

1933

1933

3242

KENYA

3242

C0533/437

Discovery of Molybdenite.

Previous

Room 311	15/5
298	4/8
297	5/8
Mr. Fustan	5
Mr. Ford.	3

Subsequent

Room 309	1
R298	6/10
R297	9/10
Mr. Fustan	10
297	11/10
Mr. Fustan	11
311	12
Col. D.	14/10
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R297	5/6
Mr. Fustan	17
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Room 311	4/7
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Mr. Fustan	12
Mr. Ford	13
Mr. Fustan	1
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Mr. Fustan	20
Mr. Ford	
297	3/8

3242

1. Opening Report - Polybedemite - of the Asbestos Syndicate

This was left with me <sup>yesterday</sup> this morning by Mr. W.T. Kerr, the originator of the Kenya Bamboo Pulp Factory scheme. The first five pages (i.e. the Field-Ribbis Report) were received by him from Mr. Percy Green of Nairobi; the subsequent Notes (i.e. the last four pages) are his own compilation.

I asked Mr. Kerr whether he wished the papers to be regarded as Secret - he assured me that there would be no objection to sending them to the Imp. Institute for comment, or showing them to Sir D. Kilson.

Today Sir D. Kilson called, & looked through the Report. He pointed out that it contains no estimate of the amount of polybedemite present; and he strongly contested the opinion that development work could proceed without further prospecting.

He saw no harm in our sending the Report (in orig. for return?) to Imp. Inst. for any show (no need to include the Note).

? So proceed

*[Signature]*  
1/7

Geo:  
11.11.72  
3-7  
done

2 To Imp. Inst. (cont 1<sup>st</sup> page of <sup>7/6</sup> and - 5) <sup>7/6</sup> 7/7/53

3. Imperial Institute \_\_\_\_\_ 12 July '53

Humshadrons, on the report on the discovery of <sup>metachromite</sup> ore suggests that Geol. Geologist in Kenya should visit the locality & make a report on a preliminary examination & collect samples for examination.

We can hardly send the Kenya report a copy of '1' without the concurrence of the private person for whom it was prepared, and who, presumably, paid for it.

As a first step? I might write s-o. to Mr. Kern, saying that we have had Imp. Inst. done, which he is at liberty to see if he cares to call; and ask whether, in his view, there wd. be any objection to our sending Conf. to O.A.S. copy of Messrs. Field-Libbi's Report.

Also ack. 3, with thanks.

(If we do ultimately write to Kenya, we must remember that the report Geologist has plenty of other things to do.)

Yes please

*W. T. Kerr*  
13/7

v.v. 22. 7. 53

13.7. 53

DESTROYED BY STATUTE (3 ann.) *W. T. Kerr* 17/7/53

Mr. Kern called, & I thank him N<sup>o</sup> 3 & told him of Sir A. Kilian's view. He has no objection to our writing as in d.l.

*W. T. Kerr*  
20/7

6 To Kenya Conf. \_\_\_\_\_ 27 JUL 1953  
(2/cs pp. 1-3 of 1 and 3)

7 Imperial Institute \_\_\_\_\_ 18/6 - 4/8/53  
*W. T. Kerr*  
(cont 6 + 1<sup>st</sup> and)

8. A/Gen. Moore 134 (in (H.M. mail) \_\_\_\_\_ 22 Sept. 53  
Encls. a copy of a letter from Mr. Murray Hughes & memorandum on the Field-Libbi report together with sketch map of area covered by <sup>of</sup> Libbi Syndicate's claims.

Copy to Imp. Inst. in <sup>cont</sup> short <sup>cont</sup> ref. 7.  
I will also send Major Dale s-o a copy of Mr. Murray-Hughes' letter of 8<sup>th</sup> Sept, in pursuance of an arrangement made with him during discussion (today)

Note: be justice to Mr. W.T. Kerr, I should record that, when handing in N<sup>o</sup> 1, he had obviously

no personal axe to grind whether. The  
Field-Libbie Report was sent to him  
by an acquaintance in Nairobi, but  
he had no intention of taking a  
personal interest in exploiting it.

*W. H. ...*

3/10.

J. L. G. ...  
3-10  
... ..

To Imp. Inst (copy 8)

DESTROYED UNDER STATUTE

10

To Waj. Dept (copy 1st and 65)

6 OCT 1933

DESTROYED UNDER STATUTE

11. Waj. Dept (EAT 410) \_\_\_\_\_ 5 Oct. 33

Encl. a copy of a letter from A/Comm. Genes, regarding  
what by Waj. Field-Libbie's partners & drawing attention  
to the activities of Mr. A. Bradley.

Perhaps Ruyshy can devise a Card-  
Index entry which will ensure that this  
list of (a) unstable (b) reliable mining  
consultants be readily available. We shall  
no doubt, have occasion to add to (a)  
from time to time.

Otherwise

put by  
*W. H. ...*  
10/10 ...

12 Imperial Institute \_\_\_\_\_

Noko, No 9 & states they have reported a sample of  
pyrite ore from Kenya was one of hornblende pyrite  
& that it was similar to that described by the best Geologist.

Copy to O.A.B. L.F. ref. 8

*W. H. ...*

11/10 ...

To Kenya, Conf. (w/c 12) A/1 16 OCT 1933

5 unread



*W*

Kenya C.I. noted



5  
12

RECEIVED  
10 OCT 1934  
C. O. REGY

Sir,

*2c*

*209*

I have the honour to acknowledge your letter (3242/33) and enclosures of the 6th October with reference to the alleged discovery of molybdenite near Yala.

The Government Geologist's remarks on the Field-Libbis report indicate that the deposit in question is of no commercial value as a source of molybdenum.

