence there.
5. During the 104 years of the patient's residence in East Africa he has been treated for frequent attacks of malaria, both in and out of hospital.
6. The patient had an attack of ague unlike anything experienced before malaria, prior to his attack of Blackwater Fever.
7. The patient was in the habit of taking quinine when

821
he travelled in a malarial district.

8. I only saw the patient the night before his admission into hospital. I made an examination of his blood, but found no malarial parasites.

I have the honour to be, etc.

[Signature]
W. Owen-Richard.
Senior Medical Officer.

07/07/13 Private Soldier, 3rd. King's African Rifles, died of Blackwater fever in Youte hospital on 27th August 1913.

Locality.

(a) Physical features.

The lines of Youte where the fatal case of Blackwater fever occurred stand on an elevated ground which is surrounded on one side by Juba River and on the ~~rest~~ ^{rest} three sides by low lying ground. Consequently the site is well drained. The place cannot be called a swamp, bush, or forest area.

(b) No case of Blackwater fever was recorded in 1911 and

(c) ¹⁹¹² ~~1911~~ ^{which found} time of the occurrence of the case nor immediately before or after it.

Seasonal Variations.

August is one of the months of great malarial activity.

Personal History.

(a) Medical history.

Nairobi.

V sores 10 days in 1911

V sores 29 " " "

Ngunbetok.

Malaria 4 days in 1912

Nairobi.

Fever Int. 7 days " "

Fever Int. 3 " " "

The deceased was always given five grains of quinine twice a week.

(b) The deceased was in good health at the time of his death.

every other day in the evening. ^{stayed} there for the
 night and ^a come back to Yonts next morning for about
 three weeks previous to his being attacked from ^{with}
 Blackwater fever.

(c) Microscopic examination of blood not performed.
 As no other case of Blackwater fever is recorded
 during 1913, or the two previous years to it, Yonts
 cannot be marked on map as Blackwater fever area.

8/17
 Ed. Lewis Balch.
 Sub Assistant Surgeon.

300

Blackwater Fever in Jubaland

Sir,

In obedience to Principal Medical Officer's Circular No. 86, dated the 23rd February 1911, I most humbly and respectfully beg to submit my report on Blackwater Fever.

The patient is private soldier [Name] 3rd King's African Rifles
(page 13)
was admitted into hospital at Yonto on the 23rd August 1913 with fever temperature 106, profuse perspiration, severe vomiting and jaundice. He passed three ounces of urine with blood first day, and he never passed any more of it during his illness of about five days.

I reached Yonto on an urgent call at 7 P.M. on 26th August 1913 and found the deceased in a state of collapse and quite senseless, and he died at 6 P.M. on the 27th August 1913.

The deceased had always been getting five grains of quinine twice a week for some months and had not been away from Yonto but on post service to Gobwen by new road which always keeps at a distance from the river.

~~I beg to state the history of Blackwater Fever in Jubaland up to the present:~~

In 1902 ~~Dr. [Name]~~ *the Medical Officer* who relieved me at Yonto when I was posted to Camel Corps, 3rd King's African Rifles, had an attack of Blackwater fever while at Yonto.

The next case was of an Indian, firman, Lt. B. Bose Government steam launch in Juba river. This man named Abubakar after being twice successfully saved from the claws of Blackwater fever at Gobwen died of it in Yonto hospital after six days illness on the 1st October 1910. He was brought with the malady from lower Goshu, and Dr. F. F. Lamb, who treated the deceased, told me at

300

serenli that the most difficult point was of suppression
of urine.

The third case is of Goom taller, 3rd King's African
Rifles, Yonte, named ~~de found~~.

This man suffered twice of Blackwater fever at Yonte
though I cannot find any record in the admission and
discharge book.

He was saved both times by intermuscular injection
of quinine. This man's profession always kept him in-
door and he always spent his extra time in ~~repairing~~
sewing to make some more money.

The fourth and to my knowledge the last case in
Tanzania was this ~~Handi Private~~ (case 13)
who, as mentioned
above, died of Blackwater fever on account of collapse
and suppression of urine on the 27th August 1913.

From the above I conclude that Yonte is a Black-
water fever area. I believe the deceased fireman of S. B.
House always contracted disease near or above Yonte. It
must be a disease of bush or dampness. The site of
Yonte military lines and native quarters are free from
Blackwater fever, though always infected with malaria.
I believe very strongly that some persons are most un-
usually predisposed to Blackwater fever.

The Handi Private, 3rd King's African Rifles on
whose death from Blackwater fever I am taking this
opportunity of making this report took enough quinine
to keep him sufficiently safe from malaria, and so I am
certain also ^{and} the deceased fireman of S. V. Robe. I am
certain prophylactic quinine could not insure them both
against Blackwater fever or death from it.

I have also seen a compounder of a Mission Hospital
at Mombasa, named Allah Buhah, who always took enough
quinine to be safe from ordinary malaria, ^{get} but Blackwater
fever at Mombasa ^{be} and was treated at Mombasa Native

hospital without any help of quinine, or any other anti-malarial, and was cured. This was about the end of January 1913 while I was on my way to India on leave. On the evening of last day of June 1913 I met this man and he told me he was going to the Native Hospital, Aden, for the treatment of Blackwater fever from which he was suffering since that morning notwithstanding his taking a lot of quinine almost every day. He asked me for some advice and I readily told him to leave Aden as soon as he is cured this time and go to India or Bahrain.

The Fireman of P.O. Kase and Vonte toiler were twice saved by the injection of quinine, and then the firemen died under quinine injection treatment system.

To my knowledge of 10 years of Jubaland I know of these four cases of blackwater fever only, against thousands of malaria in every station in Jubaland from Ismayu to Berenli. Another point in this connection is that the natives of Jubaland do not seem to have any idea of this disease.

In short it must be a very very rare form of malaria, if it may be so, and should be very very severe, or a small minority of men is specially predisposed to it, or the germ which produces it is rarely brought in contact with man. I believe Blackwater fever is a disease of bush, long grass and dampness.

In conclusion I beg to state my views upon the treatment of the disease on which I think much difference of opinion exists:-

I believe in the injection of quinine twice or thrice daily until the temperature is about normal. I cannot possibly understand why it should be contra-indicated. It cannot possibly be a food of any germ though certainly a poison for many. Then it is a

removable agent to keep the temperature down, to regulate the liver and to subdue malaris which state must be present even taking it for granted that low water fever is a non-malarial disease as we have always found one of the greatest fever in the regions of malaris in ~~the~~ ^{the} ~~regions~~ ^{regions}.

The second point in my opinion is of jaundice which is also responsible for the presence of blood in urine or complete in-action of kidneys. To test this a dose of white mixture every three after the patient wakes should be given until bowels are freely and frequently and then 1 grs. Sod. sulph. in mixture in frequent doses until one dream is kept in daily for three days. If this does not answer the purpose transfusion of saline mixture seems to be the only thing which should be practised on third day, not formation of dry cupping. ~~is~~ The regions of kidneys should not remain without trial.

