

EAST AFR. PROT.

21471

Rec^d
16 JUN 06

N^o 21471

(Subject.)

Sanitary condition of Nairobi

Submits reports on - with a conference
plan of the town. Urges appl of a Sanitary Eng^r
to report & advise

(Minutes.)

Copy of despatch & min. forwarded
to Mr. J. B. Williams for info. with
refers to previous encop. - D.T. -
the minute

at once.
G. J. R.
18/6

Mr. Antrobus
The paper submitted presenting the
and a resolution - in connection with Mr. Williams'
applt.
After consultation with Mr. J. B. & the L.A. Mr.
Williams, a sanitary report has been appointed
to go out & report generally on the sanitary
condition of Nairobi. He starts on the 3rd of July
& copy of the despatch as to this has been sent to
him & I do not doubt that we shall be
made this G. J. R. refers to previous encop.

No. 261
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Am. 20 Aug

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1845, I say that a copy of the dispatch
was forwarded out to the U.S.

It is a great pity that a really good
note was not shown several before noted
interests had gone up, but the satisfactory
authenticity of the present appears to have
been obstructive & it must make the best
we can of the present note. I am glad to
see that the Europeans are willing on
the whole, owing to the plan which is
a desirable one & a satisfactory point of view.
It is to be hoped that the whole business
of American people will eventually converge
in the same direction.

J.R.
2/16

J.R.
4/6

J.R.

At the commencement of 1902, 1200 persons died in the Nairobi District. There were sixty-nine cases and between forty and sixty deaths. The Commissioner, Sir C. Elliot was strongly of opinion that the site, which had been selected three years before by the Manager of the Uganda Railway, without consulting any medical or sanitary authorities, was, with its inadequate drainage, unsuitable for a large and growing population. He consequently called upon the Doctors then in Nairobi for a report on the sanitary aspect of the Township. For easy reference I enclose a copy of the report herewith. Your Lordship will observe that the Doctors were unanimous in condemning the site. They pointed out that it was a depression with a very thin layer of soil on rock. The soil, they remarked, was water-logged during a greater part of the year, and the decomposition of animal matter was abnormally slow, in consequence of which it was difficult to eradicate plague germs, and it was a favourable breeding ground for malarial disease. They added that the conditions of soil were such that should cases of typhoid, enteric or cholera occur, an epidemic of serious proportions would inevitably ensue. The Doctors concluded their report by

recommending

on the ground in the rear of the Railway Officials' residences.

(2) Removal of the Indian bazaar to a site adjoining the high ground beyond the English cemetery.

(3) Subordinate Railway officers' quarters to remain on the present site with improved drainage and sanitary precautions in accordance with the recommendations of the Medical authorities.

(4) Movement of the Coolie ladies to a convenient site.

(5) No further native buildings to be permitted on Railway land.

6. In calling together the Board Sir C. Eliot reminded the members that this was a critical point in the history of Nairobi, and he asked them to recommend nothing which they did not consider thoroughly satisfactory.

7. After much discussion the Board decided in favour of retaining the present site. Instead of moving it, provided that the results of the sanitary site satisfactory to the Medical authorities and provided that the present Coolie ladies and Military lines were removed. There appears to have been a good deal of personal feeling shown, and the opposition of the Railway authorities made it impossible to

discuss the removal of the subordinated houses, which
 was recommended by Sir C. Eliot and Dr. Spurrier. In
 this connection Sir C. Eliot telegraphed as follows to
 Lord Lansdowne on June 22nd: "A scheme can hardly be
 successful if those principally concerned are determined
 to make it a failure." I enclose herewith a copy of

the report of the board together with a letter from
 Dr. Spurrier, in which he states that he signed the
 recommendations of the board with certain reservations.

5. On July 2nd Lord Lansdowne telegraphed to say that
 he agreed with the conclusion which under the circumstances
 had been arrived at, and he accepted generally the proposals
 of the board. His Lordship also consented to a proposal

of Sir C. Eliot's that Dr. How of the Sleeping Sickness
 Commission should be requested to inspect and report on
 the town of Nairobi on his way to Entebbe. I enclose
 copy of this report from which it will be seen that the

author was of opinion that if certain improvements were
 carried out it would be unnecessary to alter the present
 site.

9. Local measures were at once taken in pursuance of the recommendations of the Board and the Military Officers' inquiries. The Government of India, the Jullundur Police lines and the Peshawar subordinate quarters were removed and re-erected, whilst the expenditure of the general drainage scheme and the scheme for a general water supply were provided in the Railway Estimates.

10. On April 1st 1903 Dr. Moffat was appointed Principal Medical Officer of the East Africa and Uganda Protectorates, and on May 10th following he submitted a report in which he described the state of Nairobi as a dangerous one and he condemned the site of the town as very defective. I have the honour to transmit herewith a copy of this report. Your Lordship will perceive that Dr. Moffat disagreed with the findings of the Board held on May 17th and 18th 1903. As stated by Sir C. Elliot in his report No. 438 of September 17th 1903, he was of opinion - and this opinion was generally shared by the Medical Officers (as opposed to others) - that the best course would have been to move the town (i.e. the Railway Subordinate Quarters) out of the plain. Dr. Moffat, like Sir C. Elliot, "regretted that the opportunity of the plague was not utilized to carry through

this somewhat heroic measure," but they both agreed that the time was now past.

11. Notwithstanding the recommendations of the Medical authorities, very little appears to have been done towards improving the sanitary conditions of the town before June 1903. In that month Sir C. Eliot called a meeting, at which he presided. Dr. Moffat, the Principal Medical Officer, Mr. Rawson, the Manager of the Railway, and Mr. Anderson, the Chief Engineer, were amongst those present. It was agreed:

- (1) that the present system of drainage was inadequate and that a better system was desirable;
- (2) that as a provisional measure a sanitary gang should be formed to sweep the existing drains;
- (3) that the houses ought to be connected with the main drains by pipes.

12. As a result of this meeting the Uganda Railway Committee voted two thousand pounds in June and July 1903 for the purpose of making a concrete invert as a lining of the main drain. This money was however not touched. The Manager referred starting until certain experiments

13,000

in line had been carried out, and the two thousand pounds merged later on in a larger scheme.

13. Later in the year (1903) Major Currie was instructed by the Foreign Office to proceed to East Africa to inspect and report on the Uganda Railway. In the course of his report, which he submitted on October 31st, he urged the Government to further consider the question of the site of Nairobi before the construction of numerous buildings of a permanent type would pledge them hopelessly to adopt the town - condemned alike by sanitary engineers and medical experts - as the site for the future capital of East Africa. He suggested that the wisest course to pursue would be to accept the present site as temporary only, and to appoint a commission to select a new site for the permanent town-ship, one to three miles away. An extract of his report is enclosed.

14. In October 1903 Mr. Currie was appointed Manager of the Uganda Railway, and four months later Major Will, R.A.M.C. succeeded Dr. Moffat as Principal Medical Officer of the East Africa and Uganda Protectorates. Both gentlemen had been instructed by the Foreign Office to report on the town-ship of Nairobi.

15. Major Will submitted his report in April 1904. He

disapproved the selection of the site, but gave his opinion that, owing to the enormous expense it would entail, it was too late to entertain the proposal of moving elsewhere.

"Permanent buildings have been erected", he wrote, "and trade and other vested interests have arisen, all of which would demand compensation for compulsory removal. I do not consider the result gained by removal would now be anything like commensurate with the expenditure it would entail."

Major Will further submitted a scheme for drainage and made various recommendations, but his estimate was based on a wrong hypothesis. His report is of interest, and as it is referred to in later papers, I enclose a copy herewith.

16. The Manager in consultation with the Principal Medical Officer then forwarded a memorandum for draining the Railway Subordinate Quarters, and estimated the amount required as seven thousand and five hundred pounds and seven thousand pounds for a main drain. I enclose a copy of this memorandum.

Major Will in another letter stated that a remedy of a practical nature should be advocated, and that anything involving a large expenditure would be regarded as inopportune. He considered Mr. Currie's scheme the most practical solution

of the difficulty.

17. Sir G. Elliot resigned a few weeks after the receipt of these reports, and I regret to say that with the appointment of a new Commissioner they were lost sight of and were never submitted to the Secretary of State. The sum of seven thousand and five hundred pounds for the drainage of the Railway Subordinates' Quarters was nevertheless sanctioned in Treasury No. 1254/04, and of this amount two thousand two hundred pounds had been expended by the 31st March 1905. The work has since then progressed but slowly owing to the difficulties experienced in obtaining lime, and it is at present almost at a standstill.

18. When I assumed charge of the Protectorate in December last I found, as I have reported elsewhere, that the sanitary condition of Nairobi was in a backward and unsatisfactory state. Plague has been endemic since September 1905 and one case of enteric fever has been reported. Cholera, dysentery and malaria are very prevalent. When the rainy season commenced the whole town was practically transformed into a swamp; and an inspection which I made of the Indian and Native Quarters

revealed an appalling state of things. I therefore called on Dr. Milne, the Deputy Principal Medical Officer, to report (in the absence of Major Mills) on the sanitary state of Nairobi Township. I have the honour to transmit herewith a copy of this report with the Principal Medical Officers covering letter. The large plan accompanying Dr. Milne's report is not quite applicable to the present state of affairs as it was drawn up nearly three years ago and only shows the block plan of sites as then projected - not what is in actual existence to-day; it is, however, sufficient for the purpose.

We have now been considering, with but little practical result, the question of the drainage and sanitation of Nairobi for the last four years. In the meanwhile the town has considerably increased in size, new shops, hotels and other permanent buildings have been erected on the plain, the population is much more numerous, and the resident European community, partly living on the plain and partly on the hill and in Parklands, at present numbers some three hundred and eighty persons. And plague to a certain extent

... in the plain. The
 ... the report submitted
 ... this ... could be allowed to continue; the
 situation must be seriously faced and dealt with without
 further delay.

20. Attached is a contoured plan of Nairobi showing in
 colours the portions occupied by the various communities:
 that portion of the plan comprised within the dotted
 blue line is the inhabited part of the plain with which
 this despatch is almost entirely concerned. Railway Hill,
 Nairobi Hill and Parklands, which are the residential
 quarters of the official and part of the non-official
 European community, are elevated ground, and the conditions
 here are quite different from those which obtain on the
 plains.

21. Station Road, with Victoria Road running parallel to
 it on the East, Government and Market roads, and the
 Indian bazaar form the business centre of the town.
 Within this area are situated the Government offices,
 such as they are, and the European hotels and shops, and
 on the outskirts are located on one side the Railway

offices and on the other the jail and police lines. Between the Railway Subordinate Quarters and the Indian bazaar is an open plain, where it was lately proposed to build new Government offices.