During last week we received from a correspondent in Plymouth a sample of "molybdenum ore from Kenya", requesting us to examine it. We reported that the sample was apparently one of hornblende-granite, containing only the merest traces of molybdenite and that such material was of no commercial value as a source of molybdenum. The sample fits fairly well the description given by the Government Geologist.

*copy to Kenya (13)*

I am, Sir,

Your obedient servant,

*Wm. Furse*

Director.

(Lt.-Gen. Sir Wm. Furse)

The Under Secretary of State,  
Colonial Office,  
London, S.W.1.

TELEPHONE: WHITEHALL 5701/2.

CABLES: EAMATTERS, LONDON.

TELEGRAMS: EAMATTERS, RAND, LONDON.

REF.

CHD/DKH.



TRADE & INFORMATION OFFICE

GRAND BUILDINGS,

TRAFALGAR SQUARE, LONDON, W. C. 2  
(ENTRANCE IN THE STRAND)

CONFIDENTIAL.

5th October 1933.

7952/33

Sir,

In accordance with the conversation which I had with Mr. Preston on the 3rd inst. I have the honour to enclose you herewith, a copy of a confidential letter which I have received from the Acting Commissioner of Mines, Nairobi, through the Colonial Secretary to the Government of that Territory, dated 19th September.

I have the honour to be,

Sir,

Your obedient Servant,

Commissioner.

The Under Secretary of State,  
Colonial Office,  
Downing Street,  
London, S.W. I.

C O P Y.CONFIDENTIAL.

MINING AND GEOLOGICAL DEPARTMENT.

NAIROBI.

September 19th 1933.

Ref. No. 1121.

The Commissioner of Mines,  
NAIROBI.

In connection with recent investigation by Government of an area reported on by Messrs. Field-Libbis and Partners, I would like to draw your attention to the activities of another gentleman named Mr. A. Bradley, who is acting as a Mining consultant to a number of claim-holders in the Lolgorien Area, including Lolgorien Goldfields, Ltd., and Central Mining Areas.

I have read reports written by Mr. Bradley and they are flagrantly mis-leading, incorrect, and written to beguile the public.

On the other hand, the following engineers, who have from time to time, acted as consultants, are competent and absolutely reliable.

- (1) Mr. W.P. Alderson,
- (2) Major Lathbury, M.I.M.M.
- (3) Mr. G. Robinson,
- (4) Mr. H. Sandys, M.I.M.M.

A Major Drought resident at Kakamega, is not reliable technically.

(signed) R. MURRAY-HUGHES.

AIR MAIL

KENYA

No. 134.



GOVERNMENT HOUSE  
NAIROBI  
KENYA

8

CONFIDENTIAL.

22<sup>nd</sup> September, 1933.

Sir,

*Not*

With reference to your Confidential despatch of the 27th July enclosing a copy of a report by C. Field-Libbis and Partners on occurrences of molybdenite near Yala, I have the honour to enclose a copy of a letter dated the 8th September from Mr. Murray-Hughes to the Acting Commissioner of Mines, together with the accompanying copy of the memorandum referred to and the sketch plan illustrating the area covered by the Molite Syndicate's claims.

2. A copy of the prospectus of Blue Heefs is not enclosed.

I have the honour to be,

Sir,

Your most obedient, humble servant,

ACTING GOVERNOR.

THE RIGHT HONOURABLE  
MAJOR SIR PHILIP CUNLIFFE-LISTER, P.C., G.B.E., M.C., M.P.  
SECRETARY OF STATE FOR THE COLONIES,  
DOWNING STREET,  
LONDON...S.W.1.

*Unread (13)*

*copy sent to 9  
copy sent to 10*



MINING AND GEOLOGICAL DEPARTMENT.  
NAIROBI.

COPY.

September 8th 1955.

The Commissioner of Mines,  
NAIROBI.

In accordance with instructions, I examined the claims of the Molite Syndicate situated between Yala and Luanda, and have the honour to submit the enclosed remarks concerning the area.

I would like to draw your attention to my comments on the Field-Libbis Report, dated June 22nd, when that document was submitted in support of an application made by the Molite Syndicate for a lease. It was so obviously a criminal piece of 'bluff' that without examining the ground I advised against the consideration of a lease.

The same gentleman was the author of another infamous document - a report that accompanied the prospectus of a flotation called the "Blue Reefs Syndicate", and in my opinion, he is a most undesirable person to have in the Mining Areas.

R. MURRAY-HUGHES.

GEOLOGIST.

- Enclosures :-
- (1) Sketch plan to illustrate the area covered by the Molite Syndicate's Claim.
  - (2) Prospectus "Blue Reefs, Ltd".

REMARKS ON THE FIELD-LIBBIS REPORT.

Summary on page 3.

As the field examination of the Molite Syndicate's claims has failed to reveal anything of economic importance, it seems unnecessary to write a full report on the supposed discovery of the deposit of molybdenite near Yala, and the following remarks will be confined to a criticism of the Field-Libbis report, the paragraph under discussion being quoted in full.

Page 1. "This block of base metal claims which has been pegged and registered in accordance with the Kenya Mining Ordinances, by Mr. Percy Green, on behalf of the Molite Syndicate, is in a highly mineralized zone, in which large ore bodies outcrop, containing Molybdenum (mo), in the form of the sulphide Molybdenite ( $MoS_2$ ).

"This mining area has a good supply of spring water and the streams if dammed would conserve sufficient water for the use of the washing and concentration plants and a further supply could be obtained by shallow boring, if necessary.

"Timber in the district is plentiful and the land is suitable for plantations of quick growing trees which can be used for mining purposes".

Disregarding for the moment the remarks concerning the "highly mineralized zone in which large ore bodies outcrop ..." criticism will be confined to the second and third paragraphs.