If cured of one attack the subject of low water fever should never stay in the vicinity of the place where he had contracted the disease or he should never stay near the place where any case of low water fever is ever found. A country of a very dry or cold climate should be the country of his living.

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~~Dr.~~ J. W. B. B. B. B.
Sub Assistant Surgeon.

Eldama Ravine

Adult male. Indian

Previous History.

Indefinite, patient had been living in Uganda, and had there had previous attacks (number and date not known) of blackwater fever. He had taken quinine at intervals, quantity unknown.

History of present illness.

The patient had come from Mwanza, and, on his return, came into Eldama Ravine.

At the onset of the attack, the temperature rose to 104, and reached 105 the same evening, there was much pain in the limbs and head and the patient vomited bile.

In the first day the urine became pink, and soon turned to a dark-brown.

There was some jaundice, and the spleen was enlarged. Recovery took place and the urine recovered its normal colour in a week.

Locality.

Eldama Ravine station is situated on a small eminence among the Mau Hills. The station itself is fairly clear of vegetation, but there is dense forest within a short distance.

The river is about 500 feet below the station. There are no bad swamps in the vicinity.

Occurrence of a series of cases.

There have been no other in the district.

Season.

The case occurred in the dry season.

Microscopic examination of blood. - Not made.

Insect fauna. Biting flies, Gulex, mosquito etc.

Dr. Wadhwan Khan.

Hospital Compounder.

CASE 15.

9

H., male, Engineer, aged 26, 1st time out in British East Africa; out 12 months.

From Christmas 1912 employed on water works in Mchika Hills working hard and had frequent attacks of malaria, on recovering from which he resumed work immediately; frequently before he was fit to do so.

On 27th September went to bed with temperature 103° and vomiting. 11th was jaundiced, sight affected, everything looking red, came into hospital.

On admission jaundiced, collapsed, temperature 100° pain over stomach and left side, urine slightly colored, urine dark steatocolor, the faeces black, Lee's mixture.

11th much better, urine not so dark. No parasites found in blood.

From this onward made an uninterrupted recovery. Had taken quinine in 10 gr. doses for his malaria. Blackwater not attributed to quinine.

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W. E. Henderson.
Medical Officer.

Entomological Laboratory,

Habele, June 27th, 1914.

The Principal Medical Officer,

Habele.

Sir,

In reply to yours of the 11th instant, I have pleasure in giving you the following records of biting insects in the places which you mention in your letter. I only mention below the places for which we have any records.

Mombasa Island.

Glossina austeni, Stegomyia fasciata, Culex tigripes, Banksinella luteolateralis, Theo., Culex pallidocephalus, Theo., Glossina pallidipes.

Habele.

Haemaphysalis maculans, Aust., Haemaphysalis pertinens, Aust., Panoglossina coarctata, Aust.,

Uvanga.

Ornithodoros moubata, (tick) recorded at "Uvanga".

Whips Mills.

Haemaphysalis maculans, Aust., Ornithodoros moubata, Tabanus tenebrosus, I. de B., Glossina pallidipes.

Kisumu.

Culex tigripes, Haemaphysalis maculans, Aust., Anopheles (Pyretophorus) costalis, Tabanus affinis, Gray., Banksinella luteolateralis, Theo.,

Mosquitoes africanus, Theo., Anopheles
marginatus, Grandpré.

Nairobi.

Haemaphysalis (near distinctipennis, Nic.),
Ornithodoros moubata, Anopheles (Pyretophorus)
costalis, Tabanus densicornis, Aust., Tenebrionidius
fuscopennatus, Theo., Stegomyia foveolata, (Anopheles
(Nyssonys) trans-vandensis, Theo., Anisopoda
luteola, Mankaniella luteolataralis, Theo., Culex
antoni, Monhelus mauritanus.

Nairobi.

For complete list of mosquitoes in the different
Nairobi areas, see "Report of the Nairobi Sanitary
Commission, 1913."

Also there are records of the occurrence of:
Haemaphysalis hirta, A. thaidicornis Aust., H. unicolor,
Nic., Ornithodoros moubata, Uranotaenia alba,
Theo., Stegomyia pseudonigeris, Gulex tatus
dentatus, Theo., Chacorus ceratopogon Theo.,

Edwards Irving.

Hippoboscids, (on horses).

I have the honour to be,

Sis,

Your obedient servant,

Ed. Roland H. Beekin.

Assistant Entomologist.

PUBLIC RECORD OFFICE.

801

Two Documents being (5) East African Protectorate -
general plan. (6) The same.

