

1869





MCGILL UN	
AF	
ACC. N°	909 B
REF.	45/1a

as seen in
... the ...

52
G. M. Dawson

September 11th 1869

W. W. Garrison

September 11 1861

Saturday Sept 11th 1869

Started from Montreal for Glasgow
in ship Lake Erie ^{930 tons} ^{Cable Station} from Island
wharf at 2.30 PM. after waiting
on board from 8.30 AM which had
been fixed the night before as the
time. Just after leaving wharf
in tow of two tugs the ship took the
ground opposite the Michalean wharf
and remained there till both tugs were
made fast alongside and drew her
off. Anchored ~~off~~ ^{offshore} at 8.30 PM for
the night.

Sunday Sept 12th
Weighed anchor at 4.30, and
proceeded down the river. passed
Three Rivers at ~~ten minutes to~~
10 o'clock. Passed Natiscan at
ten minutes to 12 and the
S.S. Prussian at anchor waiting
for the tide. She caught up to
and re-passed us at 2 PM.
Passed Quebec at 6.30 and

Changed pilots without stopping.
Passed S.S. Austrian inward bound,
7.40 P.M. Wrote home, and
sent the letter by river pilot a
Quebec. Dropped anchor, half
way down the Island of
Orleans; to wait for daylight
and tide to go through the
Traverse at 8.30 P.M. Put
anchor in about 10 fathoms water
30 fathoms cable out.

Monday Sept 13 1869

Got anchor up and under
way at 6 A.M. were delayed till then
waiting for the tug which had gone
to Coll. Light winds and hazy.
Passed the Research of Yarmouth Ch.S.
in tow of Ranger, and Sunbeam
at anchor near the end of the
Traverse at 1.40 P.M. Pulled in
the hawsers ~~and~~ cast loose from
tug Hero, and set sail at 2 P.M.
Abreast of Murray Bay 3.30 P.M.

4:30 P.M. We passed the John
Bunton in tow of Heron. Passed
Wolfeville at anchor 4:40.

Ahead of Goose Isle of Kamouich
light at 6:40 P.M. Opposite Pigeon
light ^(about 1 1/2 miles off) at 9 o'clock. Have had light
S. and S.W. breezes since the tug
left us, gradually freshening, and
going round more to the west.

It has been a very fine warm
day with a beautiful warm
sunset over the north shore
mountains. Made two sketches
one of Goose point - above
Petit Mal Bay and the other
of Goose Island lighthouse.

A great many white porpoises
round the ship all the afternoon
and evening. About 8 o'clock
counted 32 blowing in 30 seconds.
Pilot - said in conversation that
formerly there was a regular
cod and halibut fishery off

Green Island though they
are not now caught in
profitable quantities higher
than Father point. Also that
there were plenty of lobsters
there though none are now
seen. That sea cows (Walrus)
were caught all up the river
the farmers using strips of their
thick skins for Calache traps,
and that Gulle Vache shoal
was called after these animals
Wrote a letter home to send off
by pilot at Bic, in case there
should not be time to do so
before he left in the morning.

Tuesday left 14th

Pilot left us at Bic 5 A.M. Fine
westerly breeze. 10.45 passed
Champion of Noon bound up. Fresh
breezes W.S.W. Barom 30.35. ^{Temperature}
30.195. Thermo 64. 3 P.M. Wind
chopped in to the Nother and, braced

up and trimmed the sails
7 P.M. Point de Monts light
bearing N. W $\frac{1}{2}$ N. distant 18 miles.
Wind chopped into N.E. braced
up and trimmed sails. 8 P.M.
Barom 30.35. Thermom 30.40
Thermom 61.

a lovely sunset this evening
over Cap de Monts splendid fiery
clouds lying like bars across the
west. The south shore a beautiful
cool lavender. The sky behind the
flaming clouds was a bright-soft
Canary colour. Had the trawled
lines over this afternoon but caught
nothing. I find the time passes
away very largely, especially with
regard to reading. The soft-flashing
of the water and noise of the sails
seems to exercise a mesmeric effect,
and keeps one from understanding
anything but the most simple
books. Look first lesson with
quadrant today. 8 P.M. going $6\frac{1}{2}$ knots

water throughout where disturbed
by ship

September 15 1869

A.M. Wind veering northwards 5 A.M.
Tumbled yards and set lower and
topmast-studding sails. 9 A.M. Wind of
anti-cycl. in sight. Light-bore SE
distant about nine miles. $4\frac{1}{2}$ points
variation. Noon wind going westward
with clear weather. Remarkable hill
bearing S by west about 8 miles off.

At 2 P.M. abeam N point beacon.

Breeze freshening. 6.30 W cliff and
beacon bore SW. by W. distant
7 or 8 miles. ~~SE~~ Barometer

30.16 at 3 P.M. Symp 30.15

Therm $58\frac{1}{2}^{\circ}$. 8 P.M. Barom 30.10

Symp 30.5 Therm 58° .

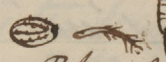
Only passed one ship and two
schooners all day. We took the
Canadian Channel W of Anticosti
intending to run through the straits
of Belle Isle, the wind being favourable

It has been very cold all day. |
Passed down mid channel |
to far off to see anything but |
the outlines of the Labrador and |
Anticosti coasts. Ship rolling and |
pitching a good deal and some |
water coming in by the scuppers. |
Saw some of the splendid cliffs on |
the N coast of Anticosti through |
the glass. Had the mackull lines ⁵⁰ over |
in the morning but caught nothing. |
I tried ~~on~~ the towing net, but the ship |
was going too fast. 8 P.M. wind |
began to go round towards N.E. 10 P.M. |
Wind about N.N.E. ship going $12\frac{1}{2}$ knots |
10.30 wind went round a few points |
more yards had to be braced up.

Sept 16th 1869



Fresh breezes and clear weather. 10 A.M. |
Wolf Island bore N.E. by N. distant |
about 10 miles. Noon. Strong breezes |
3 P.M. Barom rising & a head sea |
coming. Breezes being contrary we

gave us Belle Isle straits, and
bore away for Cape Ray Latitude
at noon $49^{\circ}55'$ Long $59^{\circ}17'$
All stunsails out. 8 P.M. Barom
30.475 Therm $5-8^{\circ}$ Symp 30.275.
Fresh breeze and clear weather. S.S.
Very cold.

Friday 17th left
6 A.M. Hauled up for Cape Ray in all
stunsails braced up. Let fore and
afters. Several ships under the lee
bow coming up the Gulf. Barom 30.5
Therm $5-6^{\circ}$ Symp 30.4. Noon fresh
breeze from the East. Barom 30.5
Thermom $5-5\frac{1}{2}^{\circ}$ Symp 30.9. All
sail set. P.M. Light winds and
variable. 8 P.M. Cape Ray bore NNE
distant 8 miles. Water very phosphorescent
where disturbed by the ship. Had
over the towing-net and got several
rich hauls. Ectoparasiticus Jelly-fish
se . S.S. most of day.
12 P.M. Light winds and variable

Saturday 18th Sept

A.M. light and variable winds.
5 A.M. Wind chopped up from
N.W. Trimmed sails. 8 Wind
veering NE and E. Barom 30.530
symp 30.4 Therm 56°. Noon light-
winds and clear weather. P.M.
Employed washing down. 4 P.M.
Wind veering SW on starboard
stemsails. Lat at noon 47° N Long by
Chronometer 58° 54' W. Saw
several ships & schooners &c. A number
of small birds, some sparrows, but
mostly a small olive and grey
flycatcher were about the ship
all day; also a hawk which,
caught and ate one of them.
Caught several of the flycatchers
and put them in the cabin where
they flew about catching flies
for some time. Toid the tow-net
this A.M., and had a good
haul of very small red bodies

with protruding spicules .
Watched the sun go down over the
edge of the ocean, not a cloud
intervening at the moment of
contact it appeared thus, 
and also for some moments
after wards, a ^{bright} projection seeming
to rise out of the water to
meet it. After the upper limb
had disappeared for some moments
a small conical light remane
visible pointing upwards. When
the sun was just on the horizon
the strata of thin mist in the
atmosphere made it to assume
exactly the ^{banded} appearance of Jupiter,
through a telescope.

Sunday 19th Sept.

A. M. Wind veering SW, Lined
in port stunsails set all fore
and afters. 8.30 passed a light
ship bound west ward. Saw
several large whales blowing.

10 A.M. passed a schooner at anchor on St. Peter's Bank. Noon Breeze freshening. Latitude $46^{\circ} 24'$ Long Chronom $56^{\circ} 58' W$. 6 P.M.

Ship sailing $9\frac{1}{2}$ knots ea setting up. 6:30 passed a schooner running to westward. 7 P.M.

commenced raining weather becoming thick. Barometer slowly falling since morning. At 7 P.M.

Barom 30.25 Symp 30.25 Therm 60°

Monday Sept 20th 1869

Breeze still freshening with hazy weather and passing showers. 5:30

A.M. Passed Cape Race bearing $N\frac{1}{2}E$ distant 5 or 6 miles. in main

to the gal studdensails. Noon, strong breezes and hazy, with a rising sea



Barom 29.9 Ther $59\frac{1}{2}^{\circ}$ Symp 29.9

Lat by acc $46^{\circ} 53'$ Long $51.8 W$.

6 P.M. Breeze ~~freshening~~ falling and weather becoming thicker.

Had cabin fire lit for first time.

Blowing fog horn. 8 P.M. Landed

and got bottom at about 45 Fath
11 P.M. Breeze almost gone, Tried
tow net, and got a lot of the
usual luminous entomostriacis
some jelly fish of this shape  and
some curious transparent animals
of this form 

Tuesday Sept 21

2. M. Threatening to blow by sudden
puffs and hazy in all fore and afters
and light sails. 3 A.M. blowing
hard, close reefed the three topsails
reefed and furled courses and furled
topsails 8 A.M. strong gale wore ship
Bar 29 Pump 29.7 Noon strong
gale with a very heavy topping
sea. Ship making very bad weather
of it. Wore ship to S.E. Cabin
filled with water first from sail
locker, afterwards on the port side
Large quantities of water continually
on deck rushing from side to side
as the ship rolls. ~~the~~ sometimes

skipped several heavy seas in
succession and righted with great
difficulty. Cargo shifting. Cabin stove
broke adrift. Mate ^{was nearly washed overboard.}
Wednesday Sept. 22nd

A.M. More moderate but a heavy sea
on barom rising set lower
mizen top sail and reefed fore sail
8 A.M. More moderate, set the
three reefed up topsails, whole fore-sail
and reefed main course. Noon
strong breeze, and passing cloudy
weather with showers Lat obs $47^{\circ}48'$
Long by chronometer $50^{\circ}4'W$

Bar 30 Therm 29.75. 7 P.M. Breeze
freshening in up mizen top sails

Thursday 23rd 1869

Set sail. Daylight more moderate
but a very heavy head sea.

Set whole top sails courses, staysail
and main top sail. Tried to
Catch some gulls and petrels
which were flying astern with a
hook but the ship was going to
fast and ~~sea~~ too heavy.

-XX

7 Pm Bar 30.15 Symp 30.15

Very heavy swell from the NE increasing much. took in most of the sails to keep her from pitching into it so much.

Friday Sept 24th

Daylight more moderate swell more easy made all sail Barom 30.1 Symp 30.1. Noon more moderate out all small sails. Lat obs 48°40' Long 45°20' Pm wind veering aft and swell going down. Put all port-studding sails. A great many gulls and petrels were flying astern all day but refused to be enticed by the bait. 7.30 Pm Symp 30.1 Barom 30.3.

Saturday Sept 25th

A.M. Freshening breeze with heavy rain 3.30 am wind veering right aft, in port studding sails and mizen royal daylight still increasing with a topping-ree. 8 Am Bar 30 Symp 30

wind veering WNW
 Noon Bar 29.95 Therm 29.95
 strong breeze with a very heavy
 sea ~~with~~ wind running N
 with heavy squalls 2 PM breeze
 increasing in top gallant sails
 4 PM still increasing with heavy
 and frequent squalls single
 reefed the top sails. 6 PM in
 outer jib and reefed the main course
 7.30 in upper mizzen top sail
 Lat by Pole Star $50^{\circ} 25' N$.
 saw a land bird on the ship
 today

Sunday 26th Sept 1869

Squally wind veering WNW set upper
 mizzen topsails reefed and whole main
 course, 4 AM out outer jib and reef
 of fore top sail, 9 AM reef out mizzen top sail
 and set main top of 9th sail. Noon
 more moderate out royals and all
 small sails. Lat obs $57^{\circ} 17'$ Long by
 Chron $36^{\circ} 46' W$. 3.30 wind dying

away and going round to W^d
6-30 P.M. wind freshening slightly
from W^d with drizzling rain.

It has been a very fine day but
Cold. 9 P.M. Very dark, and water
phosphorescent ~~both~~ in ships wake
both generally, and in occasional
large bright sparks, ship however
going much too fast to use tow-net
(9 knots) 10-30 P.M. breeze still
freshening and coming away to S^d
of W.

Monday 27th 1869.

A.M. Fresh breeze from W^NW
Noon. strong breezes and hazy weather
Bar 30 Rum 29.9. 6 P.M. squally
wind drawing Northward in Top
Gt Stud, Lower Stud, and Main Royal
8 P.M. Heavy squalls Bar and Symp
falling. In Top main yards & Top Galt
sails. Reefed and furl'd fore and main
sails. In job reefed and furl'd fore
course. In job reefed and furl'd fore

Coveces, Gale still increasing.

11.30 P.M. Bar 29.9 temp 29.8

Wind still increasing. A great deal of water on the decks, and the ship making bad weather, the sparrows in lower hold shifts to one side after she has been for some time on one tack, and makes her take in a great deal of water on the main deck. Saw several land birds on the ship this morning grey and black with short yellow bill and thin black legs; they had a ruddy ring under the neck, and were larger than a common sparrow. Saw a shoal of porpoises passing the ship some of them completely jumping out of the water. They must have been going about 12 knots. The water washing about the deck after dark was full of luminous animals, showing like bright sparks. The spray dashing across the ship driven by the wind ~~was~~ as if it was spitted from a hose.

Sept 28th 1869.

Strong gales with heavy squalls forced to run the ship off before it sea being too heavy for anything else. & the ship making such very bad weather, as she would be in the trough of the sea when hauled up to her course. Tacking in heavy seas and rigging with difficulty.

Daylight, fearful hollow sea and strong gale. a rope had to be stretched along bulworks of poop to hold on by. A great deal of water got into the cabin, and ran from side to side as the ship lurches about, a little more moderate. Lat 52°43' Long 27.3 W. Set upper reefed main top-sail and reefed fore sail. Lots of sea gulls near the ship. More porpoises seen today. 6 P.M. wind freshening again from N^W & P.M. Heavy squalls and strong gales. Worked ship - fearful work in such weather with so much water on deck, - got her head to the sea and close hauled under two close

reefed topsails and main spence.
My trunks had to be brought out
of my cabin and secured by rudder
trunk for fear of water. Notwithstanding
the gale it was a beautiful clear
star-light night

Wednesday 29th Sept

Am Barometer high and rising but
gale still continues. 8 Am do. Moon
Lat obs $57^{\circ} 57'$ Long $26^{\circ} 8' W$.


4 Pm a little more moderate, wore
chip and set mizen lower top sail
and fore sail, after bynd too under
two reefed topsails, and drifting to
S^d and E^d since 8.30 pm yesterday.

6 Pm squally and gale rising.

10 Pm Bar 30.25 Symp 30 ds. Wind
strong gales with heavy squalls and a
very heavy sea.

30 Sept

Strong N E gales with heavy head sea
all night. Ship pitching about
tremendously and making hardly

any headway. 8 A.M. Bar 30
 Pump 30 10 A.M. increasing, reefed
 fore course and fuiled it. Soon
 strong gales and a very heavy
 head sea. Lat $57^{\circ} 36'$ Long by
 chro. $25^{\circ} 10' W$. 8 P.M. more moderate
 set fore and main course Bar 29.95
 Pump 29.85. 10 P.M. tried tow-net
 but with some difficulty on
 account of the heavy sea on, but
 made a pretty good catch, including
 some curious transparent balls
 with a dark centre and studded with
 bristles or spicules 

Friday Oct 1st 1869

Daylight, moderate, out all sail
 soon smart breeze, and equally
 with a heavy sea on. Lat obs $51^{\circ} 41'$
 Long by Chronometer $23^{\circ} 56' W$.

Midnight Bar 29.9 Pump 29.85. Water
 phosphorescent where disturbed by ship, also
 the waves as they break. Wind light
 veering and hauling several points

N and E.

2nd Oct 1869

A ln light-winds and variable
with slight-rain. 4 Am Bar 29.9

Therm 29.8. Noon Lat obs $52^{\circ}34'$

Long by chro $20^{\circ}53'$. 3 Pm Wind veering

N out port Studdinsails. Wind

variable. 9 Pm In all port Studdinsail
Midnight light winds and variable

Saw two outward bound vessels
on the Horizon today the first of any
kind since leaving Cape race. Sea
luminous in ships wake and
where the waves break both generally
and in bright sparks. Tried tow-net
and found it to be caused by
great numbers of small pulmonisced
~~about~~ from $\frac{1}{4}$ to $\frac{1}{2}$ an inch
across. Made drawing of them.
Some porpoises passed close to the stem
this afternoon.

Sunday Oct 3 1869

3 Am Wind veering S^d, hanted

up SE by E $\frac{1}{2}$ E & trimmed
yards and sails. Bar 29.9
Symp 29.8 10.30 AM Breeze
increasing in fore and mizzen
royals. Noon. Fresh breezes and
cloudy, all sail set Bar 29.93

Symp 29.85 Lat obs $53^{\circ}46$ Long
 $17^{\circ}25$ 6 PM Freshening in main
royal and mizzen Top & stay sail
8 PM Water phosphorescent same as
last night but going to fast to
try tow-net which does not work
well at a greater speed than three
knots, or four with water very
~~smooth~~ calm. Danger of tearing it
to pieces at greater speed.

Monday Oct 4th

Fresh breezes and hazy. 8 AM Breeze
freshening in flying kit, and main
Top Gallant staysail 9 AM In
Cross pack. Noon fresh breezes and
Hazy weather In mizzen top gallant
sail Lat by acct. $55^{\circ}3$ Long $11^{\circ}46$

8 Pm Bar 30.1 Temp 29.9

11.30 Pm passed a steamer oldwood
bound. Midnight. Fresh breeze
and haze. Water phosph, as last night.

Tuesday Oct 5th 1869

Smart breeze and haze.

Daylight - a sailor sent up the
rigging sighted the Irish coast,
the Bloody Foreland and High
Land Inside of Long Island
Naou. Long Island S $\frac{1}{2}$ E distant
about 17 miles. Lat obs $55^{\circ} 33'$

Long. 6 PM. Wind variable
and fresh, very unsteady.

Passed Linstahull bearing S by W $\frac{1}{2}$ W
distant about 8 miles. In small
sails. 7.30 P.M. Lelay light -
E by S distant about 16 miles.

Looking out for a tug all day
but could find one. Had trawling
lines out without success. Saw
several ~~ships~~ vessels very distant
near Linstahull. Water phosphorescent
small starlike sparks. 10 Pm Rhine

light bore N E by N, Tacked
ship to S^d.

Wednesday 6th Oct 1869

Innistrakull light-bore NW by
W. Inishowen light-bore
SW about. Tacked ship to
Eastward. 5 Am Tacked ship
6.30 Am Tacked ship. 7 passed
N W^d of Rathlin. 9.40 Am Mull
of Cantire bore SE by S. Tacked ship
10 Am Mull of Cantire bore SE by E.

10.15 Bar 30.3 Rymph 30.15. 11.30 Am
Tacked ship to SE^d. 2 Pm Tacked
ship Mull of Cantire bearing SSE
5 miles dist. 6 Pm Tacked ship
7.30 Pm Tacked ship

Beating up the North Channel all
day against a strong tide, and
going to leeward till 5 Pm. Weather
thick and hazy. Can't find a tug.
Had tow-net over but broke the
bottle in taking it in.

Thursday Oct 7th 1869

12.40 A.M. Made a close shave also
of Ailsa Craig, passing it by about
half a mile. A great many lights
of ships and steamers but could
not make Pladda Light for some
time. 1.40 Tug Stork came alongside
and the captain came on board.

light bore NE by N, Tacked
ship to S^d.

Wednesday 6th Oct 1869

Innistrahull light-bore NW by
W. Inishowen light-bore
SW about. Tacked ship to
Eastward. 3-Am Tacked ship

6.30 Am Tacked ship. 7 passed
NW^d of Rathlin. 9.40 Am Mull

of Cantire bore SE by S. Tacked ship
10 Am Mull of Cantire bore SE by E.

10.15 Bar 20.3 Rymph 30.15. 11.30 Am

Tacked ship to SE^d. 2 Pm Tacked

ship Mull of Cantire bearing SSE

3- miles dist. 6 Pm Tacked ship

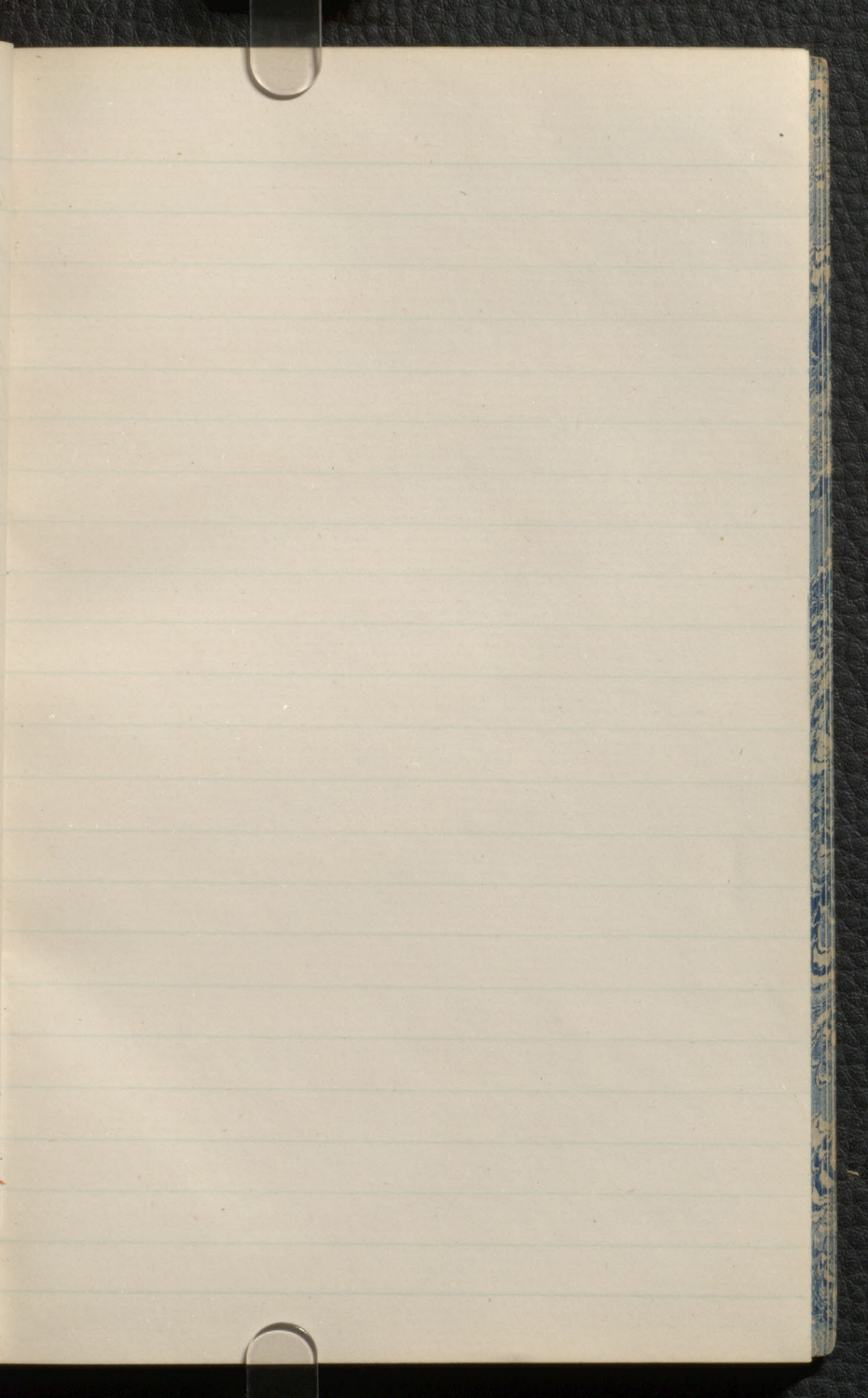
7.30 Pm Tacked ship

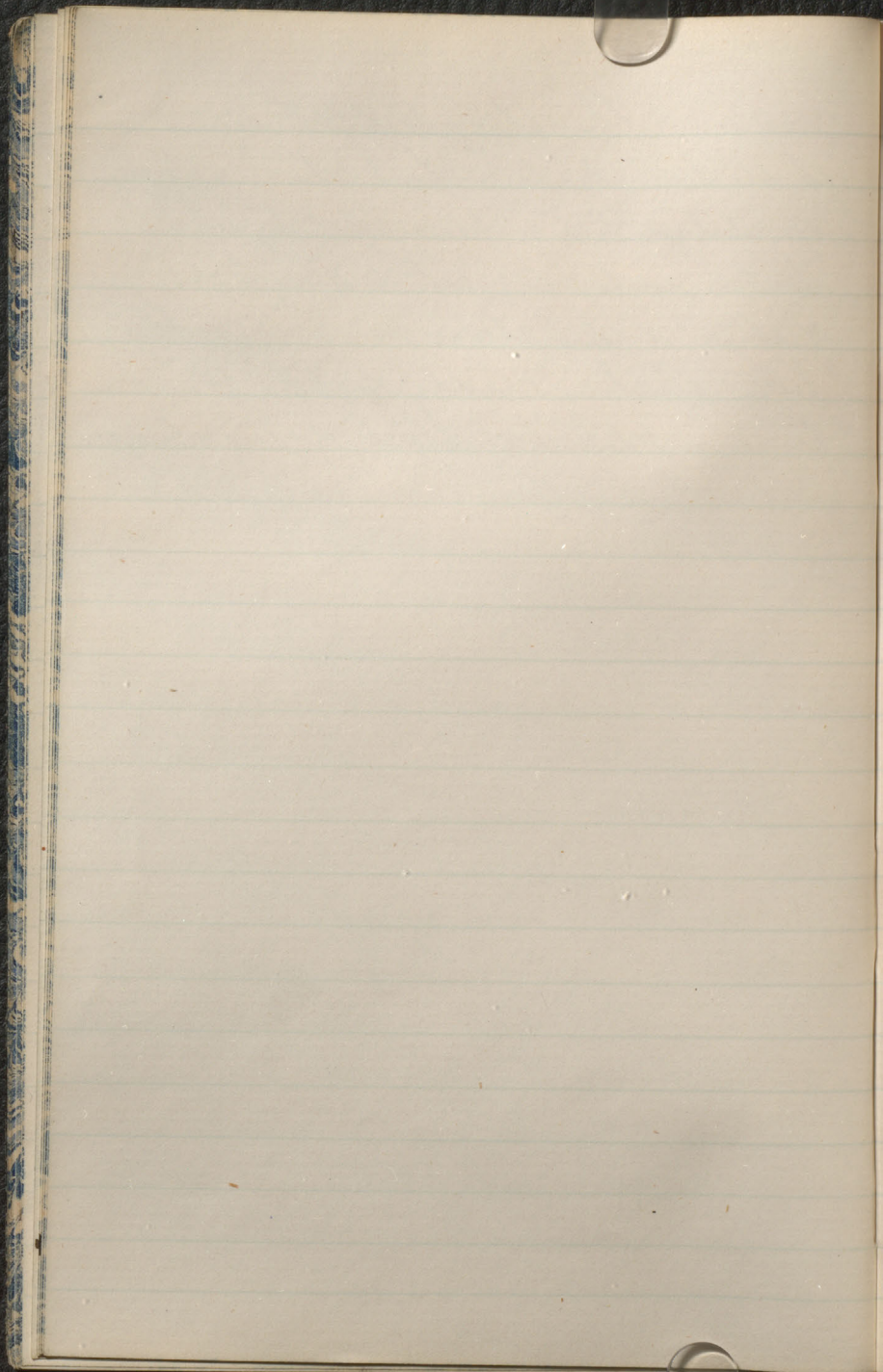
Beating up the North Channel all
day against a strong tide, and
going to leeward till 5-Pm. Weather
thick and hazy. Can't find a tug.
Had tow-net over but broke the
bottle in taking it in.

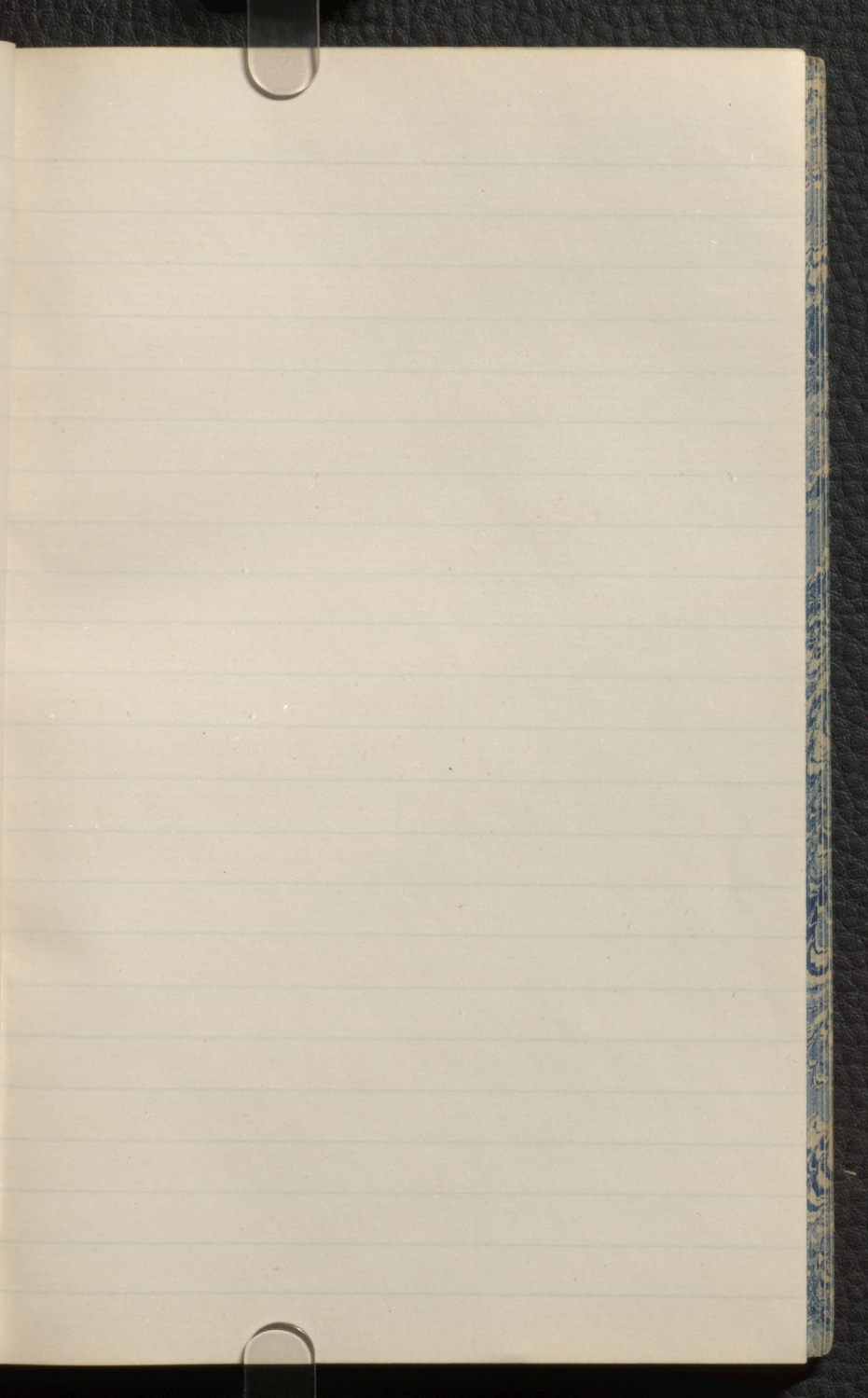
Thursday Oct 7th 1869

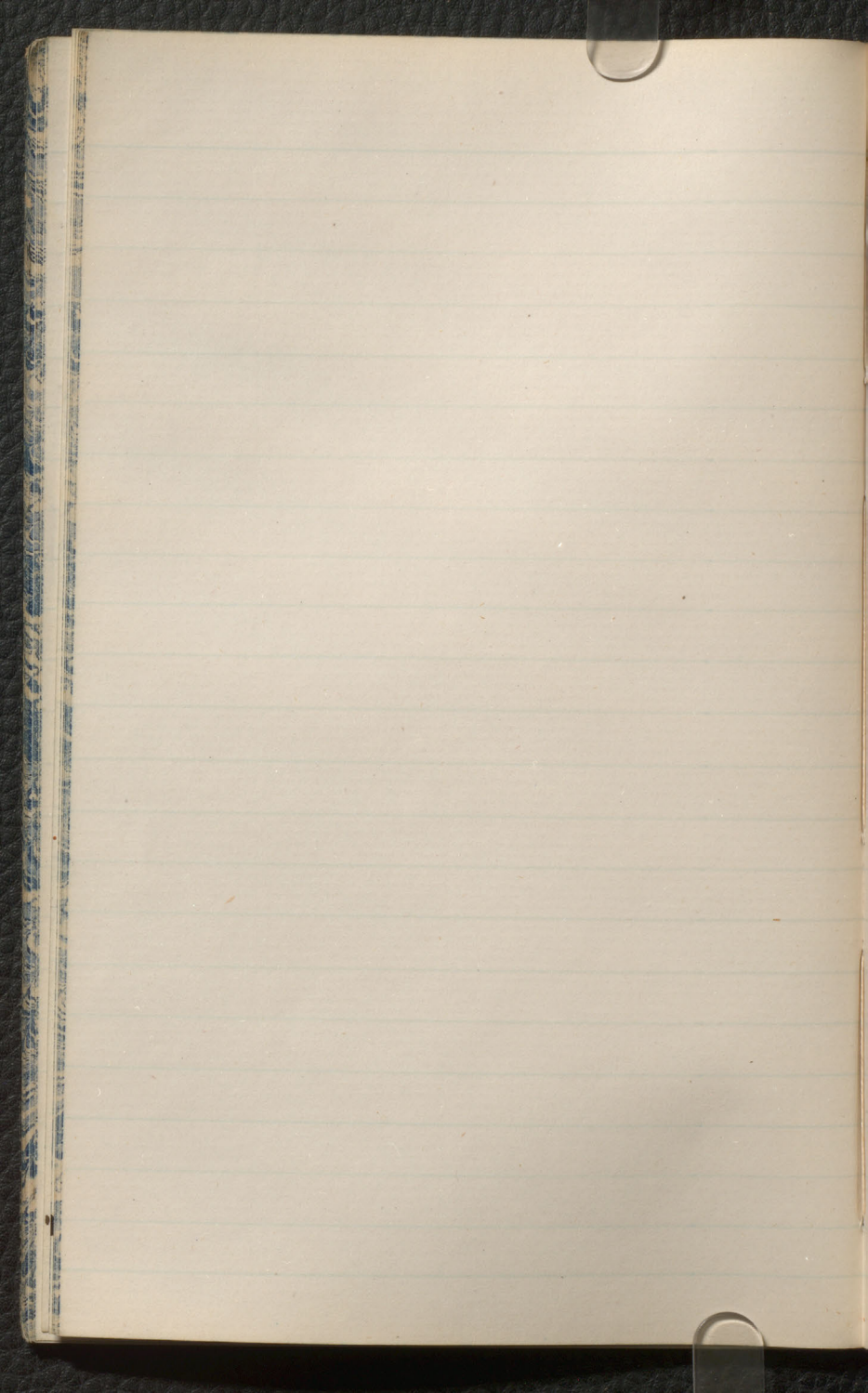
12.40 A.M. Made a close shave also
of Ailsa Craig, passing it by about
half a mile. A great many lights
of ships and steamers but could
not make Pladda light for some
time. 1.40 Tug Stork came alongside
and the captain came on board.

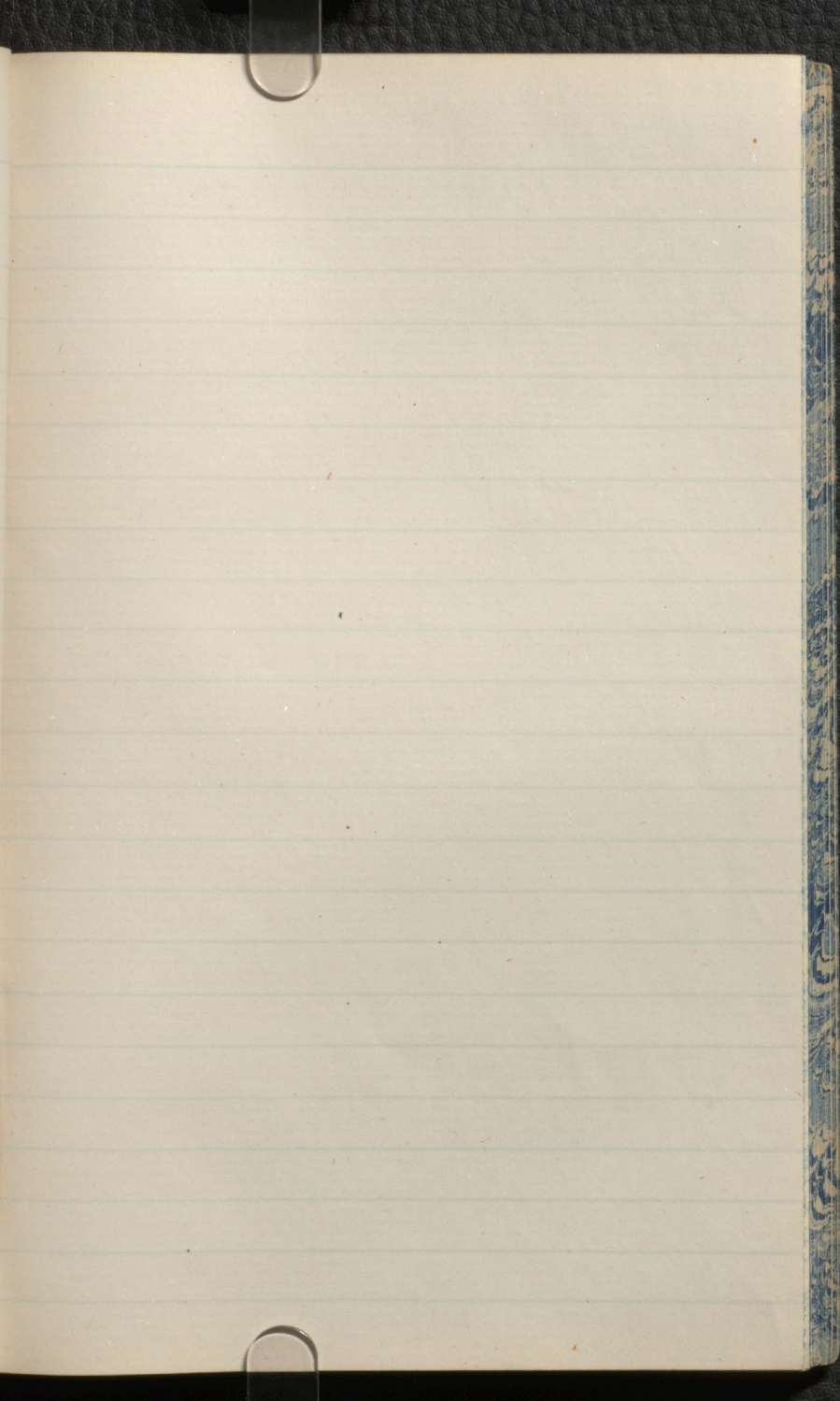
Thursday Oct 14 1914
1. No. 11. Made a close haul
of water. One young of about
1/2 inch. To great many lights
of this and others (see below)
not quite 1/2 inch high for some
times. The top of the water
and the bottom of the water
at 11:00 A.M. 9. 10. 11. 12. 13.
14. 15. 16. 17. 18. 19. 20. 21. 22.
23. 24. 25. 26. 27. 28. 29. 30. 31.
32. 33. 34. 35. 36. 37. 38. 39. 40.
41. 42. 43. 44. 45. 46. 47. 48. 49. 50.
51. 52. 53. 54. 55. 56. 57. 58. 59. 60.
61. 62. 63. 64. 65. 66. 67. 68. 69. 70.
71. 72. 73. 74. 75. 76. 77. 78. 79. 80.
81. 82. 83. 84. 85. 86. 87. 88. 89. 90.
91. 92. 93. 94. 95. 96. 97. 98. 99. 100.

