

EAST AFR. PROT

C.O.
2107

2107 ¹⁵/₁₆

836
1915
P. Sec.
Last previous Paper.
209 ¹⁵/₁₆

Blackwater Fever
Report for 1914

2

Dr. Fiddian
2098
14.1.16

Copy to Daniels for return - 4.7.16
Copy and to Prof. Stephens
End in orig for return to I.O.B.
Done 2/29/16

Mr. Reed I propose, in the first instance,
to circulate this report that in 2098
to the professional members of the
I.A.M.S. I do not think they
should be printed. The difficulties can go to
be the interested - e.g. Prof. Stephens &
Dr. Bagshaw. (Dr. Ward has seen)
AT 29/1/16

at once.
to J.R.
29/5/16

Next subsequent Paper.

6773
Circulates to Sir R. Ross to pass on to Prof. Simpson,
Sir J. Fowler, Sir T. Manson
Sgd. [Signature] to Dr. Daniels with
1573 WA

Return 3rd Jan.

AT 12/2/10
at home

AFRICA PROTECTORATE.
No. 836.

C. O.
2107
26
GOVERNMENT HOUSE, 15
NAIROBI.
BRITISH EAST AFRICA.

December 8th, 1915.

Sir,

With reference to my despatch No. 848 of the 23rd of September 1914, I have the honour to transmit herewith the Annual Report on Plackwater Fever in this Protectorate for the year 1914.

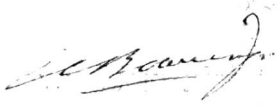
2. I regret the delay in forwarding this report, which has been due to the great strain placed on the Medical Department consequent on the outbreak of war.

I will furnish you at a later date with the approximate European population in each area in which cases occurred.

I have the honour to be,

Sir,

Your humble, obedient servant,


GOVERNOR of Kenya

THE RIGHT HONOURABLE

ANDREW BONAR LAW, P.C., M.P.,

SECRETARY OF STATE FOR THE COLONIES,

DOWNING STREET,

LONDON, S. W.

ADVISORY MEDICAL AND SANITARY COMMITTEE

copy.

(a) Blackwater Fever. East Africa Protectorate
Report 1914.

(b) Blackwater Fever. East Africa Protectorate
Report of four cases, 1915.

Sir R. Rossi:-

Received: Not recorded - Interesting cases and details. Dr. Burkitt seems to have faith in the quite unproven hypnosis of quinine--fastness in malaria parasites.

Passed : 26. 2. 16.

R.R.

Professor Simpson:-

Received: 26. 2. 16. Seen

Passed : 26. 3. 16. Seen

W.J.S.

Sir James Fowler:-

Received:- 27. 3. 16. Seen

Passed : 28. 3. 16. Seen

J.K.F.

Sir P. Manson:-

Received: 29. 3. 16

Passed: 31. 3. 16

It would be interesting to know the state of Dr. Burkitt's patients buttock at the end of over one month's daily intramuscular injections of heavy doses of quinine.

Entomological Laboratory,

Kabete, 30/11/48.

Ref: 1/73/45.

The Principal Medical Officer,
Nairobi.

Sir,
 In reply to your letter No. 21/842, I have the honour to furnish the following records. These are very incomplete and much more collecting is needed before the lists are anything like complete. I have no records from:- Kwoitobbos River, Mount Kilimanjaro, Lower Kwimbe, Vanga and Teita Districts.

N A I R O B I.

- Anopheles squameus, Theo. - Groganville, Hill.
Anopheles christyi, MacG. - Groganville, Hill, Masara, Kabete.
Anopheles costalis, Lw. - Groganville, Parklands.
Anopheles fuscipes, Theo. - Parklands.
Anopheles greganvillei, Giles - Groganville.
Anopheles sinensis, Theo. - Kabete.
Anopheles triseriatus, Gtr. - Groganville, Hill, Kirawa, Kabete.
Anopheles Marshalli, Theo. - Groganville, Old Govt. Farm, Arboretum.
Anopheles mauritanus, Grp. - Groganville, Arboretum, Kirawa Hill.
- Bankswella lateralis, Theo. - Groganville, Parklands, Arboretum.
- Stegomyia fasciata, F. - Parklands, Town, Hill, Groganville.
Stegomyia aegypti, Theo. - Parklands, Groganville, Masara.
Stegomyia pseudogambia, Theo. - Hill
- Culex quinquefasciatus, Theo. - Parklands, G., Hill, Kirawa.
Culex dentatus, Theo. - Nairobi, Kabete.
- Taeniorhynchus fuscopennatus, Theo. - Parklands, Groganville, Hill.
Taeniorhynchus versicolor, Edw. - Nairobi, Kabete.
- Culex annulirostris, Theo. - Groganville, Hill, Kabete.
Culex duttosi, Theo. - Kabete.
Culex signifer, Theo. - Groganville, Hill, Kabete.
Culex nigropalpus, Grp. - Parklands, Town, Hill.
Culex univittatus, Theo. - All over Nairobi, Town and Hill, Parklands.
- Culex pipiens, L. - Groganville, Town, Hill, Kabete.
Culex pallidus, Wied. - Town.
Culex univittatus, Theo. - Kabete.
Culex paludicollis, Theo. - Parklands, Kabete.
- Culex

<u>Culex stecheri</u> , Theo.	- Groganville, Parklands, Hill.
<u>Culex agassii</u> , Theo.	- Hill, Kirawa.
<u>Culex algeriensis</u> , Theo.	- Hill, Parklands.
<u>Culex arakothracis</u> , Theo.	- Groganville, Hill.
<u>Culex arabicus</u> , Theo.	- Parklands.
<u>Culex arabicus</u> , Theo.	- Groganville, Town, Parklands, Hill.
<u>Culex iridicollis</u> , Theo.	- Groganville, Parklands, Hill.
<u>Culex spiciferensis</u> , Theo.	- Groganville, Hill.
<u>Culex riva</u> , Theo.	- Hill.
<u>Culex trifidatus</u> , Edw.	- Kabete.
<u>Culex surinamensis</u> , Edw.	- Nairobi.
<u>Culex peruvianus</u> , Edw.	- Kabete.

Haematopota hirta, Ric.
Haematopota humidicornis, Aust.
Haematopota unicolor, Ric.

Stomoxys calcitrans, L.
Stomoxys nigra, Macq.

Aushaeomyia luteola, F.
Cordylobia anthropophaga, Grun.

Dermatophilus penetrans, L.
Mohidinophaga gallinaceus, Baker.

Ctenocephalus felis, Bouche.
Ctenocephalus canis, Curtis.

Xenopsylla cheopis, Roths.
Xenopsylla brasiliensis, Baker.

MUMIAS DISTRICT.

Anopheles costalis, Lw.
Anopheles funestus, Giles.

Culiseta wellmani, Theo.
Culiseta hirsutus, Theo.
Culiseta cataractae, Theo.

Leishmanium cristatum, Theo.
Leishmanium fuscescens, Theo.

Haemaphysalis africana, Theo.

Culex tarsalis, Grp.
Culex iridicollis, Theo.
Culex insignis, Carter.

Haematopota tenuis, Aust.

Diatomineura distenda, Ric.

201

Stenomys nigra, Macq.

Stenomys browni, Grubb.

Chrysoa fusca, Ric.

Chrysoa distinctipennis, Aust.

K I S U M U.

Anopheles costalis, Lw.

Anopheles mauritiana, Grp.

Mansonioides africanus, Theo.

Culex ligripes, Grp.

Banksinella luteolateralis, Theo.

Tabanus africanus, Gray.

Haematopota unicolor, Ric.

Glossina palpalis, R.D.

MOMBASA ISLAND.

Anopheles costalis, Lw.

Banksinella luteolateralis, Theo. et var. albicosta, Edw.

Stenomys fasciata, F.

Culex pallidiceps, Theo.

Culex ligripes, Grp.

Culex ligripes, Wied.

Haematopota mastans, Aust.

Glossina austens, Newst.

Glossina pallidipes, Aust.

I have the honour to be, Sir,
Your obedient servant,
Ed/- Thos. J. Anderson,
Govt. Entomologist.

(Copy).

Survey Department.

205

(Cadastral Branch).

Nairobi, E.E. Africa,

1st October, 1915.

No. 2406.

The Principal Medical Officer,
East Africa Protectorate,
Nairobi.

Sir,

I have the honour to forward herewith a list
of heights as requested.

I fear that the range of heights in some loca-
lities is very great, but if/should require more
definite heights of individual places, I have no
doubt I could give them to you.

I have the honour to be,

Sir,

Your obedient servant,

Sd/- L.H.King, Capt., R.E.
Director of Surveys.

Enclosure to letter No. 2606, dated the 1st October, 1915.

to,

The Principal Medical Officer, Nairobi, 260

Locality or Area.	Heights.
LAKE CHIOGA.	3376'
KISUMU.	3800'
WZOLA RIVER (Uasin Gishu District).	5800' to 6700'
KWOITOBOS RIVER.	6600' to 13830'

I presume this to be a river unnamed on the topo map, starting from Mt. KWOITOBOS which is an underfeature of Mt. ELGON.

KILINDINI.	Sea level.
NAIROBI. (Survey Office).	5496'
ZANZIBAR.	Sea level.
MACHAKOS.	5200'
MOSHI.	2782'
LOWER MWIMBE.	4000' to 5000'
VANGA DISTRICT.	Sea level to 1850'
TEITA DISTRICT.	2000' to 7200'

Case No. I

A. S., a boy, German, 8 1/2 years old, born in this country, near Nairobi; lived here until 8 years old, then went to German East Africa on to the slopes of Kilimanjaro, between 4,000 and 5,000 feet up. Never had any sickness nor malaria in British East Africa.

History of present illness.-

On arrival in G. East Africa he with all his brothers and sisters and parents got malaria. His parents gave them all Quinine Hydrochloride in gr V tablets on and off as long as they were there (4 months). The giving of the Quinine was more irregular than regular (very roughly it would not be more than gr V in the week).

The parents being very intelligent gave concise accounts of the attacks, which were typical of malaria.

On account of the whole family being constantly sick in German East Africa they all returned to Nairobi after 5 months absence.

On this boy's return he at once got an attack of blackwater without the giving of quinine; he recovered in a few days. In a fortnight he got another attack subsequent to his getting gr iii of Quinine Hydrochlor. After he had been 2 days in this condition he was brought in to me some 40 miles in a motor car. When I saw him he was so ill looking, I never expected him to live over the night; he was constantly vomiting, a specimen of his urine passed that day showed, by the spectroscope, heaps of oxyhaemoglobin, no methaemoglobin.

I gave him

I gave him $\frac{1}{2}$ gr of morph. and 1/200 of Hyoscine, this immediately stopped the vomiting. I did this with the intention of giving him as much water as possible which I did every 5 minutes, waking him to do so. I gave about $\frac{3}{4}$ of ca. cl. in the water. He slept the whole night through; next morning he passed a quantity of urine which showed plenty of albumen with only a trace of oxyhaemoglobin. I gave him then 2 pints of Rogers' Hypertonic saline intravenously.

The rest of the treatment is better shown by the charts. He had and has an enormous spleen, and so had all his brothers and sisters, but they went down by quinine. His blood had practically no coagulative power. In doing the intravenous and the "914", although I only exposed the vein by $\frac{1}{4}$ inch incision, I could never have stopped the oozing without ca. cl. The same was true of the needle pricks in taking smears.

The chart shows the treatment and condition up to 11th August. Since then the Pathologist in his reports says there are still malignant tertian rings, but no crescents; there were never any crescents.

I always wanted to get him in the height of one of his attacks of ague, when the young parasites would be free in the blood, to give a "914", as I imagine it would have its maximum effect then, but I have not yet succeeded in doing so. I have given it during the exacerbation caused by quinine.

He has had two bad attacks of ague lately, but on account of his living some distance from town it could not be hit off.

I tried grey powder heavily as a protozoal

parasiticide

parasiticide but with no effect.

In middle of August he got Neosalvarsan 5 gramm .5 and in beginning of September " " "

In latter half of October and beginning of November his temperature got decidedly worse and he had 3 or 4 bouts of ague. Also his general condition, blood and spleen got steadily worse; showing that the "914" had at least a restraining effect.

The blood report, a week or 10 days after each infusion of Neosalvarsan, always stated an improvement in quality and a decrease of malignant tertian rings. His appetite increased enormously after each injection, the spleen got softer and less tender. The coagulability of the blood increased "pari-passu" with its quality.

He was continually taking alkaline Iron and Arsenic for 2 months and gr X of ca, ol. per diem.

His spleen is yet as big as ever, and I am at a complete loss as to how to kill his parasites.

In the charts, the quantities of Neosalvarsan are given in salvarsan equivalents. "Hb" stands for Haemoglobinuria.

Note the enormous doses of "914" given to such a small child without any trace of toxic results.

sd. R.W. Burkitt

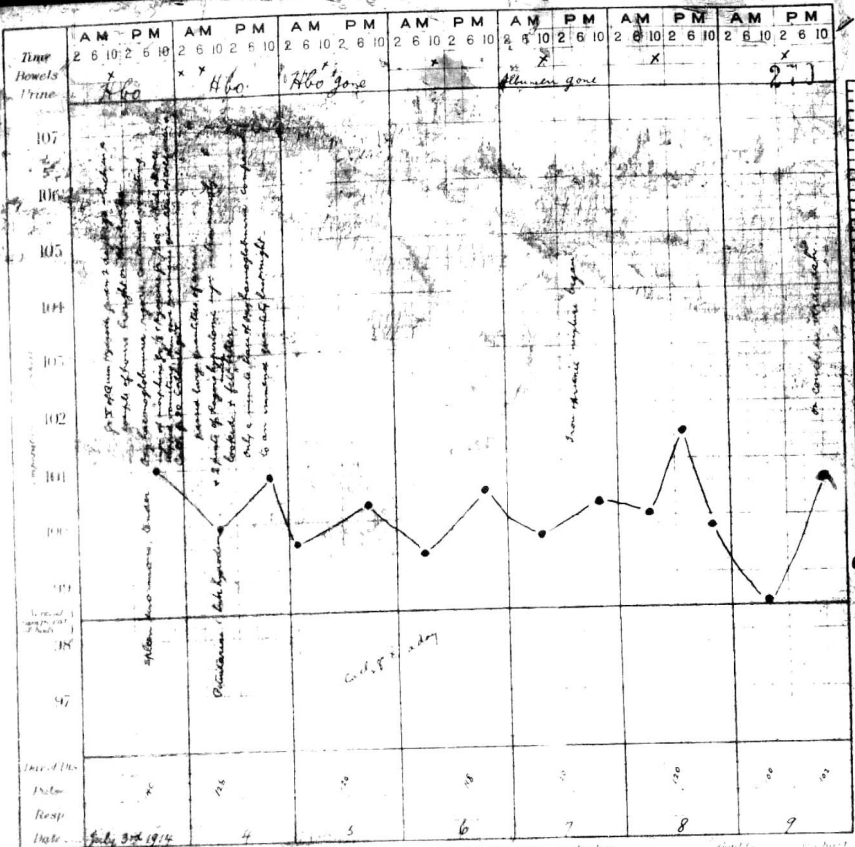
F.R.C.S.

7th November 1914.

OUR CHART.

DISEASE

Small Pox
Water Surgery
10 Barb
8 1/2 years



Entered at Stationers Hall. Printed and Published by ...

1 July 24 A 1914 25

CHART.

