

C.V. Douglas

Book no. 1



$$\underline{\text{Lat.} = 90^\circ - (h - D)}$$

for Azimuth =  $Z$

$$\text{Cos } Z = \frac{\text{Sin } D - \text{Sin } h \text{ Sin } L}{\text{Cos } h \text{ Cos } L}$$

where  $D$  = declination

$L$  = Latitude

$h$  = corrected altitude

---

Local Time

$$\text{Sin } \frac{P}{2} = \sqrt{\frac{\text{Cos } S \text{ Sin } (s - h)}{\text{Cos } L \text{ Sin } p}}$$

where  $P$  = Local Time  $\pm$

$p = 90 - D$

$s = \frac{1}{2}(L + h + p)$

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14/9/29

At N'Changa

Hughes Bar 25.28"

Castella 10263 at same time

reads 25.70"

N'Changa

9:30 am 85m.

15/9/29

7 am Bar 25.16

& Camp out at 4500'

Camp at Chisengisenge  
stream (Hillside & Baxter)

Chimalala

Breccia Str 306° dip  
by G.O.D. dip 45° Nor R

by J.A.B. Str 317° dip  
dip 67° Nor R

Further W. Str 303° dip  
by G.O.D. dip 46° Nor R

Calcareous SS on E side  
of stream

Str 302° dip  
dip 35° Nor R

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\* A so-called quartz vein  
was seen just below  
Linn's Camp - J.A.B. say it is  
SiO<sub>2</sub> - I think that it is  
a felspar - a specimen  
was taken for determination.

A specimen of the Actinolite  
was also taken, as well  
as the crumpled ls. xx

Ferruginous ss. + ls.  
Top Limestone  
Breccia x Fels or Qtz.  
Shale  
Limestone with *actinolite?* + *fluorite?*  
Sandy shale *much fractured*  
Shale  
Calcareous quartz  
Shale  
Conglomerate with Garnets  
Bottom

xv  
mark  
in obs.

mark  
in obs.

mark  
in obs.

16/9/29.

7<sup>20</sup> Am Bar 25.30"

At Hatfield's Camp  
Bar set 25.30 = 4500

At Montana Bridge -

Basement Schist

full of Biotite

Stk. 130 am

Dip 45 E or L.

Elev. 4290'

Rock is a biotite  
garnet quartzitic  
Schist - called by J.A.B.  
a Paragneiss

P.T.O.

Elev. Plateau 4490'  
Water at base of falls  
falls in dip 4290'

Depth of pool = 200'

of the order of 150 cu ft/sec.  
Combined fall 8' ±

Looks like a  
possible source of  
power.

Near Shinkolombwa  
from Koppa in route  
to Kasempa  
Stn 2550 m  
dip 55 S or L

Specimen taken showing  
Fe<sub>2</sub>O<sub>3</sub> + manganese?

Elev. of top 4925'

" " bottom 4705'

Height 220 ft

Branch to Kasempa Hill  
= 214 m

Kankolobola 43.1  
miles to Kasempa

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W




We passed some  
Koppies - The first -  
one after Shinkolobwe  
showed some haematite  
replacing argillaceous  
S.S. - the rock is very  
much more in  
evidence than the  
iron. The rest showed  
very little iron.

The problem is of  
what age are these  
argillaceous S.S.?

We passed Kasmpa  
and found Fox & Wilson's  
Camp.

Kasmpa is on a  
ridge of what appears to  
be argillaceous S.S.

One kopje looks like  
a plug. 

17/9/29

In Camp Kasmpa  
Bar. 9 am. 25.65"  
= 4000'

Cash on hand today  
£ 9 - 3 - 3 total

£ 8 - 10 - 0 in bag.

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Y



Lufupa

No. 1 Adit

40' giving 1.8% Cu  
Visible mineralization  
over 34'

Cu present as  
disseminated Malachite  
in a calcareous SS

Stk = 207° npl  
Dip = 55° W or R } by Walters

Rock is finely bedded  
& also jointed

Stk 324° npl  
Dip 45° W or E } W.D.

Near mouth of tunnel  
there is a shale phase  
of the County rock

150' S of No. 1 Adit

Stk 86° npl

Dip 55° W or E

Total length up to date  
500 ft of Min. ground

Sheared Ferruginous  
Sandy shale on  
W. side of River

Stk 178° npl

Dip 75° W or E

This was the so-called  
breccia

Later we saw  
a kupp with coarsely  
crystalline hematite.  
Sample taken.

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The no 3 adit about 15' deep - weathered rock which does not look as if it had been on bearing.

Lufupa on the whole is a relatively small prospect - one for a future generation.

The drill will probably tell the story rapidly, but I should doubt the possibility of a large tonnage in the beds if the fault junction is barren.

### Position of Solwazi

Lat.  $12^{\circ} 12' 06.415''$  S  
Long  $26^{\circ} 34' 20.504''$  E  
Alt. 4364'

Mag var June 1925  $10^{\circ} 40'$

At bend of river  
Sandy shales

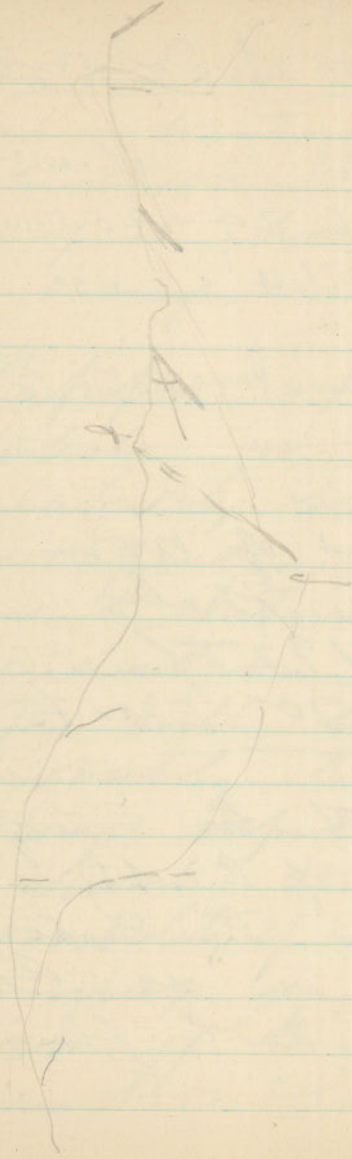
Stn 1970m

Dip  $70^{\circ}$  E or F

Note that the size of grain of the s.s. beyond the shale band in no 2 adit is decidedly finer grained.

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~~Proton~~

~~Proton~~

x en

Lufupa Clannit

~~Proton~~

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The mineralization  
at the Lufupa  
Clavus is of a  
different character  
to that in the  
brecciated zone.

A. In the Lufupa Clavus  
the mineralization  
occurs as <sup>disseminated</sup> ~~granular~~  
grains along the  
bedding of the S.S.

I thought that there  
might be some  
association with  
joints in the S.S.  
but of this point  
I am not certain.

This type of  
mineralization is  
similar to that

in the Boana M'k  
series & J.A.S.

remarked that  
some of the S.S.  
looked remarkably  
like N'kana S.S.  
There is a marked  
absence of  
silicification  
associated with  
the mineralization.

B. In the breccia  
however the  
mineralization  
seemed to me to  
be tied up with  
the quartz veins  
which cut thin  
swan bed zone.

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Y



at Lufupa 19/9/29

Bar at 6 am at

Caput 25.60 " = 38 00'

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M  
Mc  
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V  
W  
Y



Start of Traverse

Flag staff at

Kasumpa Boma

Elev. 3900' = 25.48"

960

3  
165p

4120' ——— 107p SS float

Solid SS → 52p SS float  
felspathic

& micaceous  
Str. 32 S<sup>omy</sup> 230° wlf  
Dip. 55° R. or E

20  
2712p

4120'

St 320°  
Dip 70° R. or E

1091p

Luamadambo  
Dip 10° wide  
3880' gates from  
brown

324p On Col 4000'

254° wlf Start of main  
road from  
Boma at  
Kasumpa.

2  
219p

282° wlf

1  
277p

257° wlf

6.46 am

Elev 3900'

Flagstaff

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W  
Y

△ 6 Qtz Vimp  
319 p

St 155° w  
white chales  
S.S. 108 p

Qtz float. 92 p

Fe-SS 84 p Fe-SS

Fe-SS  
St 155° w  
St 50° R  
Pov 000. 100

75 p 4100'  
850 am

Fels ss  
Ill integrated  
Less limonite  
not still fragments  
31 p

△ 5 Fels. SS  
with considerable  
limonite.  
fine grained,  
656

Solid rock with  
very little. 61 p Sandy shale  
float.

△ 4 260° w  
784 p 4100'

△ 3 1950 w

at 50 am  
△ 9 woods 3950'  
350 p Dambu

107 p W  
W.D.  
according  
F.A.S.

268° w  
△ 8 Genga 3910'  
703 p Dambu

56

Fels SS float. 516 p

9mg Fels SS 164 p  
155° w  
no beds visible  
for St 155° w.  
in some specimens.

53 am. △ 7 230° w 3940'

1965 p 300' For covered  
ground  
Dambu

1084 p - center of rock  
in Dambu.

600 p 300' Dambu orange

86 p wet Dambu full of  
but full of  
small sp.

△ 6 210° w

D  
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217° mf 4010'

12

1115p Woods

Dambo with Latente

1047p

Woods

257° mf

11

Ht of Koppie  
40' ±

395p 200' Haematite  
Koppie  
Surface baccia  
broken up

245° mf

10

843p

747p Latente

Latente 303p

11.20 am

265° mf

9

1.11 pm.

3940'

1<sup>st</sup> Camp.

15

Shapende  
Dambo.