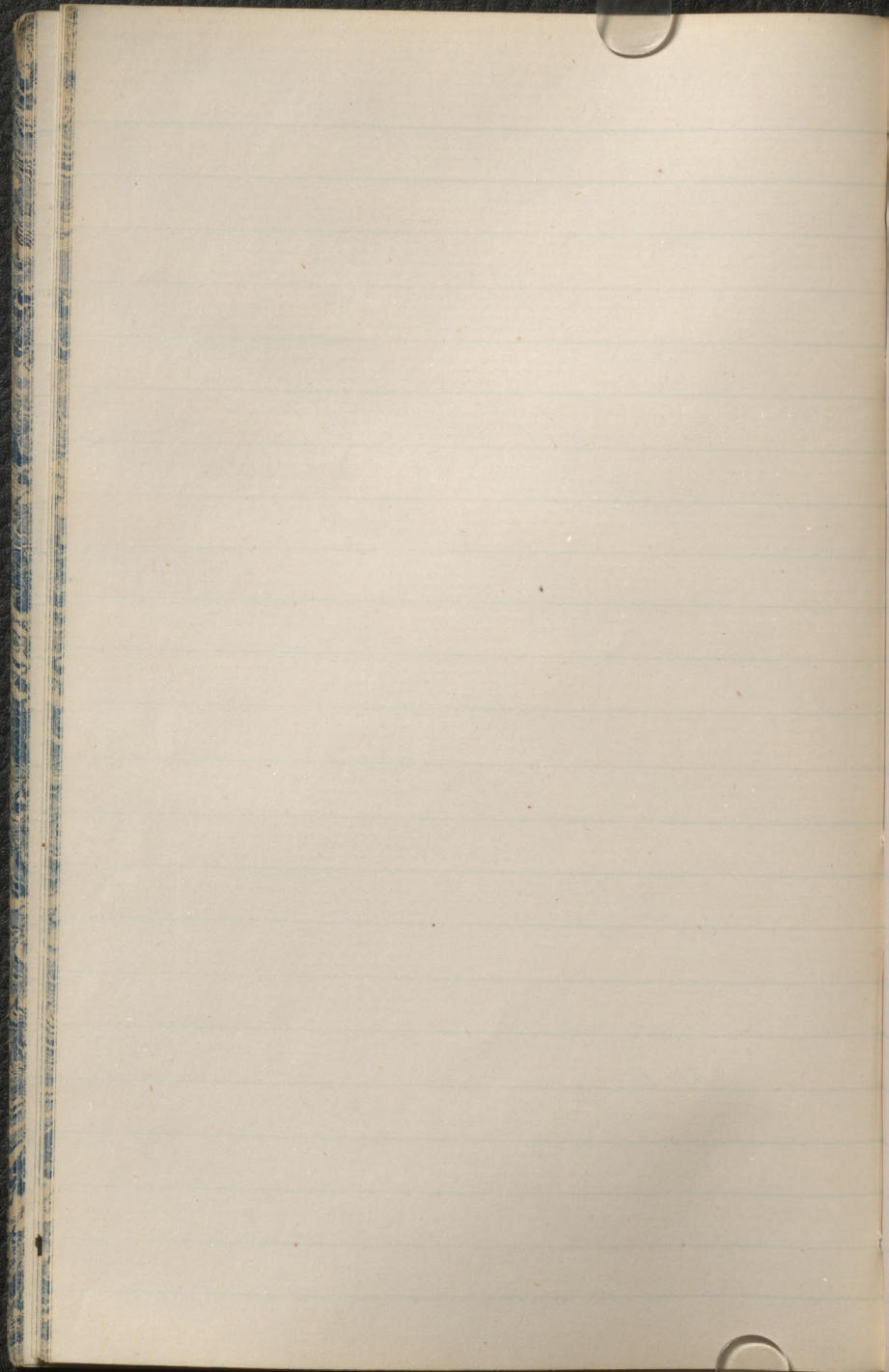


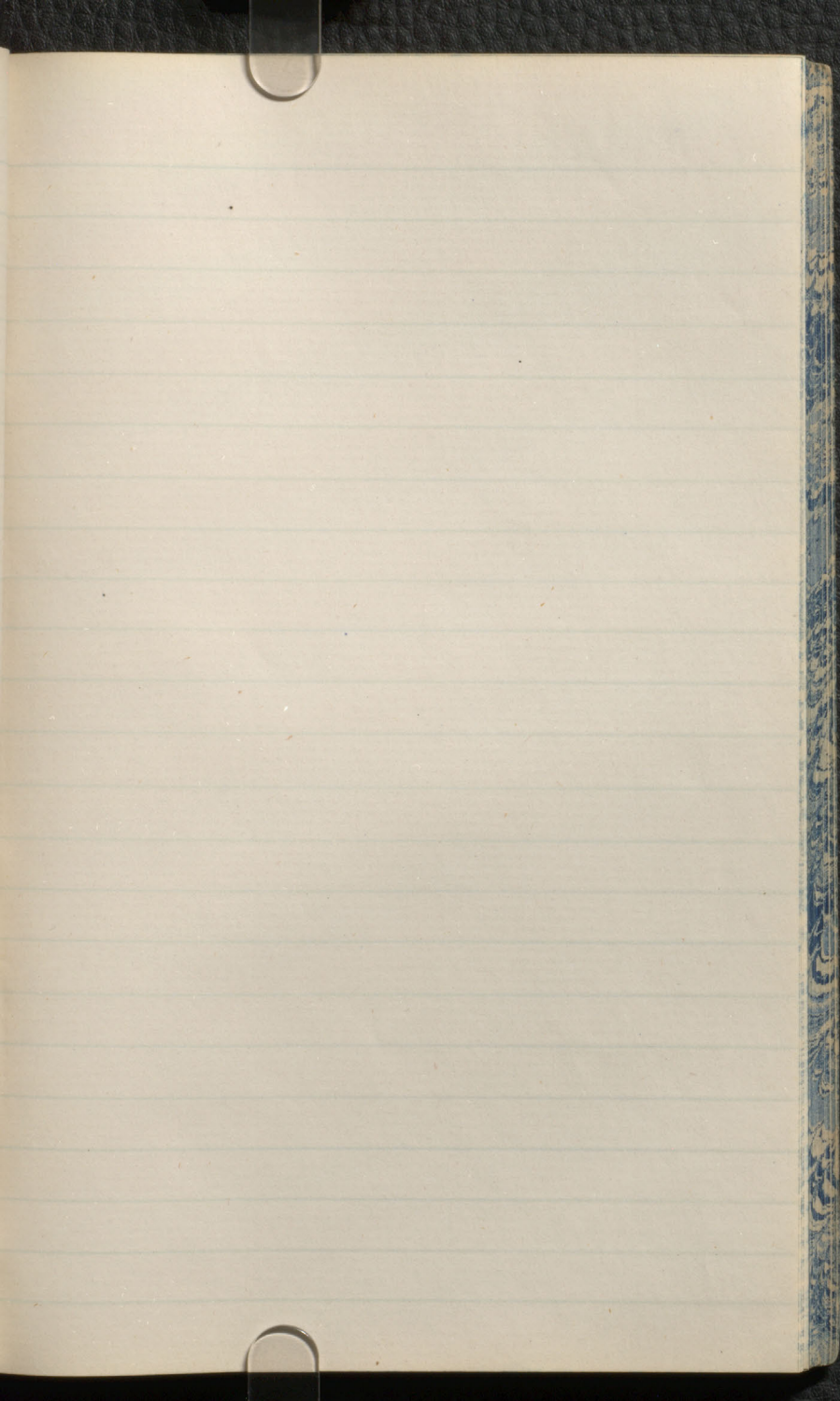


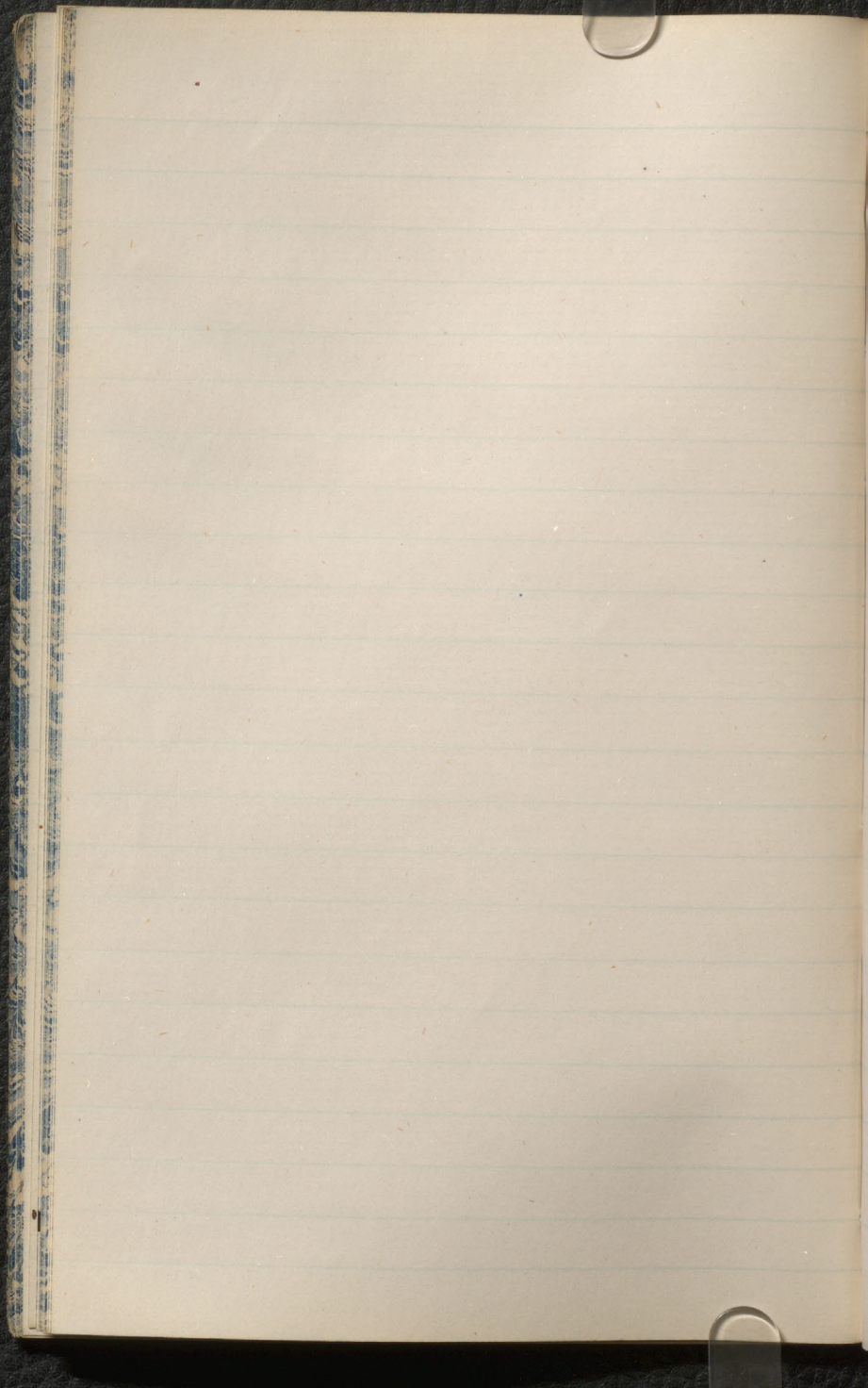


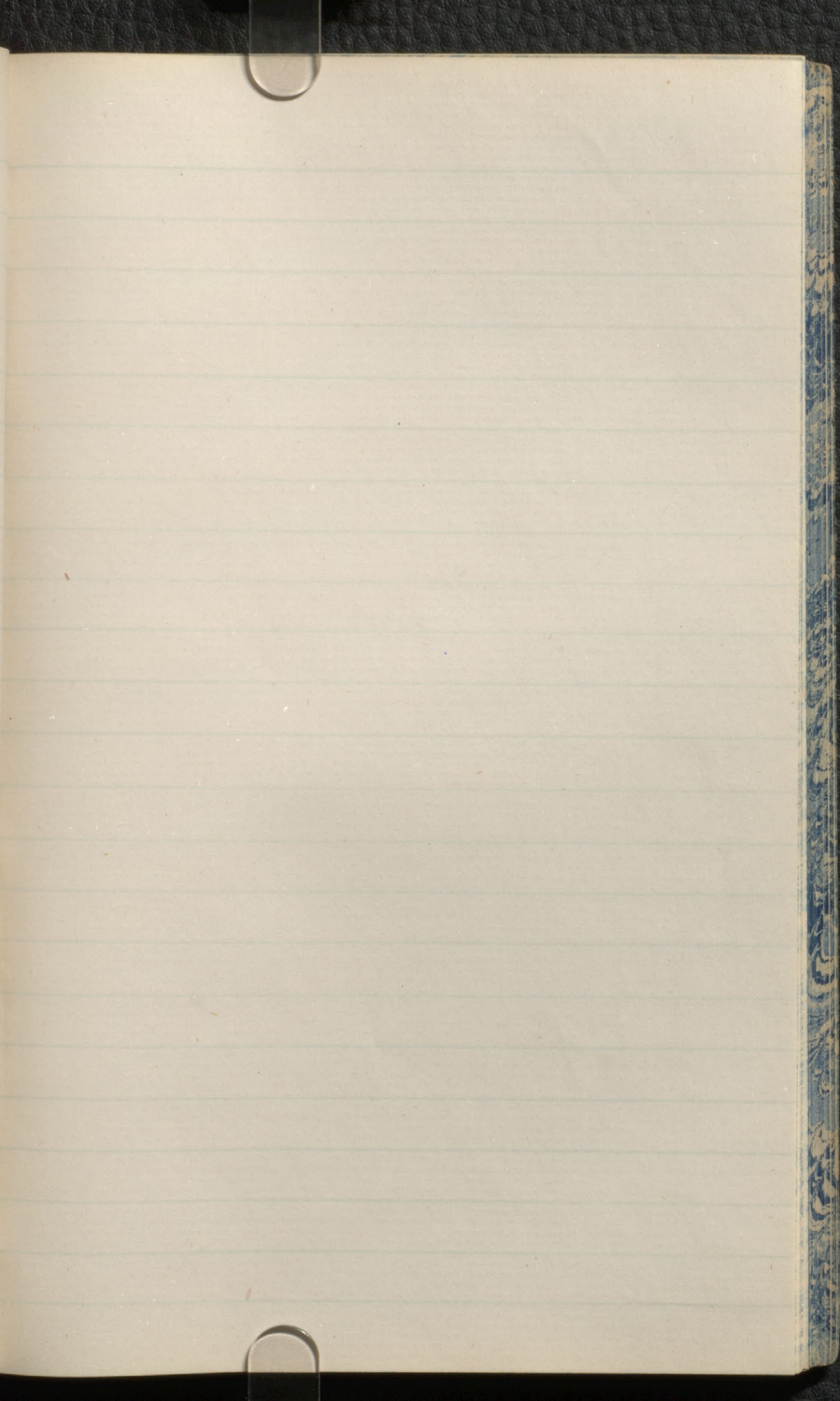


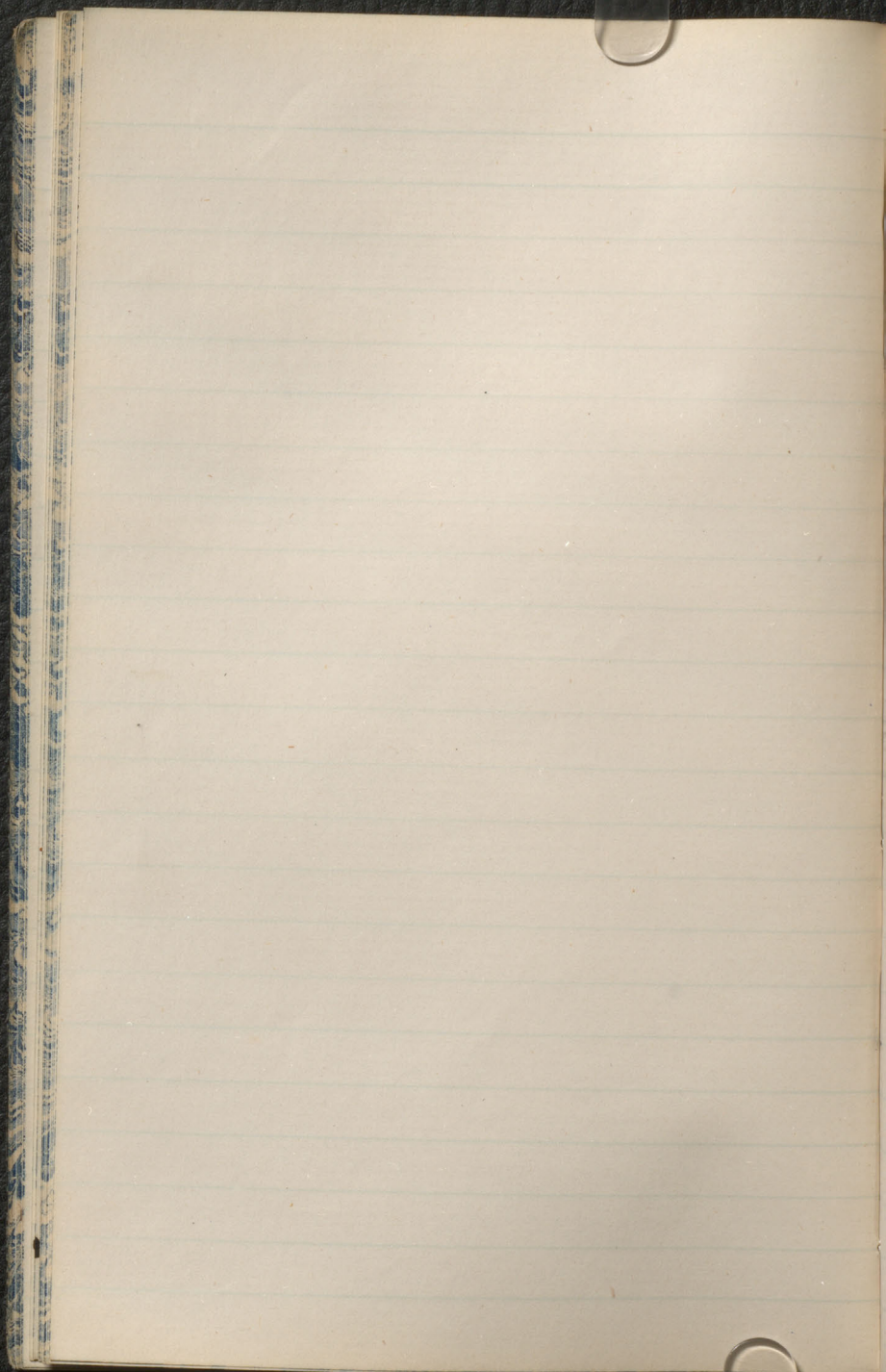


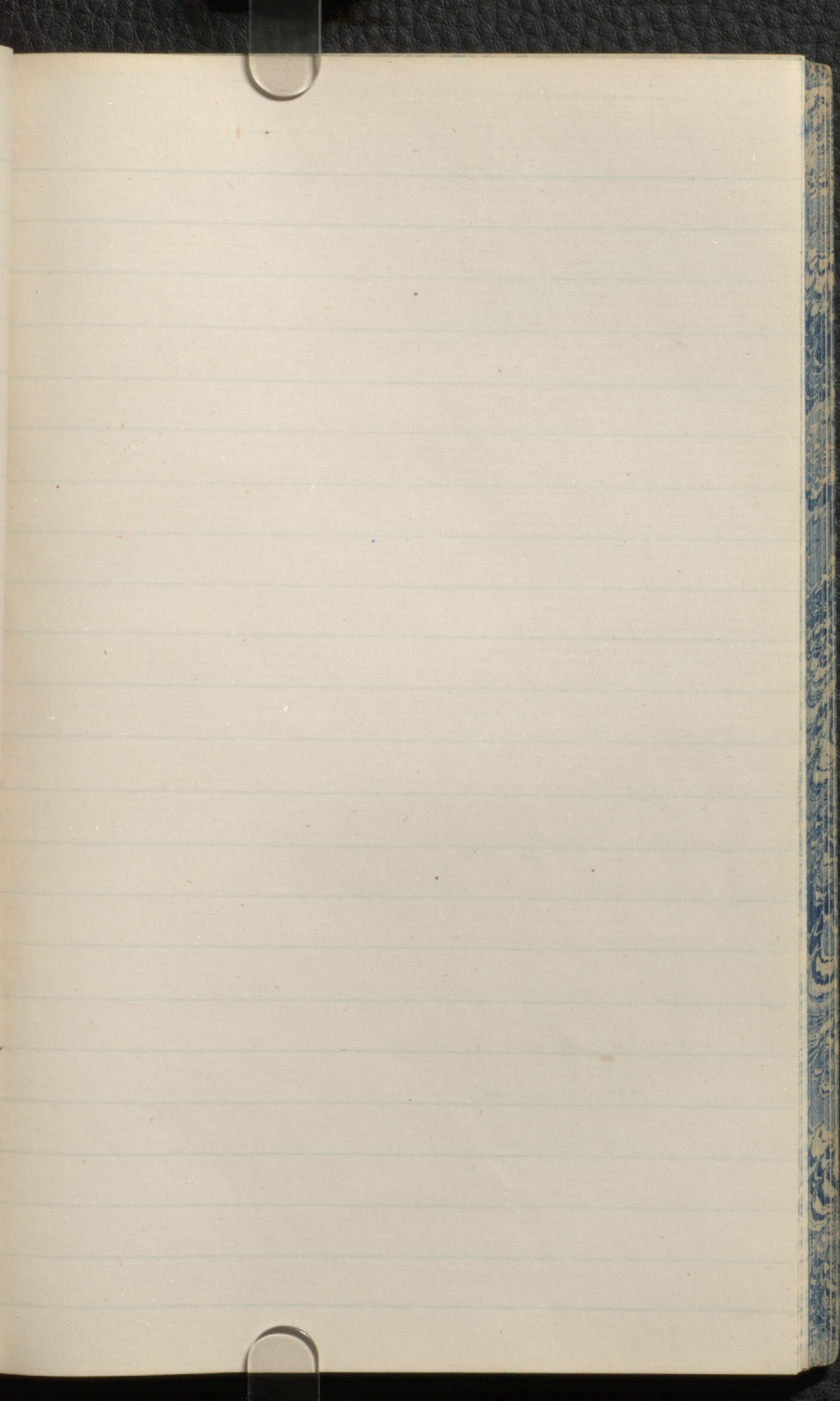


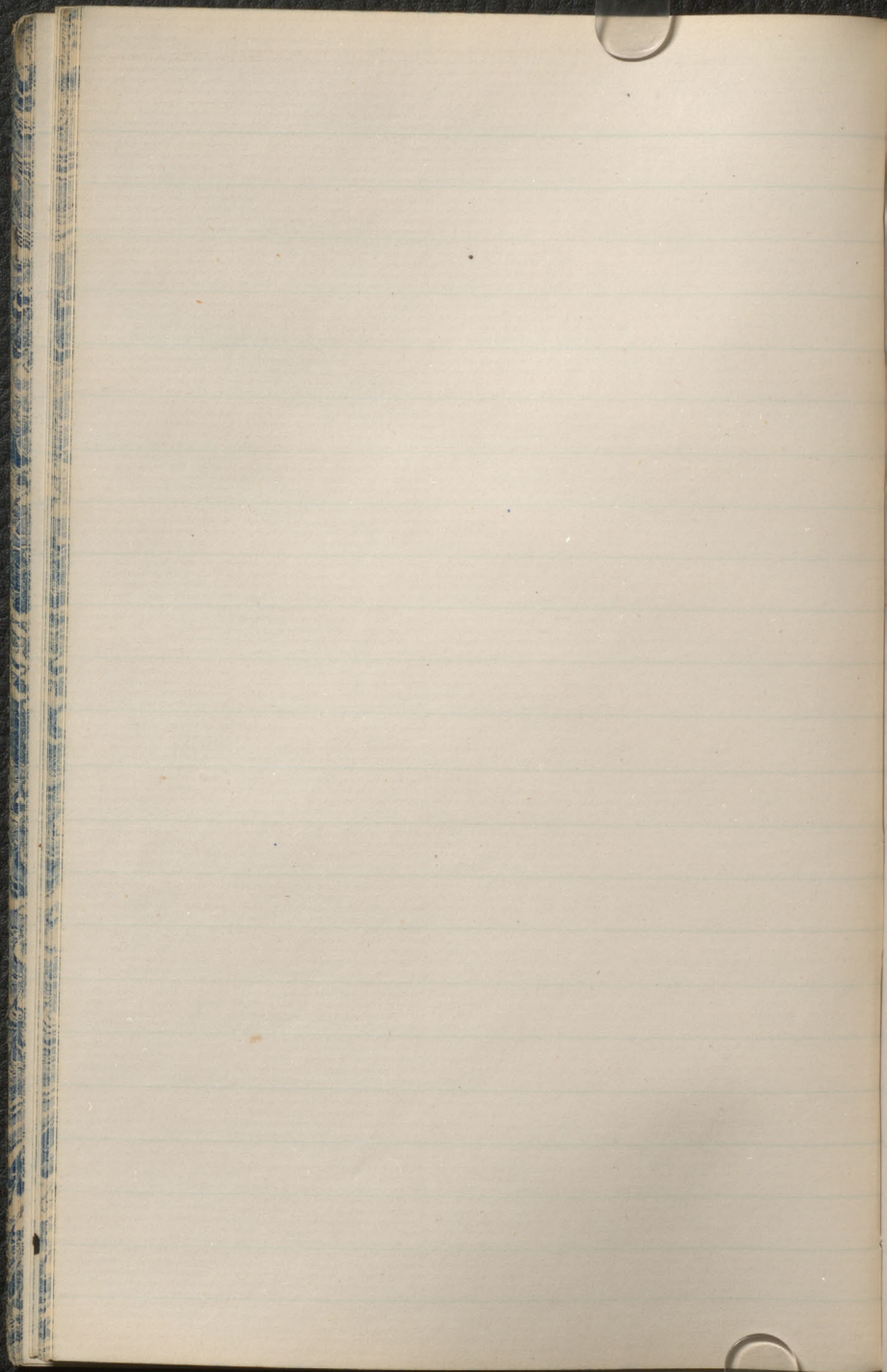


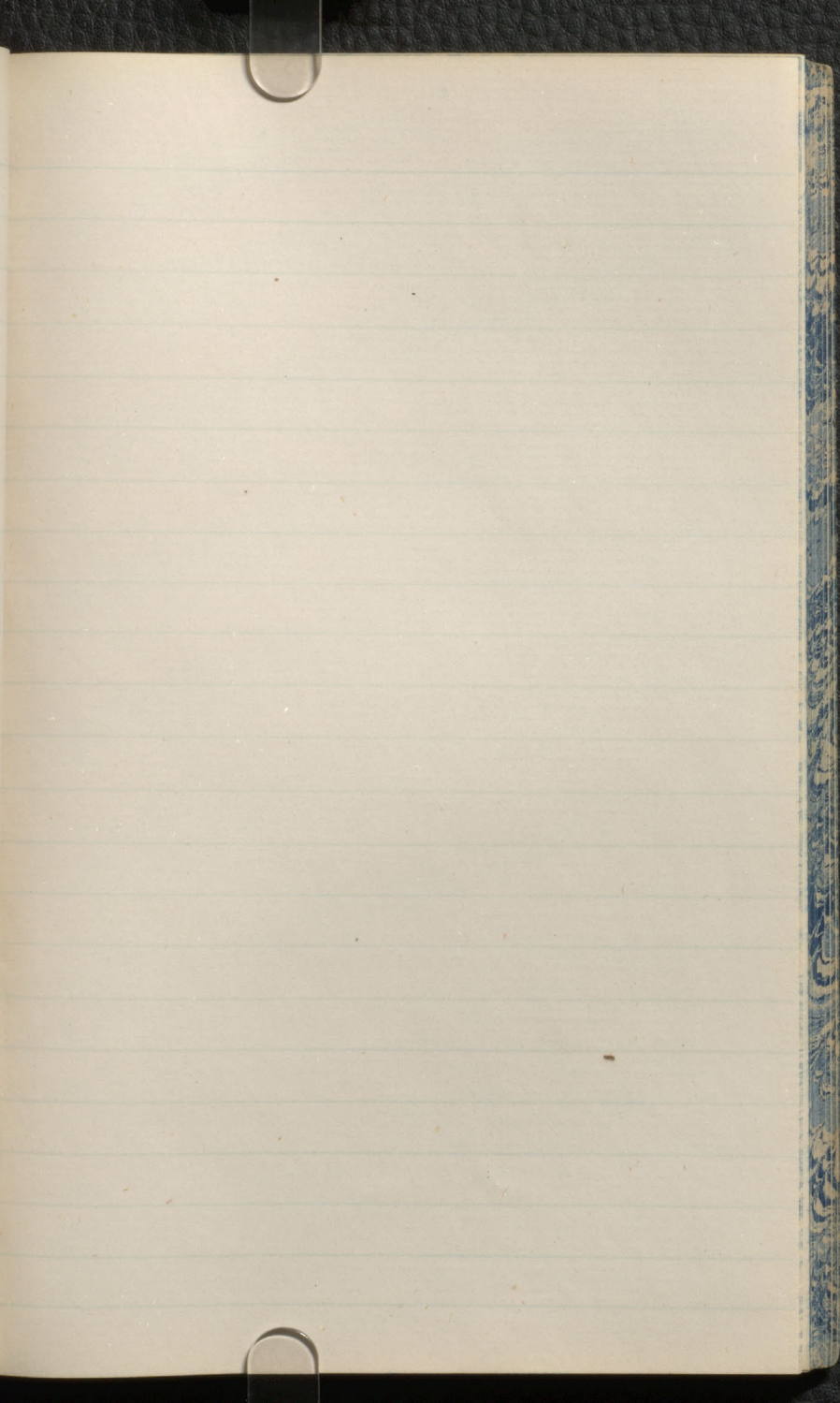


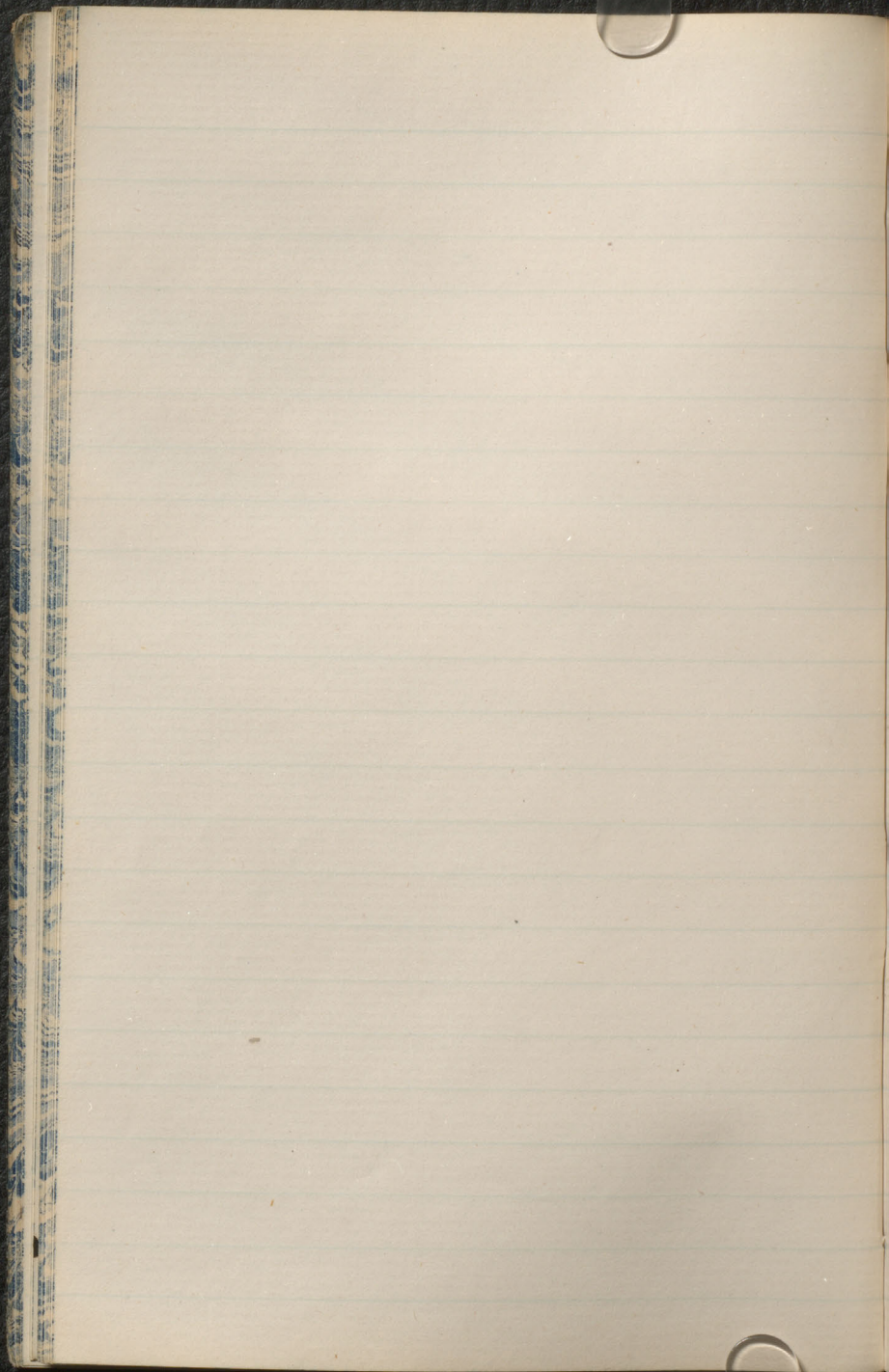


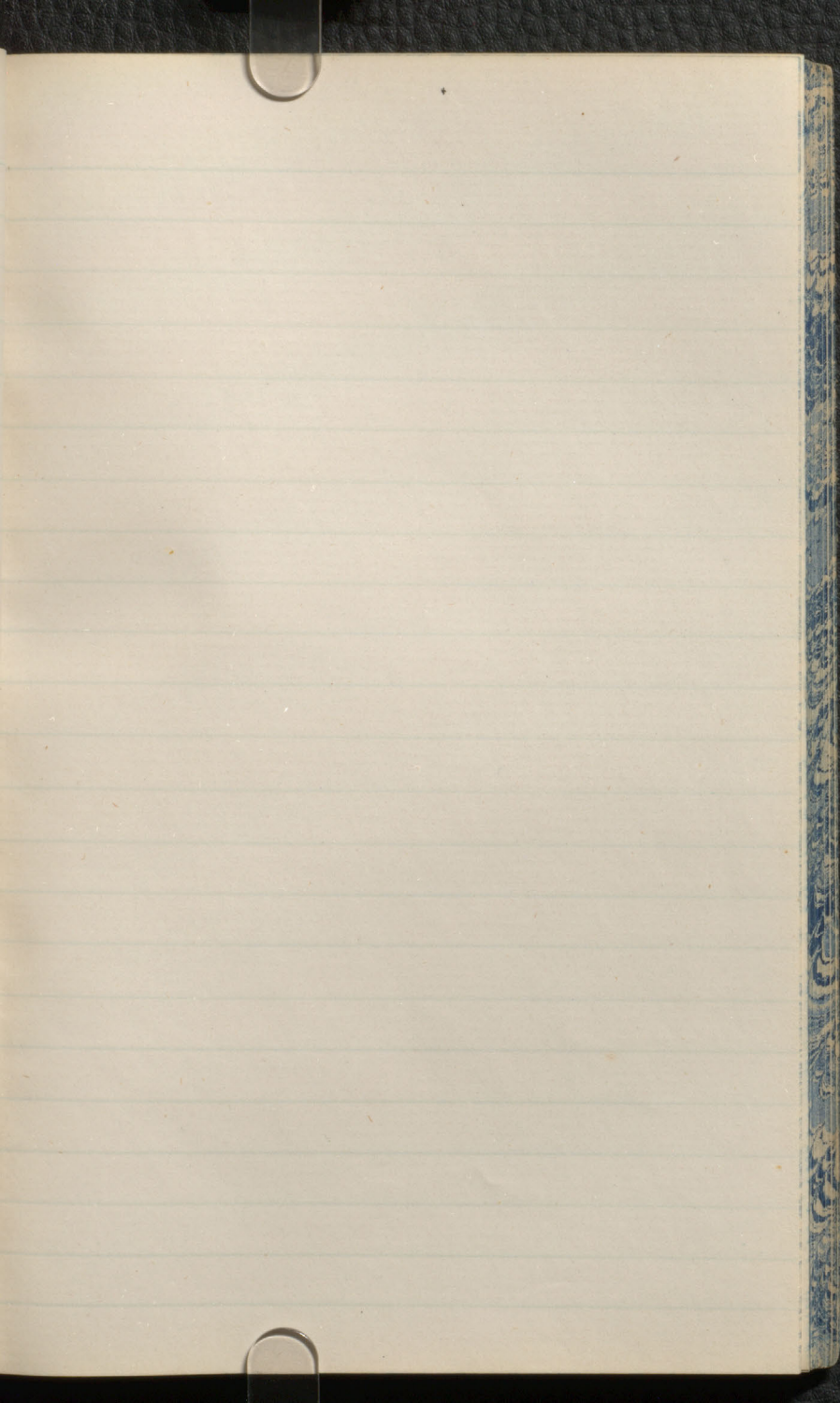


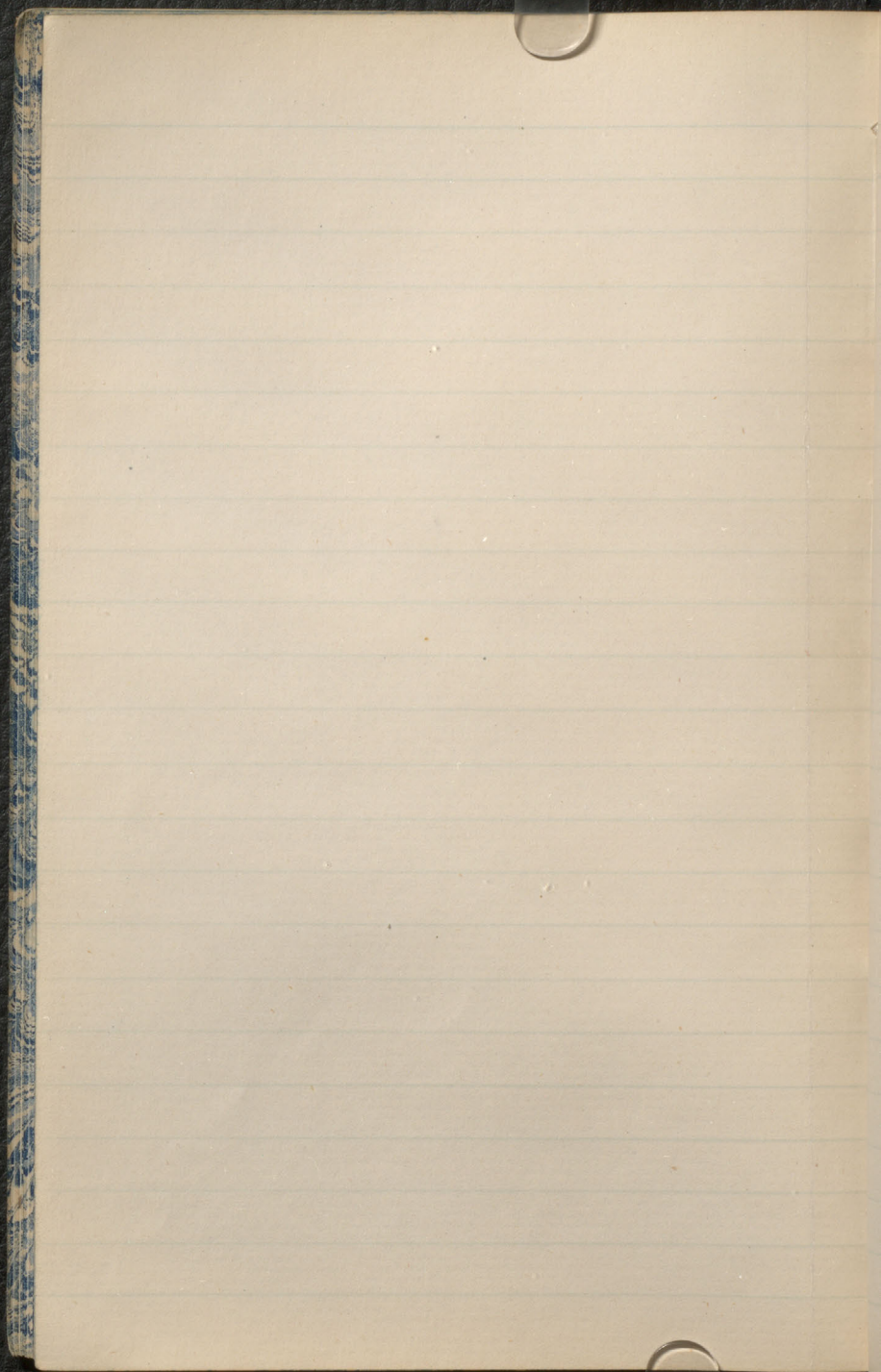


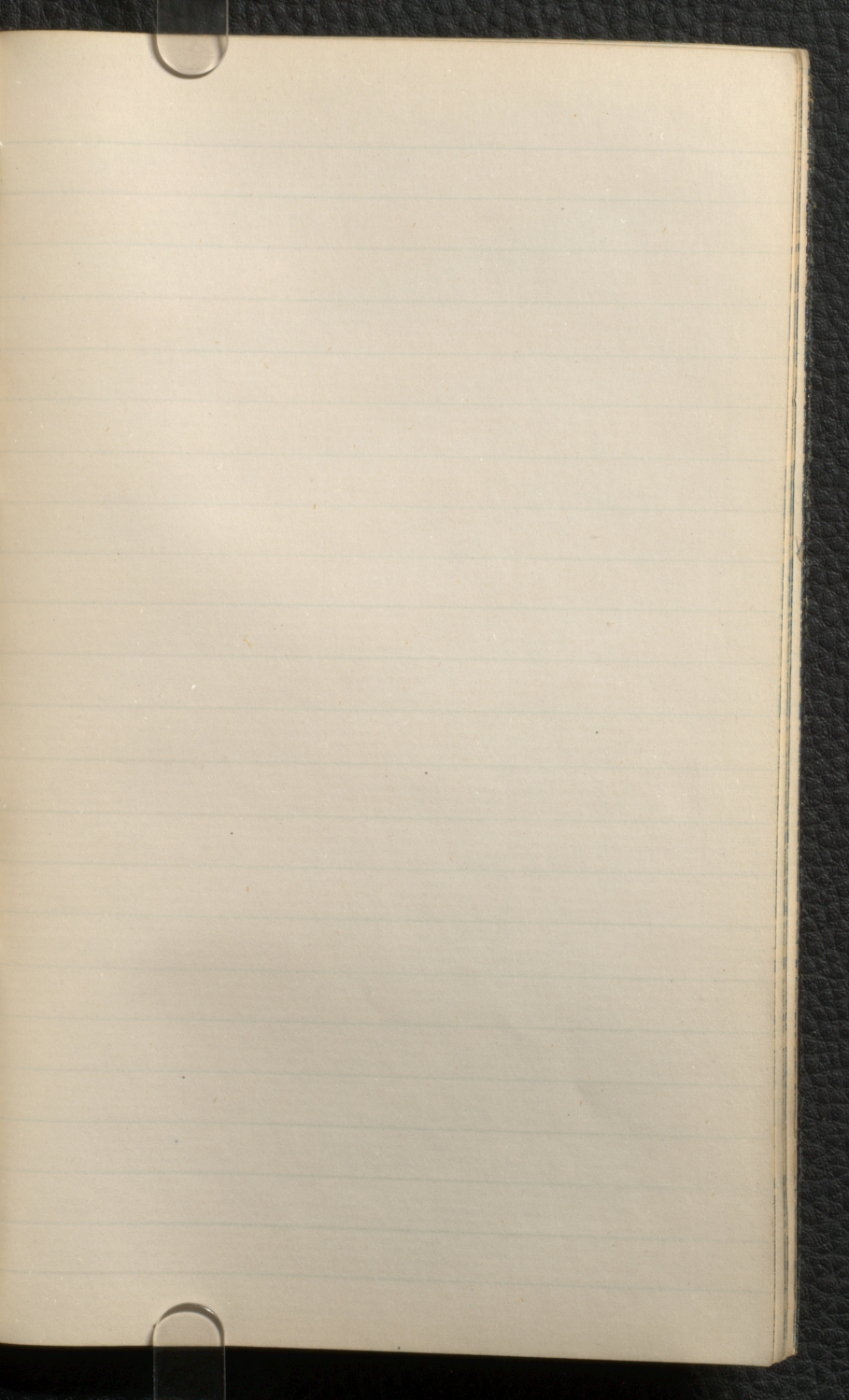


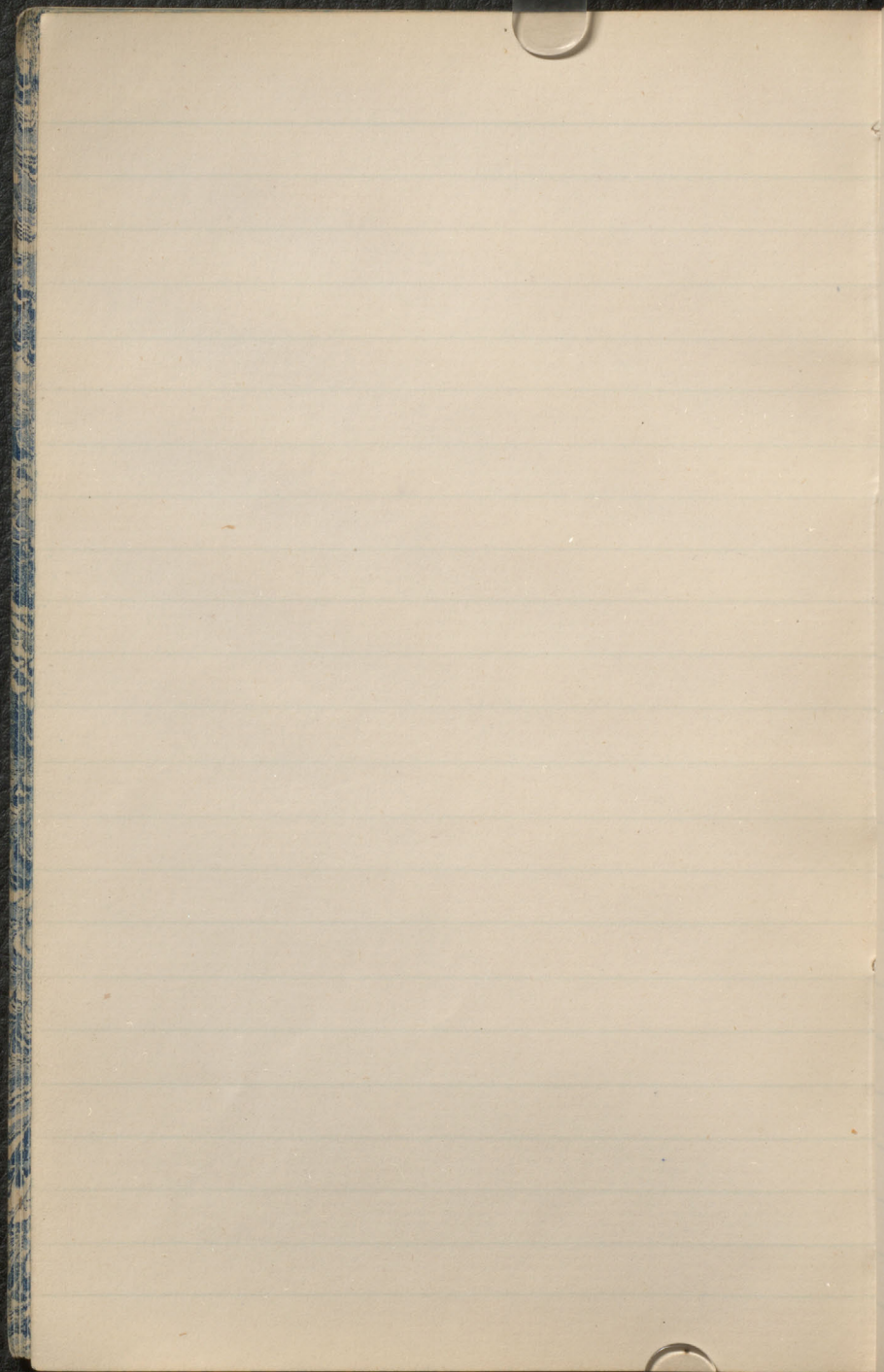


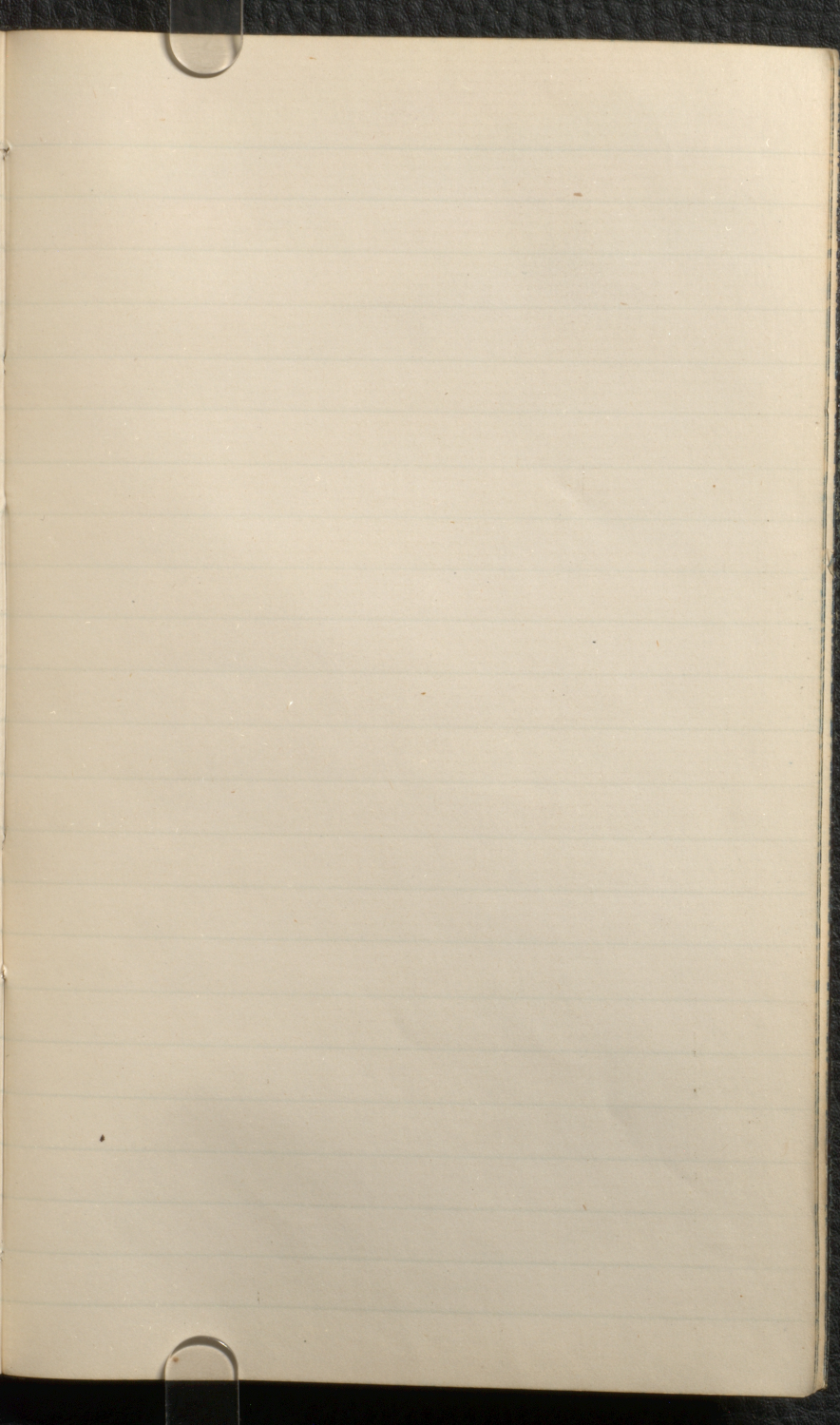


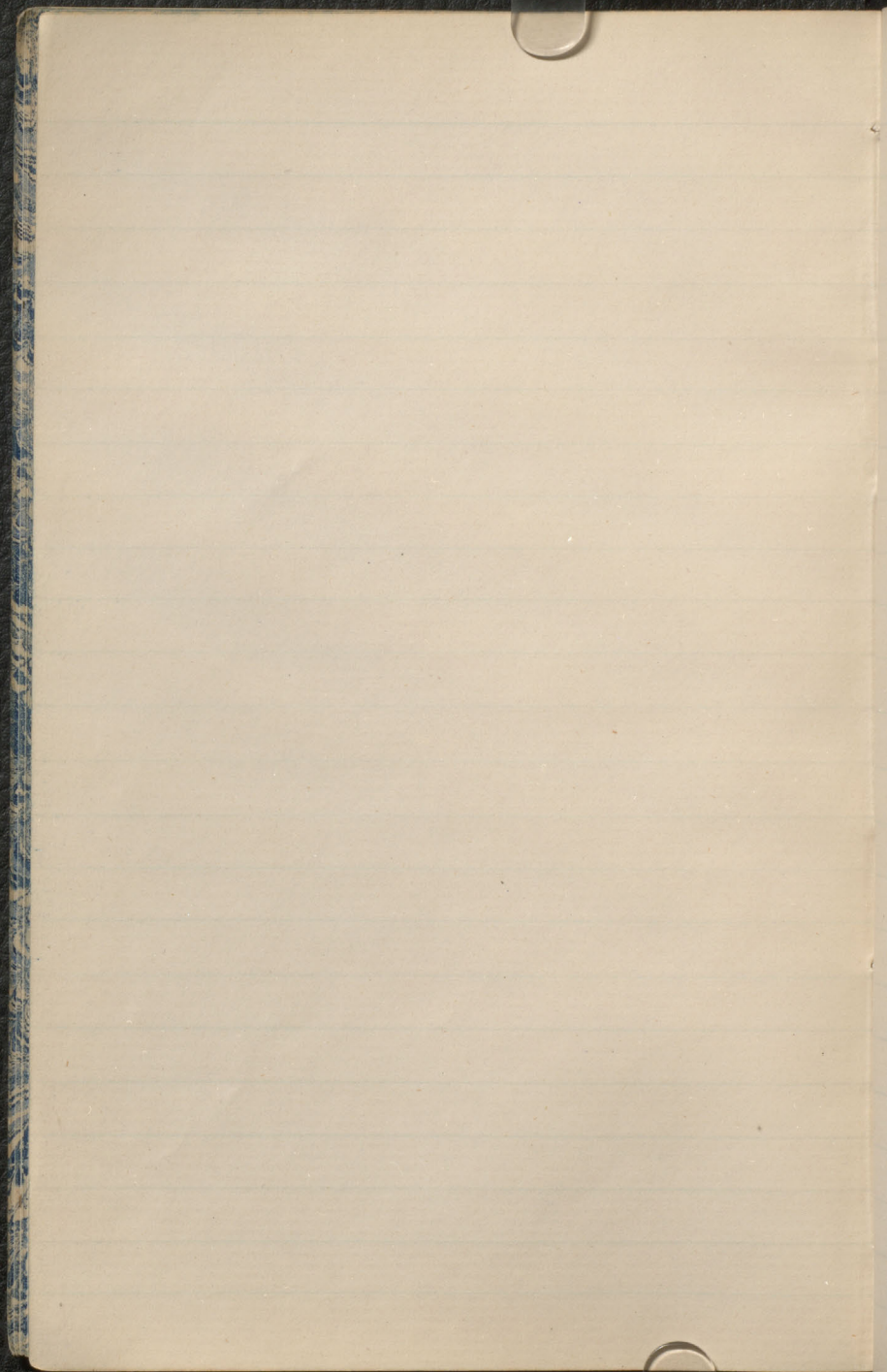


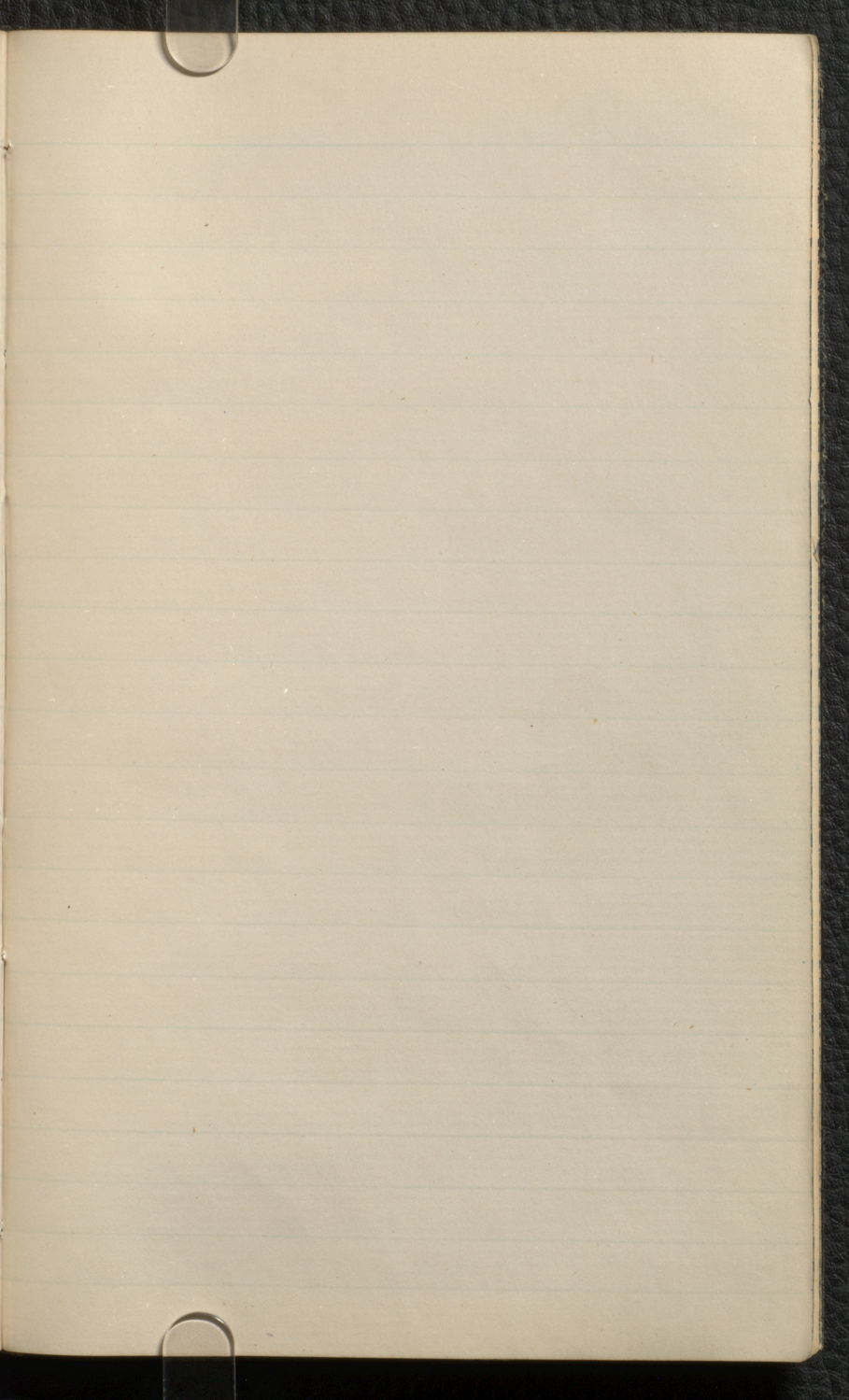


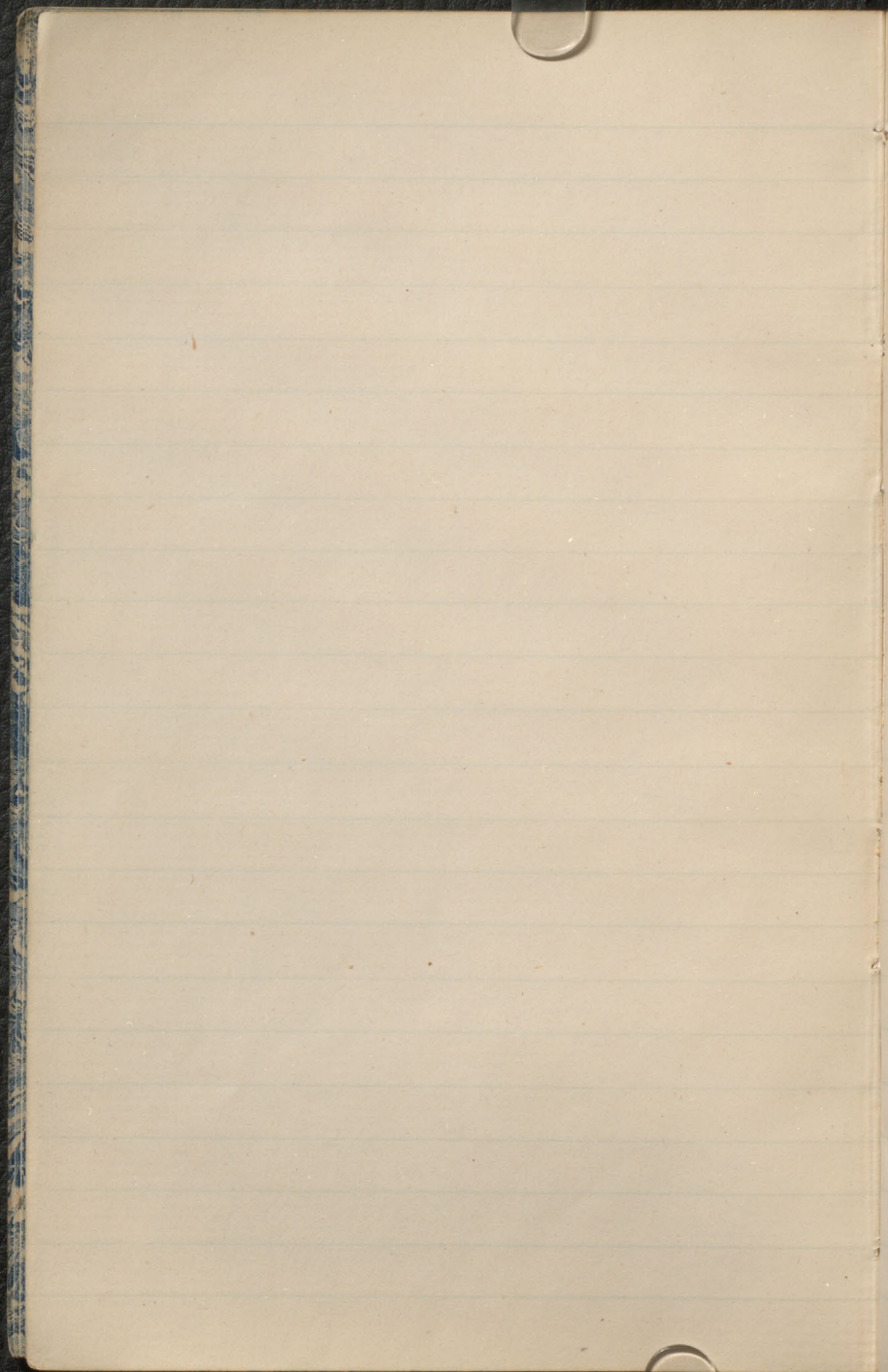


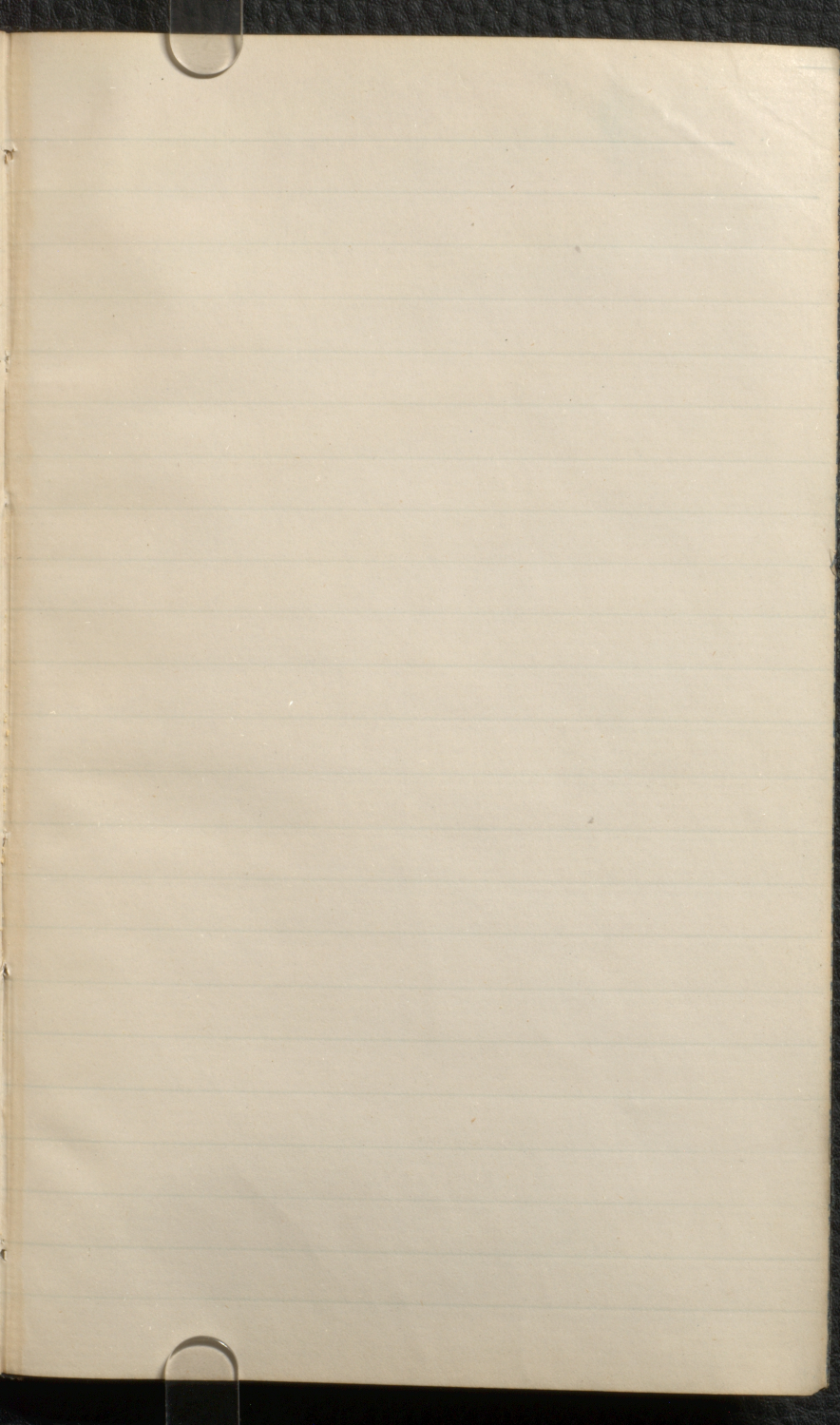