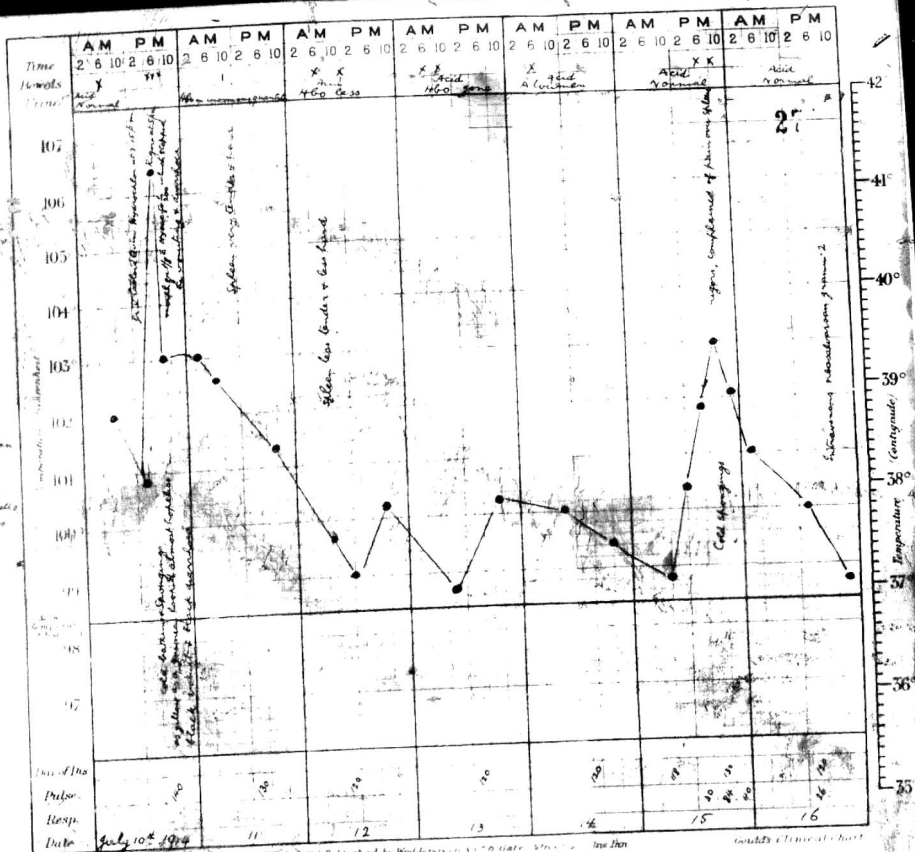
SEASE

Small
fever

Narrow
years

1918

How Report
maligned
no reason
infectious
and
only known
no more



Entered at St. Lawrence Hall

Printed and Published by Henderson & Co. 106 State Street, New York

Copyright © 1918 by Henderson & Co.

May 24, 1918

20

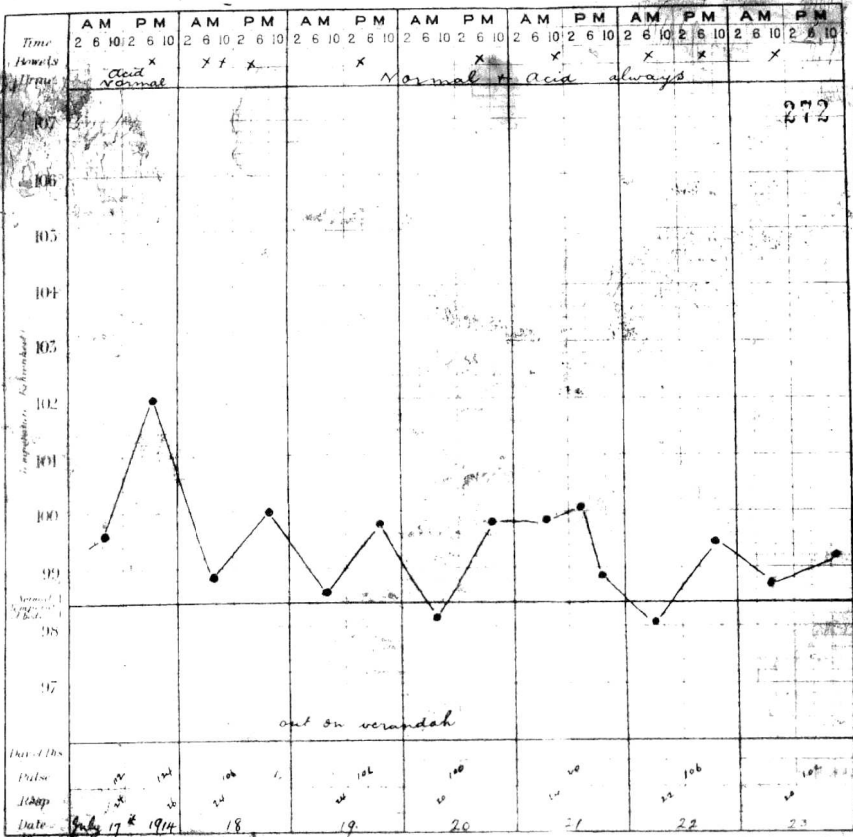
Small Fever, Nausea, and Vomiting

UR CHART.

DISEASE
*anal &
 hemorrhoids*

*ad.
 Nausea
 8 1/2 years*

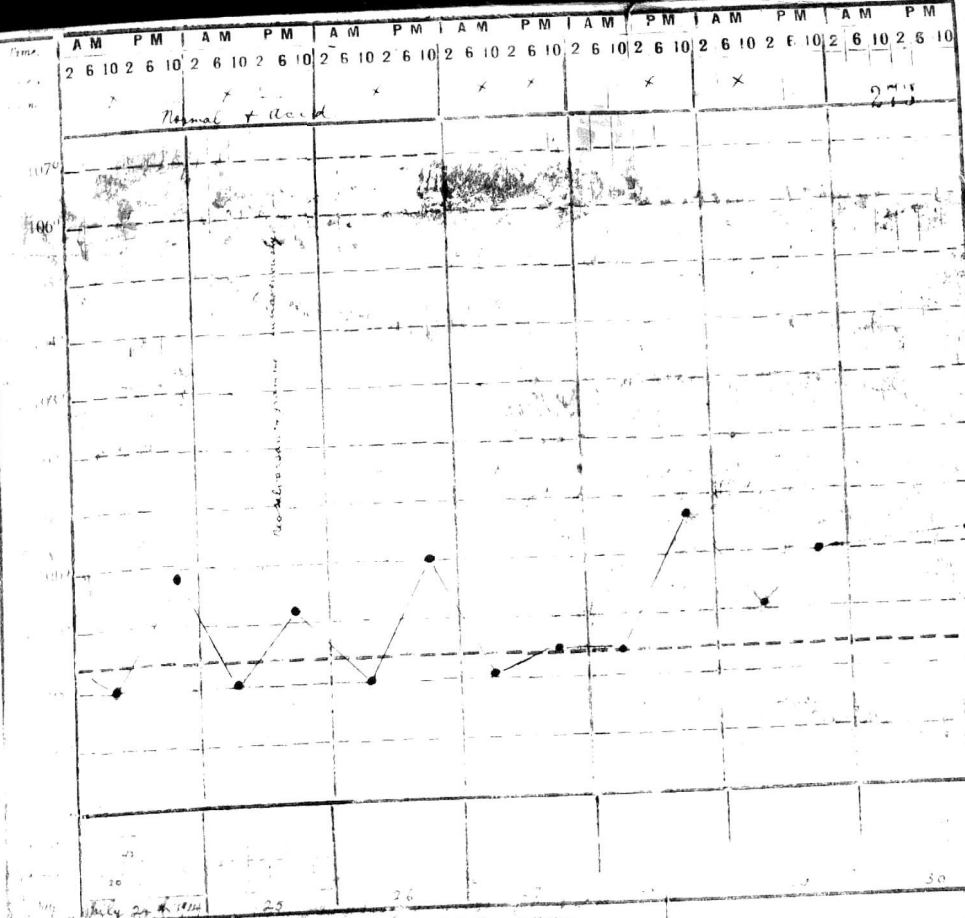
Notes of Case



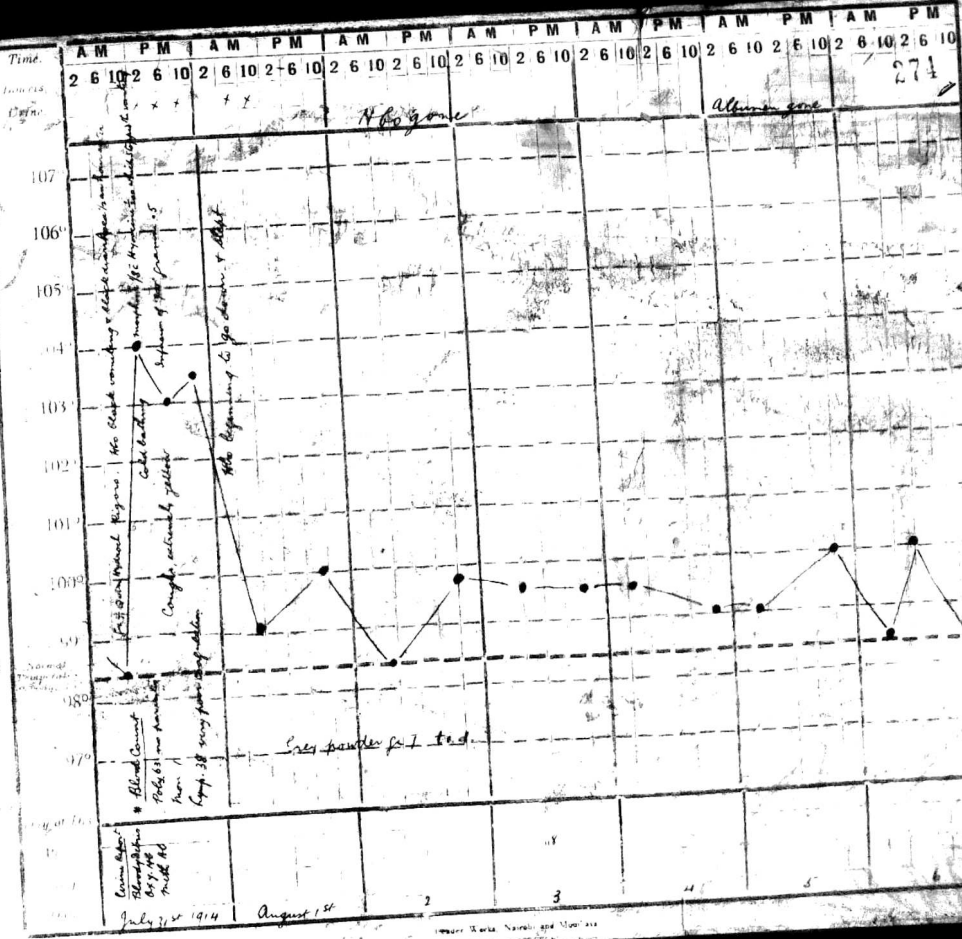
Admission

July 24 1914

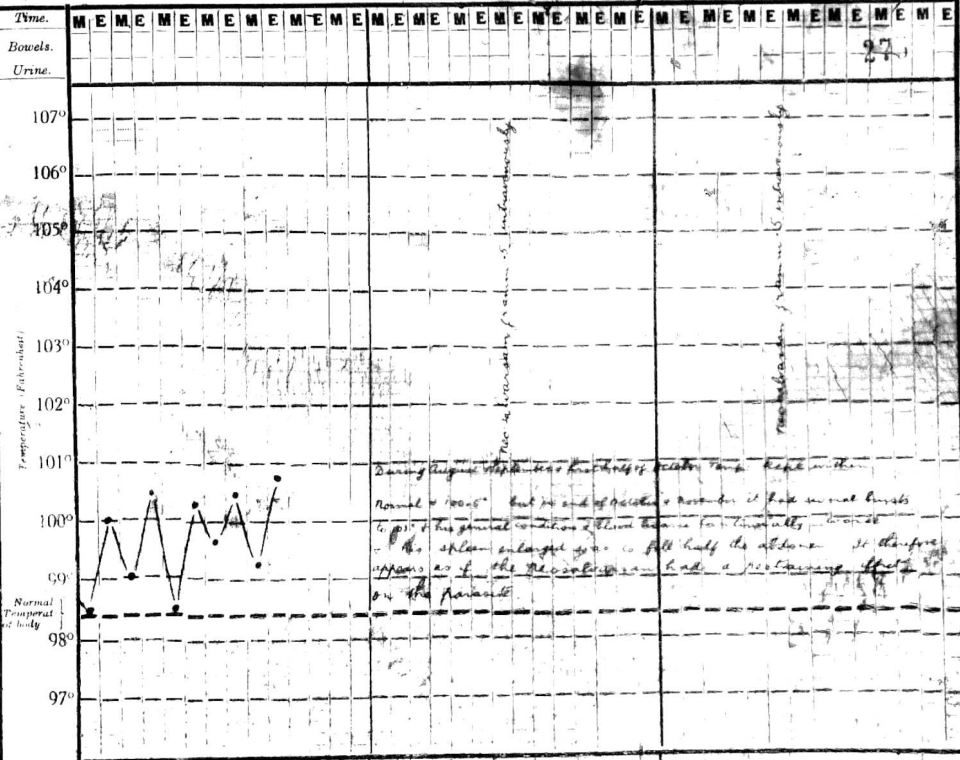
OUR
RT
CASE



OUR
RT.
ASE
at a Blaw
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years
Report
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100
100



Case. T



27

mission Day of Dis

Pulse

Resp

Di

9th August

7 8 9 10 11 12 13

10/1

Case No.

A. C., aged 26, white hunter, in British East Africa for 4 years, constantly having malaria for 2 years; was never thoroughly treated with quinin - took quinin only when he had an attack of ague - could not tell which kind of quinin he took.

Was feeling out of sorts for some time, but not bad enough to keep him from hunting.

The day before his attack he was feeling sufficiently well to make arrangements for going to the Congo next day. Not of alcoholic habits.

The graphic description on the chart I consider more easily taken in than if I wrote it.

I would draw attention to the apparent value of "914" (intravenously) in this case. It was given during the height of an attack.

He was so bad, when I gave him the "914", that I thought I was justified in trying any experiment.

Two hours after the injection he said to me "I am cured, I feel it".

I have been in the habit during the last year of treating all (about 100 cases) relapsing malignant malaria with "914"; cases that at the beginning have not been treated thoroughly with quinin and whose parasites have therefore become quinin-fast. "914" eliminates these parasites in almost every case, but does not destroy malignant malarial parasites which are not quinin-fast.

quinin should always be given after "914" for a

fortnight

fortnight, as all parasites left are made very susceptible to quinin by the Arsenic. On these grounds I argued it might affect Blackwater beneficially.

One other point to be drawn attention to is that vomiting may be stopped for some 6 hours by morphine and hyoscine and during this time enormous quantities of water can be drunk and absorbed, or any drugs. Also quiet and perhaps sleep obtained. Pituitary ext. is a good diuretic - after drinking or infusion.

In the chart, doses of Neosalvarsan are given in Salvarsan equivalents.

sd. R.W.Burkitt.

F.R.C.S.

7th November 1914.

R CHART

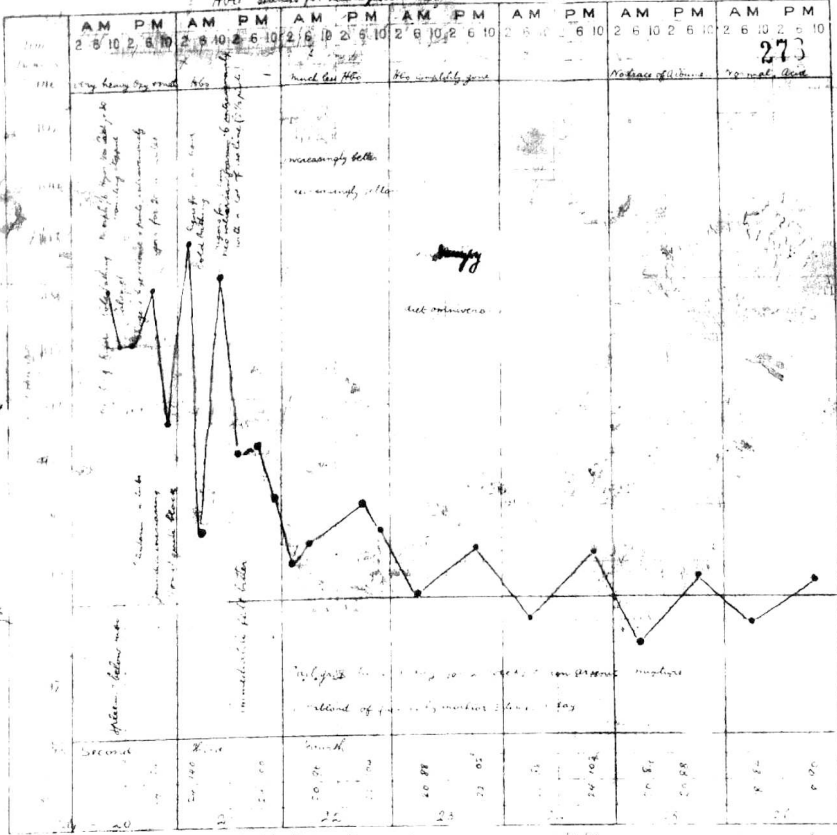
HCO stands for hours of observation

SEASE

water level

March

10th July 1944



273

Height of water

TEMPERATURE CHART

DISEASE

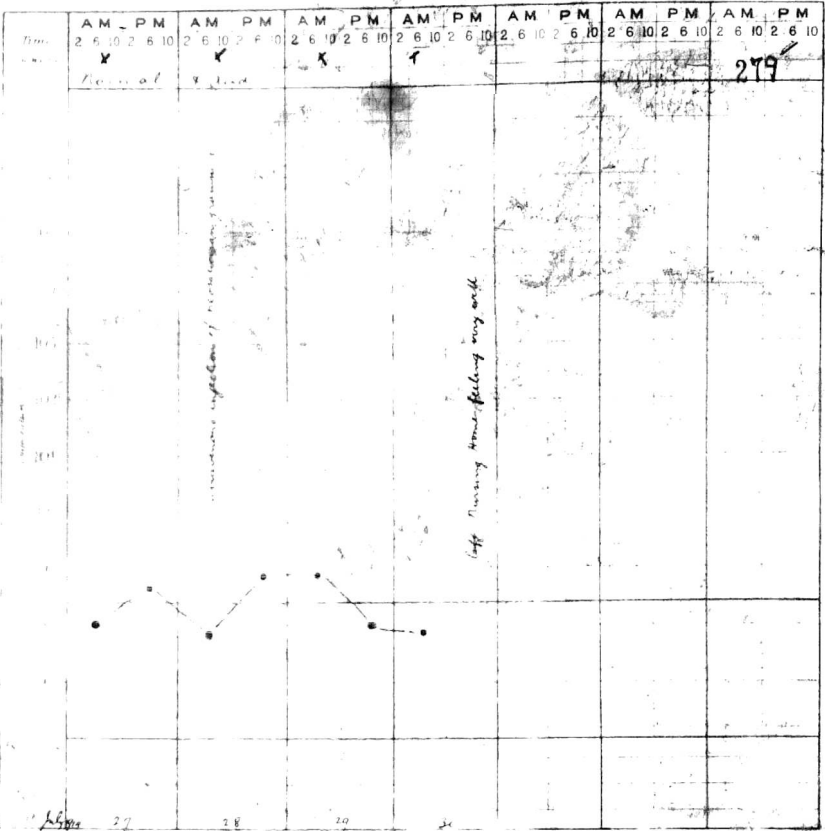
St. C.

