

1875



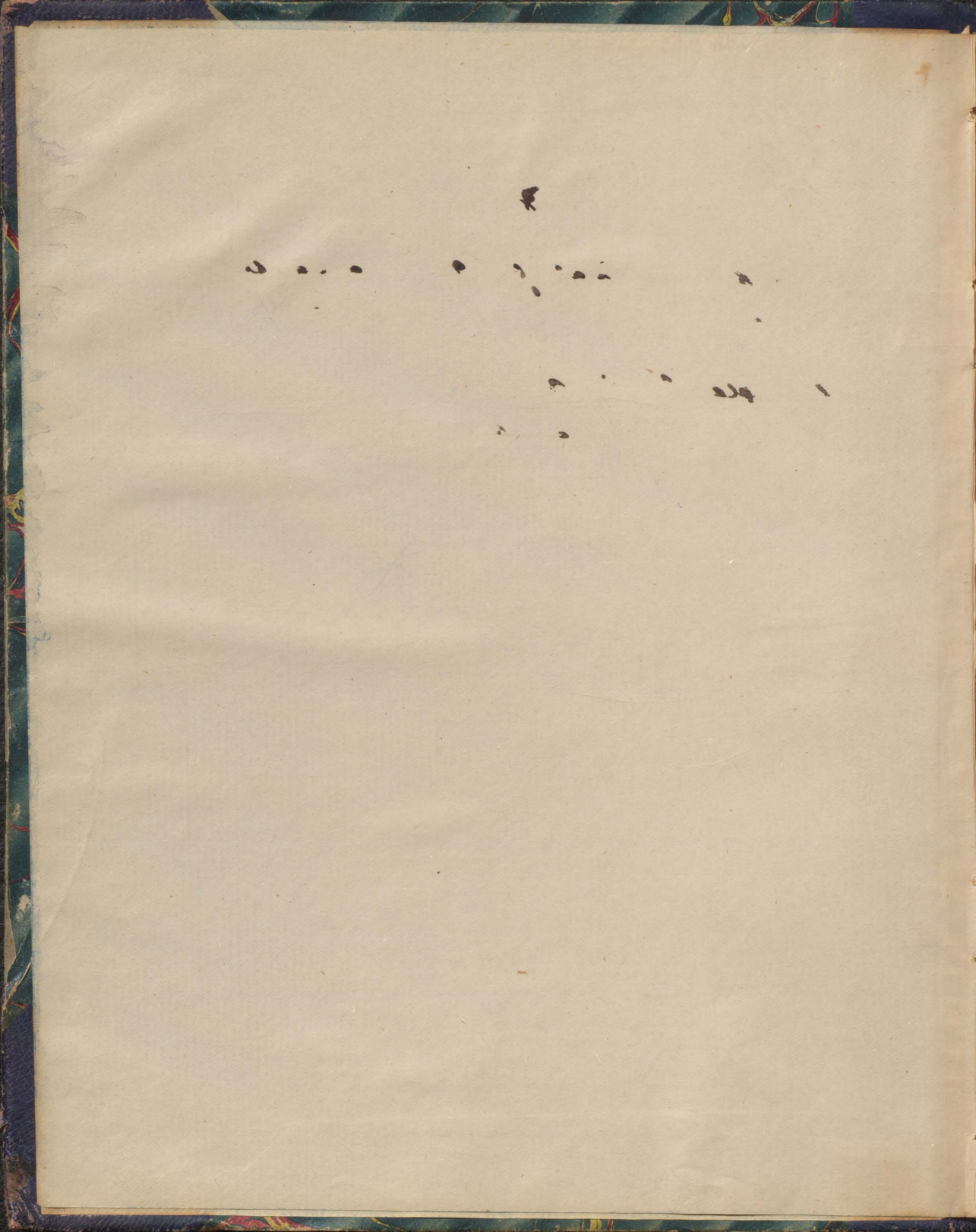
1875

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1875

Left - Montreal July 19 - via San Francisco to
Victoria - see small note Book

Left - Tople Creek Aug 19th -

Returned Victoria Oct. 29th -

Journal ends. May 9th 1876

1875

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* 1875 - No. II

* See Small note book for
note numbers & this date

August 19. 1875. Leave Soda Creek in Steamer for
Quesselle Mouth with the intention of seeing
what I can there during the delay unavoidable in
getting party prepared for trip Westward. Had
come on board Steamer the night before. Steamer
started about daybreak. ~~with~~ Steamed up against
a strong Current all day & arrived at Quesselle
about 6 P.M. The total distance is only about 60
miles, but the Current very strong. Scenery pretty, but
not remarkable there being no mountains or any
size in sight. Day very warm & towards night fell
a few drops of rain fall. Evening took a stroll down
to the ferry at the Quesselle with Dr Jones who had
been fellow passenger from Victoria. Ferry a swinging
one operated by the force of the Current of the
river.

The river valley at Soda Creek & upward to Quesselle
has not the character of that seen elsewhere on the
Stage road from Yale. The 'bluffs' are in general
some distance from the stream, leaving a stretch of
flat land on one or both sides of the river. This in
some places has been occupied for farming, & I saw
told crops mature much earlier than in some of the
more southern, but higher, regions passed through on
the Stage road.

There has been much washing for gold carried on
formerly on the bars & lower 'benches' of this
part of the Fraser, but is now abandoned with the
exception of perhaps a few claims held by Chinese

Terraces

Terraces are very well formed & distinct at many places, at Alexandria there are four distinct levels counting that which is now - about 20 feet - above the river & forms the flat land along it. Alexandria so called, is opposite the old Fort Alexander, now abandoned. The whole place wears a deserted aspect. Quersel is a little village of one row of houses facing a street which runs along the river. Like many of these river towns it sprung up almost in a single year, but has ever since been going to decay. The drift does not differ materially from that described already on other parts of the Fringe. It does not show signs of glacial action, but consists of sand & gravel beds, generally well stratified though often false bedded. These have apparently at one time filled the valley to the level of the highest terrace, & have since, during the recession of the water, been gradually cut away & formed into steps.

described by Sir A. Murray

Drift along river.

Lignite of Soda Cr. to Quersel

At the Great Bend, say 3 m. above Soda Cr. Lignite bearing rocks appear on the edge of the river. They are overlaid by about 100 feet of the stratified sands & gravels of the drift. Either two or three seams of lignite are seen the doubt arising from the possible bedding of No. 2. So as to make it appear twice. The seams separated by some feet of well stratified sands or soft sandstones & clays; & crops out near the water level. The upper seam appears to be about 2 ft 6 inches thick the next a little thicker, & the thickness of the lower is not well shown. They all appear to be well defined & clearly bounded seams. & dip S. Westward at a low angle - say 12°. They are

Sand & have been on fire at one time, & to appear on both banks of the stream when the water is low. At present only seen on the East bank.

About a mile higher up on the West bank a cliff occurs which is apparently formed of volcanic rocks, including conglomerate or breccia; but perhaps include some sedimentary beds as well. They dip South westward at a high angle, & are traversed by dykes. One of these stands out separate from the cliff.

A short distance further on when the steamer stopped for wood, observed the drift a few feet above the water line to be filled with large & small fragments of lignite, more or less rusty & decomposed, & breaking up into horizontal laminae.

About forty miles above Soda Creek a seam of lignite several feet thick appears in the river bank on the East side, & is associated with rocks similar to those before described, but with a layer of large, spheroidal boulders. Dip Eastward at a moderate angle.

17 miles from Quersnel high massive hills apparently of trap border the river for some distance on the West side.

8. Miles from Quersnel on the East bank. The cliff composed of drift material, but a mass of golden rocks, - no doubt of series associated with lignite - suddenly come up & form the cliff for a short distance. They are remarkable for their pea green colour, the material being probably clay, but hard enough to form pebbles. Brown stones resembling ironstone concretions occur in some abundance & strew the shore below. These resisting the action of the weather have enabled some

parts of the clay to stand up while the rest has
been washed away, giving the whole bank an
extraordinary pinnacled appearance.

$1\frac{1}{3}$ mile further up the stream brownish & grey
arenaceous clays occur on both sides of the river.
They are overlaid by drift & dip North Eastward
at Say 20°

Next appear heavy earthy conglomeration apparently
of the same formation.

About 7 miles from Zuessele compact greenish
clay like that already described, is brought in
contact with Conglomerates by a ^{sharp} fault. The
Conglomerates being to the north, & so hard as to
form a vertical cliff to the water's edge without
talus. At least 30 feet of the conglomerates seen.
They are false bedded, but not very coarsely so, & the
Component pebbles are small.

5 miles from Zuessele pale greenish & brownish
beds appear, dip N.W. at low angles.

$4\frac{3}{4}$ mi. from Zuessele. Similar beds with conglomerates,
dip. E.S.E. 10° to 12°

Next a fine Syndrial of greyish & pale yellowish
Sands & clays with thin Carbonaceous bands.
axis about East & West.

About 1 mile below Zuessele a rock appears in
the Centre of the river. It is dark coloured, hard,
much jointed, & probably trap-spear. The river
bank is here very high on the E. side, composed of
drift of the ordinary character, but showing here
& there large lumps of lignite.

Bar at noon 25.20 Temp. of water of bridge 64°

Substratum of
lig. formation.

If the volcanic & lignite bearing rocks conformable & belong to same series, leaves little doubt that the rocks of this series underlie the whole river valley from Soda Cr. to Deseruel, also that lignites are found in the series throughout. If any difference of age between volcanic & lignite-bearing they must then be here joined together. The strike of the rocks is generally transverse to the river.

Lignite formation
at Deseruel.

Aug 20. Morning walked northward up the east side of the Frazer, examining the sections in the bank. Afternoon examined the bank opposite the town & finding a plant & insect bed, spent the remainder of the afternoon & evening till dark working at it.

Sections appear in the bank for about a mile above here, & almost everywhere show more or less lignite. The beds appear to dip in some places pretty steeply, but it is not clear how much of this may be due to slips. The bank facing West section shows about 25 feet of beds, nearly or quite horizontal. Beds chiefly of greyish sandy clay, but with more or less lignite throughout. The lignite forms two or three pretty persistent zones which vary but slightly in thickness, but include more or less shale & carbonaceous clay throughout.

In one place measured 5 feet of lixite
moderately pure, but with some shale partings.
The whole bank however contains scattered
flattened masses of lixite which have evidently
been individual strata drifted to their present
positions. There are also in some places layers
of nodular ironstone & porous sandstones
of small thickness. The indefinite character
of the section renders it worth while
attempting measurement. Amber in
layers of small depth is abundant in the
lixite & carbonaceous clays.

The beds immediately opposite the town are
somewhat different in character from the
above described, being more uniformly bedded,
& of finer material. Found fossil leaves in
one layer which exceedingly fine, & shows
alternations of greenish & whitish material
about $\frac{1}{16}$ inch in diameter. In looking for
leaves found the wing of a dipterous insect
in position, & which resembles those of a
common house fly, but smaller.
This remarkably fine layer overlies a thin
carbonaceous clay or impure lixite, about
1 inch. Various seed-like bodies as well
as leaves, & among them one pretty common
which exactly resembles the winged seed of
a birch.

Day very warm.

Aug. 21. Saturday. Crossed the Quersuel River to
examine sections there. Returned about
1 P.M. to the bank, & after calling about
half an hour attracted the ferry man's
attention & got back. Devoted the afternoon
& evening to collecting insects & plants in beds
opposite the hotel, & got quite a number of
fragmentary specimens.

Visited the red bluff about half a mile below
the Quersuel mouth on the S. bank of the Trazer.
It stands over 100 feet in height above the
water, & is coloured bright red & yellowish
red, from top to base. ~~It~~ It has been altered
by the combustion of lignite, & the beds where
a portion yet remain unchanged seem to
be built up much like the section described
yesterday. Segments of carbonaceous clay being
intercalated throughout, without ever attaining
great thickness of pure lignite. The cliff has
been undermined by the stream & has fallen
from time to time forming mounds of broken
material & rubble which conceal the base.
I am told that smoke was seen issuing near
the water level about ten years ago, but a
large fall taking place covered the bank up
so deeply as to put it out. The ~~xxx~~ light
bearing rocks have stood up as a little
hill or mound, at this place, at the
time of deposition of the drift, & the
combustion seems to have taken place from
within outwards, for from the centre toward

Barred bluff
Quersuel

the Sides as there is an edge of strata
 unchanged intervening between the drift &
 the baked rocks. The combustion has probably
 been stayed by the wet state
 of the rocks near the surface

Roughly thus?



The strata now present all the varieties of
 altered rock described in my report of the
 Lignite formation on Boundary Line.
 Large ironstone balls, in some cases more
 than three feet in diameter occur in one
 part of the section, their centres appear to
 have been radially crystalline carbonate of
 iron but are now changed into oxide by
 the heat; & where exposed are breaking up
 into long splinters which give out a ringing
 sound when struck, & look when lying close
 like heaps of nails.

Antifer occurs very abundantly in the unaltered
 parts of the section.

Looked very carefully for fossil plants, but
 almost unsuccessful. Many impressions
 but all obscure or like roots or branches,
 & could not find any leaf beds. The
 state of the material singularly favorable
 for the collection of plants if only a good

Locality could be found. It would appear that
most of the clays have been 'root clays' as the
cylindrical or flattened impressions in a
large proportion of cases ~~are~~ run ware,
or less across the planes of stratification.
They may of course have been drift-branches,
but the appearance were that of roots.
Made a small collection of the rocks arising
from combustion.

The beds above described appear to be
underlain by earthy conglomerates & Sandstones
(see section when passing in stream.)

Next examined a section in the S. bank
of the Quersuel just above the ferry. Here
I see a bank exactly resembling that
described yesterday. Shows about three
pretty persistent lignite zones, but flattened
masses throughout, & perhaps 1/8 of the
entire bank composed of lignite.

This bank is being rapidly washed away,
as is the whole of the South Side of the
Quersuel at this place. The North Side at
the same time gradually advancing, & the
mouth of the river thus gradually passing
further south.

The insects obtained today include probably
2 diptera one much like a fruit or wasp fly.
1 Coleoptera, & perhaps one or two other
forms in a fragmentary state.

Day warm but pleasant, somewhat overcast.

The general resemblance between this lignite bearing formation & the Lignite Tertiary of the plains is very striking, though it may of course only be a resemblance due to similarity of conditions of deposit, & like absence of metamorphism. The resemblance holds even to the colour of the beds, including the remarkable greenish tint elsewhere mentioned. The only real difference is in the fact that the lignites are much more clearly of drift locality, than those of the plains. Even those which are there almost certainly of that character. Also the occurrence of earth conglomerates, which likewise depends on more disturbed waters of deposition. The fossil plants so far as I can recollect do not correspond closely, but it must be remembered that there vary much even in contiguous localities; & that these from this plate are from a single thin layer.

Drift found at Tunnel

Drift. The pebbles & boulders in the drift & banks of the Fraser & Grosvenor are of rather mixed aspect, but show a great many which exactly resemble those of the Quartzite drift of the plains. They include however more greenish & blackish slaty or compact rocks. Also fragments of conglomerates apparently sedimentary or epidotic & also many varieties of volcanic rocks, amygdaloids, deorites, porphyries &c.

Aug 22, Sunday. Morning made a slight examination
 of the neighborhood of the insect-bed & measured the
 Section of which it is a part. Started about 3 P.M.
 in steamer to return to Soda Creek. Mr. Glassey has got
 me a second indian, who goes down with us, & is written
 to the one already engaged. Train expected not having
 come in cannot get another horse. Found horses &
 traps ready on the bank at Soda Creek, got all on board
 the steamer & crossed stem of the west bank. Left the
 two Indians in charge, promising to return with Rivers
 early on Monday morning. Paid hotel bill & did other
 little matters of business. Mr. Deuley showed me samples
 of Quartz, said to be Auriferous & argenteous from a
 vein near Caribou. Left the samples with Mr. D. (proprietor
 of the hotel) intending to get them on return journey.

Insect section
 at Resuel.

Section including insect-bed at Resuel. (The bank at
 this place is traversed by two faults. The lowest beds seen
 are furthest up the river - north - The measured section
 begins at the lowest seen, measures thence to the top of the
 bank, then crosses the fault & takes the next bed in
 ascending order, disregarding those below it - which have
 before been measured, but which must appear in a
 diagram showing the structure. The section not only shows
 the association of the insect-bed, but serves as an example
 of the numerous small faults with which this formation
 is traversed.)

1	Greenish clay	4	- 0
2	* Yellowish clay	2	- 6
3	Coarse gravel & Sand (Partly irregular layer) Sand		- 6

4	Coarse grey Sand with occasional flattened masses of lignite near the top	6 in to 1 ft
5	Grey Sandy clay	2 - 0
6	+ Grey Sandy clay with pebbles	1 - 6
7	Coarse yellowish grey Sandy clay	4 - 0

Fault. Downthrow to S. of 3 ft 6 in measured
at right angles to bed.

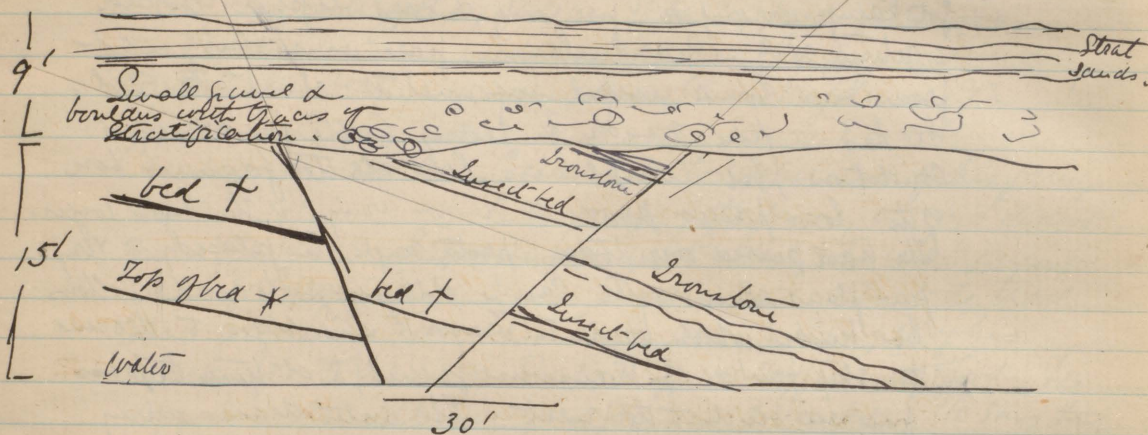
8	Yellowish grey Sandy clay full of joints & pretty distinctly bedded but in thick layers	13 - 0
9	Part. Clay or impure lignite	0 - 2
10	Plant & insect-bed, very finely laminated fine greyish & greenish grey clay	0 - 8 $\frac{1}{2}$
11	Yellowish clay	0 - 2 $\frac{1}{2}$
12	Grey clay - distinctly bedded	2 - 0 $\frac{2}{2}$
13	Ferrug. Sandstone, nodular & irregular about	1 - 0

Fault - reversed with a downthrow of about
6 ft. to the South.

14	Rather thin bedded fine grey Sandy clays	11 - 9
15	Grey Sand	1 - 0
16	Sands & Sandy clays, whitish, regularly bedded	20 - 0

Dip of the beds $285^\circ \angle 22^\circ$ The bank being
somewhat oblique to the direction of dip.