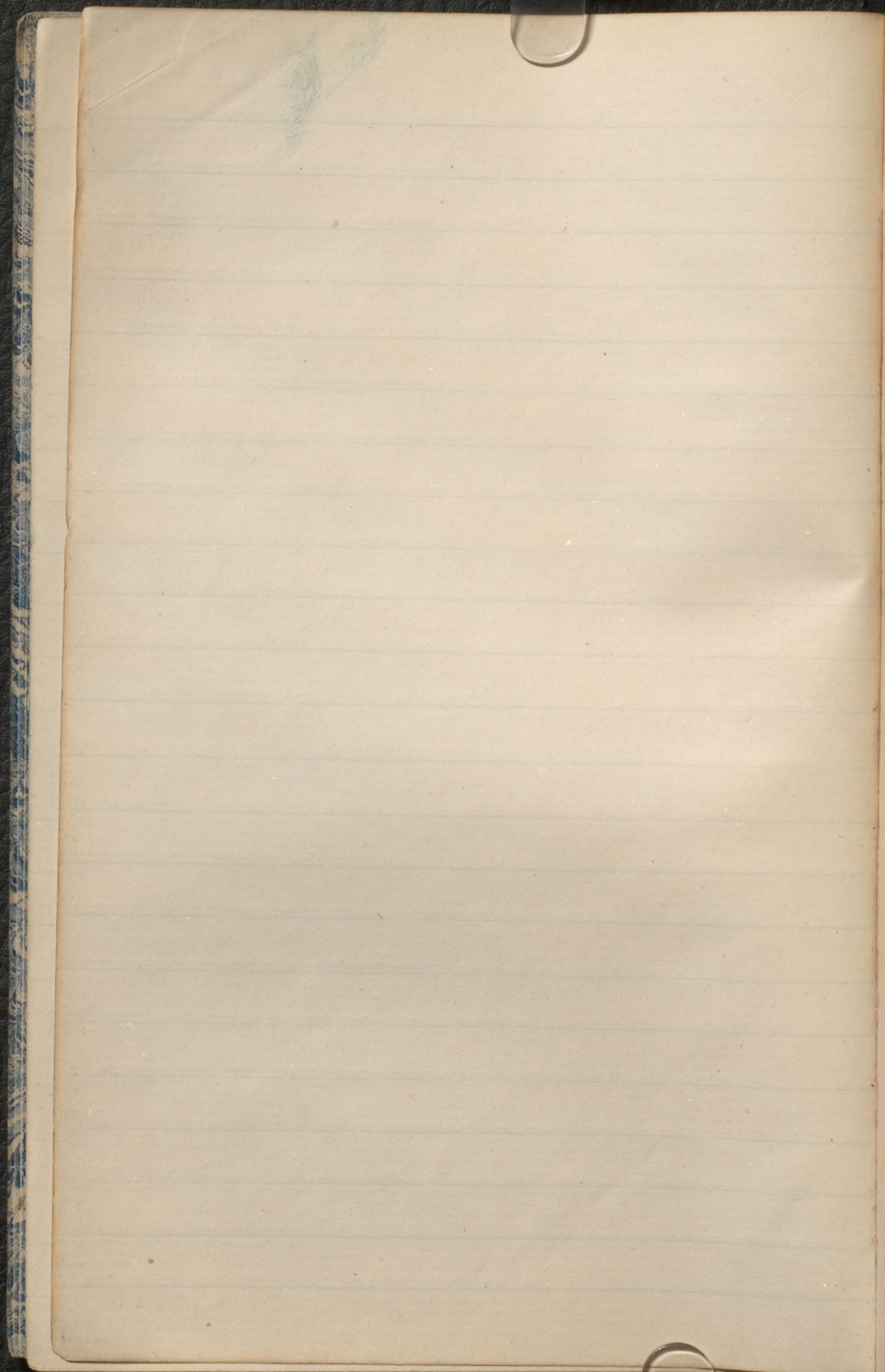


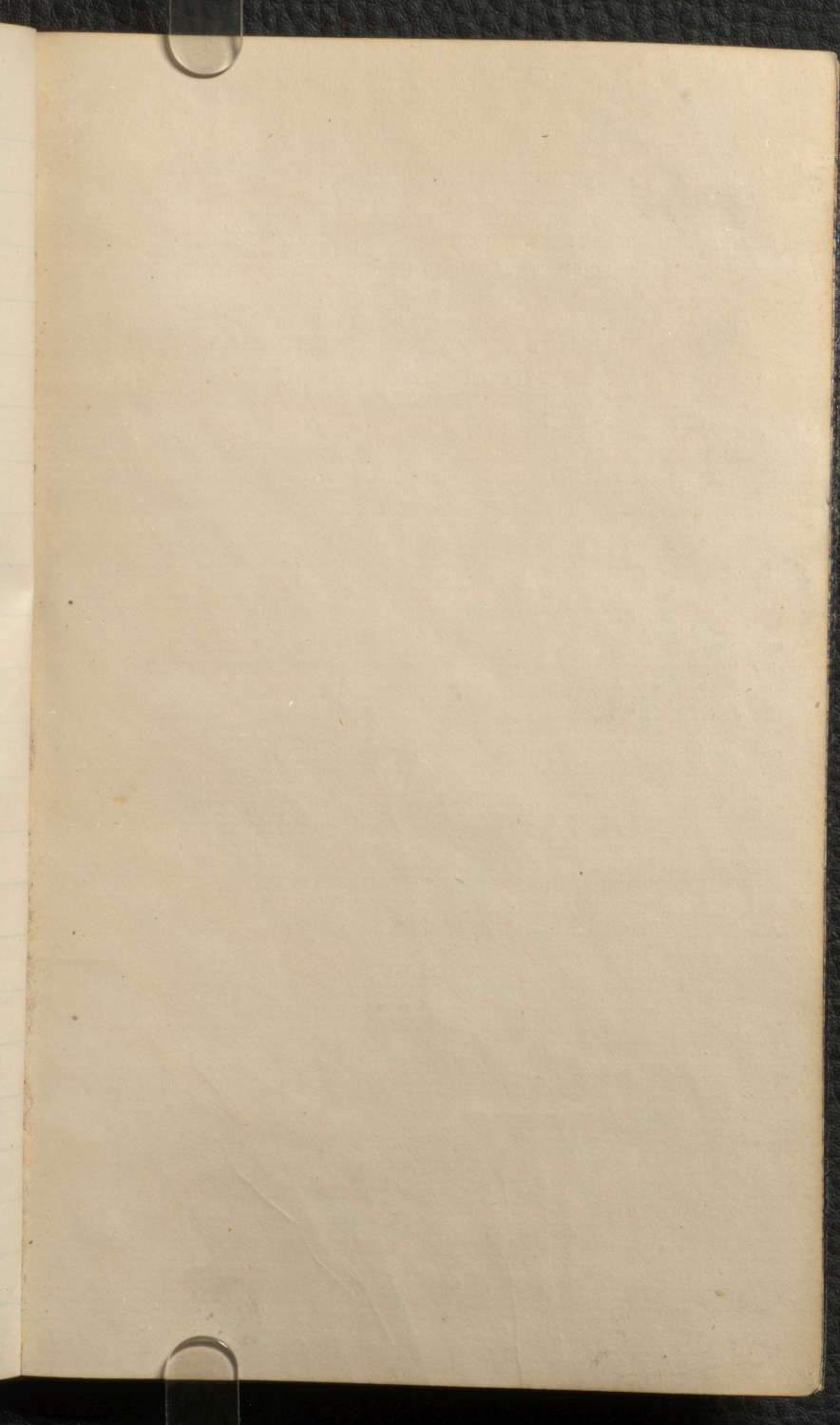






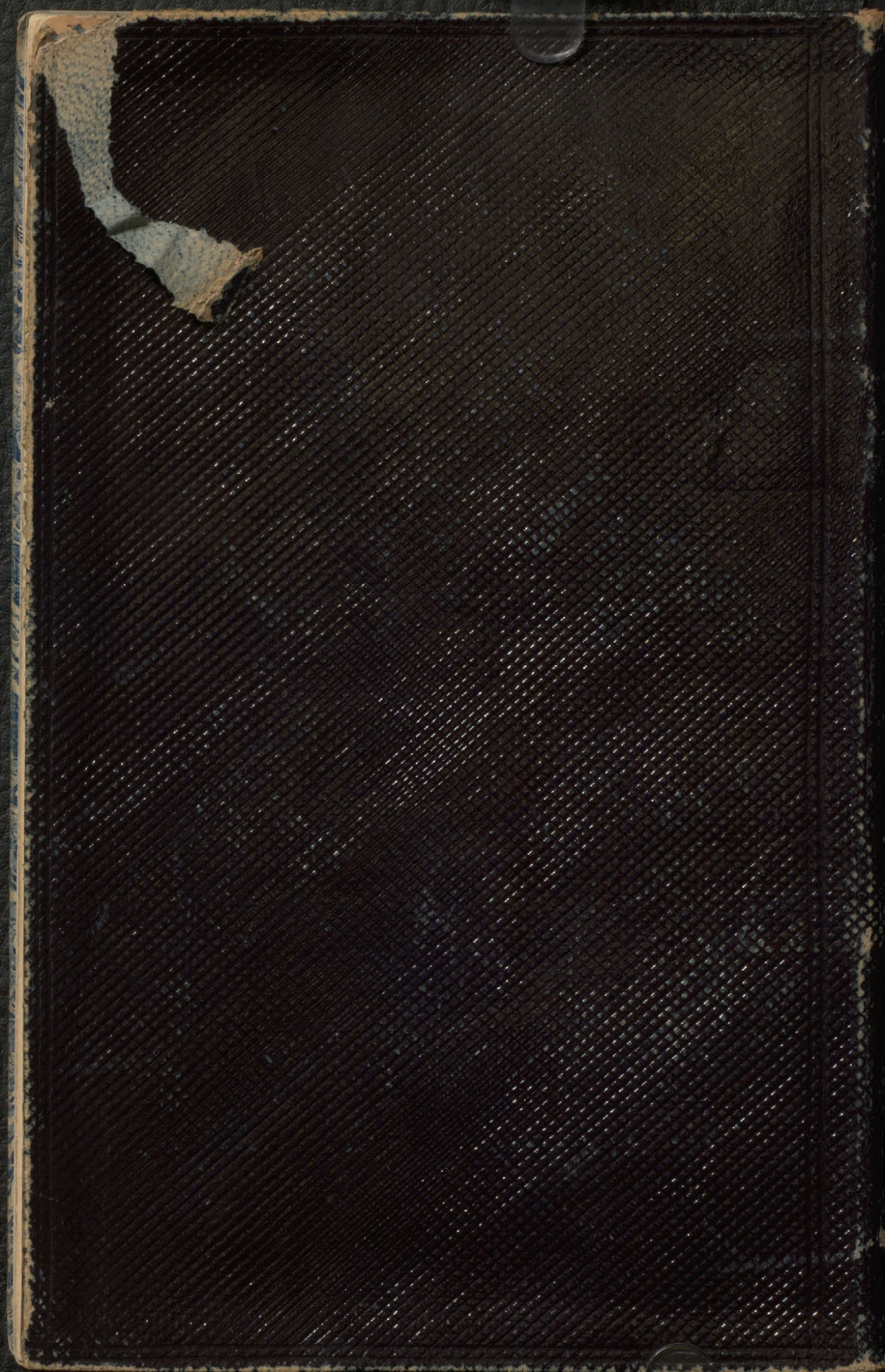












Edinburgh. Oct. /69

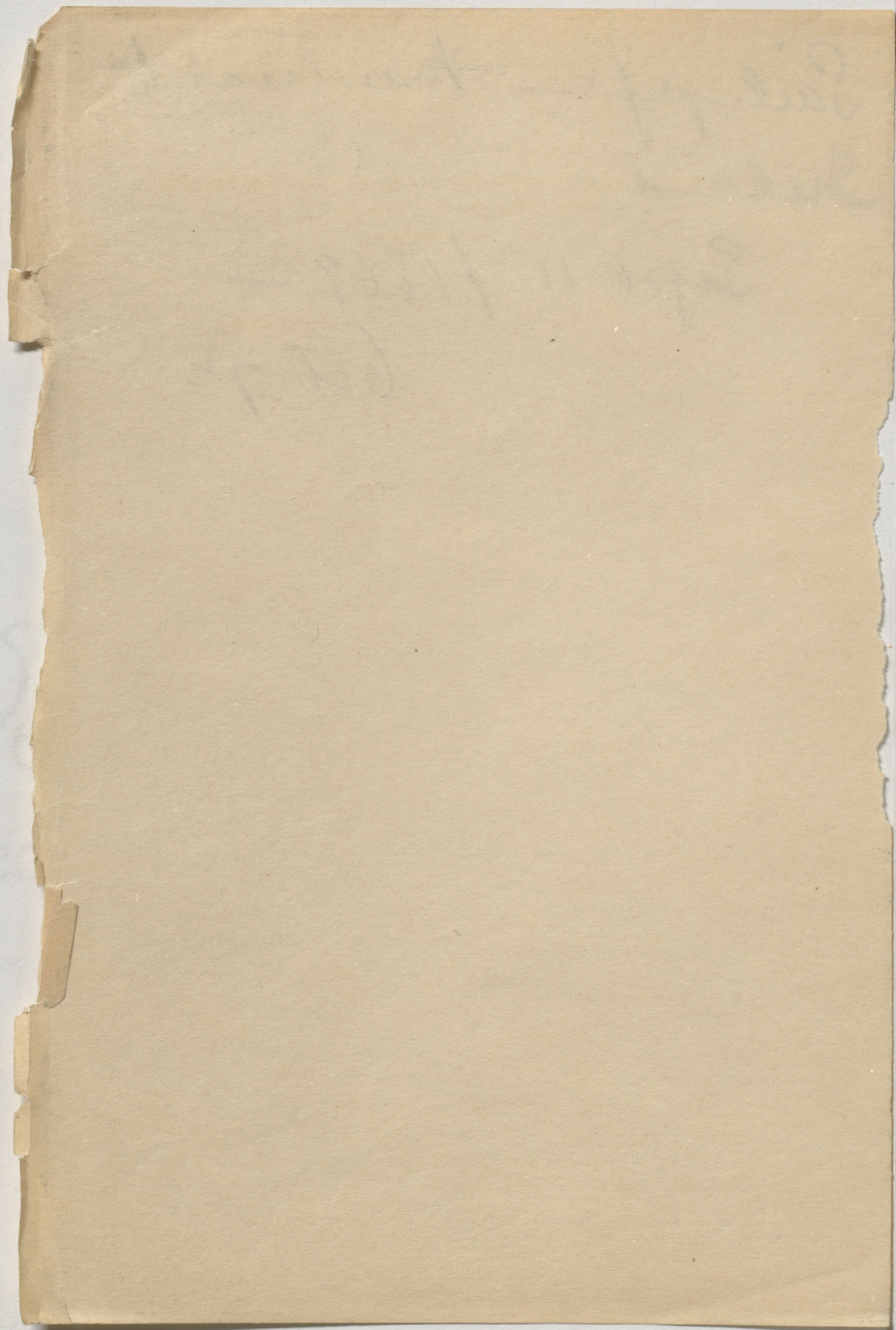
+ Interesting description of the
trips taken for Canada in
a sailing ship -

[Faint, illegible handwriting on aged, yellowed paper]

Sailing from Montreal to
Ireland -

Sept 11th / 1869 -

607 7th



Old fashioned leather ^{diary} note
books - 1869 - 1870 - 1871 & 72.

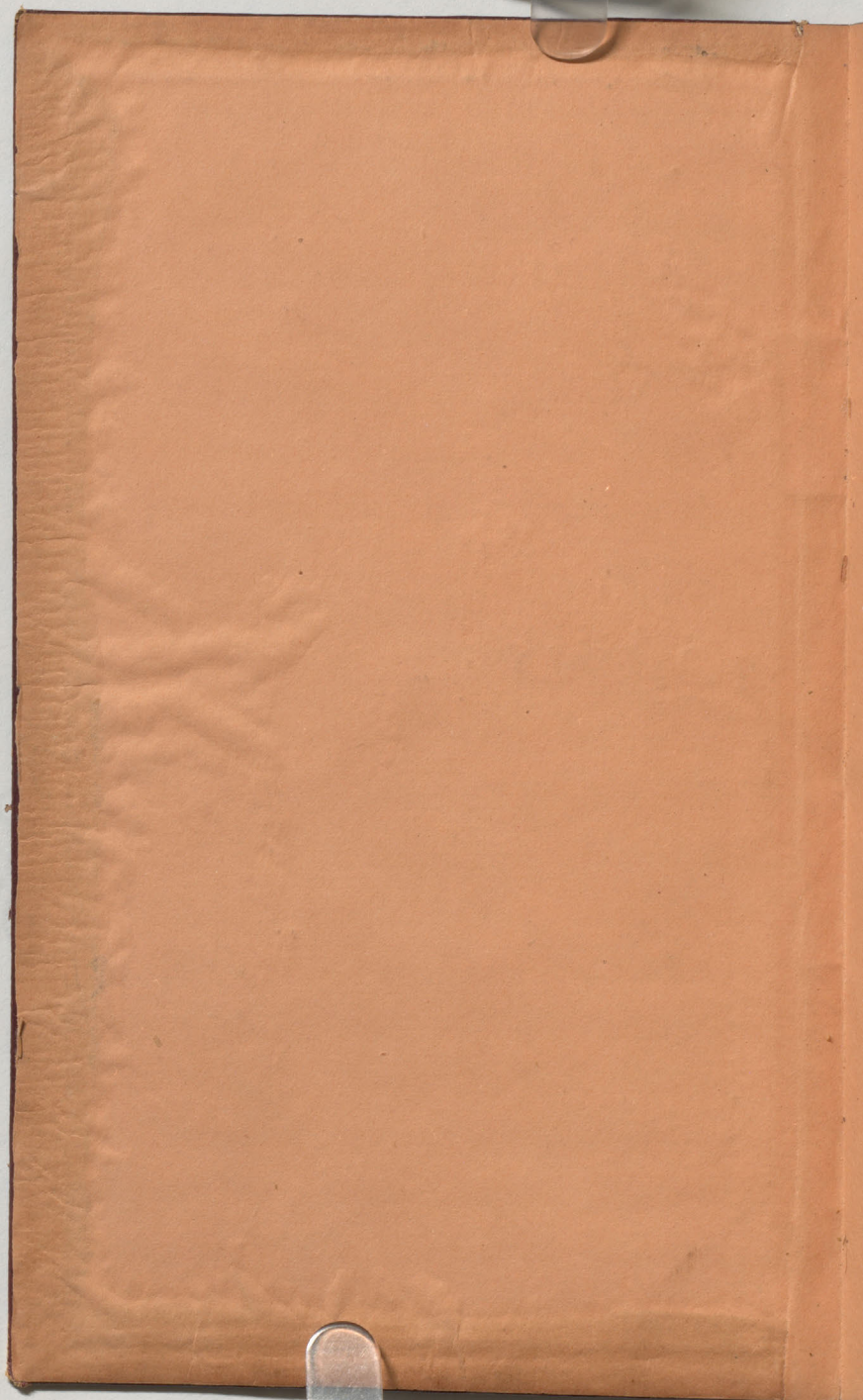
The information contained therein
shows the lectures he attended -
what he resided where he went

Sight seeing - His attendance at
Church - and a note on his
keeping of accounts - and ^{also present} ~~rest~~ ^{part} ~~books~~.