22. The drainage of this area and the sanitation of the crowded Indian bazaar are the matters which call for urgent attention and remedy. Practically the only efficient surface drain is the masonry drain built by the railway running down Government and Station roads. The smaller drains in the Railway Subordinate Quarters are useless in their present state and are blocked by being contained into unlined trenches cut into black cotton soil. During the late rains in April and May the whole area was water-logged and the state of the roads was such that traffic was almost suspended. The roads are now being energetically taken in hand, and so far as these are concerned the construction at present being done should remove all impediments to traffic before the next rains are due. To carry off the storm waters from this area we require a proper system of drainage; levels

are being taken for the drains that are most urgently wanted; but the whole system requires careful and expert consideration, and the present outlet into the Nairobi river is a source of danger to the public health.

23. Owing to the want of drains, private buildings have been suspended in a number of cases, because the building conditions require the owner to connect his drain with the public drains, and these in places have only been made of mud. This has naturally given rise to a great deal of dissatisfaction. The insanitary state of the Indian Bazaar is evident from the reports of the Principal Medical Officer and Dr. Vigne. The latter has taken some photographs showing the dangerous system of cesspits, which of itself is an aggravating cause of disease, and it is consequently not surprising that plague frequently makes its appearance in this quarter. The question of the removal of night soil, too, is an important one, and if the town continues to increase largely, will cause trouble. Probably the best solution will be found in Major Will's suggestion of using destructors.

24. It is, I admit, too late to consider the question of moving the town from the plains to the higher position along the

line some miles to the North. We had the chance in 1902, and I think it was a pity that we did not do so then as advocated by Sir A. Elliot, leaving the Railway to remain on the Tsimbri plain as they decided to do.

25. What we have now to do is to make the town as sanitary as we can at the least expense, and it is here that expert opinion is necessary. I do not advocate the spending of large sums of public money on a system of perfection, but I think that measures are necessary, on the lines recommended by the Medical Officers, to remedy the defects brought to notice in the enclosures to this despatch. Otherwise, as has been pointed out, we may suddenly find ourselves confronted with a disaster.

26. I do not consider that Tsimbri town, from its position on the edge of the European settlement area, will ever become a city like Johannesburg, or a large commercial centre; for if there is a rapid development of industries or minerals in any of our districts, the centres would spring up round them. But we shall always have a town peopled partly by Europeans

and partly by Asiatics and natives. The present resident

population

population inland but situated near a large daily
 influx of natives. However, the surroundings of the
 town, the elevated parts of Railway and Nairobi hills
 and Parklands, will form the future capital of the
 Protectorate, and as soon as it is feasible to do so,
 I want to have most of the public offices remaining in
 Mombasa to this quarter. We have already here the head-
 quarters of the Military, the Railway, the Medical, Land,
 Survey, Forest, Veterinary and Agricultural Departments and
 the current office of the Commissioner. Probably the best
 site for our public offices would be on the slope of the
 hill along Club road, but if my request for the services
 of an expert Sanitary Engineer is favourably considered,
 I should prefer to defer building until he has studied
 the situation. But funds are available this year for
 building a portion of the offices and I do not wish to
 delay and allow the money to lapse.

27. Mr. Groen has lately come forward with a scheme
 for laying out a new township for Europeans on his land
 running along the railway about two miles from the

Nairobi town. This may help matters, and I am considering
 the

the suggestion that Nairobi town would then remain mainly
an Asiatic and native township; but whether this be found
possible or not does not affect the main objects of this
despatch.

I have the honour to be,

With the highest respect,

My Lord,

Your Lordship's most obedient,

humble servant,

J. H. Arnold

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THE HAVITAMA ARMY
OF THE
STATE OF KENYA TOWNSHIP
APRIL 1906
1906

Nairobi is built on a plain at the foot of the
Kituyu Hills at an elevation of 5,300 feet. The ground
generally occupied is a triangle bounded by hills on two
sides and open prairie as a base. Through the middle of
this the Nairobi river flows for the greater part of its
course through a swamp of Papyrus and reeds; the drainage
in this part is most defective as the flow of water is impeded,
and it is also a general breeding ground of mosquitoes.
Dr. Daniel in his report on malaria in East Africa, presented
to the Royal Commission in February 1901, points out that
Anopheles and Funestas Larvae are found there in large
numbers. Under the foot of the hill on which the Railway
Bungalows are situated is an irregular channel which opens
into the Ngongu river, dry during the greater part of the
year but which from a sanitary point of view is of great
importance.

SOIL

The soil is alluvial for the most part. A black cotton
soil with the sub-soil of rotten Basalt, Lava and Iron
Stone, at a varying depth of a few inches to four feet.
This soil is water-logged for a great portion of the year
and as the surface is most uneven with a constant succession
of basin like depressions filled of the surface water
drains away. From the nature of the soil, animal matter
deposited in it undergoes unusually slow decomposition,
consequently pathogenic germs so deposited remain virulent
for a correspondingly long period.
During the dry season the surface cracks, while the
lower

leak service, besides water, to get on these cracks
 afford shelter for rats etc., which are generally
 found here in large numbers.

In the wet season the greater portion of the plain,
 especially that part near the Railway Subordinates'
 Quarters & Buildings (Workshops, Engine Sheds, &c.)
 is covered with water and at such times the foundations
 and buildings of these quarters are actually under water.
 The consequence of this being that Rheumatism, Pneumonia
 and other lung diseases as well as malaria are far more
 rife than at other times.

DRAINAGE.

These trenches have been dug with the intention of
 draining the surface water only. These are not properly
 constructed, the bottoms are uneven and water lodges in
 them. The gradients are inadequate, the main trenches
 in several instances are not carried through to the out-
 lets, there are practically no cross drains - this especially
 applies to the Subordinates' Quarters some 122 in number.

There appears to be insufficient supervision of the
 trenches that have been constructed. These are gradually
 becoming ineffectual as the soil tumbles into them and
 they are used as a general receptacle for rubbish &c.
 This constitutes an added source of danger.

In addition to these at the ~~foot~~ ^{base} of the Railway hill
 several springs exist which flow even in the driest
 weather forming local marshes, where Dr. Daniel was
 particularly successful in his search for infection-
 bearing amoebae larvae. We would point out the present
 conditions of the soil ~~is~~ ^{is} such that should cases
 of Typhoid (E.coli) or cholera occur an epidemic of
 serious

serious propagation would inevitably ensue if the soil thus becoming infected, this locality would become an epidemic centre for these diseases and a standing danger to the country at large which it would be impossible to eradicate.

SUGGESTIONS.

1. That the Subordinate Bungalows should be removed to higher ground behind the Officers' Quarters, the new site to be properly drained and adequate water supply laid on.
2. We are quite aware that this entails a large expenditure but it has the advantage of affording great facilities for drainage. The site is drier and is obviously away from the mosquito breeding marshes.

The alternative scheme which we do not consider nearly so satisfactory and which we are given to understand will far exceed the above in expense, is to effectively drain the present site.

To carry this out it will be necessary to dig a permanent deep canal through the Nairobi Swamp and to excavate a similar one at the foot of the Railway Hill towards the Ngongo river. These must be of sufficient magnitude to carry off all flood water in the greatest rains. The sides should be all secured by concreting or otherwise against crumbling.

The drainage of the plain itself should be both superficial and deep, every drain should be properly constructed with cement or pipe bottoms and sides, the deeper drains being covered in, with manholes at stipulated intervals.

These drains are intended for surface water only, and on no account must faecal or other rubbish be put into them, to carry this out satisfactorily and to immediately clear out the blockage of drains a large conservancy staff and a competent sanitary Inspector would be required.

OBSERVATIONS.

That as far as this Medical Board is aware, no Medical man

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or Sanitary authority of any description who consulted
before the present site of Tairohi was selected.
This Board wishes to express its willingness to meet
and consult with any non-medical Sanitary experts.

Sd/- A. R. Sidyehing,

Senior Medical Officer,
UNION PACIFIC RAILWAY.

Sd/- WILLIAM RADFORD,

Medical Officer,
Tairohi.

Sd/- Lyon Falconer, D. P. M.

Asst. Medical Officer,
UNION PACIFIC RAILWAY.

Sd/- A. H. Spurrler,

Medical Supdt. of Prison Island,

Sanitary Station,
TAIROHI.

Sd/- J. A. Faren,

M. O. in Charge,

Plague Camps.

261 May 22 16

Nairobi Sites etc. Board Meetings
May 17th & 18th: 1908.

Present

Mr. J. Ainsworth,
H.M. Sub-Commissioner. President.

Mr. S.C.M. Dwyer,
Superintendent Public Works.

Captain Bailey,
King's African Rifles.

Mr. Whitehall,
District Engineer Uganda Railway.

Dr. A. Y. Sleevking,
Senior Medical Officer Uganda Railway.

Dr. A.H. Spurrier,
Medical Officer Zanzibar Government.

Dr. J.A. Haran,
Medical Officer East Africa Protectorate.

The above board has been convened in obedience to the instructions of His Majesty's Commissioner for the East Africa Protectorate, and in obedience to the general instructions has taken into full consideration the following points connected with the different matters concerning the various sites and positions of the buildings and collection of buildings comprised within the area of Nairobi Township:-

Military Lines:-

The site for the Military lines as selected by Brigadier General Manning has been thoroughly gone over by the Board and they agree with the general location and have selected a site practically the same as the above situated about three quarters of a mile South West

of the Club, to which site the Road approaches and water supply are considered easy.

The ground selected is considered capable of easy and satisfactory drainage, and is within easy reach of the Protectorate Bungalows, Offices and Railway Officers' Bungalows and by the road which is to be built from the Railway Subordinate quarters connecting with the Club road is within reasonable distance of the Subordinate Bungalows, the European Trading centre and the Railway station and is also easy of access to the New Bazaar site.

Railway Subordinate Bungalows:-

After mature consideration and deliberation it is unanimously agreed that the Subordinate Bungalows should remain where they now are provided that proper drainage is constructed to the satisfaction of the Medical Authorities, and also further provided that the existing Loos landies are removed to a site adjacent to the Old Gaelic landies, or to any site provided they are removed from their present site.

The Board are also of opinion that the Subordinate Bungalows should be subjected to the most stringent sanitary inspection regularly.

They are also of opinion that the European shops and residences in Victoria Street (European Bazaar) be included in any scheme of drainage.

Indian Bazaar:-

It is considered that there are only two possible sites for the location of the Bazaar and the Board inspected both the sites, and after due consideration of all the points it was most unanimously decided that the site now occupied by the Government Offices, Jail, Police lines and Government Subordinate Bungalows is

or Sanitary authority of any description has consulted
before the present site of Nairobi was selected.