Diagram of the Section



The vertical scale much exaggerated but the dips of the facets about as they appear in the bank.

Aug 23 Breakfast at 4 am & then crossed the Trossa in a canoe Am fleshy accompanying us. Got horses packed & saddled & start made about 6 am. Had only four feet yet way up the steep sloping trail which zig zags to the top of the high bench, when one of the horses missed its footing & went rolling & crashing down the bank among spring spruces. Found the animal forever, after all not much hurt, though when brought to the top of the bank & load readjusted not able to stand under its pack, one leg being lame. While this trouble in progress heavy rain came on, & we were soon nearly wet through. Decided to pack up one of the riding animals & let the lame best-go light, but at all hazards to make at least a part of a day's journey. Got away finally at 8 am. & walked on through the wet till about 3.30. Weather improved considerably in the afternoon & before reaching

Meldrum's flat - about 20 miles from Soda Creek -
we were nearly dry again, though very tired & hungry.
got camp arranged, fire going, & some supper cooked
& retired early. Mr Meldrum paid us a visit & got
from him some useful information about the trail.
He has a fine ranch & many cattle in excellent
condition, but complains like all the farmers here
of the low prices produce now brings & the high wages.
The trail passed over today pretty rough in places, & very
few places where water can be obtained. The road follows
the benches which border the Traeger R & is obliged to descend
the steep banks of transverse gullies, & at times to pass
from one bench to the next. The water drains away
rapidly through the porous drift material, causing at
this season of little rainfall the scarcity of water mentioned.

Aug 24. Start away from Camp at Meldrum's Flat
6:35 A.M. & travel all day along the higher benches of the
Traeger, the surface of which is generally more or less
rolling either from the irregularity of formation, or
subsequent denudation. A fine park like country
with belts of timber alternating with large open
patches of prairie, covered with luxuriant grass.
The trees forming the woods, which are rather open, are
chiefly *Abies Douglasii* (not attaining a great height)
& *Pinus contorta*, usually small & often slender
& growing in thick clumps. *Populus tremuloides*,
various willows, roses, & *Shepherdia Canadensis*
form the undergrowth. *Solidago* & *Aster* of several
species abound, *Castilleja* (probably the same sp. as
that got near Waterton Lake, but representing only

the red variety) occurs. Also *Spiraea betulifolia*, now
nearly past flowering, *Geutiana acuta*, or a species very like it,
a delicate *Astragalus*, *Salicum boreale*, past flowering.
In the meadows in addition appear *Juncus tenuis*,
a white *Hesperis*, in some places *Geum triflorum*, &c.
Stopped half way where some water occurs, & had lunch.
Camped on Riskie's Creek, at the upper end of his farm,
making during the latter part of the journey a rapid descent
from the bench. Interviewed Mr Riskie, who is at present
ill, & got from him much information about the trail.
Also got him to promise to send down a sample of his
wheat for the exhibition. Should it prove sufficiently good. The
approximate altitude of his farm is 2400 feet. He says though
other places in the neighbourhood troubled occasionally with frost,
that he has never suffered at all in that way. His crops are
secured by the help of irrigation, water being tapped off at
some distance up the Creek & lead away in distributing
ditches. These lower benches & valleys seem drier than
the high level plateau, for in coming down to them *Artemisia*
(*A. frigida?* & *A. Canadensis*) increase in abundance.
Leucosiphon appears, also here & there a stunted *Cactus*

Aug 25. Left Camp 6.20 Am. & travelled on till
1.50 P.M. when arrived at place described by
Mr Riskie as camping ground, & where also many
poles cut for tents & other signs of former occupation.
The country passed over is chiefly open & of the nature
of prairie land clothed with fine grass (bunch grass).
Saw several large herds of cattle in the morning,
muzzling about almost wild. All this plateau
region, both that passed over from Soda Cr. to ~~the~~

Ruskus, & that of today; splendid grazing & stock
raising country, though probably too high for successful
culture of most crops. The resemblance of the rolling
surface of the plateau to the country of the Foot hills on
Lat. 49° remarkable, & extends also to the flora, which
as already remarked almost the same. Seems to be
about the same stage at same time of year, & it
would appear that the foot hill country must enjoy
a climate not dissimilar.

On crossing the point of highland between the valleys
of the Trench & Chelacotin, a magnificent view appears
across the bench or plateau in the foreground, & at a
great depth below, the valley of the Chelacotin; across it
a continuation of the same plateau, rising slightly from
the river, & partly prairie, partly wooded land. Then
a bounding range of hills with gentle slopes, & wooded
to the summit, & through the lower parts of these the
serried & snow-clad peaks of the distant Cascades
to the south west, glittering in the sun.

Where evening Camp made within about a hundred
yards of the precipitous edge of the great Chelacotin valley. The
rim of the valley at both sides formed of basalt, &
Scoriae traps, with some ^{distinct} horizontal lines, & in many
places largely columnar. The cliffs show in some places
more probably than 200 feet by these rocks & are
extremely ruinous, & show evidence of the early fall
of great masses. To add to the Colles below.

The small stream by which we are camped falls
suddenly over the edge & passes down into a great
amphitheatrical hollow in the edge of the valley.
In the valley of Ruskus Cr, several terraced levels

#

Terrace
levels.

very distinct, & besides those with broad terraces, the steep grass-covered bank sloping down from the level of the highest bench on the S. side of the brook, shows in favourable conditions of light, at least 8 (eight) perfectly horizontal marks, or small ridges. There would seem certainly to mark different stages in elevation, & to show that it was not sudden, as by breaking of a barrier. Also that in favourable circumstances may expect to find benches at almost any elevation.

Aug 26. Started 6:40 Am. Passed for some time through open wooded country with *P. cantata*, & *A. Douglasii*. Trail runs along top of N. Bank of Chilcatine. Then made descent into Valley, & travelled the rest of the way along lower benches, sometimes lightly wooded, sometimes prairie like. The Valley bottom partakes of character of that of Reskies Creek, & shows the same plants. Arrived in Camp 2 Pm. Wrote out notes, collected a few plants &c.

In descending into the valley passed over curious region of rock-stream hummocky mounds, which at this place projects from the north bank. Probably were ancient mounds, or at least remarkably like them.

Aug 27. Morning cold, & a sharp frost in the night. Leave Camp 6:40 Am. & after travelling some miles find the genuine Alexis' Creek, & that we had camped short of the proper place. Pass several Indian gardens with potatoes, carrots, & turnips, the former now all killed down with the frost. Stop for lunch at a

place where remarkable section of Volcanic basalt
(See notes) Camp near a Coyote band of Indians. They
are Aleuts, or his men, & say they are who bring down to
the Traya + work. On Aleut's' Creek there are a number
of log shanties erected, which belong to them. They has
been cloudy since noon, now rain setting steadily
in. Had a crowd of the Indians round the Camp
till & during supper. They had Coyote today, the first
Solomon yet this season which they presented to us. Gave
them some tobacco & pork. After supper presented them
with the remainder of the grouse stew & a cup of tea
all round &!. Being good hunters & this Friday they
would not touch the grouse, but took it away to
keep till the morning, when it might be kept another eaten.
The grazing land in the valley bottom this morning, now
more narrower & more Cañon like.

Aug 28.

Morning very wet, & has been raining steadily all night.
Showed signs of improvement - about 9 Am. & Perantia
rising, decided to move on a short days journey to the
crossing of the Chilacotin R. got packed up & off at
10.30, & got to camping place on S. bank of R. at 3 Pm.
The Indians hanging round the camp from daybreak
till we left camp, & prying into everything. Bought us
another small Solomon, & a trout, for both of which
they received exchange.

Valley of the Chilacotin when seen today pretty wide,
but the bottom land swampy, & instead of being a grassy
prairie as usual, covered with willows & other bushes.
The stream itself is not large & at the ford several
comes up to the shins. Water dark coloured but clear

Current rapid, & bottom stony.

Camped in a fine meadow with grass 3 feet high in places,
& abundance of vetches in the hollows.

Aug 29. Start 7.30 Am. & travel on till 2.25 Pm.

The trail following the N. bank of the Chilanco, which is struck by the trail immediately after leaving the crossing of the Chilcotin. For about 43 miles the character of the valley is forbidding, the trail passing for the most part over flats of gravel & sand, covered with a more or less dense growth of *Pinus contorta*. The ground beneath the trees being often nearly bare, or covered with heather, &c.

In latter part of the way the valley is more open & has somewhat extensive grassy bottoms. The grass however not very thick. Camped at spot where trail crosses the Chilanco to go S.W. eastward. Spot designated as Depot Camp, & also as Jennings' Camp No 1. Two well built wooden structures, now deserted, mark the site of the depot. Passed two pretty little lakes by the way today.

The Chilanco R. at first a large swift-flowing brook now much smaller, & forming long broad lagoons with short stretches of swift-water between. Many ducks but have no dog.

Sketched the new looking of the stream. Pressed a few plants, wrote up notes &c.

~~Aug 30. Steady & heavy rain during the night, but ceased about daylight. Morning calm & overcast. Left Camp 8.5 Am. & travelled on through thick woods & brush~~

Aug 30. Leave Camp 7.20 & travel on till 4 P.M.
reaching the N.E. end of Eagle Lake Day wet - since
noon & still raining. Saw many ducks in pools this
morning. one flock of geese, & a spruce partridge, the latter
shot. Loon Lake a pretty little sheet of clear water, &
true to its name inhabited by loons. Eagle Lake a fine
body of water. Clear & blue, with mountainous heights, &
to my eye a gentle wind & surf beating on the shore. Train
today very bad & horses tired on arriving at Camp.
All very tired & hungry & glad to get something to eat &
turn in. Crossed & recrossed the located line of the
C.P.R. several times today. Clear line cut through the
woods & chaining marked by posts. Seems in a lot
of great faith to locate a Railway through this wild
country.

Aug 31 - Steady & heavy rain during the night, but
ceasing about dawn. Morning calm & overcast
with great swaths of mist rolling up on the
mountains. Left Camp 8.5 Am. & travelled
on through woods & brush loaded with moisture,
which were wetting even more than rain as shaken off.
Crossed the outlet of the lake 11.40 Am. Passed
White Water S. & camped at S.E. end of Lochin S.,
where site of Indian village marked on map.
Really only a camp, & now abandoned. A newly
made Indian grave on the crest of a little knob
top piled in square form on the ground & a pole
standing up with an old tin pan spiked upon
it, & bearing a red rag for a flag. Found locked

in the bushes several fish traps which had been used in the lake. Made of long round wooden sticks or rods, neatly smoothed down & bound together. Cylindrical, with a conical entrance at one end after the fashion of a rat-trap.

The country of which the Lake has the character. Soil gravelly or sandy. Timber A. Douglasii & P. Coulteri, with aspen &c. but more thickly & uniformly treed than before.

Saw a hummingbird today, unable to tell exactly what species, but no doubt Trochilus Colubris (no)

Elaeagnus Argentea growing abundantly near the Camp tonight. Ranunculus Aquatilis occurs wherever a suspicion of saline water in the soil all through this country, & the Crotalaria is common.

The western edge of the basaltic region probably lies near the junction of the Chilcote & Chilcote, a few miles east of that place, in going westward from it toward the Cascades the character of the country altogether changes, & instead of the uniform plateau, have rounded or irregular hills.

The watershed between the Frazer & Horwathes lies between Eagle & Lochin Lakes, & is not a feature of any importance, being easily crossed. Remarkable that small streams like the Horwathes should rise E. of the Cascades & flow through them, though of course the same thing on a greater scale with the Frazer

Horwathes
watershed
drift.

Rollled appearance
of moraine matter

The rolled appearance of much of the moraine matter, referred to in notes, cannot be accounted for on the supposition of water action subsequent to formation of moraine, as to be sufficient to wear these hard rocks it must have been more than sufficient to obliterate the moraines. It would therefore appear possible or probable that the glaciers

Terraces antecedent
to moraines (?)

ploughed their way through previously rounded material,
which they heaped up, with some of an angular character,
immediately derived from the cliffs overlooking them. It
would seem then possible that the terraces of the valley are of
origin antecedent to this glaciation, while the glaciation followed
at the Summit of the basaltic plateau, & overlaid by faults
which apparently belong to the terraces, may be of a later
date?

The Chilcotin valley, including the basaltic plateau
overlooking it, & all the better parts of the neighbouring
country, though in many places excellently adapted for
grazing & cattle raising cannot be called in any
sense an agricultural country. For the most part it is
too high for wheat raising, & even the potatoes in
indian gardens east of Alexis Creek were observed to
be frost killed. Some spots may of course be found,
where (as at Riskis) wheat & all other crops can be
grown.

Sept 1. 1875. Left Camp 6 Am. & travelled on to
Cumbis Camp 17. Arriving at the Blaze 4.30 P.M.
after a very long & fatiguing day. Found an indian
Camp on the trail near the N. end of Jellyco S. but the
men all away. The women came out, but as they
could speak but little Chinook, could not learn much
from them, beyond the fact that the Camp of white
men was Si-yah a far away. One Indian old by
among them, & all ugly enough. The trail very bad along
the E. side of the lake ascending & descending constantly,
& crossing deep & muddy swamps & brook channels.

the mountain sides thickly wooded. A Sorbus now
preponderating. The lake seems to occupy nearly all the flat-
bottom of the valley, & is long & river-like; but leaves a sloping
bank on the E. side along which a good line may be run for
the Ry. Views of the lake, & snow-clad mountains towering
above it magnificent. Did not actually go down to Cambie's
Camp, finding Hartley Camp on the branch trail about
half way, & learning that the descent still about 600 feet & the
road very bad, decided to remain for the night & let the animals
come up, the packs now being a long way behind. Hearty supper, talk,
& turn in.

A large glacier with moraine lines running down it - visible
in mountains at Stewart Lake

Sept 2. Came down the hill to meet Cambie's Camp early, but
found him already gone out on the line. Selected place for
Camp near his & got the things packed down, & Camp arranged.
Wrote up notes. Changed paper of plants in press, &
in the afternoon walked northward a short distance on
the location line, which runs just past the tent door.
Saw no rock in place. Saw the C & party in the
evening, & talked matters over with him.

Sept 3. Breakfasted with Cambie 5:20 Am. & started at 7 to ride
back to the fossil creek, about $3\frac{1}{2}$ miles from here, with the
purpose of ascending it & getting a section. Took both the Indians
along, one to take care of the horses, the other to come with me
up the creek & carry specimens &c. Got back to Camp at
2 Pm. after a fatiguing scramble, most of the way wading

in the water gate brook or climbing over or between
tangled masses of loam in its bed. Attained a point
about 1000 feet above the trail, & through small
measures the section, formed a good idea of its general
character & collected some interesting fossils etc.

The most abundant form appears to be an *Alcyon*
in which case the formation is probably Cretaceous, or at
least Mesozoic. It almost undoubtedly represents
Selwyn's Jackass Mt. Conglomerate lens & I think
probably also the coal bearing beds of Vancouver Is.
(This on the supposition of its Cretaceous age being born out.)

Sept 4. Curmie moving Camp about 3 miles S. westward
along the lake shore to keep up with his work decided to
go with him to same place. Horses had strayed far, &
before they had been brought into Camp, packed, & the new
place reached, nearly 2 P.M. Afternoon walked back to
the glacier stream & up it to some rock exposures,
which examined. Day stormy.

Sept 5. (Sunday) Morning opened with heavy rain
which continued till about noon. Afternoon clearing
but raw & cold. Every fine. Wrote letters & so
in to Soda Cr. by Mail Carrier tomorrow. Read
& in P. Read prayers shortly after dark & such
of the men as chose to attend.

Sept 6. Started at 7 am. & rode down by the
trail to the S end of the lake, examining the rocks etc.
& to see where Mr Hartley might be, & when I might

convinced on getting his horses back, to go on to Blackwater. Found him across the stream at the foot of the Lake. Having crossed his stuff on a rope & the horses by a hollow bar on which they scarcely need to swim at all. Time of return of horses appears uncertain, & Mr H. in ~~an~~ particular hurry. Mr. Cauley kindly offers to let me have the only spare horse he has, his own riding one, to make up my complement. Decide to accept the offer & start tomorrow morning, though still one horse short. Find I cannot do much more here without plenty time, & anxious to get northward while season lasts.

Sept 7. Waiting for the new horse to be brought in, & did not get off till 8.30. Travelled on till 5 P.M. & then only reached a small stream not far north of the end of the lake. Trail very difficult & devious.

Day undecided & threatening. Fine cloud effects on the mountains, & just at sunset a beautiful burst of crimson light on the snowy mountain tops of the south end of the lake.

Dicranum ^{pauciflorum} opuleus grows abundantly in one place on the trail passed over today. Bunch grass comes to the N.E. end of the lake.

(Journey so far back on former track)

Sept 8. Left Camp 6 A.M. riding ahead of the pack to examine rock exposures. Overcast & showery. Back on the old trail to ~~Point~~ Coburn's. then round the north end of the lake by another trail northward to

Peterson L. Had some difficulty in finding the beginning of the new trail, & obliged to make a long day, not finding water for camping till arrival at old Depot at Peterson S. Camp 4 P.M. Horses all very tired & some quite sore already. Heavy fall of grain about 3.30 hitting everything. Horse rolled on his saddle on arriving at Camp, breaking among other things in the saddle bags my only thermometer. Evening clearing.

Sept 9 Left Camp 7 A.M. & travelled on till 1 P.M. Camping early on the N. shore of Tatta L. to let the horses have a rest. Some of them weak & backs very sore. Wrote up notes &c. Observed Cactus growing sparingly at Wind Tatta S.

Tatta L. lies opposite the gorge in the route through which the W. branch of the Hornathos now flows S. westward, & evidently a part of the same valley. Peterson L. lies in the same hollow & is probably only separated from Tatta by moraine matter. Evident that last flow of ice from the Cascades eastward, & no doubt westward also, though it may be a question whether at some former period ice flowed from the Central table-land through the passes of the Cascades. One ice stream must have come from the W. Hornathos hollow & flowed nearly in the direction of Tatta S. Another from the E. Hornathos. Must I think have flowed down Tattayas L. & the valley including Colhin, Whitewater, & Eagle Lakes. Probably uniting.

Tatta L. partly
old Hornathos River
valley.

Flow of ice
eastward.

with the Tatta L. Stream near Looe L. just before. Some of
this ice may have passed over into the Chôileguite Lake
valley, but I do not think there is any low gaps

Sept 10. Left Camp 7:15 & travelled on along N. Side
Tatta L. May procure chickens. Struck 3 on the way
but owing to tight charges, got one only. Lost about an
hour looking for trail, having missed it, & supposing
that should cross the Tatta L. Creek sooner than turned
out correct. Got the right trail at last, & came back to
former Camp at crossing of the Chôileco.

Sketched Tatta L. & Cascades while packs arranging in the
morning.

A magnificent day. Almost cloudless, & warm.

Tatta narrows
Subsided
Worries

Tatta L. valley rather seems to become narrower & more
obscure westward as though the stream forming it had found
to the west. Some traces of moraine matter near the western
end, but fragments water worn.