Hand

Report 30th

ly normal

cases



27

28

29

30

NOTES ATTACHED.

Cases III, IV + V

1. No Quinine was administered during the treatment.
2. All three cases occurred in country lining the course of the Nsoia river, several miles intervening between the respective farms. Country of similar character.
3. All three cases occurred coincidentally with the presence of a Malarial Epidemic affecting to a noticeable degree the inhabitants of farms lining the course of the river, whilst the more open outlying country was at the time practically free.
4. That Wattle and daub huts are a factor in its causation, would seem to be negatived by two of the three cases coming from wood and zinc houses scarcely 6 months erected and excellently constructed on well chosen sites.
5. Close intercourse with Native women as a possible factor may I think be also safely excluded in these cases; two being married men, and the third having cohabited with the same woman for two years.
6. Whilst all three cases showed a Malarial history; in only one was it a case of persistent and repeated attacks.

(Sd.) WILLIAM H. HEARD.

District Surgeon.

Eldoret,

May 30th. 1916.

Case II

281

1. Locality. (a) Bush and grass country contiguous to Nzoia River. Ground undulating with scattered small vleis in hollows, swampy in wet weather.

Recent new occupation.

(b) Sporadic Case. House premises above suspicion newly erected. Cedar wood and Galvanized Iron; on piles. Site well situated on top of rising ground.

(c) Mosquito district, ticks and fleas also fairly numerous. No opportunities for obtaining classification.

II. Seasonal variation. Unusually dry for time of year. Light thunder showers occasionally, alternating with fine bright weather, in place of expected heavy rains. Case synchronizing with epidemic of Malaria.

III. Personal History.

a. Medical. One malarial attack one year previously.

No regular Quinine taken.

General health not robust. Neurotic tendency.

Aggravated by personal troubles.

b. About 18 months residence on plateau, but moved to present locality about three months previously.

c. No facilities when seen for obtaining blood slides.

Consulted me on March 14th, 1914 in district, due to the fact that for the previous twenty six hours he had observed that his urine when passed, was dark blood coloured. Felt languid but not severely ill. Some aching pain across the lumbar regions. Complexion sallow. Temperature 98.5. Pulse normal but compressible. Appetite fairly good.

Treatment. Ordered to bed. Hot stipples across loins. Complete rest in recumbent position. Milk diet, and plenty of water and barley water.

Biplatinoids every two hours of sodae Bicarb gr.V and
Liq Hydrary perchl min.XV reducing to every four hours when
urine cleared.

March 16th. 1914. Urine cleared. Passed between 5.40 and
5.50 in 24 hours. No blood, no albumen.

Not seen again until some weeks later, when he was
completely better on treatment of Liq.Arsenialis & Gentiana.
He informed me he had had one small recurrence of haemorrhage
brought about by excessive exercise whilst waggon driving.

Remarks. A. Married man,

(Sd.) WILLIAM H. HEARD.

District Surgeon.

Elderet,

May 30th. 1914.

BLACKWATER FEVER.

283

European Male. Aged 51 years.

Case IV

I. Locality. Bush & grass Country along the Nzoia river.

(a) Immediate neighbourhood mostly small hills, covered with bush. Wattle and daub residence within 100 yards of river bank. No very adjacent swamps.

(b) Case Sporadic. Cohabiting for two years with one Native woman. Usual shamba boys huts in the near vicinity.

(c) Mosquitoes, Ticks, and Fleas common to neighbourhood. No facilities for obtaining classification.

II. Seasonal Variations.

(a) Mainfall rather under the usual, for time of year. Case ~~sporadic~~ synchronising with epidemic of Malaria.

III. Personal History.

(a) Medical. Has had frequent attacks of Malaria occurring regularly about twice a month during the rainy season for the past two years, during which he has been occupying present farm.

Type - Ague.

Accustomed to taking from gr. X to go XXX Quinine per die during such attacks, though not to regular prophylaxis.

(b) Six years resident in British East Africa. Of very temperate habits. Has led a life of roughing it in varied capacities as prospector etc.

(c) Blood slides taken were unfortunately destroyed by a thunderstorm on my return journey, the rain completely obliterating the films.

Patient was first seen by me on April 7th. 1914.

Stated present illness commenced on April 4th. 1914, when he had taken Quinine up to gr XXV on first day.

April 5th. He noticed urine full of blood when passed. He did not suffer from any special pains in lumbar regions or body, but vomiting was marked and incessant.

When seen by me on April 7th. he was in a state of partial collapse. Surface cold, restless, and anxious expression, constant sick feeling in stomach, with frequent vomiting. For ^{previous} twenty hours had passed no urine. Pulse 100 Temp. 97. Examination showed decided enlargement of both spleen and liver. Tongue dry, dirty, and caked. Slight jaundice. Treatment 1 pint Saline solution per rectum, Hot stupes to lumbar and abdominal region. Hot bottles and blankets, ^{q.v.} Urine passed shortly afterwards containing only slight traces of blood.

Internally Sod. Bicarb & Liq. Hyd. Perchl. Hyplatinoids alternating with Bismuth and H₂C₂N₂ Mixture.

Bowels had been previously well moved with Calomel. Milk diet.

Next seen on April 12th. he having been removed from the Mscia to Soy a distance of some eight miles. His condition was critical. Temp. being subnormal, Pulse small rapid and feeble. Tongue thickly coated, almost black. Gums and lips covered with sordes. No further return of haemoglobinuria and quantity of urine passed not much below normal. Mentally clear. Vomiting less though stomach still irritable. Keeping ~~transient~~ nourishment fairly well and sleeping sufficiently.

Treatment. Strych. Strophantus and Acid Nit. Muriat Dil. Mouth washed frequently with Sol. Pot. permang. followed by Glys. of Berae, Saline for bowels. Hot bottles, Stimulants.

April 15.14. Condition little altered. Colour pasty.
April 18th.14. No improvement. Taking nourishment badly. Oedema present on forehead and upper face. Tongue very dry and coated. Temp. 98. Mind clear. Passing plenty of Light coloured. Urine Sp. Gr. 1005 with faint traces of albumen. Vomiting ceased. Constant feeling of discomfort in abdomen.

April 20th.14. Temp.98. P.112.R.24. Oedema of face extended over nasal and upper cheek bones. Voice strong and mind clear, but tongue markedly ~~stuck~~ black, dry and coated. Vomiting restarted since 19th. Abdominal discomfort so marked that he had obtained two enemas from his nurse on his own initiative, with a view to obtaining relief. There was no pain or tenderness on pressure over the region. No distension. Apparently sinking. Towards evening vomiting ceased and looseness of the bowels set in.

April 21st.14. Report received that violent diarrhoea had set in. Mixture of Bismuth, ~~sublimed~~ chalk, ~~EMx~~ Vom. and Calceola given 2 hourly with hot bottles, mustard clothes and stimulants. Towards evening coma followed by Death.

(Sd.) WILLIAM H. HEARD.
District Surgeon.

Elderet,

May 30th. 1914.

European Male . Aged 35 years.

I. Locality.

a. Bush and grass country. Residence on farm bordered by Nsoia and Kwoitobos Rivers. Residing in newly erected Iron and Cedar wood house, well placed on rising ground. Bush fairly well cleared in neighbourhood of dwelling house. Small swampy vleis on farm but none in close proximity to house.

b. Case Sporadic. Usual shamba boys huts on farm but well place to leeward and some distance away from dwelling.

c. Mosquitoes, Ticks, and fleas common to neighbourhood. No facilities for obtaining classification.

II. Seasonal Variations. Weather conditions. For past month slight rains early in the month, followed by dry warm weather, reverting to thunder showers at latter end of month. Rainfall under the normal.

Case Synchronising with epidemic of Malaria.

III. Personal History. Has had one attack of Blackwater Fever six months ago. Infrequent attacks of Malaria. Last attack a year previous.

Habits temperate. Quinine taken moderately during malarial attacks. Not ~~regularly~~ ^{prophylactically} ~~intensively~~.

Quinine taken gr.V two days previous to present attack and gr.V 24 hours previous to Haemoglobinuria.

b. Only a few months resident on present farm. Engaged in ordinary farm development.

c. Blood slides obtained and forwarded to Nairobi.

Present illness. Commenced with an attack of Dysenteric diarrhoea for which he sought advice on April 29th.14, and was given Saline Mixture. The ~~at~~ same afternoon Haemoglobinuria set in. The urine being almost viscid. This was accompanied by rigors of hourly occurrence. Temp. rising 101½ with profuse perspiration, persistent vomiting, giddiness in the head, and pains in the lumbar and abdominal

regions. With the onset of these symptoms the dysentery ceased.

April 30th.14. Temp. dropped to 98°. Haemoglobinuria persisting and well marked Jaundice present. Tongue dry and yellowish coated. Pulse feeble, compressible, and erratic subject to rapid variations in rate from 80 to 112 per minute. Vomiting almost hourly. Head clear but complains of great dizziness.

May 1st.14. Haemoglobinuria still present but urine clearing. Quantity passed about $\frac{3}{4}$ XX in 24 hours. Jaundice less marked. Temp. 96.2. Vomiting continuing less frequently. Billous in character.

May 2.14. Still vomiting at intervals. Frequent desire to Micturate, but only successful after many hours. Urine completely clear in evening.

Treatment so far adopted - Sodae Bicarb & Liq. ~~Hydrarg.~~ Perchl. Mixture alternating with Bismuth and H.C.M. for vomiting following a preliminary dose of Calomel. Bismuth Mixture later replaced by ~~Inf.~~ Iodine $\frac{ii}{ii}$ doses diluted. Hot stipes to Lumbar and Abdominal regions. Internally milk, Barley water, and Champagne.

May 3rd.14. Constipation marked. Calomel $\frac{gr}{ii}$ and Sod. Bicarb given and repeated in 2 hours without effect. Later a soap and water enema causing the passage of several motions with Solid faecal ^{or} Masses. $\frac{3}{4}$ XXii of urine in 24 hours. Clear. Temp. Subnormal Pulse 98.

May 4th.14. General condition restless and weak. Temp. Sub-normal.

May 5th.14. Passed 14 motions in 24 hours. Faecal but slimy. Urine nearly normal in quantity. Treatment Bis. Carb. and Sod. Bicarb. as grv three hourly.

May 6th.14. Motions reduced to four in 24 hours. Persistent discomfort amounting to pain on pressure over abdomen. No distention. Tongue dry and dirty. Powders stopped.

Sod. Bic. & Liq Hydrarg. Perchl. Mixture continued. Also warm fomentations and warm water enema.

May 7th. 14. Four motions passed. Feels somewhat improved.

" 8th. 14. Sleeping well, vomiting ceased. Slight improvement maintained.

" 9th. 14. Condition similar. 2 motions, semisolid but offensive.

" 10th. 14. Fresh pain complained of in abdomen. Mercury mixture tentatively stopped. Alkaline Ext. Sodae, Nuc Vom. and Gentian substituted.

" 11th. 14. Slight general improvement, but not much increase in strength.

May 12th. & 13th. 14. Not much change.

May 14th. 14. Temp. remaining steadily subnormal. Motions again increasing and evincing signs of slime. General condition unsatisfactory.

May 15th. 14. Six motions, the last showing signs of blood.

May 16th. 14. Decidedly exhausted. Typical Dysenteric stools. No vomiting, but Hiccup. Bowel lavage with Borax and Soda twice attempted by each time not retained. Pulse very compressible, irregular. Heart sounds irregular. Temp. subnormal. Treatment Strych. Hypod. followed by Strych. and Digitalis Mixture alternating with Bis. B. Napathol gr. v. and Calomel gr. 1/5. About midnight frequent motions containing blood were passed. Tannic Acid Enema attempted but only partially retained.

May 17th. 14. Motions less frequent and little blood, but patient sinking.

May 18th. 14. Condition gradually worse, death supervening towards evening.

(Sd.) WILLIAM H. HEARD.
District Surgeon.

Eldoret,

May 30th. 1915.

M. N. Ast. 40, European, Foreman of works, employed by
Magadi Soda Coy, at pier construction, Kilindini Harbour.

I. LOCALITY:-

- (a). The case occurred at Kilindini on the South - West side of the Island of Mombasa. Patient lived in a temporary galvanized iron building. Thick bush and mangrove swamps within a short distance of dwelling.
- (b). For years cases have occurred at Kilindini within half a mile of patients house; where patient lived has only recently been occupied by the Magadi Soda Coy, was formerly unoccupied land - chiefly bush.
- (c). Mosquitoes plentiful - chiefly stegomyia.

II. Seasonal Variation:-

- (a). In the dry season - January - one of the hottest months.

III. PERSONAL HISTORY:-

- (a). Medical History of patient:- Had been a few months in the country - had had several attacks of malaria - did not lie up during these attacks.

Was not in the habit of taking quinine. Temperate in his habits. Good physique.

- (b). Previous movements:- Worked as foreman in new Soda and Pier Works, - much exposed to the sun while at work - work of a tiring nature.

- (c). Blood examination:- Smear taken 4 hours after black water noticed - no malarial parasites found.

Clinical Notes:-

Admitted at 3 p.m. on 25.1.14. Has had several attacks of fever. Went to work at 8 a.m. having got up at 6 a.m. feeling feverish. At 8 a.m. he took 10 grains of quinine. At 12 noon vomited and felt very seedy. Went home, passed urine and noticed it was dark red in colour.

On admission:-

On admission: - Conjunctivae yellowish - pulse fair. Urine dark claret colour - being passed in fair quantities. Temperature 102 - perspiring freely. feels comfortable - no backache or pain of any kind.

Diēt. Milk and Soda
Barley water ad. lib.

24. 1. 14.

Passed a fairly good night - very jaundiced this morning. Passed 36 oz. of urine between 9 p.m. last night and 6 a.m. this morning. Urine still dark claret colour. Complains of backache. Bowels slightly opened after scidlitz - well opened after enema at 10 a.m. Stools clay colored. Unable to take milk well. Pulse thready. Vomited once this morning. Vomited twice this afternoon.

25. 1. 14.

Complained of abdominal pain yesterday evening and nausea. Urine being passed freely - still very dark. Slept badly. Vomited once during night - bile. During afternoon vomited several times - bilious vomit. One dose of Chlorodyne M.XV. stopped vomiting.

26. 1. 14.

Pl. much better. Temp. normal, urine clearing up. Bowels kept well open. Stools clay colored. Jaundice very marked indeed.

27. 1. 14.

Vomited once this morning. Urine ^{markedly} clear but still contains large quantity of albumen. Much improved.

28. 1. 14.

Jaundice still v. marked. Complains epigastric pain. Bowels opened \bar{c} enema this morning as scidlitz upset him.

30. 1. 14.

Much improved. Urine clear of blood and albumen.