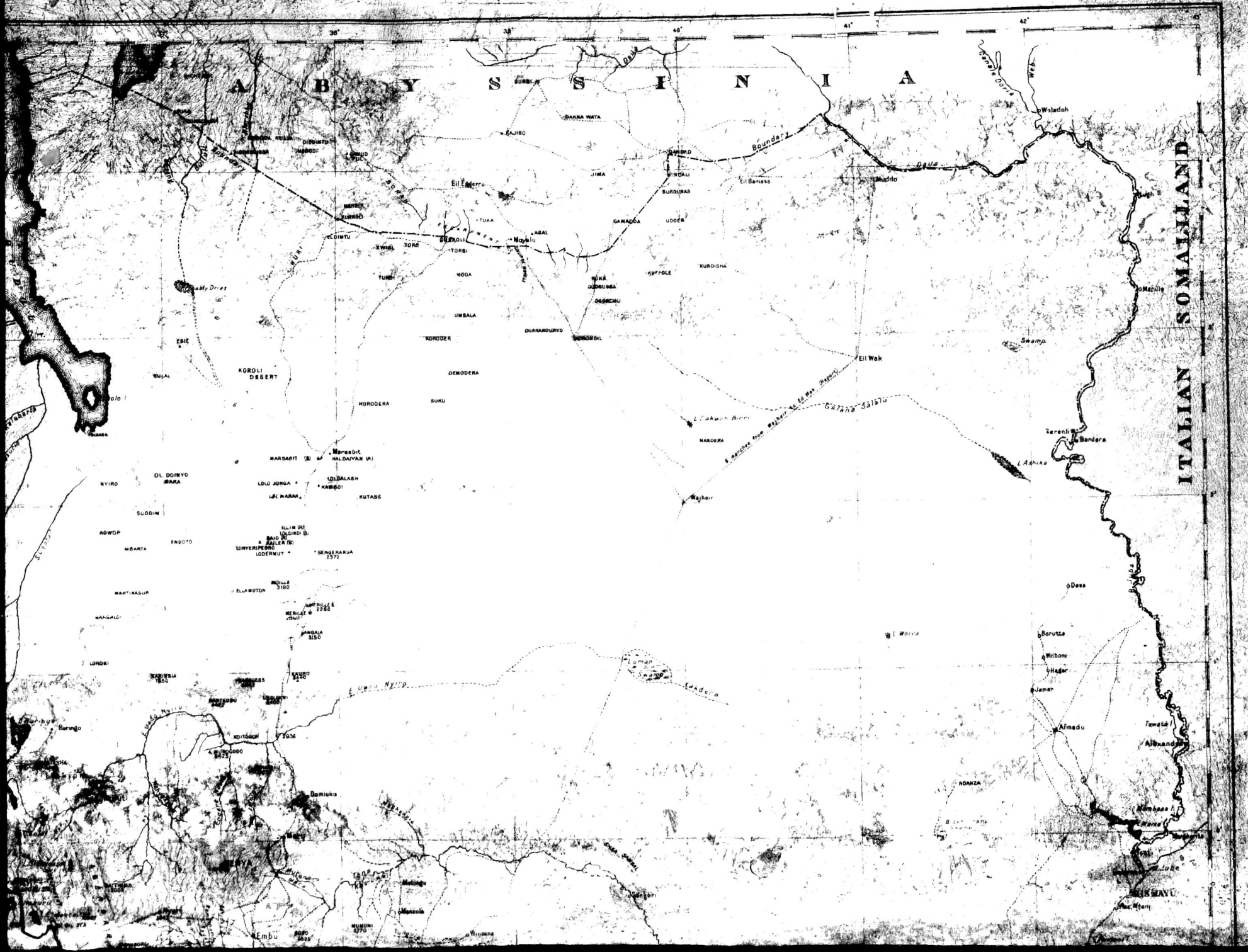
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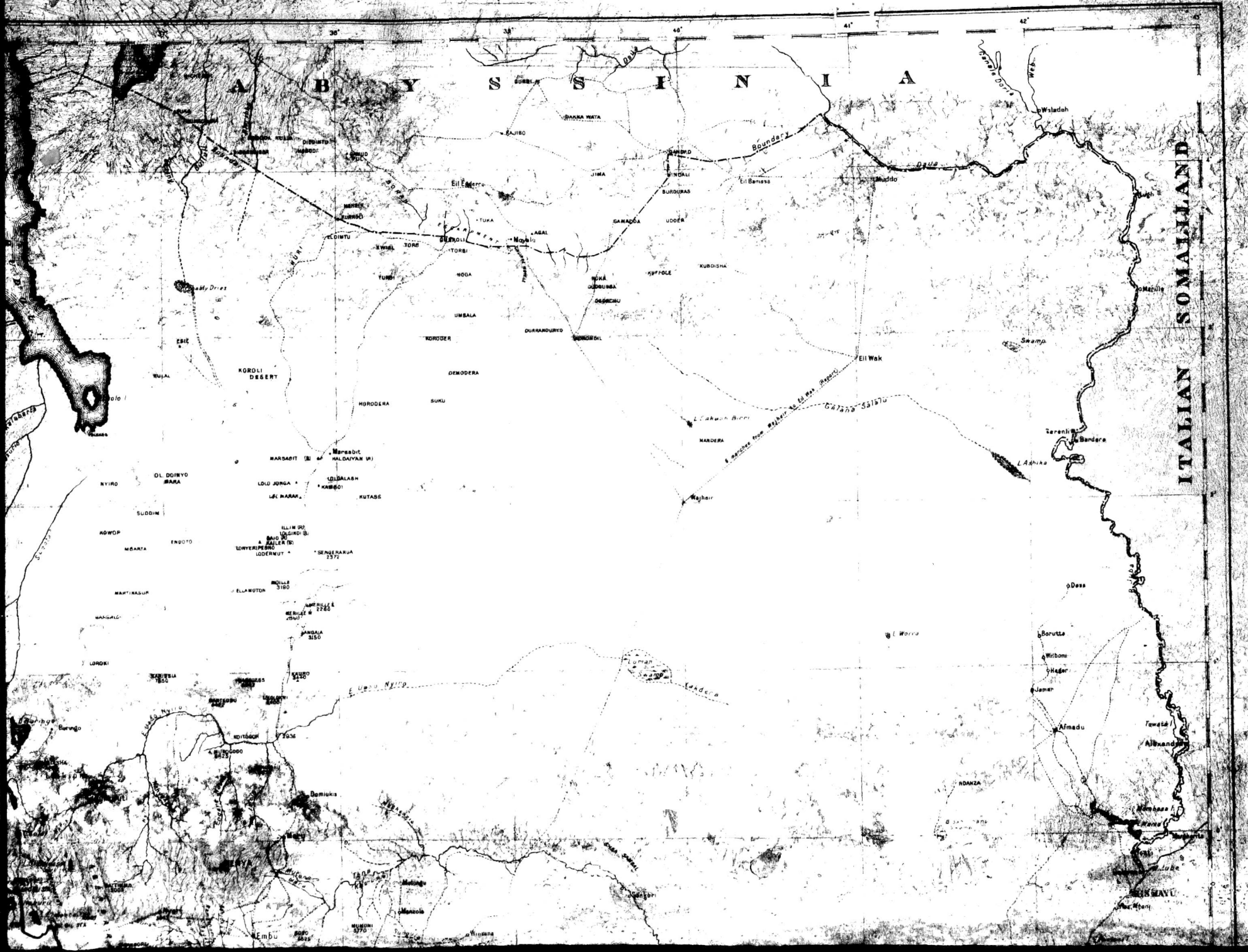
AAH. Knightbridge.