The Indians tell this district seen to have been dead &
then place over the spot a pile of logs, with a covering of bark & c.
Along the whole a pole set up with some gaps, in some cases a
tin pan or hat, & in the instance a musket observed. Many
such farms along N. side Tatta L.

Observed in some places holes like hollows in the ground, quite
Squintered, & apparently the traces of underground winter houses of
the Indians. (a fish caches)

Sept 11. Start - 7 Am. & travel on trail 1 Am. Camping
near the lower end of Peuntye S. When the trail
leaves it - for Cheucut S. - Afternoon fishing. The lake
full of small fish which appear to be species of
White-fish. They are about 4 Spawm & we've been
spraying from the surface yto water in all directions.
Came this morning on a small Camp yindans near
the Lake shore. Poleyfamilias dead light in a bed, & rather
hot shirt.
Some yote bones very sore, & Tommy laid up with a
sore leg. Intend to remain here all day tomorrow to rest
& recruit.
Shot 2 ducks & a prairie hen en route.

Sept 12 Sunday did not shift Camp. Rode back to
examine rock exposures about 2 m. S.E. on the
trail. Made sketch of lake, finished on y Zallyoua, &
effected some repairs. Collected a few shells &
Day pure & very hot in the Sun

Sept 13. From Peuntye S. Camp about 20 m. in a
General N.Easterly direction. Did not intend to
make quite such a long day, especially as start
late on account of Tommy being unable to assist
in the packing; but found no water for a long way.
Shot 5 Spruce partridges today & could have had more
if thought any use. After killing the first two an
Indian attracted by the reports, appeared, with his
old flintlock in his hand. An old man & rather
beet, probably out looking for a deer. Followed us

Leave Camp 4:30
P. 10. Camp about 20
Camping about 20

Some trails to Chiricahua Crossing, where found his Camp, & several Squaws & children. They are now catching great numbers of whitefish. Like those seen in Country I, & are engaged drying them in the Sun. Fish strung in long lines on poles, & smoke kept up below, probably to prevent the flies settling on them. A little boy from the Camp followed us to our Camp about 12 m. gave me some Supper, & he evidently intends to stay all night, having ~~just~~ picketed out his horse. The poplars, willows, dwarf birches, & other woody shrubs & herbs are now typically Chiricahua colour.

Dike
Would be inclined to represent the relations of the uneven & wavy sandy & clayey deposits, charged with boulders & pebbles, to the benches, much as below. Seems that these upland deposits, whether formed by Glaciers or floating ice, stand in place of the boulder clay of other regions



Sept 14 delayed in starting as yesterday, but made a moderately good days journey. Traveled from 7.50 to 9.40 with the loss of about 1/2 hour. The country undulating & wobbly, with some very fine displays of moraine mounds. Pines & cottonwoods, with flat areas of ground fall & wood. Camped at Camp 13 of C.P.R.S. left by them Aug 8. Fine spring of cold water.

Submerged moraine

Evidence of moraines seen today appears conclusive that country partially submerged at time of deposit, & rising gradually above water as ice melted. Suspected dimictic means & that of ice water already in vicinity

Eagle & Tatta lakes. The moraines seen today show
 some well rounded stones, with many not much
 rounded, or nearly angular, but showed none
 glaciated. The semicircular ridges are evidently
 glacial work, but are flat-topped like terraces, but
 differ from terraces by being separated from one
 another by deep narrow valleys, now often occupied
 by lakes or swamps, & flat-bottomed. The top of the
 later formed moraine mounds are also lower than
 the earlier, & less subsequently wood-piled. In a rough
 diagrammatic way thus.



These moraines evidence great extension of ice from
 Cascades, & probably belong to the same series as those
 of the lower parts of the Tatta Lake & Doon S. valley.

Moraines

Have now little doubt, that basin of Puget S. also
 formerly occupied by tongue of glacier advancing over via
 the Chilcane valley. Abrupt mounds 30 or 40 feet high
 over the shore of the lower end, which can scarcely have had
 other origin. (See sketch for part gone of these.)

Sept 15. Horses finding poor feed showed tendency to
 stray away, & required attention several times in the night.
 Morning two gone, & only recovered some miles back on the
 trail after considerable detention. Did not get away

till 8.20 & then unfortunately took a wrong trail, following nearly parallel with the location line, & finally disappearing. Lost nearly two hours hunting for trail & by the rolling down a bank from the pack animals. 6 mi. to Jim Falls Camp of Jennings, where a pretty little cascade coming down over Sep like ledges of basalt. N.E. of Camp 15 (C.P.R.S.) on the opposite bank of the river a fine cascade. The rays especially increasing in size. Camp only about 13 miles though 8 1/2 to 40 mi altogether on the road. Trail very bad & rocky, just before coming to Camp Reeves fell saddle & fell from the horse going up a steep hill, & had a narrow escape, though getting off unhurt. My Saddle-bags however kicked away from their fastenings in the struggle. Camped somewhere near Jennings Camp 15. Very warm in the sun today, though just best night.

Sept 16. Start 7.30 & travel on down the valley. Trail much improved, valley somewhat opened out with small meadows, & ponds. Day very warm & cloudless. Camped near picket 5788 & almost opposite very prominent bluff. Passed a camp of Indian women who said their husbands had all gone beaver hunting & left them no mink-a-mink. Many ducks & geese, & much old beaver work, most of the lakes in the valley being probably thus created. Investigated a number of Sphaerium in the river bed near camp, & found a fragment of Uros like U. rectus. Heard shots this evening & also sound of distant chopping. There no doubt proceed from the Jennings Camp which must be near.

Sept-17. Found men at work on the Cune soon
after leaving Camp, & Mr Jennings' Camp about
2 1/2 miles on. Camped. Examined rocks in hillside
near Camp. Reading, writing up notes & found no
mail here for me. It is probably at Blackwater.
The Chelaco R enters the valley of the Mayo about 2
miles below this point. The stream of the former is
almost as large as the latter, but the valley rises
much more rapidly as followed upward.

Sept-18. Started with one of Mr Jennings' Indians
named 'Charlie' & walked down to the Chelaco &
then several miles up the valley to see rock
exposures there. No trail up the Chelaco, & so
consequently a scramble through woods all the
way. Afternoon made search for fossils in
rocks behind Camp. Collected 3 species of *Juniper*.
Charlie told us a story in broken Chinook, thus
evening, about the bluff on the Chelacotan R
mentioned in notes of Aug. 27. Says long ago, three
generations at least, had Siwash from the 'Salt-
Chuck' came there & camped on top of the bluff.
Thence they tried to watch the Chelacotan Indians
& shoot them as they passed along the valley, with
arrows, & no one knew how it was done.
At last a Chelacotan Siwash passing saw or
found on the bluff, & went & told the others, who
sent a man up, who while he had Indians
were asleep found out how many there were.
Then the other Indians surrounded the bluff &
& while they sent a clothman to

walk along in the valley below, thus attracting the attention
of the Waraiders. Came up behind them & made a sudden
onslaught, killing them all, except one Indian, supposed to
be the Medicine Man who flew away in the air from the
edge of the bluff. "All same wind Kattawa, all same
Chicken." This at least is what the oleman wa-wa.

Sept 19. Sunday. About Camp at writing odd jobs &c

Sept 20. Murray walked up the river about two miles to
collect lucos &c. Noted drift lignite in the river bed.
Afternoon rode about four miles back, to cliff beyond
Cinderella Gut. to see if lignite formation capping the cliffs.
Found only weathered basalt.

Sept 21. Moved Camp with our journey's party - about
six miles down the river. Walked down with gun observing
rocks &c. day warm, but strong wind from S. Three of the
horses still very sore, & two weak also. Jimmie still ill &
able to do next to nothing. Hardly in condition to move
on, though feel that wasting time to stay here much longer.

Sept 22. Rode out with Mr. Mc Kay at 8.50 & returned at 4.30
after having made a narrow draw some 7 1/2 miles down the
Russell trail, & ridden altogether about 24 miles. Day stormy,
after a night of heavy rain. The valley from below the Chickadee R.
opens out considerably, & shows a good deal of meadow
land at a somewhat higher level above the river, & which is
probably not often flooded.

Sept 23. Walked down the west side of the valley
examining some rock exposures, but found nothing
of particular interest.

Sept 24. Started from Camp about 7:15 & rode
Northward with the Jimmies to the byway of the
trail to Cluscus Lake. There separated &
went on on the Cluscus trail with Jimmy,
till 11:40. Then turned & got back to Camp about
4 P.M. Having got out on the Cluscus trail between
7 & 8 miles. The trail from Quesselle to the
South end of the long lake, thence up the Narquo
to a round the N end of the lake, & from there
westward to Cluscus L.; is the main trail & has
evidently been considerably used. Little or no trail
exists N of this down the Narquo toward the Blackwater.
Killed five grouse by the way.

Sept 25. Near Camp all day. Tried washing gravel
of river for gold, but without success. Tried fishing
also unsuccessfully, the river being too shallow
about here.
Tommy still quite useless, & the three pack animals
very sore. The packs skinned in packing have for
the most part festered & are now discharging
matter. The brown horse especially very weak.
The packs & ~~trail~~ mail now since some days
expected from Quesselle have not yet
turned up, & till they do the Jimmies can hardly
spare a man & ~~horse~~ animals to take my

steep thrap. to Blackwater. Delay very much as
now nothing much remains to do here.
The foliage ^{here} is now just about the stage at which it
was last ^{seen} October during my trip through Fuzite Mt.,
showing the earlier onset of winter here.

Sept 26. Sunday. Morning engaged collating the
Chilocotian vocabularies obtained by Mr. Jennings &
myself from the Indian Charlie. Considerable
difficulty in getting the right answers from him
when here, & great trouble in spelling some of those
obtained, from their nasal & guttural sound.
Afternoon climbed the hillside to the west, & followed
up the bank of a small creek N. westward; then
descended into the valley bottom & followed the brook
back to the river. Found a curious rocky gorge,
with much calcareous deposit, & a waterfall
of about 30 feet in height. Many deer tracks
though mostly of some age.

Sept 27. Collected specimens of *P. contorta*, & an *Abies*
which seems to be very near the ordinary Black Spruce
but agrees closely with the description of *A. Engelmannii*
& is probably that species. It has been abundant from
about Eagle Lake on the route travelled & here, but also
occurs further east. It forms dense woods glaze
trees in wet or clayey hollows of the plateau about here,
& also fringes streams & swamps.
Revisited the ravine mentioned yesterday. The calcareous
under chaps are honeycombed with openings, many of
which are the wounds of sticks & logs formerly

All packed up
& ready to start back
to Jennings & ride through
light to Mrs. Bell's camp;
but found her too
unable to walk from all
cut of last night &
Mrs. J. therefore obliged to
stay of even the level.

unbedded. These are now inhabited by some
small animals, probably a species of marmot. They
have dropped a great quantity of sticks, leaves, &c. to
the mouths of their holes. Did fire to one of the largest
of these, & the smoke soon began to ooze out of holes
in various parts of the cliff. Caught a number of
glimpses of the animals, but most probably
escaped by holes above.

Mr. Wallace Smith, & the very expected train from
Dusselle arrived this P.M. Got all arrangements
made for start tomorrow, Mr. Jennings furnishing
mules to take me to Blackwater Depot, & sending out
some of his spare stuff at the same time. Leave the
three sick horses, & two of the apparatus, getting
receipt for them by mail said to be at Blackwater.

Sept. 28. Up early making preparations for start,
but did not get away till about Noon.
Got letters from Mr. Smith to Depot man at
Blackwater & to Mr. Bell.

Party has now added one of Mr. Jennings's
packers (Joe) & an Indian aide & guide
brought from the Blackwater by Mr. Smith, & called
Jenny. Made about ten miles down the
Nayco & camped at the last pass for a
long distance. Tried fishing but unsuccessfully.

Sept 29. Start 7:30 A.M. & travel on towards the Blackwater.
Trail poor in some places, needing a good deal of cutting out.
Wheels overturned & mired in getting up the river bank at one
of the fords, but no serious consequences. Traveled on till 3-4 P.M.
When camped about 2 miles E. of the mouth of the Brazos on the
N. side of the Blackwater R. Fishing very successful tonight
the stream being full of fine trout & white-fish.
Camp situated near an old Hesson's C.P.R. Camp, on the
Blackwater line.

Sept 30. Leave Camp 7:50 Travel on old Survey trail till noon,
eastward & northward nearly parallel to the Blackwater. Then
travel southward on brand trail to Gun Bells Camp 20 in
Blackwater Cañon. An Indian family camped at the brand
trail, cleaner, better looking & apparently more comfortable than
any yet seen. Their winter houses are near Chusca L.
Spent the remainder of the afternoon examining the rocks of the Cañon, &
in the evening dined with Gun B. & party. Got maps information
& from him, also a pack horse & apparatus which he does not
need.

Blackwater
Upper Cañon

The rocks of the Cañon probably represent the Lower Cede Creek Series
though no ammonites like the typical ones, appear, nor are
the flint-slates of that group well represented. The igneous dykes
parallel to the stratification resemble those seen in the L.C.C. on the
Wagon road.

The rocks of the Cañon, with a few exceptions, are not such as to offer
great resistance to blasting or rock work. Much of the slate would
be pretty easy to bore, & the shattered state of the rock would cause it
to break into small pieces on blasting.

Oct. 1. Left Camp 8 Am. & travelled on without stopping till about 2 Pm.; reaching Blackwater Depot. Found the Padd train now due for Ft. George, & with which our Smith had arranged that I should travel, not get on hand. Appearance of break up in the weather. Barometer falling, wind rising. Clouds collecting all day. Geese flying south. Found a large mail waiting here, though no date later than Aug 20. from Montreal. Nothing yet heard from Mrs Selwyn.

Oct. 2. Drizzling rain & occasional showers of sleet all day. Overcast, windy, & cold. Examined the river banks near the depot but did not go far on account of the weather. Mail Carrier arrived from Lussville, having left this morning & ridden through. No mail for me. Padd train for Ft. George had not left this morning, is waiting for goods & may not leave for some days to come, which is very provoking. Padd train arrived here with oats. Part of the animals returning to Lussville & part going on to our Bell. Our Fisher (Bell's partner) also arrived on business connected with the train.

Oct. 3. Sunday. Snow on the ground about 2 inches deep, & still falling a little. Working hard, reading & keeping warm.

Oct. 4. Walked down the river about 3 miles examining the rocks. Afternoon working gravel from bank & laid from from below the bridge, but without finding colour in either. Day cold & raw with snow still.

Remaining on the shady sides of hills & in the woods
where stock. The Cañon below the bridge though not
so large as the one found — very picturesque.

Oct 5. Had arranged with Mr. Stewart in charge of Dept here
to start early & ride up Bell's trail about 14 miles, thence
follow Indian trail to Mts. of Blackwater where Indian houses.
Stay there all night & get Indian to guide us back again up
the valley of the Blackwater. Morning very thickening overcast &
foggy. Did not start till 10 am. Rode out to place where
Indian trail begins, at an Indian graveyard, & there found some
Indians camped, who told us that no Indians now at
Mts. of Blackwater. Tried to induce one of them to go as
guide, but they had no horses & would not. Engaged a
lad to come back with me to camp, who knows the trail &
may also be useful in tending horses & now that the
other men sent off. Started back at 2.15 & got in to camp
just before dark, with heavy rain coming on.

The Indians were rather surprised to see us come into their
camp. Engaged in curing fish & have considerable quantity
of trout, white fish, & suckers string up in process of drying.
Also several beavers lately killed, the flesh spread out flat
with the tail still attached & hung over sticks near the fire -
Smoky, brown, oily, & repulsive looking. Camp consisted
of one very old man, very sick, & as they said "all same
astirred all over" probably Rheumatic. The day saw a
chilly & the old fellow coiled up under a rabbit skin blanket
beside a little fire, hardly took any notice of us. His long grey
hair standing up in shocks on his head. Half thought
they had brought him here to be near the graveyard when he
died. One came man besides, & a young lad. Two young
blotchmen & 3 old squaws. Wore red & black.

The young women evidently thought themselves very attractive & put on airs accordingly. Arranged with the young lad to come back with us after a considerable amount of wa-wa had been got through among the Indians in their own language. He put on his moccasins, wrapped a little old dirty Red-Roy Shawl - which seems to be quite the thing here - round his shoulders & started off. Keeping up with the horses all the way back to the Depot. Some of the women tattooed, as is the case in nearly every lot of Indians seen. The colour employed blue, & the device usually adopted (in whole or in part) like this.



Oct-6. Raining heavily all night, & has continued overcast, foggy, & raining with slight intermission all day. Walked up the river about $\frac{1}{2}$ m. Examining the rocks. Shot 3 prairie chickens.

Oct-7. Working. Sketching etc. Afternoon walked up the river about 2 miles examining the rocks, & got into a mass of windfall & brush very unpleasant to travel through. The river banks have suffered very extensively

alteration from land slips, which in some cases have extended from the top of the highest terrace, or summit of the plateau, to the water level.

The upriverman from Beau R. passed the Depot today & some Indians with two packs of furs from Stony Cr

Camped here tonight. Nothing yet of the train either
to or from Ft. George. Day fine & weather apparently
about to improve.

Oct 8. Rode down the valley about ten miles west
the Stovall, following an Indian trail which runs to
the mouth of the Blackwater. Trail in some places
very faint, but becoming better beaten eastward. The
river valley becoming thick timbered, it leaves it about
two miles below the bridge & follows along the
edge of the high land. Back to Camp 5. To
Macdoug's train from Ft. George arrived today a fox
out tomorrow morning for Duesville. Wrote M.

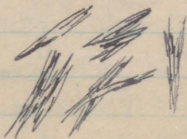
Oct 9. Morning variously occupied. Afternoon walked
up the river about 2 1/2 m. to look for fossils
in the lignite formation beds, but found
Successo Tomeros. Day fine & quite hot, & no
frost now for some nights.

Oct 10. Sunday. Mail man arrived from Duesville
with letters &c & with him the Cayador Puyeto
& an Indian packer, turned back (having left
here yesterday) by a letter from Dr. Stacey, telling
him to go with me to Ft. George. Freight for
Dr. Stacey's train not yet arrived at Duesville.
Day fine & warm. Packing up fossils &c &
cutting everything down as much as possible to
economize transport.

Oct 11. Up early, got all packed, provisions drawn from depot & started by 8.35. Have now besides Reeves, the Mexican father Perfecto & one Indian. The two last sent back by our starkey. Discharged the Indian lad who has been working round camp for the last few days. Camped near the Indian graveyard beside a rather large lake called by the Indians Pun-chaw. Lake full of fish which the Indians are now catching in nets & drying for winter use. Tried fishing from a raft which the Indians have, as well as a bark canoe for setting their nets; but with poor success. Fish jumping all about but only hooked one, which escaped. Got some of the Indians round the fire & completed the Blackwater Vocabulary.

This lake is covered with a green scum, & is said to be always so characterized. The material as far as I can remember exactly resembles the Opuntia mon found on the Lake of the woods. Colour pale dull green. ~~Form~~ Variable. The minute threads are arranged in tufts or fascicles, rather irregular in form & size, but resembling ^{fine} chopped hay, or more frequently shuttle shaped, & grouped together so as to resemble a grain of oats with the husks attached & partly open. (See specimens) The Indians call it Ta-tsa.

and
spec.