The nearest water supply large enough for the operations outlined in the report, lies in the Yala River, two miles distant. In the valleys adjoining the claims the natives have made shallow excavations in which the water accumulates so slowly that there is time for the dissolved iron salts to oxidise and form a slimy film on the surface.

There is no supply of indigenous timber and although a few local missionary schools are surrounded by small plantations of eucalyptus and wattle trees, there is no land available for planting on a large scale.

Page 2. "The estimated cost of the work of prospecting, claim pegging and registration, together with engineering, supervision fees and licences, is in the neighbourhood of Five thousand Shillings and on the results obtained, further prospecting is unnecessary and the area should now be laid out for development and mining commenced".

Accompanied by the two Inspectors of Mines stationed at Kakamega, (Carbis and Green), I made an intensive search for the development work supposed to have been performed and failed to find any trench, pit, or other excavation designed to explore the "deposit". As far as one could see, observations had been confined to the cuttings provided by the railway line.

Page 2. "The mineral Molybdenite occurs in veins, impregnation, also massive, foliated and finely distributed through and as a contact deposit in a formation of Syenite, which outcrops on the sides of two hills and at various points along its strike. The ore body was traced for a distance of over one mile and its length is estimated to be nearer two miles by the ore carrying float which shows along the line of the strike. Large masses of ore bearing float are exposed at the surface both on the hills and on the lowest ground level, and soil washings have returned heavy residue of very fine Molybdenite concentrates".

The whole of this paragraph and those which follow on page 3 are the wildest exaggeration of facts that has ever come to my notice. The only truthful statement contained therein is that the formation is of syenite.

The syenite is a light-coloured, medium grained rock composed of non-striated feldspar, augite, and hornblende. It has not been examined microscopically, but under the hand-lens the uranilization of the augite can be observed, and the replacements of the hornblende by epidote. Of the accessory minerals, sphene and its derivative leucoxene are abundant; magnetite and pyrite are more widely spread; and rarely, specs of molybdenite and chalcopyrite may be seen. Such an association is common and of widespread occurrence, particularly in South Africa.

This rock is intrusive into a series of conglomerate, grit, and felspathic quartzite, members of the Kuva Ankoolean System, and appears to be a contact differentiation facies of the main mass of granite that extends eastward forming the southern Wzawa ridge. It was produced in the older rocks a moderately low degree of thermal metamorphism accompanied by silification and a plentiful dissemination of pyrite.

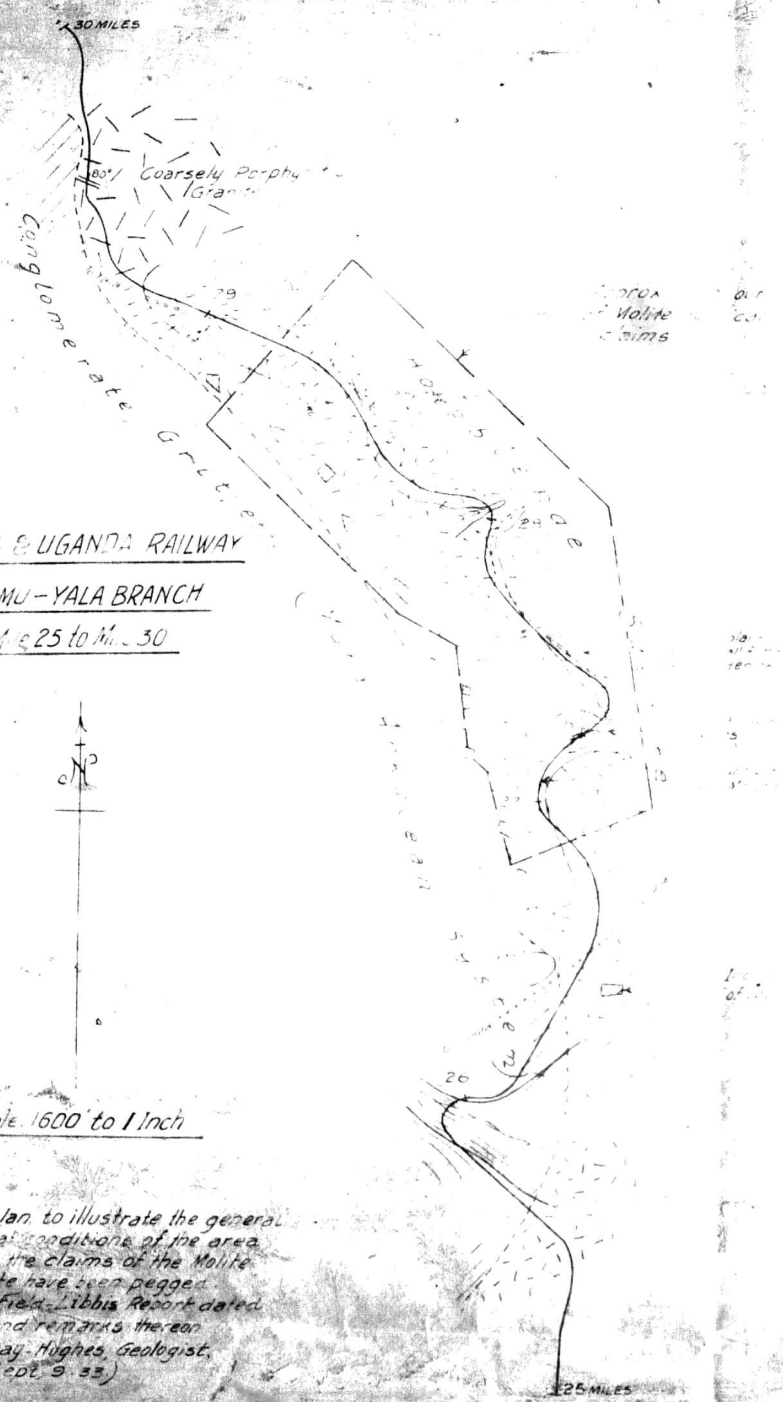
A paulo-post development in the syenite mass is represented by scattered secretions of quartz, a few centimeters in diameter, and the rare development along joint planes of a narrow band of alteration extending into the rock mass for 1 to 2 cms. and in which the dominant new mineral is epidote. On the planes of the joints so effected, it is common to find a "smear" of quartz and in this quartz may be small (0.1 to 1 cm.) aggregates of pyrite and, very rarely, a crystal of molybdenite. Other equally rare occurrences are those where a film (CX mm. thickness) of molybdenite may form a "paint" over a small area of the joint plane. Under the normal processes of weathering, the rock breaks along the joint planes, and in the four railway cuttings examined, four or five of such 'mineralized' joint planes were observed.