The first book is extremely inter-
esting in that His mother has
written in on the first day of
each month a biblical verse -
This was his first year in England
& she evidently thought he needed
some guidance -

Some of George's visiting cards in
pockets

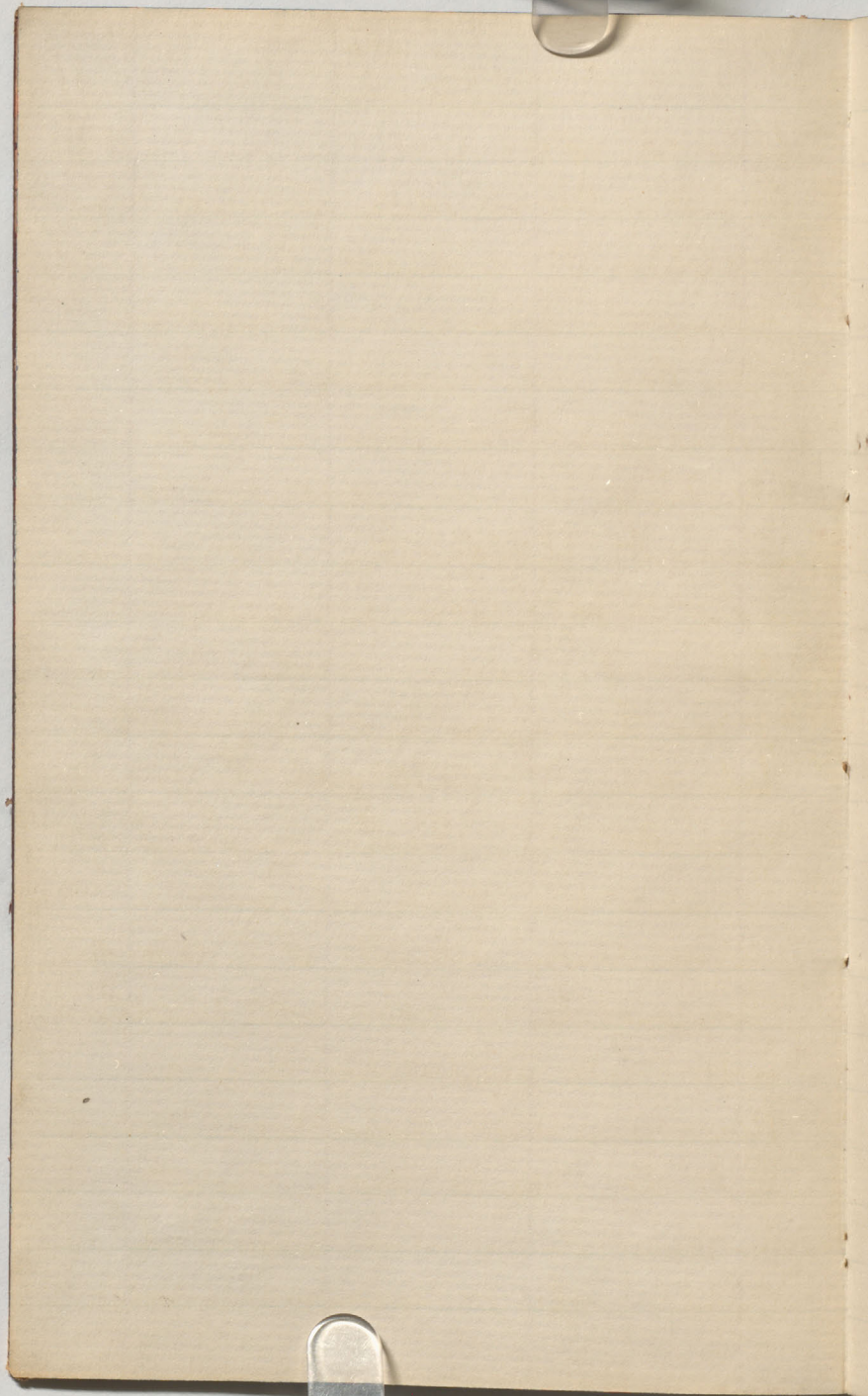
1871



G. M. Dawson

Aug 30 . 1871

MCGILL UNIVERSITY ARCHIVES	
ACC. NO.	909B
REF.	46/1a



Keswick T^c

Aug 30. 1871.

Went up Borrowdale. Turned off at Seatoller & ascended hill to S. Going up passed over outcrops of Ash beds generally much indurated & altered & traps like those usually met with hard compact & felspathic with whitish spots. At Cairn nr summit of hill traps become more frequent & in thinner beds. All the beds dip S (about) at an average of about 50° . Further on (going S) come to very thick bed of trap. Went down hill side to E. towards Borrowdale & examined rubbish heaps & of the plumbago mines. Numerous levels have been driven into the hillside from top to bottom, on a line nearly at right-angles to Borrowdale Valley

Each of the levels has its own
heap of Rubbish. Spread out on the
hill slope which is here very steep.

Some of the levels are driven into
a vein visible in the course of the
brook & which seems to be brecciated
& cemented by quartz though Calc Spar
is not uncommon. Other levels
are driven into the solid trap &
have evidently been turned after
entering the rock so as to cut across
either the vein seen in the brook
or others parallel to it.

Examined the highest rubbish heap
with some care. The vein stuff
thrown out seemed to consist of
trap not dissimilar from that
forming the walls of vein but
not so well crystallized or so
compact. It held ~~some~~ lumps of
quartz of various sizes some of
which seemed to have been intro-

duced as pebbles. Others had evidently
filled cavities & were hollow
within. Mingled through the mass
were also lumps of plumbago.
Those observed ranging from the
size of the fist to quite small pellets.
Plumbago was also visible in
slickensided sheets of small thickness
passing through the mass, & in
minute strings & particles in the
matrix. These sometimes becoming
so numerous & small as to colour
the whole rock black. The lumps of
plumbago were very variable in
shape though generally more or
less rounded, & showed no structure
save here & there an imperfect
cleavage. One lump about as
big as a marble was noticed to
be quite separate from the little
chamber which contained it on
nearly all sides.

Some pieces of Vein-stuff from levels lower down the hill seemed a good deal different in character. Composed almost altogether of a breccia of stones coloured black by thin coatings of blumbago & cemented together by dark coloured material. They did not seem to enclose pieces of blumbago of any importance.

Sept 5 Examined upper part of deposit more carefully & looked at numerous openings which are quite on top of the hill. The deposit of blumbago occurs in connection with a thick greenstone dyke, which was not observed further down the hill slope on account of bad exposures. To S of dyke close felspathic trap to N. Trap & altered ash beds. Found the blumbago in place in air

open working just on brow of hill.

It occurs δ in rounded masses in the greenstone dyke, associated with masses of quartz. Both minerals are evidently filling Cavities or Vesicles in the greenstone.

Some Cavities being part filled with quartz, part with flumbers. One was observed containing flumbers & quartz, & part still vacant.

The vesicular parts of the dyke run in swaths parallel to its direction.

The greenstone in & around these vesicular portions loses its ~~crystalline~~ well crystallized appearance & becomes finer grained & whiter.

On one or both sides of dyke is a breccia vein as described before & showing strings of Iron & copper pyrites. The Adits seem generally to be worked into the hill in this soft stuff & cross passages probably

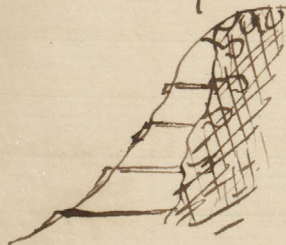
driven into the dyke.

The plumbago evidently ascended with the greenstone in the form of Bitumen, which may have been altered to Plumbago by the heat of dyke itself, or (supposing the dyke to be of sufficient age) during the metamorphism & contortion of the surrounding rocks.

The same greenstone dyke occurs in small thickness on the opposite, or E side of Borrowdale Valley. (J.C.W.)

Sept-19. The greenstone dyke is lost just after coming down over brow of hill. At one place altered ash seems to go all along the hillside & in no place can the dyke be seen to cross this band. Just below the band

of ash a felspathic dyke begins
to run down the hill becomes
wider. This seems however to
be quite separate from the greenstone.
The greenstone mass therefore
either thins out very rapidly to E
or is cut-off by a cross fault;
unless it be a columnar
mass or pipe. The hillside
is much cut up by faults
& many of these being marked
by breccia & clayey veins have been
used as soft-parts to work
in on the blumbay bearing
greenstone. It seems possible
that the greenstone may have
come up at a vacant place
caused by crossing of faults.



Arrangement in
hillside possibly
something like this.

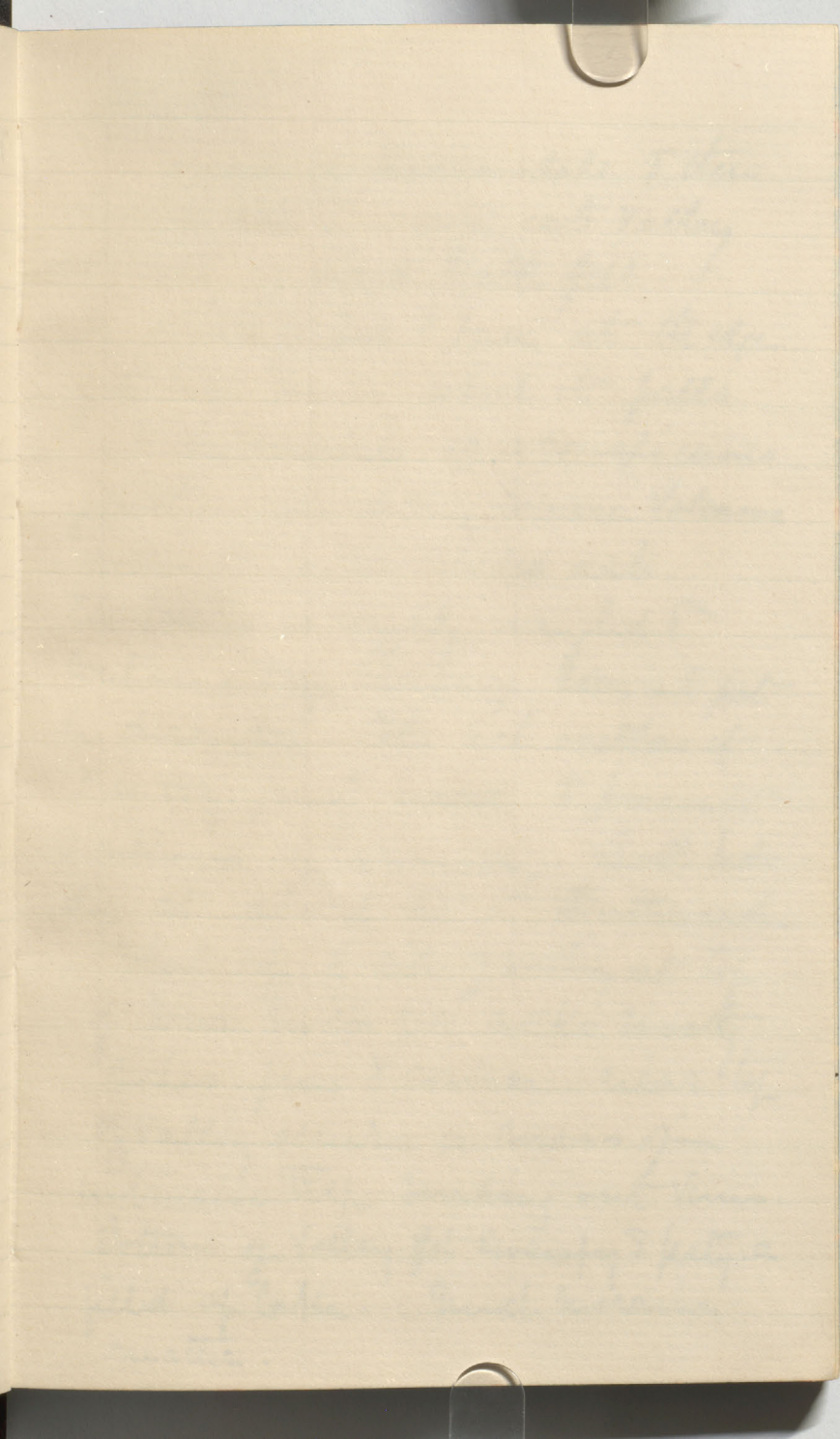
I wish to highlight the fact
that in many cases the
order of the items listed

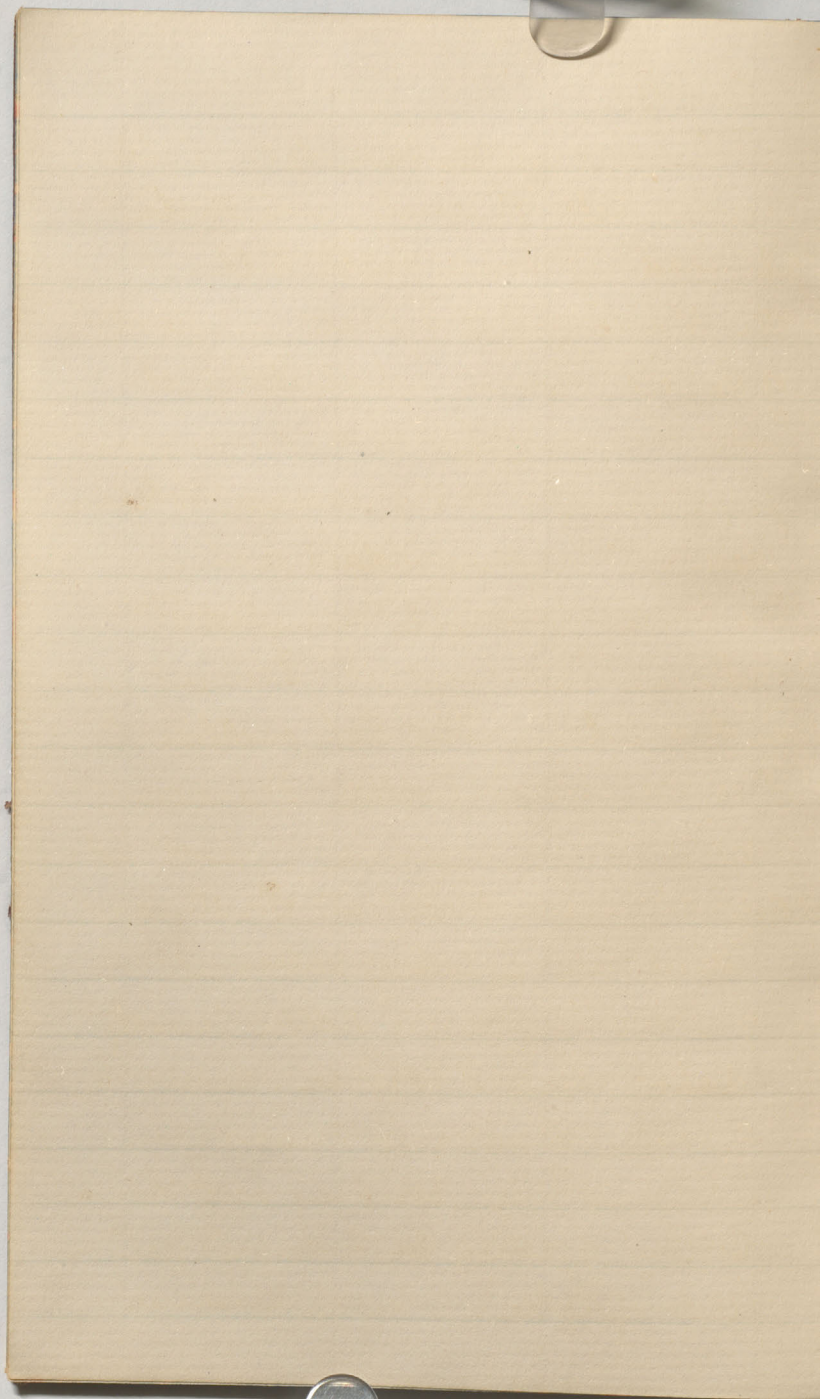
is quite different from the
the presentation in the
order of the items listed in
the order of the items listed

in many cases the
order of the items listed
is quite different from the
the presentation in the
order of the items listed

in many cases the
order of the items listed
is quite different from the
the presentation in the
order of the items listed

I wish to highlight the fact
that in many cases the
order of the items listed





Aug 31.

Walked up Barrowdale & then climbed hill & went into valley at head of Sour Milk Gill.

On N Side of Gide & just at the edge of the hill down which it falls into Barrowdale is a conspicuous junction of a very coarse volcanic breccia & a fine-bedded ash.

The breccia is roughly mingled & contains trap blocks of several feet in diameter. The ash overlies it & is very finely bedded & presents a ribboned appearance. Both beds dip at about 50° to Southward.

Went up E side of Valley at top of Sour Milk Gill rocks mostly ashes, fine & coarse. Near top of Valley occurs a mass of intrusive trap sending out veins. Bottom of Valley flat-swampy & peaty, a filled up lake. Much moraine matter.

Sept 1. Examined from Borrowdale
Yews through Low Stile woods to
Seatoller. Most rock visible Ash.
generally pretty fine & highly Cleaved.
Traps seen on hill above the W. Either
thinning out, or not so much noticed
on wooded slope.

Up Horsey Gill to first gate on Little
Gatesgarth Road. Coarse altered
Ash all the way. At one place
numerous little series of pinkish
Calc Spar running across brook.

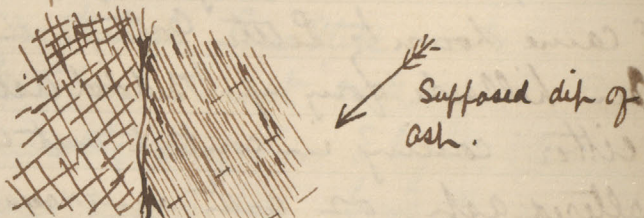
Sept-2. Sourz Milk Combe. Borrowdale
Examined lower part of Raven Crag
Seems to be composed of ash, but
very highly altered. Full of green
spots & particles of a mineral
looking like Wolfram. At Sheppfold
in Combe. Coarse breccia ash dipping
E of S. rock rounded & scratched

Climbed up at S.W. angle of
Combe, & walked along ridge to N
& came down by Little Gatesgarth. -
On hillside going up Bedded ash
either coming in contact with much
altered ash, or with an irregular
dyke of trap to N. Along ridge
& down to Harsey Gile passed over
great extent of much altered
ash & breccia.

Sept 4 & 5 - Working on hill to S
of Seatoller & overlooking Little
Gatesgarth & Harsey Gile.

Near the Gile mostly ash dip to S.
going S traps begin to come in, & at
Crest of hill & above are very frequent.
They follow strike of ash beds
which are much cleaved & slaty, but
from several sections am
inclined to think they (traps) are
intrusive. Though they do not

alter ash so much as might
be expected.



Close blue trap. highly cleaved ash

Sections of this nature on hillside &
unless traps are intrusive they must
have been brought together by faulting.

Sept-6 From Borrowdale to
Airy Bridge. Style Head pass.
For some distance up Derwent R
pass over well bedded fine ashes
altered & dipping steeply S. Ward.
Towards the bridge set out highly
altered beds probably ash but
presenting all the appearance of a
compact Felstone. Same rocks all
the way to Airy Bridge.

Up Tailor Gill & along crest of
Base Brown & down to Sour milk
Gill. Taylor gill felstone ash as
before at top of gill a thin dyke
of dark gray trap visible. Probably
runs down gill gives it its
form & renders the rocks ferruginous.

Along Base Brown same close
felstone ash. About half way
down N End above Sr. milk. See
come suddenly on well bedded
fine ash. much altered & felstone
like. These are the same beds as
met with to E side of Sr. milk Corbe
& on Derwent opposite Seathwaite.

The junction between the overlying
felstones of Base Brown & these
well stratified rocks, - distinctly ashes -
is close & sudden.



Section seen in a block of grey ash
near Borrowdale Gneiss.

The ash is very finely stratified, grey
with occasional white, & darker bands,
presenting a ribboned appearance.

The little funnels shown start from
the surface of one white band &
end in crater like openings on the
upper surface of a second.

They appear to have been formed
by the ascent of steam or gas formed
at the surface of a compact layer &
passing up through layers of soft
muddy ash when the deposit surface

was at A. This would show that this ash bed was deposited under water, & near the centre of the Volcanic disturbance. Perhaps in a crater lake parts of which may have been boiling.

Sept. 7. Working along hillside E W of Borrowdale & up Brook to N of Plumbeys ruins.

Highly altered ashes & traps. Found a vein running up the brook.

Full of gossory material, strings of calc & also apparently of spathic iron. Much hard red clay, also a dark coloured trap which seems to have come up along vein as dyke. In many places fragmentary.

Sept. 8. Up to Sour Milk Combe.
up its S. end over to top of
Green Gable & down by Sty Head
Pass.

Brook at upper part - Sour Milk Combe
runs along dyke & vein. Rocks at
S end of Combe hard flinty altered
ash. Same but coarser all along
ridge to top of Green Gable. As
followed along dip sets less &
from about 50° decreases to about
 25° . In coarser beds no dip visible
by stratification lines, but a "streakiness"
in the rock seems to indicate the
dip & is parallel to it where dip
indicated by proper bedding lines.
Going down S. end of Green Gable
into Sty Head. Ash as before coarser
& altered to felsite but containing
many garnets.
In some coarse becciated ashes, nearly
all the fragments are evidently of
finely stratified ash beds.

Sept-18. On Barf.

Skiddaw slates but-little cleaved
& with many hard sandy &
flaxy layers. The whole
much contorted & reversed in
places. old quarry near

top of Barf with quantity of
debris consisting of very fissile
blackish-blue & grey shales.

Searching for fossils but
found only a few graptolites
& fucoids. *Sidymograpsus*
most common. Two types of
fucoid one broad, gently curved,
& spongy or porous in texture.

The other thin almost hair-like,
generally brown, branching
suddenly & frequently.

Besides these fossils worm tracks
are not-rare.

old levels in Valley to S. of Barf
but no workings now going
on.

Skiddaw Slates Localities

for fossils.

Barf beds highly contorted, often sandy. fossils not abundant & poor.

Flanks of Skiddaw opposite Bassen-thwait. A pretty good place fucoids & worm tracks common.

Sandersony gill Sandy beds with fucoids.

Randell's Crag near top of Skiddaw. Best place visited. Graptolites not uncommon, found also some trilobite remains, & a pteropod. Also phyllofods.

As a whole the fossils are rare & badly preserved. Only in some places do the slates break along the original bedding, being generally

highly cleaned though to rotter
to make good slate. The
fossils being nearly always found
in slate near sandy beds
seems to show that these
beds have been efficient in
preserving the remains by preventing
decay.

Graptolites about commonest
& most characteristic fossil.
found Didymograppus 2 species.
Graptolites (said to be G. Latus)
also a large branching form.
Fucoids three types. 1 Thin
hair like, but long & much
branched. The branches standing
well out from the stems.

2. Broad ribbon like (generally
about 1 1/2 inch) & gently curved
rarely branching. Texture thick
structure minutely punctate
though this perhaps superinduced.

3 Broad & branching, uneven
outline, very thin often only
apparent as a brown stain
on the stone.

Worm marking of several kinds
& sometimes appearance of
burrows

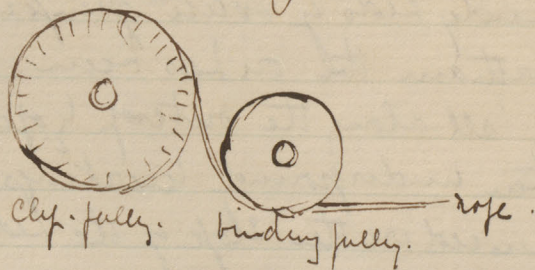
Phyllofoda Carapaces not uncommon
seem to belong to Caryocaris

Middlesborough on Tees
July 10. 72.

Went by rail from this place to Marske
& walked from station to the
Upleatham Iron mines

Ore occurs in a thick bed ranging
from 8' to 12' or less. At Upleatham
mine about 12' to 13' & giving about
30,000 tons ore per acre. Gentle dip of
3" per yd. The ore is just at the
top of the Marlstone or middle Lias
outcrops along the hill sides. Above
it shales & sandy rocks constituting
the upper Lias. On the tops of the hills
some sandy beds of oolitic glauconite.
At Upleatham the ore has been
worked all along the outcrop by open-
cast, then underground workings
commenced on the slope of the bed,

at several places. The principal opening is at the head of the inclined plane. It is an engine flume about $\frac{3}{4}$ mile long & following the full dip. An engine situated near the mouth of incline, of 35 or 40 h.p. draws up the waggons in sets of 13. Each wagon holding about 2 tons ore. Double line of wheels all down the incline. The crutches run out of themselves & carry the rope after them. The engine draws out a set in about 10 minutes. It is fitted with a Fowler's clip-fulley which acts very well & saves a large drum. The rope goes on to the clip-fulley from below a binding wheel.



Surface arrangements. Lines of narrow gauge railway converge toward the main opening from various parts of the outcrop. The loaded & empty trucks are drawn by several small tank engines which act well even on considerable gradients & save much horse power.

The trucks are weighed separately & then run down to one or other side of a deep cutting in the hillside. Wide gauge railway is laid down in the cutting. It is level in the cutting & then slopes sharply away down the hillside. Large railway trucks come up ^{along} ~~at~~ each side of the cutting & into them the trucks from the mine are tipped. The trucks are run into cradles suspended on trunnions. By the weight of the truck the cradle turns over & the ironstone falls into a shoot & goes to the large waggons below. Each of which

Carries 5 tons. The large waggons
are run down the slope several at a
time & full of the Supts & a drum
& brake. The ropes on this incline are
steel wire & last about a year. Those
on the engine flange of the mine are
also steel & last about 9 months.

Underground arrangements The roof
is good & a ~~considerable~~ layer of
inferior ore is left on the floor. The
galleries though wide & from 12' to
13' or 14' high need little timbering.
Headways are opened out at right
angles from the engine flange &
sidings about 5 yards wide. These
boards & cross headings of like width
drive. The ore blasted out by
attention to the jointing & no
undercutting or shelling practised.
About 70 lbs powder used per ton of
ore obtained.

Pillars 11 yds \times 22. Ground
first worked over \times boards & cross-
headings then workings in the
broken commenced. Here more timber
required & a good deal lost. The pillars
are attacked \times driving through them
either parallel to the boards or cross headings
according to circumstances & shearing
away the sides. The trucks drawn
below ground to the engine plane & boxes
which are stabled at the surface.

~~At Day~~ A Smith's Shop for drills &c
in the mine to save carrying out
tools. Two underground engines
supplied with Fowlers clip-fallies
work pumps several hundred yards
away from them by wire ropes passing
over other Fowlers clips in connection
with the pumps.

Men seem to work two shifts.
The night shift almost idle. They
work in pairs. Each pair of men

load into a marked truck which is weighed for them at the Surface.

Sometimes the men prefer to hire a boy to break up the ore for them after the blocks are detached. Paid according to weight. Average wages 6/- or 7/- per diem.

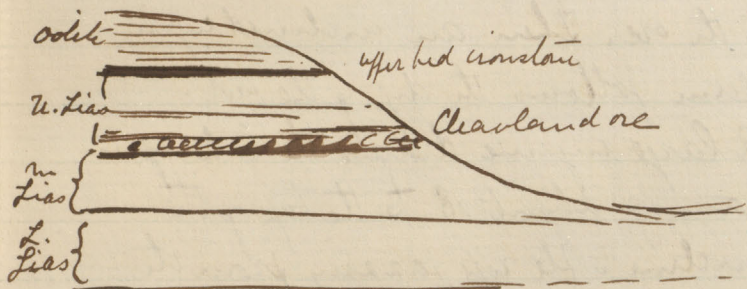
Output of the whole mine is about 4,000 tons a day.

The ore is bluish in colour.

In some specimens very compact & cherty looking blue & mottled with greyish patches. Other specimens softer & speckled with white grains which seem to be foraminifera.

Fossiliferous, oysters, bellerophonites, & rhynchonellas common in the ore. Also aviculas, ammonites, fragments of fossil wood etc. The ore from the outcrop mostly oxidised & quite yellow. That from the mine blue & mostly as carbonate. The ore

Contains much Phosphorus
(abt 2%) a good deal of Sulphur.



General section occurrence of the
ore. (Etheridge).

Visited Estor Mines about 3 miles
from Estor station. The same
deposit worked but thicker here
sometimes 18'. Crops out along hill &
worked from crop as before. Also
{ inclined drifts. The tubs are now
Somewhat larger than at Uplatham.
They are run down a self acting
inclined plane with a brake-drum
above, to the Estor branch of the railway

A horizontal level seems to have been taken into the hillside considerably below the top of the ore. This is run in to the ore. Then an inclined engine plane follows the dip of the bed.

A large engine draws the trestles up in trains of about 18 to the top of the incline. The rope passing from the engine by a special small gallery, faulted to the main level. A small engine then draws out the trains along the level.

About $\frac{1}{2}$ mile from the main shaft the return air way opens. Here is a very large Guibal fan. 50' diameter 810" wide. Worked by a single cylinder 70 h.p. engine. Air drawn in at the side & thrown out by an expanding flue. Current in the Return air-way very strong. Engine works from 30 to 50 strokes a minute.

Aug 9. 1872.

Visited Intercolonial
Coal Mining Company. Mine
Licton County. Nova Scotia.

Mine worked by a pair of slopes
following dip of coal which is about
 16° . $N 75^{\circ} E$ at outcrop, but becomes
somewhat flatter when followed in
depth. Slopes now about 1400 feet
long. Tubs drawn up in trains of 5 or
6 by an engine with two 16" cylinders
& friction gearing. Engine said to
be too small for work.

The tubs drawn up above the level
of the ground at surface by a sloping
erection continuing ~~the~~ with
the inclination of the engine plane, into
a large wooden building. Here the
tubs are tipped & coal runs down
screens into railway waggons below

Screens so arranged as to
separate into several sizes at
one operation. Boys watch the coal
as it runs into the trucks & pick
out any blocks of bad coal which
may have been brought out by mistake.
The fine coal & duff are at present
thrown away, or used for ballasting
the railway. Railway L-loading
ground on West River about 6 miles.
Another branch just completing to
connect with the Government-Roy.
Coal drawn out at present
about 600 tons per diem. This
however probably includes some of
the coal piled in winter & now being
shipped.

Visited Lord Pit.

Albion Mines Pictou. N.S.

Pit nearly 1000 feet-deep. Coal drawn in double decked cages holding when full 4 tubs each. At present only the lower deck used & two tubs drawn at-a-time.

300 tons extracted per diem.

Drawing engine with pair

36" cylinders. Single flat drum

18' diameter barrel. Wire rope.

Workings on the "main Seam"

About 15-17' which taken out.

Bords 20 to 40 yds apart

Pillars divided by headings every 10 or 12 yds following the dip which is about 20°.

The coal brought down to the

main bord ways by "back balances"
A movable platform carries the

tub. Rope passes up to top of
incline round drum with brake
& then fastened to a balance truck
loaded with iron. The platform
carrying the tub on arriving at
the foot of the incline forms
part of the track of the road
way. The loaded tub is pushed
off & an empty one put on
in its place. Signal given.

platform & empty tub drawn up
by weight when brake loosened.
The railway on which the balance
truck runs is steeply sloped at
the top to overcome the inertia of
the platform & tub. Gently sloped
in the middle to give uniform
motion. Flat at the bottom to
bring gradually to a stop



Coal very free & easily brought down.
Roof food. Powder not used on account
of gas. Wedging to fall the coal.

200 men employed. One shift
worked from about 5:30 AM
till 4 P.M. Men paid according
to cubic yard extracted. Earn
from \$2.50 to even \$4.00 per
shift. Coal run down screens
into Waggons on Railway. Coal
got out in winter mostly piled
as in other Pictou collieries &
waits opening of navigation. Part
of coal shipped in Summer
taken directly from mine, part
from pile. Pile coal having
deteriorated more or less from
weather. Must be all rehandled
& screened.

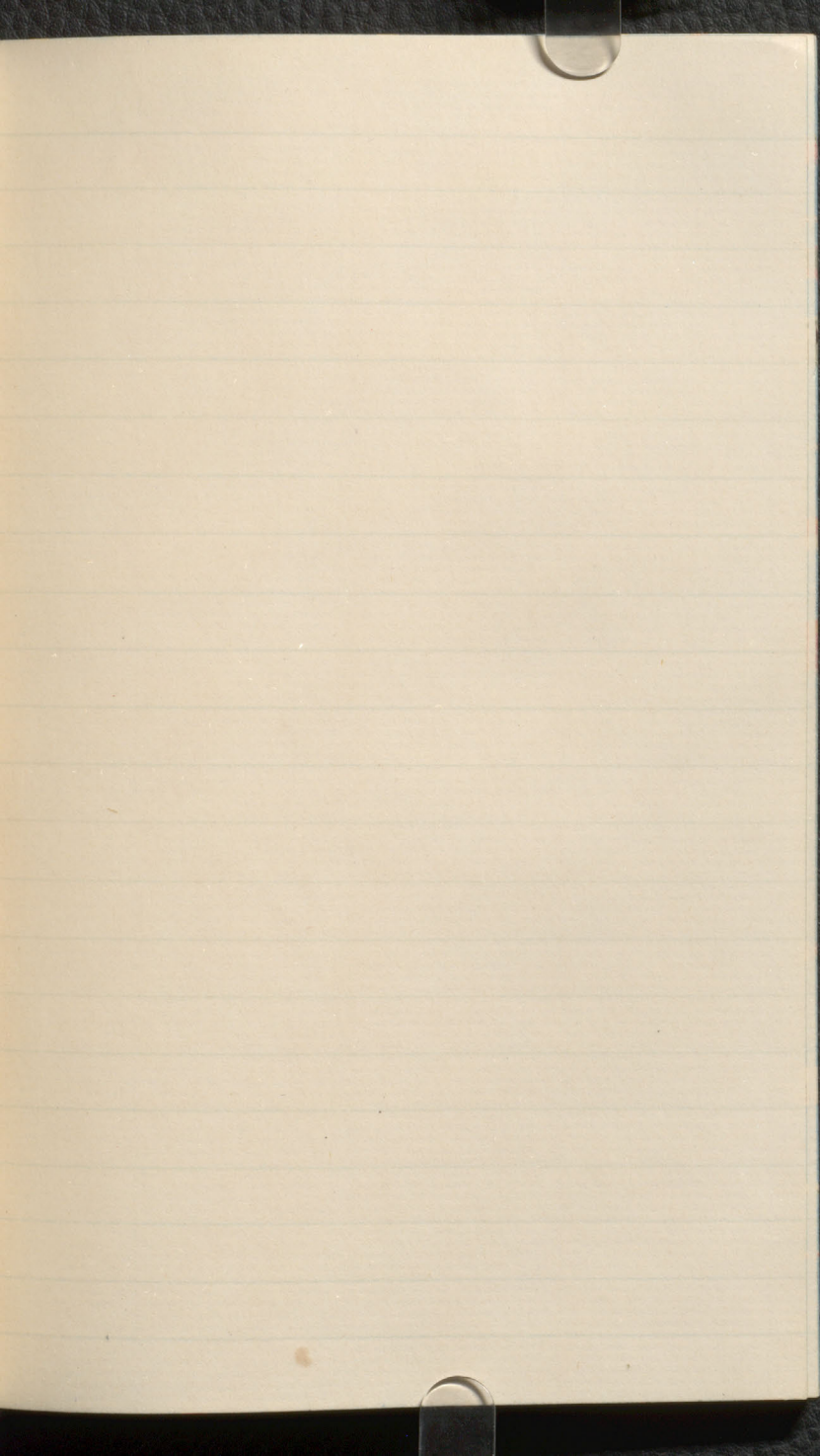
Water in mine not very great.
Large pumps erected. Engine
single 52" cylinder. Boiler

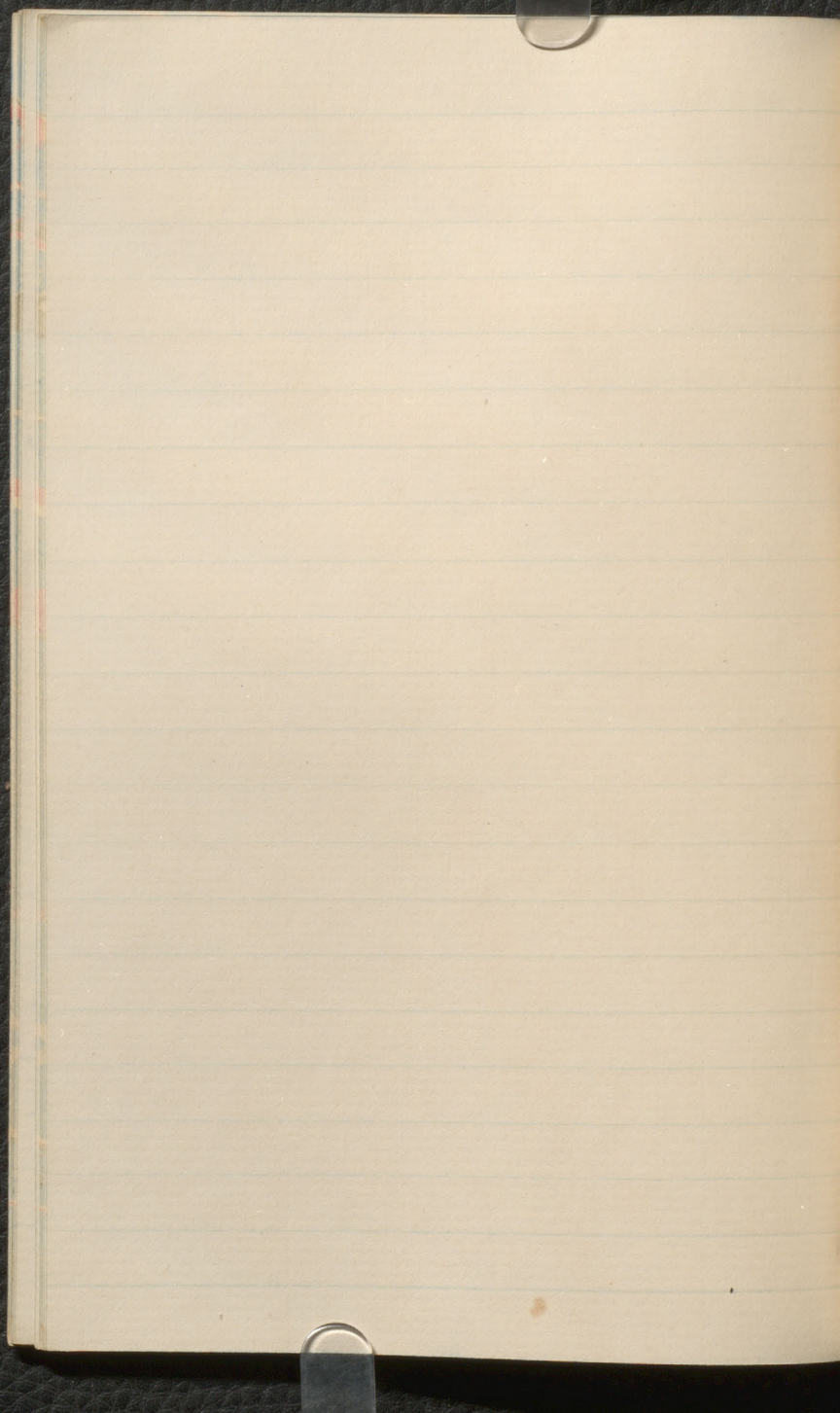
plate beam 17 tons. Pump
Column 16". ordinary butterfly
Valve leather backed. Lasts long
as no sand. Pump in 3 lifts
in separate pumping shaft
Top lift - continuation of piston rod.
Pump worked only about half
time & half water extracted
allowed to fall back for ventilation.
Gas rather troublesome in pit
as coal highly bituminous.
No powder used. No Naked
lights allowed. Safety lamps
locked in Cabin at pit-mouth,
before given to men. Davy.
Stephenson & Clanny in use.
A second pit in process of sinking
When pushed hope to get gas out,
use powder & naked flames.
Ventilation by waterfall in pumping
shaft & row of Gurneys' steam
jets half way down the

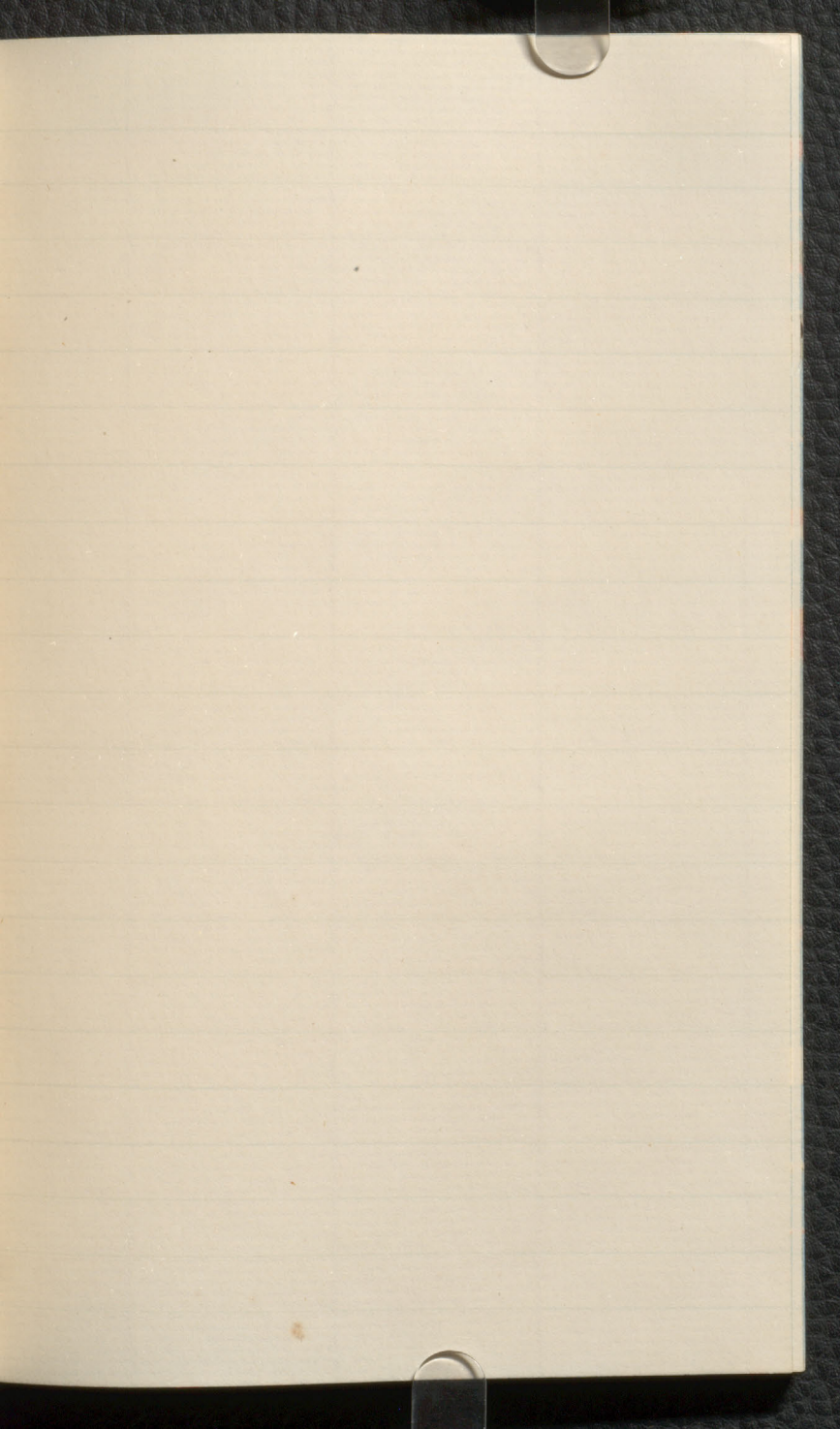
drawing shaft. A fuibal fan
imposed & ready to set-up when
new shaft made. Diameter of
fan 30' breadth about 10'.