Oct 12. Up early & ready to start, but horses had gone back on the trail toward Blackwater, & did not get away till 11 am. Morning fine, but soon clouded over with upper current gair from the west. Several showers fell. Cleared about 11. Clouded gradually again. Heavy local shower with some hail at 12 P.M. Evening partly clouded nearly calm. Camp at 4.10 near a nice little brook, & got dried by a large fire

Oct 13. Start 8 P.M. & after travelling along the N. trail till 9.30 turned off to ascend a prominent mountain which the trail passes to the east. Peep, to acting as guide, he having been on the top previously. Got up most of way on horseback, & had a magnificent view of all the surrounding country. Got bearings on many lakes & hills & followed along the crest of the ridge which runs northward from the mountain, & finally got back to the trail. Expected to have about 7 miles to go to camp, but the indian had mistaken the directions & gone 10 m. further. Got to camp about 4 P.M. Found some Indians just arrived from Ft. George, & learned from them that a party resembling Mr Selwyn's had arrived. Indians call the Mt. Isle Whus.

Oct 14. Left Camp 7.50 Am. Arrived at Depot C.P.R.S.
at noon or at St George Proper at the junction gate
Fraser & Stewart at 12.45. Near the trail on today's
journey two dead Indians, of whom the bones now
only remain. They have only lately been partly buried,
but have been dead some months. No one knows
how they died, & the Indians about here seem not to
know who they are.

The Depot is situated on the abrupt terrace edge of the
higher level, from which a descent is made to the
lower level flat, a triangular area at the junction
of the two rivers. The upper level is gravelly & clayey,
but the lower seems to be fine fertile soil, & though
mostly covered with small trees shows fine meadows.
The Fort a tumbled down looking place like Hudson Bay
Post generally, & surrounded by a number of shanties
belonging to Indians, who are now nearly all about
hunting at the various small lakes & creeks over the
country. They will not return here again till about
Christmas, & then disposing of their furs & having a
short holiday, start out again for the rest of the
winter.

Found Carapica here Mr McSweeney & the remainder
of Mr Selwyn's party. Mr S. himself with Mr Webster
having started at noon on Monday down the
Chilacook R trail with the hope of meeting me or Mr
Bell, having been misinformed here as to our
movements.

The waters of the Fraser & Stewart mingle here opposite
the fort, the former being turbid & whitish, the latter clear.
The opposite bank of the Fraser is high & steep, while a

wide stretch of gravel bars & islands marks
the junction of the rivers.

Oct-15. Hourly expecting Mr Selwyn's return, & as in case of
his arrival he would probably wish to start at once
to catch Sunday's boat from Tucson; cannot go far
from camp. Writing up notes, reading &c.

Oct-16. Morning about camp. Afternoon walked some miles
up the Stewart R. a (Nobacco) trail after return to camp
about 5 P.M. Mr Selwyn & Mr Webster appeared, having
gone through to Blackwater Depot by the Chellaco R. &
then hearing they whereabouts returned by Mr Bell's straight
trail.

Oct-17. Sunday. Reading &c. Afternoon worked out some sand
& gravel on the bars of the river above the Fort & got a
good many colours of gold. Weather gradually clouding up
since morning & about dark rain commenced to fall
& now falling heavily.

Oct-18. Leave Ft. Joyce at 8.30 with Mr Selwyn & party in
boat & dugout canoe, for Tucson. Morning cold & foggy
but soon clearing. None of party know the river, but
have directions for running through the two Cañons
(St-Joyce & Cottonwood) which are the only dangerous places.

Got through the St. George Canon safely today. The river is swift & runs between rocky walls, with a couple of rocky islands in the middle. The stream generally is rapid & rapids frequent & often requiring some judgment in the skidman & pass them safely. Rain commenced in the afternoon, & continued to fall during the evening while we camped on the W. bank.

Oct-19. Leave Camp 7:55 & proceed down stream, but against a very strong South wind. Stop for lunch 11:50 Am. at Indian village at Mouth of Blackwater R. Start again 1:20 Pm. the wind now very violent & continued noise of trees crashing down in the woods. Had a rough time coming down a heavy rapid above the mouth of the Blackwater, the wind very strong & squally & raising a heavy short sea. Air full of flying spray, & while coasting along a cliff a large tree blown over above & only prevented by some smaller trees from coming down on top of us in the Canoe. Camp 4:55 on the E. bank.

Oct 20. Start 7:50 Am. in steady rain which began at daylight. Camp just above the Cottonwood Canon which ran through the forest this morning & not found very rough, though the cliffs at the sides of the river are more abrupt, & the valley more canon like than the St. George Canon. Found a large party of Chinamen 'prospecting' just below the Canon. Distance from Canon to Dueselle said to be 18 m. but seems to be considerably less, as we arrived at

Zuesmelle at 10:55 Am. Found all letters for me
have been sent on to Blackwater Depot, & must
wait till they come back from there. Got dinner at the
Hotel, & camped in Mr. Robinson's garden.

Oct. 21. Packing fossils & arranging camp equipment &c.
All not necessary to be left here in charge of the
C.R.S. Walked down to Zuesmelle R. & stored Mr.
Selwyn the plant & insect bed found here last summer.

Oct. 22. at Zuesmelle

Oct. 23 " "

Oct. 24. Morning went with Mr. Selwyn to see exposures
of lignite about a mile up the Zuesmelle R. Took
photographs of the Zuesmelle Bridge. Started about 1 P.M.
in steamer for Soda Creek, reaching the latter
place after dark. R

Oct. 25. Left Soda Creek in stage before dawn & reached
Bridge Creek by the dark. Had an upset on
the way, but without much damage.

In going Southward *Artemisia* first appears in
any quantity not far from Soda Creek, near Deep Cr.
Syrosia a few miles S. of Bates.

Oct. 26. To Clinton, arriving in good time.

Pinus ponderosa first observed near the Chasun not far from the southern edge of the "Green timber"

Oct. 27. Wednesday - To Lytton, a long day

Oct. 28. Lytton to Vale, arriving just at dark
The roads here very bad & showing evidence of long continued rain

Oct. 29. Started early on Str. Royal City & arrived at New Westminster before dark. Day overcast, with masses of mist among the mountains. The higher peaks heavily covered with fresh fallen snow. Saw plants of a fine Rhododendron at Hope in gardens. It is found only in one place in the mountains about 20 miles from Hope & is said to be hard to transplant.

Saw Mr W. Fisher about collecting specimens of produce for the exhibition.

Oct. 30.

Left at 8 Am. & arrived in Victoria about 3 Pm.
Stopping at Briard House

Oct. 31. Victoria. Dined with Dr Helmkin

Mon	1	"
"	2	"
"	3	"
"	4	Spent afternoon & evening at Mrs Cress

Nov 5. Called on Dr Powell & saw Correspondence
referring to Exhibition matters. Went with Mr
S. to see Cowley's Collections of Shells Sea-woods!
Very heavy rain all day.

Nov 6. Interviewing Drs Carroll & Powell on
exhibition matters, & looking up things for
exhibition. Afternoon looking for fruit & called
at Mrs Cress'. Evening dined at Mrs Cress'.

Nov 7. Sunday Reading. Afternoon walked out beyond
Beacon Hill with Mr Wheeler, Evening talking to
Mr Jennings, making out list for exhibition &c.

Nov 8. Afternoon drove round with Dr Carrol
collecting specimens of fruit. News of the Cors
of the Pacific off Cape Flattery received &
causing great agitation in town, many
Victorians being on board, besides a large
number of Miners from Cassiar.

Nov 9. Went with Mr Selwyn to meet Dr Carroll &
Mrs Armstrong at fort. buildings to make
arrangements for exhibition. Afternoon, made
some calls about fruit, but without getting
anything more. Evening dined at Mrs Cress'.

Nov 10. Mr S & Wheeler left in tender for St.
Salvador at 2 P.M. Afternoon walked round
to Beacon Hill where races going on. Evening reading.

Nov 11, 12, 13. Engaged chiefly making enquiries
& arranging about articles for exhibition with
Dr Carroll.

Nov. 14. Sunday. Wet & bleak all day. Reading
writing &c. First few flakes of snow seen
today. Steamers Los Angeles & Dakota arrive
from San Francisco, & bring news that Crew of
Steph oreplus, which it appears was the vessel
in collision with the Pacific, landed at Barclay
Sound.

Nov 15. Snowing all morning. Met - Dr Carroll
& made arrangements for various
exhibits. Evenly tested some specimens of ore,
reading.

Nov 16. Heavy Snow & storm. Engaged with
exhibition matters. Passed evening at Walkers.

Nov 17. Exhibition business. Called on Mr Armstrong.
Evening at Mr Depante, getting back to hotel quite
late.

Nov 18. Exhibition business. Interview with Dr Powell
& Kelly. P.M. Engaged making tracing of Zaltayan S. County
in C.P.R. S. office. Wrote Mr Selwyn giving account
of work. Evening revising plant list in report. Snowing.

Nov 19. Packing & moving from Board House to
Mrs Brownans.

Nov 20. Called on Dr Carroll. Working at tracing in
C.P.S. Office.

Nov 21. Sunday Reading &c. Rain during the night
has cleared nearly all the snow away. The ground having
been covered for about a week.

Gold discovered on Frazer 1858. Depos in California
much persecuted & talks of passage of law excluding them
from the state. Combined & chartered ship to come to
Vancouver Isd. to form a settlement. Capt _____ of the
ship on arriving at Victoria heard of discovery of gold on the
Frazer, & purchased the specimen brought down & a small one -
added a quantity of gold dust already in his possession,
& put the whole in a bottle. On return to San Francisco
took measures to spread reports of discovery in every way,
to produce a rush. Posted placards &c stating that gold could
be seen on board the ship, & showed the bottle specimen.
Great furor arose, all sorts of people packed up from Victoria,
sold property & cleared out. Land property in S.F. greatly
declined. Ship of the ship sailed for Victoria crowded.
Discovery early in Spring, & by midsummer estimated
that 10,000 people camped on site of Victoria, where had
been formerly only one or 2 hundred & a H.B. post.
Dismay of H.B. Coy. Menus congregated at Victoria &
could not get over to Frazer. Hundreds of shiffs being built
along the shore. In Aug. reaction set in & most returned
to S.F. without getting further than Victoria. Many got up the
Frazer too late, while others got good pay.

Nov 22. Working at tracing in C.P.R. office.
Called on Mr. Armstrong on business
connected with exhibition. Wrote home M.P.

Nov 23. Saw Dr. Carroll & called on a number
of people about exhibits. Working some time
at maps in C.P.R. office. Walked round by
Beacon Hill & mouth of Harbour. Evening reading
sky clear with hard frost tonight.

Nov 24 Finished map at C.P.R. office. Saw a
number of specimens from W. Hornathes which
Mr. Fiedemann had brought away. Beside granite &
the rocks like those bearing fossils on Tathayoco I. seem
to be represented. Mr. F. is confident of existence of them
on Hornathes, though I did not see the specimens.

Nov 25. On business connected with exhibition. Writing
home & Poted corrected plant list to J.W.D. & photos
of Indrains to Selwyn. Specimens of tops & received
from Anderson at Saanich.
Went on board steamer Enterprise, which starts
at 7 AM. for New Westminster.

Nov 26. Sailed at 9 AM. for New Westminster. Air
cold & clear though sky overcast. Islands snow-cled
& a splendid view of the distant mountains of
the Cascade Range in the vicinity of Burrards
Inlet & How's Sound. Captain afraid that the
Fraser R. frozen, but found it all clear. Arrived
at Westminster about 3 PM. Fine about 6 inches

of wet snow on the ground, & good sleighing.
Called on Fisher & arranged about exhibits.

27. Started by Stage for Burrards Inlet at 9 Am.
Stage on open three seated sleigh, with a pair of horses.
Occupants besides self & driver, two Chinamen &
a Kootchanan. Sky lowering & heavy with occasionally
a few flakes of snow. Woods full of snow & every
branch & twig heavy with soft flakes. After leaving
New Westminster a few hills get beyond area
decided for firewood as by fire, & enter the primeval
woods. Country between Fraser R & Burrards
Inlet undulating or even hilly but not high.
Soil yellowish, sandy & gravelly, though open
probably pretty rich, though the great size & thickness
of trees renders clearing well nigh impossible.
Arrive at Mack's about 11. A set of glooms with a
few outbuildings. Here embarked on a diminutive
ferry steamer, & soon got across to Woodyville
the site of Woody & Neilson's Mill, on the N. side
water perfectly calm, sky cloudy, & the woods &
hills soft-pearly grey.
"The Mill" is of course the centre & raison d'etre
of the village which is a straggling little place.
The houses perched on the front of a steep bank &
forming a broken line along it. Here as everywhere in
this country a very mixed assemblage of people.
While Europeans or at least whites fill the
responsible posts, Indians (Squamish) Chinamen,
negroes & mulattoes & half breeds & mongrels of
every pedigree abound. Many of the lumbermen were
originally from the lower Provinces.

The mill on a large scale & well appointed.

A pair of large Circular saws, & a large gang saw, besides a small Circular saw with long traversing table for cutting up the large planks, & others for cutting boards into lengths &c. Five planing machines, Mill driven by steam, but water power primarily used & still available often employed to drive planers when other machinery standing. The logs are very large & pure, & run up to about 80 inches. Logs larger than these are not brought to the mill, or are just split by dynamite, as it is not practicable to have circular saws much larger than those in use, the plates being apt to "buckle".

A log hauled up out of the boom into the mill, is first rolled by means of hooks & chains & friction gearing overhead, onto a travelling cradle. There arranged in position & wedged up, & then run through the saws. Outer flap taken off & rejected, then two or three planks, Log then turned on the flattened side & again run through & perhaps turned yet again after a few boards have been taken off, so as to manage to get the greatest possible quantity of clean lumber from the outside. Log advanced thru each cut by a pair of screws worked each by a man, distance regulated by character of log & sort of lumber required.

"Mary Ann Wilson" Capt. Stoddart loading at wharf - went on board with her N. in the evening & spent an hour or two.

Nov 28. Heavy snow during the night & all day, increasing that already on the ground to over 12 inches.

Service in the Reading room - a very creditable institution kept up by the men - by a Mrs Derrick Methodist. Attendance rather scanty. Reading & Talking. Snow succeeded by rain about dark.

29. Heavy cold rain all night & till about 2 P.M. turning the snow to slush but scarcely renewing any bit. Well not working. Contrived the method of killing fish by Dynamite.

Cartridge fished with fuse & after being fired thrown off wharf. Explosion dull heavy sound but not much commotion of water, immediately followed by the appearance of thousands of herring & other small fish jumping above the surface. Not in the immediate vicinity of the discharge but in a circle surrounding it & as if trying to escape from it. In a few minutes hundreds of dead fish begin slowly to rise to the surface & can be secured from a boat.

See Man Called Triss a fisherman. Tells me that Verillia found in great abundance only in English Bay Burrard Inlet, but also seen occasionally in suitable localities in Howe Sound & elsewhere. Effects muddy bottom & the "bull" firmly rooted in the mud. In fishing for Dog fish a long line with smaller lines depending from it, set out. Dog fish when hooked in trying to escape twists the lines round the Verillia which is thus pulled up. Found upon

ten to forty fathoms, & perhaps deeper.
Tells me also of existence of beautiful trumpet-
shaped sponges from How's Sound, & of a branching
Hydrozoan, like poulain in texture, near the N. end
of Texada Island.

Told that three kinds of bears found in the vicinity
of the Julet. Common Black Cinnamon, &
black with a white spot on the breast. Latter said to
be as large & fierce as the Cinnamon. First not in
this part of the Cascades though said to come to the
Coast further north. Cinnamon not found here,
though common south of the Fraser & on Vancouver
Island. Black-tailed deer very abundant.
Mountain goat common on the hills, but only
in very severe weather known to come down on
the flats. Said to try to keep just at the
snow-line, & thus in summer in the highest &
most inaccessible parts of the range.

30 Rain & Slush.

31 Rain & Slush "Blasting for fish" with
Capt Stoddart

Dec 1. Morning warm & though still much
snow looked more promising. Soon began to
rain however & continued with little intermission
all day. Took the ferry steamer & crossed to the
Hastings Mill. Saw Capt Raymond the manager &
inspected the mill, which is not much different
from Moody & Nelsons, but not quite so well

appointed & having a poorer engine. Houses &
Offices forming a little village clustered about. Ships
Spars made more a specialty here & many
exported. About half a mile from the mill is the
village of Sawville or "Gas town" as it is more
popularly called. Taverns & Saloons not allowed
about the mills are concentrated here for the
convenience of the hands.

Sandstone occurs all along the shore here, & in
False Creek opposite in thin seams exists! The sandstone
seen by me soft, greenish, coarse, & micaceous
with impressions of sticks & traces of carbon. Locality
prevented any ~~full~~ examination of the coast.

A boarney several hundred feet deep formerly
made at Sawville.

Visited Indians near Moody's mill (Squamish) &
bought a foot wool blanket, with yarn & a
specimen of diatomaceous earth used in twisting the
strand. Wool said the rolled into yarn on the
bare knee with the hand & aid of this earth. Balled
up. Frame used in weaving a simple square of
four sticks, & the process of weaving might better
be called plaiting.

Told that the Indian women not infrequently
commit suicide by hanging, or choking by a cord,
on slight occasions & often very determined.
Also that though Indians on this coast do not
take scalps they are superstitious about letting
anyone get a fragment, however small of their
hair. Thinking apparently that its possession
gives ~~to~~ a supernatural power over the
looser.

Evening on board the Mary Ann Wilson.

Dec 2. A steady downpour of rain all day.
Again gave up intention of going to the
Logging Camp.

Dec 3. Decided to return to New Westminster
today & so obliged to make visit to Logging Camp.
Weather fortunately fine. Started at 8 AM.
with Mr Nelson on the tug "Jerk" & got to Camp
about 9:30. "Camp" rather a permanent
affair. A large stable erected for the stock &
Quails, & Horses for the men. These on the
bank above the shore. Skulking roads radiating
back into the woods in all directions for
several miles. Roads well made, & wide
haikes often cut through & no more bridged
to get water unimpaired - of grade. Cross
pieces imbedded in the road at intervals,
& notched in the centre. Often tacked to logs,
which rests on the cross pieces. Man going
before with brush & smearing them with
dog-fish oil to make the logs run easily.
Trees when felled ~~at~~ first deprived of bark
by chopping. Then sawn up into lengths by
Chain saw.

Truly magnificent woods. Chiefly of Douglas fir,
but also gigantic Cedars & undergrowth of
Yew maples & Sycamores & moss hanging yards
long from the lower branches, & the long straight
clean trunks of the Douglas fir stretching up
fifty or a hundred feet without a branch.
The age of the larger pines is very great - often
I think over 400 or 500 years. Told that in there

old woods no traces of former fires. Thought
however that remains of former forest growths.
Increase of trees at first seems very rapid, rings of
growth being from $\frac{1}{3}$ to $\frac{1}{2}$ inch. Afterwards very
thin fine almost like sheets of paper. Seems question
as to how far this very rapid growth can be
accounted for or by potting of young trees springing
up to replace others fallen by natural decay in
old forests. Would be better explained by supposing
that all came up together when not overshadowed
by larger growth. Seems an interesting question
whether trees ~~may~~ ^{may} not have sprung up on land
recently ~~considered~~ elevated. Might the ages of trees
at like elevations along the coast tally?