A "zone" of mineralisation such as is indicated on the plan attached to the Field-Libbis Report does not exist, nor any concentration of molybdenite-bearing material sufficient to justify even the taking of a sample. Three picked specimens from the area indicated by Field-Libbis were tested qualitatively and gave negative results.

-----

S U M M A R Y.

1. The claims held by the Molite Syndicate of Nairobi and situated along the railway-line between Luanda and Yala Stations, cover an area where a mass of syenite is intrusive into rocks of the Muva-Ankolean System. The syenite is probably a contact differentiation facies of the main granite mass that extends eastwards: accessor. minerals are sphene, magnetite, pyrite, and rarely, chalcopyrite and molybdenite.
  2. Within the syenite, there is a post-development of epidote, quartz, pyrite, and molybdenite along joints planes, but there is not the slightest justification for regarding these occurrences as of economic value.
  3. The Field-Libbis Report is an audacious attempt to "bluff" the public, and the author of it, a public menace.
-



KENYA & UGANDA RAILWAY

KISUMU - YALA BRANCH

M. 25 to M. 30



Scale 1600' to 1 Inch

Sketch plan to illustrate the general Geological conditions of the area in which the claims of the Molite Syndicate have been pegged. (See the Field Libbia Report dated 18.4.33 and remarks thereon by R. Murray Hughes, Geologist, dated Sept. 9. 33)

25 MILES

G. O.

3242/55

Kenya.

Mr. ~~W. H. Franklin~~ 20/7

Mr. ~~Hood~~ 20/7

Mr. ~~Parkinson~~

Mr. ~~Tomlinson~~

Sir C. ~~Bottomley~~

Sir J. ~~Smuckburgh~~

Permd. ~~U.S. of S.~~

Parly. ~~U.S. of S.~~

Secretary of State.

Answered by N.O.S.

C.D.  
R 21 JUL  
D 7/6

27 JUL 1933

Sir

DRAFT.

for comm.

Kenya

~~Conf.~~

~~ORP.~~

I have re. to transmit to you ~~enclosed~~

~~your comm.~~ a copy of a report by a Nairobi firm of mining engineers on certain

occurrence of hydrocarbon near Yala River Station in Nairobi.

2. This report was communicated to the Colonial Office by Mr. W.T. Kerr, who is understood to have received it from the holder of the claims in question.

3 I also enclose for your comm., a copy of a letter from the Imperial Institute

~~Copy forwarded to (Kenya 1-3) with original (1)~~

~~Copy (with out. from each copy) from 1.1.12 (3) ref. 3.~~

Copy of (1) sent to Imperial Institute

observing that ~~it would be~~ <sup>possible</sup> that further  
property is necessary before development  
work is undertaken, and it is suggesting  
that the Dept. Geologist should be  
asked to visit the site, report on  
its possibilities and collect samples  
for analysis at the Institute.

4. I am aware of the other  
claim on Dr. Murray-Hayden's claim.  
But you will no doubt agree in  
thinking that the <sup>possible</sup> importance  
of this molybdenite occurrence is  
sufficient to justify his conducting  
~~the suggested visit at the earliest~~  
~~convenient opportunity.~~ I shall be  
glad to be informed of the result  
and to have the extent and details  
of the rights (and other prospects)  
of the present ~~claim~~  
claim, ~~from the Colony~~

(Sgd.) P. GUNLIFFE-LISTER.

G.O.

Mr. Parkman.

Mr. Tammann.

Sir C. Bottomley.

Sir J. Stuckburgh.

Paras. U.S. of S.

Party, U.S. of S.

Secretary of State.

DRAFT.

W.S. Ken Eny.

~~Forward for Bank~~

Pulp [p.]

32/1/33

Kenya.

LC for my copy.



17 JUL 1933

Dear Mr. Ken

You will remember having  
left with me a copy of Messrs.  
Field-Hibbs's report on molybdenite  
occurrences in Central Kavirondo.  
With your permission, we sent  
the report to the Imperial Institute,  
and we have now received some  
interesting comments and suggestions  
from the Institute. I shall be  
happy to show you their  
letter if you can't call &  
see it.

The Institute is anxious  
that the Government Geologist

in Kenya should be asked to  
visit the locality, and report on the  
occurrence & collect samples for  
examination in London. Before  
passing this suggestion on to the  
Kenya Govt. we naturally wish  
to know whether your correspondent  
in Kenya, who sent you the  
Field-Hibbs report, is likely to  
have any objection to Government's  
intervention. Perhaps we might  
decide this point when <sup>next</sup> you call  
at the C.O.

Yours sincerely

(Signed) L. B. FREESTON



3<sup>16</sup>



RECEIVED  
13 JUL 1933  
C. O. REGY

12<sup>15</sup> July, 1933.