Appetite improving sleep well. Jaundice marked but lessening.

2. 2. 14.

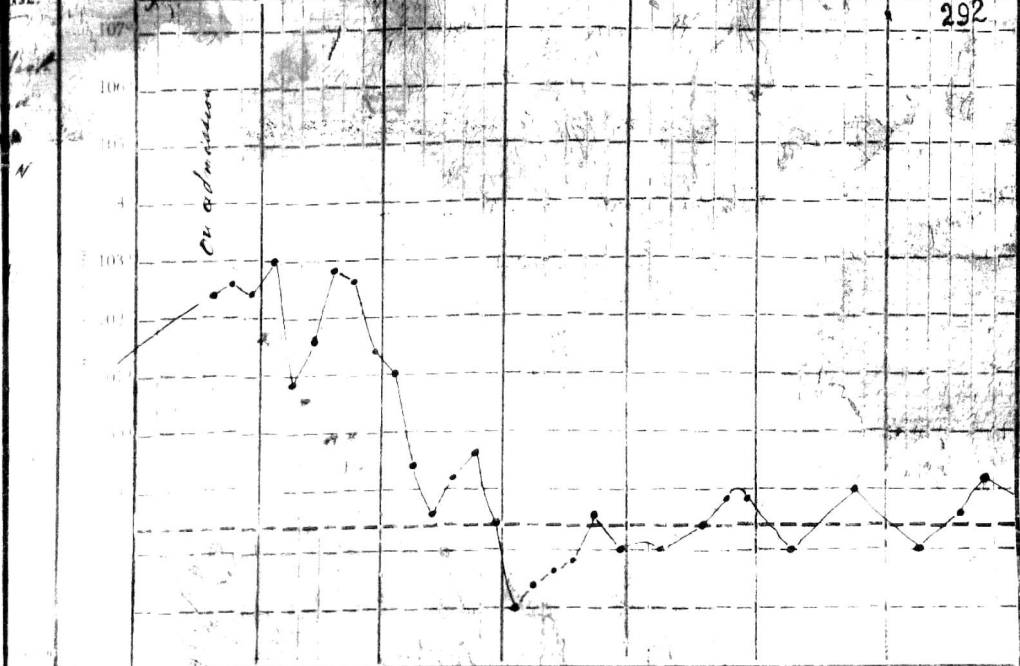
Pt. made an uninterrupted recovery - he was allowed to sit up on the 2.2.14; the jaundice cleared up rapidly and he leaves hospital today cured.

NOTE.

January 1915. I have seen patient frequently since this illness - he has had no more malaria and has kept fit and well. He took grs.10 of quinine twice weekly on my advice. Temperature chart is attached.

34/- F. L. Henderson.

Time	AM		PM		AM		PM		AM		PM		AM		PM		AM		PM	
2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610
2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610



2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610
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2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610	2610

E.

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Time	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E		
Stools	/	2	/	-	3	/	/	-	/	/	/																											
Urine																																						

12

14

No.

14

14

Temperature (Rectally)

107°

106°

105°

104°

103°

102°

101°

100°

99°

Normal Temperature of body

98°

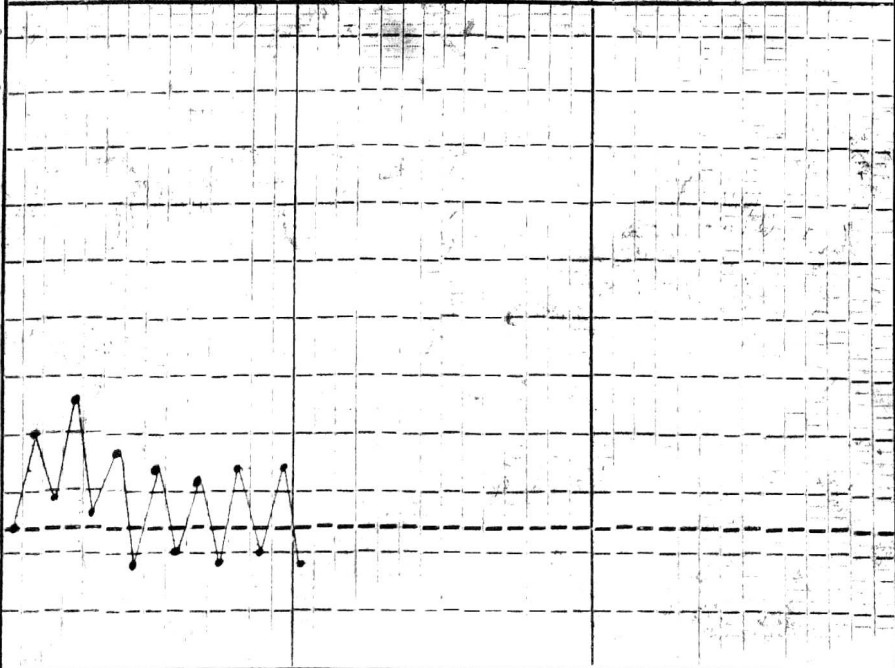
97°

Normal Temperature of body

Days

Temp

Date



30	31	1	2	3	4	5	6
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- H.R.W.B. Act 23. European - Non Official
no occupation.

I. Locality.

- (a) Physical features:- the case occurred in Mombasa Town near the centre of the Island - close to the Native Town but in the European quarter (Hotel Metropole). No bush in neighbourhood.
- (b) Series of cases:- No other cases have occurred in the building. (In December, 1912 case of malarial hyperpyrexia Mrs. A.N. death occurred in the same building).
- (c) Insect fauna:- mosquitoes very plentiful especially anopheles and stegomyia.

II. Seasonal Variation:-

- (a) Case occurred at the end of the wet season - rains had failed somewhat.

III. Personal History:-

- (a) Medical History of Patient:- he had been an irregular quinine taker. Had had frequent attacks of malaria for some months previously - otherwise had been in excellent health prior to coming to British East Africa.
- (b) Previous Movements:- arrived in British East Africa a year ago - was employed at Nairobi - after short stay went to German East Africa. - trekked about doing odd jobs, had several bouts of fever of which he did not take much notice - was hard up - lived poorly. Six weeks ago trekked up the coast from Tanga - had severe attack of blackwater at Shimoni (50 miles south of Mombasa) recovered and walked into Mombasa 14 days ago - arrived weak and anaemic - had lost much weight. For 3 days before admission had had attack of fever and vomiting -

temperature

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temperature 104-105 daily. Urine very dark for 2 days - lay up in bed but sought no medical advice. Seen by me morning of 15-6-14 found him passing porter colored urine - very weak - rapid pulse - profuse sweats, slightly jaundiced and some hepatic and splenic pain - both liver and spleen enlarged. Admitted to hospital. The urine cleared up within 24 hours and patient rapidly recovered - was allowed to sit up on the 19th. and at his own request was discharged on 23rd June 1914 to convalesce in his own quarters.

(c) Blood Examination:- smear taken on afternoon of 15-6-15 showed no malarial parasites.

The same patient H.R.W.B. was readmitted on 13-7-14 with Blackwater. He had a rigor at 5 p.m. the previous evening - during the night he had passed dark porter colored urine. (Since leaving hospital on 23-6-14 had had no malarial fever and had much improved under a tonic of Iron and Rux Vomica).

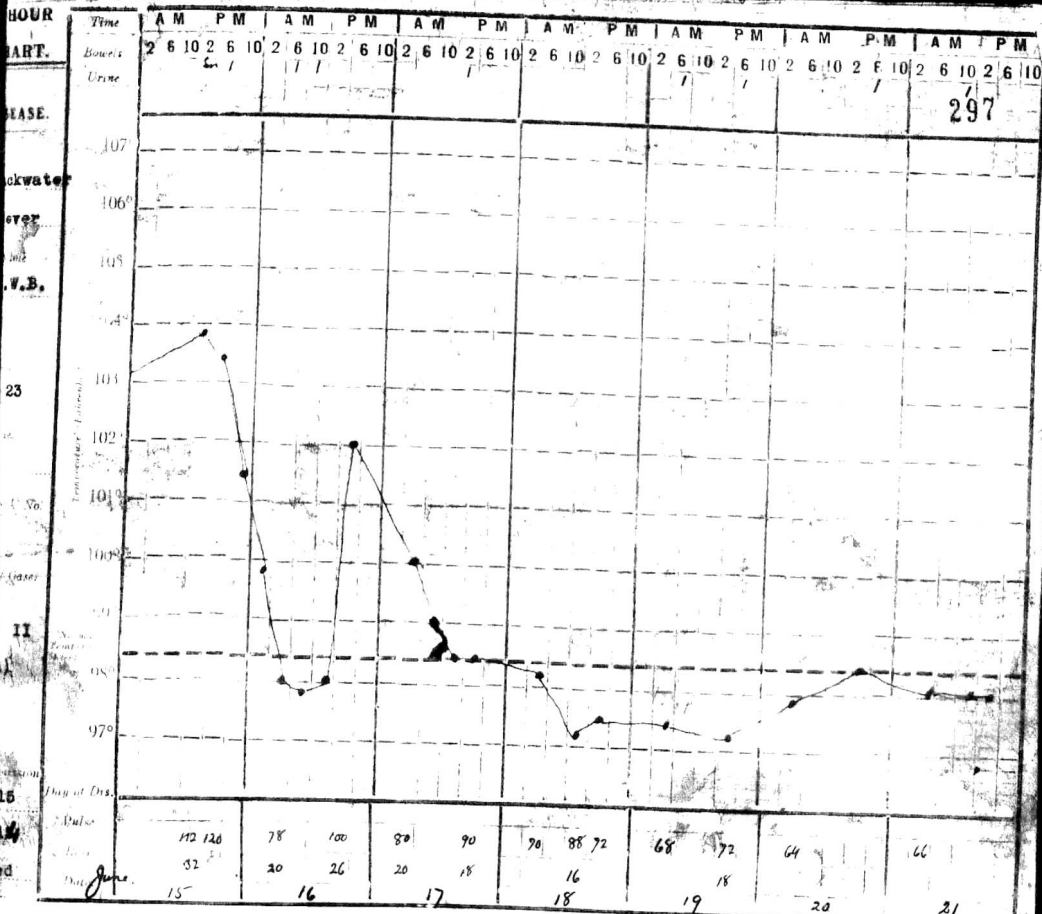
This attack with its usual concomitant symptoms jaundice, headache, pains etc. cleared up within 24 hours (albumen disappeared within 48 hours). He was discharged on 23-7-14 looking comparatively fit and well.

The same patient H.R.W.B. was readmitted on 28-7-14 with Blackwater. This attack differed from the others in that patient complained of the most acute pain- renal, hepatic and splenic - liver and spleen enlarged and tender. Jaundice was never very marked in any of these attacks, Blackwater rapidly cleared up and patient was allowed up on the 10-8-14. He was eating and sleeping well. On the 11-8-14 and 12-8-14 he had slight fever again and complained of headache and general malaise. On 13-8-14 temperature rose higher

higher and vomiting set in. At 1.30 p.m. on this date he had another relapse of Blackwater - rapid feeble pulse and very marked shortness of breath. Urine was quite black. During the night of 13-14th August he became very jaundiced and had suppression of urine with acute renal, hepatic and splenic pain. He died at 7.30 a.m. on morning of 14-8-14.

Temperature charts attached.

(Sd) F.L.Henderson.
Medical Officer.