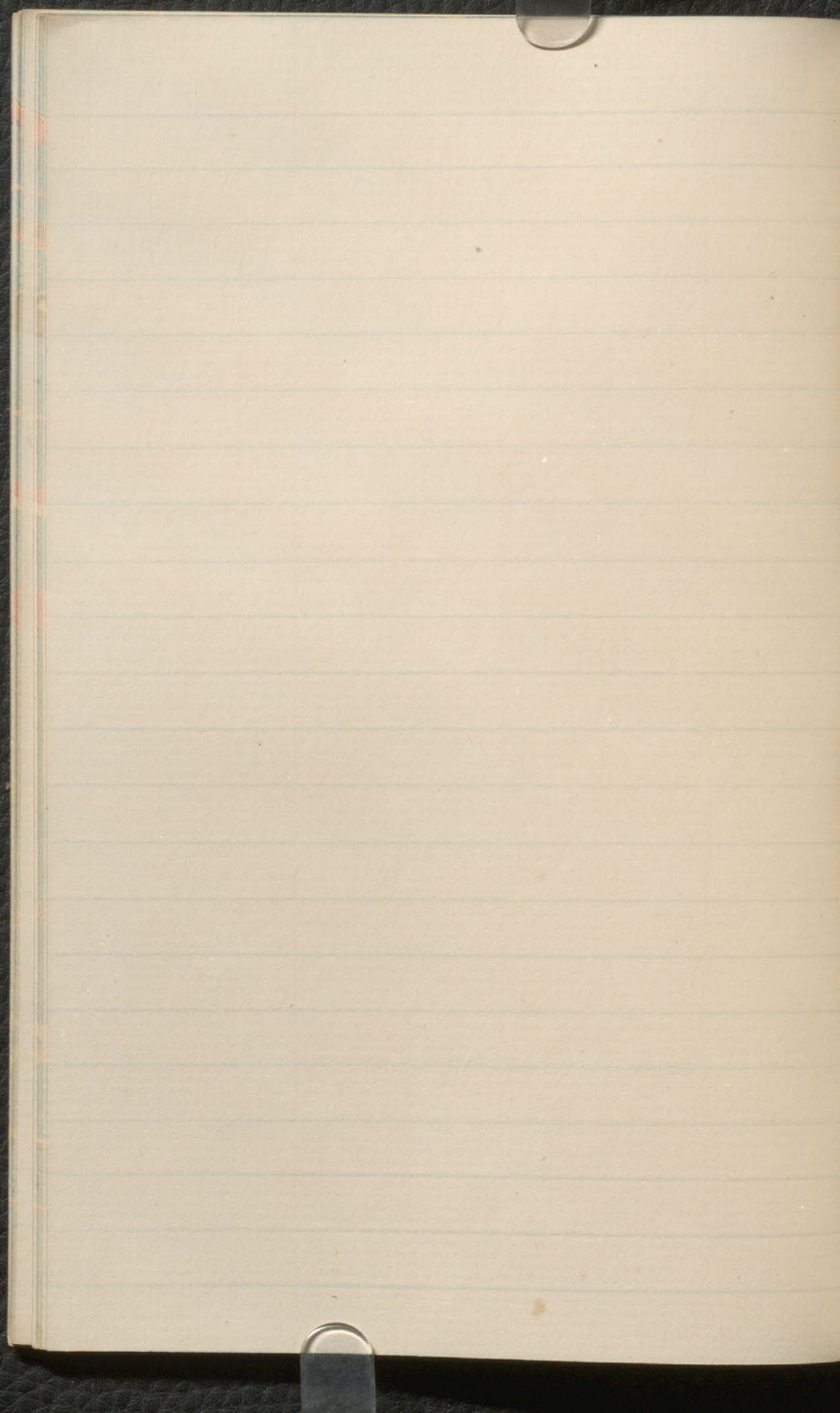
Engine to drive fan about 60 h.p.
Can do little with slack coal as
no market but have lately erected
coking ovens & make very fair
coke from it.

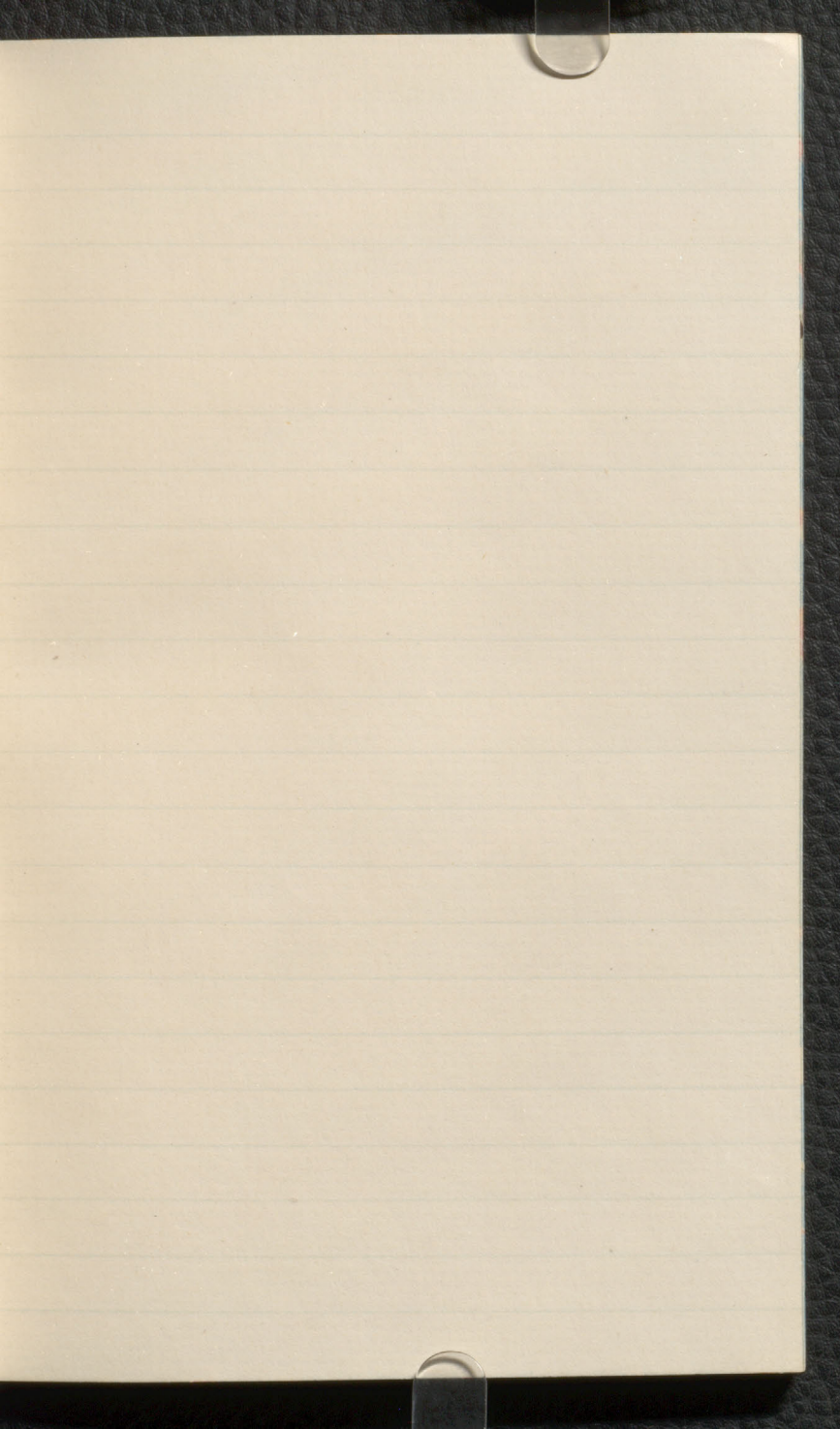
[Faint, illegible handwriting on lined paper]