1212

edge of Dambo

763

285° mf

14

1004p

Latente

970p

260° mf

13

266p

Medicine  
Bush

217° mf

12



19  
791p

700

290° mp

18

232p

700

255° mp

17

769p

280° mp

16

3050p

255° mp

15

6:10 am

3940'

20/9/29 No 1 Camp

Path to left

Dambo

Sandy soil  
Kulakani

Path 280° mp our path

22

726p

3660'

642p

Waterhole

Path

210° mp

21

477p

Path

265° mp

20

300p

Kapari Village

335° mp

19

D  
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Y

Comer pass  
to Doungwe

1556

100 kg  
100 kg of 0x10  
2050 mg  
Rabbit may  
be present

1382

S.S. + Q15  
R.

AB supports  
Storming?

1127 p

float.  
S.S. fine grains  
G.

302 p

1 photos  
of needle  
ant hills.

2650 up

Prak fan

23  
99

arr 900 am  
lv. 1110 am

2 photos  
of natives

Doungwe

94 p

3660'

2800 up

22

3820' <sup>25</sup>  
3981 p Camp No 2

155 pm

3770 villas ①

Lumber  
villas

5270 Garden begin

Laosanna

2500+ Lt. Brown Soil  
in ant heaps

River  
1/4 mile

1500 ± Red Ant heap

beyond  
villas.

650 Latents

400 Cactus

200 Latents

290 up

24

3200 p

3780'

2750

2809 p

dry but  
probably a tributary of the Doungwe.

D  
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W  
Y



No 2 Camp 21/9/29  
Bar 5-15 am  
25.60" = 3820'

Pr. here falling ↗

89 Red 8's

2950' mf

3920'

Lanzantomp  
of laterite  
↓ to lower

27

353 p

Laterite

307<sup>0</sup> mf

26

4073 p

Laterite  
Dumbo  
Small.

Pr. all the

1400 = 1600 p

1400 offert. 200  
to right.

1100 Laterite  
+ red bank

280<sup>0</sup> mf

25

No 2 Camp.

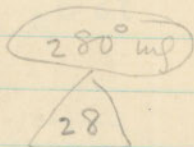
E  
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Y

1922 Dambo

Grey brown soil

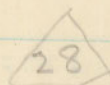
800p Red soil - end

9:07 am



Shivoka Stream

Breakfast.  
7:55  
am.



3785'

975p

Small stream of water.

868

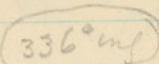
3780'

May be  
interbedded  
with red  
shales

571 Grey ss,

371p Red ss  
to Lt Brown ss

108p



2197p

Gardens.

1336 (3) with scrub.

Dambo

1286

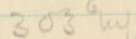
795

Dambo

825

235

Dambo



2183

Dambo

Dambo

E  
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Y



Str of hills 3050 m  
Dip 75° N or R.

Name of kopje  
// Kabamba //

4460

3940

520' Above Camp

Elev of 2<sup>nd</sup> highest 4460'  
Top of kopje 2200 p

Chigonagona  
Village

11:40 am

3940

31 Camp No 3  
400 p

---333---

Water hole  
⊙

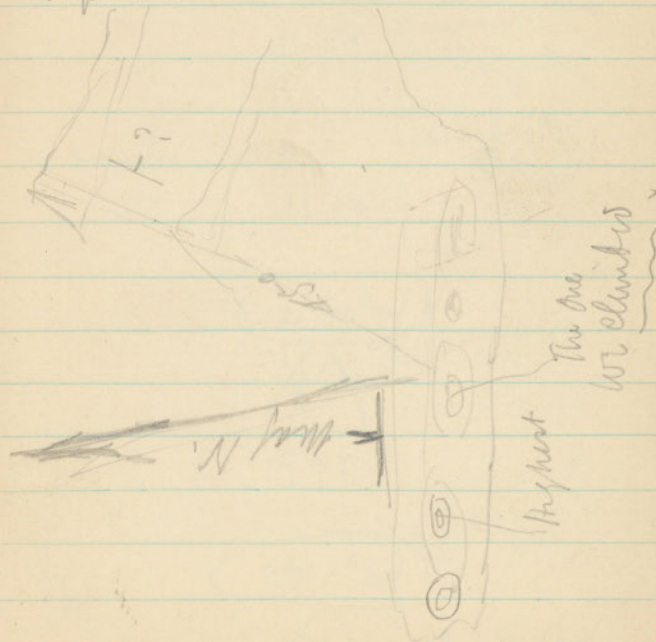
St

Haematite  
Ferrous  
sand

Brecciated bed  
on top

Lower portions are  
conglomeratic.

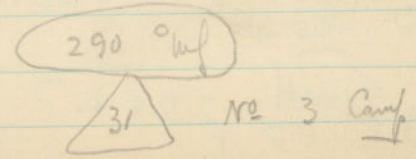
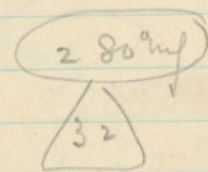
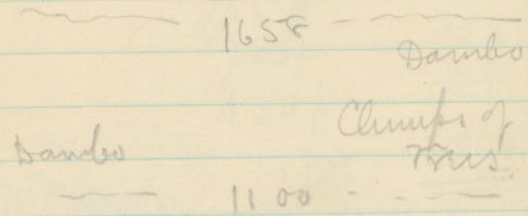
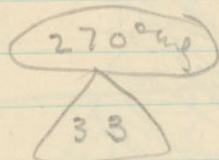
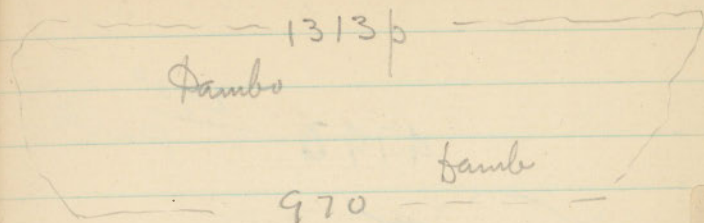
St 92° m } on slopes  
Dip 43° N or ±



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22-9-29  
Bar 25.58"  
= 3940 feet.

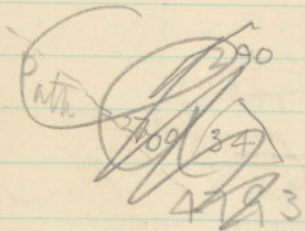
at No 3 Camp.



F  
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W  
Y



4793  $\frac{290}{\text{path}}$



3971  $\frac{40}{\text{bambs}}$

3735  $\frac{1150p}{\text{bambs}}$

3503  $\frac{3900}{\text{bambs}}$

loop 2200

### No. 4 Camp

35  $\frac{500p}{\text{Lunch camp}}$   
Stn 2500' up 70° W

450p  $\frac{3805}{\text{Munowidji R.}}$

Old Linnon  
trees + garden.  
Plenty of SS float

2050' up  
34  $\frac{5464p}{\text{Mission}}$   
3830

5437 S.S. broken in situ.

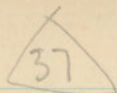
5430 Houses + SS float R.

F  
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Y

Up to date

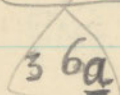
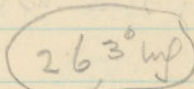
26.5 inches west  
= 265,000 feet  
= 50.2 miles.

Taking a radius of 50.2  
miles on the Gov.  
sheet & swamping to  
cut the Musonwodzi  
the mag bearing to  
this point is  $94^{\circ}07'$   
and by taking our  
traverse the General  
Course has been  $93^{\circ}07'$   
which is a close  
check for this type  
of traverse.

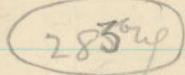


←  $\overline{SS} 520 - 3820$   
R. Koffe

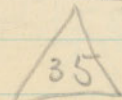
230 |  $\overline{SS}$   
Stw 256 mag  
 $\overline{R}$  dip 85 W on R



1038 |  $\overline{SS} 550$   
R 166  $\overline{SS}$  village



part II  
Barin bank ↑  
↓ 1972  
1300  $\overline{SS}$  in situ  
 $\overline{R}$  245 mag



3835'  
No 4 Camp

G  
H  
J  
K  
L  
M  
N  
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P  
Q  
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S  
T  
U  
V  
W  
Y



40

889p

245° w/

39

811p

238

170

Dambo

236 w/

38

1826 p.

91

SS. Str 265

Sip 75° E

or  
L?

221° w/

37

Gardens

260° w/

43

580

287° w/

42  
116p

Dambo

Maybe Storming SS

Sinkhole 62 3800'

1 mile  
E  
to  
of  
Dambo

A loose SS.  
Fairly coarse  
& heavy base  
below on  
account of sinkhole

225° w/

41

1385

Dambo

1300

275° w/

40

3810'

Open back  
← Falling ground.

G  
H  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W

Kabembwe's  
Village  
9:10 am

47  
300p

Breakfast  
here  
3850'

2950' up

46

700

any

655

580

bambo

bambo

245' mag.

45

61p

Gardens

215' up

44

393p.

Gardens

260' up

43

Old SS float 813p

253p

Dambo

295' up

Dambo

49

108p

331' up

48

238p

~~238' up~~

285' up

47

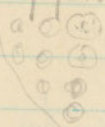
Tom's Dambo  
at  $\Delta 46$

H  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



Sample of slag  
+ Photo taken  
also a tuve

9 primitive pieces float.  
895 p



433 p  
Dumbo

273° mg  
52  
810 p

305° mg  
51  
1196

266° mg  
50  
1086 p

Photo  
to  
h. Δ 50

Haemite float.