This Board wishes to express its willingness to meet
and consult with any non-medical Sanitary expert.

Sd/- A. R. Sieveking,

Senior Medical Officer,
UGANDA RAILWAY.

Sd/- WILLIAM RADFORD,

Medical Officer,
Nairobi.

Sd/- Lyon Falkner, M.B.

Asst. Medical Officer,
UGANDA RAILWAY.

Sd/- A. E. Spurrier,

Medical Supdt. of Prison Island,

Sanitary Station,
NANTUAR.

Sd/- J. A. Haren,

M.O. in Charge,

Plague Camps.

Mr. J. A. ...

Mr. H. ...

Mr. ...

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Dr. A. H. ...

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Civil Hospital:-

Although this matter does not form one of the questions submitted to the Board by the Commissioner yet the Board feels it part of its duty to state that they are unanimously of opinion that the Civil Hospital, which they understand it is the intention of the Government to put into existence, should be located somewhere adjacent to the Police lines and Jails, and further they are of opinion that the material now employed in No. 2 Plague Camp (the material employed in the additional Buildings adjacent to the Old Post Office is referred to) should be utilised as far as it will go in the construction of the new hospital.

Coolie Landies:-

The site at present occupied by the Coolie Landies is considered a desirable ^{one} site, but the Landies themselves must be provided with proper ventilation and windows to admit of sufficient day-light coming into the landies.

It is explained to the board by the President that the Chief Engineer of the Railway has expressed his intention of building two sets of Landies to enable the Coolies to be changed to thoroughly clean landies every six months. This arrangement the Board considers most satisfactory provided the Landies themselves are properly ventilated etc.

General Sanitary Arrangements:-

This board is most strongly of opinion that a Medical Officer of Health should be appointed to the whole of Nairobi, and that he should have the necessary sanitary inspectors and staff to assist him, also that carts and other appliances should be provided, it is strongly recommended that the Sanitary arrangements should be up

For the whole of Nairobi Township as described and defined in the Nairobi Municipal regulations, and if necessary the area should be extended so as to include the Small and Swahili villages.

It is understood that the area "Nairobi Township" includes all Railway Buildings as well as the Military lines and the Protectorate Bungalows and proposed sites for Jails, Police lines, etc.

The foregoing proposals to be submitted to the Chief Engineer in accordance with H.M. Commissioner's instructions and he to be asked to submit estimates for the following for the information of H. M. Commissioner:-

Drainage of Subordinate quarters and Victoria Street in accordance with these proposals.

Laying on water to Military lines.

Laying on water to Police lines, Jails.

Government Subordinate Bungalows and Offices.

Laying on water to the Bazaar.

that the estimate be sent to the Su-Commissioner so that they may be telegraphed to H.M. Commissioner without delay, and that plans be sent to the Commissioner.

The Superintendent Public Works be asked to submit estimates for following:-

Removal of Military lines and Officers' Bungalows and rebuilding of same.

Drainage of new Military lines.

Road-way to Military lines.

Removal of Offices, Jails, Police lines and Subordinate officer's Bungalows to proposed new sites and rebuilding of same, and also the construction of road-ways to same.

The foregoing proposals and resolutions to be telegraphed in a concise and approved form to H. M. Commissioner.

in accordance with his instructions.

That a copy of these proceedings be supplied to the Superintendent Public Works for his information.

Sd/- John Ainsworth,

H.M. Sec-Commissioner and President of the Board.

Sd/- S.C.N. Baty,

Superintendent Public Works.

Sd/- J.H. Bailey, Captain,

Officer Commanding Troops, Nairobi.

Sd/- G. Whitshall,

District Engineer Uganda Railway.

Sd/- A.H. Sievking,

Senior Medical Officer Uganda Railway.

Sd/- A.H. Spurrier,

Medical Officer Sannibar Government
(On Special service East Africa Protectorate)

Sd/- J. A. Haran,

Medical Officer, N. A. Protectorate.

Nairobi

May 27th 1902

Sir,

With regard to the proceedings of the "Nairobi Sites Board" and its recommendations, I have the honour to bring to your notice the following:-

Stress was laid on the drainage of the main Scheme being the "Alternative Scheme" recommended by the Medical Board in its report, and although that Board expressly stated it considered the drainage scheme not nearly so satisfactory as the removal to a higher site, practically no consideration was given to the removal scheme at the meeting of the Nairobi Sites Board.

Objections were urged as follows by Mr. Whitehall who represented the Executive of the Uganda Railway.

- (1) The inconvenience attending the removal.
- (2) The exposed position of the suggested site for Indians.
- (3) The distance from the Railway Workshops.
- (4) The need of drainage on the suggested site.
- (5) The excessive cost.

I would remark on these objections.

INCONVENIENCE.

This is not to be weighed against the lasting benefit conferred by the removal which is said to be very popular amongst the Railway Subordinates and has been

warmly

Sir C. Eliot, C.M.G., C.B.

(2)

warmly welcomed by the Indian and European Merchants of the Town.

EXPOSED SITE.

As has been proved by the camp life of the past three months in which stormy wet weather occurred abundant pure air has been most beneficial to the Indians. Plains are not necessarily warmer than hills, indeed cold air rolls down off hills into plains, which when you see the dampness of the atmosphere of a low site renders a plain less healthy than a hill site.

Mr. Whitehall stated that his men enjoyed good health when at work in the plain during the preparation of the present site for the Nairobi Railway but Dr. Sieveking, the Senior Medical Officer of the Uganda Railway, showed that the local hospital admissions for that time amounted to no less than 1300 to 1400 cases.

DISTANCE.

Both as affecting the Railway Subordinates and the Townspeople exaggerated statements have been made regarding this. A suitable site for the Railway Subordinates quarters can be had at 17 minutes walk from the entrance to the Railway yard.

The cost of living it was urged would be increased for all by lengthening the distance between the Railway station and the Town. Whether such would be to any considerable extent is debatable.

DRAINAGE.

Some drainage on the upper site would certainly be necessary, but owing to the natural lift of the land the

surface water would give but little trouble. Roads would be needed, but Mr. Ainsworth has not found it a very expensive matter to make roads, and the roads he has constructed are the best in Nairobi.

The water supply presents no difficulties.

COST.

The main item to be provided for is the removal of the Railway Subordinates quarters. To effect this very large sums of money have been mentioned, but after the meeting was over Mr. Baty mentioned that a tender was ready to be put in to remove and re-erect the wood of the bungalows, and to provide the painting labour but not the paint, all for the sum of nine thousand pounds.

My own suggestion was that the Railway should remove and re-erect one bungalow, and the Protectorate another and a mean might be arrived at. The bungalows are 122 in number.

I pressed twice during the meeting for a complete estimate of the removal scheme and such certainly ought to be provided.

I give as my ground that Mr. Whitehall was very sanguine in his declaration of ability to thoroughly drain the present site to the satisfaction of the Medical authorities, but doubts have since been expressed even by some of the Railway staff as to whether the drainage will be a success, and whether the cost will not amount to far more than the removal scheme. Mr. Whitehall differed from the Medical Board on the construction of the main drain, which the Board considered should have

(4) 411
cemented or half pipe troughs. Mr. Whitehall was of opinion that stone lining, just packed in, leaving interstices would be preferable, thus for reducing the cost. As the inefficiency of the present drains is due to the loose soil sifting up in the uneven bottoms of the drains, there is great danger of a large sum of money being spent to no purpose, if smooth bottomed drains are not everywhere constructed.

The Medical Board want assured efficiency. If efficiency can only be secured at great cost, on the ground of relative cheapness the removal to the higher site would be advisable.

Mr. Baty gave as his opinion that the removal would cost more than the efficient drainage scheme. If his opinion is borne out by the definite estimates for the both schemes I may give as a growing opinion that Nairobi is not likely to justify a large expenditure.

The discovery of minerals in the Protectorate may any where suddenly cause the establishment of important business houses altogether eclipsing the petty Indian traders and the few branches of local European firms now in Nairobi; and the development of a rich agricultural neighbourhood would also attract a substantial population. This may occur in several localities but can never be in Nairobi which has at the gate of the fertility of Upper East Africa.

These will be the factors in the future. All now the extraordinary prominence the Railway has enjoyed has been the only factor making for the trade of the place. The construction once finished the "Railway" will find its true level, the executive being on a like footing as any State Railway executive in a Colony. Nairobi,

therefore

therefore, apart from Administration being likely to remain a purely Railway town of reduced importance does not seem to justify the carrying out of any costly scheme, the public health of the place being secured.

I am aware in putting these reasons forward that I am passing the bounds of the Medical consideration of the situation but the wider general view seems demanded at this stage.

It was for these reasons I strongly expressed my opinion at the meeting that the alternative complete estimates should be furnished, as the alleged excessive cost seemed to be only weighty argument against the removal scheme, but I drew upon myself some rebuke and was charged with pursuing a line which frustrated our arriving at any finality at the meeting.

Finality of decision I took it would lie beyond the Nairobi Sites Board, but for decision the alternative estimates are necessary for the full consideration of the case.

It was with the above reservations that I signed the recommendations of the Board.

I have &c.,

Sd/- Alfred Henry Spurrier.

July 18th 1902.

Sir,

I have the honour to inform you that in accordance with your request I inspected the town of Inchoi on my way to Entebbe. Mr. Ainsworth the Sub-Commissioner guided me round the town and suburbs, and explaining the different places to me.

2. Though in the first instance a more suitable site might have been chosen, yet the town as it at present stands is quite capable, after some improvements are made, of being developed into a sanitary and sufficiently healthy area.

3. As all sewage even now is treated on the dry earth system and removed well beyond the town all that remains is the adoption of some scheme to carry off the storm waters after heavy rains.

I am informed that the engineer who made a survey of the town has stated that there is a sufficient fall for all water to be quickly removed by a system of open drains and those have already been almost completed.

In order to prevent water remaining in holes in these, and also in order that they may be swept out and kept clean, they will all have to be walled in and laid in cement.

4. As regards breeding grounds for mosquitoes these are not numerous.

A swamp just under the Sub-Commissioner's house has already largely been filled up, and a few other holes and depressions between this and the high ground to the South

F. J. JACKSON, ESQ.,

Deputy Commissioner,

NEW BASA.

can easily be dealt with in a similar manner.

5. In view therefore of these facts, if the improvements mentioned are carried out, there is no need to change the present site of the town.

I have &c., &c.

Sd/-George Lox.

26th May 1906

REPORT ON THE SANITARY ASPECT OF NAIROBI TOWNSHIP.