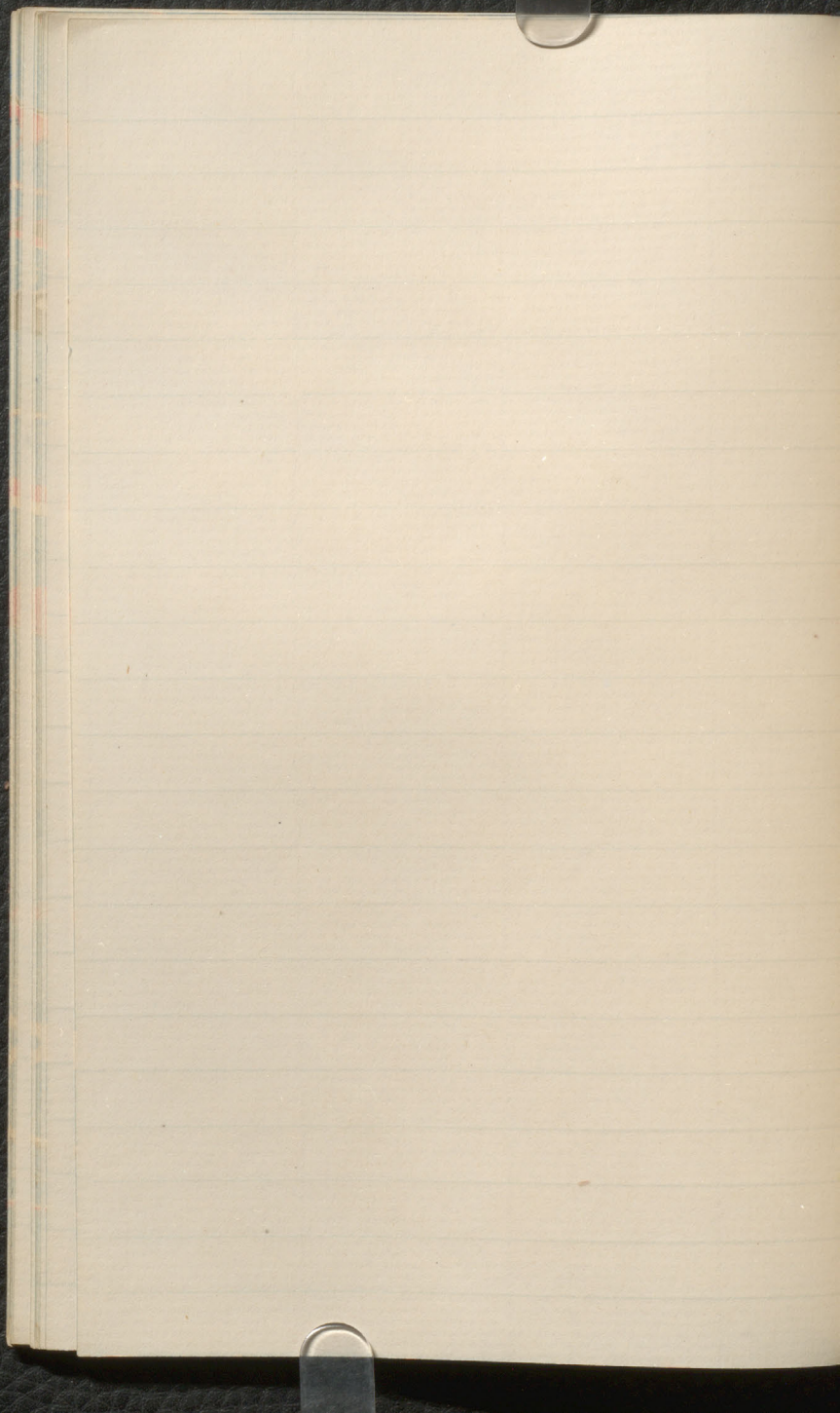


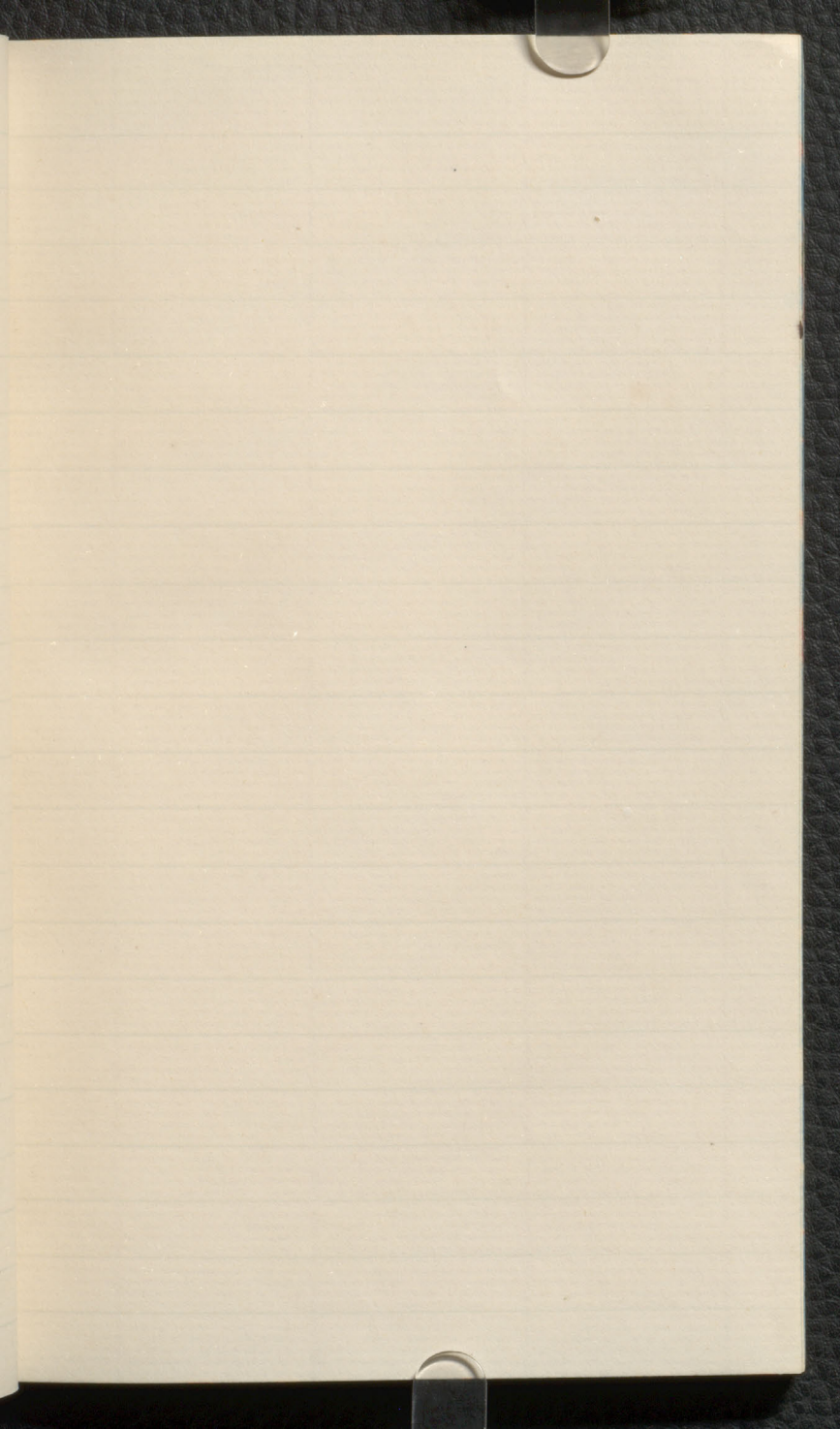


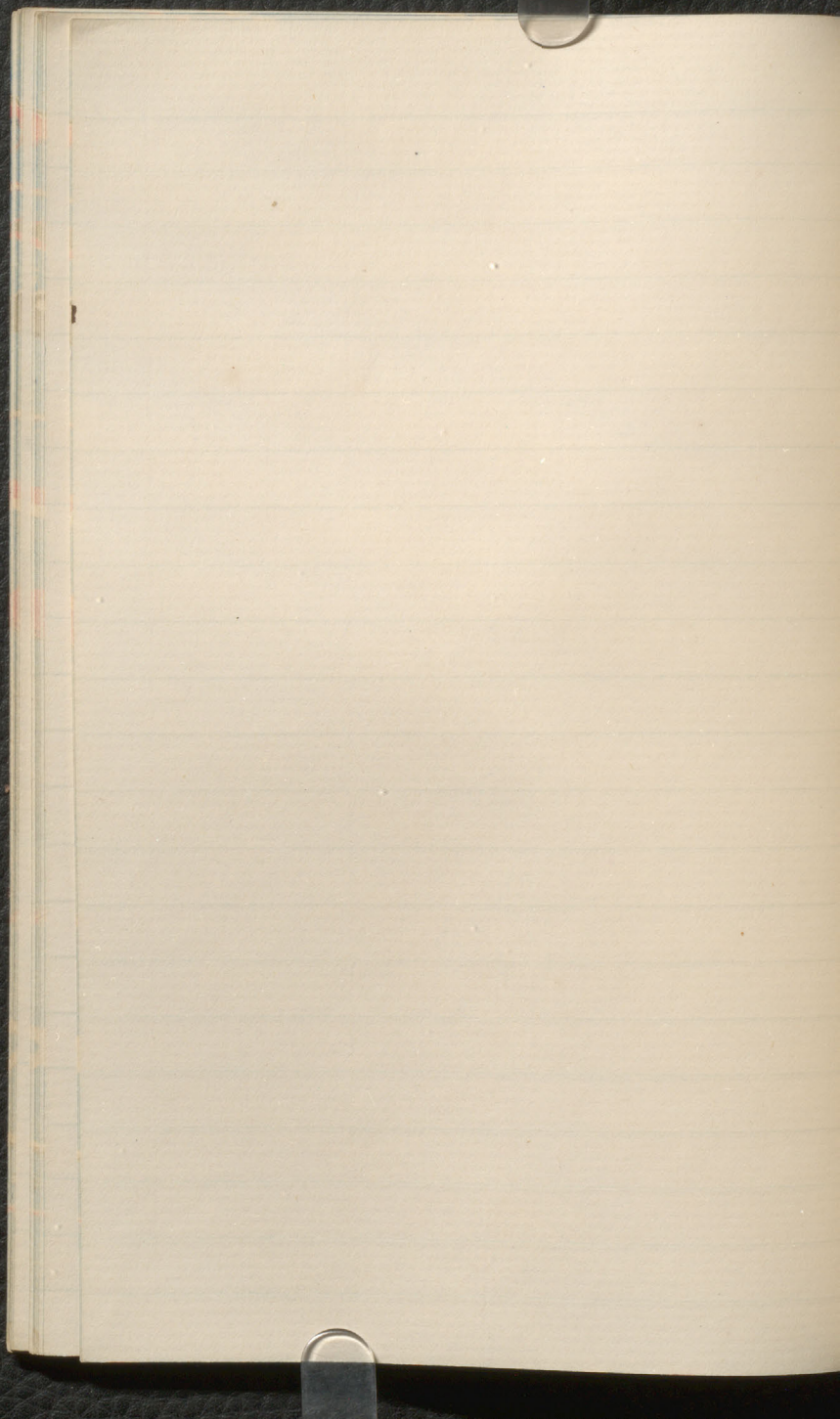


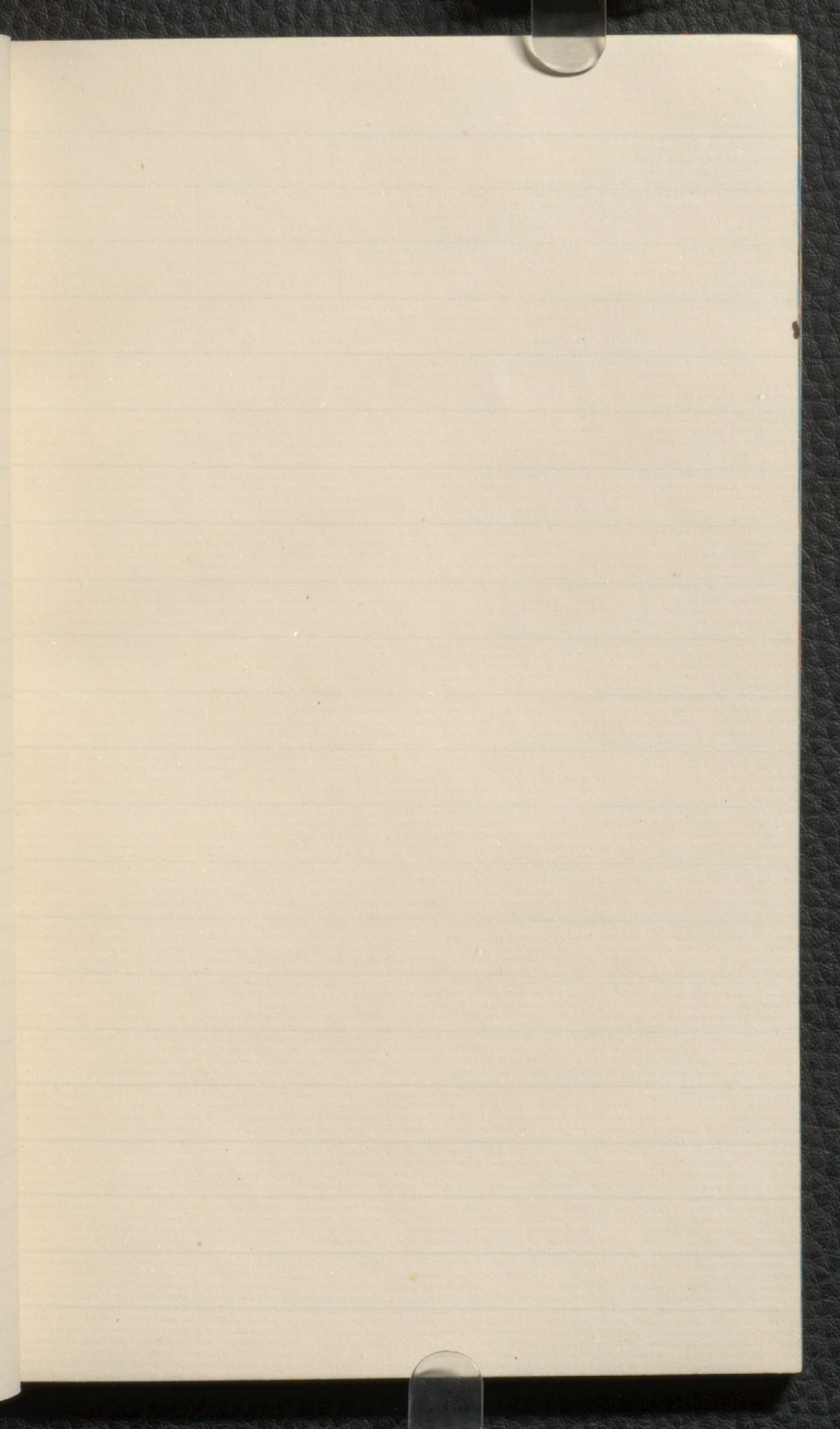


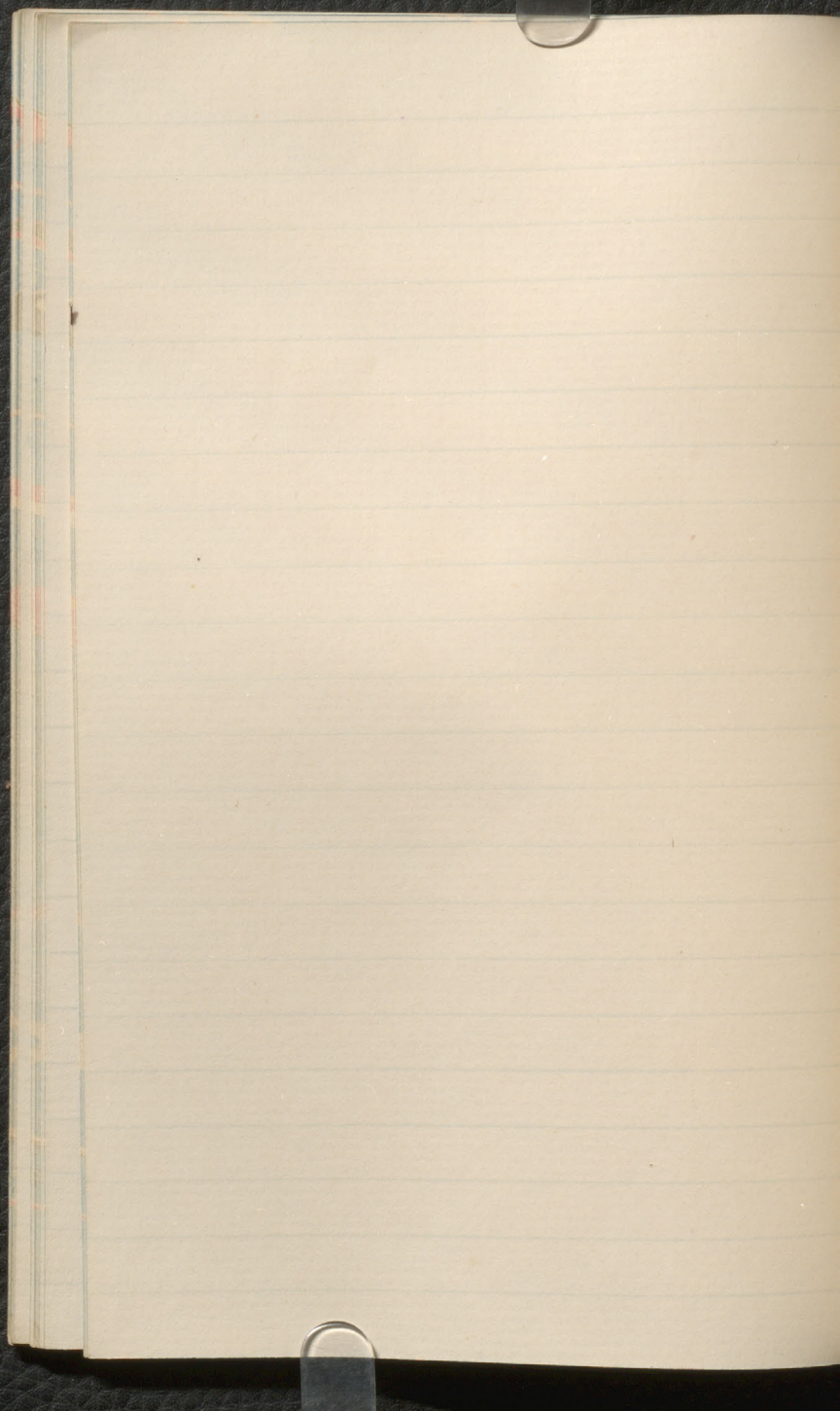


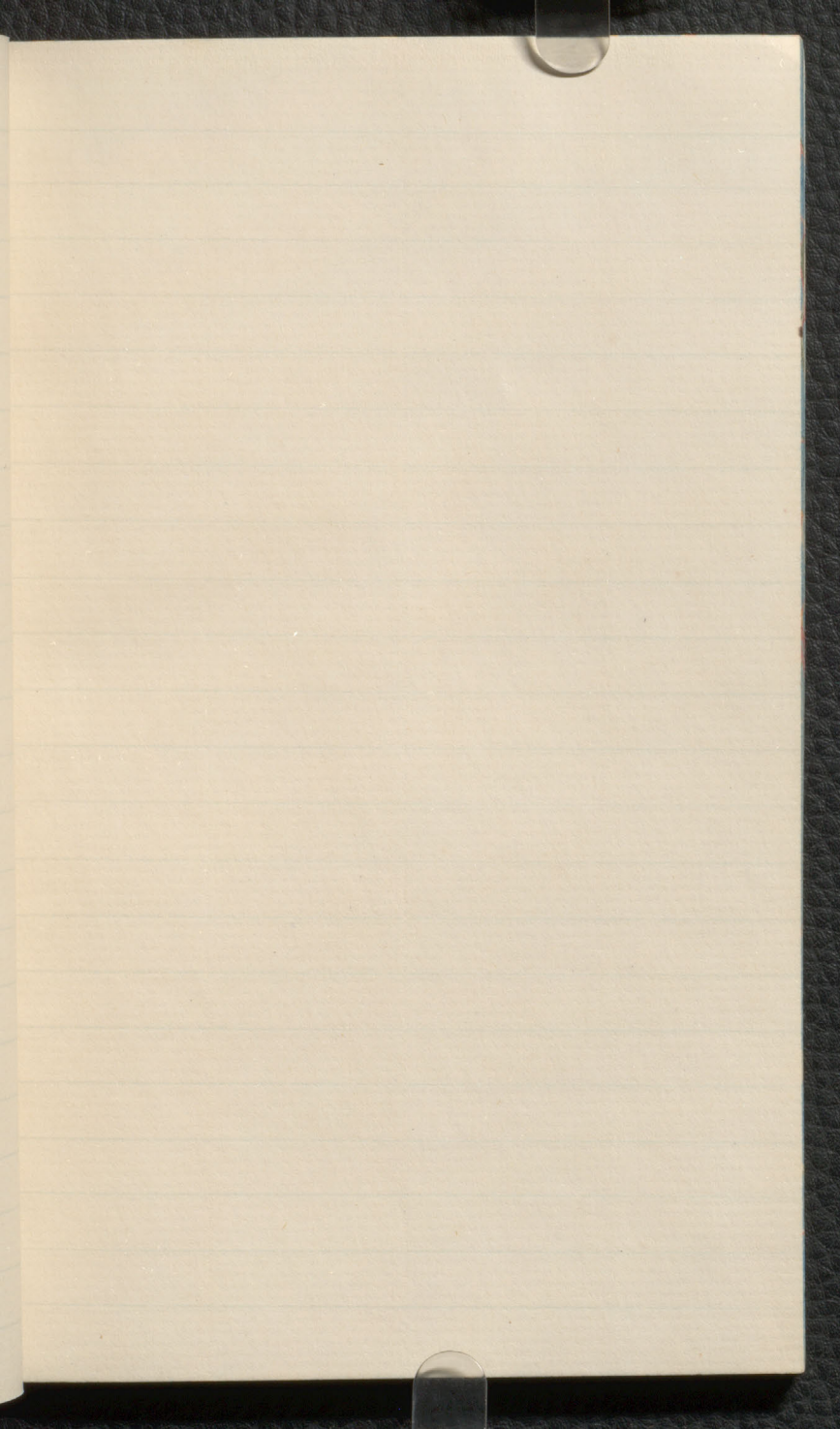


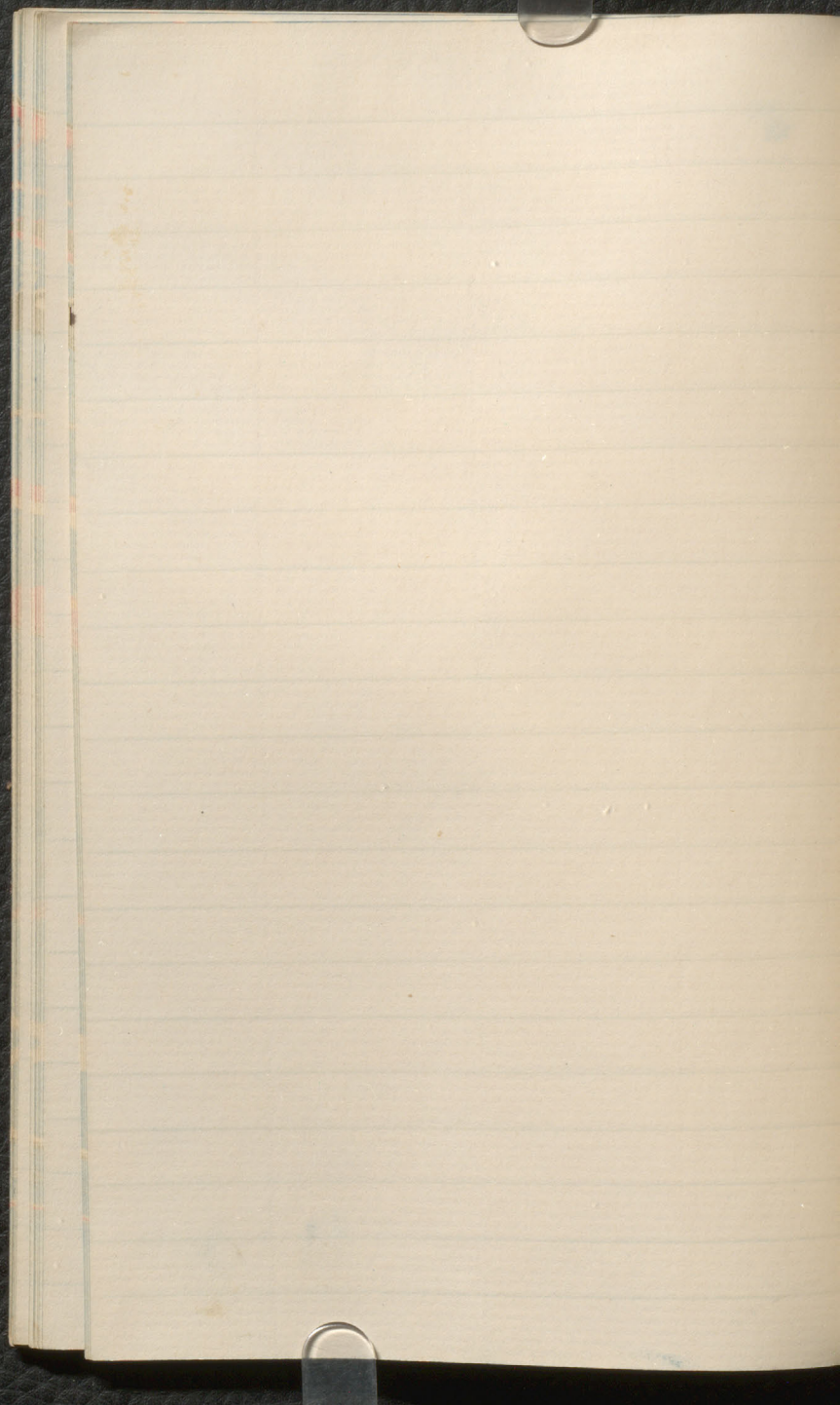


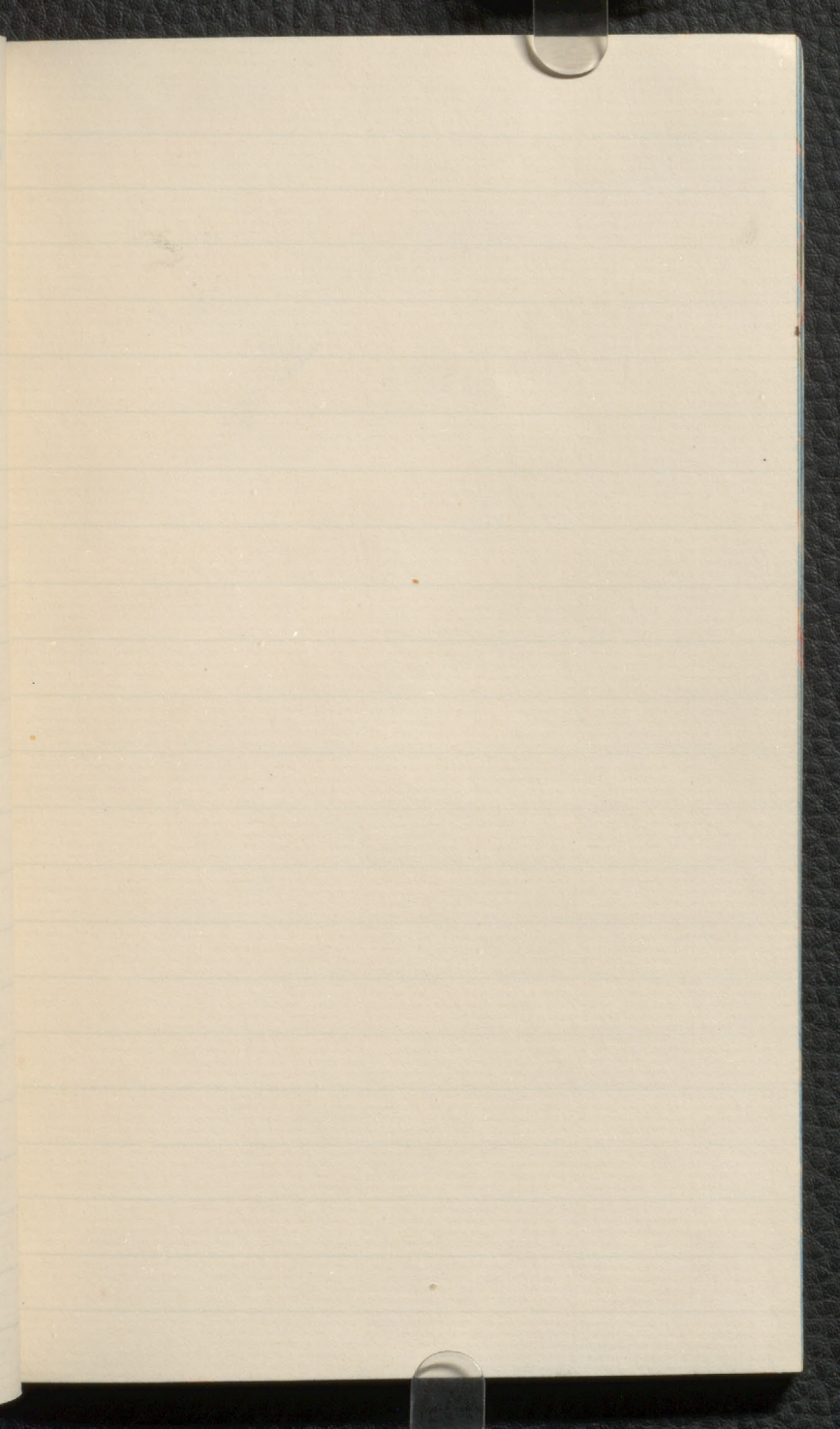


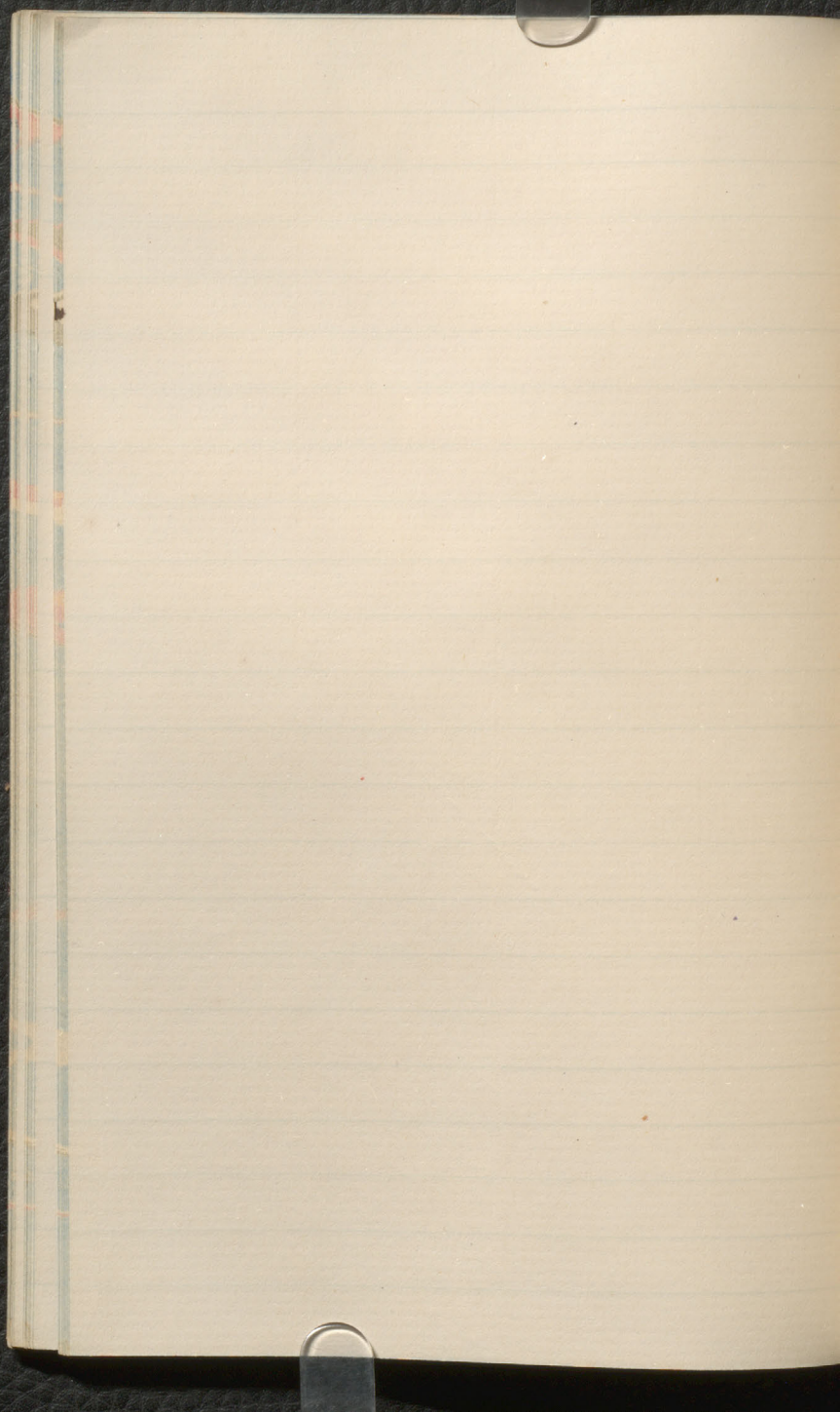


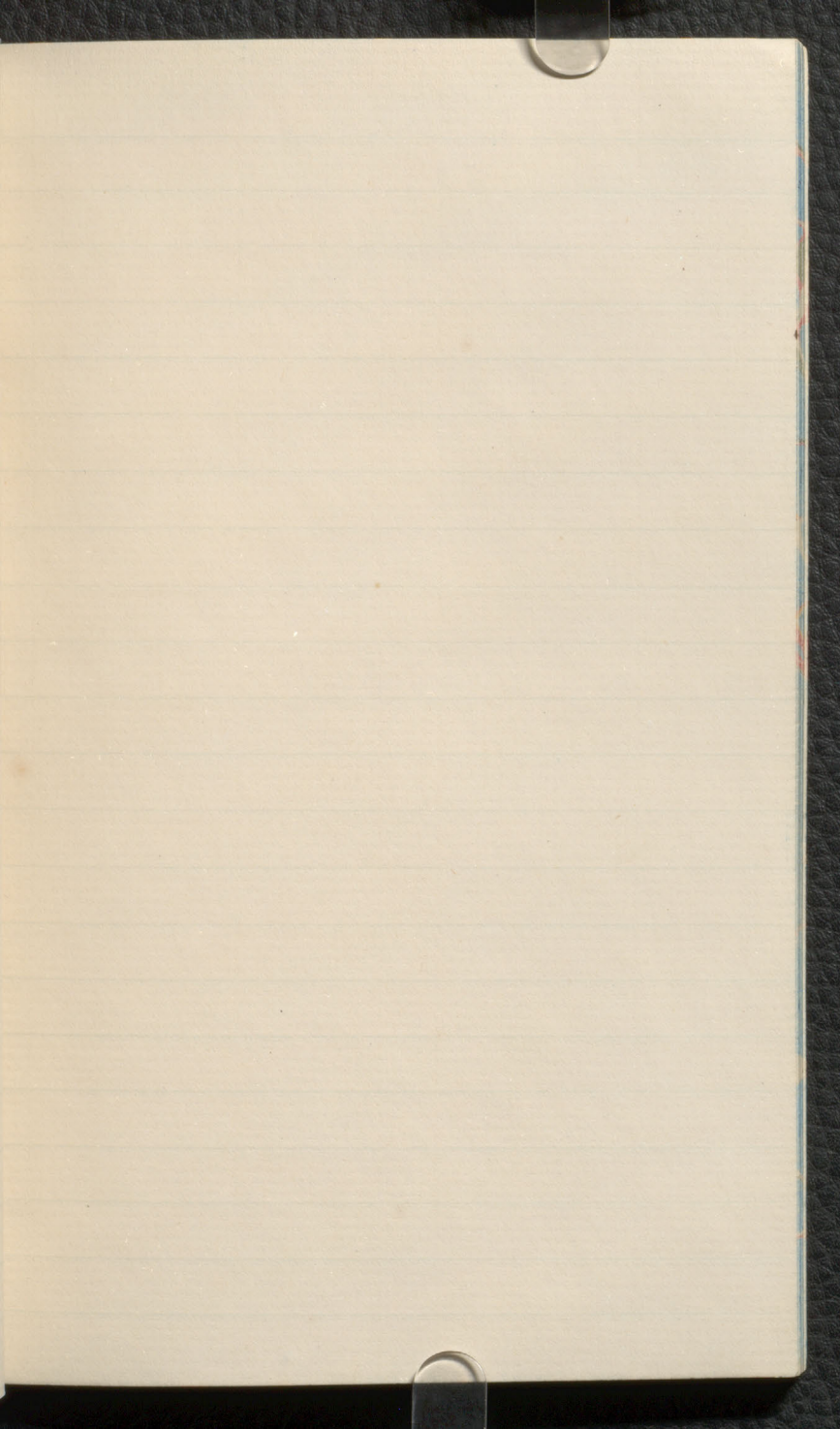


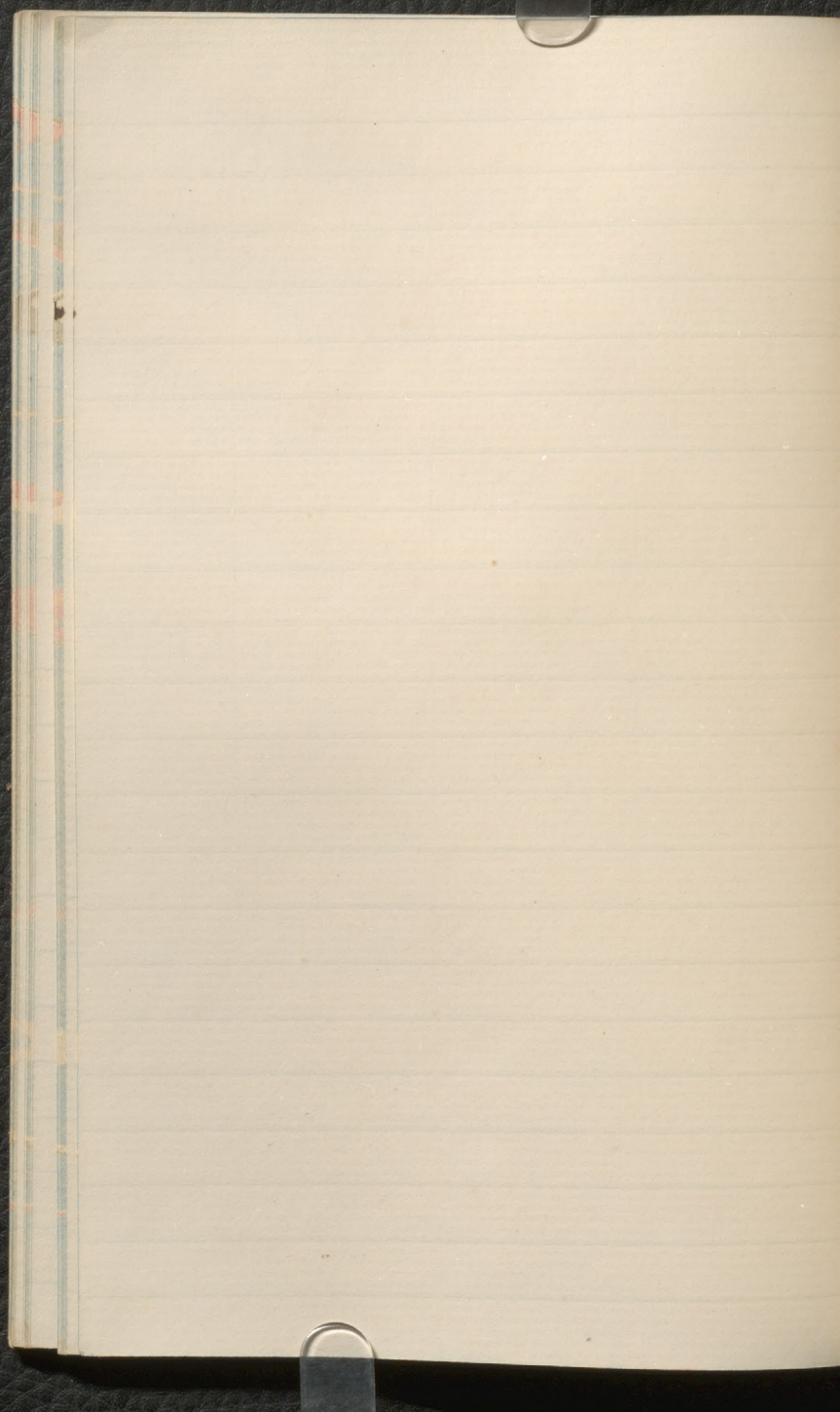


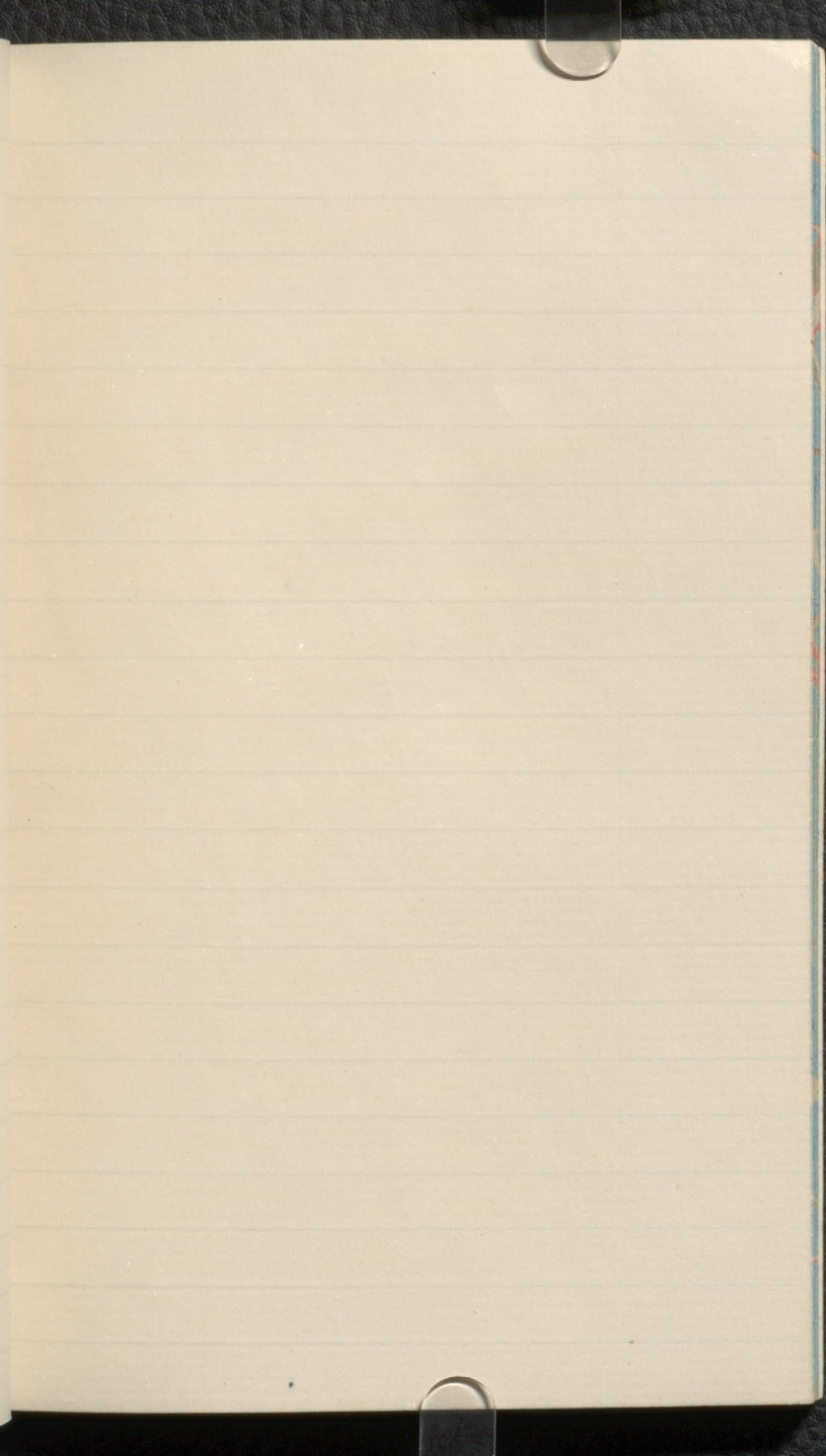


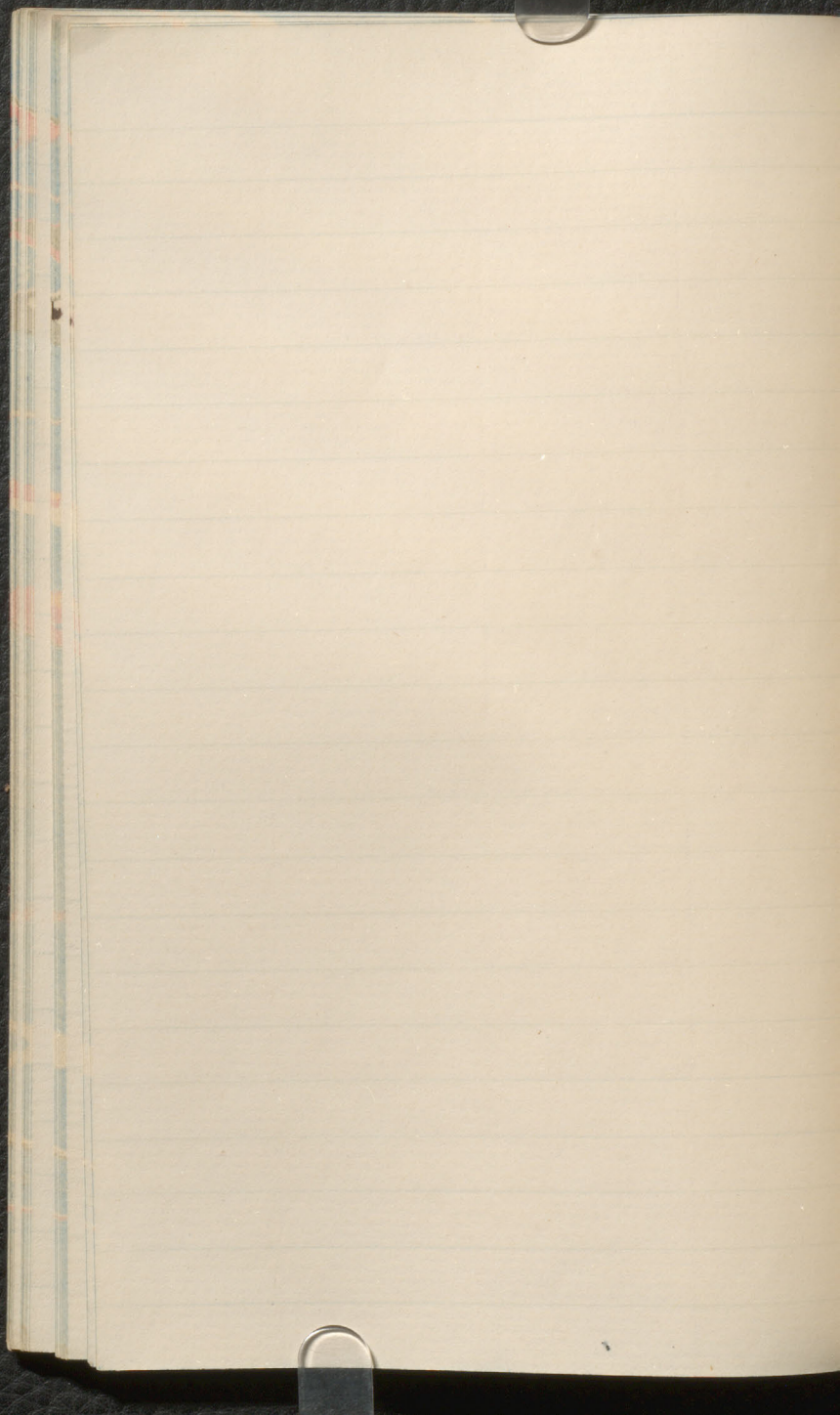


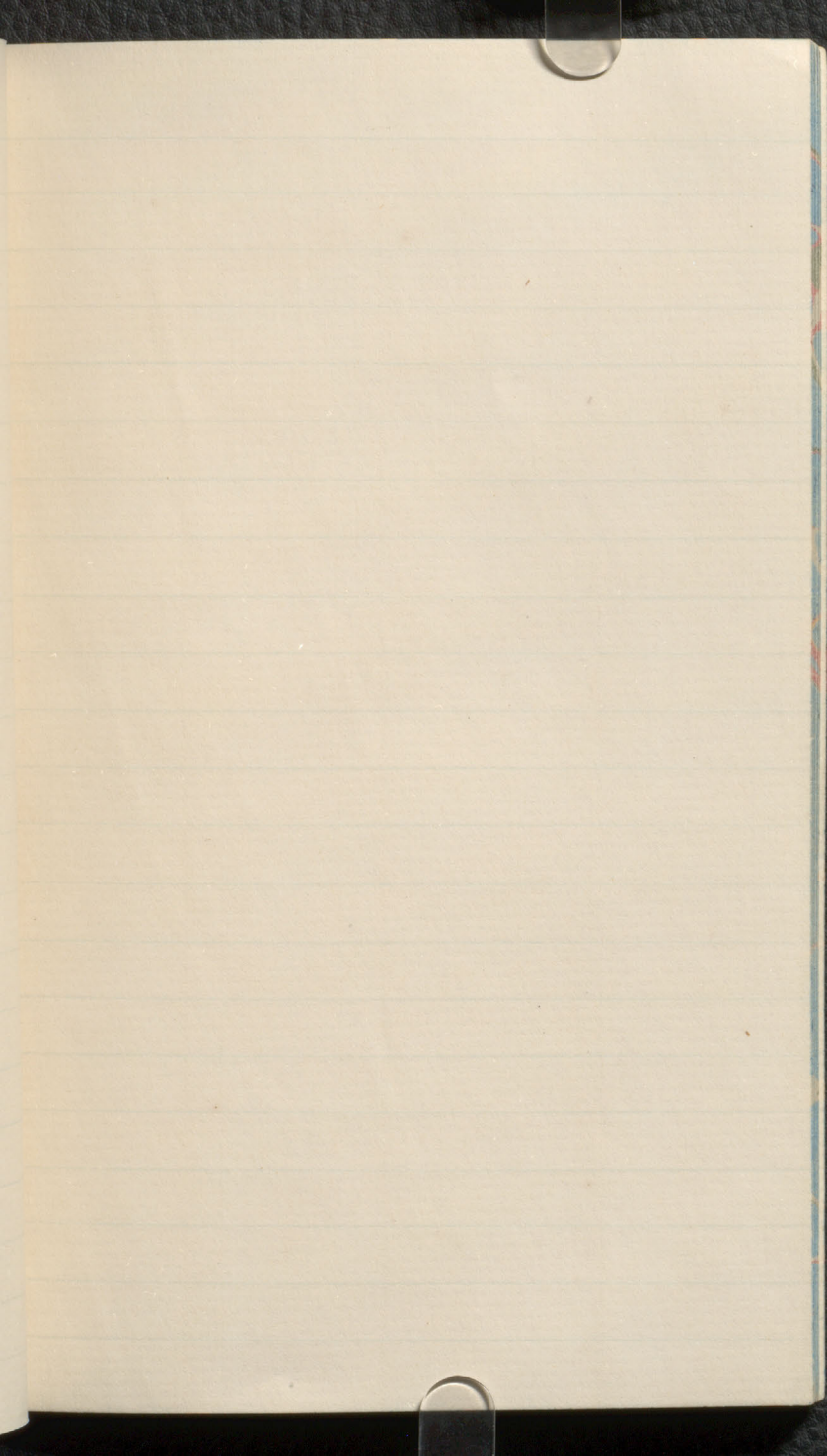


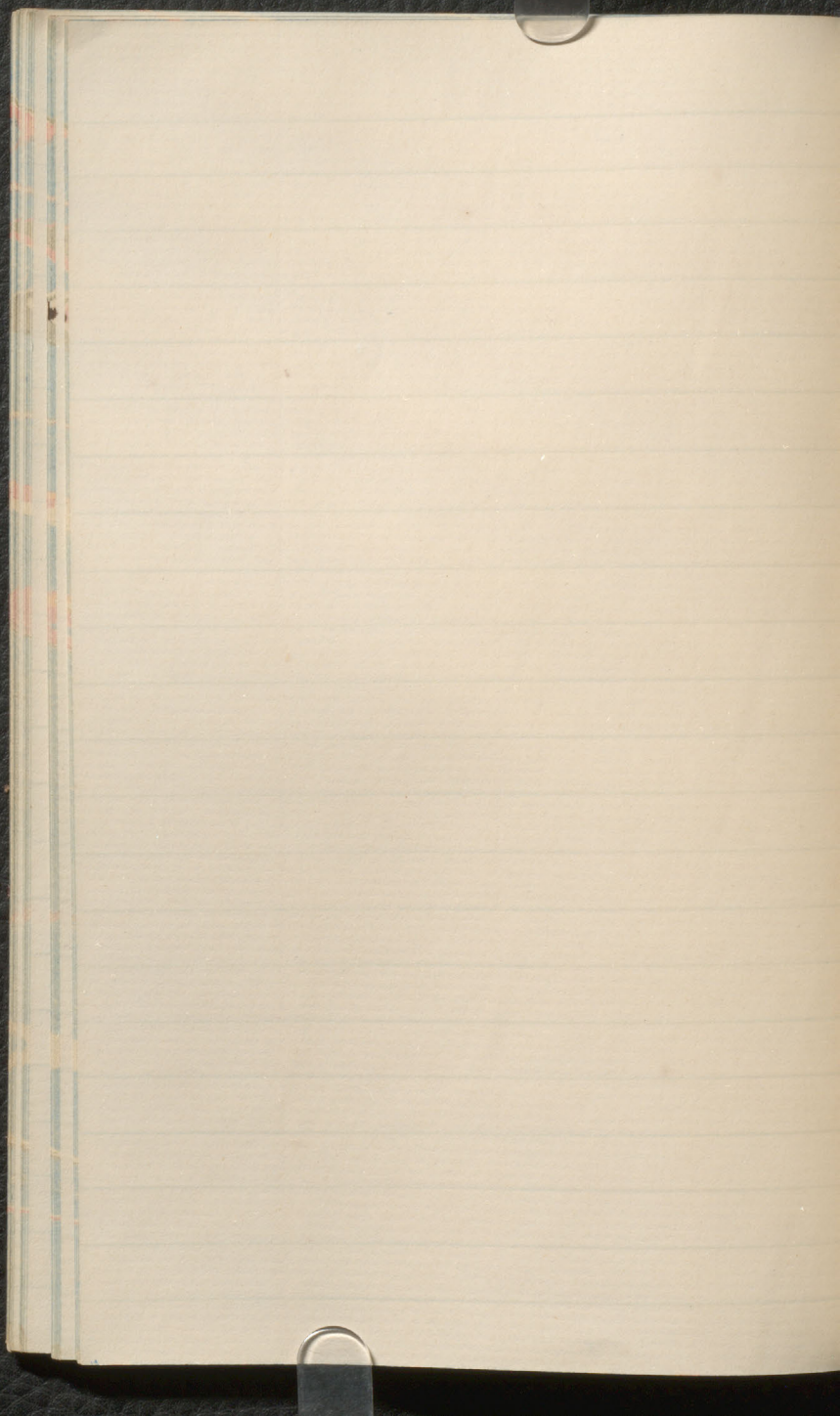


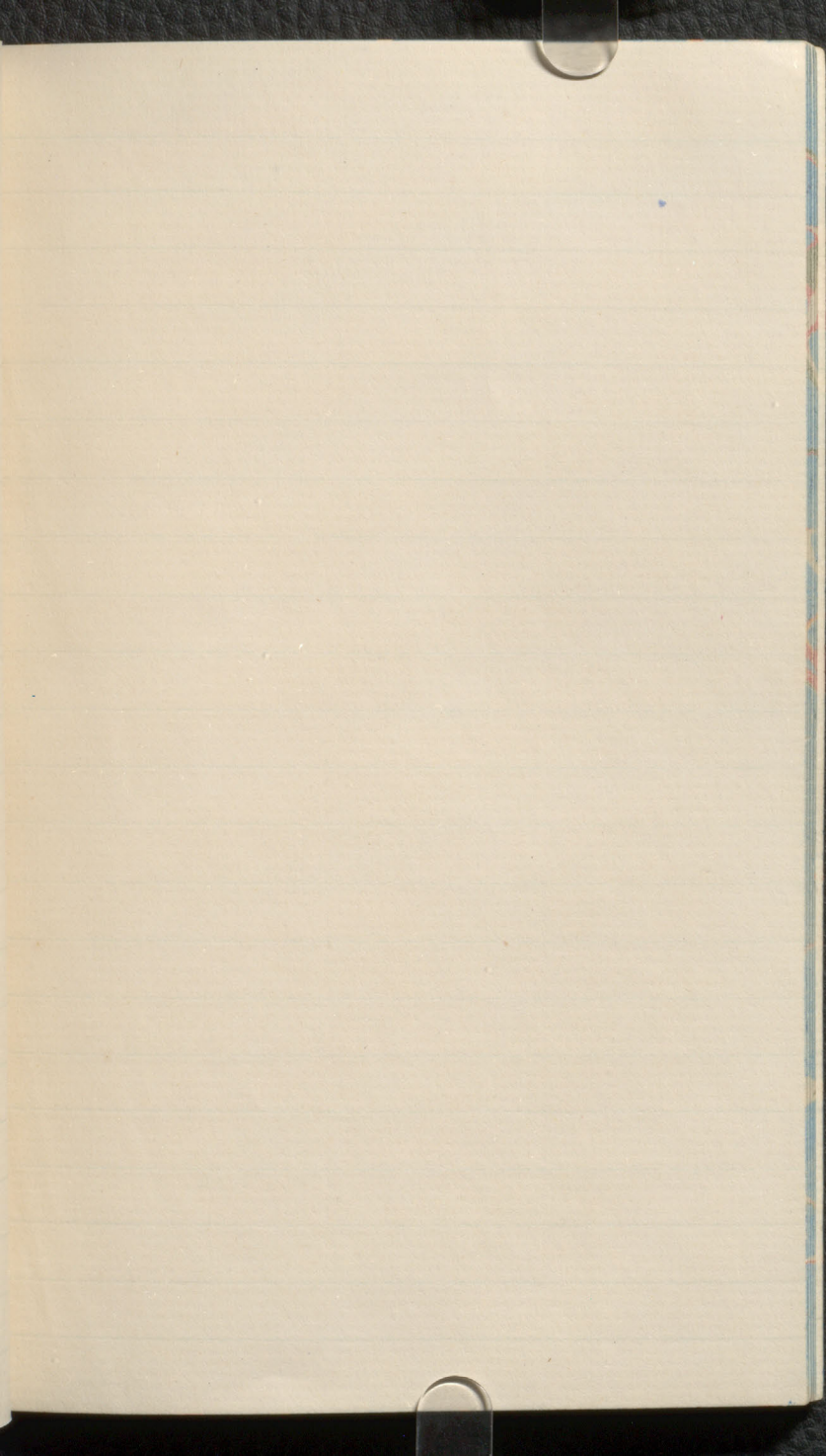