Small

Ferrous  
Boulders 858 p  
Ferrous  
Boulders 450 p  
400 p

73° mg  
→  
contaminated

Laterite

Str 10<sup>x</sup> camp 228 p 3980' Elev

Dip 81° S or R.

Fine light pink white

sl.

167 p ss float

315° mg  
53  
2516 p  
3950'

Dumbo

2319

H  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W

SS + etc  
Vined some limonite.  
Falling 85 p

→  
ring

2750 y

55

704 p S.S. (old)  
4010'

438 p Bambo

Bambo

50

3100 y

54

Kibawaiia  
1550 p Villaps

Kibawaiia

Ponok.

12 27 p

Gardens

Photos of

Gardens +  
Worshouse

Big tree 2" wide  
SS 104' y  
bit 35 S or R  
in joint across  
to bottom but is  
Pentecosts County rock  
horizon.

597

on edge of Bambo  
beds S.S. fine grains  
(old) 8th 550 y  
Dep Lr x steep

Carries some limonite  
strings.

361 2 Boulders showing  
apple mark (?)

direction of ridges  
2700 y

243 p. 40 20' outcrop  
Rock more  
argillaceous.

81

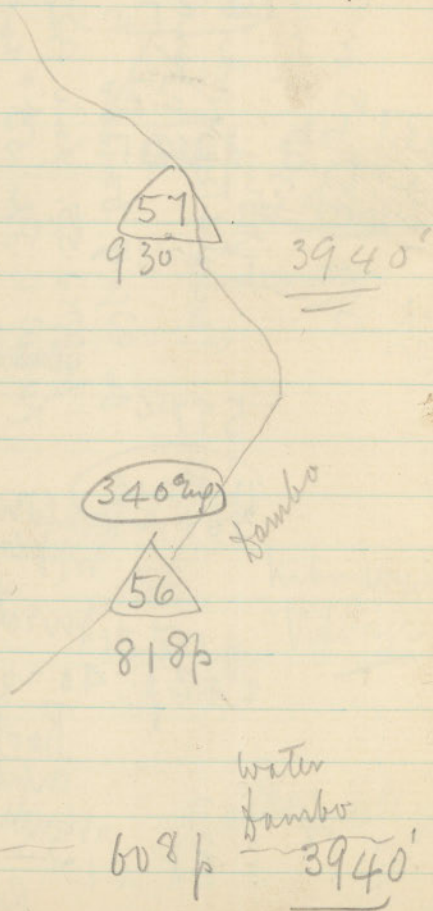
S.S. Bench  
above →

H  
J  
K  
L  
M  
Mc  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



From this camp we are  
to see Mufumbwe.

No 5.  
Camp



612 at Mufumbwe  
Prospect.

(SS Kessinga  
Some Q.F.G.      340

on a well beaten path

215 up

b

1240 p

x3  
Special travers  
Mufumbwe prospect.

268 up

a

85

295 up

Camp

Bar 2598" = 3940'  
at 7<sup>50</sup> am 24/9/29

J  
K  
L  
M  
Mc  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y

From this camp we are  
to see Mufumbwe.

No 5.  
Camp

57  
930

3940'

340<sup>0</sup> up

56

818p

tambo

water  
tambo

608p

3940'

612 at Mufumbwe  
Prospect.

SS Karroo  
Some QFg. 340

on a well beaten path

215<sup>0</sup> up

b

1240p

268<sup>0</sup> up

a

85

295<sup>0</sup> up

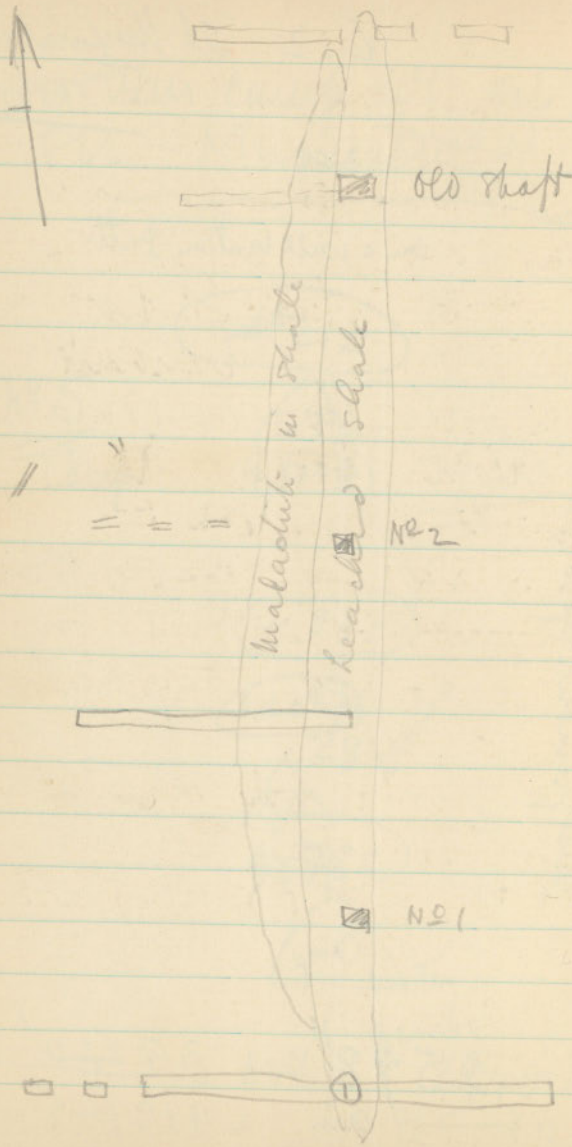
Camp

to  
Special Tarnish  
Mufumbwe prospect.

Bar 2598'' = 3940'  
at 7<sup>50</sup> am 24/9/29

J  
K  
L  
M  
Mc  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y





at ① S<sub>h</sub> 27° <sup>any</sup>  
 Dip 74° E or R

In No 1 trench from W end to about 10 ft East of ① the rock is shale which carries a certain amt of limonite as a rich red powder completely filling the particles. This does not work like a cellulose limonite resulting from the leaching of cuprous mines.

No malachite seen in this trench.

10 ft E of ① Sandstone.

J  
 K  
 L  
 M  
 Mc  
 N  
 O  
 P  
 Q  
 R  
 S  
 T  
 U  
 V  
 W  
 Y

No 1 trench

Str 45° up

Dip 70° E or R.

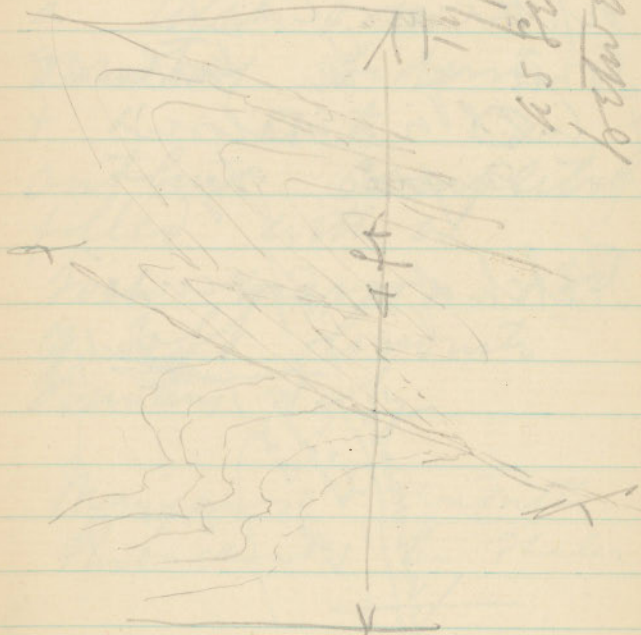
Shales very poorly  
univerted.

Sample taken on

7 feet on S side

2' above floor

Top



Type of bedding  
as seen in Trench  
between shafts - 172  
on N. side  
of trench

J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X

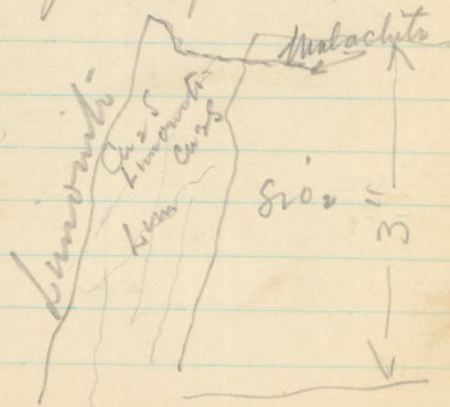


Min<sup>30</sup> along bedding  
planes + crossing beds  
in joints.

In superficial pits  
the Cu is present as  
malachite + in  
depth as Cu<sub>2</sub>S.

Some of the malachite  
+ Cu<sub>2</sub>S is enclosed  
in surface qtz.

Sketch of a specimen

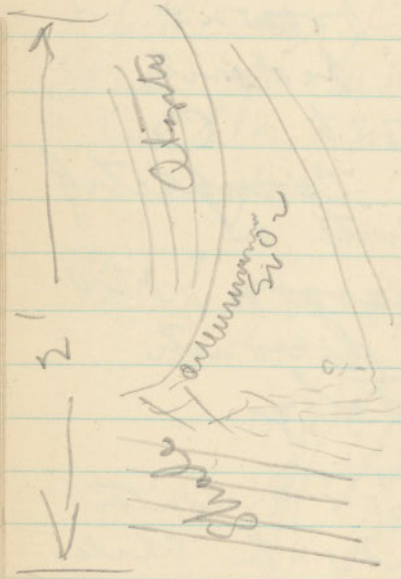


In depth Chalcopyrite  
+ Pyrites as stringers  
+ blebs along  
bedding planes + in  
the joints.