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From a sanitary point of view the site of Nairobi is very defective and the present condition of the place is a dangerous one, unhealthy in itself, and affording every facility for the spread of epidemic disease. If such were to break out the position would be a serious one, as under existing circumstances, it would be difficult to control it except by drastic measures involving large expenditure. Such being the case any money spent in remedying the present state of affairs should be regarded as an insurance against the heavy loss which would probably be incurred by preventive measures undertaken when the presence of an epidemic necessitated stringent and extraordinary methods.

PREVIOUS REPORTS. Various suggestions have been from time to time presented on the subject, notably in the report of the Medical Board assembled at Nairobi in March 1902 and in the report of the Municipal Medical Officer (Dr. Radford) in February 1903.

With these reports I entirely agree and I consider it a matter of great regret that the recommendation of the Medical Board, that the site of the town should be changed, was not acted upon.

It is, presumably, too late now to entertain any such proposal and it is only possible to suggest measures which may mitigate the disadvantages of a site which at the best can never be made a perfect one.

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In dealing with this matter I am confronted with the difficulty that any scheme involving heavy expenditure are at the present time out of the question, and I must confine myself to such recommendations as are to my opinion essential and at the same time the cost of which does not involve prohibitive expenditure.

Such sanitary measures as are now undertaken are on the hands of the Nairobi Municipal Board and the railway conservancy department both of which organizations appear to be doing good and effective work.

The former deals with the Municipality outside the Railway Zone and its expenses are met by the collection of rates which however do little more than cover its expenditure, so that its sphere of usefulness is limited.

The cost of the Railway Conservancy is met by a special vote in the Estimates. This division of responsibility is unsatisfactory and it is essential that the two organizations should be combined.

The added revenue which the Municipal Board could thereby obtain would however be insufficient for its requirements, unless the Railway transfer to it the sum allowed in its estimates for Conservancy.

It will probably be some time before the revenue of the board will be sufficient to cover the expenditure, and until then it will be necessary for the Protectorate Government and the Railway to place in their Estimates for a grant-in-aid towards the working expenses of the Municipal Board.

If this could be arranged the Board should be in a position to deal with the ordinary minor details of Municipal sanitation, but there are in addition several important undertakings

undertakings, the initial cost of which places them beyond the resources of the Board. At the same time they have a most important bearing on the sanitary condition of the town and I consider that the Protectorate Government should at any rate temporarily make itself responsible for them.

Reference will first be made to one which, though advisable, is not at the present time a matter of urgency, Disposal of Night Soil. The bucket system is the one now in use, the receptacles are collected in carts and their contents buried in trenches at some distance from the town. The system appears to work well and I am of opinion that with proper care and supervision it is at present suitable and sufficient for the needs of the town.

It is therefore unnecessary for me to suggest any alternative scheme as I know of none that could be adopted without incurring enormous expense.

It must be remembered however that if Nairobi town-ship increases largely in size it will probably be necessary to alter the existing system.

The other undertakings to which I refer are of more pressing importance as until they are carried out endemic disease will flourish and the spread of epidemics will be facilitated.

Such being the case I have no hesitation in saying that they are absolutely necessary for the welfare and health of Nairobi in particular and the country in general.

1. Relation of the site of the Native to the European quarter.

It is extremely desirable to limit as far as possible the number of African natives living in close proximity to European dwelling houses. In some places this is impossible but in a new town like Nairobi steps should be taken to avoid

before too many vested interests arise, to lay down a
strict line of demarcation between the European and the native
quarters. This is necessary for the reasons mentioned below:

- (a) In spite of every care and supervision it is impossible to keep a native settlement as clean and sanitary as a European one.
- (b) Epidemic diseases if they do break out, are far more likely to appear among the larger native population.
- (c) It is now known that African natives are the natural hosts of many diseases-producing parasites such as malaria, malaria etc. These parasites exist even in apparently healthy individuals and they are transmitted through the medium of mosquitoes, flies and other biting insects. Such being the case it is highly undesirable to have native settlements in close proximity to those of Europeans.

I would therefore strongly urge that a definite native location be formed a mile or two from the town, for the accommodation of all natives whose duties do not necessitate their living in the place. Such a location would probably be a source of revenue so that I need not consider the question of cost and the question of details can be left until the general scheme has been approved.

2. Water Supply. I understand that provision has already been made for a proper water supply. I would strongly urge the necessity for hastening on the work as much as possible, as the present indiscriminate use of water from all sources is highly dangerous.

3. Drainage.

(a) Of permanent water ways. The township of Nairobi has two water channels in close proximity with the Nairobi river and the valley at the foot of the railway hills. Both of these in their present condition are dangerous to the health

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health of the community as they afford excellent breeding places for mosquitoes. It will probably be impossible to prevent this entirely but by proper drainage much could be done to lessen the number of spots suitable for the breeding of mosquitoes.

In the case of the Nairobi River the land reclaimed by drainage acquires so much value that the cost of carrying out need not be considered; it should be made obligatory for any person taking up such land to keep it properly drained.

I am not aware how far the valley which drains into the Ngong river would prove valuable for agricultural purposes, but in any case it should be thoroughly drained, so as to prevent the formation of stagnant water.

(b) Surface drainage. A proper and effective system is urgently necessary; the open trenches which have been made are of little use. They are not only inadequate but their defective construction makes them actually dangerous.

It is absolutely necessary in the first place that all these trenches should have their bottoms ^{the} concreted. In the case of large main drains it would be advisable if they were also faced with stone, and they should be of sufficient size and number to carry off any ordinary rainfall. In addition to the main channels and the cross drains from the streets each house should be provided with a small concreted drain to carry off such rain water as is not stored. In particular arrangements should be made to prevent the inflow of water beneath the houses. I do not wish to say what the cost of such a scheme would be but I should suggest that a consulting engineer be engaged to make

a preliminary survey and Estimate.

4. Disposal of Refuse. The Municipal Medical Officer reports as follows:- "The accumulation of refuse within the appointed dumping area is fast assuming grave proportions. From the nature of the material and atmospheric conditions it is impossible to destroy by fire the amount that ought to be consumed and the remainder if not sufficiently acted on by the sun." He therefore recommends that a destructor be provided the initial cost of which he estimates at 21,500 Rupees, the annual upkeep at about 675/-.

I entirely agree with this suggestion, as the accumulation of rubbish is especially dangerous in the vicinity where there is a possibility of a recrudescence of plague.

5. Isolation Hospitals. There is at the present time only such hospital in Nairobi. This was originally intended for small-pox patients, but was utilized for the "plague" outbreak.

As it would not only be unsound to use it for any other purpose and as it may be required again for plague purposes,

I wish to recommend that a suitable hospital be built for other infectious diseases such as small-pox, chicken-pox etc. This could I think be done for the sum of about 2320/-.

There are other matters relating to the sanitation of Nairobi which merit your attention, but they are either of minor importance or they can be carried out by the Municipal Board without Government aid.

The points to which I have drawn attention are however of most importance and until they are attended to the sanitary condition of Nairobi can never be anything but a dangerous one.

Sd/- R. U. Moffat,

Principal Medical Officer.

OFFICE OF THE P.M.O.,

Entebbe, 10th May 1903.

October 31st 1906.

LOCATION OF TOWNSHIP AND RAILWAY QUARTERS.

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The railway station, workshops, general offices and subordinates' quarters at Nairobi are situated on a practically level stretch of plain on the borders of the Athi plains, just outside the Kikuyu forest country. North of the railway and flows the Nairobi river between high banks. The soil is black cotton or disintegrated trap, overlying to a depth of one or three feet the hard rock itself. The difficulties of draining such a soil will always be great, and the rainfall in the district is considerable. As a result of our year's observation almost out of the twelve months in ~~the~~ have each an average rainfall of four inches or more. These months are November, December, February, March, April, and May. During these months the black cotton soil under the mudlarks becomes a sort of slurry. The surface drainage is choked owing to the comparatively level nature of the plain, and except on the roads, where macrum has been laid, communication is difficult. During the drier months the soil becomes baked, and cracks in every direction. These combined with the rank grass, afford shelter for a variety of disagreeable pests. I consulted the opinion of railway and civilian officers, who have had long experience in the country, as to the suitability of the site for an important township. In every case the opinion expressed was in favour of one and in this opinion I fully concur. As a station site the level character of the plain commends itself to a railway engineer. As the site for the future capital of East Africa and for permanent buildings for Europeans, the sanitary

sanitary engineer and the medical expert condemn it.

Under the circumstances I cannot but urge upon His Majesty's Government desirability of further considering this question before the construction of numerous buildings of a permanent type pledges them hopelessly to the adoption of a bad site.

At present all the railway buildings, and the greater portion of the civil buildings, are of a temporary nature, constructed with corrugated sheet-iron galls, with plank flooring raised on timbers above the ground. The life of such buildings cannot last for more than about ten years.

In the meantime they will have to be replaced gradually by buildings of stone or brick of a more durable description.

I suggest, therefore, that the wisest course to pursue will be to accept the present site of Nairobi as temporary only, and to appoint a commission to select a new site for the permanent township. This site need not be at a greater distance than from one to three miles from the present one. It should adjoin the railway line, have the advantages of a soil and slopes that lend themselves more readily to drainage, and have the shelter of a belt of forest land. Sufficient land for a town of some considerable size should be reserved on this site, and the general plan and arrangements for the new town should be worked out. All new permanent buildings required should be built on this new site and the transfer of the township be gradually made. A Railway station to connect the new with the old site could be provided whenever it was thought necessary and a train or omnibus train service between the new and old sites would provide means of rapid communication. A gradual transfer of this

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sanitary engineer and the medical expert condemn it. Under the circumstances I cannot but urge upon His Majesty's Government desirability of further considering this question before the construction of numerous buildings of a permanent type pledges them unhesitatingly to the adoption of a bad site.

At present all the railway buildings and the greater portion of the civil buildings are of a temporary nature, constructed with corrugated sheet-iron walls, with plank flooring raised on timbers above the ground. The life of such buildings cannot last for more than about ten years.

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description would not necessarily involve any additional heavy expenditure, and the course suggested would appear to be a far wiser one than to accept, and make the best of, a bad and insanitary site.

There is no reason why the railway workshops should not be retained in their present position for a longer period, or be kept there permanently if thought advisable. An African or Indian colony could be established for railway employees on the higher ground where the civic buildings now exist.

In the meantime, there remains the question of how the present sanitary condition of the railway subordinates' quarters is to be improved. It is mainly a question of drainage. A sum of £1,680 has already been authorized by the Railway Committee for the drainage of Nairobi Station. This work has not yet been carried out and the money is available. The block of land requiring special attention is, roughly, 800 yards long and 500 yards wide. The sum of £2,000 has already been authorized by the Committee for the purpose of providing four or five concrete drains between the rows of quarters, and for providing an outfall towards the Nairobi River. In addition, I recommend:-

(1) That guttering and down pipes be provided for all these quarters. There is, I understand, a sufficiency of material in stock.