M. 4885.

*Ames (K)*

*No 2*

Sir,

In reply to your letter (3242/33) and enclosure of the 7th July, with reference to a discovery of molybdenite in the Yala district of Central Kavirondo, I would point out that no sample of the molybdenite is submitted with the report, although the report states that grab samples have been sent to "an eminent mineralogist in Manchester for determination". It would have helped us to form a better judgment on the matter if a sample had been submitted.

In the absence of more satisfactory evidence as to the nature of the sample, the statement that it contained 85 per cent of MoS<sub>2</sub>, if correct, may only mean that it was a good specimen of molybdenite. It does not follow, as claimed in the report, that the rock from depth will be of much higher value. The contrary of this is more likely to be the fact.

If the statements made in this report are reliable, there seems to be a considerable amount of the mineral available and the occurrence would appear to be a promising one. I would point out, however, that the results reported are nothing more than those of preliminary surface prospecting, which should be proceeded with to a much fuller extent by trenching and sinking small trial pits before any such ambitious plan as that of sinking "deep-level five-compartment shafts", referred to in the report, is carried out.

The present position as regards molybdenum is, that the Empire and indeed the rest of the world is dependent upon the United States for supplies. The metal is one of importance for both ordinary industrial and war purposes, and it is therefore desirable that the fullest information should be obtained of any deposit in the Empire that gives any promise of producing the needful supplies.

I would therefore suggest that this occurrence is sufficiently important to require the attention of the Government Geologist in Kenya, who should be asked

The Under Secretary of State,  
Colonial Office,  
London, S.W.1.

*copy to Kenya (C)*

17.  
to visit the locality and give a report on the possibilities so far as ascertainable by him during a preliminary examination of the area. I would further suggest that he should collect representative samples for examination. These we should be glad to examine here if desired.

I am, Sir,

Your obedient servant,

*Wm. Furse*

Director.

(Lt.-Gen. ~~Sir Wm.~~ Furse)

3242/35 Kenya. 10 18 15

C. O.

O.D.  
R 5-JUL  
D 7

Mr. Tooley 5/7/35

Mr. Manning 5/7/35

Mr.

Mr. Parkinson.

Mr. Tomlinson.

Sir C. Bottomley.

Sir J. Shuckburgh.

Revd. U.S. of S.

Parly. U.S. of S.

Secretary of State.

Answered by No 3

7 July, 1935.

Sir,

DRAFT.

The Director,  
Imperial  
Institution.

I am to  
transmit to you  
in original for  
return, a report  
by Messrs. C. Field-  
Lubin and Taitner,  
on behalf of the  
White Legation,  
Nairobi, on the

Report (first page only)

discovery of  
MOLYBDENITE ore  
on the Syndicate's  
mining claims  
in the YALA District  
of Central KAVIRONDO.

2. The U. S. G. O.  
would be <sup>glad</sup> ~~gratified~~ if  
for any obscure  
article you may have  
to offer on the report.

I am &c.

(Signed) J. E. W. FLOOD

*Copy of No. 1-8 to Kenya (6)  
Ken. Gov. (7)*

MINING REPORT

MOLYBDENITE.

THE MOLIYE SYNDICATE.  
NAIROBI, KENYA COLONY. B.E.A.  
GEOYS  
9/9/X/133/GFL.

C. FIELD-LIBBIS & PARTNERS.  
Certified Mining Engineers.

NAIROBI, KENYA. B.E.A.

SKETCH PLAN

"Molite Syndicate"  
Yala, Kenya, B.E.A.

\* Mile 25.

40 Base metal claims

Ass.  
line of  
Strike

K  
E  
N  
Y  
A

U  
G  
A  
N  
D  
A

R  
A  
I  
L  
W  
A  
Y

-- This Railway reserve is  
200 yards wide.

Mile 28.....

Mile 27.....

Creek-----



E. 5/3	D. 4/4	D. 4/1		G. 3/5	G. 3/1
E. 5/4	D. 4/5	D. 4/2		G. 3/6	G. 3/2
E. 5/5	D. 4/6	D. 4/3		G. 3/7	G. 3/3
E. 5/6	D. 4/7	D. 3/9		G. 3/8	G. 3/4
E. 5/7	D. 4/8	G. 3/10		B. 2/5	B. 2/1
B. 5/8	D. 4/9	B. 2/9		B. 2/6	D. 2/2
	D. 2/10	B. 2/10		B. 2/3	B. 2/3
E. 5/1	A. 1/7			B. 2/4	B. 2/4
E. 5/2	A. 1/8			A. 1/4	A. 1/4
	A. 1/9			A. 1/5	A. 1/2
	A. 1/10			A. 1/6	A. 1/3

-----Creek.

MINING REPORT.

CLAIMS Nos.....	A/1....to...A/10	inclusive.
CLAIMS Nos.....	B/4....to...B/10	do.
CLAIMS Nos.....	C/5....to...C/10	do.
CLAIMS Nos.....	D/1....to...D/10	do.
CLAIMS Nos.....	E/1....to...E/8	do.

comprising a base metal area of 500 acres, nearly, in the Yala District, Central Kavirondo, Kenya, B.E.A.

Instructed by Percy Green Esq,

on behalf of

THE MOLITE SYNDICATE.  
Nairobi, Kenya, B.E.A.

Inspected - 7/4/33.  
Reported - 18/4/33.  
Filed - G/C/Y/133 C.F.L.

G. Field-Libbis & Partners  
Kisumu, Kenya, B.E.A.

This mining area, held by the Molite Syndicate of Nairobi, comprises a holding of forty Base Metal claims, situated about two miles from Yala River Station, on the North West boundary and about one mile from the Government Township of Luanda, in the Yala District of Central Kavirondo, Kenya, British East Africa.

The property is bounded on the East by the Kakamega Gold fields and on the West by the West by the mineral areas at present declared "Closed" by the Administration.