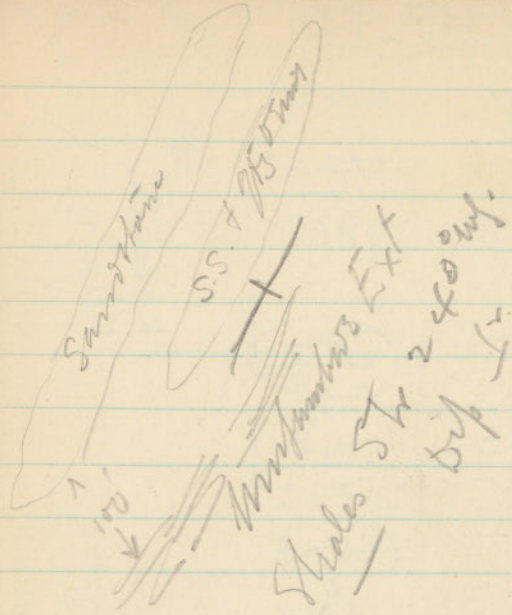
Cellular boxworks  
a light brown  
granular siderite  
+ a  $\square$  to  $\hexagon$   
outline completely  
filled with a  
rich margin red  
of soft "limonite"  
granular Fe<sub>2</sub>O<sub>3</sub>

Manganese dendrites  
throughout the shales

J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X



Faery N.



J  
K  
L  
M  
M<sup>c</sup>  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



Par 11  
min



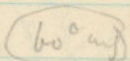
float SS 2637

Sh + SS 700

SS 500

Latents of  
in levels  
along level

\* Kasanda  
villages



524 p

500

Bambo

342

river bank

322

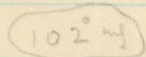
river

8

Bow 25-82

= 394.01

Aug 5



Bambo

25/9/29

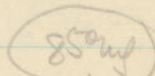
1657 kuffe

1600

water

Bambo

1146 p



2590 p

Bambo

2123

unfambore

Bambo

1097

low n° of SS with

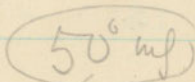
1093

+ a little FeO<sub>3</sub>

138

SS fragments

Apillacore  
FeO<sub>3</sub>  
+



1695

J

K

L

M

Mc

N

O

P

Q

R

S

T

U

V

W

X

15<sup>0</sup>mf

63  
2346

Zambo

Mucosins 1800-1838  
SS float

300 mf

11.4 mi.

62

Breakfast

2750

steep

Nambela  
Village  
a 2 rick  
Kaya

2600  
2400

Kasumpa SS  
301  
SS  
N 6  
P

Rafse

1658

650

Zambo

340<sup>0</sup>mf

4070'

66  
678

Zambo

325<sup>0</sup>mf  
65

Kapongze

35<sup>0</sup> Village

25<sup>0</sup>mf

64  
1000

Old Kasanda  
Village

525

Deserted  
Village

500

Zambo

K  
L  
M  
MC  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



Camtarare  
Paul Swamp

310<sup>amp</sup>

a1

1578 p  
→ 1000

282<sup>amp</sup>

a

laterite  
about here

Villays

Small Camps  
Red S.S.  
along trail in  
border

26/9/29 Bar 25.81  
= 4070'  
at No 6 Camp.

No 6 Camp

68

148 p

55<sup>amp</sup>

67

Munyambark  
Villays

815<sup>amp</sup> p

11<sup>00</sup> am  
26/9/29

300<sup>amp</sup>

a4

3622

4100  
check with  
Simon

light grey  
soil

3350

Red soil

325<sup>amp</sup>

a3

362 p

320<sup>amp</sup>

a2

3133

Soil reddish  
This limit  
not known

310<sup>amp</sup>

a1

K  
L  
M  
MC  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y

Chifur  
Prospect

7.25"

= 72,500'

= 13.72

miles  
as crow flies  
from Mungambani  
Village.

27  
541

500 p

315° mag

a6

700

Baroko

340° mag

a5

2559 p.

on edge  
of falling  
land

Sequence of Minerals

1<sup>st</sup> Malachite

2<sup>nd</sup> Haematite

3<sup>rd</sup> Chrysocolla last

Dr. J.R.B. reports on  
Cuprite. I did not  
see any.

Shaft C  decomposed  
ground.

Trench 8 in weathered  
boundary of float zone.

Shaft B  no Cu  
zone  
below  
boundary.

Shaft A  no Cu  
level SS

K  
L  
M  
MC  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



No 9 Trench  
no rock in situ  
qtz + latent rubble  
likely, sand shale  
fragments toward SE end.

No 10 Trench no rock in situ  
Some very large  
quartz boulders +  
some surface hardened  
SS and qtz fragments  
+ latent rubble.

Shaft S.S. cut by  
qtz veinlets + small  
divisions of Mn.  
no Cu.

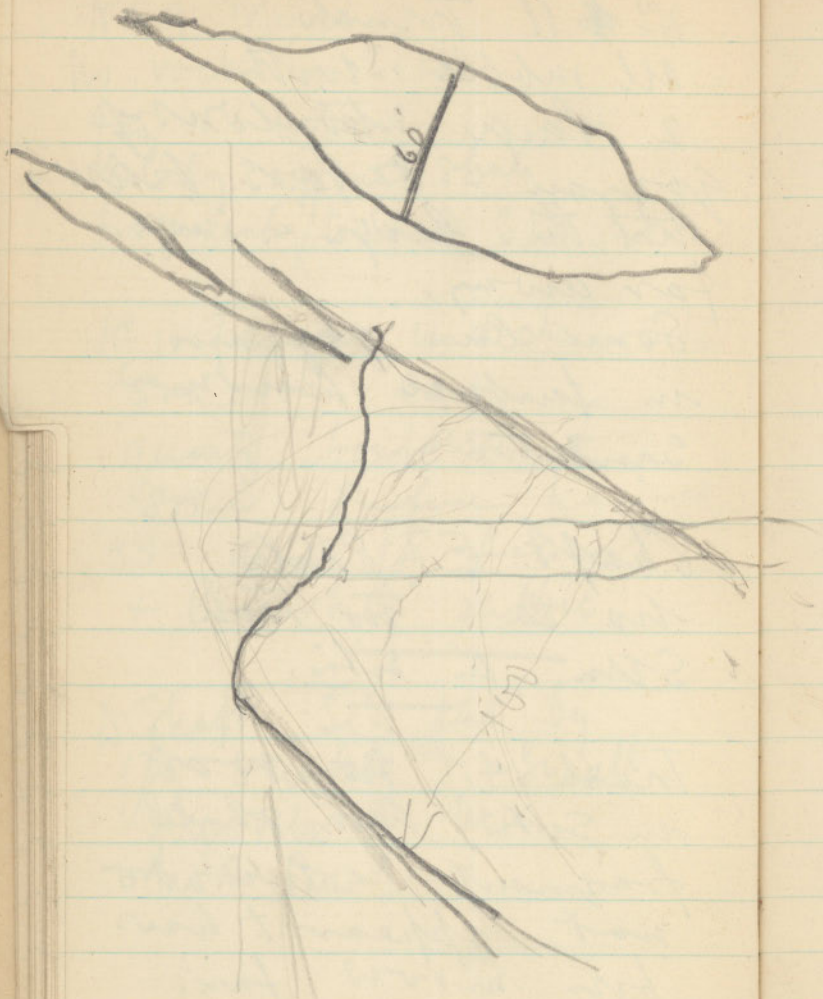
No 11 Trench  
all rubble with  
2 large boulders of  
gossan - so far. believe  
that the ledge is now  
far away.

Some Cu. gossans  
in surface hardened  
sandstones.

Shaft E Shale  
no Cu no rock  
seen in situ.

Trench 4. no rock  
in situ but shale  
fragments which do  
not appear to have  
been moved far.

L  
M  
MC  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
)



Cliffus  
General Str.  
47° W.

L  
M  
M<sup>c</sup>  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



Minerals seen besides

Chalcopyrite

Pyrite

Ilmenite

Yellow? Ra?

28/9/29

Bar in Camp

15.83" = 4070'

at 604 AM

434p

450p

71

911

1050p

70

1178p

600

1350p

69

1000p

600p

68

Camp 6.

Fine Ferruginous

S.S. - Yellow

Brown

Str. 600p

Dip 80° west

2 intercalated

shale beds

M

Mc

N

O

P

Q

R

S

T

U

V

W

X

Rona Villays 3913 p

Kopje  
fine coarse  
crossbedded red SS.  
3600  
minimally R.

2690

2590  
Dambos

Red SS 1775

1416 p  
a path Dambos

1350 p

S.S.  
fine grained  
8th 220' of (?)  
703  
bhp L

360' up  
75

April SS 1688 p

250' up  
74

1066

60' up  
73

8.15 miles  
this ass.  
SS. float 167 Breakfast

75' up  
72

3913

M  
MC  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



79  
1590

1573

350 mp

78

200

133

350 mp

77

538 p

130 mp

76

175 p

Kopie

8m ss.

8th 90' out

Dip 75' out

Some Varnish

Flat head

81

1190

Murumbato  
dambo

along dambo

400

600-700p

3250 mp

80

1156 p

1137

Very large dambo.

Stream  
5m.

1040

1010 p

dambo

170 mp

79

M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W

All about  $\Delta 81$  there  
are knobs of a  
granitic syenitic fresh  
with aplitic phases  
probably intrusive.

Certainly adds interest  
to this part of the  
Country.

No 7 Camp.

$\Delta 82$

846 p.

x

61 / 8!

x

350' my

$\Delta 81$

4220'  
=

The gty Syenite at  
the Camp has  
either an amphibole  
or a pyroxene which  
is passing over to  
a greenish mineral  
which may be epidote.  
There are also  
signs that the  
rock has assimilated  
some of the country  
rock giving large  
irregular accumulations  
of a green amphibole.