(2) The construction of smaller drains on each adjoining pair of rooms, to conduct the bath water and surface water of the roofs to the main drainage channels.

This work and the larger drainage scheme for which, as above stated, funds have already been authorized, should be carried out in conjunction with the pipe laying for the new Nairobi water scheme in order to secure economy.

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(3) The provision of tables with scorum or other good soil (say 9 inches in depth) under the quarters and sloped down to the main drainage channel; before this is laid it would be advisable to root up the coarse grass.

A sum of £4,000 would, I think, cover the whole of these works, towards which a sum of £3,000 has already been authorized.

The comparative cost of taking down the railway subordinates' quarters, moving them by rail to a distance of about two miles, and re-erecting them, would cost not less than £10,000.

(3). The provision of treading with moorum or other good soil (say 6 inches in depth) under the quarters and sloped down to the main drainage channel; before this is laid it would be advisable to root up the coarse grass.

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The comparative cost of taking down the railway subordinates' quarters, moving them by rail for a distance of about two miles, and re-creating them, would cost not less than £10,000.

In Despatch No. 267 of May 18th 1906.

P. M. O's Office,

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Nairobi, 14th April 1904.

Sir,

I have the honour to inform you that I have made an exhaustive inspection of Nairobi.

The choice of site is an unfortunate one especially in view of the fact that there are in the immediate vicinity several positions on higher ground, any one of which would have been eligible as a site for a township.

The township is situated on an almost level plain, two spurs of the Kikuyu foothills forming its north-east and south-west boundaries, while on all other aspects the plain is continuous. Between the town and the north-east spur flows the Nairobi River.

The soil is black cotton soil varying in depth from a few inches to 3 feet, and underlying this is a stratum of disintegrated conglomerate about 3 feet in thickness with gneiss underneath.

Both site and soil are undesirable for the purpose of building on, and it has been suggested at various times to move the township to higher ground 2 or 3 miles up the Railway. That this was not carried into effect some two or three years ago before the town had attained its present size and importance is a matter for regret, but I am of opinion that it is now too late to entertain this proposal. It is true its removal to a better site could be effected even now, but only at enormous expense. Permanent buildings have been erected, trade and other vested interests have arisen, all of which would demand compensation for compulsory removal, nor do I think that the result gained by removal would now be anything like commensurate with the expenditure it would entail.

P. M. O's Commissioner,

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Yr. Commissioner,

NAIROBI.

Although

Although the site is not one that would commend itself to the sanitary expert, yet it is capable of vast improvement by drainage, and to its efficient drainage there does not appear to me to be any obvious difficulty. The whole of the surface drainage of the town itself can easily be conducted into Nairobi River close by, and the fall is sufficient.

A scheme for a drainage system has been submitted by H. W's Sub-Commissioner, with the general principles of which I agree, but would advise that the drains be made large enough to carry away all flood water. This I think would be effected by making the main drains 15 inches wide at the top and it would add but little to the estimated expense.

The drainage should be commenced as soon as possible. The town is increasing and is likely to continue to increase in size and importance, there is practically no drainage, and this is equally true of the Jail, Civil Hospital and Government Offices all situated in its close proximity; I therefore cannot too strongly advocate the necessity for an adequate drainage - scheme being at once undertaken, and if this is satisfactorily carried out and common sense methods of sanitation enforced, see no reason why the township should not be healthy.

Other matters affecting the sanitation and health of the township are:-

(1) Nairobi river, this flows through what had been a swamp, part of which is now cultivated, but its condition is still far from satisfactory. I would propose that a wide central channel be excavated, wide enough to contain the river in flood and that its sides be faced with stone to a thickness of 3 or 2½ feet. By these means a permanent waterway would be established, the stone facing need not be cemented, it would thus allow percolation and

drain

drain the swampy ground on both sides. At present the central channel quickly disappears owing to the rapid growth of vegetation at the sides.

(2) Native and New Markets. The floor of the native African Market of clay should be dug up and cement or stone substituted.

The New Market, which will shortly be opened, will drain into the Nairobi River opposite the town. Its floor will be swept and washed daily, and no doubt the same procedure will be carried out in the native market.

The scourgings of the two markets containing decaying animal and vegetable matter will pollute the river below where the drains enter. Below this point on the farther bank are several settlers and further down the Dhobies carry on their vocation; the use of the river water thus polluted would be extremely dangerous to the settlers, and objectionable if not actually dangerous to those employing the Dhobies. It would therefore be advisable to connect together the drainage of the Markets and carry it down by an 18 inch pipe, with a few manholes, to a part of the river below that used by the Dhobies.

This pipe should also take bath and kitchen water from the houses, also the water used by the Indian inhabitants after using the latrine. A closed pipe would conduct all really objectionable matter into the river beyond any point where the river water is used and when the new water system is taken into use could be thoroughly flushed morning and evening.

(3) Present condition of individual sites. Between every two houses is an alleyway and on either side of this two latrines with soil buckets. The latrines are connected by means of a short shallow channel to a cesspool or cistern below the ground level. These cisterns are usually not covered and receive bath and kitchen water from the houses and the ablutionary water

from the latrines above referred to, the last mentioned containing a varying quantity of urine and faeces.

During the rains the cisterns also receive surface water and overflow thus polluting the ground in the vicinity. These cisterns are a standing menace to the health of the town and should be abolished.

The level of the alleyways is below that of the surface generally and foul water collects in them; this should be remedied by levelling up with mortar.

4. European Bazaar consisting of shops and offices occupied mostly by Europeans, is situated opposite the Railway Subordinates' Bungalows, the situation is not good and there is as yet no attempt at drainage. I think that as the town increases in size, it ought to be encouraged to build in the direction of the Kikuyu foot hills, the European Bazaar would probably move itself in the same direction, in the meantime however, it might not be included in the general drainage scheme.

Railway Subordinates' Bungalows. These are near the Railway Station and workshops. The site is almost a dead level and presents greater difficulties in the way of drainage than the town itself. The Chief Engineer of the Railway has kindly shown me the drainage scheme proposed by the Railway. This undertaking is estimated to cost £12,200, with a further sum of £8,140 to provide guttering and down-cast pipe for the Bungalows, making in all £20,340. I am very doubtful if this sum will cover the cost of a satisfactory drainage system for the Railway subordinates Bungalows. The space they occupy must be drained in two directions, what plans

exists in its part towards Sairubi River, the rest covers a depression running along the foot of the hill on which the Bungalows of the Railway officials are situated. The soil is entirely black cotton and is deeper than at the top end of the plain. The sides of any channel cut in it crumble down during dry weather, and during the rains the weight of water the soil is capable of retaining causes them to fall in, while the bottom, becomes uneven forming numerous small pools.

If it is decided to proceed with the drainage of the Railway Subordinates' Bungalows, I consider the following measures necessary, viz.:

1. The ground under the Bungalows should be thoroughly cleared of vegetation, and a cement, or hard mortar laid, not less than six inches deep, laid. This tiling should extend at least 2 feet beyond the floor area, and slope from the centre towards the small channels mentioned below (B)
2. Each Bungalow should be provided with roof guttering and down cast pipes.
3. A small cemented channel should be laid between every two Bungalows and connected with a main drain - This would carry away the roof and bath water.
4. A narrow path should be made between each Bungalow and its annexes.
5. All drains should be of masonry and cemented.
6. A channel should be made along the depression between the Bungalows and the hill. This would require to be of considerable capacity as it serves as the main effluent for half the Bungalows, also drain 4 small swamps now existing in this depression (B are due to permanent Springs), and during the rains would receive the surface water from the large

area between the Bungalows, and between the Railway workshops and Hospital and the foot of the hill. It would have to be carried for some considerable distance so that its out flow would easily reach the Ngong River.

7. The occupants should be encouraged to cultivate gardens in their compounds, and rows of gum trees should be planted. Black cotton soil is not fertile except in the way of producing the rank grass and weeds indigenous to it. It would therefore require to be mixed with a better soil, easily procurable in the vicinity. Gum trees grow readily enough in it and have the property of abstracting from the ground large quantities of water.

I do not consider that any thing short of the measures above indicated would be satisfactory, and their execution means the expenditure of a large sum of money.

The Railway Workshops appear to be well situated so far as convenience and facility for effecting the object for which they exist are concerned, and their removal does not appear to me to be either practical or advisable, but I am of opinion that it would be cheaper and more satisfactory to move the subordinates' Bungalows to a better site than to expend a large sum of money on draining a site which has so little to recommend it and lends itself so badly to efficient drainage.

I would therefore advocate the transfer of the subordinates' Bungalows to the extreme end of the hill where the European Hospital now stands. This is less than 10 minutes walk from the workshops, the buildings on it are, with one or two exceptions, of galvanized iron and inferior work, and

contains mostly small rooms; they could either be worked away or be handed over to the Foremen of the various workshop departments and the Officials now occupying them be provided with more permanent structures erected on excellent sites to the north east of the Sub-Commissioner's Bungalow. The removal could be gradually effected.

Coolie Landis - These are situated about half a mile from the Railway Station on the right bank of the Nairobi river. The site is satisfactory, but the galvanised iron structures are dark, badly maintained, and extremely dirty. I believe it was proposed by the Manager of the Railway to erect a spare Landis so that once in six months the occupants of each building could be transferred to a vacant one thereby enabling the evacuated one to be thoroughly cleaned and disinfected. This does not appear to have been done and it is certainly desirable. The ventilation should be improved and windows put in.

Some system of registration of the occupants should be adopted with a view to prevent crowding; when I inspected them some of the rooms contained a heterogeneous collection of coolies, African men and women, poultry and pigeons, and the atmosphere was pestiferous. The occupants should be prohibited by a Municipal bye-law from keeping animals in their quarters, small fines being imposed for non-observance.

Water supply - A new water supply is now being provided and will probably be laid on in the course of a few months. It promises to be satisfactory.

Right soil - The present system, which that usually adopted in the tropics, appears to require soil.

Refuse - Some better means is required for dealing with street

contains mostly small rooms; they should either be moved away or be handed over to the Foremen of the various workshop departments and the Officials now occupying them be provided with more permanent structures erected on excellent sites to the north east of the Sub-Commissioner's Bungalow. The removal could be gradually effected.

Coolie Landis - These are situated about half a mile from the Railway Station on the right bank of the Nairobi river. The site is satisfactory, but the Landis, long low, one-story iron structures are dark, badly ventilated, and crowded. I believe it was proposed by the late Manager of the Railway to erect a spare Landis so that once in six months the inhabitants of each building could be transferred to a vacant one thereby enabling the evacuated one to be thoroughly cleaned and disinfected. This does not appear to have been done and it is certainly desirable. The ventilation should be improved and windows put in.