Fifteen of these claims, numbered A.1/1 to A.1/6, B.2/4 and B.2/6 and C.3/5 to C.3/6, B.2/5 to B.2/7, each having an area of 540,000 square feet, form adjoining rectangular blocks on the North side of the Railway twenty five claims, numbered A.1/7 to A.1/10, B.2/8 to B.2/10, C.3/7 to C.3/10, D.4/1 to D.4/10 and E.5/1 to E.5/8, form rectangular blocks on the south side of the Railway.

The total area of the forty claims, excluding the railway reserve is 500 acres, nearly.

As will be seen from the attached sketch plan, the Kisumu-Yala-Buture Railway line of the Kenya Uganda Railway passes through the length of the claims for a distance of nearly two miles, dividing the property into two portions, thus affording ideal conditions for the transport of ore and materials.

This block of base metal claims, which has been pegged and registered in accordance with the Kenya Mining Ordinances, by Mr. Percy Green, on behalf of the Molite Syndicate, is in a highly mineralised zone, in which large ore bodies outcrop, containing Molybdenum (Mo) in the form of sulphide Molybdenite (MoS<sub>2</sub>).

This mining area has a good supply of spring water and the stream if dammed, would conserve sufficient water for the supply and use of the washing and concentration plants and a further supply could be obtained by boring (shallow) if necessary.

Timber in the district is plentiful and the land is suitable for plantations of quick growing trees which can be used for mining purposes.

-The supply-

The supply of labour in the Kavirondo areas is plentiful and cheap compared with other parts of Africa, and the natives are realising the benefits of regular employment on the mines, so that there will be no difficulty in obtaining manual labour.

The transport facilities could not be better as it will be seen from the attached sketch plan, that the railway line of the Kenya & Uganda Railways, from Kisumu on Lake Victoria Nyanza to Yala, passes almost through the centre of this mining area and is excellently suited for the necessary mineral line sidings.

A well maintained Government road from Kisumu to Yala, runs along the length of the claims about two miles from the Eastern boundary of the mining area.

Hydro- electric power will be available for industrial purposes as soon as mining development warrants its installation, and satisfactory surveys by an electric power company have already been made of the Yala River grades, falls, and flows.

Although claim registration has been completed, mining leases should be taken out as soon as possible, in order that development layouts can be decided and plant sites fixed.

The estimated cost of the work prospecting, claim pegging and registration, together with engineering supervision fees and licences is in the neighbourhood of Five Thousand Shillings, and on the results obtained, further prospecting is unnecessary, and the area should now be laid out for development and mining commenced.

The mineral Molybdenite occurs in veins, impregnations, also massive foliated and finely distributed through and as a contact deposit in a formation of Syenite, which outcrops on the sides of two hills and at various points along its strike. The ore body has been traced for a distance of over one mile, and its length is estimated to be nearer two miles by the ore carrying float which shows along the line of strike. Large masses of ore bearing float are exposed at the surface both on the hills and on the lowest ground levels and soil washings have returned heavy residue of very fine Molybdenite concentrates.

Owing to the hilly contours of the country, it has not been possible to determine with any accuracy, the width of the ore body, but several outcrops show this to be good width, with veins and impregnations of Molybdenite of economic value, a pegmatitic body showing much weathering, adjacent to and with the same line of strike as the ore body, gave barren results, but heavy deposits of fine scales of Molybdenite as impregnations and veins with good contact mineral were exposed in the more solid wall rock.

Results from concentrates from samples taken from pyritic rock body outcropping on the West side of the ore body, showed Pyrrhotite, Molybdenite and trace of Millerite.

Grab samples sent to an eminent *Fassa* mineralogist in Manchester for determination gave results of 85 per cent unit MoS<sub>2</sub> of economic value

As these samples came from the surface it is estimated that the rock from depth will be of much higher value, owing to the lowering of the grade at the surface, due to leaching.

It is estimated that the tonnage of loose ore from broken outcrop that is on the surface is sufficient to supply crushing plant for many months, and that fines are worth recovery.

**SUMMARY.** The examination made by me of the Molite Syndicate claims in the Yala District of Central Kavirondo, Kenya, disclosed a body of Syenite containing Molybdenite, with a strike North and SOUTH trending for a distance of over one mile, and from the appearance of the formation will extend along the whole length of the claims as shown on the attached sketch plan.



As the ore body is exposed in many places in different cuttings and the out-dip appears at many places along the strike, I am of the opinion that:-

Further prospecting is an unnecessary expense.

Mining leases should be taken out over the forty claims as shown on the attached plan.

Development, based upon a decided plan and policy for the exploitation of the ore body Molybdenite and other accessory minerals that may be found of value, should be proceeded with and pushed ahead in order to provide a continuous supply of mineral for the future recovery plant.

**RECOMMENDATIONS:** Deep level five compartment shafts should be sunk along the line of strike at distances not exceeding two thousand feet apart, capable of permitting the hoisting of sufficient ore tonnage to supply treatment and recovery plant and build up reserve dumps.

One of these shafts to be a main rock hoisting shaft, conveniently situated to supply rock to a central crushing and treatment plant, with both underground and surface mechanical haulages from the auxiliary shafts which would be used for men, rock, material and ventilation.

A central crushing, treatment and recovery plant with sorters, concentrators and oil flotation process, etc, situated to provide convenient sites for waste, sands and water.

A gravity haulage or telferage system of rock transport from the opencast workings and hill quarries to the central treatment plant.

Settlement and clear water reservoirs for mine drainage water with pumps and sumps for mine drainage water and washing and sorting plant.

A short length of mineral line siding would facilitate the loading and shipments and the handling of materials for the construction and mine operations.

As the mining and production of concentrated Molybdenite is not of common occurrence, it will be necessary to employ qualified men with practical experience in all departments to ensure economical and profitable results.