ABYSSINIA

ITALIAN SOMALILAND



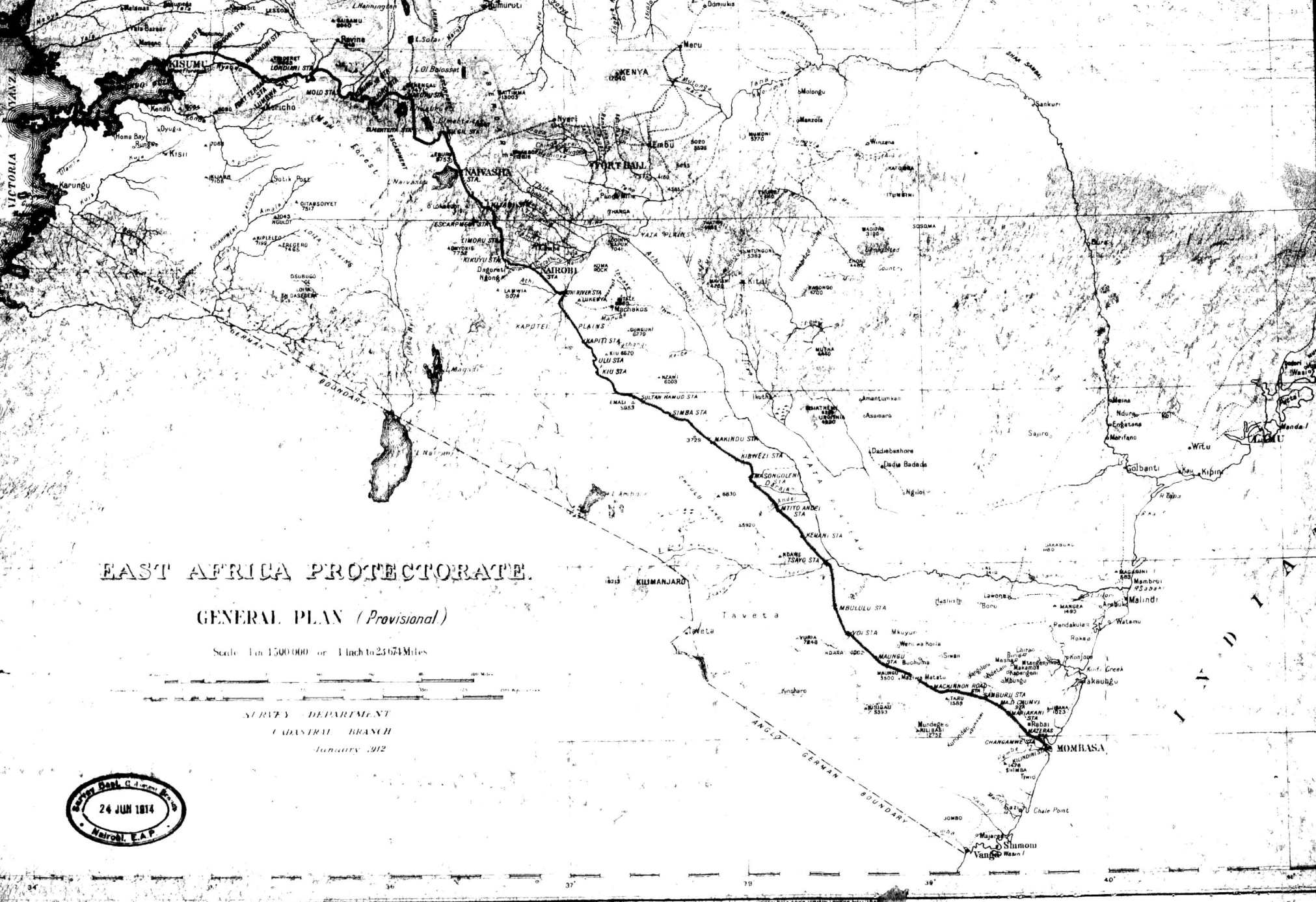
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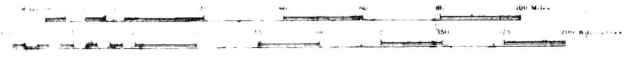




EAST AFRICA PROTECTORATE.

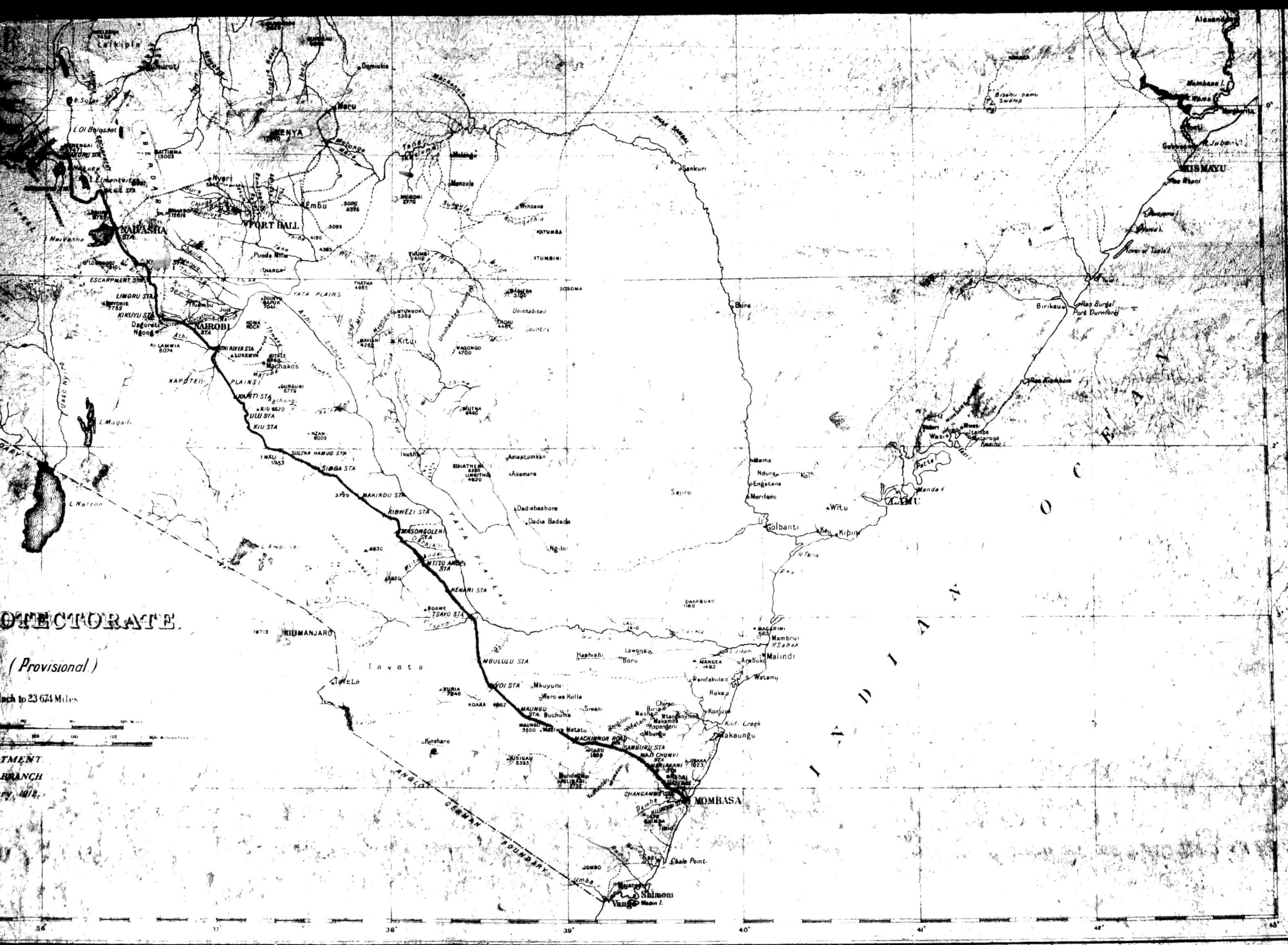
GENERAL PLAN (Provisional)

Scale 1 in 1500 000 or 1 inch to 25.674 Miles



SURVEY DEPARTMENT
CADASTRAL BRANCH
January 1912





PROTECTORATE

(Provisional)