Saw the tree selected originally to send to the exhibition
as a spar, now cut up. Selected a tree for section
& plank &c. & arranged with Colterell, the foreman
for specimens of woods &c.

Back to the Mill in a canoe propelled by ourselves & a
Cary Indian, arriving just in time to catch the
ferry to Mack's. Travelled in to Westminter on wharf
through slush & water.

Saw Fisher Dr. Truax &c.

Dec 4. Started at 7 Am. in Steamer Enterprise
for Victoria. Day fine throughout though rather blustery
& giving the old Steamer quite a tossing in rounding
the point into the Harbour. Arrived about 3 Pm.
The town in a ferment of excitement about the Memorandum
of the Canadian Government virtually abandoning
the Island Railway & offering \$750,000. &c. in lieu.

Got letters & papers. Worked up & 2.

Decr 5. Cloudy & overcast with raw cold wind.
Rain commencing about 1 P.M. Saw Dr. Carroll.
Reading & writing.

Decr 6. Engaged all day calling on promised
contributors to exhibition & writing notes to
others. Wrote Fisher, Robertson (Linnell) & Swing (Nov.)
& i. Wrote to Selwyn a short note promising particulars
on Friday. Weather fine.

Decr 7. Rain all day. On business connected
with exhibition all day. Evening painted reading
Sprouts scenes in Savage's life.

Decr 8. Cleared up for an hour or two before dark
— Gardening about all day on business connected
with exhibition. Evening writing out list of
exhibits & estimating space required.

Decr 9. Saw Dr. Carroll & as he leaves tomorrow
for Ottawa got remaining money on exhibition
Acct. turned over (790 odd dollars) got
Macanus plants looked up & taken &
newsheads & he packed. Made several
business calls & wrote to Cotterell & Hughes
about lumber specimens. Wrote descriptions
of *P. ponderosa* & *latifolia* for Barnard's Atlas
in Upper Country & procure one specimen of

Wrote Selwyn. Prof. H. Peet Jones, & a long letter to
Foster. Day cloudy & cold but without rain.

Decr 10. Got Macaous plants packed, addressed, &
sent off. Got Consular certificate for them.
Saw Sr Carroll off.

Afternoon began examination of rocks of this
neighbourhood at Beaver Hill Park.
Evening reading.

Decr 11. Money. Had agreed to visit Messrs Spence
& Nathan to make excursion to dredge & in
harbour. Letter however altogether too business.
Call at Mechanics Inst. & pay \$100 as
monthly subscription to the library. Afternoon
examining the store N. of Clover Pt. till dark.
Evening reading. Day fine!

Decr 12 Reading Lord's Naturalist in B.E. all day.
Day overcast & showery.

Decr. 13. Got Foster's packages sent over by Mr. Intermine,
taken from wharf up to Miner heads. Also collected
there various other exhibits for packing. Visit from Dr.
Solmie. P.M. Examining the coast N. of yellow Pt.
Day fine

Decr. 14. Met Mr Spence & went with him to the Beaver Park
in the harbour. Descended in his shaft & saw the work
P.M. Examining rocks near Foul Bay. Evng. reading
a fine clear & warm day.

Decr. 15. Calls connected with exhibition.

P.M. at office plotting geological work &c

Decr 16. Morning got boxes from Foster N. West-
minster, boxes of specimens from Barnard &c.
Took exhibition goods to Newstead. Geol.
Specimens office. Afternoon tracing maps
of Victoria. Letters from Selwyn,
Macoun, & home this evening. Called on
Jimmy's & went with him & others to the
Theatre.

Decr 17. On business connected with exhibition
& making envelopes. Packing print-
from Dr. Irwin N. Westminster & Anderson
Saarich. Also other specimens.
Evng. reading.

Decr 18. Packing boxes of specimens & addressing them
Afternoon writing at office. Saw Capt. Holmes of
'Manda' last evening, left staff from Horse Shoe Bay.

Decr 19. Sunday. Took a walk up to the Sarge,
the day being fine but roads remarkably muddy.
Saw the skeletons of shells & wooden debris in some
places on the shores of this arm. Afternoon & evening
writing.

Decr 20. Morning writing & on exhibition
business saw Miss Nelson & the Capt. of the
'Beaver' they about getting specimens across from Barnard
Islet &c. Afternoon writing at office. Posted
letters to Selwyn, Macoun, Meredith in answer to

his communication as to last of printing Monday
Commission report. Anna, Foster, Mrs Reid
Zueschke & I. Every writing & reading. Day overcast
but with little rain.

Decr 21. Called on Mr Charles food to get information
on out put of gold from Province for Mr Selwyn. Unpacking
boxes of specimens at office & arranging them. Every
reading Vancouver's Voyages. Morning warm & overcast.
About 1 P.M. heavy fall came on with much rain.
Lasted nearly all night.

Decr 22. At office comparing statistics of gold produce
& collecting specimens. Walked out Fort St. met
Judge Case, called at Departs but found all out.
Every reading. Day moderately fine but I saw
every where rain. Shops & especially butcher's stalls
now wear a Christmas aspect.

Decr 23. Day fine though cold & windy. Morning &
afternoon continuing examination of rocks along the
coast from Ogden Pt inwards.

Decr 24. Morning making calls & enquiries in connection
with exhibition. Afternoon labeling specimens & writing
at office. Every reading Vancouver's Voyages.
Day cold & overcast with occasional showers of
sleet.

Decr 25 - Fine, & frost, for Christmas day, with
a few skins of frozen sleet or snow on the
ground. Morning reading. Afternoon walked to
Esquimault & back. Evening dined at Dr
Helmick's with Marcus Smith, Jennings Gansley,
& Mr Nathan. Got home between 2 1/2 & 1.

Decr 26 Sunday Morning reading. Afternoon finishing
some sketches, & for a short walk. Evening reading
& writing. Day cold, Hazy & snowing slightly.
Very unpleasant. Finished Vancouver.

Decr 27. Made various Calls in Connection with
Exhibition & question as to export of gold from Province.
Afternoon tracing Map in C.P.R. S. D. offices. Evening reading.
Hawing & stormy all the morning. Blowing a gale with heavy
rain afternoon & evening.

Decr 28 At office all day labeling & arranging specimens
& microscopic examination of some tropical corals &
steady down pour of rain. Evg. reading & writing
to William.

Decr 29 Day fine, clear, & for the season warm, but with
a strong S.W. wind. Started about 10:30 for Foul Bay &
examined the coast line to Oak Bay, returning at
5:45. Took lunch on the shore. A very heavy sea
running in on Foul Point. Evening reading!

Dec 30. At five o'clock & afternoon. Getting work on
map & writing up notes. Heavy overcast, chilly &
dark afternoon rain. Very rain & heavy storm of
wind. Got great mail of papers, periodicals &
& Xmas presents from Howe.

Dec 31. Spar arrived from ~~Harbin~~ Horse Shoe Bay
Called on Mr Rhodes as to shipping to San Francisco
via St. Panama. He objects to taking the stick.
Arranged to see Captain of steamer on Monday morning.
Called on Capt. Payne & Mr. Arceuthony as to
getting spars out from England. Mr Silvery
having thrown the matter back on our hands. Called
on Mr Good & Wells Fargo & Co about gold
export of country. Paying other calls connected
with Whitcham & at work tracing a map in
the C.P.R.S. Office. Evening reading.
Day remarkable, torrents grain raised by ellet
& heavy wind. Letters from Howe.

Jan 1. 1876. Morning packing various plants,
Mr Jennings taking Kival offered to take them
with him to Canada. Tracing map. Afternoon
made a few calls with Mr Jennings.
Evening reading & writing. Day moderately fine
throughout, & many callers in the streets.

Jan 2. Writing letters, reading, & for a
short walk. Day overcast but not
raining.

Jan 3. Enjoyed all day on business
connected with exhibition. Writing calls
& ~~visiting~~ Various people. Messrs
Camber, Jennings Harris & Co. leave by
steamer today. Evening reading. A few
storms but on the whole fine. Paid cheques
for Soley accounts to \$582 35/100 to credit in Bank

Jan 4. A fine & warm day. Out from 10.20
till nearly 6 pm. Examining the coast from
out bay to Cadboro Bay. Evening visited Dr Walker.

Jan 5. At office morning & afternoon arranging
specimens, writing &c. Evening at library
& reading. Wrote to Rawson, Esquimaux, & Bell.
Day stormy, very blustery but fine.

Jan 6. Unpacking specimens & writing letters. Evening
reading, & writing home. Got letter from mother.

Jan 7. Examining minerals & ores with blowpipe, at
office. Evening reading at home & at library.
A splendid clear & calm day. rather fine night day.

Jan 8. A fine day. Examining minerals and blowpipe
& arranging sections including ~~plates~~ used
back at museum for drawing. Evening at library
& reading at home.

Jan 9 Sunday. Reading Prescotts hist. of Mex. of
Mexico all day some during P.M. when for a walk.
Hunting up a fault which I suppose to run from
out of Bay westward. Found gap in School ridge in
its course. Johnston St-Rovine nearly in a line with
last & narrow of harbor at Hospital Pt.
A very fine day.

Jan 10. Meeting Calls in connection with
Exhibition. Afternoon at opening of the Local
Legislature, & scanning rolls on Promontory S of
James Bay. Evening reading. A fine day.

Jan 11. At office morning & afternoon, drawing
sections of beds at Lucerne, & writing accompanying
description. Even at concert in aid of Ref. Episc.
Church. A very fine day.

Jan 12. Enjoyed at office copying sketch of Nazco R
terraces, & writing. Evening reading. Day overcast.

Jan 13. Arranging about landing sections of beds
from Bernard Dublet. Have come over in a snow, &
from sea, some difficult - as to getting onto my
wharf. The Rhodes agrees to let them lie in his store
till ready for shipment. Got fold statement from
Wattaya & Co. Photographs from Spencer & P.M. Made
several calls & then attended for a short time at
the Home. Wrote to Foster & Woody & Nelson, sending them
checks for their acct. Evng. reading.
discovered ~~clay~~ in clay pan well near head of James Bay.

Jan 14. Packing fossils & for Montreal.
reducing sketch of Mary's & dips - wounds.
eng reading.

Jan 15. Arranging & packing plants & fossils
for Montreal & Quebec. Drawing Blackwater
R terraces. A fine & warm day but overcast.
W. to opera which proved rather poor. Reading
Reynolds & Cyprus dry-plats. My port Charts of
Coast, & Nicholson's Zoology.

Jan 16. Sunday. Wrote some letters, reading &
afternoon took walk on W side Barbours. Eng.
reading & investigating conditions of dry
plats received from Montreal. Bot appears to
have been opened, & sandest also damp.

Jan 17. Packing both at office. Called on Mrs. Rodney Sproul
& on exhibition business chiefly with regard to the
flag-staff. Finished drawing of Blackwater Terraces.
eng reading. A fine day.

Jan 18. Fox-boxes hooked up, addressed & taken to
express office. Made arrangements for
shipment of flag-staff writing note to Prof. Secy.
& getting him to write to Mr. Consul in San
Francisco to get it attended to there. Found virtually

When every thing ready that Mr Rhodes declines taking it - this trip. Having telegraphed to the Capt - of the Parana now on the Sound. Only vessel that can be assigned that the steamer a little behind her time. Duvall's day got lost another fortnight, & perhaps the loss of an opportunity at San Francisco. Evening reading & writing to Mr Selwyn & home.

Jan 19. At office drawing map grants up the Chilkoot R.

Snow making up continual act & reading. Heavy fall of snow last night, & occasional showers during the day. Ground covered with slush. Lowering & overcast.

Jan 20. At office drawing map of Chilkoot R. Snow ready, & wrote note to Maclean Port estimate of gold report to Mr Selwyn. A very fine day but cold & windy. Snow frozen on the ground.

Jan 21. A fine clear frosty day. Morning called at bank with pass. books to have it made up & found that cheques put to Credit on Jan 3 could not be heard of & were not on bank books. After inquiry it was found that they had been sent to Montreal & were mentioned in the letter book but had been otherwise forgotten. Made two or three calls on exhibition water & wrote notes to Dunster & Bosconny.

Afternoon drawing & listening to debate in the
House on the Railway resolutions. Very ready
Managers & others of Pacific States.

Jan 22. At open drawing. Telegraphed to
Selwyn asking if spar shall be sent after
delay it has experienced. Got letter from home
dry fine & clear, skating on on ponds. Eng.
reading.

Jan 23. Sunday. Morning reading. Afternoon for a
walk. Eng. reading & writing. Dry fine & clear
with cold north wind. Noticed many robins &
Finches (*Junco hyemalis*?) here still though the
last severe winter it experienced the winter &
covered in the snow on the ground. Finches generally
grey & dull colour. Heads black. Male with redish
brown colour on back & neck & grey band on the front
part of shoulder. Bill white.

Jan 24. At open drawing & plotting maps. Went to
the debate at House for a little while. Eng.
writing home & to Ward (Kewick) reading.
Dry clear & fine, thawing in the Sun.

Jan 25. Morning at open drawing map. Afternoon
listening to debate in House on finance. Walked through
dipnet by 2 votes. Eng. reading & looking over Nations.

Jan 26. Drawing map. Henry & Herman
writing letters. Eng. looking over first stopper
Circulars & reading. A fine day showing a mild.

Jan 27. At office drawing map. packed & sent
off specimens of Coruifers to Ryglemann & drift-
shells to Selwyn. wrote various letters & made
calls on exhibition business. Got letters from
Selwyn & Burgers.
Evening reading & going over first stopper circulars.

Observed today curious crust or coating on Coals & back
bricks of grate at office. Examined it & have I think
found that volatilized zinc oxide, produced from
some zinc compound which must be present in
small quantities in the coal.

Remember observing similar coating in Piton caused
coal from New Glasgow mines. Collected sample
of flux - dust - but did not examine it.

Jan 28. At Carpenter's arranging about packing
of specimens of woods &c. at office drawing. evening
about map & at C.P.S. office. Evening first stopper
Circulars & reading.

Min. Herman this morning marked 120 but
clouded over & temperature rose. Showy misty day
& now mild & wet.

Jan 29. At office working at maps.
afternoon walk about Beacon Hill.
Evening reading & S.
Day broken & stormy with strong wind

Jan 30. Morning reading. Afternoon for a walk &
reading. Even arranged for stopper for wheels
& reading. Set old concert, & with shows of
Lain & 1st show. Mail steamer arrives
this morning but mail not delivered.

Jan 31. At office mapping geology. Wrote your
Catalogue of Exhibits. Wrote letters & S.
Letter from home.

Feb 1. At office writing & examining rocks & S
with microscope
Wrote writing on for stopper. reading.
Day fine but windy.

Feb 2. Morning at office writing Report. Also
at Custom House with letters of various
reports & reports for Exhibits Catalogue.
Afternoon arranged about packing of boxes, &
shipment of flap-staff. Wrote letters for mail & S.
Asked to see collection to the Museum East.
Day fine though rather dark.

Feb 3. Preparing letters on port. Called on Mr Rhodes to try to get the flag-staff up, but again met with nothing but baffles. Mr R. referred the matter to Capt Seyburn of the Panama who at the same time a very apparent prejudice against the flag-staff. Capt S. after hurriedly advising Mr R. meanwhile trying to prove that the flag-staff would be late that it would be broken in taking on board &c - finally said he could not take it. Too heavy for hurricane deck, could not get on main deck because of stanchions &c. This after though Mr R. on a former occasion I had been told that there was no difficulty about taking the spar; & had not made any effort to get some sailors & crew from Panama or elsewhere to take it on board, on that understanding.

~~Mr~~ Very annoying & met with persistent obstruction when there is every reason why all possible assistance should be given.

Officer at Office writing.

Every weekly passenger letter.

Feb 4. At Office writing passenger reports. Also writing Report. Eng. reading. Day fine, though blustery & with rain about 5 P.M. After passenger letters.

Feb 5. At Office writing report. Long short-walk. Every reading.

Feb. 6. Reading & for a walk. Very ready & writing home & William. Day fine.

Feb. 7. Snowing & blowing heavily all day. At office writing report. Very ready & writing. Got letters from Ann & William.

Feb. 8. Fine outside but extremely slushy & stormy. At office writing report. Every sketching out - ledgers on general period & reading.

Feb. 9. Mary engaged making calls & arrangements about exhibits. Afternoon writing report at office. Saw Mr. Humphreys. Very writing & sketching. gave Barnard papers on exhibits & Sec. Inv. papers.

Feb. 10. At office writing report Mary & afternoon. Very copying out first paper paper, & reading. Day very windy with occasional snows. Wrote letter to J. S. Allen. Saw & wrote to S. J.

Feb. 11. Writing memo exhibits for Humphreys. on outside exhibition business. Ran - going over specimens & maps with Toddman. Very first paper circulars.

Feb 12. Writing at office am & pm. Sooy
addressing first stopper circulars.
Ran all day.

Feb 13. Reading & Sooy dined at Walker's
— out all day.

Feb 14. Writing report at office. Called on various
people in Exhibition & back at office writing.
Was reading & closing first stopper paper. Stoney be-
chuffy fair.
Steamer Panama arrived yesterday but ~~no~~
mail or newspapers. Letter from
Jerdon of 15. Pacific this p.m.

Feb 16. Went to Messer's works about ² specimens of
Coke. Sent express boxes for this & other articles.
Writing report at office. Sooy writing out
Catalogue exhibits.
Afternoon lull.

Feb 17. Making arrangements for shipment of
specimens. Ran. Writing letters, & on other
exhibition business.
Sooy writing letters, finishing Catalogue &c.

Feb 18. Packed all morning seeing to shipment
of specimens. Tender left with them &
passengers for S Panama at noon.
Mailed all first stopper circulars & letters.
Pen. writing report at office.
Evening reading. Day fine & warm.

Feb 19. Writing out fair copy report - all
day & part of evening. Reading &c.

Feb 20 Sunday. Morning reading &c. Afternoon
in a walk. Low tide & many pools in
rocks bare. Observed what appear to be three
or four different sponges. 1. bright yellow or
green, low convexity with scattered raised
oscules. 2. Very similar but pale purple, sometimes
faded to whitish, but never appearing yellow
or green. Gel shape & habit so similar that they
be different stages. 3. yellowish compact &
fimbriae like other sponges. 4
like the first in shell but spots bright
scarlet. Apparently of any size.
Evening writing & reading.
Morning sketch went. Afternoon fine but
mist & dull.

Feb 21. Sorry over report all day. Going
for a walk & reading. Great excitement
over the result of election & return of Elliot
over Duck by great majority. Result known
about 6 pm. & afterwards grand torchlight
procession formed, hand & L & all the ways
with town out. Received telegram from Paramount
Party Thayer today saying that exhibition articles should
be sent. Wrote acknowledging

Feb. 22. Overhauling report morning & afternoon
Evening reading. A splendid day almost
oppositely warm & bright & fine
General reading from election sentiment in town.