Some system of registration of the occupants should be adopted with a view to prevent crowding; when I inspected them some of the rooms contained a heterogeneous collection of coolies, African men and women, poultry and pigeons, and the atmosphere was pestiferous. The occupants should be prohibited by a Municipal bye-law from keeping animals in their quarters, small fines being imposed for non-observance.

Water supply - A new water supply is now being provided and will probably be laid on in the course of a few months. It promises to be satisfactory.

Light well - The present system, which that usually adopted in the tropics, appears to answer well.

Refuse - Some better means is required for dealing with

street

street and house refuse.

At present it is carted in open carts and deposited on the plain at a distance of about a mile from the town, part is consumed by burning, but this at all times is a difficult matter and during rainy weather impossible.

It has been reported to me that in certain directions of the wind, objectionable odours from the refuse heap are carried over the town and also pervade the Bungalows on the hill. A refuse destructor is greatly wanted, and I would recommend the erection of a permanent one. This subject has already been under consideration, 2 portable destructors have been advocated, each capable of consuming 4 tons refuse daily. My experience of portable destructors has led me to the conclusion that their principal characteristic is want of portability. Moreover, the daily quantity of refuse to be dealt with at present is estimated at over 8 tons, and this will increase with the further development of the town, therefore 2 destructors would be insufficient even for present needs, and one capable of destroying not less than 10 tons daily would be required.

I have so.

S/- J. Will.

Principal Medical Officer.

On June 15th 1903, Sir Charles Elliot, Mr. Rawson, Dr. Moffat and Mr. R. Anderson met and discussed the question of the drainage of Nairobi. It was finally agreed that

- (1) A better system of drains is desirable.
- (2) A sanitary gang to sweep the existing drains be provided as a provisional measure.
- (3) That the houses ought to be connected with the main drains by pipes or small drains.

£1000
 £2000

In June 1903 the Uganda Railway Committee sanctioned one thousand pounds being expended in making a concrete invert as a lining to the main drains which was in July 1903 in 1903 increased to two thousand pounds. No expenditure has so far been incurred against this sanction. I have deferred starting until I have carried out experiments in lime. If these are successful great economy can be effected.

The New Principal Medical Officer has now recommended that

- (1) A moom table be placed under each house.
- (2) Each building be provided with guttering and down pipe.

- (3) Small concrete channels be provided to connect the down pipes to the main drains.
- (4) Moprun paths be provided to connect each bungalow and its annexes.
- (5) All main drains be made of concrete.
- (6) A channel along the depression between the bungalows and the hill be excavated.

These works can, I estimate, be done for approximately the following sum:-

(1)	...	...	£.200	
(2)	...	...	£.800	
(3)	...	...	£.700	
(4)	...	...	£.200	
(5)	...	...	£.5000	The drains to be of this section.
(6)	...	...	£.150	(If this is lined with masonry another £7000 will be required.)
			<hr/>	
			£.7650	
	Contingencies		450	
			<hr/>	
			£.7600	

In addition however the Principal Medical Officer recommends that the bungalows being on an unsuitable site it would be more satisfactory to move them than to expend large sum of money on draining a site which has so little to recommend it. His estimate of cost amounting to nineteen thousand, three hundred and forty pounds are figures taken from estimates prepared by the Railway on a wrong hypothesis. He suggests therefore that they be transferred to the extremity of the hill where the European Hospital now stands.

19,340

stands. Including the Institute etc. there are one hundred and twenty houses on the plain and I am certain that we could not dismantle these and re-erect them replacing broken material etc. on the hill under one thousand rupees each i.e. eight thousand pounds for the lot. I cannot say what the cost of roads, drains, moving water supply etc. at the new site would come to, but it would probably not be less than six thousand pounds, total fourteen thousand pounds.

This site is undoubtedly the nearest suitable one available and to move the houses to it would obviate the necessity of removing the shops and station buildings etc. At the same time it is inconveniently far for those attending the Workshops and Offices and prohibitively far for the running and station staff. It means therefore that whereas the clerks and others could be moved there the drivers, guards, station staff etc. could not and must remain where they are. To divide the staff in this way would be most inconvenient and would probably result in forcing us later on to move the station and shops.

My recommendations are therefore that in view of the fact that there are already so many and great vested interests in the existing site of Nairobi and that any hesitation in coming to a final decision must be detrimental to the progress of the place and also that the cost of draining the plain properly will not be very excessive, it be accepted broadly that Nairobi shall remain where it is. That as regards the Railway houses on the plain the sum of seven thousand, five hundred pounds be sanctioned for the works enumerated above and that another seven thousand pounds be sanctioned for the construction of the main drain to be taken in hand later on and done as economically as possible. That the houses remain where

they are but that in view of the fact that there is little room left on the plain for further houses the site at the end of the hill recommended by the Principal Medical Officer be specially reserved for all additional houses required for those of the Railway Staff who could without inconvenience be put some distance from the rest, such as Head and Senior Clerks, Accountants etc. If this be done it will also leave open the alternative of subsequently transferring the whole of the Railway population to this site when the existing houses are worn out in the unlikely event of the works now contemplated being ineffectual in making the plain satisfactory.

As regards the cookie landies the Principal Medical Officer's recommendations that a spare landi be kept so that occasionally the inhabitants of each building can be transferred to it and the evacuated ones ~~be~~ out, will be given effect to.

A system of registration is also being tried.

The question of windows is more difficult than might be imagined, but I am trying to have something done.

I have written this note in consultation with the Principal Medical Officer.

Sd/- H. A. F. Currie.
 Manager,
 Uganda Railway.

Manager's Office,
 Nairobi, April 1904.

REPORT ON THE EXISTING SANITARY CONDITION OF THE INDIAN BAZAAR,
NAIROBI.
28th FEBRUARY, 1906.

The condition of the drainage system of Nairobi reported on by the P.M.O. more than 20 months ago, condemned then by him, and vigorously repudiated by the M.O.H. of the town almost from its inception, still obtains at the present day, with every fault then pointed out, intensified.

(1) MAIN DRAINAGE SYSTEM. The lines of this have not been laid down, nor does there appear to be any systematic plan. Such main drains as have been completed, rightly or wrongly, simply follow the streets already in existence—in some cases are not connected up—have been badly levelled, the workmanship, wrong construction, bad material, and of a shape that has the least flushing value. Over a large open sewer leading from the market and Indian bazaar, a hotel has been erected without any of the safeguards usually deemed necessary in such situations being employed.



Plate I.

This sewer, probably as the shortest way of dealing with it, in the absence of a connected plan, has been turned into the irrigation canal running along the bank of the Nairobi river, improving its value as a fertilizing agent, but completely

feuling the water for washing and drinking purposes.



Plate IV

(2) STREET CONNECTED DRAINS. Certain of the streets are as yet provided with made gutters, and the connection of these with the shops and dwelling houses, reveals a state of matters which is deplorable.

There are two principal ways by which filth is removed from the houses, one, by the visit of dust and latrine carts daily, the other by overflow of bathrooms, privy, kitchen, and yard gutters (where such exist) direct outside the compound, to dribble down in a festering ooze over the plinths of the houses, and find its way as best it can into the street drains. (see plates 3, 4, and 5).

(3) ROOF GUTTERING. 95% of the houses in the Bazaar do not possess roof gutters or rain spouts. This is a serious matter when one considers the roof area of all the building blocks (e.g. sketch plan & accompany plate 4) and the torrential rains that fall during the wet season.



Plate 3. Back of better class premises inhabited by the leading caterer and refreshment contractor in Nairobi; showing (a) & (b) privies, (c) exit for bath water, (d) kitchen slops, and (e) (not shown in picture) gutter from yard. This is one of the best types in the Bazaar, as owner has laid down cement channels. A sketch diagram of these back premises is annexed, showing general arrangement of domestic gutters joining street drains. It is scarcely necessary to point out the possibility of human excreta finding its way into the street from this plan of privy.

Plate 3.



Plate 3. Back of better class premises inhabited by the leading caterer and refreshment contractor in Nairobi; showing (a) & (b) privies, (c) exit for bath water, (d) kitchen steps, and (e) (not shown in picture) gutter from yard. This is one of the best types in the Bazaar, as owner has laid down cement channels. A sketch diagram of these back premises is annexed, showing general arrangement of domestic gutters joining street drains. It is scarcely necessary to point out the possibility of human excreta finding its way into the street from this plan of privy.

Plate 4.



Plate 4. Better class premises inhabited by Goanese merchant and his tenants. (1) shows a typical side lane between two building blocks connecting main street of Bazaar with back street. (2) tin pipe outside living premises with funnels (marked x) to carry off bath and kitchen water. (3) shows termination of tin pipe with slop and refuse water oozing out over side of street into road gutter, (edge of which is marked —).

Plate 5.



Plate 5. Another type of disposal of refuse and excreta. Underneath the iron sheeting marked (a&b) dribbles the bath and kitchen water; (c&d) are privies. These cemented cesspits are incompletely emptied by lading out into latrine carts. In a slender term the condition is terrible, as they are very shallow and soon fill up and overflow on the sidewalk.

Over Boarding

OVERCROWDING. Overcrowding to an increased extent prevails on every side in the Bazaar. Very nearly the whole space available behind the shops is reefered in and sublet in rooms 10 feet square to families - each household paying a handsome rent. The sketch plan accompanying Plate 4 is an example of the better class-subletting. Appended is a list of all the cases of plague which have occurred in Nairabi since 1902.

RECOMMENDATIONS. As regards recommendations for improving these conditions, the subject is too complex and varied to be touched on in detail in a single report. The P.M.O in his report above alluded to, gives a list of immediate improvements necessary to overcome the more salient abuses prevailing in the town, hardly any of which have been given effect to. But it is more than ever urgent that a definite scheme of drainage be laid down and carried out by a sanitary expert accustomed to the hygienic problems of a large town. It is surely not too visionary to believe it possible to direct the growth of Nairabi - a town in its infancy and the nucleus of what no man may foretell - with unlimited land for its proper development, along the lines of the very latest sanitary knowledge and experience. Capital wisely laid out now will save the following generation the cost of possibly huge reconstruction schemes. In a land where rivers of flowing water are scarce, any sewage scheme involving the use of the Nairabi river, either by the abstraction of its water for the constant flushing of drains, or as a receptacle for the town sewage, would have to be very carefully weighed in the light of the settlers and users situated on the banks down the stream.