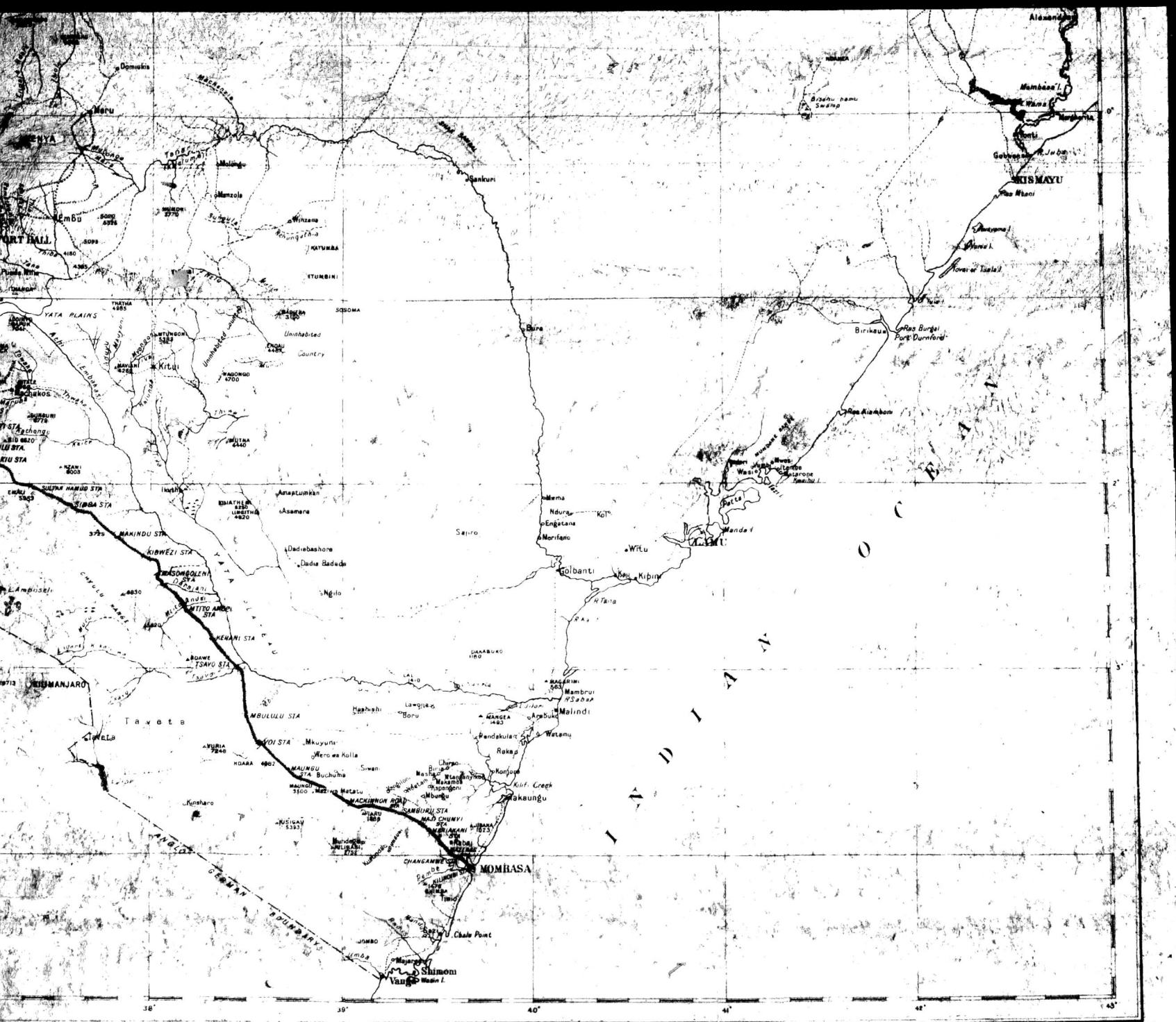
Scale to 23 674 Miles

RAILWAY
BRANCH
1912.