This mining area, systematically laid out, developed mined and economically controlled, and the mineral treated and recovered by modern methods, plant and machinery, would make a very profitable mining proposition.

Although gold has been found as alluvial on these claims, it is from flood deposit only and cannot be considered of economic value.

( Sgd) G. Field- Libbis

for C.FIELD- LIBBIS & PARTNERS.  
Certified Mining Engineers.

Kisumu. Kenya. B.E.A.

MOLYBDENITE.IMPERIAL INSTITUTEWORLD PRODUCTION: 1929 - 1930 - 1931. From Statistical Summary.

In cwt. of concentrates.

Producing Country	1929	1930	1931
<b>BRITISH EMPIRE</b>			
Canada (100% content)	11	-	11
Australia	1	-	11
<b>FOREIGN COUNTRIES.</b>			
Austria	7	-	-
Norway (100% content)	27	41	3
French Morocco (ore)	16	-	11
Mexico	-	-	11
United States (100% content)	-	-	11
China	5 230	550	11
Korea	100	1	11
	52	22	11

(a) Information not available.

IMPORTS of MOLYBDENUM ORE, ETC.(Less Re-exports)  
(Cwt.)

Importing Country and Description	1929	1930	1931
<b>BRITISH EMPIRE</b>			
United Kingdom- Ore	5200	-	11
<b>FOREIGN COUNTRIES</b>			
France- Molybdic Acid & molybdates	11	-	11
Italy- Ferro-molybdenum	400	11	11
United States- No content of- Ferro-molybdenum, etc...	15	-	11
Russia- Ferro-molybdenum	440	11	11

United States Bureau of Mines statistical report states that three concerns produce from 97 to 98 per cent of the worlds requirements in molybdenum. Two of these :-

Glimax Molybdenum Company, Glimax, Colorado.  
The Molybdenum Corporation of America, Questa, New Mexico.  
are in the United States, the Glimax Company alone furnishes fully 75% of the worlds output. The output of these mines during 1931 amounted to 3000 short tons of concentrates, of an average of 85.93 per cent of molybdenum sulphide ( MoS<sub>2</sub> )

The third mine is in Norway north east of Stavanger :-  
Norvaka Molybdenproduktor A/S. Knaben.

The 1931 production of these three mines although less than for 1930 was slightly greater than the average of five previous years 1926 to 1930.

Mines in the United States.

1. The Climax Molybdenum Company's mines in Colorado are in Summit County, on the south west slope of the Bartlett mountain, at an elevation of 11,300 feet above sea level, the working adit being at an elevation of 12,200 feet, and the climatic conditions are severe. The ore occurs in two forms, one a granite breccia in which the molybdenite occurs as occasional flakes (small) but more often in fine granular form associated with pyrite in the interstices of the breccia while in the other the molybdenite occurs in veinlets and stringers running off into the granite porphyry country rock. The brecciated type of ore constitutes the vein material proper. The ore is stated to contain no copper or other deleterious elements.

2. The Molybdenum Corporation of America property near Questa, Taos County in the northern part of New Mexico derives the ore from veinlets along fracture and shear zones in granite-porphry. The vein filling is made up of quartz, with molybdenite, a little chalcocopyrite, fluorite, sericite, apatite, biotite, chlorite and calcite.

Both these mines equipments include flotation separation units for recovery of the molybdenite concentrates.

Mines in Norway.

3. The mines of the Norame Molybdenum-Producer A/S, derive an ore obtained from quartz veins in granite or granite-gneiss they are stated to average 4.5% MoS<sub>2</sub>. Practically all the successful plans for molybdenite concentration are of the Elmore vein flotation type and copper are the impurities that cause most trouble. It is pointed out by E.O. Falkenberg (loc.cit.) that molybdenite deposits are of comparatively small extent, they do not attain any considerable depth, and probably no molybdenite vein contains the mineral in payable quantity below a depth of 100 ft.

The capital invested in these Norway mines is stated to be disproportionately large, amounting, with interest at 10%, to \$1,100,000 (date 1919)

MOLYBDENITE DEPOSITS in the YALA DISTRICT OF PENANG COLONY.Extract from report of Mining Engineers.

"The mineral Molybdenite occurs in veins, in repetitions, also massive, foliated and finely distributed throughout and as a X contact deposit in a formation of Syenite, which outcrops on the sides of two hills and at various distances and points along its strike. The ore body has been traced for a distance of over one mile and its length is estimated to be nearer two miles by the ore carrying float which shows along the line of the strike. (North to South) Large masses of ore bearing float are exposed at the surface both on the hills and on the lowest ground levels and soil washings have retained heavy residue of very fine Molybdenite concentrates..... It is estimated that the tonnage of loose ore from broken outcrop that is on the surface is sufficient to supply a crushing plant for many months, and that the fines are worth recovery..... Disclosed a body of Syenite containing Molybdenite with a strike North and South, extending for a distance of over a mile and from the appearance of the formation will extend along the whole length of the claims as shown on the attached plan."

Estimate based on Syenite (s.g. 2.70) and allowing for a percentage of molybdenite, which has a sp.g. of 4.7 then at 132lbs per cube foot a cube yard would average 2.2 tons weight. For a distance of one mile

10

1760 yards x width of 30 yards x 1 yard deep x 2.2 tons =  
36,720 tons for each foot of depth, at 1% MoS<sub>2</sub> content  
then ..367 tons of Concentrate per yard of depth mined.

It may therefore appear to be under estimated to assume that if the line of strike for a distance of 1760 yards, and a width of 30 feet only is mined to a depth of 100 feet, it would be quite feasible to obtain from this 12,887 tons of the concentrate of Molybdenite, and valued at £200 per ton this would amount to a sum of £2,577,400.