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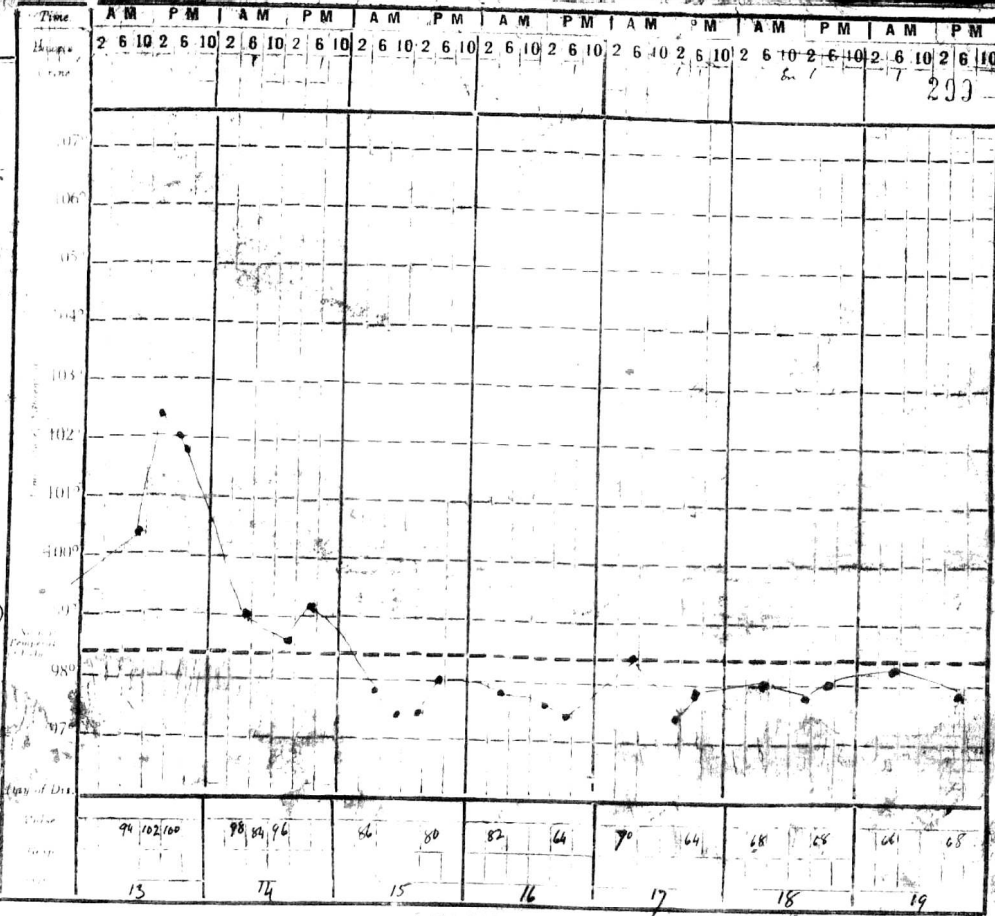
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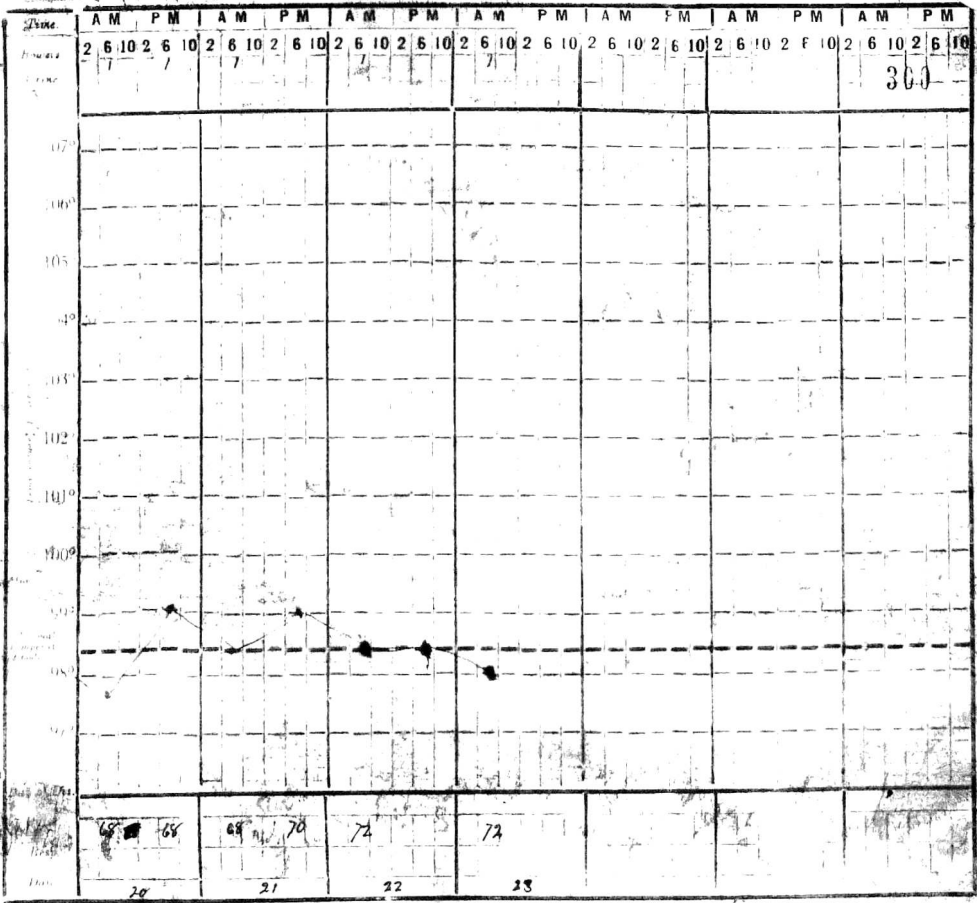
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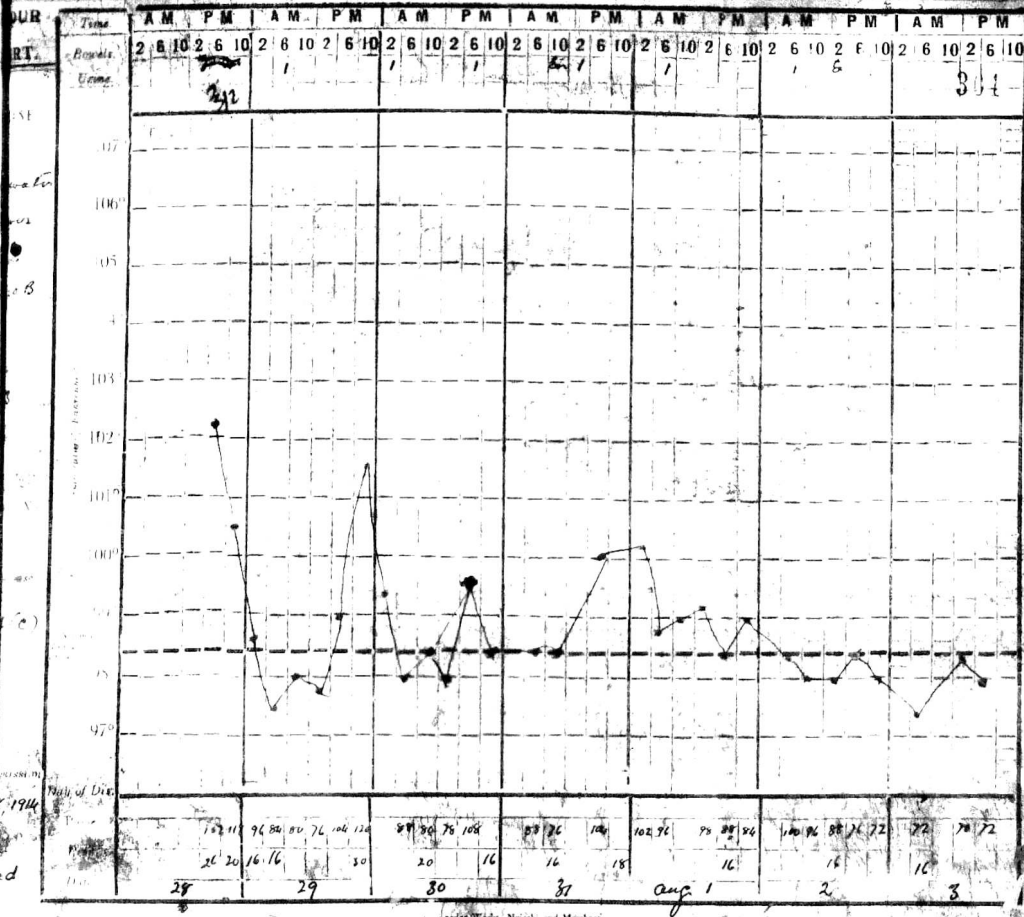
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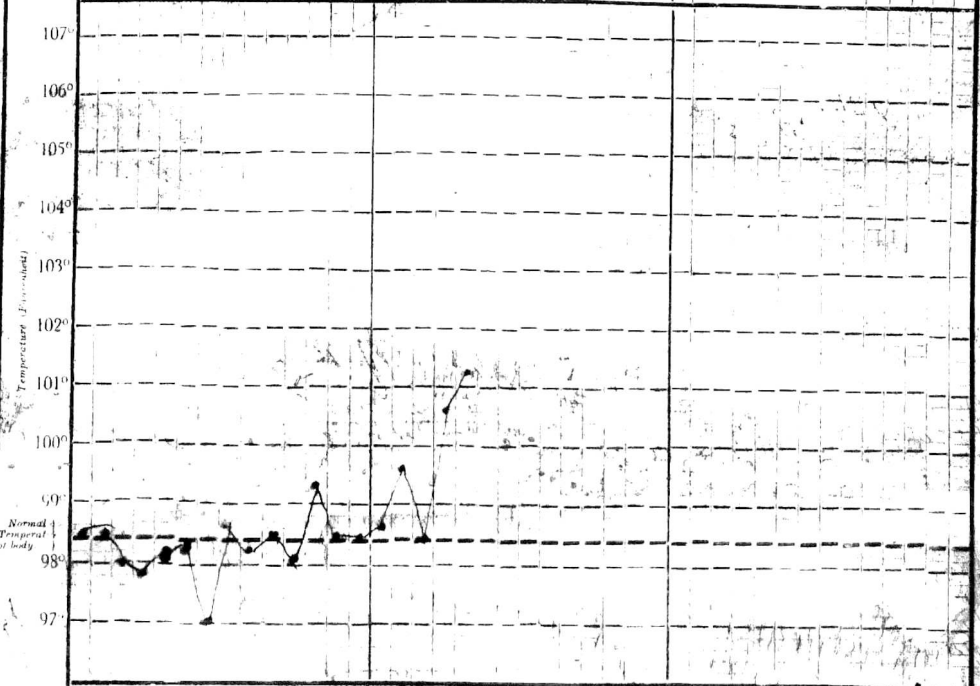
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107°
106°
105°
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103°
102°
101°
100°

Temperature (Fahrenheit)

Normal
Temperat
of body

98°
97°



3

(e)

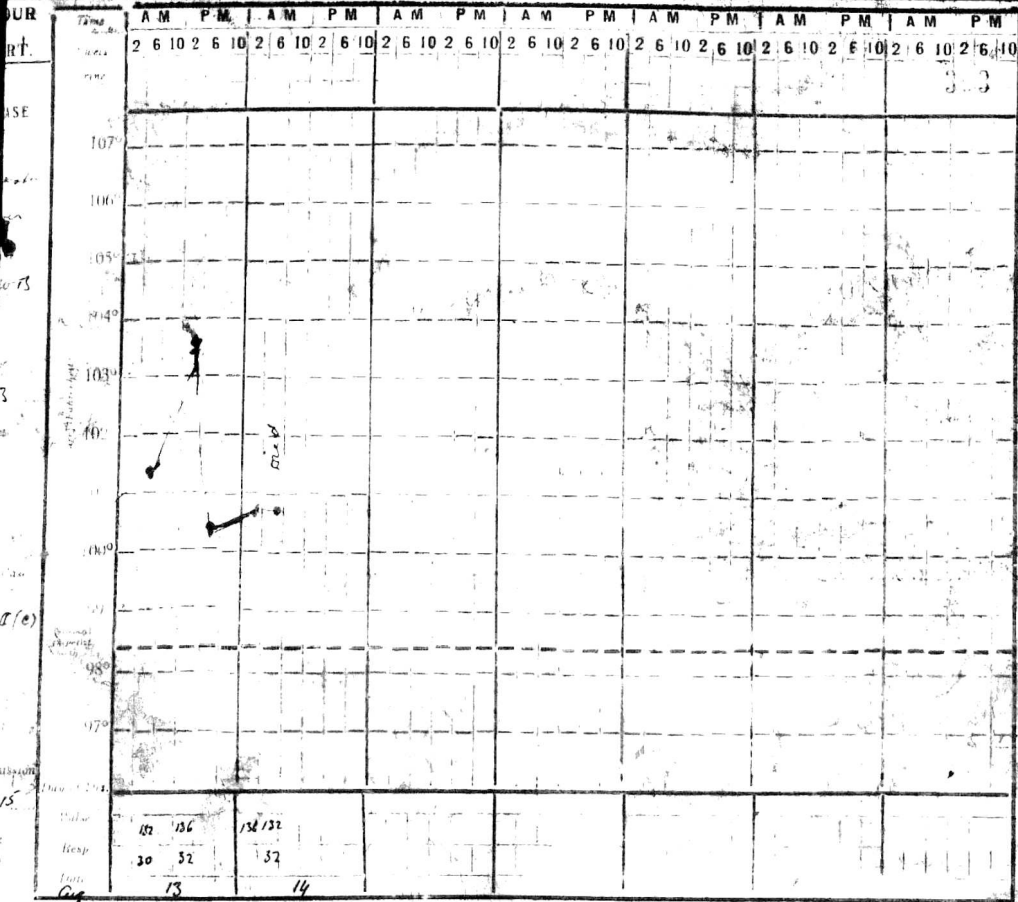
mission Day of Dis

Pulse
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76	76	80	76	76	74	72	70	72	105	100	103	100	110	110
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Date

4	5	6	7	8	9	10	11	12	13
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Case VIII

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H.B.P. Act. 40. European. Labour recruiting
Agent for the Magadi Soda Coy.

1. LOCALITY:-

(a) This case occurred in the Wateifa Hills near Voi - 120 miles from the Coast near the Railway. The country is mountainous (up to 7,000 feet) with marsh land in the Valleys - bush and cultivation in the mountains - fairly thick population in small scattered villages. Many small streams losing themselves in swamps at the foot of the hills.

(b) District is malarious and spirillum fever very prevalent. Plague reputed to be endemic. I do not know of other cases of Blackwater having occurred in this district.

(c) Mosquitoes plentiful - anopheles especially prevalent - along the watercourses. Native huts are infested with the spirillum tick.

II. SEASONAL VARIATION:-

End of rainy season - nights are especially cold in the mountains and thick, cold mists for days not unusual.

III. PERSONAL HISTORY.

(a) Medical History of Patient:-

Irregular quinine taken has had Malarial attacks more or less mild off and on for many years. Has been about 14 years in the country. Was formerly a District Commissioner, resigned and became a labour recruiting agent - this necessitated his continually travelling all over British East Africa.

(b) Previous movements:-

Had fairly recently been recruiting labour in the Kavirondo country. When he took ill had been recruiting amongst the Wateita near Voi. For some days previous to his attack of Blackwater had a severe attack of malaria but continued to recruit labour, and marched about 10 miles daily, feelingly very seedy and feverish all the time. Was finally attacked with Blackwater on 23.6.14 and was carried into Voi some 15 to 20 miles away.

(c) Blood examination:-

No malarial parasitis found on 27.6.14 before his second attack of Blackwater.

Clinical History:-

Patient was admitted to Hospital on the morning of 27.6.14. I met him with the ambulance at the train but found him up and fully dressed. He refused to go ⁱⁿ the ambulance and was remonstrated with by me for walking about. He said he was quite well but would like a few days in the hospital. I subsequently found out from him that he had an attack of Blackwater-slight on the 23.6.14 which rapidly cleared up, at Voi. Urine on the 26.6.14 was quite clear and patient treated his illness as a trivial matter and tried to convey to me the impression (on arrival here) that he had not had Blackwater. His urine on admission was high colored, contained a faint trace of albumen, and just the faintest tinge of blood. He looked fairly well and strong - excepting for anaemia. Patient was admitted to bed and put on milk - milk and soda and plenty of fluids, Barley Water, &c. He was quite cheerful and well till 7 p.m. when he passed a quantity of dark porter colored urine. Patient seemed anxious and restless but

complained of no pain. There was no rigor. Patient slept 28.5.14 well till 3.45 a.m., he then vomited greenish fluid (bile). bowels were freely opened at 6 a.m., stool light colored loose. Jaundice very marked. Profuse sweats.

29.5.14. Patients temperature fell to sub-normal during day - signs of heart failure.

30.5.14. Same - but heart weaker.

1.7.14. Patient died at 9.20 p.m. Urine contained blood throughout.

Temperature chart attached.

(Sd.) F.L.HENDERSON.

M.O.

Case 10

A.A. Act. 33. A road and bridge foreman in the Public Works Department who was working in the Trans Nsoia district up till the end of April and developed his blackwater at Londiani.

Locality. The Trans Nsoia is a rolling grass country intersected with swamps and water courses and with abundant breeding places for mosquitoes all the year round.

Londiani is situated in an open hilly country with a few rapidly running clear streams and without swamps.

Occurrence of a Series of Cases.

There were at least two other cases of blackwater in the Trans Nsoia district. None at Londiani.

Insect fauna.

Culex tigripes

" insignis

" invidiosus

Ochlerotatus hirsutus

" Ochraceus

" Welbani

Anopheles costalis

" funestus

Taeniarhynchus cristatus

" fuscopennatus.

Stomoxya nigra

" brunnipes

Haematopota denshami

" tenella

" unicolor

" similis

" fusca

- Fabianus thoracicus
- " Neavei
- Diatominuta distenda
- Chrysops distinctipennis
- " funebris
- " fusca.

Seasonal Variation.

The rainy season was just closing when the attack developed.

Personal History.

Before going on leave he had had several attacks of malaria but nothing else of importance.

He returned from leave on December 24th. 1913, and proceeded to the Trans Nzoia where he had only one attack of fever. He left the Trans Nzoia at the end of April and went to Londiani where he remained until the onset of the disease, and where he ~~remained~~ had taken three attacks of malaria. Has always taken quinine very irregularly.

Six days before admission he developed fever and took 20 grains of quinine followed by a similar dose next morning. Three days before admission he had a shivering fit and passed "Black" urine. Next morning June 26th. he was first seen by the Medical Officer and was passing dark urine and was jaundiced and vomiting. June 27th. the urine became noticeably paler but the jaundice was more marked, vomiting less. That day he was sent into Nairobi and I admitted to hospital on June 28th.

On Admission.

T.99.6. P.84. R.20. The tongue was very foul. Skin and conjunctiva jaundiced. Lips very pale. Generally very ill.

The spleen was large and palpable, but not tender. 309

Liver not felt.

Urine.

S.G. 1.015. Slightly smoky and gave a cloud of albumen on boiling. No debris.

He was placed on Hearshey's mixture and plenty of fluids given by mouth.

The bacteriologist reported that blood smears taken at the onset of the blackwater showed malaria crescents but no rings.

29.6.14. He seems very ill in himself. Urine now quite clear and he is passing a large amount. Only a faint cloud of albumen present. Taking nourishment very well. T. 100 and P. 100 and during the afternoon the temperature rose to 104.4. There was no return of the blackwater. It was decided to give an injection of quinine grains 10 which was repeated next day.

30.6.14.

Temp. 100.4 and P. 96. No return of blackwater and no parasites found in blood smears taken yesterday.

1.7.14.

Looking very ill, but he is taking fluids well and passing plenty of clear urine.

2.7.14.

He has seemed very ill until this morning when he appeared a good deal better, but shortly after mid-day the temperature rose to 105 and he had a vigor. The urine became porter coloured with abundant sediment full of casts and debris of all sorts and occasional venal epithelium. No blood cells. He is taking very well and not vomiting.

3.7.14.

The urine is clear again this morning and only a trace of albumen present, but he is almost bloodless

and very weak and ill. At 10 a.m. he had another rigor and the urine became red again. He continued taking nourishment well and the urine passed during the afternoon became clearer but at 7.30 p.m. heart failure supervened and he died in a few minutes.

In both the above cases it seems to me that there is a definite relationship between the taking of large doses of quinine after numerous attacks of malaria which have been untreated or improperly treated; and the question arises as to whether in such cases one is justified in commencing rigorous treatment or whether one should confine one self to giving very small doses of quinine and gradually leading up to larger amounts.

(Sd.) JOHN L. GILKS.

Resident Surgical Officer.

European Hospital.

Nairobi,

17.7.14.

REPORT ON BLACKWATER FEVER.

W.E.K.M. Act 27, male, an engineer who had been employed for the previous 9 months in erecting a cotton ginnery at Lake Chioga in Uganda.

Locality. The country is low and swampy and he described it as swarming with mosquitoes and tsetse fly.

Occurrence of a series of cases. He told me that he had been two other cases of blackwater in the same neighbourhood.

Insect fauna.

Psychodidae

Phlebotomus Sp.

Simuliidae

Simulium damnosum, Theob - On the Nile at least as far as Kakindu.

Tabanidae

Chrysops brucei, Aust.

" distinctipennis, Aust.

Tabanus africanus, Gray

" biguttatus, Wied.

" par, Walk.

" thoracicus P. de B.

" fasciatus, F., Subsp. niloticus, Aust.

" secundus, Walk.

" variatus, Walk.

" variabilis, Leew.

Hematomys brunneus, Ric.

" denshami, Aust.

" fusca, Aust.

" hirta, Ric.

" similis, Ric.

" tennis, Aust.

" unicolor, Ric.