P.D.M./h

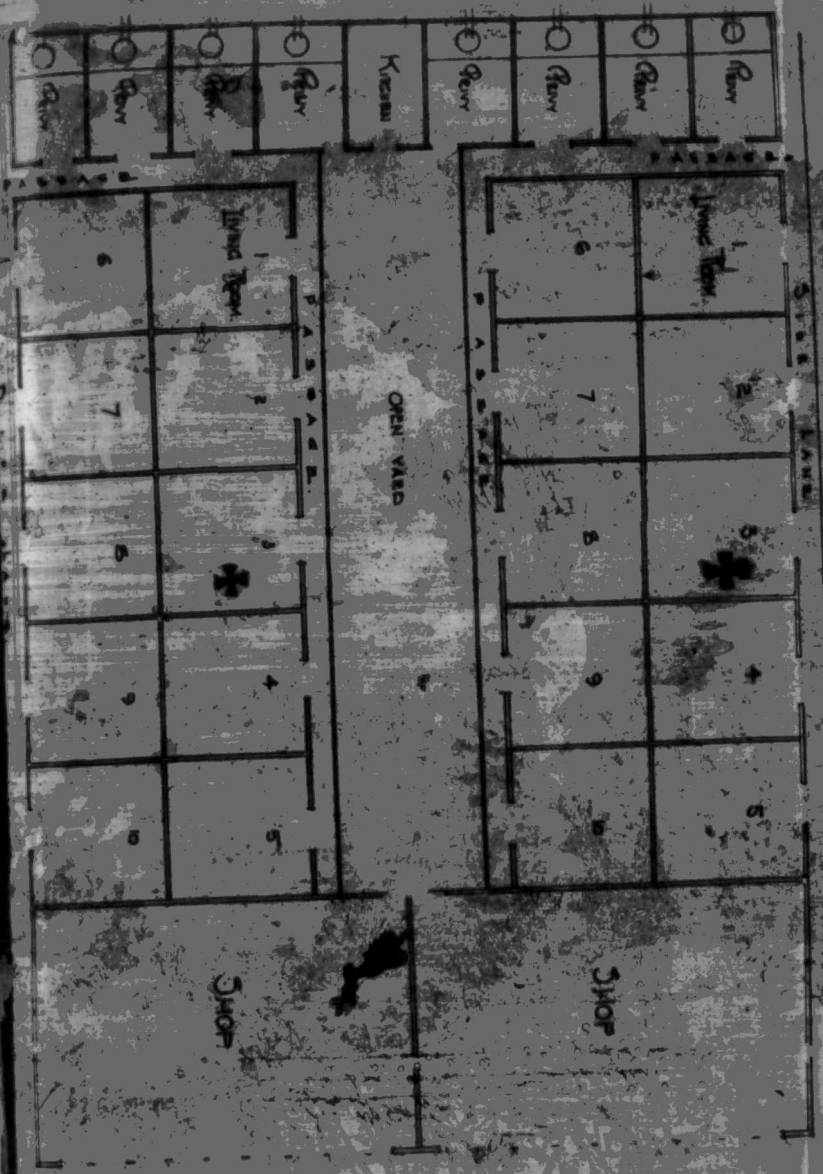
BACK STREET

REFRIGERATE

PLATE 4

1/2 of an inch to 1 foot

PLUGS CASES



MAIN

STREET

In Date

26th of May 1906

P.O. No. 10

P.M.O.'s Office,

Nairobi.

3rd March 1906.

Sir,

I have the honor to forward a report by Dr. A.D. Milne on the sanitary condition of the Indian Bazaar, Nairobi.

In 1904 I was asked by the Foreign Office to report on the feasibility of moving Nairobi to a more suitable site, and in my report No. 20/1 of April 14th 1904, stated that in my opinion, the time for moving the township to another site had unfortunately been allowed to pass. I was then, and am still of opinion, that with adequate drainage and proper sanitation, the township could be made one of the healthiest in the Tropics. Since the date of my report, the number of buildings and of inhabitants has increased enormously, but I regret to say the sanitary condition has not improved, although an attempt at surface drainage has been made. In April 1904 I recommended in consultation with the Sub-Commissioner that a properly qualified Sanitary Engineer capable of formulating some definite and consistent plan for the development and extension of the township, should be appointed. The Sub-Commissioner then informed me that he had repeatedly asked H.M. Commissioner for such assistance but the idea was not approved of. The result has been want of a consistent policy as to sanitary arrangements, laying out streets, roads, &c, and a system of surface drainage has been put down in a very amateurish way, many of the drains having blind ends, most of them with little or no fall, and all of faulty construction. The main drain, which is practically an open sewer, empties

itself into an irrigation trench the contents of which are used for domestic purposes by the plot-holders and settlers on the south side of Nairobi river.

The cisterns you refer to in your minute of the 10th Ult. should never have been permitted, as it is obvious any open cesspit or cistern sunk below the surface level must, during heavy rains at least, be a nuisance and danger to the public health.

The condition of the back yards in the Indian Bazaar is unsatisfactory in the extreme; there is no roof guttering, the yards receive the water from large areas of roof catchment and being unpaved, with no means as a rule for the water to drain, they are in a constant state of slurry. The tenements are not properly ventilated and are devoid of windows so that the light seldom reaches them.

The whole question of sanitation in Nairobi is an urgent one, and should be thoroughly dealt with without delay.

A complete survey of the entire area is, as pointed out by Mr. MacGregor Ross, essential to get the proper levels for drainage, &c. Then there is the question of the disposal of night soil and of house and street refuse. There are two ways in which these may be effectively dealt with, (1) by destroying everything - liquid and solid night soil and refuse - by means of a Refuse Destructor; (2) by using a Destructor for refuse only, night soil being dealt with by the septic tank method. A refuse destructor is greatly wanted, and the erection of one has been at various times recommended by me (No. 20/1 of April 14th '04 and Annual Medical Report 1904); but the question which of the two methods I have mentioned would be best suited to the conditions of Nairobi, or the cheapest, I am not in a

position to decide, but a knowledge is required and for this reason I would again advocate the appointment of a Sanitary Engineer, and am convinced that this will save money in the end. Being on in the haphazard and unsystematic way we have been doing for the past four years, will, in a year or two more, necessitate costly reconstruction schemes as pointed out by Dr. Milne.

I have the honor to be,
Sir,
Your obedient servant,



Principal Medical Officer.

INCLOSURE //

In Dispatch No. 26 of May 18 1906

NAIROBI TOWNSHIP

PLAN SHOWING THE PRESENT LOCATIONS OF VARIOUS NATIONALITIES OF THE INHABITANTS

SCALE 1:50,000



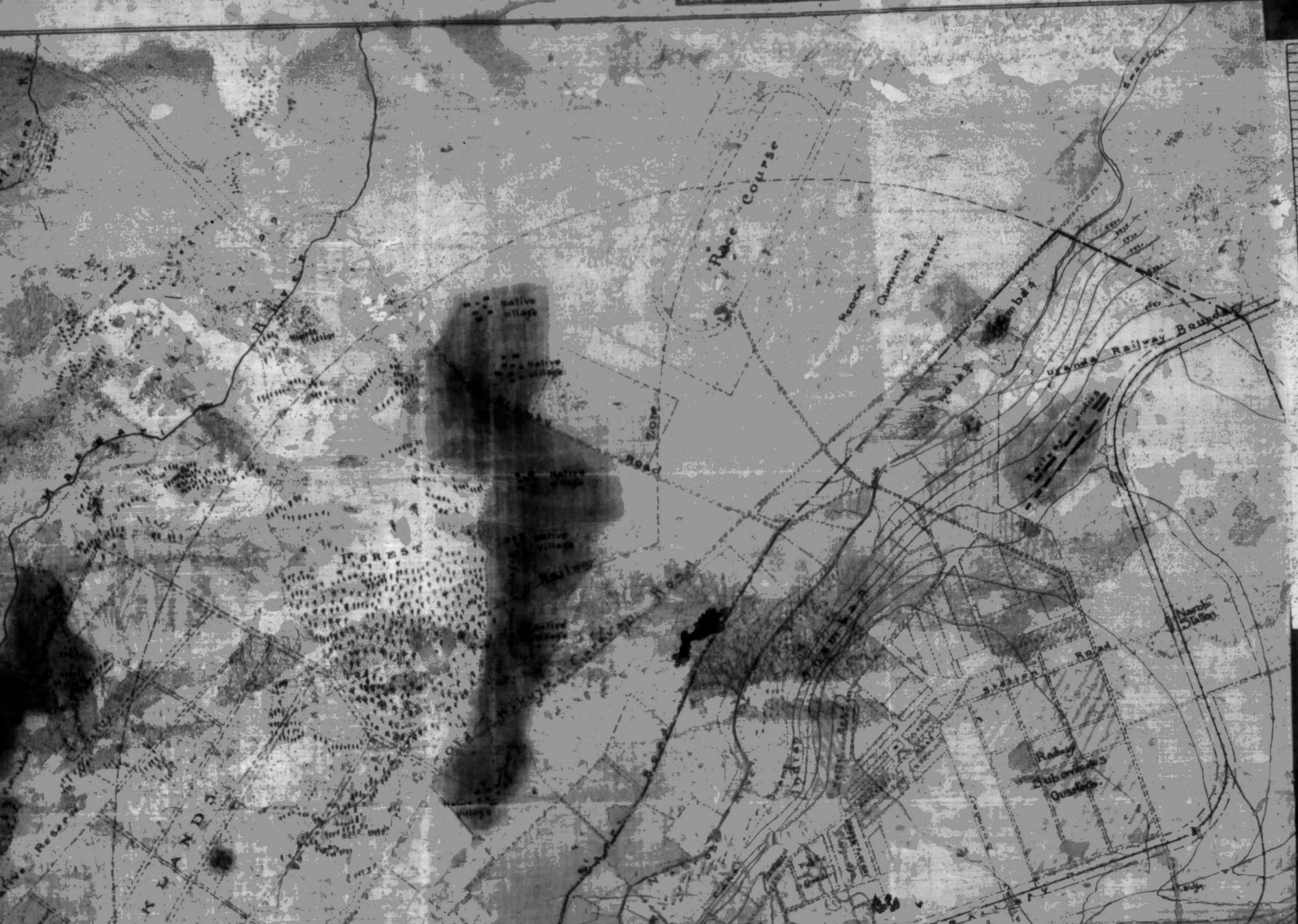
INCLOSURE No. 11

In Despatch No. 247 of May 18, 1906

NAIROBI TOWNSHIP

PLAN SHOWING THE PRESENT LOCATIONS OF VARIOUS NATIONALITIES OF THE INHABITANTS

SCALE: 1:50,000





PUBLIC RECORD OFFICE: Reference

1	2	3	4	5	6
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CO. 5.75

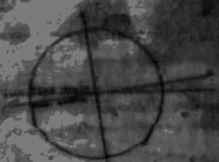
COPYRIGHT PHOTOGRAPH - NOT TO BE REPRODUCED PHOTOGRAPHICALLY WITHOUT PERMISSION OF THE PUBLIC RECORD OFFICE, LONDON