Mc  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
Y



29/9/27

Bar at camp 25.86"  
= 4100'

84

2955

Sambo

2800

Ameghinian  
SS

904

50° inf

83

3600

3500

Lalenta 1800

919

Sambo

350° inf

82

M<sup>c</sup>

N

O

P

Q

R

S

T

U

V

W

X

86

1902

1860

→ temperature

11.4 miles  
from Camp.

1402

Breakfast

4100'

8

666

Sambo

355°ms

85

2074

55°ms

84

Total mileage today

13.36 miles

Bar at Camp 29/5/29

25.15" = 4200'

Village of  
Chisera

No 8  
Camp

88

315

10°ms

87

910

Path.

70°ms

86

M

N

O

P

Q

R

S

T

U

V

W

X

Y



At the village  $\frac{1}{2}$  P.B.  
shot a male  
Night Jay.

These male birds at  
this season grow a  
beautiful long feather  
on each wing.

~~22 wing Feathers~~

the 9<sup>th</sup> from the  
outside is the  
long streamer.

The bird is a buff  
color & the tips  
of the wings are  
white.

The streamer is  
predominantly white.

30/9/29.

Bar at Camp  
25.80" = 4200'

6<sup>12</sup> Am.

Mc  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W

50° mf

90

1760

add 185  
to future  
readings

100° mf

89

2700 p

1527

Dambo

1424

90° mf

88

← 435 — Kahombo  
water R

95° mf

93

1688

65° mf

92

← 191 — kaaji R  
water

95° mf

91

Motela  
Village

203

50° mf

90

A disowned  
village  
some say for time

N  
O  
P  
Q  
R  
S  
T  
U  
V  
W



Edge of valley 1000

Sold Reddish

67° mp

96

681 p

70°

95

400

95° mp

Mungwengi  
Village

94

2505 p

A good  
village  
Some Super Cane

25' x 27'

Ferrous  
Fe<sub>2</sub>O<sub>3</sub>  
May be a form  
but unlikely

107

2255 p

105° mp

100

1925 p

Latent

125° mp

99

273 p

40° mp

98

1417

67° mp

97

1240 p

Breakfast

1180

Lumba R

O  
P  
Q  
R  
S  
T  
U  
V  
W

700 ————— Dumbo

70<sup>0</sup> up

103

944 ft

940

700 ————— Dumbo

120 Feds } floor  
20 Old } floor

75<sup>0</sup> up

102

2015

may have been  
sinking  
left

95<sup>0</sup> up

101

Old  
Javuma Village

Bar = 25.52

3<sup>11</sup> pm

44.95'

No 9 Camp.

105

553

21.95 miles  
for 2 days  
or 11.45  
since  
breakfast.

Kaluba R  
Water

448

55<sup>0</sup> up  
ppm 35  
gm

55<sup>0</sup> up

104

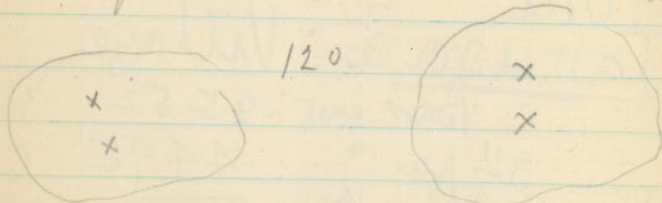
700

Dumbo

O  
P  
Q  
R  
S  
T  
U  
V  
W



xx There are interesting outcrops of a brecciated s.s. which has been invaded by qtz veins & possibly pegmatite of a medium grain. There is some haematite and also a black mineral which may be an amphibole. Some cellular borax.



295<sup>th</sup> mg

a

757f Dambo

Stream  
water

701

Dambo

600

35<sup>th</sup> mg

108

1<sup>st</sup> Oct

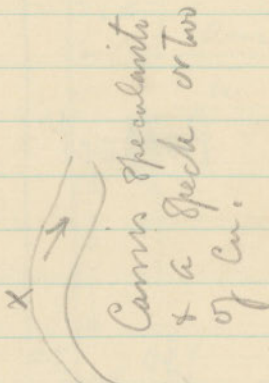
20<sup>th</sup> mg

1930

Crystalline limestone

Str 270<sup>th</sup> mg

Dip 45° N or E



1162

DM

← Stream  
DM

640

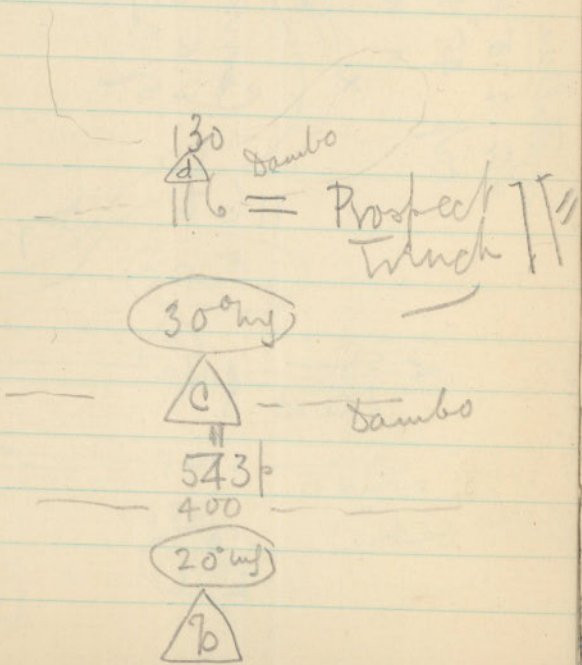
570

Dambo

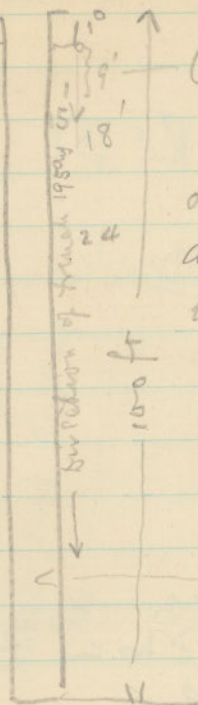
296

P  
Q  
R  
S  
T  
U  
V  
W

# Javuma Prospect



Str 260<sup>mg</sup>  
 Dip 25° N or E  
 Str 290<sup>mg</sup>  
 Dip 26° N  
 Str 270<sup>mg</sup>  
 Dip 31° N



Camis Cu

The Cu occurs as Chrysocolla and Cuprite in shales.

35' ->  
 A 1/2" trench  
 which has  
 some gfs  
 but no  
 visible Cu.

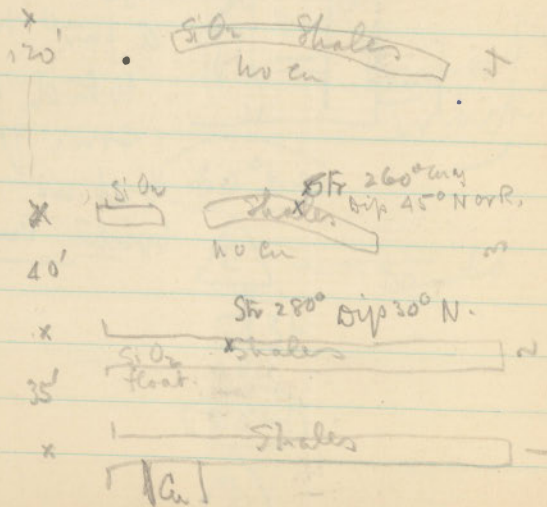
Q  
 R  
 S  
 T  
 U  
 V  
 W



Trenches 2, 3 + 4 are too  
far South.

Staked for R.C. Be Jan 1927.

R.C. Dicks



Shales were  
mineralized but  
in a small clearing  
which runs 3070 yd.

Stn 210' inf  
dip 5° N or R

6' 6" deep

○ Pot hole  
274p

330° inf.

△ d  
116p

Q  
R  
S  
T  
U  
V  
W

~~Dumpe~~  
Mbari

(40°W)  
107  
903p

(360°W)  
106  
750

Kaluba ← 666 — Stram  
Water

Dambo  
589 —

(60°W)  
105

2-10-29

Bar 6<sup>05</sup> am.  
26.30" = 44 95'

1499  
Dambo

1366

1250 —  
Dambo

1150 —

Qty float 830

908 (360°W)  
109  
243p

Kamonseni

215

200

100

(345°W)  
108  
500p

1 mile to base  
line E-W.

Stram  
Water

Dambo

Q  
R  
S  
T  
U  
V  
W



Dambo  $\triangle 112$   
1400

----- 1300

Latents  $\frac{1}{60}$  Latents

$\circ 60^{\circ}$   
 $\triangle 111$

-----  
Dambo 804 p

Man Kenku 713 --- no water

----- 600 --- Dambo

$\circ 45^{\circ}$   
 $\triangle 110$   
1600 p

$\triangle 113$   
3030

Breakfast.

-----  
← 2990 --- Chifue Stream

-----  
2814

←  
Dry

-----  
2760

↓ heads here  
Dambo - Considerable  
↑ valley

-----  
300

-----  
200

Dambo

Dambo 77

$\circ 40^{\circ}$   
 $\triangle 112$

Q  
R  
S  
T  
U  
V  
W

Mail Path.  $\triangle 114$   
330' up 2472  $\rightarrow 150^\circ$  up  
Sh float. 2400

2025  
2000  $\rightarrow$  dry

1870  $\rightarrow$  dry

1800  $\rightarrow$  dry

Ferrous Qtz. float 1630

1617  $\rightarrow$  dry

float  
Sandy sh 870  
+ Ferr Oxidized.