Muscidae*Stomoxys calcitrans*, L." *nigra*, Macq.*Lyperosia* Sp.*Glossina palpalis*, Rob. Desv.*Glossina morsitans*, Westw.CulicidaeAnophelinae*Anopheles rhodiensis*, Theob.*Celia squamosa*, Theob.*Pyrethrophorus costalis*, Theob.Culicinae*Culex quasigelidus*, Theob." *fatigans*, Wied." *pallidocephalus*, Theob.*Stegomyia facciata*, F." *Sugens*, Wied" *Apicoargentea*, Theob.*Mansonisides Africanus*, Theob." *uniformis*, Theob.*Ochlerrotatilis cummingsi*, Theob." *hirsutus*, Theob." *quasi-vittatae*, Theob.*Taeniorhynchus fuscopannatus*, Theob.*Micidus Africanus* Westw.Aedeinae*Micracides inconspicuus*, Coq.*Uranotaenia albeafronialis*, Theob." *pallidocephalus*, Theob.*Mimocia splendens*, Theob." *hispidus*, Theob." *plumosa*, Theob.

Seasonal Variation. The rainy season had set in before he left Uganda.

Personal History.

He had had many attacks of malaria during the time he was in Uganda and had been taking quinine grains X daily, up till a month before admission when he left it off as it did not control the fever and he was getting so deaf. He states that he had only a grass hut to live in and that during the rainy season the floor was under water. He came to Nairobi for a change and arrived on May 25th. with fever in him; was given an injection of quinine grains X the day before admission to hospital, and had taken calomel grains V, and Epson Salts. Admitted to hospital May 28th.

T. 102.8, Pulse 102. Tongue thickly coated. Abdomen full and distended. Spleen easily palpable. Liver not felt.

Urine. S.G. 1020 Acid and showed a faint cloud of albumen on boiling.

He received another injection of quinine on admission.

29-5-14. The temperature dropped to sub-normal. Bowels freely opened and abdominal distension gone. Tongue much cleaner.

The injection of quinine was repeated this and the following day, temperature remained sub-normal and he appeared to be an ordinary case of malaria pursuing a normal course.

31.5.14. He felt shivery during the early morning; temperature rose to 103.8 and he passed porter colored urine. The urine was acid S.G. 1030. Nearly solid on boiling and microscopically showed numerous casts with kidney epithelium and an occasional blood cell. The ~~conjunctive~~ conjunctive rapidly became jaundiced. Blood films taken at the onset showed no malaria and

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and the leucocyte count was P.M.N.52. L.M.N.3. Lym-
phocytes 40. Eosinophils 5 per cent. He was put on to
Hearsey's treatment with plenty of fluids by mouth.

1.6.14. Temperature irregular, Urine unchanged in
character but he is passing plenty; feeling sick and
has vomited once. Taking fluids well. Has become very
blanched.

2.6.14. The Urine cleared up rapidly during
yesterday afternoon and the night, and today is quite
clear and only contains a trace of albumen. Temp.103
last evening but normal today.

3.6.14 Temperature rose again last night to 103.4
but is normal today again. Urine remains clear and he
is altogether better.

From this onwards, convalescence was rapid and un-
interrupted. No quinine was given after the onset of
the blackwater. He left hospital on 17.6.14 with his
anaemia greatly improved and shortly afterwards pro-
ceeded to England.

(Sd.) JOHN L. GILKS.
Resident Surgical Officer.
European Hospital.

Nairobi,

17.7.14.

Mr. W. E. W., an English Marine Engineer, aged 27.

Previous History:-

Has been six years an Engineer, 2 years on the West Coast, Sierra Leone, Lagos, Calabar, &c., on Elder Dempster steamers; has also been to India. He has been 19 months on the Lake steamers, most of the time on Lake Ohinga. States that he has not had much fever but has often felt out of sorts, though not ill enough to keep in bed. Has taken quinine occasionally but not regularly. He has not been taking much exercise, has not had much chance of getting any.

Present illness:-

On March 23rd as he did not feel well he took some quinine in the evening. He does not know how much; he took the powder in a spoon and thinks now that he "overdid it". The next day 24th he didn't feel well but did not go to bed completely. The following day 25th the urine was black and thick and he stayed in his bunk. He had no definite rigor but felt shivery. He had no actual pain but retching and slight vomiting.

The steamer arrived at Kisumu on the 26th in the afternoon, and he was brought up to the house, half a mile, in a rickshaw.

When seen he was very jaundiced and anaemic, he was retching and vomited some bile. Urine was passed the colour of stout but in fair quantity 12 ounces. He was treated with large quantities of liquid, milk and soda, and Hearsay's mixture. He was apathetic but very restless,

and

and complained of sleeplessness. His temperature was 104.2.

On the 27th the patient was better in the morning, the urine had cleared to a great extent, and the temperature was down to 100.3. He complained of a bad night; he had no pains in the loins or over the liver. In the evening he was not so well, vomiting of bile was more persistent, during the night the temperature rose to 102.6, retching and some hiccough, $\frac{1}{4}$ grain of Morphia was given, the urine became darker again port wine colour but in good quantity, 30 ounces during the day. Pulse 108.

On the 28th the patient had five hours sleep after the Morphia. The temperature is down to 100.6 the urine is clearing, feels sick after the medicine but is no longer retching and no more hiccough.

29th., 30th., and 1st April. The man made an uninterrupted recovery.

This was a typical case the only point of interest being the relapse on the 3rd or 4th day of illness and the presence of hiccough with rapid recovery. I confess that I always have considered hiccough as a most alarming symptom, but in this case it only lasted a few hours.

Name, description and	Mr. W. E. W., Marine Engineer.
date.	Fair, thin, sallow. Aged 27. March 26th 1914.

Locality.

Station Quarters.

Physical characters.

On board except when in Kisumu. Till 2 months ago was stationed on Lake Chioga which is at present

here

and complained of sleeplessness. His temperature was 104.2.

On the 27th the patient was better in the morning, the urine had cleared to a great extent, and the temperature was down to 100.3. He complained of a bad night; he had no pains in the loins or over the liver. In the evening he was not so well, vomiting of bile was more persistent, during the night the temperature rose to 102.6, retching and some hiccough, $\frac{1}{4}$ grain of Morphia was given, the urine became darker again port wine colour but in good quantity, 30 ounces during the day. Pulse 108.

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Fair, thin, sallow. Aged 27.
March 26th 1914.

Locality.

Station Quarters.

Physical characters.

On board except when in Kisumu. Till 2 months ago was stationed on Lake Chioga which is at present

more

more unhealthy than Victoria Nyansa, swampy papyrus. He was often living in a tent during steamer construction.

Multiplicity of cases in the same locality.

This is the first case in this particular steamer, "Clement Hill".

Insect fauna.

On Lake Chiga Glossina, Tabanus, Culcines, and Anophelines. Most of the ports on Victoria Nyansa are free from Glossina.

Seasonal Variations and Climatic Conditions.

Rain, thunder, showers and squalls. Great and sudden changes of temperature.

Personal History.

Service and General Habits.

Six years at sea, two years West Coast, 19 months here on this Lake or Chiga.

Previous Illness.

Many minor attacks of malaria.

Previous attacks of Blackwater.

None.

Quinine Prophylaxis and dose taken just before hour of onset.

Irregular taker of quinine. 20 grains in powder.

Onset of Jaundice.

Morning 25th very jaundiced on admission 2nd day and said to have been so the previous day.

General Symptoms.

No initial rigor. Sleepless, apathetic, very restless. Urine fairly copious throughout.

First seen

First seen March 26th, 2nd day of illness.
March 27th urine cleared in the morning, but at night there was a relapse with vomiting and hic-
cough. 28th urine clearing and abundant.

Duration of Haemoglobinuria.- 3 days.

Duration of Albuminuria.- 8 days.

Blood examination.- No parasites found during
or after, but a further
examination will be made.

Duration of illness.- 8 days.

sd/- C.L. Chevallier.
Medical Officer.

Case 871
REPORT ON BLACKWATER FEVER.

319

Name.	Mohamed Din.
Sex.	Male.
Age.	28.
Residence.	Railway Brick Building.
Station	Kilindini.
Occupation.	Signaller.

Locality.

(a) The patient living in Railway Brick Barrack No.90 Unit No.1 which is clean from vegetation all round.

The Railway premises are always kept clean and in a good sanitary condition.

There is no swamp near at hand.

The water supply of Kilindini is brought out from wells situated about 200 yards from Kilindini Railway Workshops.

The water is pumped out and run in a pipe to the Kilindini; the water is clean.

The patient always used rain water for drink.

The patient ~~always~~ do not use mosquito curtains because they are not supplied with by the Railway.

(b) Only 2 cases of Blackwater fever occurred during last year 1913.

1st. case occurred in Old Black House No.41 on the 1st. March 1913, which is about 300 yards from Barrack No.90.

2nd. case was reported on the 27th September 1913 in House No.80 about 400 yards from Barrack No.90. Native Dwellings are situated about half a mile from Barrack No.90, but the Natives have no intercourse with the Asiatics living in Barrack No.90, except private servants.

(c) The following insects are found inside or around the Barrack No.90, Ants, mosquitoes, flies, lice, bugs, fleas, and sometimes ~~many~~ ^{small} ticks, and jiggers.

II. It is very hot in the month of November, December.

January, February and March, no rainfalls in these months except occasional showers in December.

In April rain sets in and before the rain very strong winds blow.

Heavy rainfall during the month of April, May, June, and July with some showers in August, September and October.

During the heavy rains atmosphere is cold, especially in June at nights.

The best season is when the atmosphere is cold during the rain or when it is quite hot and dry. The worst season for Malaria is a short period of some days or weeks when a heavy rain or occasional showers stop and the interval between heavy rains.

Kilindini 28th. June 1914.

Previous History.

The patient was suffering from malaria since three months and had attacks of ague now and then, he was very anemic his spleen was enlarged, he was using quinine when getting attacks, he never used mosquito net.

Present History.

On 8th. March 1914 at 5 p.m. he called for me, when he had a severe attack of shivering and ague, on examination his urine was found quite Black, temperature 103.6 and he was vomiting whatever he was drinking and eating. He is living in Railway Brick Barrack which is clean from vegetable all around, he is using rain water.

Symptoms.

Urine. It was Black for 1st 24 hours, then it changed into dark red colour, which lasted for another 24 hours, it then turned into red colour which lasted for next 24 hours, then it turned into high colour, which lasted for 48 hours and turned into yellow colour in next 48 hours time.

Temperature. It started with rigor and shivering, it was between 103 and 104 for 1st 48 hours and dropped down to 100 and 102.6 within next 24 hours, it was between 99 and 101 for next 24 hours and dropped down to 98 in the morning and 100 in the evening and then at last after another 24 hours the evening temperature remained normal and lasted normal for 3 days and rose again to 102.4, when the man got an attack of acute Hepatitis and come down to normal after 5 days gradually.

Vomiting. It was very severe for 1st. 24 hours and man could not keep in milk or barley water and then it become milder in next 24 hours and at last it was checked by an application of mustard plaster on 3rd. day over the pit of stomach.

Liver and Spleen. Liver was slightly enlarged from the 2nd. day of disease, but on 9th. day he got a severe attack of Hepatitis i.e. Liver Area increased in size, it was very painful and tender to touch, tongue was coated with yellow fur, temperature rose to 102.4, all these symptoms subsided gradually on the 14th day of disease.

Spleen was enlarged 3 inches below the costal margin.

Jaundice. There was slight Jaundice all over the time.

Treatment. He was treated with Soda-bicarb and lig. Hydrag Perchlor Mixture three times a day. Barley water and milk and soda water were given frequently in big quantities, ice and soda water were given to stop the vomiting. Hepatitis was treated with cholagogues, Fomentation and counter irritation i.e. blistering and mustard plaster was applied over the pit of stomach to check the vomiting, kidneys were kept warm by Lénfment and cotton wool.

Tonic were given to improve the health, at last he was discharged on 14.4.14 and was recommended for a transfer to some healthy station.

(Sd.) HARKISHAN DAS.

Sub.Asst.Surgeon.

Mrs. Murid Abad. Age 35 years.

Indian Mohamedan.

Brick Barrack No. 89, Unit No. 4.

Locality.

(A) She is living in Railway Brick Barrack No. 89 Unit No. 4 which is $1\frac{1}{2}$ feet higher than the level of the ground, it is well ventilated and clean from vegetation all round. The Railway premises are always kept clean and in a good sanitary condition.

There is no swamp near at hand.

The water supply of Kilindini is brought out from wells situated about 200 yards, from Kilindini Railway Workshops. The water is clean and it is pumped out and run in a pipe to Kilindini.

The patient always used rain water for drink.

The patient do not use Mosquito curtain.

(b) Only two cases of Blackwater fever occurred during last year 1913.

1st: case occurred in Old Black House No. 41, on the 21st: March 1913, which is about 300 yards from Barrack No. 89.

2nd. case was reported on the 27th September 1913 in house No. 80, about 200 yards from Barracks No. 89. Only one case of Black water fever occurred during this year on 8-3-14 in Barrack No. 90 Unit No. 1, which is about 100 yards from Barrack No. 89.

Native dwellings are situated about half a mile from Barrack No. 89 and the natives have no intercourse with the Asiatics living in Barrack No. 89 except private servants.

(c) The following insects are found inside or around Barrack No. 59:- Ants, Mosquitoes, Flies, Lice, Bugs, Fleas and sometimes Bees, Ticks and Jiggers. The blood slides are sent to Bacteriologist at Nairobi.

II.

It is very hot in the months of November, December, January, February and March, no rain falls in these months except occasional showers in December.

In April rain sets in and before the rain very strong winds blow.

Heavy rain falls during the months of April, May, June and July with some showers in August, September and October.

During a heavy rain, atmosphere is cold, especially in June nights.

The best season is when the atmosphere is cold during the rain or when it is quite hot and dry.

The worst season for Malaria is a short period of some days or weeks when the heavy rain showers occasionally stop and the interval between heavy rains.

Habits.

Her habits are moderate, and she never takes any intoxicating^{drugs}, she is a woman of poor physique and never goes out of house even for a walk.

Quinine taking.

She is not taking quinine regularly, and had no objection when it was necessary to take, she is having quinine once or twice in a fortnight.

Previous history.

The patient was suffering from Malaria since 4 months and had attacks of ague now and then, she was very anemic, her spleen was enlarged.

Present history.

On 6th. August at 10 a.m. I was called to see her when she had a severe attack of shivering and ague, on examination her urine was found quite black, temperature 103.4 Pulse was 120, tongue coated, Bowls constipated she was vomiting what, she was drinking and eating.

Symptoms.

Urine. It was Black port wine colour for 3 days, then it changed into dark red colour which lasted for another 2 days.

It then turned into red colour which lasted for a day then it turned into high colour which lasted for 2 days, and again turned into yellow colour on next day.

Temperature.

It started with rigor and shivering. It was between 103.2 and 104 for 48 hours and dropped down to 100 and 101 within next 24 hours, it was between 99.4 and 98 for next 24 hours and dropped down to 98 in the morning, and 99.4 in the evening, and then it remained so for another 24 hours, in the evening temperature remained normal.

Vomiting.

It was very severe for 3 days the patient could not keep in milk or Barley water, and then it became milder next day and at last it was checked by application of mustard plaster over the pit of stomach.

Liver & Spleen.

Liver was slightly enlarged, it was very painful and tender to touch, all these symptoms subsided gradually on the 10th day of ~~same~~ disease.

Spleen was enlarged 3 inches below the costal margin.

Jaundice

There was slight jaundice all over the time.

Treatment.

She was treated with must.pot Bicarb.Liq Hyd.Parch
3 times a day Calomel grs.iii Sod.Bicarb grs.V. to be given
at once. Barley water and soda water and milk were given
frequently. Kidneys were kept warm by léniment and cotton
wool. Tonics were given to improve the health at last, she
was discharged on 20-8-14.

(Sd.) S.F.de Costa.

S.A.S.

Kilindini,

31st. August 1914.

Jantuk Singh s/o Buda Singh. 5 years old.

327

Indian (Hindu - Singh)

Locality. Barrack No.87 Unit No.8.

(A) The patient was living in Railway Barrack No.87 Unit No.8 which is one foot higher than the level of the ground, it is well ventilated and clear from vegetation all round.

The Railway premises are always kept clean and in a good sanitary condition.

There is no swamp near at hand, the water supply of Kilindini is brought out from wells situated about 200 yards from Kilindini Railway Workshops, the water is clean and it is pumped out and run into a pipe to Kilindini.

The patient always used rain water for drink.

The patient's parents do not use mosquito curtains.