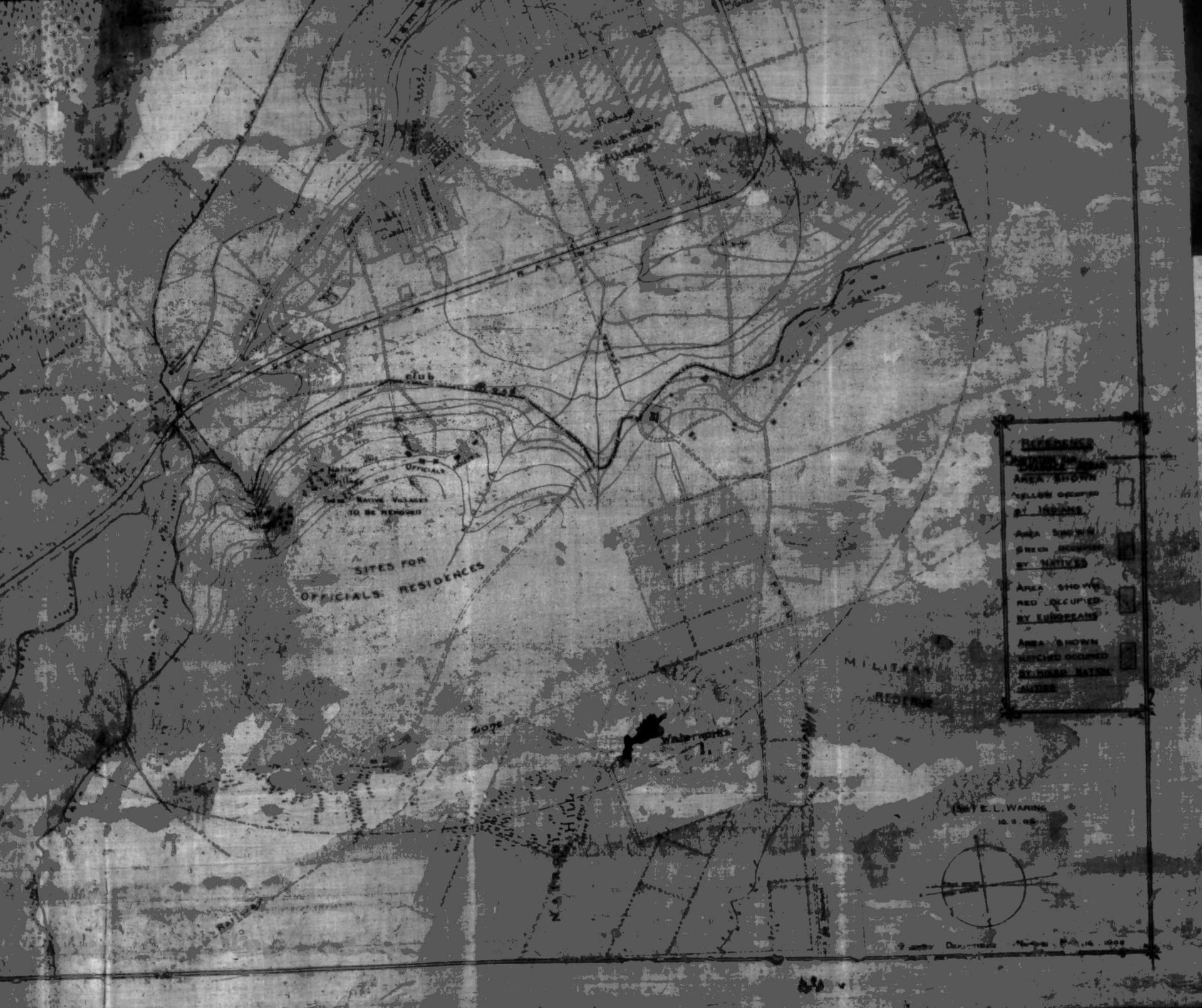
SITES FOR
OFFICIALS' RESIDENCES

THESE NATIVE VILLAGES
TO BE REMOVED

LEGEND
AREA SHOWN
YELLOW OCCUPIED
BY INDIANS
AREA SHOWN
GREEN OCCUPIED
BY NATIVES
AREA SHOWN
RED OCCUPIED
BY EUROPEANS
AREA SHOWN
HATCHED OCCUPIED
BY EUROPEAN
MILITARY
RESERVE

(S) E.L. WARRING
10.5.05





RESIDENCES
AREAS SHOWN

- AREA SHOWN YELLOW OCCUPIED BY INDIANS
- AREA SHOWN GREEN OCCUPIED BY NATIVES
- AREA SHOWN RED OCCUPIED BY EUROPEANS
- AREA SHOWN HATCHED OCCUPIED BY UNITED STATES

SITES FOR
OFFICIALS' RESIDENCES

Native Villages
TO BE REMOVED

MILITARY
RESERVE

E. L. WARREN
1898



7 miles Dec 1898

*In answer to the letter
of the 11th June 1906*

NAIROBI
PLAN TO SHOW INDIAN BAZAAR
SCALE 1:50,000



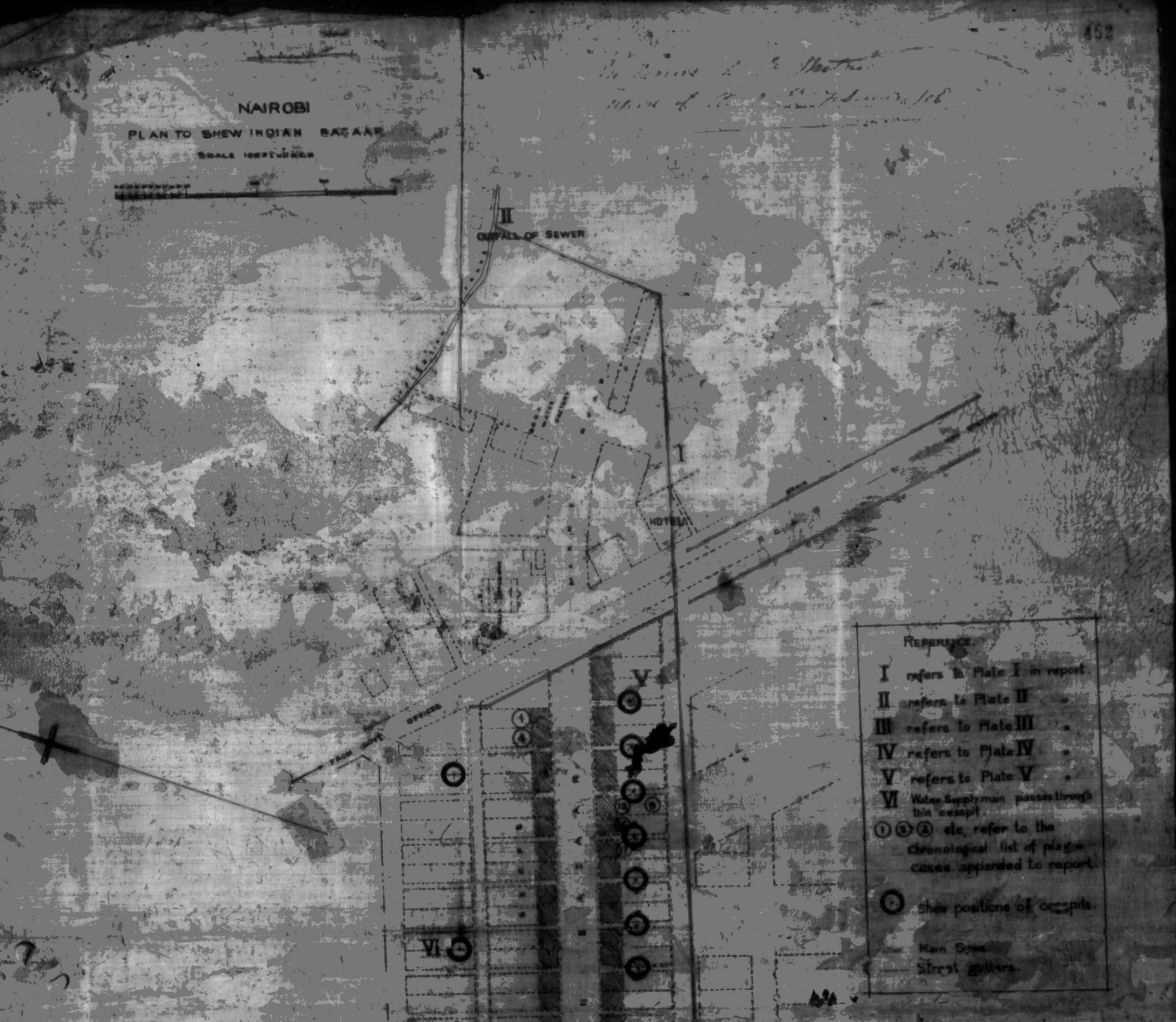
II
OUTFALL OF SEWER

I
HOTEL

FROM SOUTH
OFFICES

REFERENCE

- I** refers to Plate I in report
- II** refers to Plate II
- III** refers to Plate III
- IV** refers to Plate IV
- V** refers to Plate V
- VI** Water Supply main passes through this cesspit
- ① ② ③ etc refer to the Chronological list of plague cases appended to report
- ⊙ Show positions of cesspits
- Main Sewer
- Street gutters





REFERENCE.

- I refers to Plate I in report
- II refers to Plate II "
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- ① ② ③ etc. refer to the chronological list of plague cases appended to report
- Show positions of cesspits.
- Main Sewers
- Street gutters.

JERBAH
MARKET

Comms. East

21471

453

Friday

8 August 48

DRAFT

East Africa Prot.
No 445

Sir,

I have to ~~thank~~ ^{thank} ~~you~~ ^{you} ~~for~~ ^{for} ~~the~~ ^{the} ~~receipt~~ ^{receipt} of your despatch

Wm. J. Hayes Sadler. C.B.

MINUTE.

- Mr. Scoffham 6/8
- Mr. Read 6/8
- Mr. Antrobus
- Mr. Cox
- Mr. Lucas
- Mr. Graham
- Sir M. Ommamney
- Mr. Churchill
- The Earl of Elgin

No. 261. of the 18th of May

and I would prefer you to my

despatches Nos 336 and

359 of the 15th & 22nd

of June. resp^{ct} ~~respectively~~

I informed you of the appointment of Mr. Williams as Sanitary Engineer for Nairobi

A copy of your despatch & enclosure was sent to Mr. Williams before his departure for the country.

I have