36 37 38 39 40 41 42 43

WATER ON A BOND LIGHTS LEAD TO HALL LEROBY

C.O. 533/140

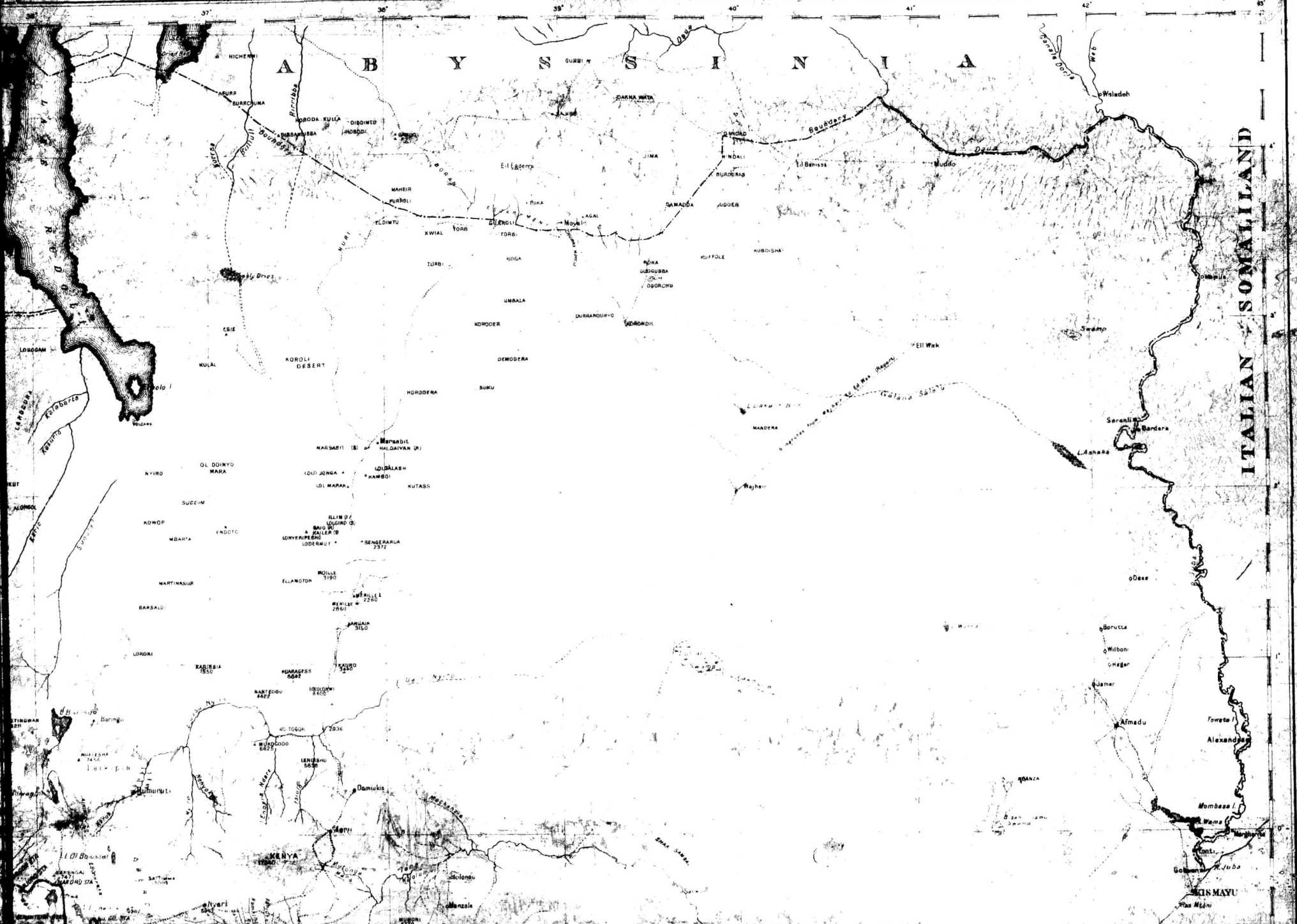


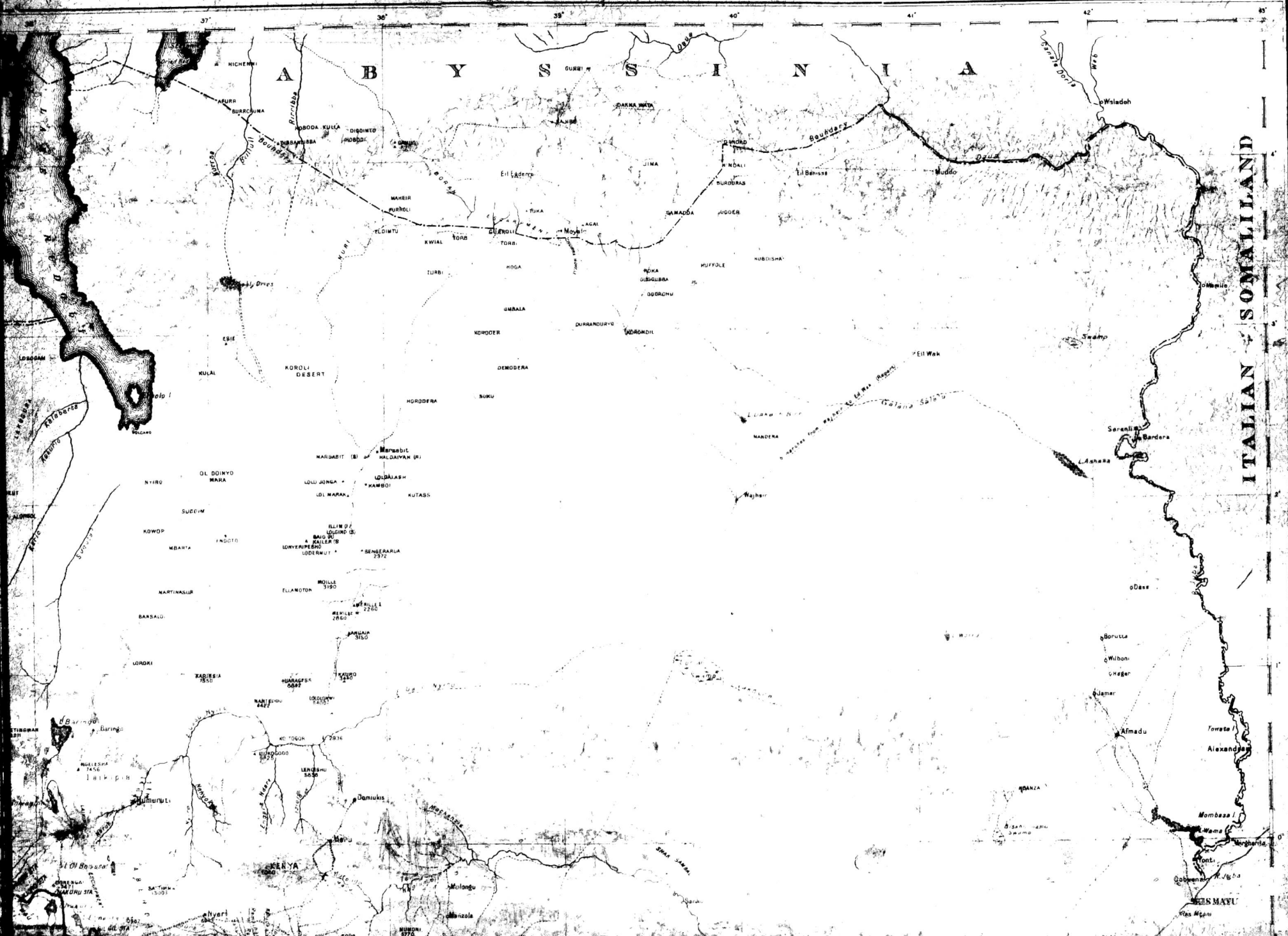