(B) Only two cases of Blackwater fever occurred during last year 1913.

1st. case occurred in old block House No.41 on the 21st. March 1913 which is about 300 yards from Barrack No.87.

2nd. case was reported on 27th. September 1913, in house No.80 which is about 200 yards from Barrack No.87.

Only two cases of Blackwater fever occurred during this year. 1st. case occurred in Barrack No.90 Unit No.1 on the 8th April 1914 which is about 15 yards from Barrack No.87.

2nd. case was reported on the 6th. August 1914 in Barrack No.89 unit No.4 which is about 150 yards from Barrack No.87.

Native dwellings are situated about half a mile from Barrack No.87 and the Natives have no intercourse with the Asiatics living in Barracks No.87 except private servants.

(C) The following insects are found inside or round Barrack No. 87, ants, Mosquitoes, flies, lice, bugs, fleas and sometimes ticks and jiggers. The blood slides are sent to Bacteriologists at Nairobi.

It is very hot in the months of November, December, January, February and March, no rain falls in these months except occasional showers in December.

In April rain sets in and before the rain, very strong winds blow.

Heavy rain falls during the months of April, May, June and July with some showers in August, September and October; during a heavy rain atmosphere is cold, especially in June nights. The best season is when the atmosphere is cold during the rain or when it is quite dry and hot.

The season for Malaria is a short period of some days or weeks when the heavy rain occasionally showers stop and the interval between heavy rains.

Previous History. The patient was suffering from Malaria fever occasionally and had attacks of ague now and then, he was ^aanemic, his spleen was normal and he was given quinine when getting attacks.

Present History. On 8th. August 1914 at 1 p.m. I was called to see him when he had a severe attack of shivering and ague. On examination his urine was found quite black, temperature 106 and tongue coated - pulse quick, bowels constipated and he was vomiting what he was drinking and eating.

Symptoms. Urine. It was quite black port wine colour and it was passing about 1½ oz each time.

Temperature. It started with rigor and shivering and convulsions every hour. It was between 106 and 105 for 3 hours and afterwards dropped down to 104. The patient died at night 11.30.

Vomiting. It was very severe, patient could not keep in milk or barley water, and then it became milder in next 4 hours and at last it was checked by application of mustard plaster on pit of stomach.

Liver & Spleen. Liver was slightly enlarged, liver area increased in size. It was very painful and tender to touch, tongue was coated with yellow fur, spleen was normal.

Jaundice. There was slight jaundice.

Treatment. He was treated with mixt: Diaphoretic every three hours, calomel gr.ii Soda Bicarb gr.iii to be given at once; mist.pot.Bicarb Liq Hyd.Perchlor $\frac{3}{ii}$ every four hours barley water and milk and soda water were given frequently. Ice was applied on head, Kidneys were kept warm by liniment and cotton wool. The patient died at night 11.30 on 8th. August 1914.

(Sd.) S.F.de Costa.

G.A.S.

Kilindini,

1st. August, 1914.

7/10/14.

Sir,

With reference to your letter No.21/752 dated 23rd. September 1914, I have the honour to inform you that the weather conditions preceding Mr.Handley's illness are unavailable, but it may be assumed that it was exceedingly hot and dry, even though they had been having some rain and mist at Chuka sixteen miles away. The day that he was brought in, it poured in torrents, and he arrived soaked.

As to insects, the Brit. Museum have not yet completed their returns. Their first list of identified insects only contains 25% of those forwarded by Mr.Orde Browne A.D.C. Chuka.

Generally speaking the insects (in Lower Muvimbe where the Kierra Mica Mine is situated) of interest from a medical point of view are hardly as numerous as one might expect. Mosquitoes are comparatively rare except close to the rivers and streams, and even then they are not common, as the soil is of a sandy porous nature, giving rise to a lack of standing water. In the Mica Camp there are fleas and jiggers by the million, a situation helped by Mr.G. Parker's habit of keeping a large pack of various dogs well over twenty in number. Various Muscidae are common, in places most annoyingly so: the only one identified up to date being Rhinia. Haematofota have never been caught in Lower Muvimbe though they flourish higher up. Such mosquito as do exist are interesting, and further details will be available before long. Anopheles have never been caught in Lower Muvimbe. Culex is common. Stegomyia may often be caught. Mr.Orde Browne caught a number of others which he was unable to identify, notably one kind which seemed to be

to be all males. He caught some thousand males, but could never find a female. Full details are available if required; together with copies of correspondence about these points with Guy Marshall etc.

On the whole the insects are extraordinary varied and interesting the marked characteristic being the curiously small area in which certain species occur, when further identification lists have been returned by the British Museum, any information likely to be of interest will at once be forwarded.

I have the honour to be,

Sir,

Your obedient servant,

Sd/- P. F. Nunan.

M. O.

REPORT ON A CASE OF BLACKWATER FEVER.

330

Name L. Handley
Age 30 years
Sex Male
Occupation Kierra Mica Mine (Manager)
Station Chuka
Nationality European

Season - 1st week in August.

Previous History - See S.A.S.'s report.

Personal Conditions.- Patient was engaged in out-door work and living in camp. Altitude not available, between 4000-5000ft above sea level. Patient lived in long grass where mosquitoes were abundant.

Microscopic Examination of blood:-

Blood smears taken on the sixth day showed no parasites.

The differential count was as follows:-

	per cent.
Polymerphenuclears	44. 5
Large mononuclears	31. 5
Lymphocytes	21. 5
Transitionals	0. 5
Eosinophiles	2. 0.

No pigment. No polychromasia. Slight vaculation of some of the large mononuclears.

History. Patient was brought to Chuka, a distance of 16 miles by boys. Although slightly delirious he made every effort to reach medical assistance. On the way to Chuka, his carriers in accordance with the antipathy of the native to be near a dying man tried to desert. With the help of his revolver, he persuaded a sufficient number to remain to carry him into Chuka.

On arrival

On arrival Mr. Orde Browne the A.D.C. in charge sent runners to Embu (30 miles) to summon the S.A.S. Mr. Harkishan Das, and to Fort Hall to summon the Medical Officer. (60 miles) The runner took two days to reach Fort Hall, and 20 hours after his arrival I reached Ghuka.

Mr. Handley's temp. was then normal, and ^{he} seemed to be well on the road to recovery. On the 3rd of August 1914, we proceeded to carry him on a stretcher to Fort Hall, arriving on the 7th August 1914.

Symptoms - vide S.A.S.'s notes.

Treatment - Vide S.A.S.'s notes.

In conclusion I wish to state that the S.A.S. Embu is to be congratulated on the rapidity of his arrival, and the efficiency of his treatment. He travelled 30 miles in the dark and rain over most difficult country.

Sd/- P. F. Nunan.

M. O.

Fort Hall.

Case IV

REPORT ON A CASE OF BLACK WATER FEVER.

oo

Name	Mr. L. Handley
Age	30 years
Sex	Male
Occupation	Employee in Parkers Mica Mine
Station	Chuka
Nationality	European.

Previous History. He suffered from malaria thrice badly in 2 months time, he was not taking quinine regularly, but was taking when getting attacks of malaria.

The place where he was working was surrounded by high grass and full of malaria.

Present History. On 1st August 1914 at 10 a.m. I was ordered by the D.C. Babu to proceed at once to Chuka and attend Mr. Handley, who was brought to Chuka from the Parker's Mica Mine.

Symptoms. Urine. It was dark red for 1st 12 hours and it gradually turned into red colour after next 12 hours, it was high colour after another 12 hours, after another 24 hours it came in its normal colour.

Temperature. On 29.7.14, the patient after taking a big dose of Quinine, got fever with rigors and rose to 104, "which remained high for 14 hours, for next 24 hours it was between 100 and "102". On third day it was between 99 to 100.8, on ^{the} fourth day it was normal in the morning and never rose again.

Vomiting. It was severe for 24 hours and gradually it stopped itself in next 12 hours with out any treatment.

Jaundice. There was slight Jaundice for 3 days and gradually disappeared on 4th day.

Delirium. There was slight delirium for 2 days which recovered on 3rd day.

Liver and Spleen.

Liver & Spleen were slightly painful and tender to touch and were enlarged about half inch below the Costal margin.

General Condition. The patient became very weak and pulse rate was 40 per minute and weak but regular.

Treatment. Barley water was given in big and frequent quantities, Soda Bicarb and Hydrarg Perchlor. Mixture was given thrice a day. Mustard plaster was applied over the liver area, Strychnia Injections were given for 2 days to strengthen the heart. Kidneys were kept warm by Liniments and Cotton Wool.

Dietetic. Milk and Soda water was given in frequent and abundant quantities, on 6.8.14 the patient was advised to proceed to Nairobi for a change.

SD/- Harkishan Das.

Sub Assistant Surgeon.

Case XVI

REPORT ON THE CASE OF BLACKWATER FEVER WHICH OCCURRED

IN THE K.A.R. LINES, on 10. 6. 1914.

237

Name.	Babu s/o Harub
Age	6
Sex	Male
Race	Swahili
Disease	Blackwater Fever
Admitted	10.6.14
Died	10.6.14

1. Locality.

A. The case occurred in a Servants' quarter in the lines. The house and its surroundings are fairly sanitary in spite of a bad drain running close by.

There ^(S)an abundance of vegetable growth but no swamps or forests in the immediate vicinity.

B. As there is no record of any previous case occurring in ~~the~~ that particular house it is presumed that this was the only occurrence ~~in~~ in it. Except a couple of rooms for the native servants there are no other native dwellings near about.

C. In the room where the case occurred no insects were found except the common house flies. But in the drain which runs in front of it, many kinds of insects were seen but no mosquitoes or their larvae were found.

II. Seasonal Variation. At the time the case occurred there was no unusual change in climate.

III. Personal History. A. Past History

The child had in all four attacks of Blackwater fever with the usual symptoms viz the passing of bloody urine and fever. The first and second attacks took place at Zanzibar and the third at Mchakos about six months ago. The illness

under report was the fourth attack and at Nairobi. It is said to have been always in an indifferent state of health and anaemic and now and then suffering from fever before and after the first attack. Quinine was not taken habitually ~~xxx~~ nor much even at the time of actual illness.

Present History. Liver and spleen enlarged.

Very anaemic. Fever. Urine dark red.

B. The child is said to have lived all its life either at Zanzibar, ~~Machakos~~ or Nairobi.

C. Examination of Blood and Urine.

Blood. Abundant benign tertian Malarial parasites.

Urine. Albumen. Debris of red blood corpuscles and tube casts.

Spectroscopically - Oxyhaemoglobin and Methaema globin.

It is evident from the child's history that it got the infection originally at Zanzibar and not at Nairobi and that the poison was dormant in its system. That it made its appearance whenever the child was vitally low.

(Sd.) J.A. Karveker, S.A.S.
K.A.R., Hospital.

MALARIA FEVER ; WITH HAEMOGLOBINURIA

OR

BLACKWATER FEVER.

Case XVII

CASE 17

Somali Trader : Age 39. Male resident of Serenli for the last 2½ years.

History of Case: I was called to see patient on the morning of 27th November 1914. He gave a history of not feeling well for 2 or 3 days before, accompanied with slight fever and loss of appetite; Bowels not moved for 4 days, and at the time had a severe attack of Colic. T-103. Pulse 80. Tongue very furred with clean red margins, Conjunctivae tinged a deep yellow. He had been vomiting many times the night before, and was unable to keep down any food, not even plain water. He complained of a severe Headache. A purge containing Calomel grs.iii and Jalap grs.X was given for the bowels, and also Phlegastin Grs.V for the severe Headache and fever. These the patient keep down for a little while and then brought up most of them; vomiting continued nearly all day and contained a large quantity of Bile pigment. I diagnosed the case as one of a severe Bilious attack. Lime Juice was then ordered in small quantities for the vomiting as no Ice could be had, and only cold milk was ordered as diet; That night I gave him another dose of Calomel with Phlegastin which the patient retained; T-8 p.m. Normal, Pulse normal and the patient felt much better.

28/11/14 7 P.M. Patient had no sleep all night and the Abdominal pains were still present, he had some vomiting during the early hours of the morning. Bowels moved 3 times during the night, the Urine was scanty and high coloured; T-104 Pulse 100. Tongue still very furred and breath foul.

I then gave

I then gave him a dose of Castor Oil and Opium, and Phlegocetin.
9 a.m. Patient sweating freely T- normal and he felt more comfortable only for slight pain in the lower part of the abdomen. Blood smear was taken and on examination Malaria Parasites (Astivo-Autumnal) were found. Quinine Bisulph Grs.X in solution was given at 12 noon which the patient kept down. The presence of the parasites in the blood, severe abdominal pain, and vomiting with scanty urine put me on my guard for the appearance of Haemoglobinuria. Slight enlargement of spleen was present; and was slightly tender on pressure. ~~No~~ Lung Symptoms present.

1 P.M. The vomiting had passed off, and the quinine had been retained. Patient complained of not being able to pass urine. Bladder not very distended; Catheter was passed and 8 Ozs. of high coloured urine was drawn off. No haemoglobin was present in the urine; After the Bladder was emptied patient was more comfortable. T- 100 Pulse 78 and good. He had passed no urine since 8 a.m. Quinine Bisulph Grs.X in solution was given 5 p.m. which the patient kept down. Nothing but small quantities of Lime Juice and Milk were taken by the patient all day: Milk and Water in copious quantities was ordered to be taken and also soup (Bovril) these he took and kept down. The sensation of wanting to vomit had by now completely passed off.

29th November Patient had some sleep during the night with much sweating. Bowels moved once, passed a good quantity of urine during the night which still retained its high colour. Quinine Bisulph Grs.X was given at 8 a.m. and 5 p.m. T- normal. All day urine was passed freely. No unusual symptoms occurred.

30th November Morning T- normal Pulse normal. T- went up to 100 at 12-30 p.m. Pulse rapid and full, face flushed, abdominal pain still slight. Tongue furred. In an hour the patient passed 8 Ozs. of urine of a Dark Portwine colour. Haemoglobin present (Heller's Test) I was not with the patient at the time, but saw the urine

at 5 p.m. on my visit. His T then was 100-F Pulse 86. A mixture containing Liq. Hyd. Perch. M. 40 and Sessil Nicot Grs. X was given, also a diuretic, and followed by Quinine Bisulph grs. X in solution in $\frac{1}{2}$ an hour. Complained of pain in the lower abdomen and legs and over the lumbar region. No vomiting. Milk and Barley water was ordered of which the patient drank quite a large quantity. I was called again to see him at 12 midnight, when his T- 98.5 F Pulse 70 and he was sweating freely. Passed 6 Ozs. of urine devoid of Haemoglobin. The Barley water and milk was continued during the night, and another dose of the Hydrag Mixture was given with the Diuretic.

1st. December. Morning Patient was very much improved, had in all about 5 hours sleep T- 97.8. Pulse normal. Quinine Bisulph grs. X given. The barley water and milk was continued and an Egg beaten up with milk was taken. He passed 12 ozs of clear urine at 9 a.m. Bowels moved twice. The mist. Hydrag and diuretic was stopped.

Evening T- and Pulse normal. The yellow tinge of the Conjunctivae was clearing. The tongue less furred. Quinine Bisulph grs. X given. Milk, Soup and Barley water was continued as diet.

2nd December 1914 Patient much recovered; Had a good night and sound sleep; Passed 14 Ozs. of clear urine at 7 a.m. T- and Pulse normal. Quinine Bisulph grs. X in solution was given in the morning and evening. Conjunctivae only slightly tinged yellow; Diet Fresh meat Soup, Milk and Eggs.

3rd. December 1914. Patient was sitting up and attending to some business, beyond a feeling of weakness he was quite well. Bowels moved once, and urine was normal in quantity and colour. Conjunctivae quite clear. Abdominal pain had passed off; Quinine Bisulph grs. X was given morning and evening. Blood smear; negative to malarial parasites; Quinine grs. X once a day was continued for some days after, and the patient was

advised

was advised to keep taking 10 grs. weekly for at least 3 months. From this date onwards he made a good recovery. Patient was not in the habit of taking quinine, in fact had scarcely ever taken the drug as a medicine or as a preventive measure.

Points of Interest.

(1) Not a regular quinine taker (2) Absence of previous attacks of Malaria (3) The severe abdominal pain, the Conjunctivae tinged a deep yellow and the presence of malaria Parasites in the blood (4) Scanty high coloured urine (5) The appearance of Haemoglobin in the urine after the administration of quinine. I have made mention of these points as many of them were present, in my other case as well: and also as I wish to make some remarks on these later on.