Feb 23. Working on report 22. Wet all day
writing out lecture

Feb 24. A fine day but stormy. Writing out
lecture on Ice age for next Monday. Mailed
Report & three specimens of ~~water~~ grain. Wrote
Mr Selwyn. Evening at party at Judge Cross'
fellow back at 1:40 Am. Letter from home.

at work
on diagrams
for lecture

Feb. 25. Writing lecture. Seeing Mr Carpenter at
work on slab of yellow cypress. By.
Reading & writing. Day fine but chilly
Last two nights pops cracking noisily.
Wild geese beginning to be seen. Willows
Cattkins budding out.

Feb 26. Lumbering lecture. Looking after
packing of things for exhibition. P.M.
Geologically. Completed survey of James Bay
Point - a road by James' Bay & the coast
to Rhodes' Wharf. Found a limestone bed
at water edge near the latter place. Day fine.

Feb 27. Morning reading. Afternoon for a walk.
Found shells like those already found near
James Bay in one pit of a cliff of yellow
clay west of Beacon Hill. Some forms
represented. Occur sparsely & irregularly
in hard sandy clay with gravel, shales, &
occasional large boulders, seldom evidently
glaciated. Deposit is that resting on the beautiful
glaciated rock surface & in some places
a hard yellowish clay with out stones. In one
spot this noticed the full of holes like those of
Saxicorax or Stolod, but above the present
high tide line. Some 6 inches deep, others
were away in bank to the bottom, which larger
than apertures, exposed. Can only suppose
that burrowing done before upper clay beds
formed. Very rainy & writing
Day very fine.

dark clay

Feb 28. Exhibition business. Looking over lecture.
Reading. Giving delivered lecture at 7.30 to a
fully good audience say 100. Day fine.

Feb 29. Packing up objects for exhibition at
Carpenter's shop, getting lots of objects made etc.
Pm. Continued geological observations round Rock Bay
& Esquimaux bridge.
Weather very blustry but 2. wind

March 1. Money hunting. Pm. Receipt & Storey.
Sorting out lots for notes & getting them numbered
& closed.
Pm. plotting geol. observations. Evening reading.
deposited cheque in bank for \$266.66 by
Saley to end January.

March 2. Examining rock exposures on all the
streets taking them systematically. Working
afternoon. Mr Jamieson called this evening to say
they would take the flag-staff! Now too late.
probably moved to this action by outside pressure.
Evening writing & reading. Day very fine & warm
- letters from Forde -

March 3. Making arrangements for
shipment of specimens. writing letters
to Selwyn. Cornwall &c. hot & stormy.

March 4. Closing & mailing letters. P.M. geology
in neighbourhood of Victoria. Eng. at
Mechan Inst. Reading.

March 5. Sunday. Reading, for a walk in the
afternoon. Strong test of Gale. Reading &
writing.

March 6. At work writing out observations, &
plotting field work. Wrote Hughes & Swind & wire.
Endorsing cheque to latter. Posted letter to Genl Rowe.
Very windy day.

March 7. Morning at office getting table &c. changed to
room up stairs. Reading. P.M. geology,
but driven in by weather & Evening reading.
About ~~two~~ ^{four} inches of sleet on the ground this morning,
& squally with sleet & snow in the afternoon

March 8. Went at office. Dr Folium called &:-
Looking over Anderson's map. Plan plotting field-
work. Writing. Very reading.
About two inches of snow last night. During day
nearly all went. Very high wind & frost.

March 9. Writing & reading. Call at Creases.
Wrote. P.W. &:- Very nice day fine but cold.
freezing in the shade.

March 10 Day fine but cold in the shade & with
slight a little snow on the ground. Writing &
reading. Very occupied up stairs parlors.

March 11 Dr Folium according to engagement
succeeded in mustering an Indian & help bread
with whom sent to work, & got 3 dialects of the
Quaquilla language of the N. side of the
Island & adjacent mainland. Finished about
4.30 & pretty tired. Very nice day cold, windy
& overcast.

March 12. Ready. Afternoon for a walk
with Mr. Wankuth. Followed the coast
line quite part between Ten & Specimens.
Day unsettled, hazy. with some rain.

Many Indian shell heaps along the part of
the coast. Found in them a deer horn chisel,
bone needle or awl, & barbed fish spear.

Several many prominent little points
protected by earth work like that of Beacon
Hill point. Also saw where apparently
Indian camp or village of some kind had
been. Low circular mounds, with depressed
center. Several of them near together, & from
(say) 15 to 20 feet diameter. (Doubtless bones!)

Mr. A. Bowman
called this etc.



March 13. Called on Mrs O'Reilly & got from
her a box a pair Specimen yote
Pinnac Native Fibers. At Office for a little while
A.M. at Office writing letters & - In evening.
Wrote. Selwyn. Percuss. Patent. Bally. Dunsin
Dejje, & Bryden asking Coal Specimens for
Museum. In evening Darwin. Writing. Bancroft.

March 14. At work with Dr Solmie getting
Indian Vocabularies. Evening reading
Day pleasant & dull.

March 15. Idolizing Morning & Afternoon
Evening reading. Day very unpleasant
equally with some snow. Partly clear.

March 16. With Dr Solmie at Office till
4.30 getting Indian Vocabularies. In
at Library, & reading at home. Day
Partly clear, fine, but chilly.

March 17. Wrote Selwyn. packed & sent
by express specimens of gold & silver. Could
not find Col. Lane if he promised
specimens from Omineca but have sent one
from the O'Reilly. Reading. Boy at
his fellows to dinner, Dr. Folmer being there
also.

March 18. Many porting letters & attending to
various matters of business, reading
afternoon. Evening went about Indian
Reserve. Ev. Reading.

March 19. Many reading Bancroft.
afternoon for a walk. Boy reading &
writing. Day gloomy, chilly, & wet throughout.
Said to have been a slight earthquake at
a few minutes before light this evening, but
must have been very slight as few people
felt it.

March 20 Writing & determining minerals with
the blowpipe. Evening reading. Wet day.
Letters from home.

March 21. Working with blow pipe. Numerous
Urchin shells in clay near entrance of harbour.
Eng. reading & writing out a ~~copy~~ vocabulary
for use with Indians tomorrow, the Southwestern
vocabulary having been apparently lost in some
way.

Descriptive of
Victoria drift

A fine & warm day.

The shells in clay or hard sandy clay are
evidently for the most part undisturbed. The
Cardium? having both valves & key often thin
empty. Ledas in the same state. Some got
pebbles yet show marks bases of attachment
of the ~~valve~~ small species of Polanus which
is not uncommon.

The matrix in some places a very hard sandy
clay with unity & weather stained cracks
traversing it in all directions. Little trace

Very like
some sections
found in
the plains

of bedding, with occasional large stones or
boulders, but there very seldom showing signs
of glaciation, though sometimes distinct. In other
places the deposit more sandy & gravelly & bedding
(often inclined) quite distinct. The very fine
homogeneous yellowish-weathering blue clay seen lowest
in the bank in some places ~~is~~ evidently only
a form of the same deposit. The bed in
some places very irregular & almost as though
stirred up. The granite fragments are often quite
decomposed & soft, & the shells here evidently been

partly destroyed by the action of Carbonated waters,
& are quite tender. This notwithstanding the
hard matrix & their position only a few feet
above high tide mark, showing that they must
have been left to emerge. The same action
continued a little longer would have removed
all trace of marine life, & was probably already

as completely as
seen in practice
drift, which must
have been very
long exposed in
most places

destroyed any mammalian remains that may
have been included. Large boulders are
scattered throughout but are more abundant
toward the top of the deposit, which is generally
capped by a layer of sand, gravel & boulders
much coarser than the rest, & probably in part
at least due to rearrangement along a coast
line. In some places as in a ditch in Cook Street
the characteristic Cardium? occurs almost imme-
diately below the black surface soil & in others,
near the shore, the lowest layers of the Indian
heaps of shells & turned stones coincide with the
lowest of the black earth. Showing apparently (as
I have not yet found the shell beds far from the
shore) that the last elevation pretty sudden to
about the modern level of the coast. That
formation of black soil from vegetable mould
began, & that at same time first inhabitants
took possession.

The drift deposits resting on the perfectly polished &
striated rock surfaces, (surfaces striated in such a
way as to manifestly glacial action) & ul-
tending shells, would seem to imply the
gradual retreat of a glacial foot which

had packed into the sea, & that some species of molluscs followed it pretty close as it went. The ~~same~~ Mounds from Beacon Hill, & those kept on the N.E. side of Spring Ridge, behind the town, & well exposed in an old gravel quarry there (see Geol. notes) are probably ~~rather~~ referable to the coarser & arranged surface layers already spoken of. They may be in part old terraces & lateral moraines ~~now~~ left at different stages of retreat, but are now shaped the deposit of stranding ice modified by currents. The materials are coarse sand & gravel with many layers & small boulders. The largest boulders high up, but filled in between with smaller stuff, & often almost entirely covered up & concealed by it as though, the sea were still continuing, the supply of ice capable of transporting large blocks had failed.

(For sketch of drift-deposits resting directly on glaciated rocks see Geol. note Book.)

There does not seem to be any very distinct line between the different characters of deposit, though in hollows (though blue clay seems nearly always to occur on the rock, or separated from it) a thin layer of "dirt" & gravel. The general tendency seems to be to increase in coarseness upwards. Perhaps deepening water till near the last allowing ice of greater barthen to float over the country.

April 22. At office Jolly Indian Vocabulary
Afternoon examining rocks about
of den Point, & collecting marine
animals & along the beach. Day fine &
warm.

April 23. Heard that steamer had arrived
from Burrard Inlet & on going to wharf
found that some but not all specimens
had arrived. Found also letters from
Glassey & specimens of grain from
Kamloops &c. Got all taken up to
Carpenter's Shop. Wrote notes. Packed
Silver specimens to send by post. Afternoon
collected willows & other plants. Willows
now in full bloom. Red flowering
current - trying to come out. Caught the
frog & got various other specimens.
Made inventory of Glassey's specimens &
sent with note to Selwyn.
Went at concert in aid of St. Andrews
Church.

April 24. Morning geology. Afternoon
plotting geological work. Writing &c.
Evening reading & writing.
Day fine.

April 25. Many writings & observing alpine
sun. Afternoon looked for fossils in
rocks of Foul Bay - unsuccessful
collected a few flowers. Many readings.
Day unpleasant, cold with snow
flurries & high wind

Observed first dactylions in flower today.
Not yet very abundant here, & said to have been
introduced about three years ago only.

Received telegram from Shryer asking of local
sort. will reply out of gold model.

April 26. Many readings. Afternoon walked out
to Cedar Hill or Mt. Drylers with Mr. Keith,
ascended it, & returned by 5.50. Walk about
ten miles. View magnificent. Day fine though
a few flakes of snow in the morning, & chilly &
windy.

Found several species of flowering plants, all strange
to me, & all very small. Seems to be characteristic
of earliest flowers here, & very different from
earliest in Canada in this respect.

27. Making up Centennial account & writing letters. Packing grain specimens &c. Occupied some time with Dr. Folmer getting vocabulary from Chilcotin Indian. Day mostly wet & stormy. No mail of North Pacific.

28 Day showery & overcast throughout preventing me from taking the field. Went about town attending to various business matters. Wrote Dr. Snyggmann Prof. Mason. Gave Hamilton &c. Afternoon writing out Geological notes. Evening visitors. Reading. Bought a rather remarkable Indian mask of Egyptian cast of features?

Saw an Indian woman going about the streets today with a basket of fresh-ferring spawn for sale. It was attached thickly like small shot- (but transparent & colorless) to filaments of sea weed &c. Told of Dr. Folmer that the Indians of some parts of the coast collect great quantities of the spawn at this season. This especially the case at Millbank Sound. The practice to lay spruce branches in the bottom (weighted & stowed?) & afterwards collect them with spawn attached

at low tide. The spams then carefully dried, & packed in boxes as an article of food. It comes in some quantity to Victoria at the proper seasons. How does the total of spawning agree with that of the Cerberus?

March 29. Day unsettled with occasional showers, some sleet. Very out pacing & examining rocks on the Cedar Hill Road. Afternoon out paced & examined rocks to Esquimaux - Mr. Wadsworth accompanying me. Got back after six. Eng. reading.

March 30. Attending to various business matters about town, making arrangements for packing last specimens &c. Afternoon pacing & examining rocks on Saanich Road. Came across country to the Cedar Hill Road. Eng. rather tired, reading &c. Day fine but chilly.

March 31. Morning & afternoon writing up notes &c. day somewhat & chilly with strong wind in morning. Measuring (pacer) ~~from~~ base line on Queen's Avenue connecting Cedar Hill & Saanich road work. Called back of work evening reading.

April 1. wrote lists for Cases & got Articles
numbered & packed up. Met Dr Todd
at Office & engaged Getty in Indian Vocabulary
Every reading in house & at library.

April 2 Dr Todd called again to arrangement
at 9:30. Engaged at his house all day with
three Indians Getty Vocabulary. Back again
about 9 P.M. a fine day but chilly.

April 3. got invoices for boxes & arranged for
shipment. wrote Selwyn & Perrault.
Ch. Geology on pages near Dr Todd
& Swan Lake. Every reading & writing
a very fine day. Roads dry for first time
since last autumn.

Mr Todd told me yesterday that about four
years ago, & at other times he has distinctly
seen flames issuing from Mt Baker at night.
Also that about the date above given "a shoulder"
of the Mt fell in. The flames do not come
from the top but some way down one side.

April 4. Pacing roads & laying down rock exposures
from 10 am to near 6 pm. Got road to
Barrenside Road & Dead Man's River Bridge.

Evening reading. A fine day. ^{AD}
Saw this thing in passing through the Indian
village a large quantity of Herring spawns in
process of drying. The Cedar & Spruce branches on
which it has been deposited (see former notes)
are hung up on poles like the herrings themselves.

April 5. Plotting work at Office morning &
afternoon. Very labeling specimens & reading
day fine but overcast.

April 6. Out all day measuring roads & pacing
& making exposures. Evening reading. Day fine
but overcast & windy in afternoon.
Notice Indian burial mounds or Cairns very frequently
formed of stones piled together into small mound
generally of roughly rectangular form. Often some
distance from the water & generally on some rocky
little hill, or near the base of such. Perhaps position
chosen not for any other reason than abundance
& proximity of suitable stone.
Little Shell Heaps found scattered through the woods

in all directions, about Victoria. Often
far from the shore. Formed no doubt by parties
of Indians hunting, fishing from canoes
or digging Kaimai's Root. Do not follow
any definite lines as though marking former
level of the sea, & are always so far as yet
seen very small, implying only limited occupation.
Do not begin to compare in size with the
large & regular heaps near the present shore.
Supplements very rare in Shell Heaps

Interviewed Mr Dodd at the Gorge about
the "humming fish" about which I had heard.
He tells me it is a fact, that a humming
drumming or booming noise is made by the
fish under water. Heard plainly in a boat.
He has caught the fish, & describes it as with
a large head tapering rapidly to the tail, & with
two conspicuous fins behind the head. No scales,
though head hard & body soft. Is sure of identity,
as even when out of water it touched on the
head emits sound. Hears the noise in
Summer & has noticed it only between the
Gorge & Craigflower.

April 7. Out all day geologying. Day
overcast with a few showers in the
afternoon, but mild & pleasant.

Every reading &
Saw a Humming bird today.

April 8. At work at office all day writing up
notes & arranging specimens. Very overcast
very windy & cold. Afternoon fairly fine.

The "Beaver Rock" in the middle of the
Toronto Harbour up at 4 P.M. in presence
a great crowd of spectators.

Went with Mr. Humphrey's to see his collection of
shells, which very pretty but arranged solely
for beauty in a couple of glass cases.

April 9 - Sunday Every reading. Afternoon walked
to Esplanade. Every reading & writing
Home & to Ella.

Vegetation now advancing rapidly. Red pines current
in full bloom everywhere. Parthenia?? nearly past
flowering. Earlier willows past flowering. Daisies in
bloom everywhere (The common English daisy
seen wild & not uncommon in patches in vicinity of
Victoria & Esplanade.) Saxifrage on the rocks
just about to flower. White adder's tongue in
bloom. Nipples budding out strongly on the point of
flowering. Wild Sarcocolla just about to flower.

April 10. out all day panning & cleaning rocks on Cedar Hill Road. Even returned a packer (R. Ridley) on prospect of getting to Leach R of this season. Reading. Wrote letters to Mother & Ella. A fine day.

April 11. Work at Office writing up notes, working tracing, labeling specimens, & figuring about maps of Leach River. Afternoon. Scully coast between Victoria & Squamalt, Dr Walker accompanying me. a very fine day. Even reading & writing.

April 12. Started at 10 Am. Walked to Squamalt examining part of old road on the way. all the afternoon in boat examining rocks of harbour between Victoria & Squamalt. Stage at 5 P.M. Even reading, labeling specimens & a day's rest.

April 13. Walked to Squamalt, got boat & all day examining rocks of harbour, which press nearly completed. Return to stage. Even at library & reading & in letters from Home. Present with some showers in the ^{afternoon} ~~evening~~.

~~Got in good excitement. (Mr. Thompson & another gentleman independently) that the tooth of a Mammoth or Mastodon was found on or near Cedar Hill (Mt. Douglas) on the surface, or a short distance below it at the time of the gold excitement some years since.~~

Cultus: said the one part of some fishes head!

April 14. Good Friday. Many readings
especially paper on plants, &c.
Afternoon examined rocks of ridge between
Cedar Hill Rd, & Dr. Folmer's farm.
Day fine but Hazy.

April 15. Certain various little matters. Went
to Folmer & went out with him to his
house to do some work on the Indian
vocabularies. Afternoon at office looking
out traps for expedition to Leach R.
In making other arrangements. Large mail of
newspapers by Ste. City of Panama.
Evening reading news &c.
Day fine.

April 16. Day wet throughout. Reading
& writing. Afternoon for a walk.

April 17. Making arrangements for expedition
to Leach R, & attending to other business about
town. Also writing up field notes.
Evening packing, writing & reading.
Day fine but cool.

April 11. ...
to ...
the ...

April 12. ...
to ...
the ...

April 13. ...
to ...
the ...

April 23 Left Sooke with Mr. Switzer about 9 Am. driving to "Lawrence" at Junction of Happy Valley Rd. then walking into town, arriving at 3 P.M.
Found various letters & Telegrams from Mr. Selwyn requiring we to remain in Victoria till amended instructions for seasons work reach from ~~London~~ by mail. Reading &c.

April 24 Monday at office arranging specimens &c. W. Russell came up by steamer this morning & occupied part of afternoon. In "The House" for a little while. Very reading.

April 25 - Hard at work all day writing up notes & plotting work. Discovered an error in the tracing supplied by Lands & Works Office, of Leach R. which has been confusing me a good deal.
Very reading, pressing plants &c.

April 26. At work on notes & account of Leach R. Very reading &c. wrote to Mr. Selwyn.

Ap. 27. Working on business about town. Saw Capt. Spreng go to possibility of geysering Craft &c. &c. P.M. At & about Esquimalt with Russell defining the edge of the extensive mass of lava from town. Very reading, pressing plants &c. Remitted to Beach S.F. \$34.00
A very fine day, warm & summer like

April 28 out all day geologising accompanied
by W. Russell. At Cedar Hill & Casdora
Bay. Very fine day.
Evening reading, pressing plants, at library.