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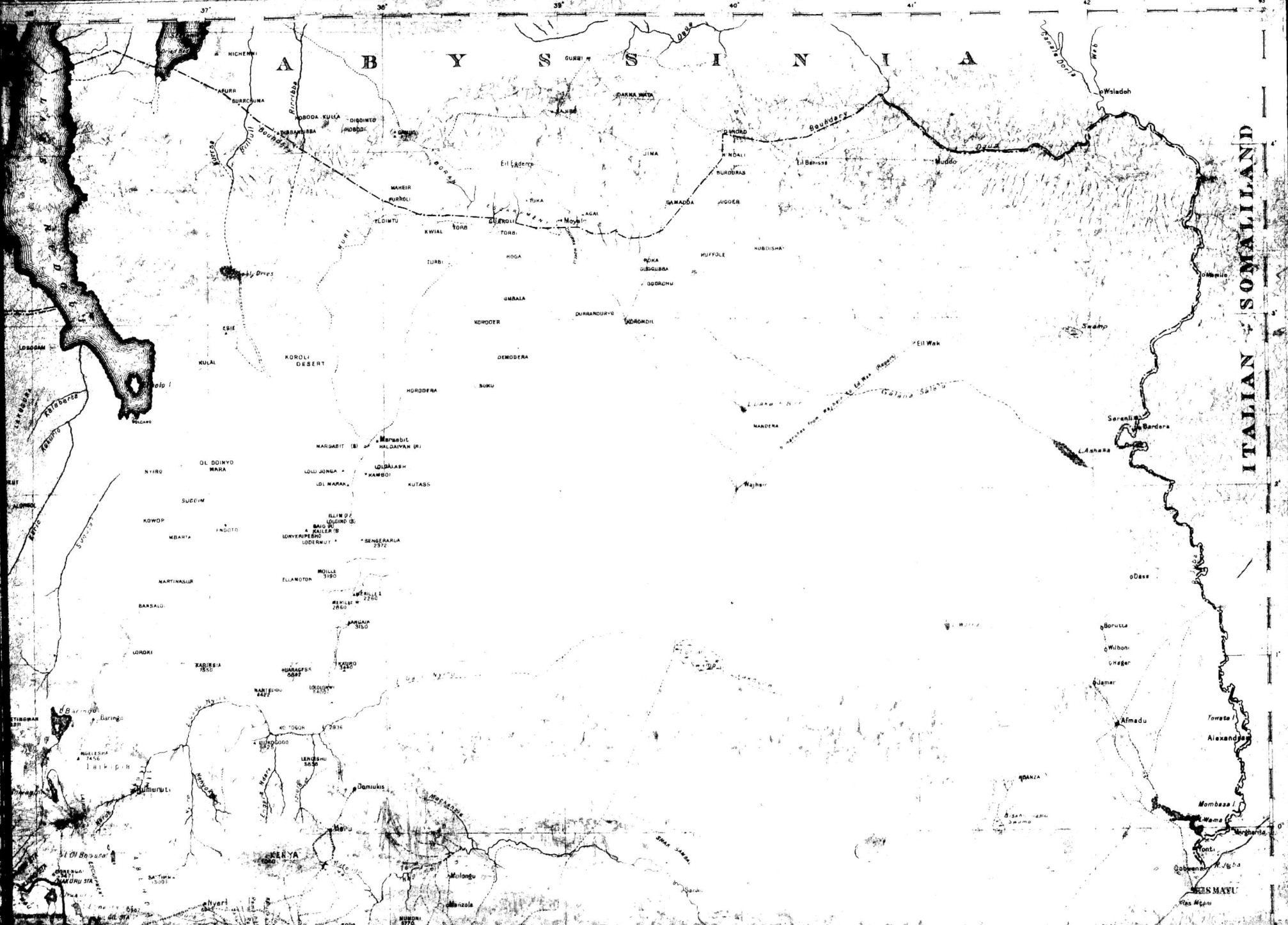
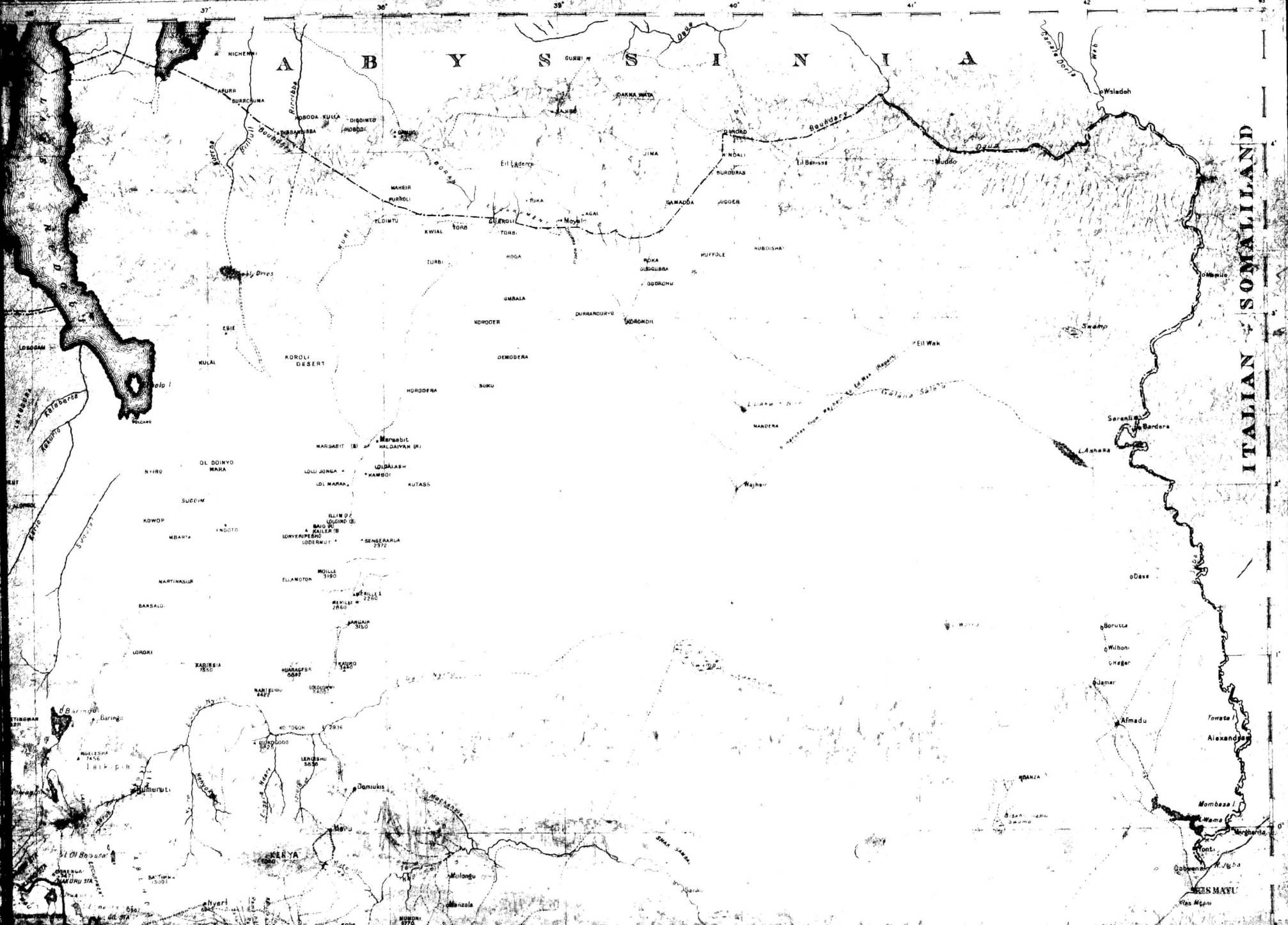
ITALIAN SOMALILAND