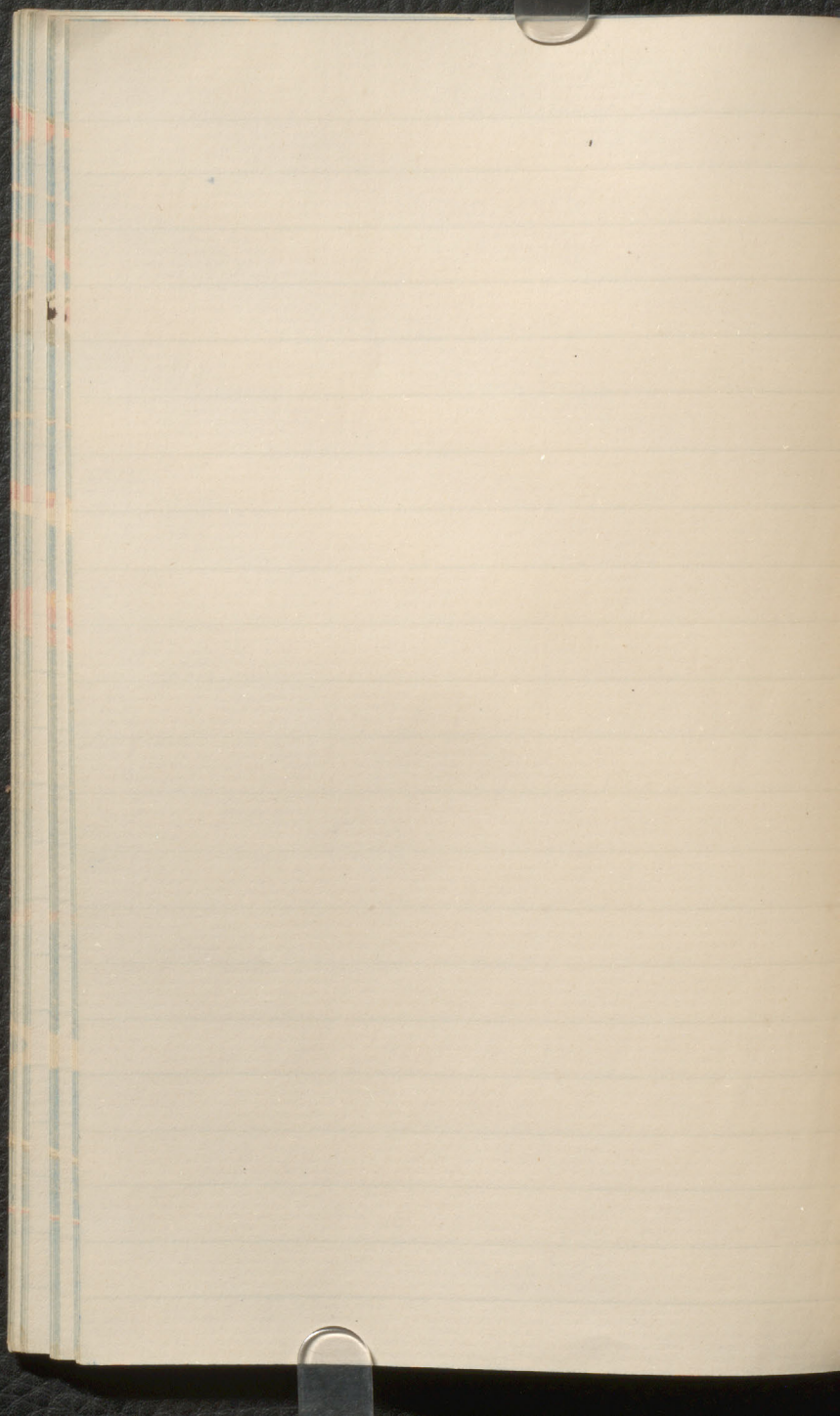


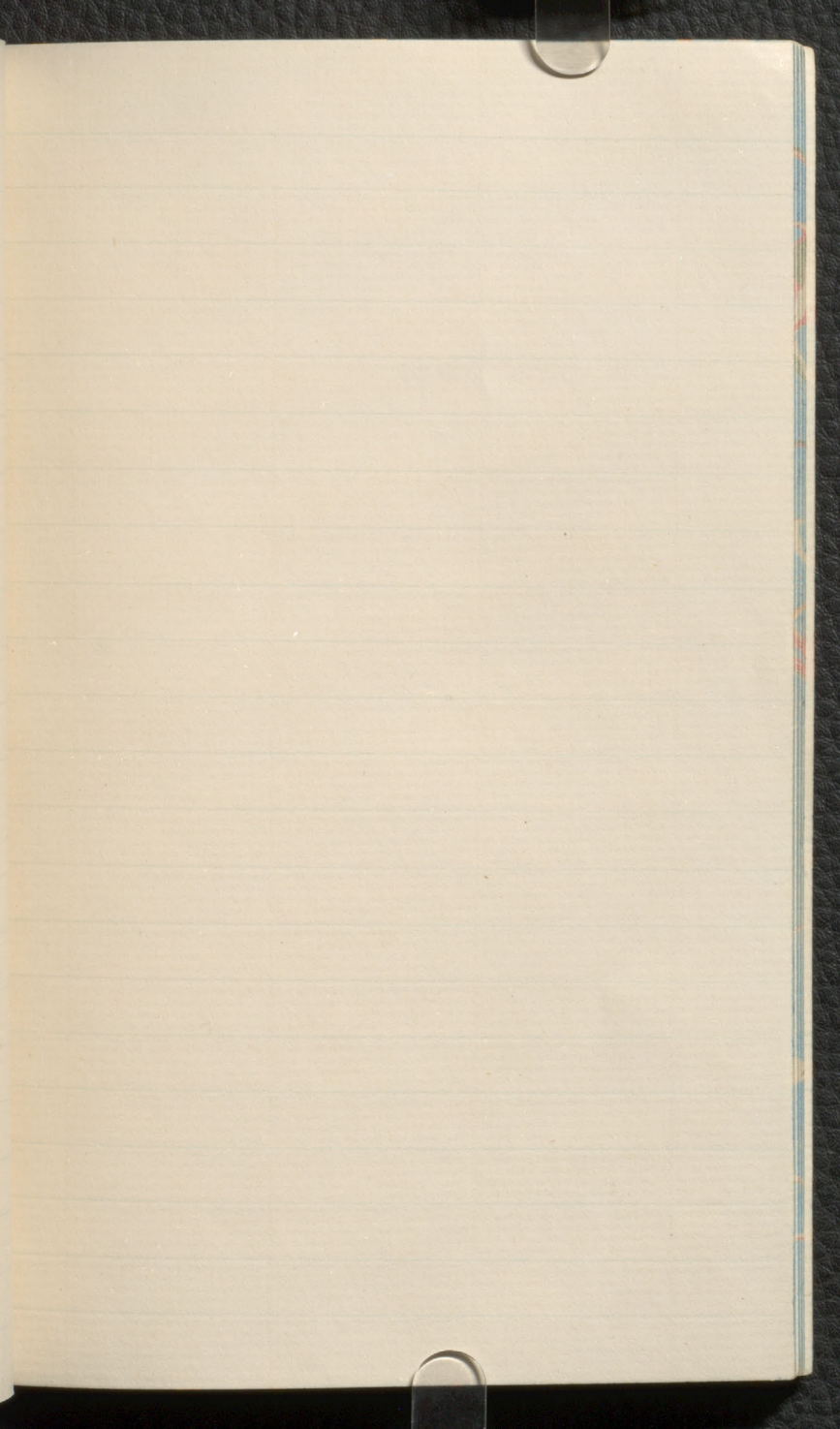


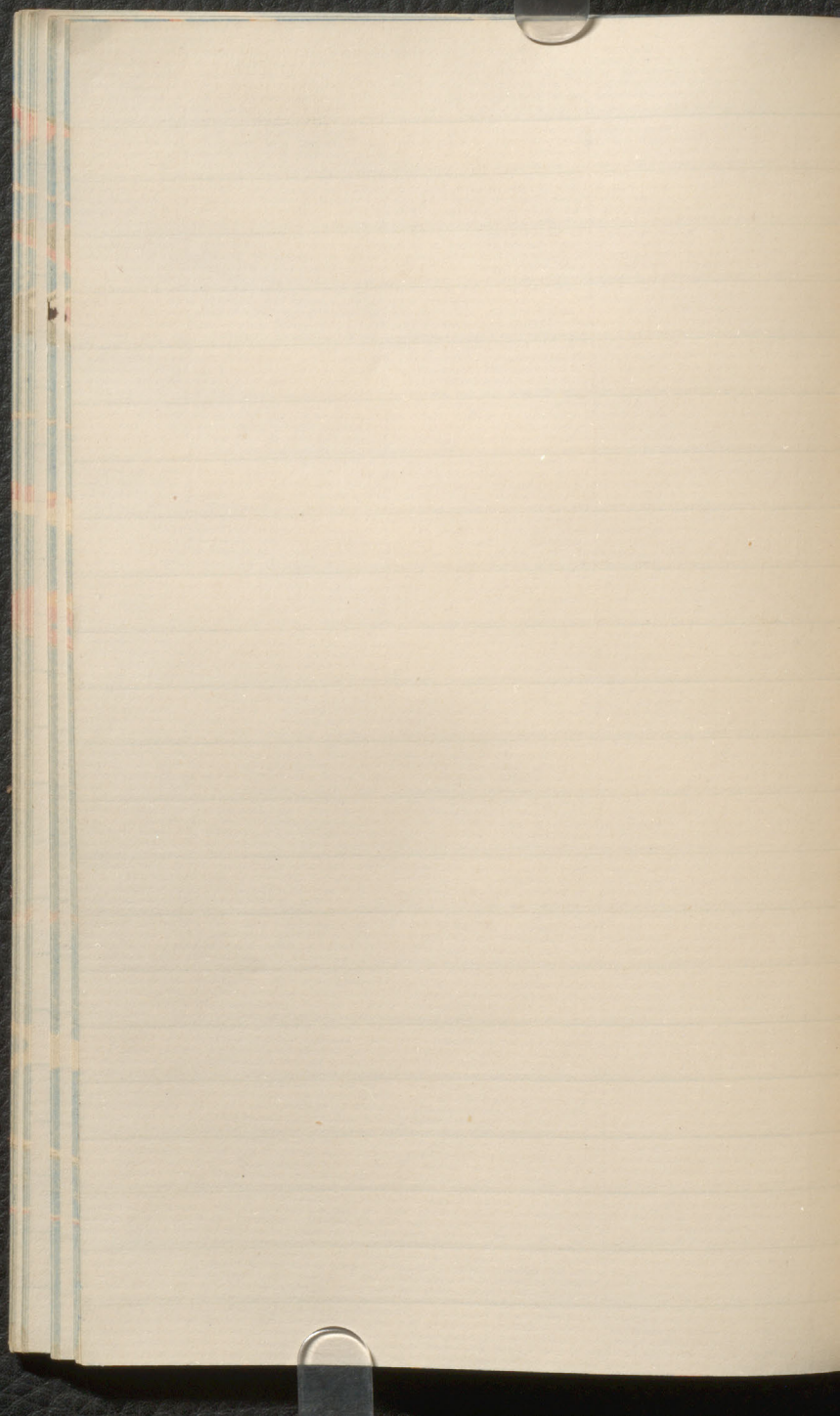


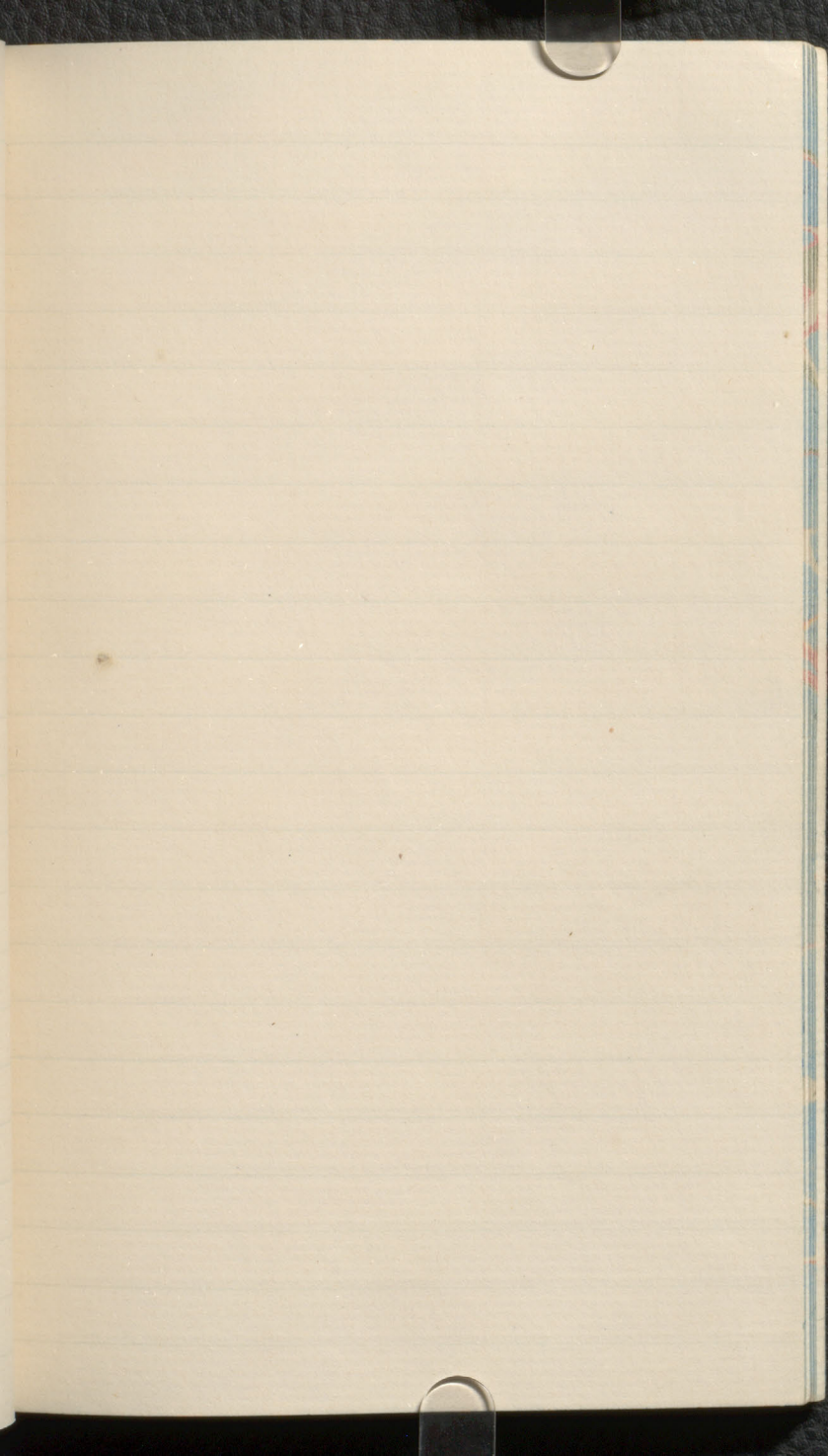


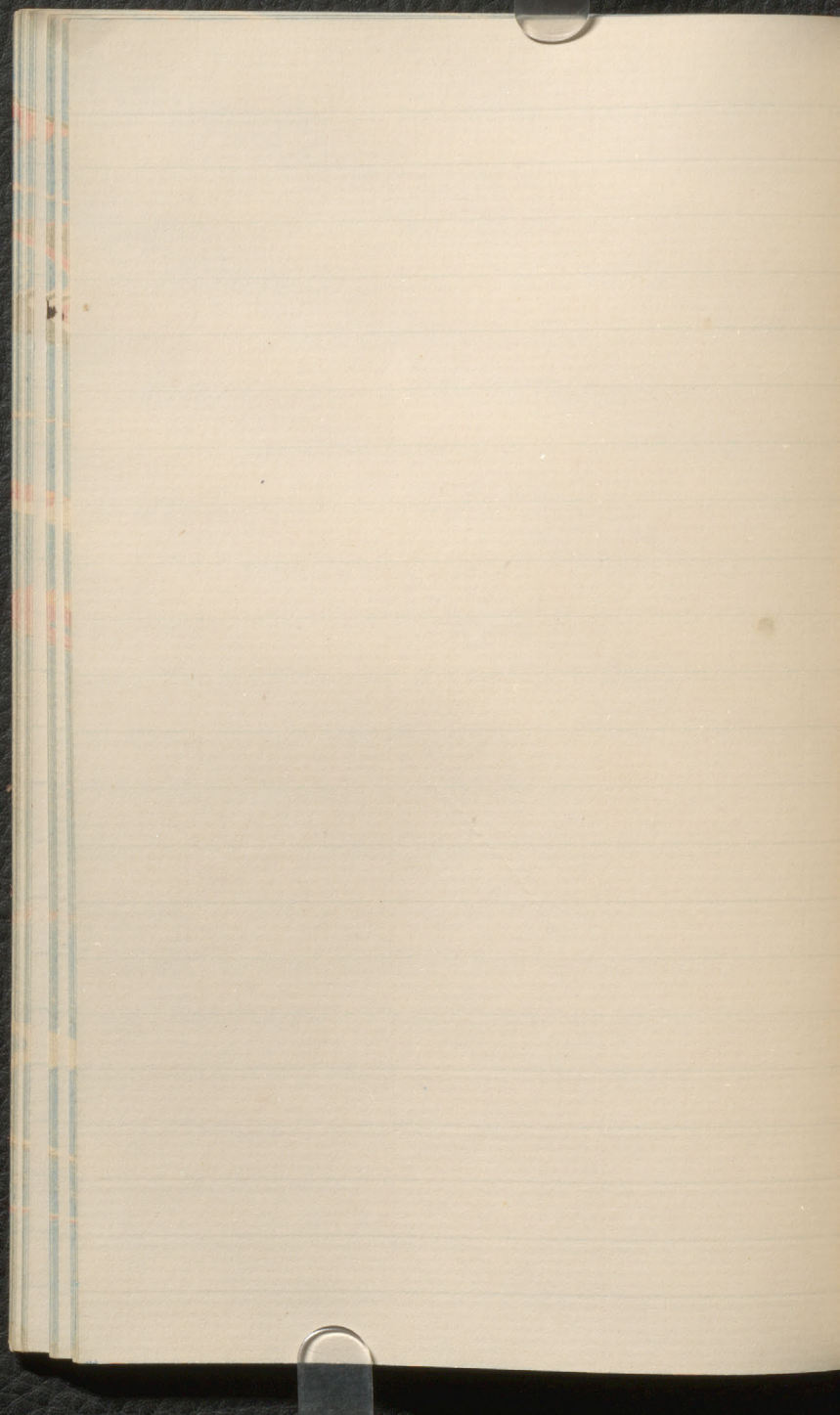


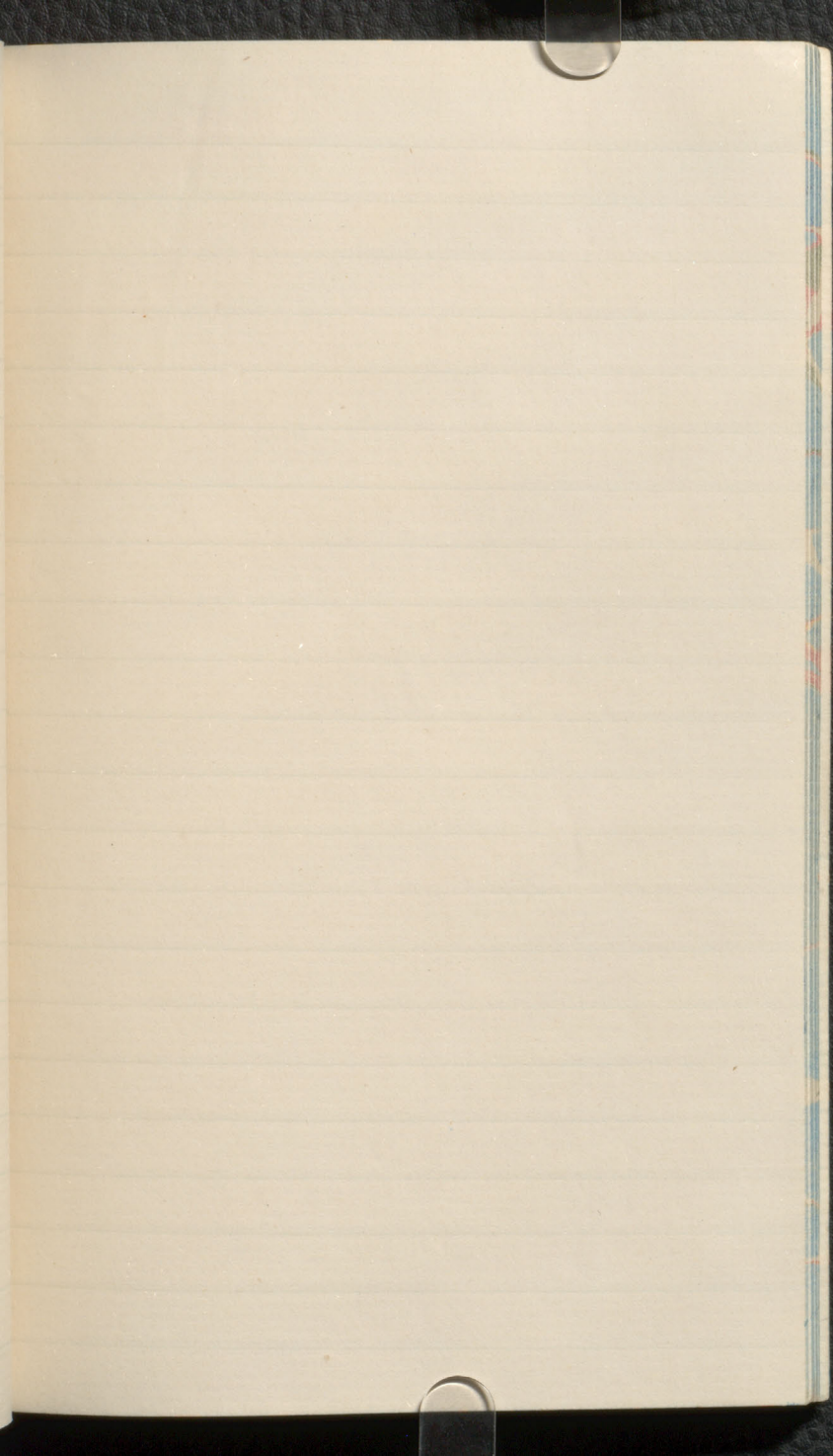


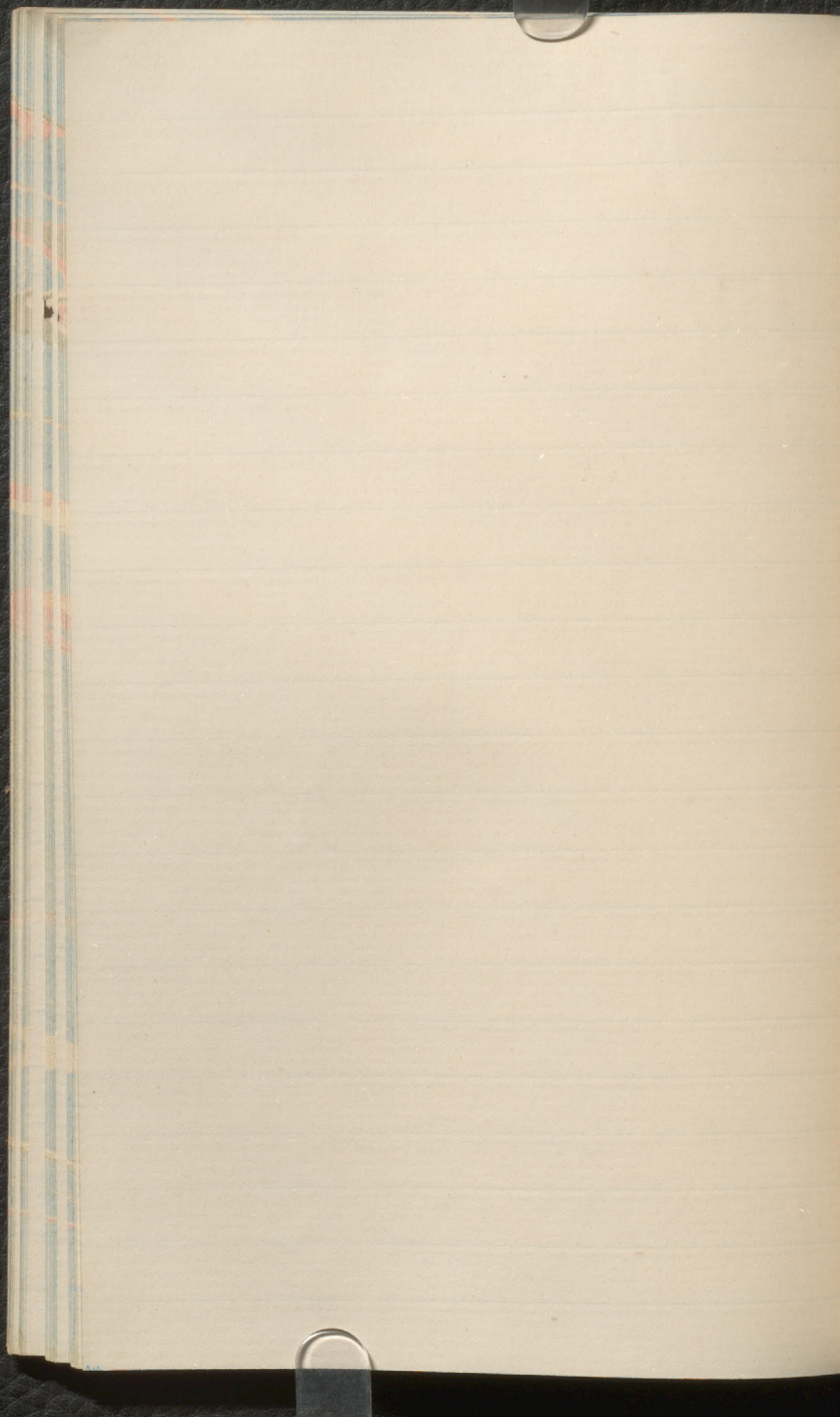


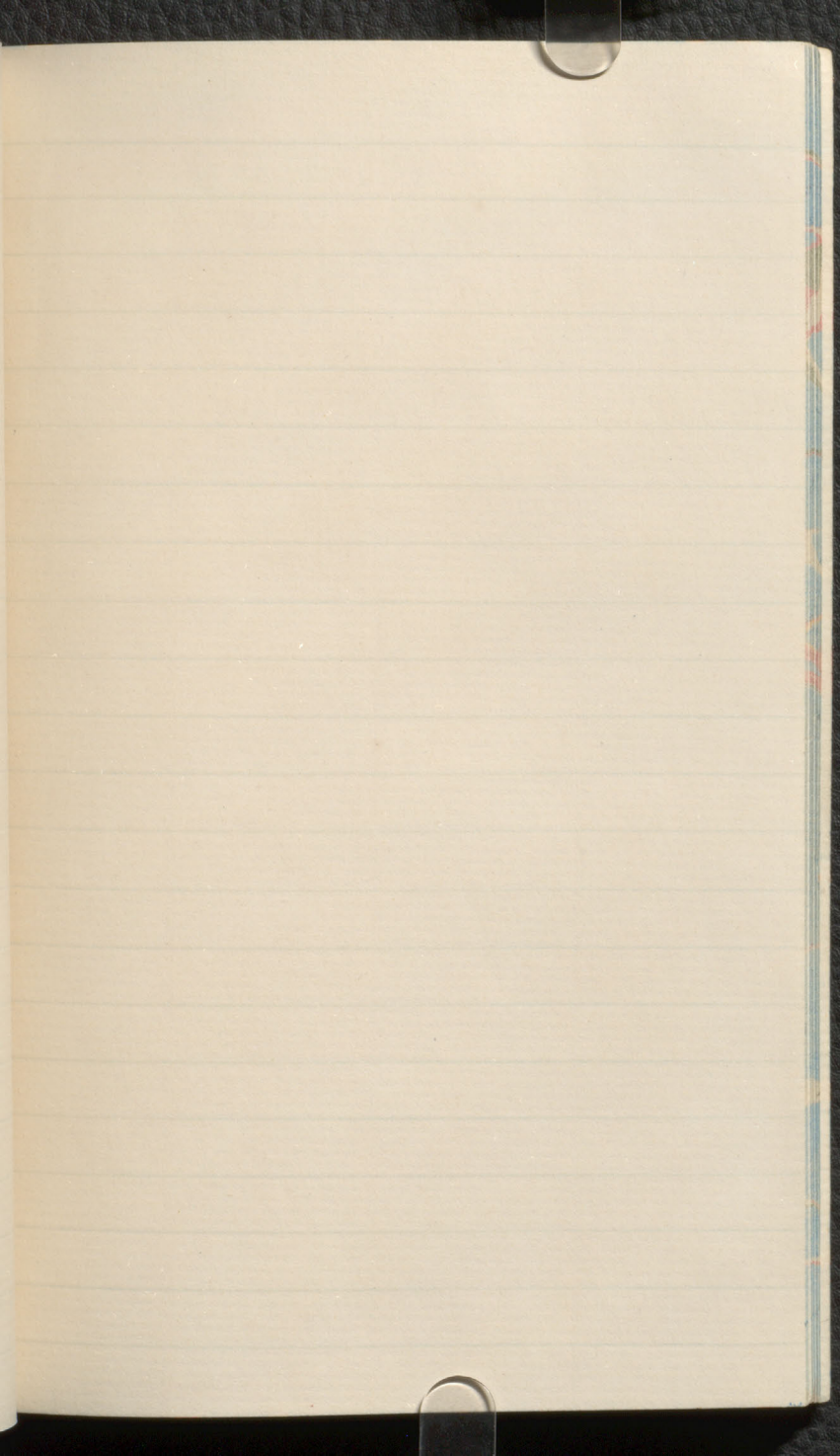


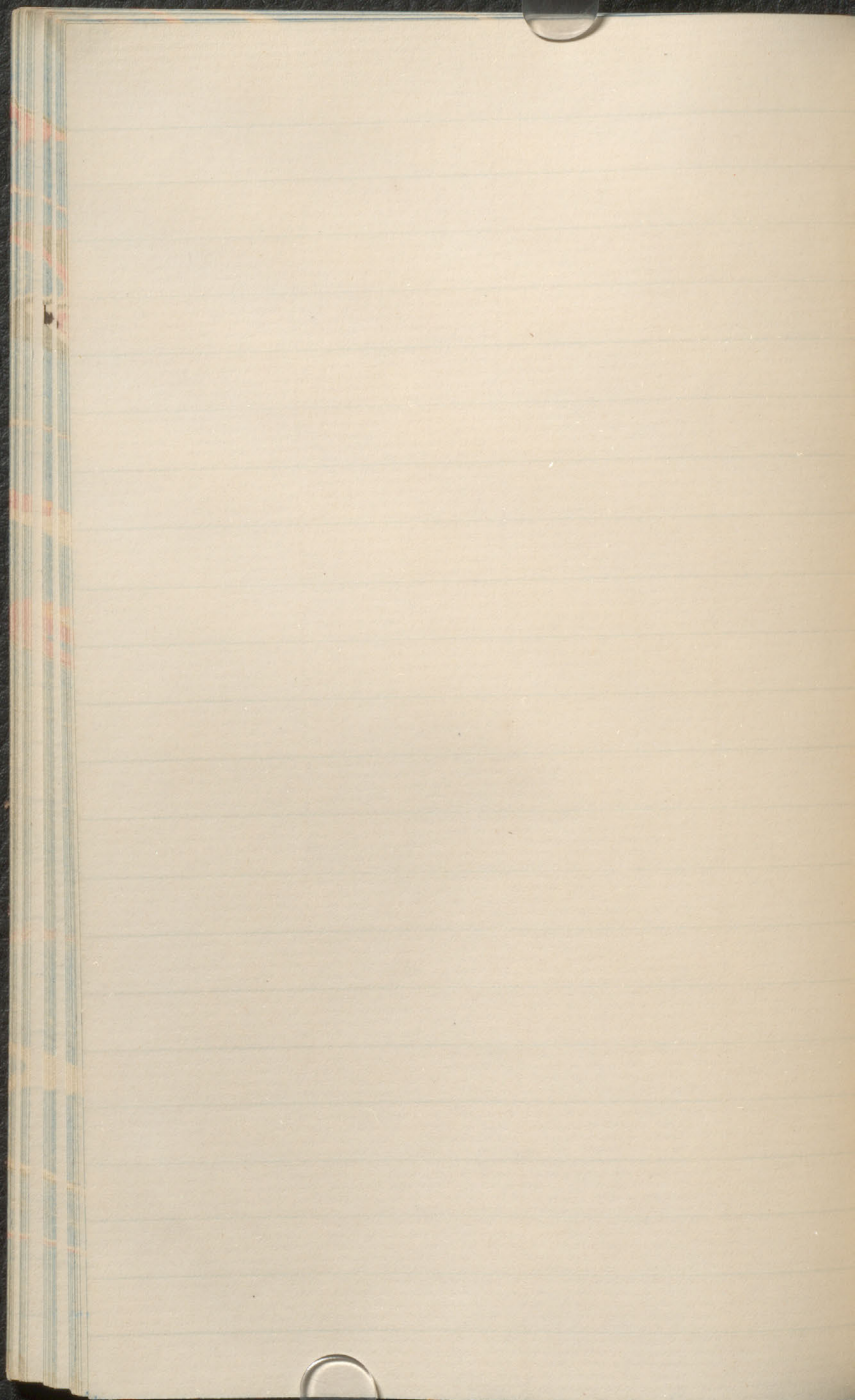


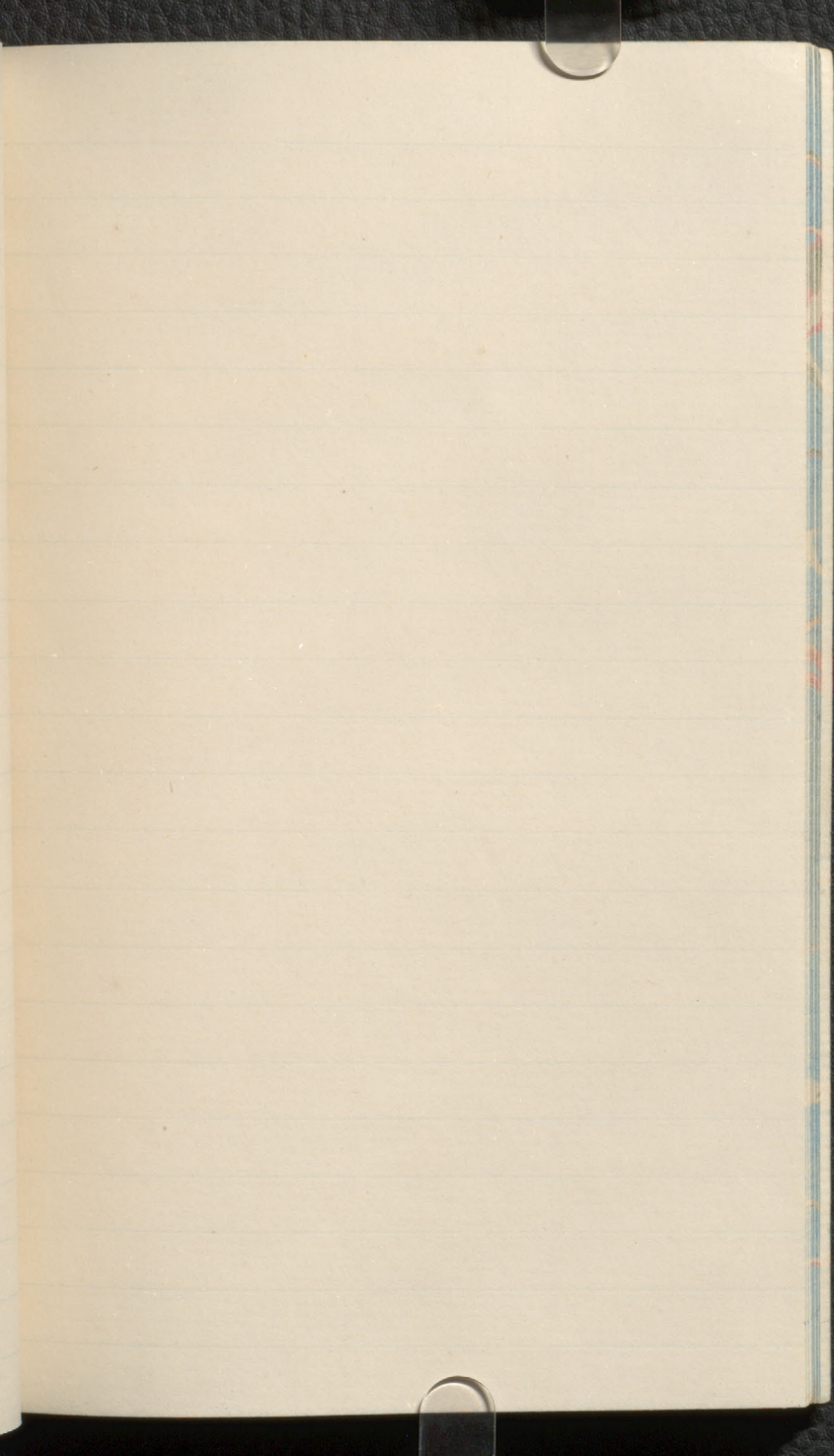


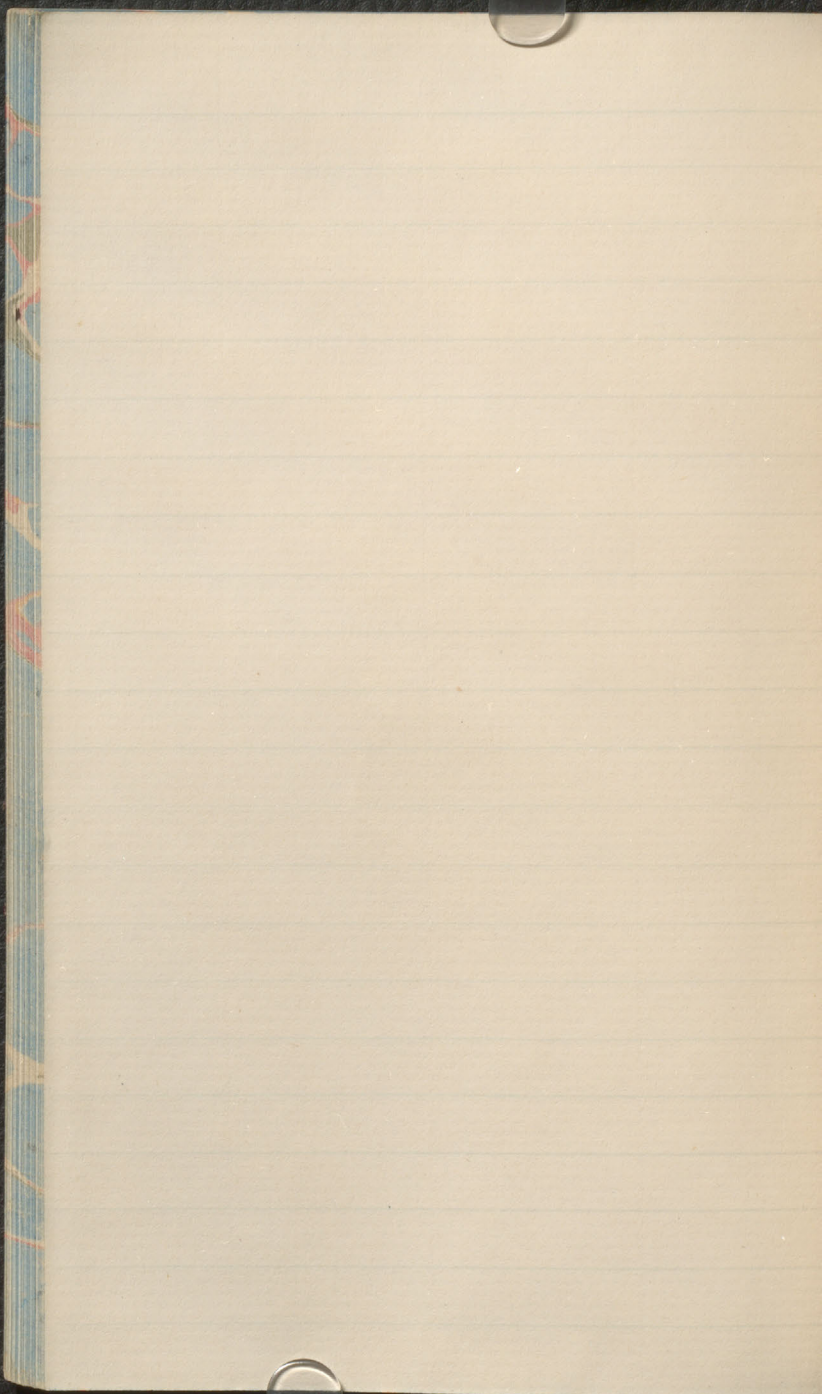


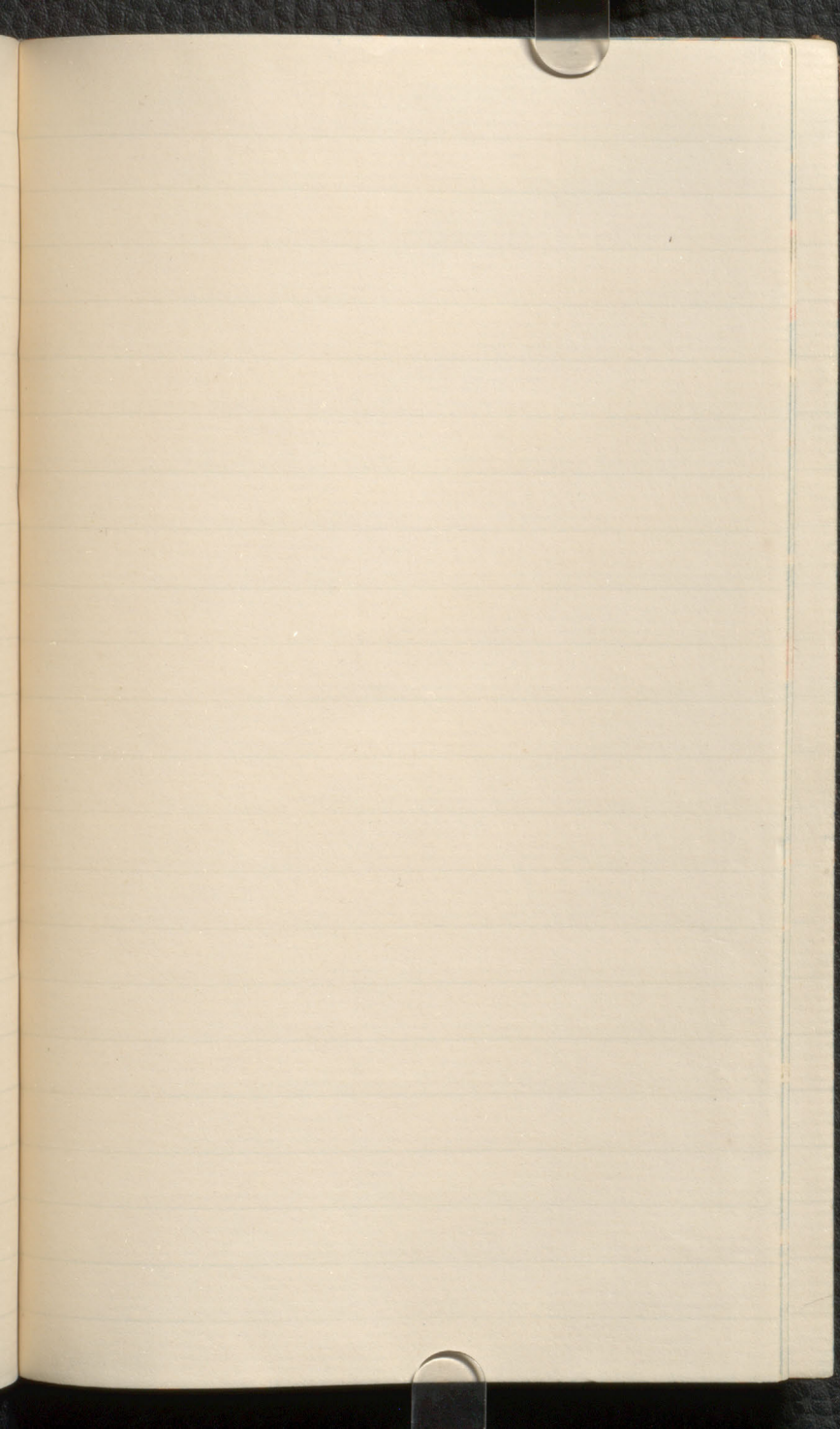


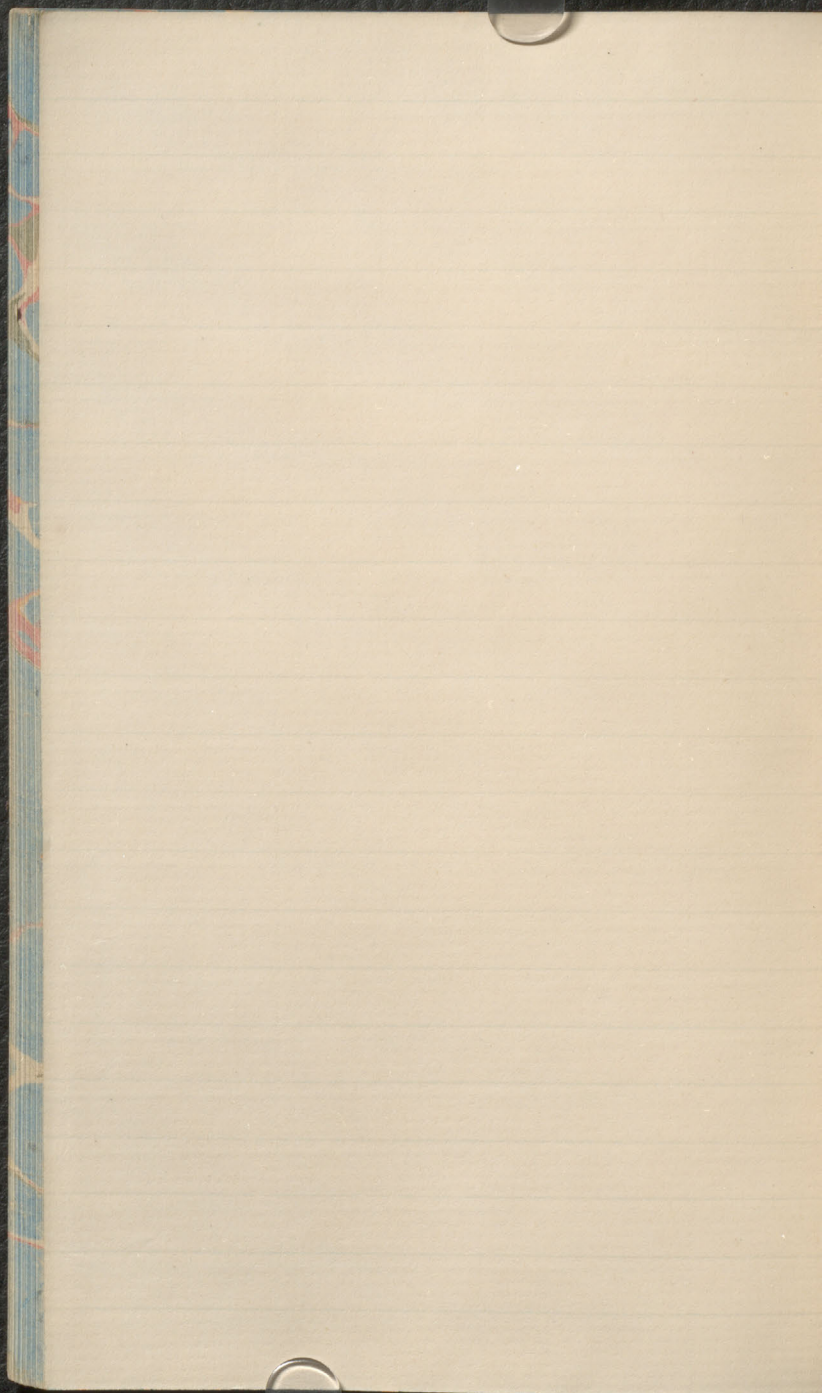


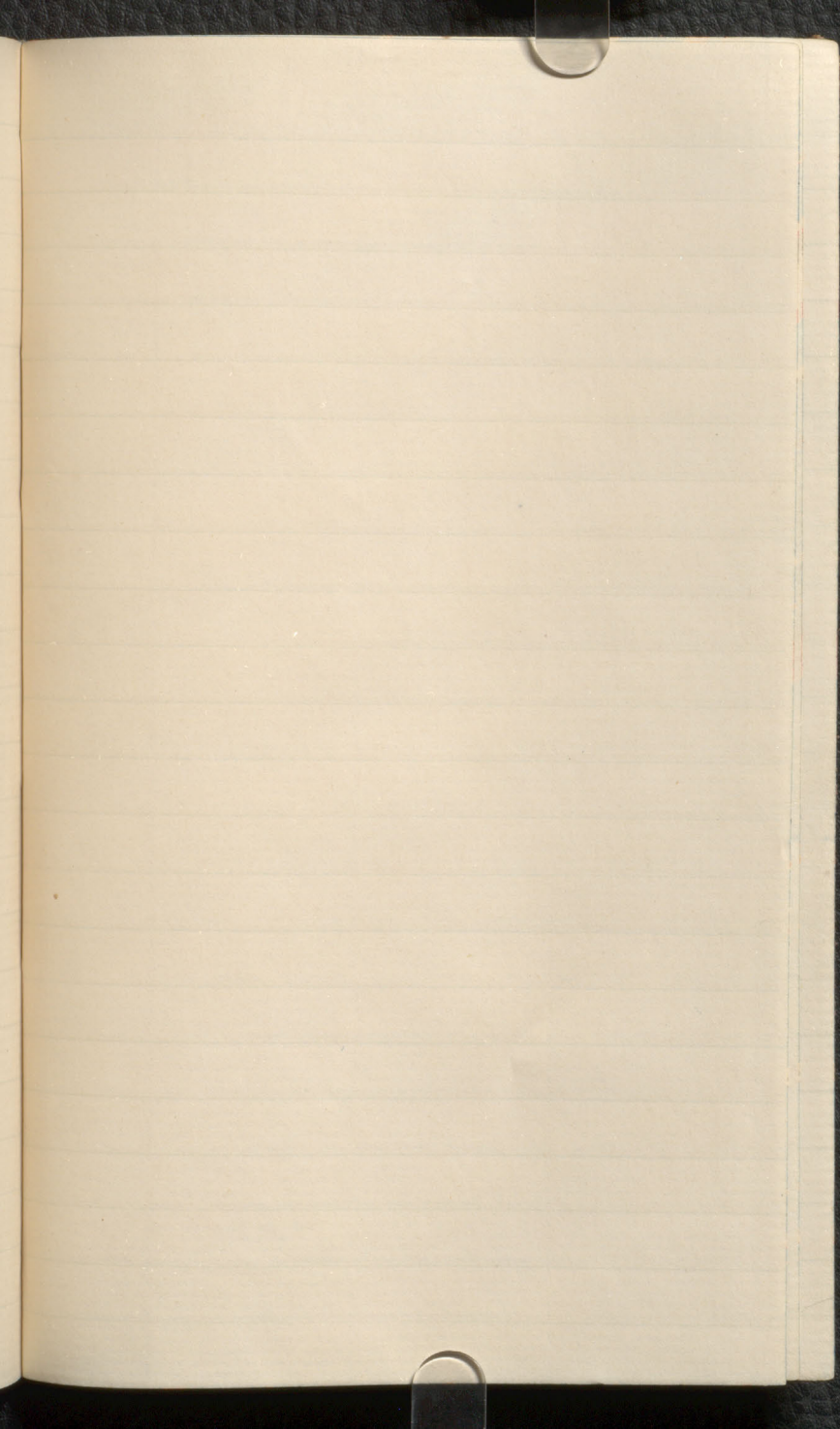


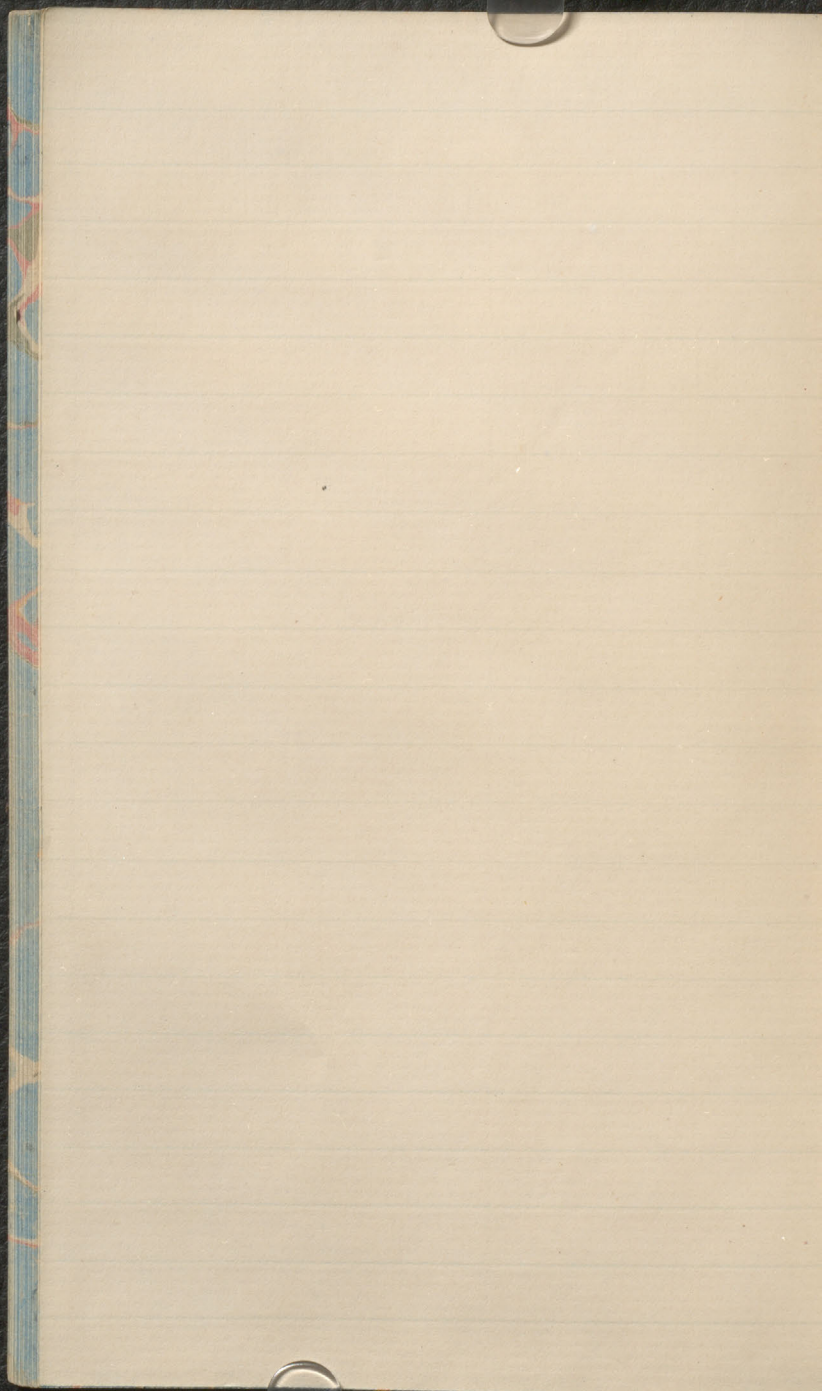


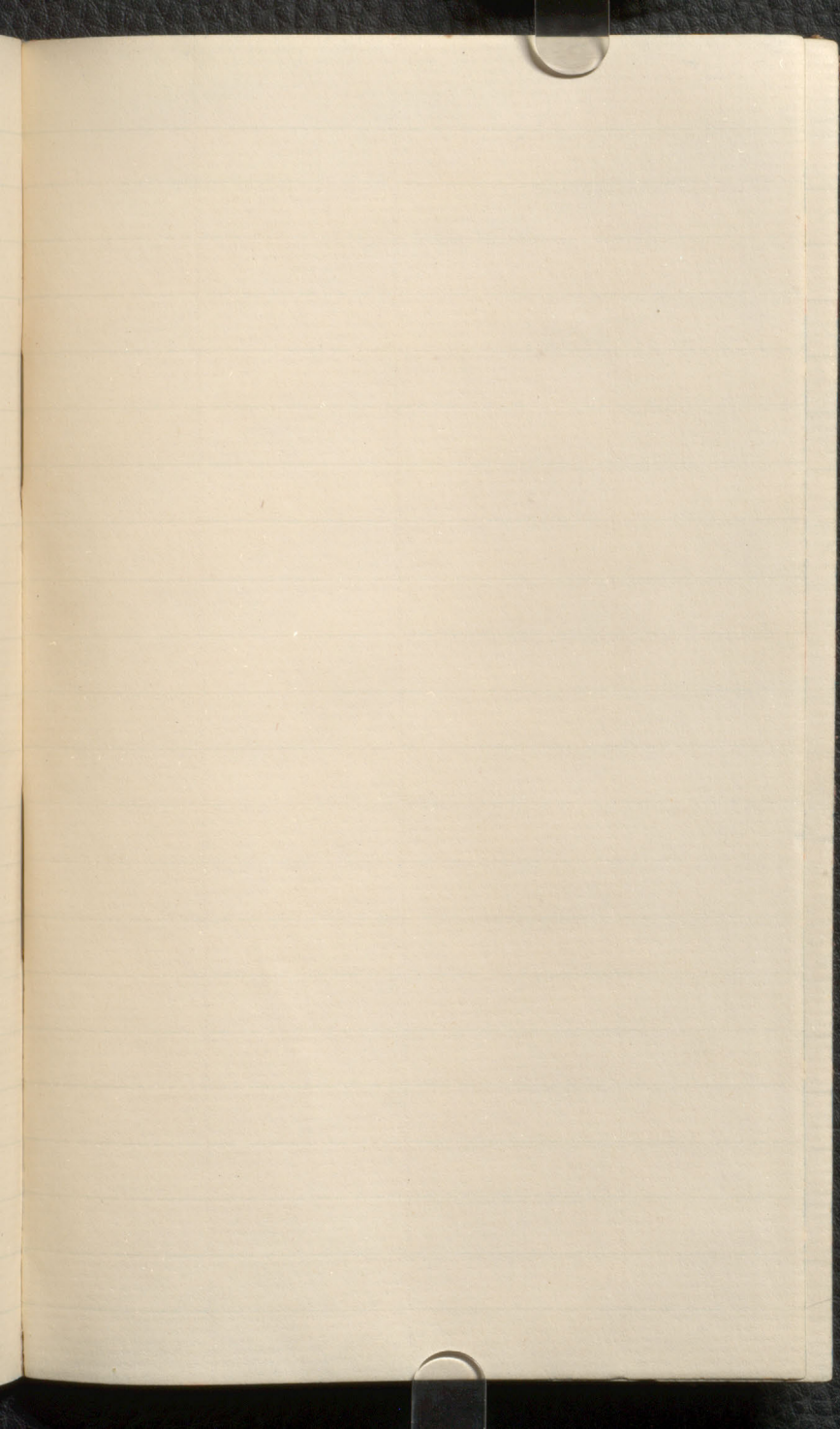