#### COSTS of MINING & PREPARATION in KENYA COLONY.

For purpose of arriving at a reasonable figure, the labour and pulverising costs are based on those of the Kenya Marble Quarries who are using a similar class of labour and excavating a stone of similar weight and hardness in the form of marble, this is also ground to pass a mesh of 100 x100. The only difference in the general operation is the flotation separation process. It was found that a fair general average was a native could produce a ton of stone at an all in cost of 1/- per ton, while operating on a daily output of 50 tons the costs worked out as follows:-

50 Natives @ 9/66cents wages, 2lbs esho @ 25 cents.....	52
16 Natives on transport, crushing, loading, same rate....	15.46
European supervisor @ H30 monthly.....	30.0
Explosives, fuse, native, six shots for 50 tons.....	30.0
Drills and air compressor, two natives.....	20.0
Power for Crusher and Air compressor.....	40.0
Overheads, proportion of.....	50.0
Contingencies 20%.....	57.00
Cost of 50 tons .....	<u>222.45</u>
Cost of 100 tons .....	302.70

From 50 tons, every additional 10 tons requires 10 natives, 1 shot, and 20% for power and transport.

Assuming that the molybdenite output to be reached per annum is on a basis of 300 tons, on a recovery of concentrate of 0.71% then it would require the delivery of 140 tons of rock, per ton MoS<sub>2</sub> or 42,000 tons per annum. or for 280 working days, 9 tons per hour through the milling plant working 24 hours daily.

The plant required for this output would be :-

Power plant of 250 kilowatts capacity.

Ore dressing plant, consisting of two 7' Jaw crushers, reducing to 6" to 1" cubes, each requiring 8hp, 6 tons per hr

Two ball mills with scoop feeds, reducing 1" cubes to 60 mesh, requiring about 60 hp each for 3 ton hourly output.

Oil flotation troughs and tanks, pumps etc. drying extraction, storage bins, etc.

Winding and haulage gears, for transport of rock to dump.

Repairs workshop, containing circular saw, lathes, forges for the maintenance of tools and drills.

Opentype sheds for housing machinery, stores and offices.

Bungalows for European staff, landies for natives.

Water and Oil storage tanks, Crow bars drills, hammers, karies.

The total cost of such a plant would not exceed £35,000 allowing for working capital says Company Capitalised to £ 50,000, could produce about 300 tons of MoS<sub>2</sub> concentrates, and with ease and at low cost increase the output, by the addition of another ball mill. Should the rock turn out to bear large crystals that could be sorted out by hand picking over belts, labour is cheap and in abundance for that class of work.

#### ESTIMATE OF PRODUCTION COSTS BY MILLING.

Based on a production of 300 tons of MoS<sub>2</sub> 90% grade annually.  
 " " recovery of 71% ; this would average 140 tons rock  
 per ton of concentrates. Working 300 days per annum average.

#### WORKS PRODUCTION COSTS.

	£.
Labour, 200 Natives @ £15 per annum includes Fosho, wages, and medical services. ....	3000
Powr. Average load of 200 H.P. (150Kwh) 10 H.P. Crushers 150 H.P. Ball milling 40 H.P. Pumps and conveyors. Coal (150 kw @ 1400 coal) 1950 Tons @ 50/v... 4875	4875
Flotation oils, 87½ lbs ton of ore treated or at rate of 9 gallons at 5/- .....	675
Repairs, and renewals of plant.....	500
Oil waste and engine stores.....	250
Medical stores for natives.....	50
Transport and travelling.....	250
Feeding double bags, 11 to ton-22 bags .....	1000
Rents rates and taxes.....	1500
Postage and Stationery.....	100
Audit .....	50
General and incidental.....	500
Railway freight to Mombasa.....	1500
Shipping freight to Europe.....	750
Management & Supervision.....	5000
Total costs( £66-10-0 per ton )	£ 20,000

#### REVENUE BY SALES.

300 Tons of 90% Molybdenite... @ £200 per ton...	£ 60,000
Deduct production costs.....	40,000
Depreciation on whole at 20%.....	8000
Expenses at 2% gross.....	3000
Profit available for dividends.....	£ 29,000

NOTE on YALA DISTRICT of North KAVIRONDO PROVINCE.

Altitude approximately 3000 feet.

Temperature ..... 88 Max 89 Min. Average 67 F.

Rainfall ..... 75" over seven years periods. (216 days)

Railway distances....	Mombasa to Kisumu	567 miles.
	Kisumu to Yala	38 miles.
	Mombasa to Yala	615 "
	Nairobi to Yala	358 "

Motor Roads good all the way.

Coal from Mombasa to any Kenya Station in 20 ton lots...	20/- ton
" at Mombasa averages for good steam coal	35/-

Coal delivered on railway at Yala sidings..... 45/-

Vegetable oils. A large variety of materials are grown in this district from which suitable oils for flotation process's can be obtained, viz:- Ground nuts, Castor seed, Cotton seed, Eucalyptus, etc etc.

Oil mills at Mombasa and in Uganda from which supplies could be obtained, or a small plant to crush local grown ground nuts installed.

Comparison of Wages rates in mining in South Africa.

European skilled ratings average	21/- per 8 hour shift.
Natives in the mines .	2/3 " " " " plus 11.5
	for rations and quarters, total 3/2.5d

The average costs per ton milled on the S African mines is 19/- with a yield of 28/4 per ton milled.

EAST AFRICA. Yala district

The average cost or wages rate of Europeans would be the same per 21/- per shift. of 8 hours.

The average rate of native labour would be 1/- including rations and quarters.

The total working costs as per sheet 4. based on 140 tons rock per 1 ton of MoS2 yielded or £66-10-0 per ton would be an

average of 9/- per ton milled.

average of 28/4 " " " " if output sold at £200 per ton delivered European port.