380 --- Bone line

G.O.D.  $\circ 60^\circ$  up  
 $\triangle 113$

Sandy shale  
Pot holes.  
P.T.D.

Str 255' up  
dip 40° North

See in layout sketch.

145  $\rightarrow$  Chi fuel

sh D 101

$\circ$  44  
Phyllite

$\circ 150^\circ$  up

$\triangle 0$   
To prospect

No 10 Camp 252

$\circ 150^\circ$  up

$\triangle 114$

4460'

R  
S  
T  
U  
V  
W



600 ft up stream  
St 257° W  
Dip 42° N or R.

Rocks are a Sandy Shale  
in places where more shaly  
they become phyllitic  
& there are small  
cubes of oxidized  $Fe_2O_3$   
in the sandy shales.

Further up stream  
St 260° W  
Dip 40° ± R or N.

Further up stream  
St 255° W  
Dip 47° N or R.  
SS. Shale +  $Fe_2O_3$  (little)  
Trench cut in N bank of  
river here about 10' long.

Further up stream at weir  
St 750° ~~W~~ may  
Dip 60° N or ±  
Sandy shale.

The weir was 490 ft  
up stream direct.  
About 800 ft up  
stream forks.

(Course checked)  
3300m

→ --- 3206 ---

--- 2200 --- Samba

2600 ---

--- 368 ---

← Samba 263 ---

--- 75 --- Samba

(3300m)

△ 114

Start for today.

Bar at 550 am 25.73  
= 4460

3/10/29. △ 114

Ball  
W. Rev. Smb

← 2857 --- Samba  
↓ --- 2280 ---

← 2040 --- Samba

↳ 1725 --- Latents mounds

△ 115

↑ 100' Lumbashi River  
Photos of river crossing

↓ 9140 ---

8600 Lumbashi's village.

← 8270 --- Samba

--- 4700 ---

--- 4600 --- Samba

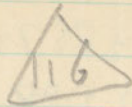
S  
T  
U  
V  
W



18.78 miles

No 11 Camp.

Today



7388

6910

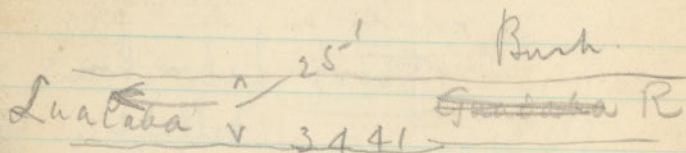
Sambo

6830

3820

Sambo

3600



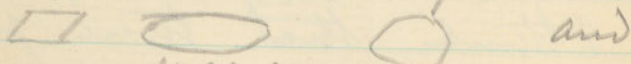
Sambo

Red soil cut

We started this am  
 from the point where  
 the mail route crosses the  
 Chiriqu River and  
 walked to the Lombashi R.  
 where we met R.T. Sicks  
 and Lee (latter a Colonel  
 Man). There we had breakfast  
 on the N bank of the river  
 having seen no rock but  
 a number of beds of  
 water worn quartz pebbles.  
 I think that these pebbles  
 are a result of a river  
 drainage or in other  
 words that they represent  
 bars in a river which is  
 now dry. Dr. J.A.B. suggests  
 that they are from a  
 bed of conglomerate but I  
 do not agree.

T  
U  
V  
W

Dicks & Lee showed us  
their map. They have done  
a splendid job and  
have got a rock which  
resembles very closely the  
Kundilungwa conglomerate.  
Above this horizon they have  
got a red shale with  
cells which suggest  
siderite & perhaps some  
pyrite. The cells have  
the following shapes

 and  
are filled with a  
fairly coarse red  
powder.

They have also got  
a carbonaceous shale  
above this conglomerate.  
They had samples of

Sandstone which appeared  
to come from below  
this ~~to~~ conglomerate.

D. J. B. thinks that there  
is the chance of there  
being the Bwana  
Mikubwa Series  
in the S.E. portion of  
Patrick's area.



57 8345 → to Dumbo

7727 54 → Beautiful view

1st. of Dumbo 4575\*

4100 Dumbo

4045

1923

1800

500

400 Dumbo



Camp 11.

4/10/29.

19.59 miles  
to here.

and 17240 Breakfast  
1045 AM

17214 Kakala stream  
stream's water

16685 Chikungu  
village

^ 15300  
Red soil

v 12588

← Dumbo

12100

T  
U  
V  
W

Ferry  
20248



20109

19682  
by

18054  
by Gabbro

17890 Gabbro has  
appearance of  
am. <sup>hydrothermal</sup> hematite

x This kopje presents something  
new - a very fine grained bright  
haematite cut by minute veinlets  
of a later haematite.

17682 x Kopje of  
Fe<sub>2</sub>O<sub>3</sub>  
sample for  
polishing

Gabbro 17520 Gabbro

No 13 Camp  $\triangle$  118

13.8 miles to camp

11.5 Kopje of  
red hematite

8419 fundamental  
analysis

SS. Solonchaks  
x 9/13 8200

No 12 Camp  $\triangle$  117

20675

T  
U  
V  
W



1068 mica ofj  
Str 35° W dip } Sli  
dip wort

230 Kofje  
Mica atzoli  
Str Schistosity  
135° W  
dip 55° SW

270° W

119

3072 we leave the  
mail route.

2600

Faces  
of 118

Mica atzoli

1800

118

330° W

N<sup>o</sup> 13 Lamp

6/10/29.

4590 Kalaba  
Mine

← 4088 — glonous  
stream

← 3814 — on stream

Kofje  
Mica atzoli  
Str 25° W  
dip 50° NW 2392

1675

Kofje  
Mica atzoli  
Str 60° W  
dip 55° NW

T  
U  
V  
W

## Kalaba Prospect

The Kalaba Prospect lies close to the junction of the ~~Kasanjiv~~ Kasanjiv and its tributary the Kalaba.

The Kalaba Claim is 37 acres in extent & is bounded by the two streams mentioned and a survey line.

The claim is at present in the hands of Yeta the King of the Baroto vs B.S.A. are something of that order.

The claim lies near the head of a valley which falls to the west & from what I saw the flanks of the valley are composed of the old basement rocks - (Check this.)

The prospect is a very poorly mineralized crystallized sandy limestone. This rock is folded and sheared and forms local domes, basins anticlines & synclines of no significance. There are a few zones



of shearing which  
are very local  
in extent and there  
are also some Criss-  
cross fractures.

The bedding planes  
& these small  
X-cross fractures  
have been the  
channelways for  
the solution which  
have altered the  
country rock to  
tremolite and have  
brought in the  
little quantity of  
chalcopyrite which  
can be found  
after a lot of  
digging.

The tremolite appears  
to alter to talc  
& the chalcopyrite gives  
place to Chalcocite  
and Chrysocolla  
Malachite.

There are some  
occurrences of  
hematite which  
are Saperfene  
replacements of a  
"Sandy shale" to be  
seen to the north.

The prospect as a  
whole is not  
worth a damn.