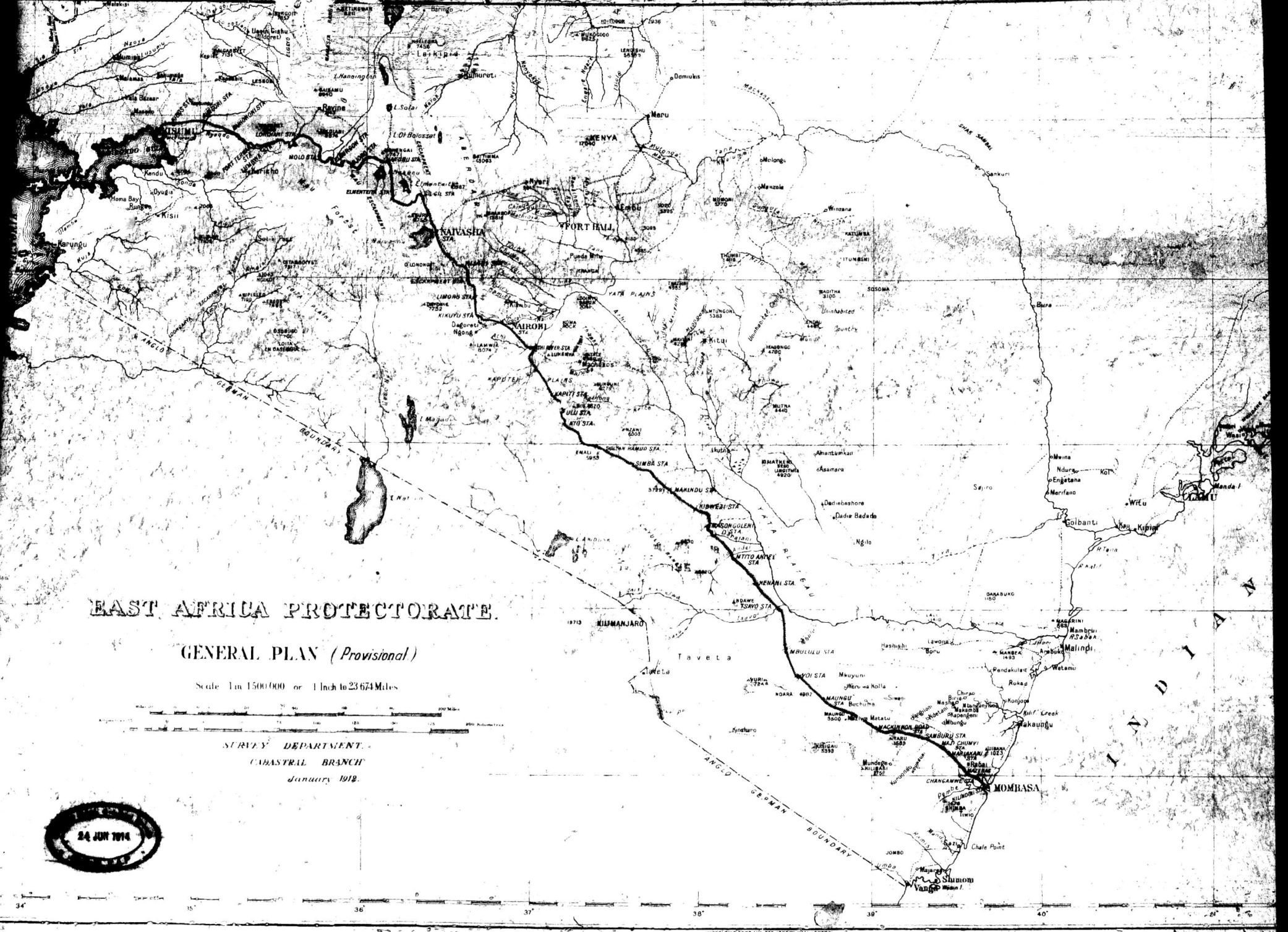




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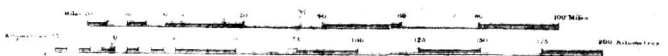




EAST AFRICA PROTECTORATE.

GENERAL PLAN (Provisional)

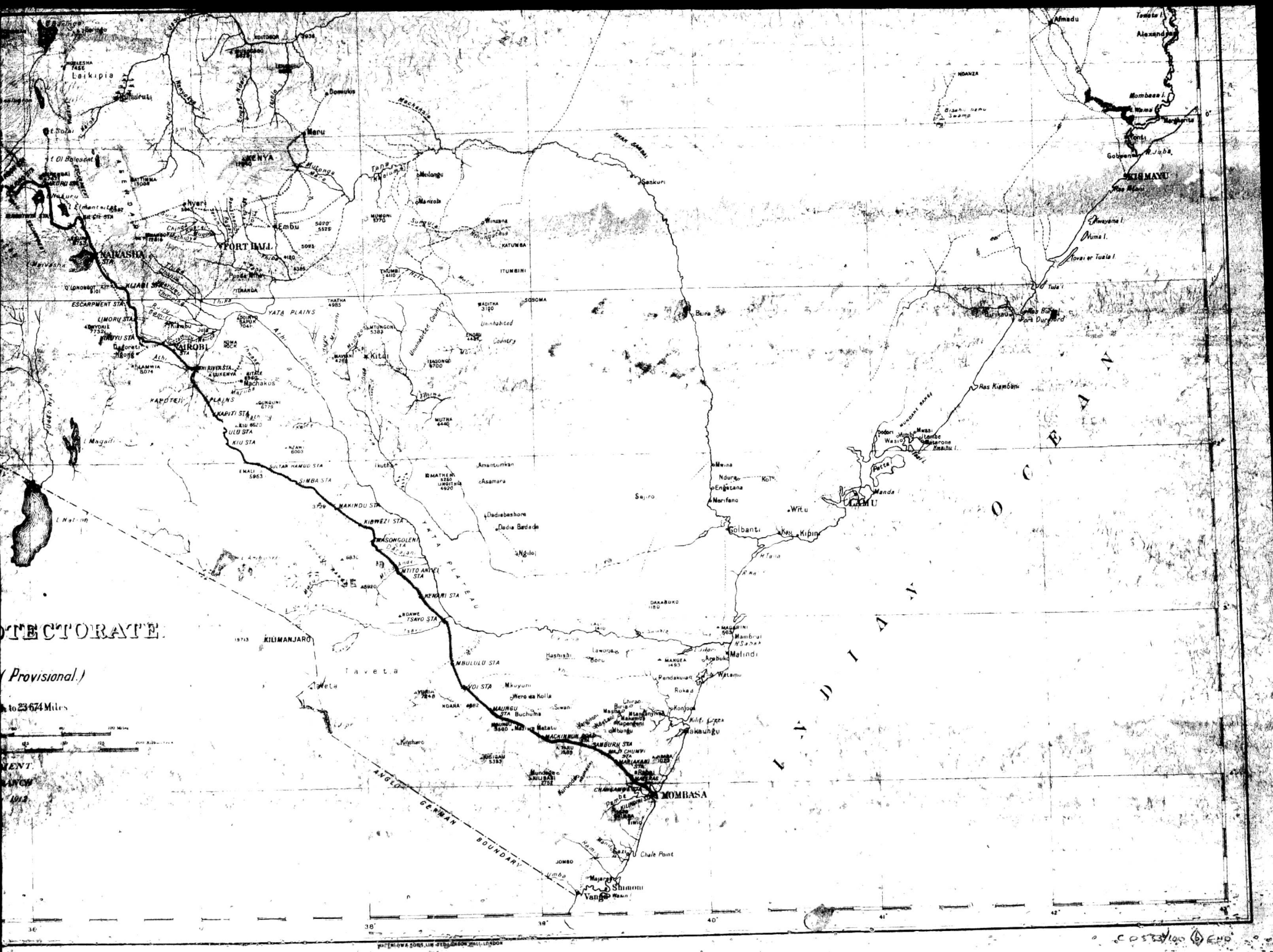
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SURVEY DEPARTMENT.
CADASTRAL BRANCH
January 1912.



WATERLOO SPGS 111720 LONDON



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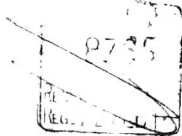
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27 March 1913

DRAFT.

C. A

MINUTE.

- Mr. Fiddian 19/3
- Mr. Ellis 14/3
- Mr. Stacey 14/3
- Mr. Read 20/3
- Mr. G. Fiddian
- Mr. H. Just
- Mr. J. Anderson
- Mr. Islington
- Mr. Harcourt

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Mr. Fiddian's instruction
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Somaliland Prot 3

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Zanzibar 6

(British) H. J. READ,
Stat.