Since writing I have treated this patient for 4 more attacks of malaria, all accompanied with severe vomiting and headaches. His last attack occurred on the night of January 10th, 1915. I was called to see him on the morning of the 12th. He was then just in the ague stage, and had been vomiting many times. He was treated for the attack by injections of quinine Bi-Hydrochloride. He had not followed my advice as regards taking quinine daily for at least two weeks since his attack of Blackwater. There was no reappearance of the Haemoglobin in any of these after attacks.

Sd/- A. Neville Esq.

Assistant Surgeon.

Malaria fever, with
Haemoglobinuria.

Notes of Case

Name { Somali
Trader.

Age 39

Diet Milk & Barley
Case Book No water.

Temperature Fahrenheit

107
106
105
104
103
102
101
100
99
98

Normal
Temperature
of body

Passed 8 ozs. Dark port wine coloured
urine. Urine clear.

Day of Dis. 3 4 5 6 7 8 9
Pulse
Resp.
Date 27th 28th 29th 30th 1st 2nd

84th Nov

Date of admission

27th Nov. 1914.

Result Recovered

42° 41° 40° 39° 38° 37° 36° 35°
Temperature (Centigrade)

BLACK WATER FEVER.PARMOZANINURIA OF MALARIA ORIGIN.

Case 18. A Military Askari: Afrasa Mandi: Aged 23. Has been stationed in Serenli and Garba Haras since April last.

Previous Medl. History: I am unable to get an accurate account of any previous illness of the patient as the Medical History Sheets of the Coy. are not in Serenli: Gives a history of having had a slight attack of Beri-Beri in Zanzibar. As an askari with three years service. He has been given Quinine Grs. X regularly every week in solution.

History of Present Illness. Patient reported sick on the morning of the 24th November suffering with headache and fever T-100. As many cases of a similar kind had reported sick with these symptoms and in whose blood Malaria Parasites were found, I took a blood smear and Benign Tertian Parasites were present. Quinine Bisulph: Grs. X in solution was given him three times daily till the 27th November when no more Malarial symptoms were present. After this date Quinine Bisulph: Grs. X was given once daily: On the 30th November Ol. Ricini was given as he complained of constipation for 2 days. This acted very well and in the evening the patient was quite well and Quinine Bisulph: Grs. X was given.

December 1st. The patient was quite well this morning No T Tongue quite clean and he stated he was feeling quite fit and well. No Quinine was given.

5 p.m. Patient came to the Dispensary in a severe fit of Ague and looked extremely ill complained of feeling very cold (in fact his teeth were chattering) and also of having passed some urine of a very dark colour. He was at once put to bed in the Hospital and given Brandy oz. 1, Quinine Bisulph: Grs. X in solution & Phenacetin Grs. 4 and Caffeine Grs. 1. T-101.4. Pulse 100.

2.

6.p.m. Ague fit had passed off and the Hot Stage had set in. He passed 6 Ozs. of urine of a very dark porter Colour, almost black. T-101.4. P.80 Respiration rapid and deep. ^{Adm. 7} Hydrag Mixture (Liqur:Hyd:Perch: 40 Sodii Bicarb Grs.X) was given at once. There was no vomiting but he complained of great pain over the bladder. Barley Water and Condensed Milk was given him and of this he drank a large quantity as if suffering from excessive thirst. The urine was positive to Haemoglobin (Heller's Test) Blood Smear revealed no Malarial Parasites.

7. p.m. Patient was much better, passed 5 Ozs. of urine very much like the last but not so dark in colour. He was now sweating freely and felt more comfortable. T-Normal. Pulse 78. Complained of very slight pains in the legs and lower abdomen. As I had no more Barley and none could be obtained in Serenli Rice water and Condensed Milk was given in small quantities frequently which the patient appreciated. No Cows Milk could be obtained.

9.p.m. Patient passed 8 Ozs. of urine at 8.30 p.m. which still contained a large quantity of Haemoglobin but was a little less. T-103 P.68. Brandy 1 Oz. and Mist Hyd:Perch: 1 Oz. given. Patient took a pint of rice water and milk at 8.30 p.m. was given Mist Perch: 1 at 9.30 p.m. Pulse was slow but strong and full. Respirations not so laboured as at first.

10. p.m. T-102 Pulse 69, passed 8 Ozs. of dark porter coloured urine.

11. p.m. Patient passed three Ozs. of Urine at 10.45 p.m. of the same dark porter colour. T-102 Pulse 69. Given Hypodermic injection of Quinine Bi-Hydrochloride Grs.X and Mist Liqur.Hydrag Perch. Oz.1. He was given small quantities of rice water and Milk by me every quarter of an hour till 1.30 a.m. after this the patient was inclined to sleep and fell off into a sound sleep at 1.30 a.m. There was no vomiting.

2nd. December 7 a.m. Patient passed 1 pint (20 Ozs.) of urine between 11 p.m. and 7 a.m. very little change in colour. P. 88 T-99.6. Given Mist Hydrag Perch. Oz. 1 and a stimulant of Brandy Oz. 1 Spts. Annon Aromat M20 and Spts. Aether Sulph M XX.

8 a.m. Given Quinine Bisulph Grs. X in solution. Passed no more urine. He was taking plenty of fluid diet in the way of soup and Rice Water and Milk T-99 P. 80.

10 a.m. T-101 P. 70. No more uride passed. Given Mist Hydrag Perch Oz. 1 and Mist Discretio. Oz. 1.

11 Noon. Passed 8 Ozs. of urine at 11.30 a.m. which contained only a small quantity of Haemoglobin. Complained of severe pain in the lower limbs and slight pain over the Lumbar region. Spleen could be felt under the costal margin, and was tender on pressure. He vomited once after taking some Milk and Rice Water. The conjunctivae were tinged a deep yellow. Tongue furred thickly but clean at the Margins. Bowels had not moved since admission T-101 P. good 74. Given Mist Hydrag Perch oz. 1 (This Mist was given every two hours when possible since the appearance of the Haemoglobin).

12.30 p.m. I gave hypodermic injection of Quinine Bihydrochloride Grs. X.

2 p.m. Patient was much better, no more urine passed. T- Pulse Normal. He was inclined to sleep and said he felt much better (Mist Hydrag oz. 1).

2.30 p.m. Passed 10 ozs. of dark orange coloured urine with only a trace of Haemoglobin present.

7 p.m.

4.

7 p.m. Patient fell off into a sound sleep from 2.30 p.m. to 6 p.m. T-M P.M No urine passed. He complained of headache and pains in the lower limbs. Quinine Bisulph. Grs. X in solution given and Mist Hydrag oz. i also Aspirin Grs. X.

8 p.m. Passed 8 ozs. of urine free of Haemoglobin. No rise of T- Pulse very good. Milk & Soup & Rice water was given throughout the day while patient was awake.

3rd. December Morning 7 a.m. Patient had a good night. No rise of T- Slept about 8 hours. Passed urine 8 ozs. during the night still high coloured (Dark Orange). Complained of pains in the hips and lower limbs. Given Quinine Bisulph Grs. X. Blood taken for examination Parasites not found.

12 Noon. Patient was very much improved T- & Pulse Normal. Pain in the legs had passed off, only a slight pain over the bladder and in the lumbar region; Bowels constipated Ol: Rgicini oz. i given; Conjunctivae still tinged a very deep yellow. Passed no urine since 4 a.m. The Diuretic Mixture was now given every four hours as the patient was passing very little urine, only a four ounces (4 ozs.) since 3 p.m. T-97 Pulse Normal

10 p.m. Patient was in a sound sleep when I visited the hospital.

4th. December 8 a.m. He had a good sleep during the night T-97 Pulse 80 but very compressible for this a stimulant of Brandy oz. i Spts. Amson Aromat M XX. and Spts. Asther Sulph M XX was given at 8 a.m. and 12 noon. He passed 10 ozs. of urine quite clear; was given Mist Hydrag cal and Quinine Bisulph. Grs X. As no fresh Cows Milk could be obtained I was obliged to try and strengthen my much weakened patient with tin milk & soup. Spleen was still slightly ^{palpable} ~~palpable~~ and tender on pressure. Blood smear revealed no parasites.

5.

Evening 6 p.m. T- normal Pulse 74 and strong, The tongue was now quite clean and the yellow tinge of the Conjunctivae was clearing rapidly. His appetite was increasing but I had very little food with which to feed him.

Quine Bisulph Grs. X in solution was given at 8 p.m.

He passed urine freely and of normal quantity and colour all day.

From this day onwards patient made a good recovery, which was very slow owing to the want of nourishing food.

December 15th. Spleen was completely reduced in size and there was no tenderness on pressure over the Splenic area, Quinine was given twice daily Grs. 10 for a dose, for seven days, after which it was given once daily for another seven days and then twice weekly. Also a Tonic of Iron & Arsenic.

Remarks. It is worth noting that although the patient had lost a large amount of Haemoglobin which indicates the destruction of red Blood corpuscles must have been very great: still he kept a good pulse throughout, and rapidly gained strength in spite of the difficulties of giving him sufficient nourishment. Also the excretion of Haemoglobin was continuous and not intermittent as so often occurs in these cases. As will be seen he passed 66 oz. of urine containing Haemoglobin in 20½ hours. So that his infection with Malaria Parasites must have been very severe and, it would appear that the amount given of Quinine between November 24th and December 1st could only have destroyed a few of the Parasites; or allowing that most of the parasites were destroyed, seeing that he had no rise of T- from November 27th to December 1st, it might have been a fresh infection. Personally I am of opinion that it was a combination of a fresh infection and "A not complete recovery from the original infection". Of course it must be remembered that I am regarding the case as one

of severe Malarial infection, producing Haemoglobinuria, and making the latter, more a symptom than a disease: Seeing that Benign Tertian Parasites were present in the blood a few days prior to the appearance of Haemoglobin in the urine

Theory. Considering the cases to be of severe Malaria with Haemoglobin in the urine as a symptom. I have two views on the occurrence of the Haemoglobinuria to put forward:-

1. Due to excessive destruction of the Red blood Corpuscles, by the sperulation of an enormous number of Parasites at the one time.
2. The action of Quinine on the spores and causing a vast amount of destruction among them. In both these cases there would be a great quantity of Haemoglobin set free in the blood, which would act as a foreign body and the duty would fall on the spleen to remove it. In mild infections, where the Haemoglobin is not much in quantity ~~present~~ the spleen is able to store it up. But when all at once there is an excessive quantity present the work thrown on the spleen is more than it can cope with; as is shown in both my cases a certain amount of enlargement of the spleen occurred; which ~~is~~ not present before the Haemoglobin appeared in case 2. Consequently the excess Haemoglobin ~~appears~~ which the Spleen is unable to store up is excreted by the Kidneys and appears in the urine.

That Quinine, given in large doses, will cause Haemoglobin to appear in the urine I do not entertain, ~~and~~ unless it causes the destruction of an enormous quantity of Parasites. In case 2 Quinine was rapidly pushed both by mouth and Hypodermically.

Without the presence of Parasites in the blood Quinine even in large doses will not cause Haemoglobinuria.

As is shown in cases No. 22 and 23 (Black water Fever Reports 1912) in which the repeated administration of large doses of Quinine failed to cause Haemoglobinuria. The explanation for this would be that there were few if any parasites to be acted on by the Quinine, the majority having already been destroyed by the previous small doses.

Again in one of my cases Haemoglobin appeared in the Urine after the administration of a small dose of Quinine Grs. X In this case I think the Quinine had very little to do in the production of Haemoglobinuria, but that the free Haemoglobin in the blood was due to the sporulation of a great number of parasites at the one time: or in combination with the Quinine causing a destruction of some of the parasites and setting free a minimum of Haemoglobin

The presence of Parasites in the Blood. In both cases parasites were found in the peripheral circulation before the administration of Quinine, and before the Haemoglobin made its appearance in the urine. In the majority of cases reported during 1912 (Blackwater fever reports 1912) parasites were not found: but in nearly all these cases Quinine had been taken by the patient of his own accord before medical aid was sought and an examination of the blood made, and as we know that even very small doses of Quinine will cause nearly all the parasites in the peripheral circulation to disappear, we probably the cause why Malarial Parasites could not be found. Examination of the blood during the attack and after the Haemoglobin ceased to be excreted in the urine revealed no parasites, this is explained, as being due to either enormous destruction of the Red blood cells or to the action of the Quinine. Both methods of examination for parasites (a) the unstained (b) stained specimen, were carried out in both cases.

Locality. Serenli Civil and Military Station is situated on the bank of River Juba from which it derives its water supply. The town or Bazaar where case 1 occurred is very clean and clear of Bush in the near vicinity but surrounded on the West and North by thick Bush which almost adjoins the Town. To the East and North East the ground is clear and it is here where the Fort and Askaries Lines (Case 2) is situated, separated from the Town by about 100 Yards. On the South is the Juba River about 150 yds. from the Town, with the ground rising from the river to the Town. The Askaries Lines are on the Banks of the River. To the North East of the Askaries Lines about 50 yds. distant is a deep Nullah running from the River inland which is quite full with slow running water when the River is up, but partly empties itself, leaving small pools of water here and there when the River descends which affords a nice breeding place for Anophelis Larvae as it is shaded on either side by bush, Also during and after the Rains this Nullah harbours a lot of pools and the result, Anophelis Mosquitoes. I have collected Larvae from several of these pools and the resulting Mosquitoes have been mounted and sent to Nairobi for examination.

Insect Fauna. The Anophelis Genus was found in large numbers in the Houses where the cases occurred. Both Houses are Makuti roofed, which Makuti affords a nice dark hiding place for the Anophelises during the day. Specimens have been collected and sent for examination.

Climatic Conditions. Both cases occurred when the rains were almost over and when the soil is damp. The rainy season in Serenli is from the beginning of August to the end of November and this year the rainfall has been

greater

9.

greater than in former years. It is during this season that the Malaria incidence of Serenli goes up & this year a very severe epidemic occurred.

Series of former Cases, None reported from Serenli.

84/- A. Neville Nye.

Dist. Surgeon

Notes of Case

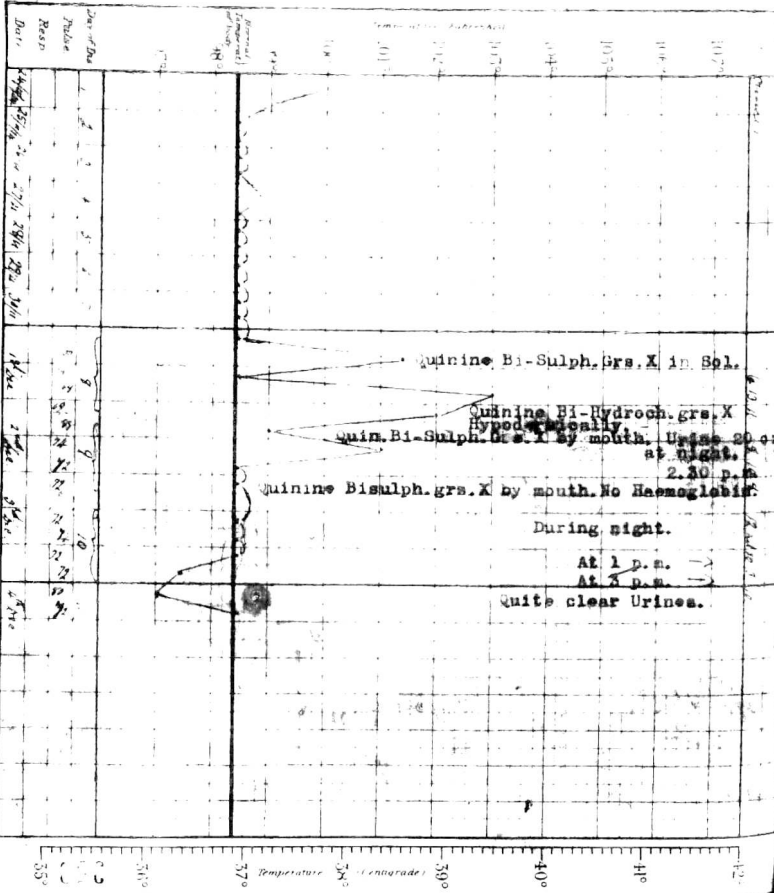
Name: M. 347

Age: 23

Diet: Milk & Rice Milk

Case Book No. 44

Date of admission: 1st December 1914
Result: Recovery



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OUR CHART.

DISEASE

Scarlet Fever

of W
Parotid

Notes of Case

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Time	AM		PM		AM		PM		AM		PM		AM		PM		AM		PM		
	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10
Temp	X								X												95.3
Pulse																					
Respiration																					
Stool																					
Urine																					
Food																					
Drugs																					
Remarks																					

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very weak but improved rapidly
Cough & loose stools
No Anorexia present

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41
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