---

There is some  
iron with the Fe<sub>2</sub>O<sub>3</sub>

---

U

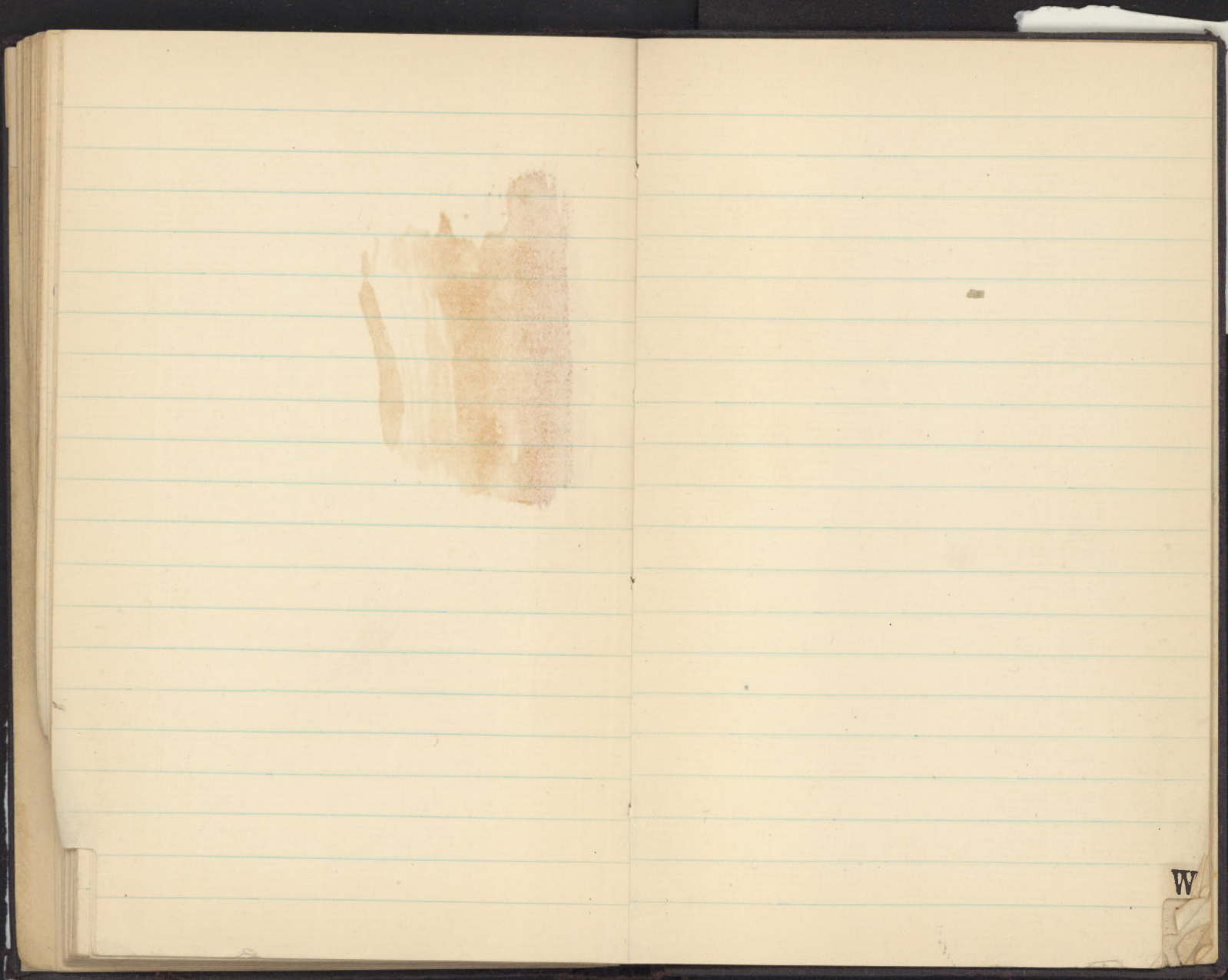
V

W



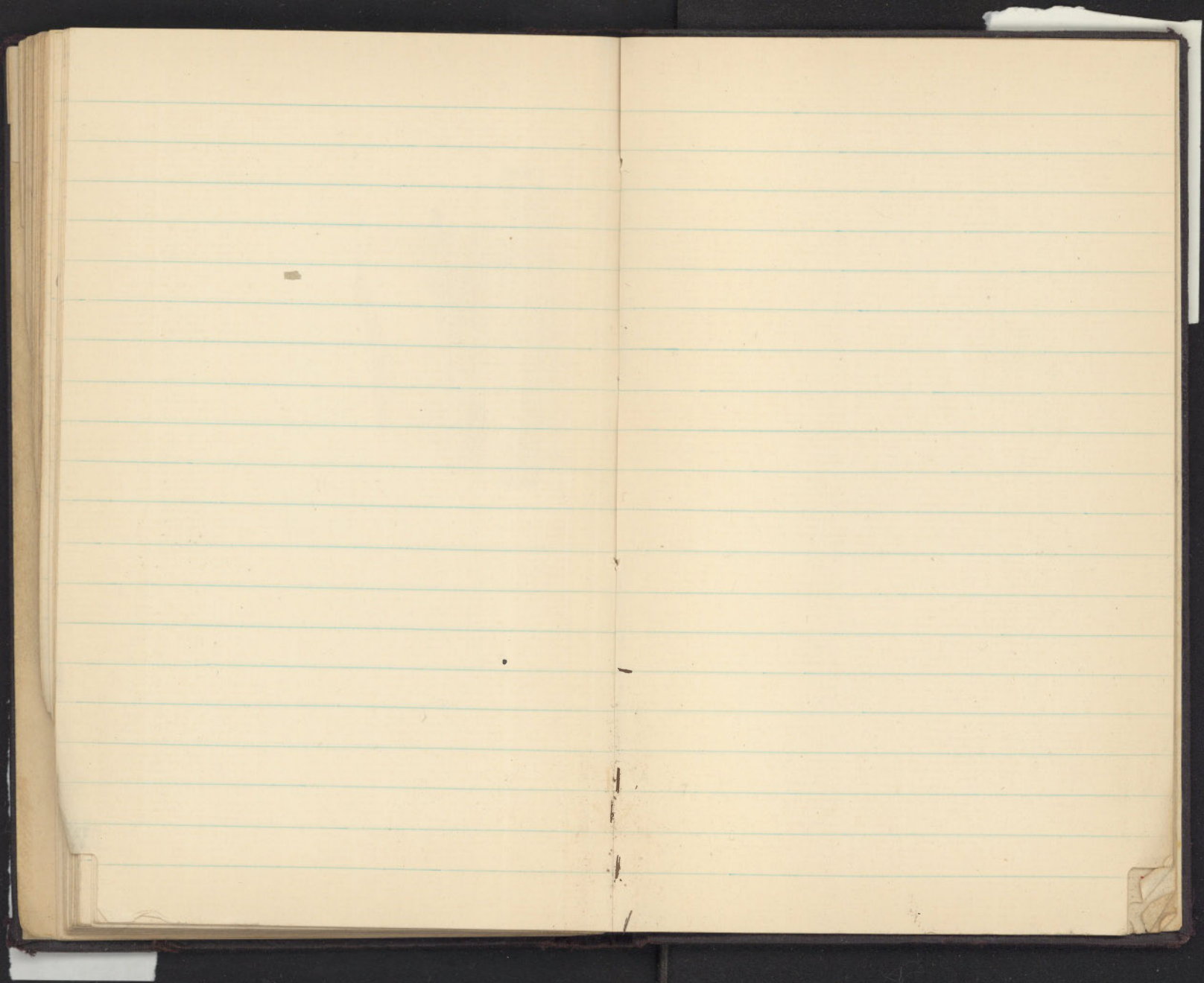


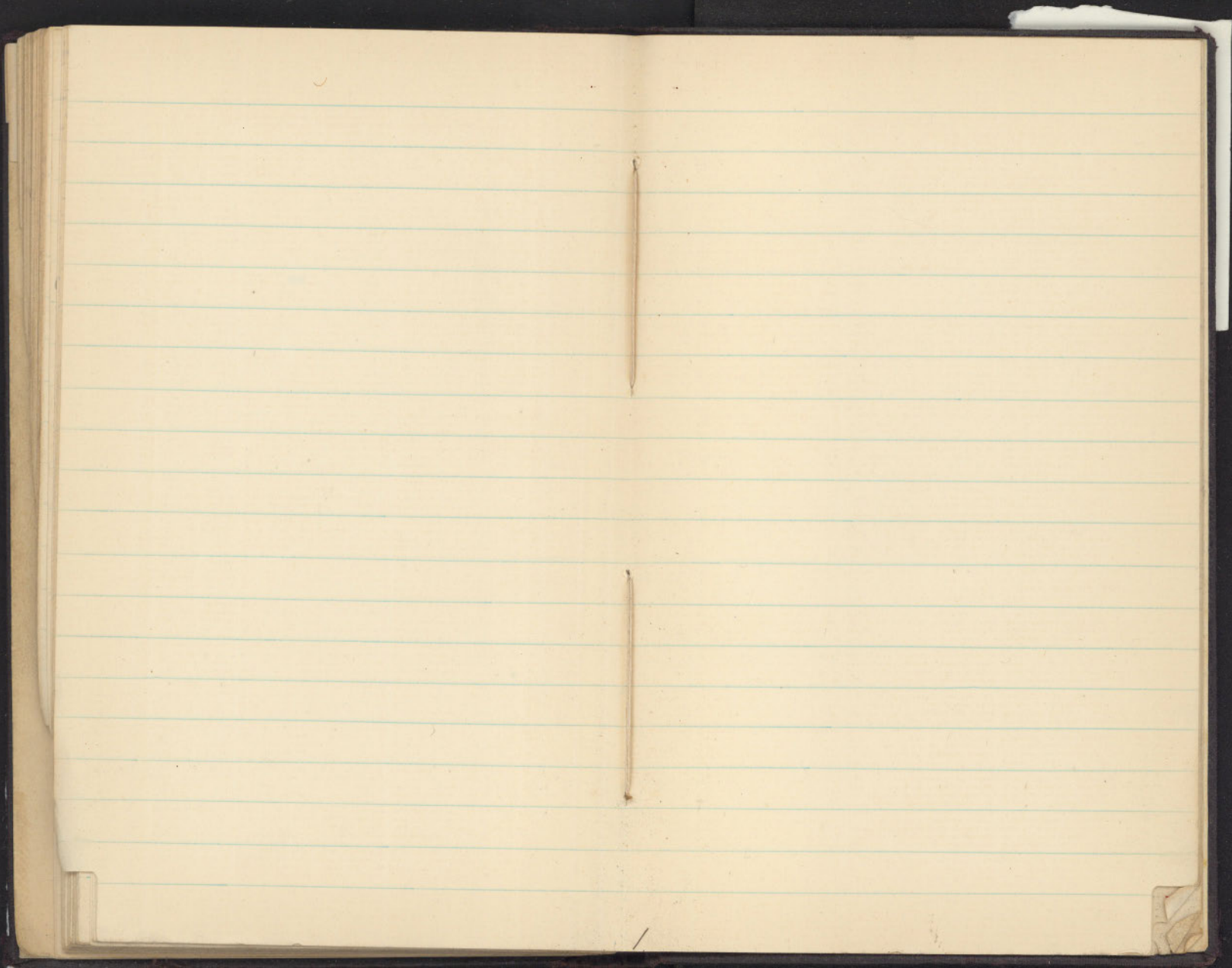
V  
W



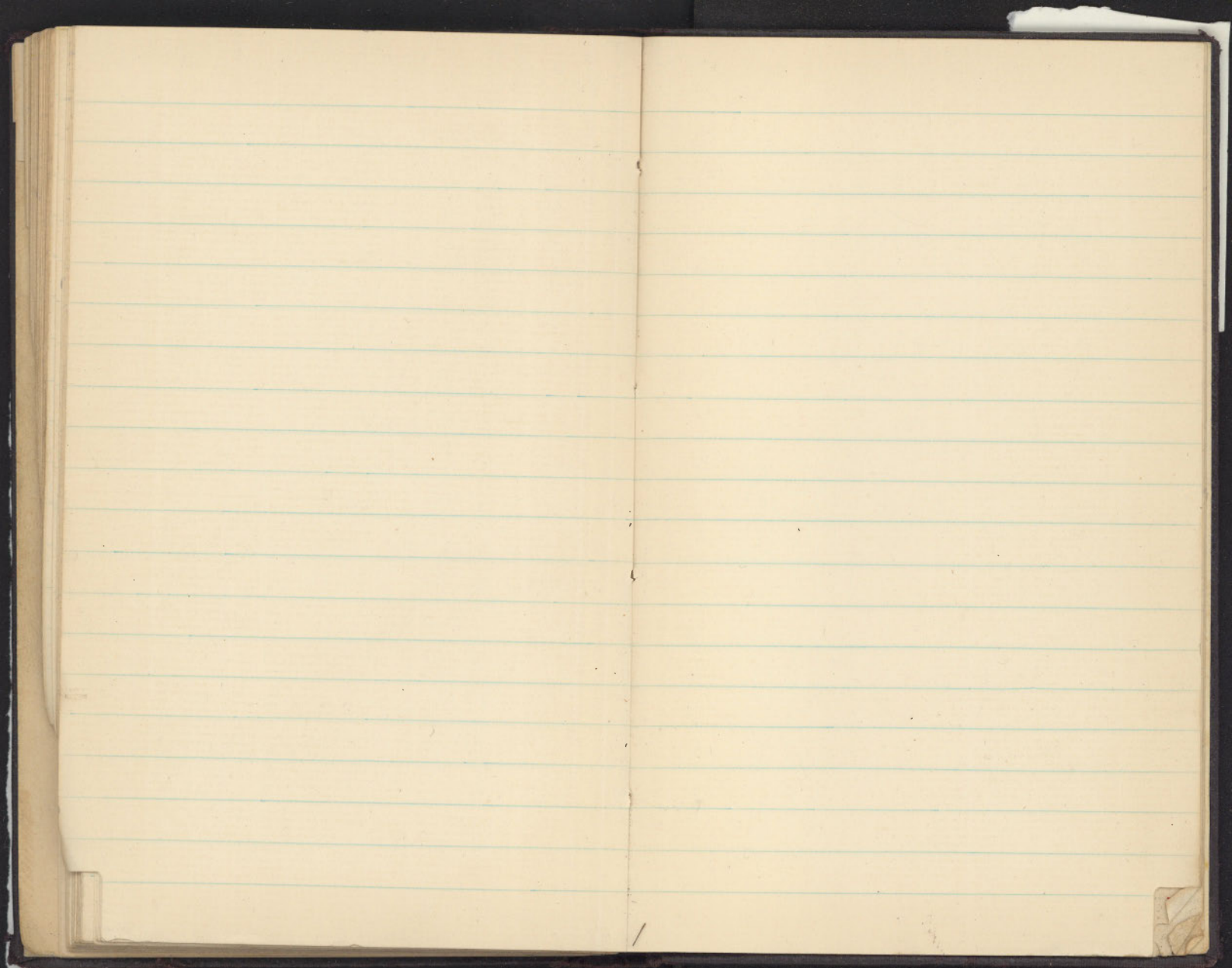
W

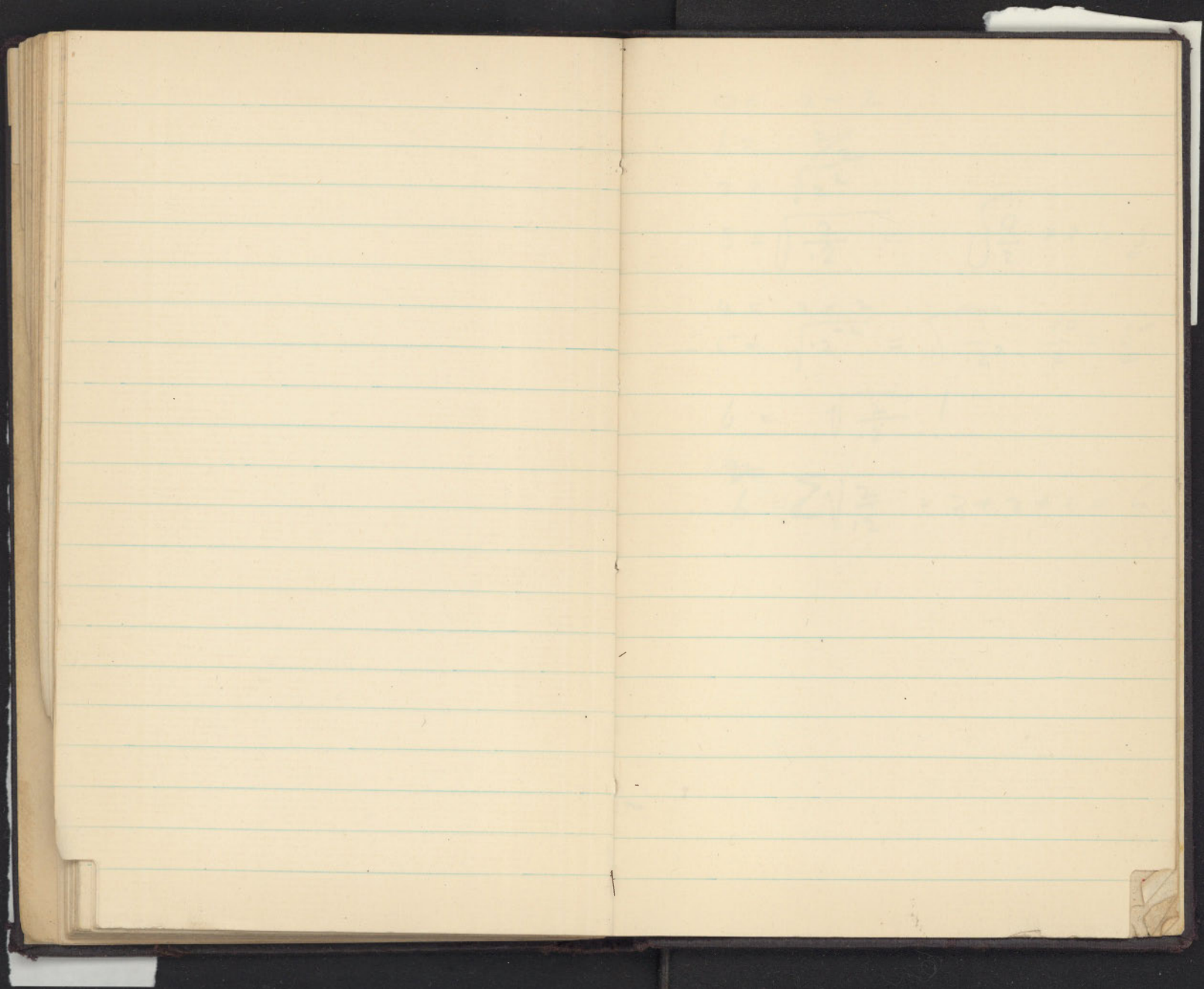














$$0 = 2 - 2$$

$$1 = \frac{2}{2}$$

$$2 = \sqrt{2^2}$$

$$3 = \sqrt{\frac{2}{.2}} = \sqrt{\frac{9}{2}} \times 2 = \underline{\underline{3}}$$

$$4 = 2 \times 2$$

$$5 = \sqrt{2^{-2}} = \sqrt{\frac{1}{.2^2}} \frac{10}{2} = \underline{\underline{5}}$$

$$6 = \sqrt{\frac{2}{.2}} !$$

$$6 = \sum \sqrt{\frac{2}{.2}} = 3 + 2 + 1 = 6$$





553	18.78	1240
700	.75	681
944	<u>19.53</u>	400
2015	<u><u>2505</u></u>	
2255	168	
1925	191	
273	203	
1417	1760	
<u>10 072</u>	<u>2700</u>	
2	8848	

176) 17 696 (10.5  
17 6

88) 10078 (11.45	960
88	<u>880</u>
<u>127</u>	11.45
88	105
<u>398</u>	<u>21.95</u>
352	
<u>460</u>	
<u>440</u>	

500	1402
910	2074
<u>315</u>	2955
1725	3600
44 4	
4 4	<u>10031</u>
11	
4) 345	176) 2006.2 (11.4
4) 86	<u>176</u>
11) 21	246
1.9	<u>176</u>
176) 3450 (1.960	702
176	<u>704</u>
1690	11.4
<u>1584</u>	1.96