April 29. Out all day geologising at Cadboro Bay
Fr. Day fine with one or two showers.
Evening reading writing up notes & washing
specimens.
Vegetation much advanced during the last
few days. Apples in full flower with
leaves well out. Wild strawberries almost
past flowering. Woods of deciduous trees
general green tint. Tulips in full flower
grass beginning to grow long in rich ground.
Fruit trees in flower.

April 30 Sunday. Morning reading arranging room &
afternoon for a walk.
Long walk & reading.
A fine summer like day.

May 1. out all day geologising. Made the circuit of
Nat. Island by the road. Evening reading & writing
up notes. Large flocks of Cranes passing northward.

May 2. out all day geologising on Saanich &
Parkside Roads. Evening went down to Squamish
on arrival of steamer. Saw Comby on
Reading. A very fine day.

May 3. Called on Curtis & got letter from Mrs
Selwyn in which I had previous telegraphic advice.
Change base of operations to Mainland in
conformity to Mr Lands news. Provisions
filled details from Quantal. To depend
for transport & supplies on C.R.R.S.
Writing up notes & writing up accounts.
At office & about town. Alluding to Veras
Watters. My weekly newspapers arrived 3
last night mail.
Day fine but overcast & chilly.

May 4. Many alluding to various houses
& Watters. Saw Mr Cambie about
plans of cooperation during the summer
earnest movements of parties, & qualities from
domy within Christian work they.
Afternoon got boat & went with Kessel up the
river & examine rocks there.
Evening reading.
Day unsettled cloudy & stormy.

May 5. At office packing up & arranging
Watters. Making out accounts &
statement of expenditure to May 1.
The "Calypso" left this evening for the
North Stocken & Cassiar, the "Vetter"
leaves tomorrow morning at 4 am.
The two steamers probably carrying over
400 men & others bound for the mines

1000 Russell leaves by the latter. Curious scene
on departure of California. Deck crowded with
men of all classes, but generally in different
stages of inebriation. Wharf black with "friends"
a bit of seeing them off. Men on board singing
lastingly & noisily, shouting & a woman
good by's, which in the unstable state of
some a dangerous operation. Lower deck
packed tightly with mules & cattle & every
inch of room long enough to lie down on
"spolter" for a bed & some one, the plan being
to tack up a playing card into the corners
across above the place appropriated.

The steamer however stormfully overcrowded, &
should not have been allowed to leave port
in the condition in which she was. People all
were a prudent - Her do count as in the case
of the Pacific.

Saturday May 6. Went with Dr. Welken
in search of shells at Shoal Bay.
Dug very wet, & returned to town pretty well
drunk at about 3 p.m. Coopers at
Shoal Bay kind enough to ask us to
lunch.
Even reading & making up accounts
of expenditure for exhibition.

Sunday May 7 Morning Reading. attending to
specimens procured yesterday. Went for a
walk... very reading, attractive beds from
that part of Washington Territory.

A very fine day.
Buds now beginning to leaf out, Hawthorns, &
alders about half leafed, pruner flowers not
yet in flower though buds showing. Populus
betulaefolia covered with young small green leaves.
Lilacs not yet in flower though buds coloured.
The ground very when covered with a carpet of
buttercups in full flower. Potatoes *R. acris*
introduced. See specimens. Also in way places
great quantities of Sarsel (*R. acetosella*) (introduced?)
in flower. Flowers falling from maple

May 8. At work all day making purchases &
arrangements for departure. Clearing
out office at Fort. Buildings &c
dry but warm

May 9. Packing &c compared Barometer with
Standard at P.R.S. office. Wrote Selwyn
Foster. Sent acct of expenditure to May 1. to
Grant. Changed all plant papers. Read a
little.
Day fine & warm.

1. The first part of the paper discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is essential for the proper management of the business and for the determination of its financial position.

2. The second part of the paper deals with the various methods of accounting, such as the cash method, the accrual method, and the cost of sales method. It discusses the advantages and disadvantages of each method and suggests the most appropriate method for different types of businesses.

3. The third part of the paper discusses the various accounts that should be maintained in the books of a business, such as the cash account, the accounts receivable account, the accounts payable account, and the inventory account. It also discusses the various methods of recording these accounts and the importance of maintaining them in a systematic and organized manner.

4. The fourth part of the paper discusses the various methods of determining the cost of sales, such as the first-in, first-out method, the last-in, first-out method, and the weighted average method. It discusses the advantages and disadvantages of each method and suggests the most appropriate method for different types of businesses.

5. The fifth part of the paper discusses the various methods of determining the profit of a business, such as the gross profit method, the operating profit method, and the net profit method. It discusses the advantages and disadvantages of each method and suggests the most appropriate method for different types of businesses.

6. The sixth part of the paper discusses the various methods of determining the value of a business, such as the liquidation value method, the going concern value method, and the fair market value method. It discusses the advantages and disadvantages of each method and suggests the most appropriate method for different types of businesses.

May.

TUESDAY, 9.

1876.

WEDNESDAY, 10.

Finalled packing & arrangements for departure. Saw a Bowman who volunteers to go with me for the summer. Arranged the matter conditionally on nothing happening during wintering time & necessitate change of plan. Dined at Crease's, got back at half past two & changed clothes, went on board Ste. Doglass turned in.

THURSDAY, 11.

Steamer started about 8 Am. but lay off mouth of harbor waiting for some missing men till about 9. Steamed all day, anchoring about sunset in Departure Bay. Very fine weather. Got a few Cests of the tow-net, & caught a number of small crustaceans &c.

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Handwritten text, possibly a list or notes, appearing as bleed-through from the back of the page.

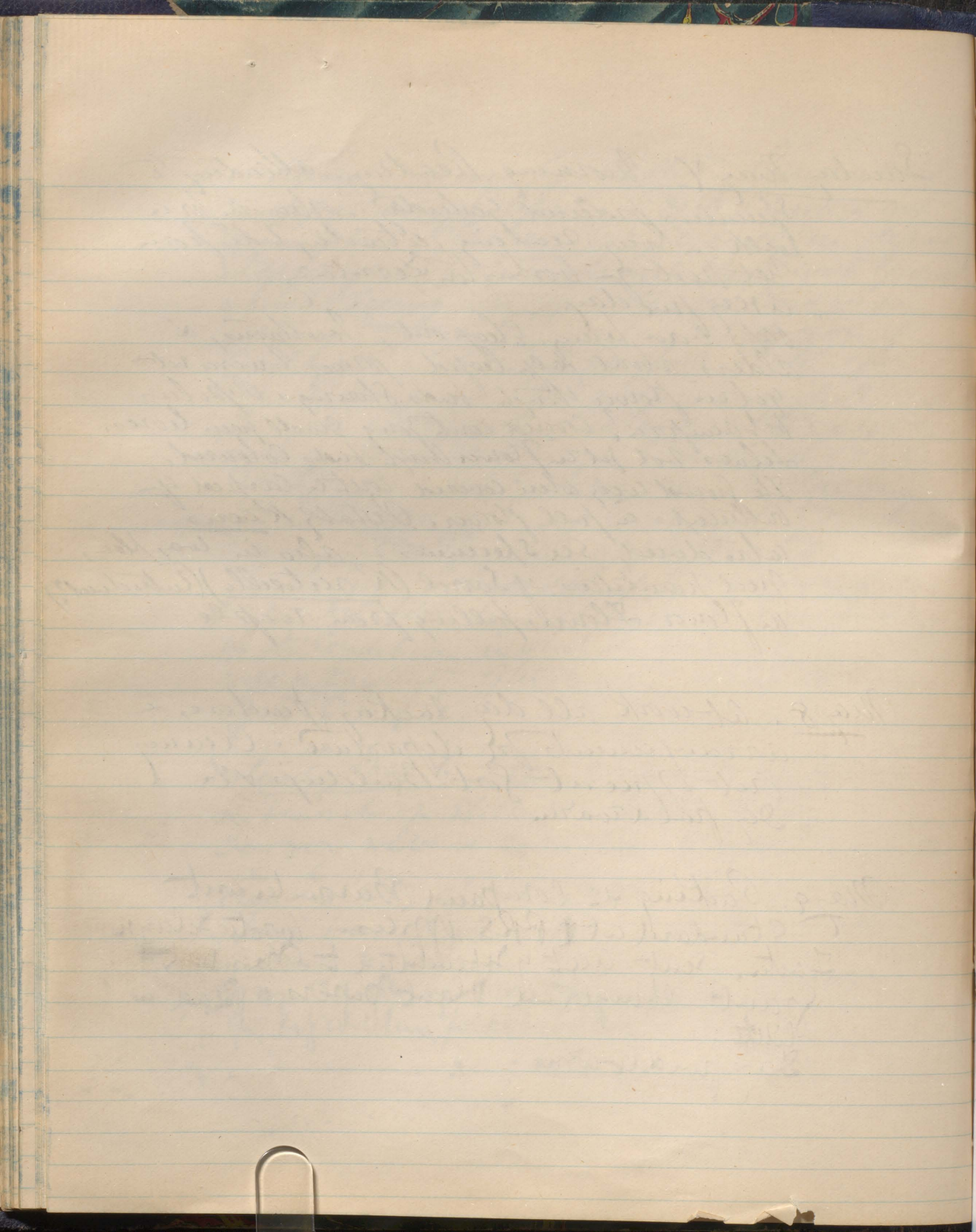
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May 1876 SATURDAY, 6.

1876

SUNDAY, 7.

MONDAY, 8.



May, FRIDAY, 12. 1876.

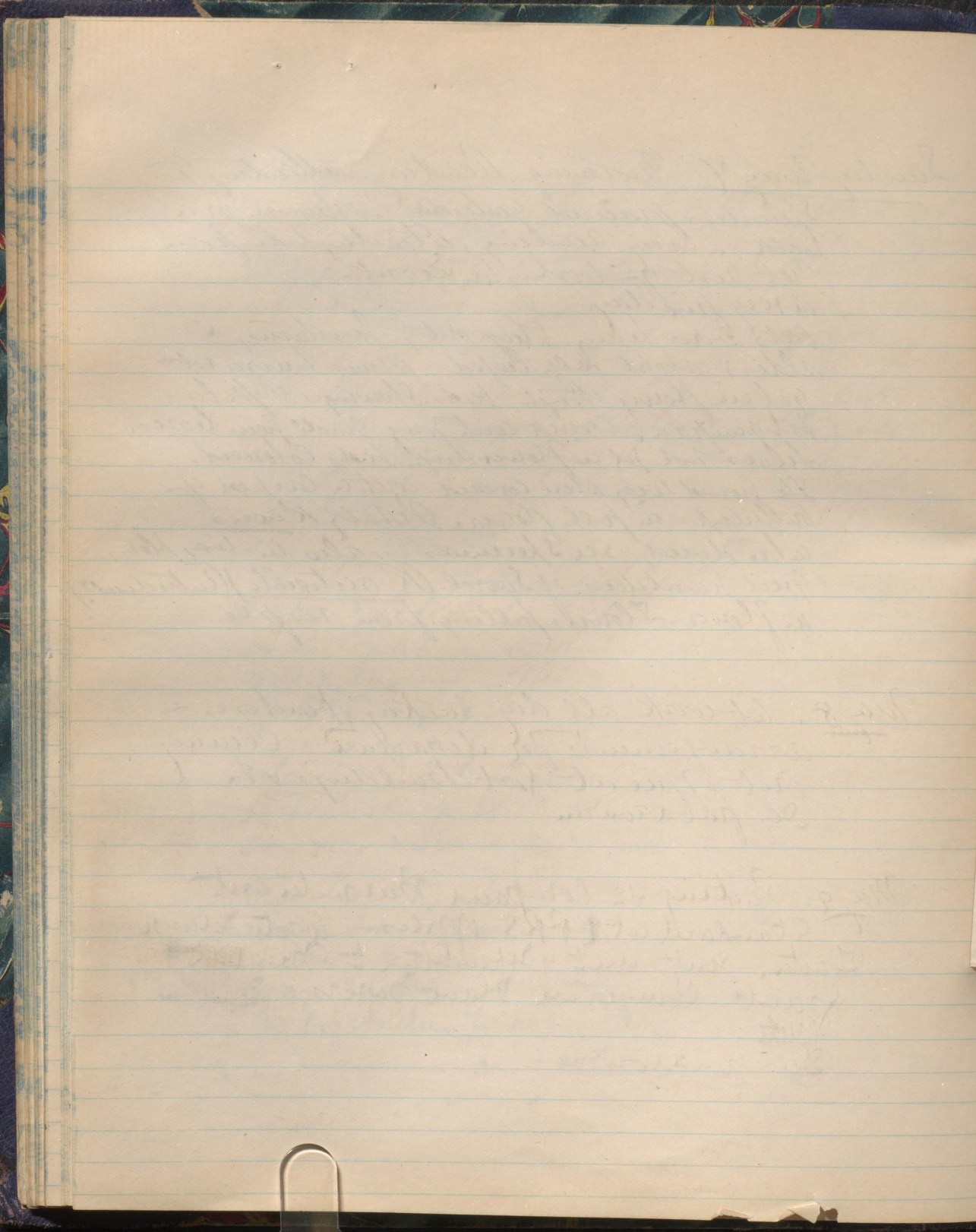
Left Departure Bay 5 Am. Returned
till 5 Pm. & anchored in bay on NW.
Ston Stewart Id, entrance of Bate Inlet.
Ways equal, Pm. fine. Strong tide races
about entrance Bate Inlet, making the straits
& the wild, islands from Sutil Channel
all bare & very rocky. White granite. Cave
with Indians. Cave along side of the anchorage.

SATURDAY, 13.

At 5 Am. Steamed up Bate Inlet, arriving
at Woodlign Harbour before noon.
The mountains above about 3000 ft
covered with a fresh fall of snow.
Mount a little Calverley falling from cliffs
in all directions. Clouds covering the low
peaks. All supplies carried up to depot
2 m. up Howarth's, by boat & canoe before
dark. Took trip up to depot & examined
rocks near mouth of river.

SUNDAY, 14.

At 5 Am. but on getting S of Mary Id
met heavy lead wind & sea. Turned
& anchored in Lewis Har. Pm. went on
boat with Capt. Morrison. Got some plants,
found a Crane's nest with 2 eggs.
Indian intrenchment. Got some
insects. Holothurians & by dragging a
swab overboard on a lead while the
ship was moving



May. MONDAY, 15. 1876.

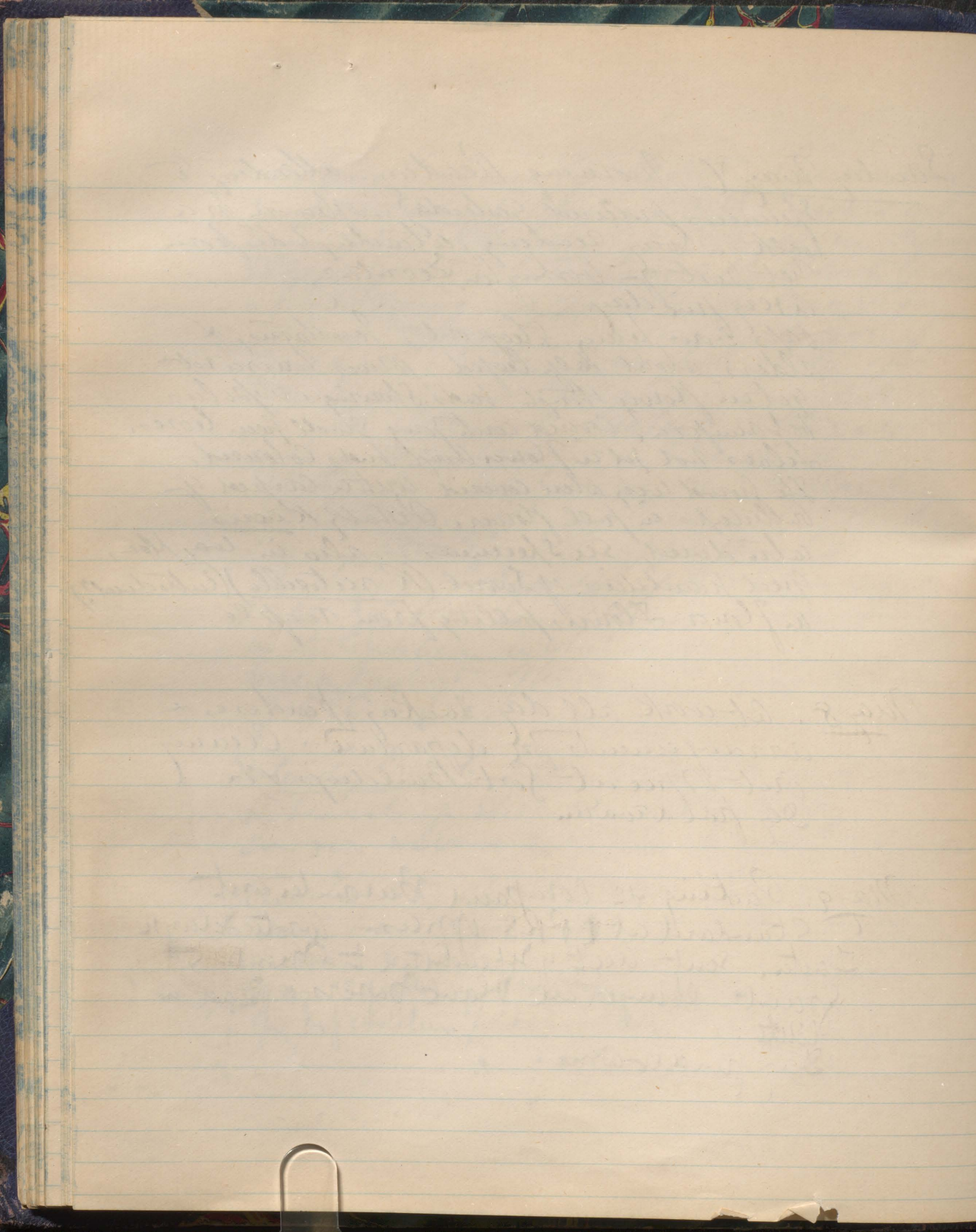
Left Drews Har. early with strong fair
wind. Near Ballinaclds met heavy
sea, & half a gale from the S.E. Got
haul of dredge a few miles S of Godd's
narrows, & a second on coming to
anchor in Ganges Har. First 35 f. second
about 8. Both mud with ledas &c.
Evening calm & beautifuly fine.
Whales heard blowing near the vessel

TUESDAY, 16.

Left Ganges Har 7 am & arrived at
Victoria 11 am. Saw Cambie, read letters
&c & decided to start for Zueselle on
Friday. Took maps & making preparations
Soy. at Dixon's Ho. & led a chat with
Cambie & Jennip.

WEDNESDAY, 17.

Busy all day with preparations for
travelling map. Making business calls.
Telegraphed A. Bowman. Got invoice
of photo. photos expected June 5. Not
hearing from Bowman cannot
engage a man.



May. THURSDAY, 18. 1876.

Packing & making final
arrangements for departure.
Saw \$300 to pay outstanding bills, & covered
expense of trip. Saw on Mr. Selwyn's father
Saw Mr. Cambie & arranged to
meet him on June 17 near Salmon
House.