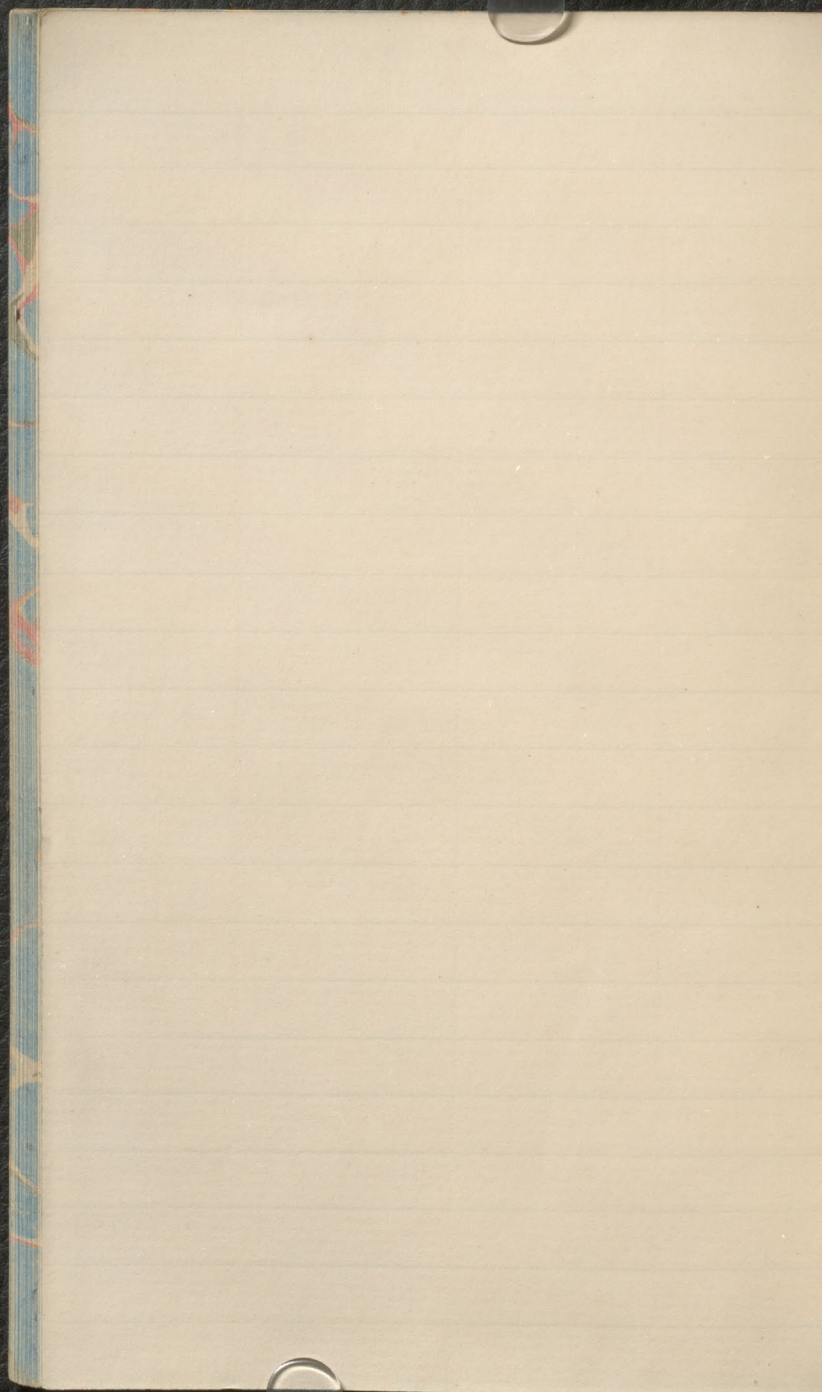


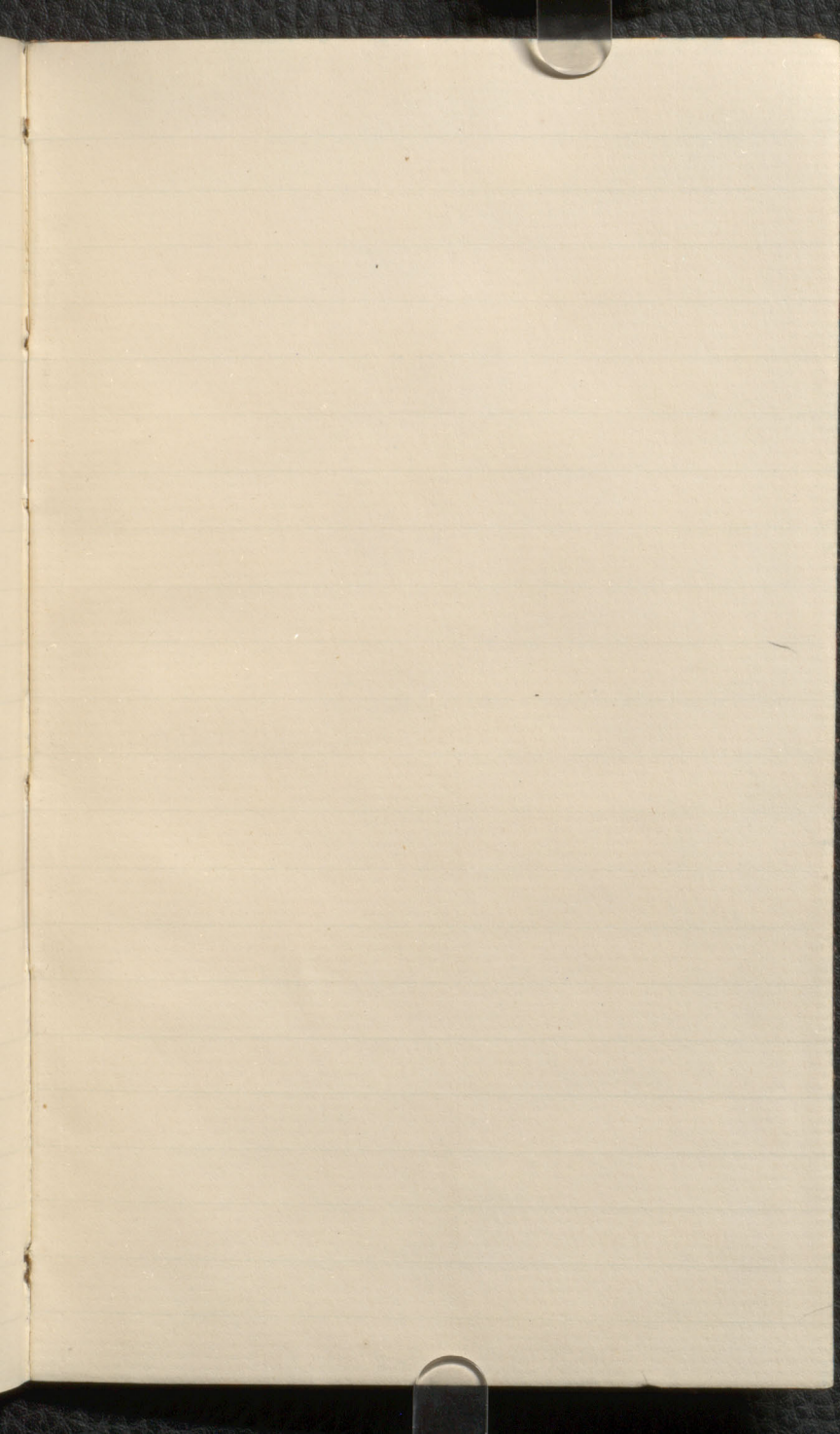


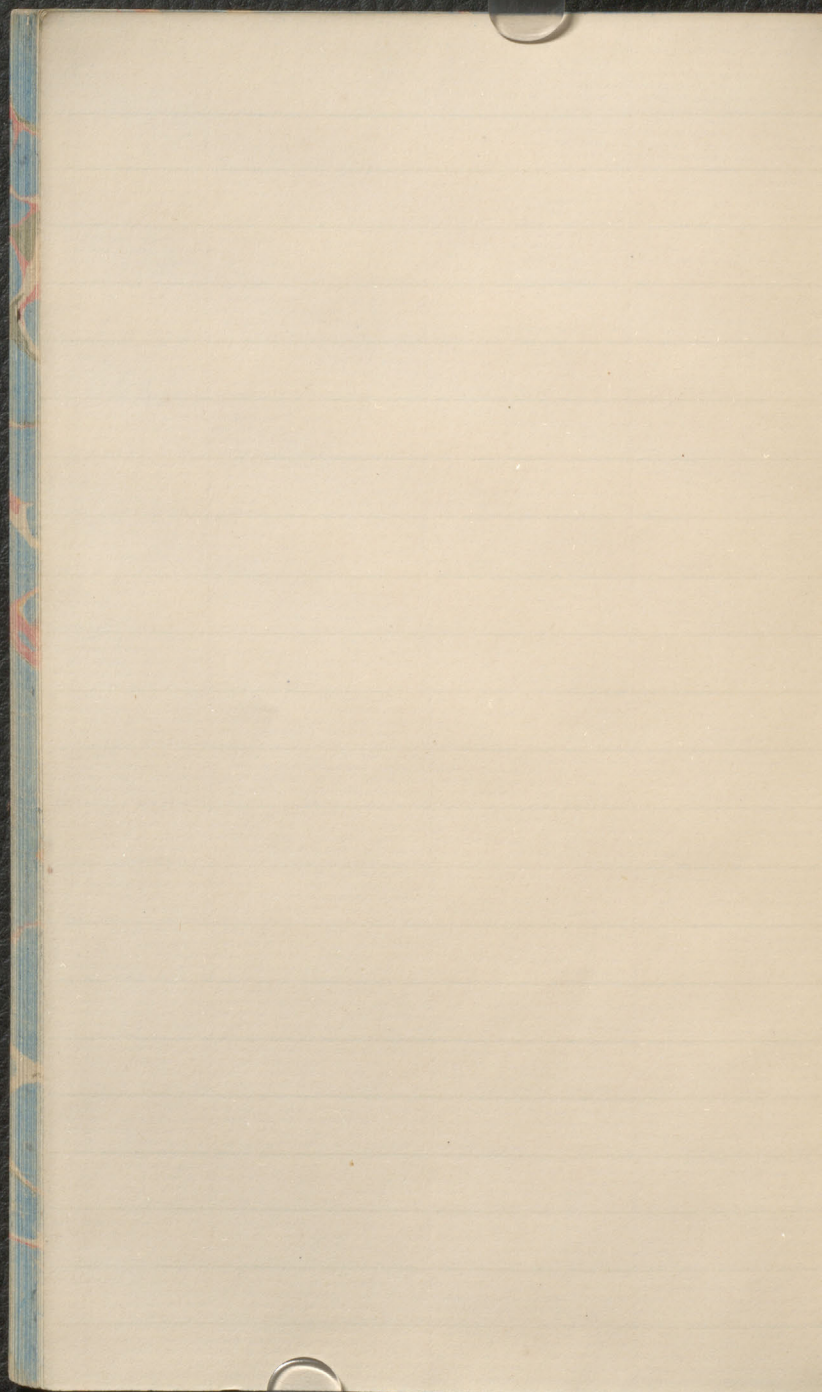


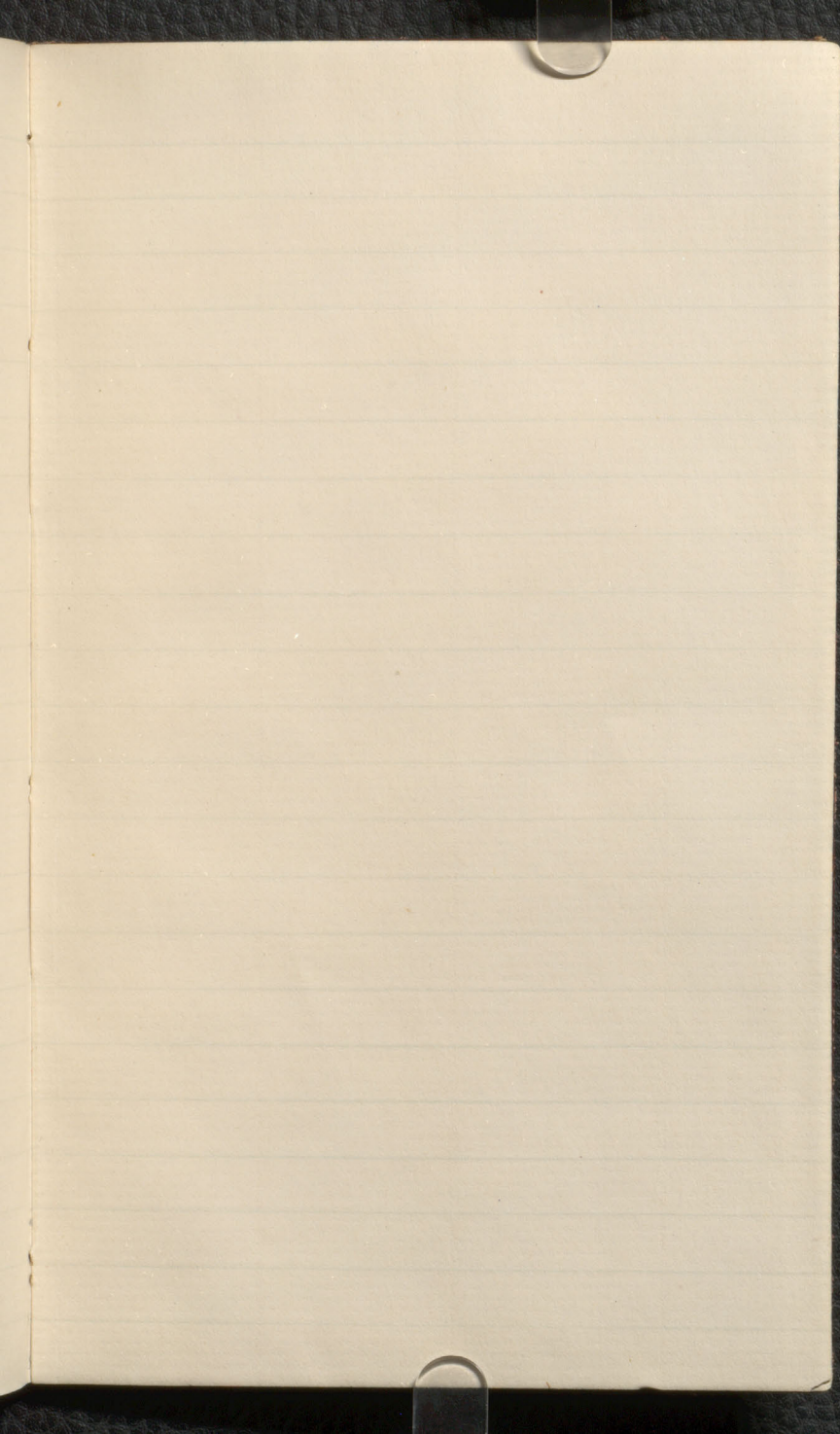


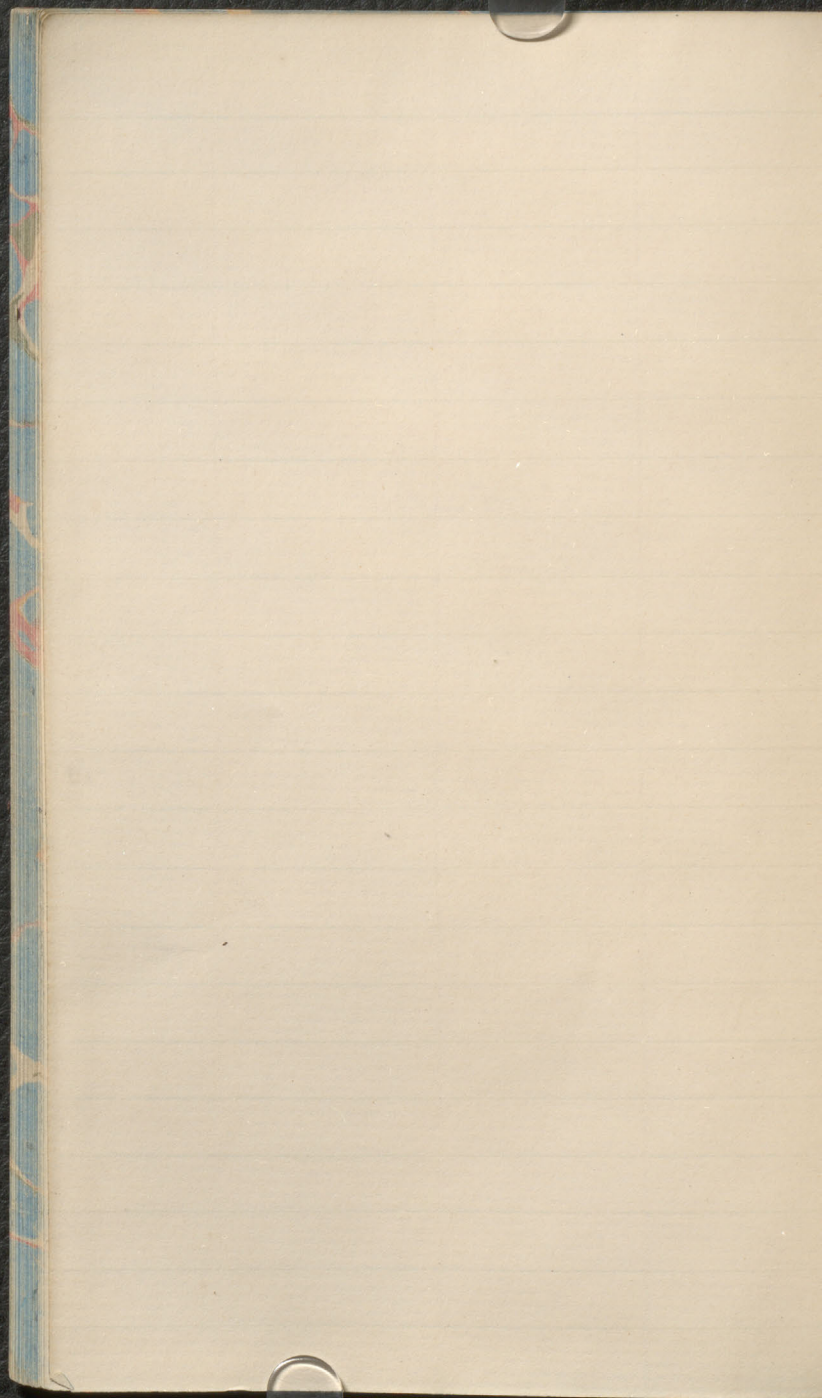


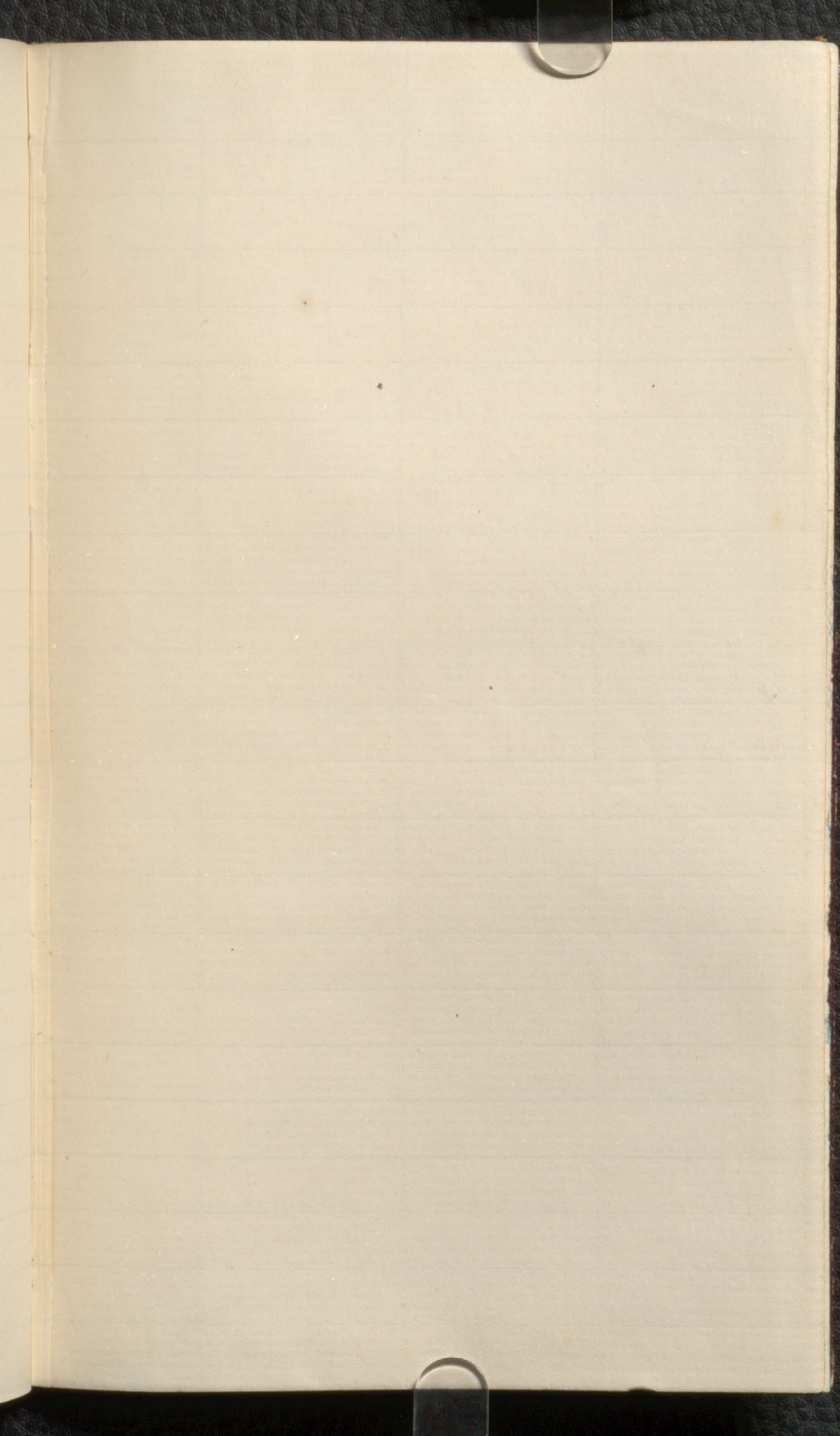


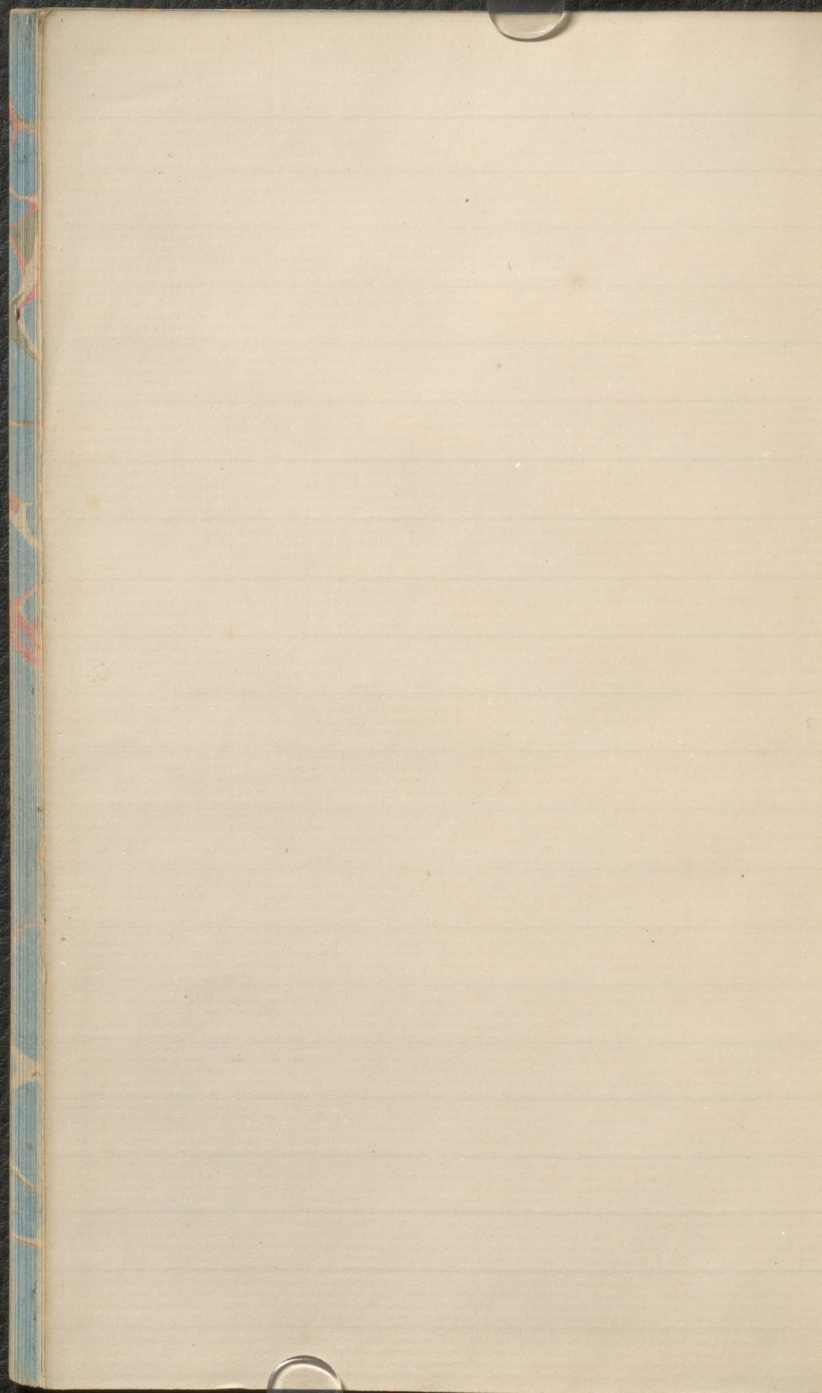


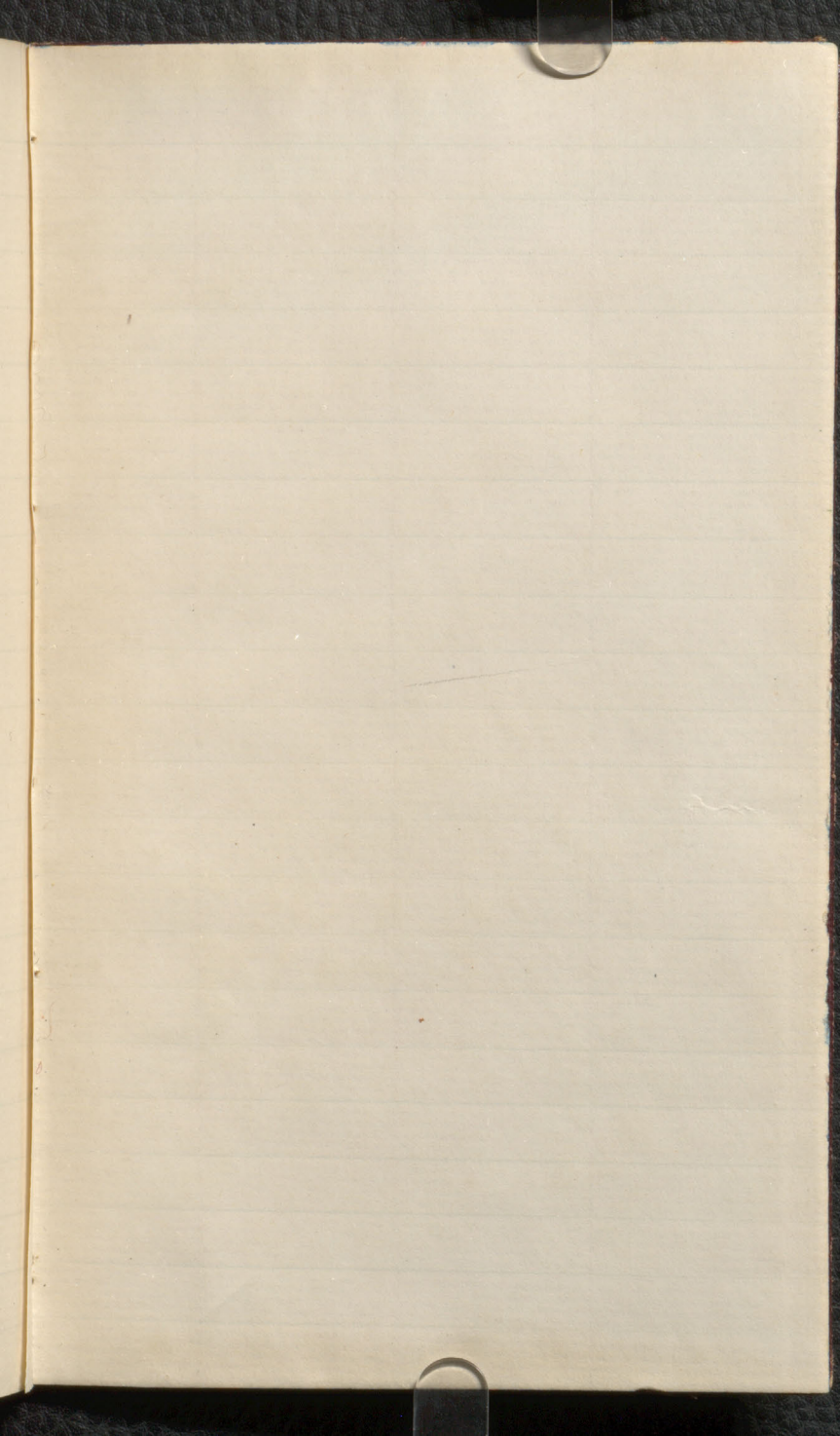


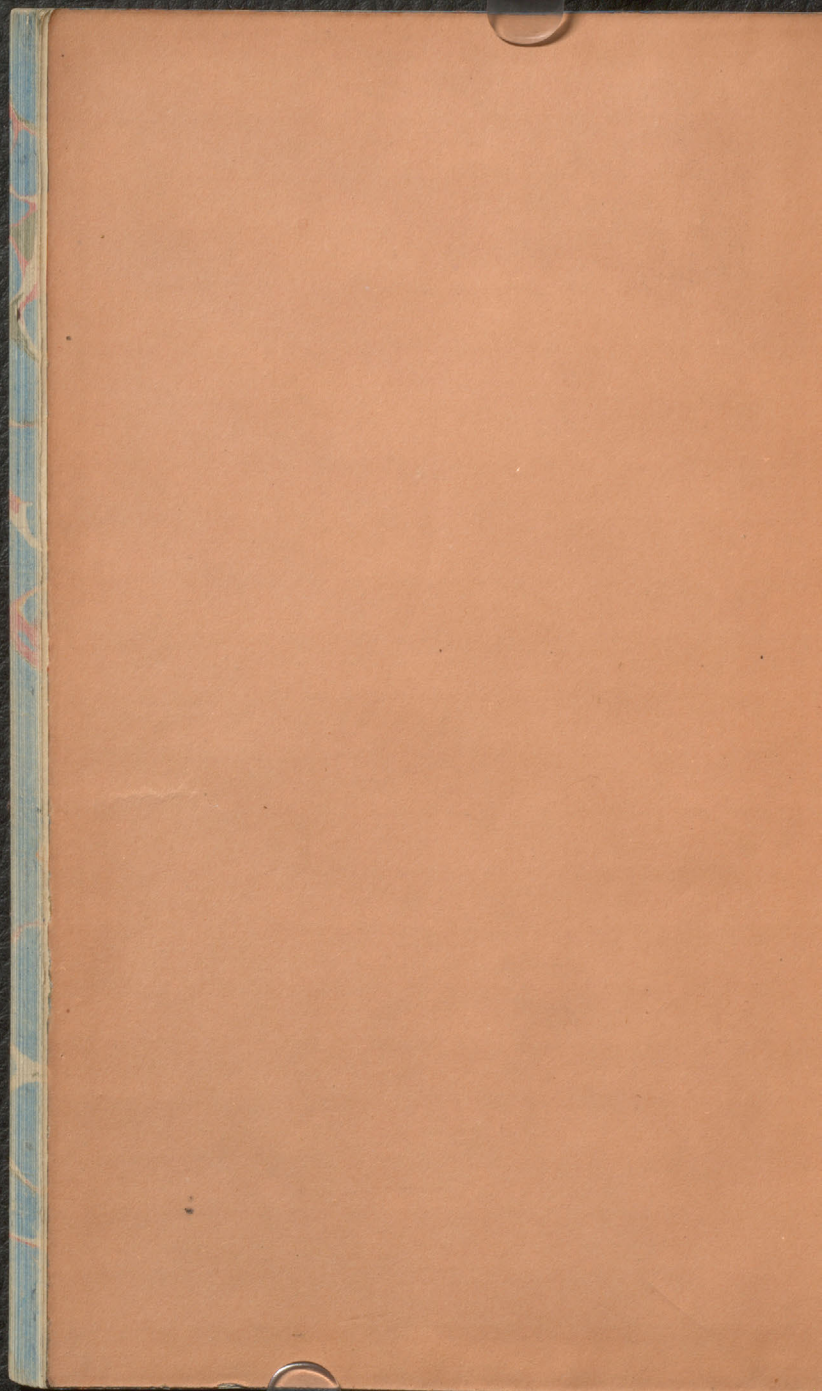


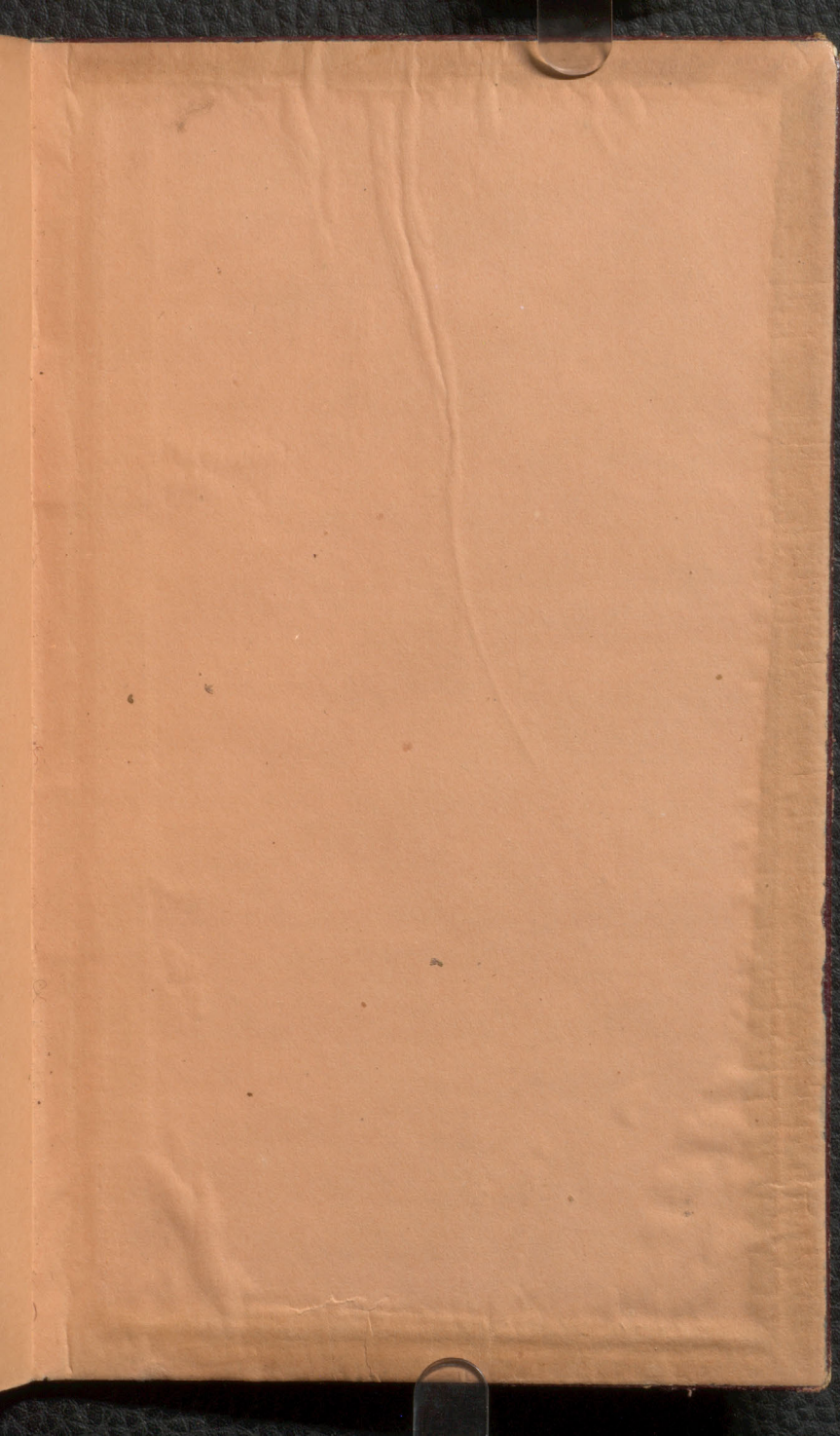


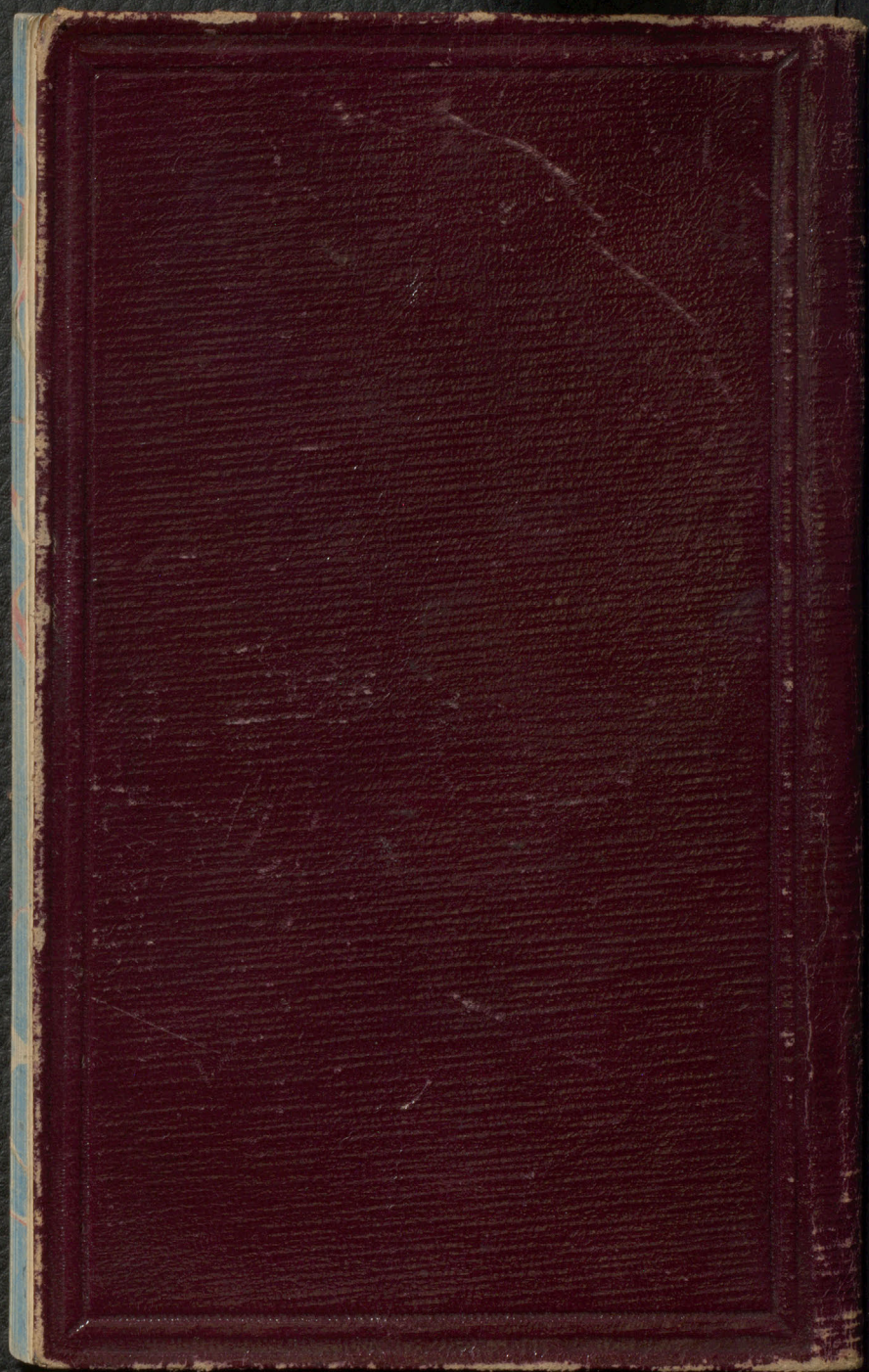












Geological findings

at Bannockdale

Samuel Giff

Middleburgh on Tee

July 11/72

Eston Mines -

Intercolonial Coal Mining Co.

Pictou County, N.S.

Ford. Pit, N.S. Altin Mines Pit