1060	<u>13.36</u>
<u>1056</u>	
4	

2346

1000

354

678

815

148

5344

750

903

88 7653

176) 5344 (6.07

528

640

275  
150  
45

315  
180  
135

165

180  
345

5344 3

Redford

2760

2590

1695

2637

524

10 206

2041.2  
176  
281  
176  
105.2

2197

1336

861

Kasungu

9 + 3

M. S. Talpaard

de Loangwa Concessione

R. N. N. N.

235

130

55

900

10

18000

1760

215

180

35

4073

353

975

5403

170) 1080.6 (6.1  
1880  
2246

1925

1859

84

44



$$\lambda = \epsilon + D$$

$$h + \epsilon = 90^\circ$$

$$90 - (h - D) = \lambda$$

Broken "M powder"

Arguing with King Edward  
Prospects in R.M.C.  
L.I. Kerr says to ask  
Gordon James about  
above.

W.R. Harney

D.W. DuBuisson

6.6  
2.4  
9.0

25.81  
25.56  
2.25

4360  
260  
4100

180  
180  
330

1575  
185  
1760

1760) 31437 (17.8  
1760  
13837  
12320

170  
50  
550

115120  
14080

5000  
2000  
3000  
4500  
14500

236  
180  
5

G. N. H. WHALES,  
BOOKSELLER,  
BROKEN HILL, N. RHO.

336  
224

3050  
769  
2323  
791  
300  
477  
726  
99176  
3200  
3981  
15716  
19128  
176  
1528

450  
5464  
1658  
1992  
9564  
2  
10