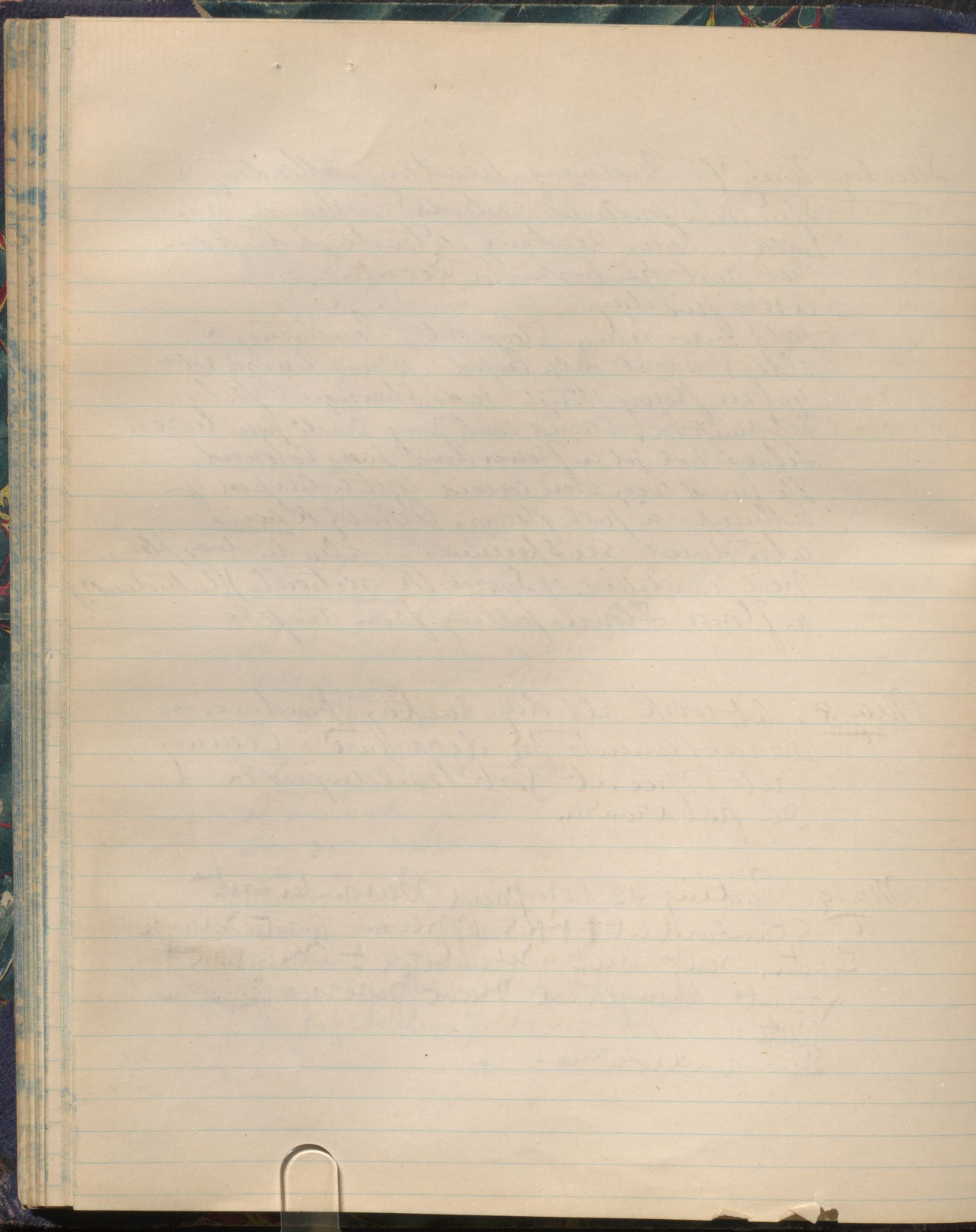
FRIDAY, 19.

Left Victoria 7 am. Arrive New-
Westminster 3 Pm.

May 19th 1876

Cont. at May 26th 1876
in note back of 1876

SATURDAY 20.



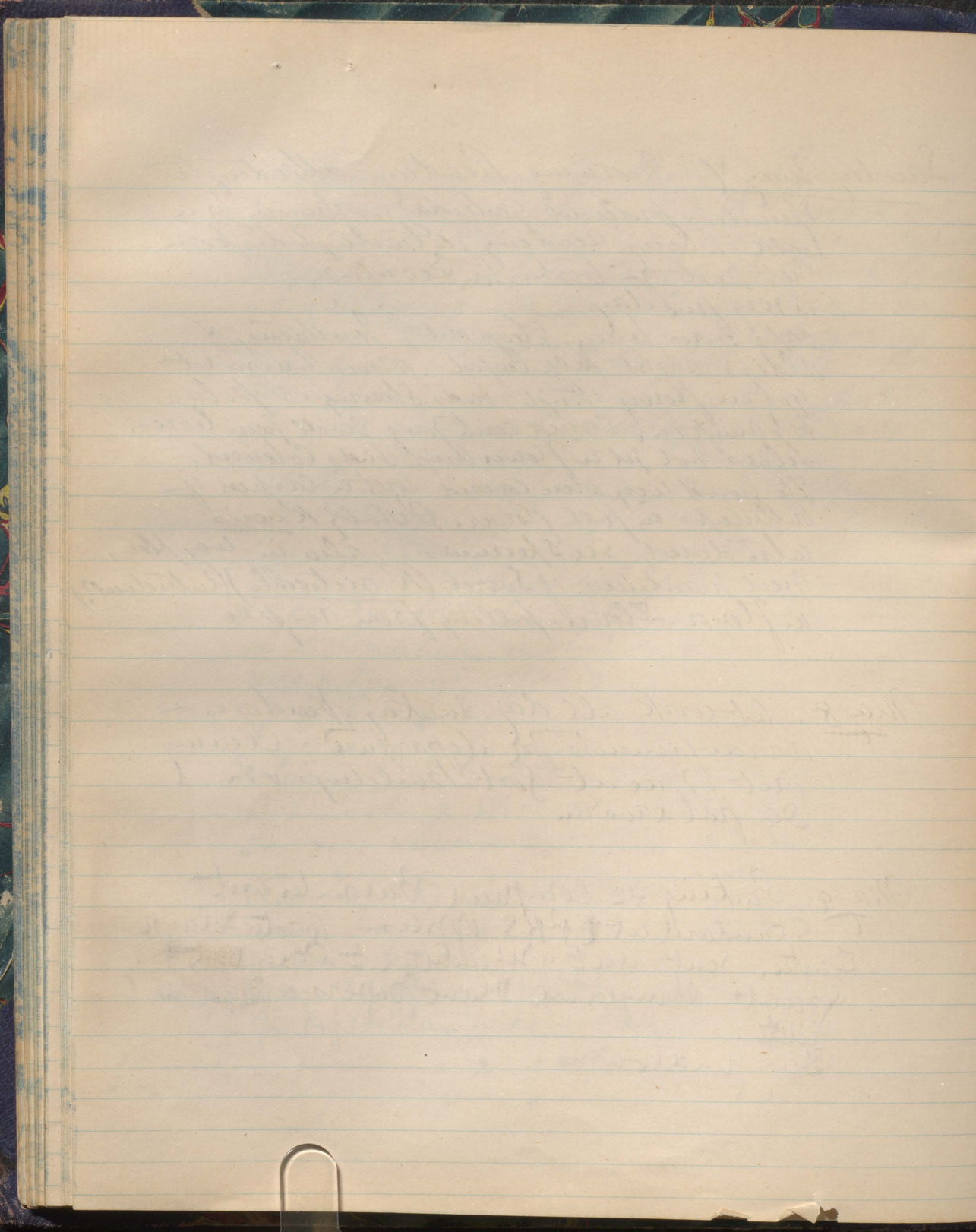
May.

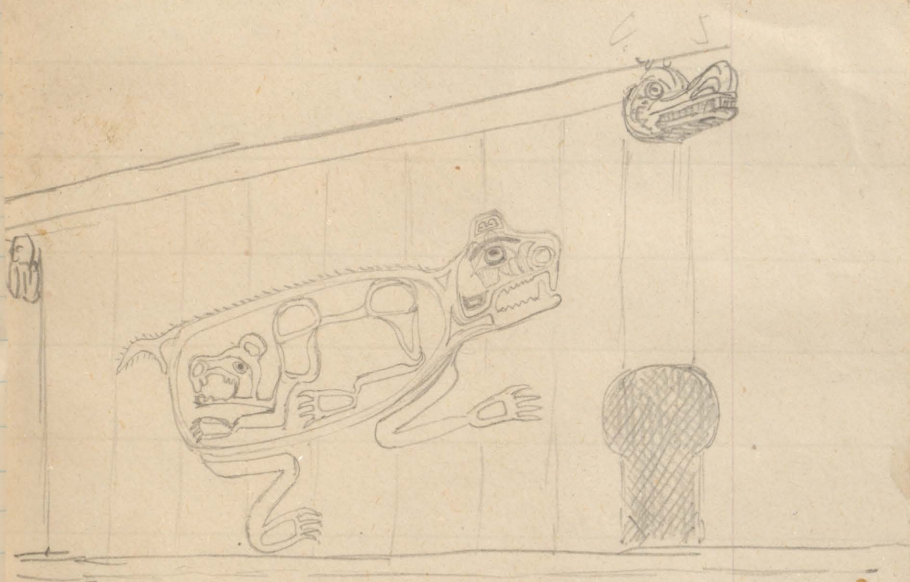
SUNDAY, 21.

1876.

MONDAY, 22

TUESDAY, 23





Bear? painted on Cella Cella
 Il. Getches L. The opposite side of
 the door ornamented by a similar
 though slightly different figure.

Monsters head above surrounded by a black bird with
 wings partly spread.

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Geological Survey

20 7 Penn

5000

5000

88.34

Depth 1 1/2 miles
Dip 1 1/2 miles
10130.23 days since

20 Cank per hour in water

1380.84

5.00

\$ 1463.34

15-

128.31

John A.

Buy Cank at Fort George

1450

Nov 22

\$ 130.12

13.0.22

25-
12.50
12.50

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No.

D56276

Aug 9

1875

Two hundred
dollars.

\$

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No.

D56299

Nov 21

1875

J. C. Reeves

\$

128. ~~84~~

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No.

D56300

Nov 6

1895-

Pay \$ 40.00

\$

[Faint, illegible handwriting on lined paper]



10 lbs. flour
8 lbs bread
8 lbs biscuit.
10 lbs bacon
6 lbs beans
2 lbs Cheese
4 lbs tomatoes
4 pound this Salmon
2 lbs butter in Crock
2 lbs. tea
4 lbs. Sugar
2 lbs. Soap.
1/2 doz Candles
Matches
Salt.
Pepper
2 lbs baking powder
1 Coarse towel.

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[Faint, illegible handwriting, likely bleed-through from the reverse side of the page.]

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GEOLOGICAL SURVEY OF CANADA

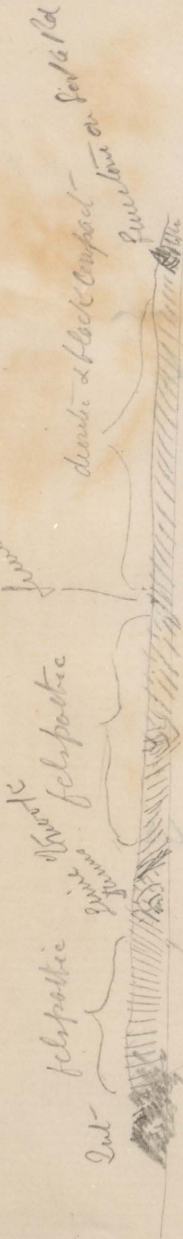
(Museum and Office, 76, S^e Gabriel Street) MONTREAL.

List of Articles 18

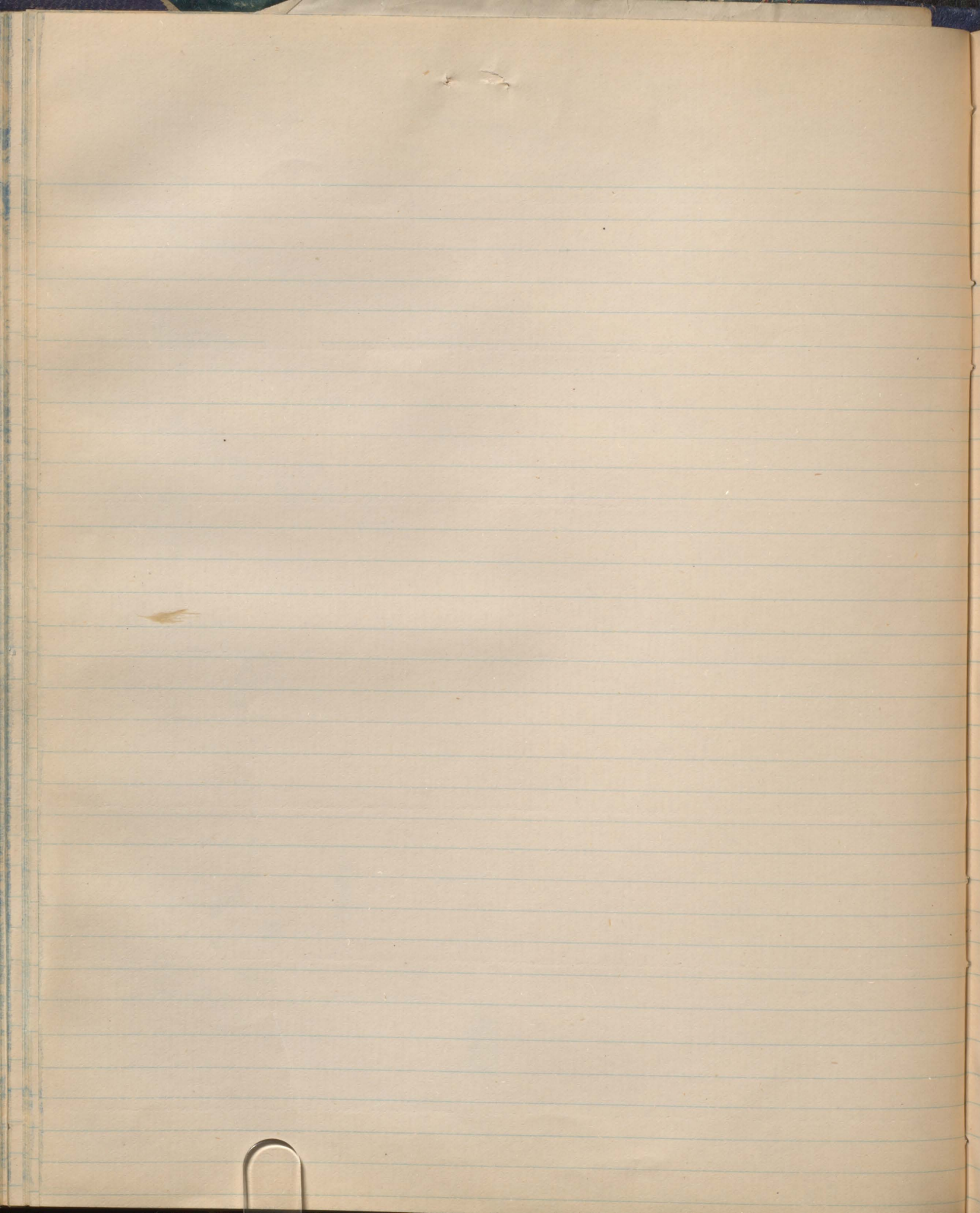
Horizontal thickness of Massif Zone

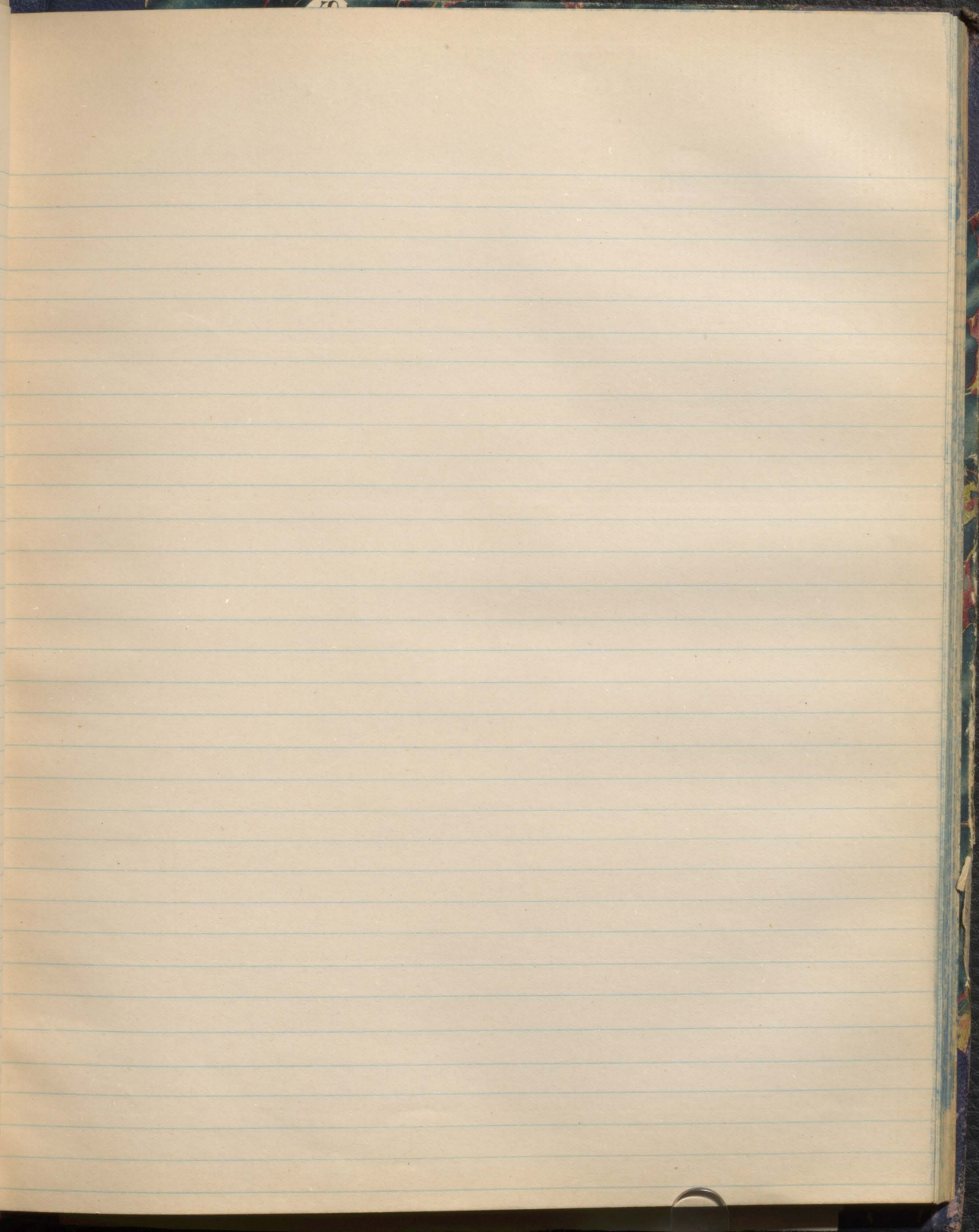


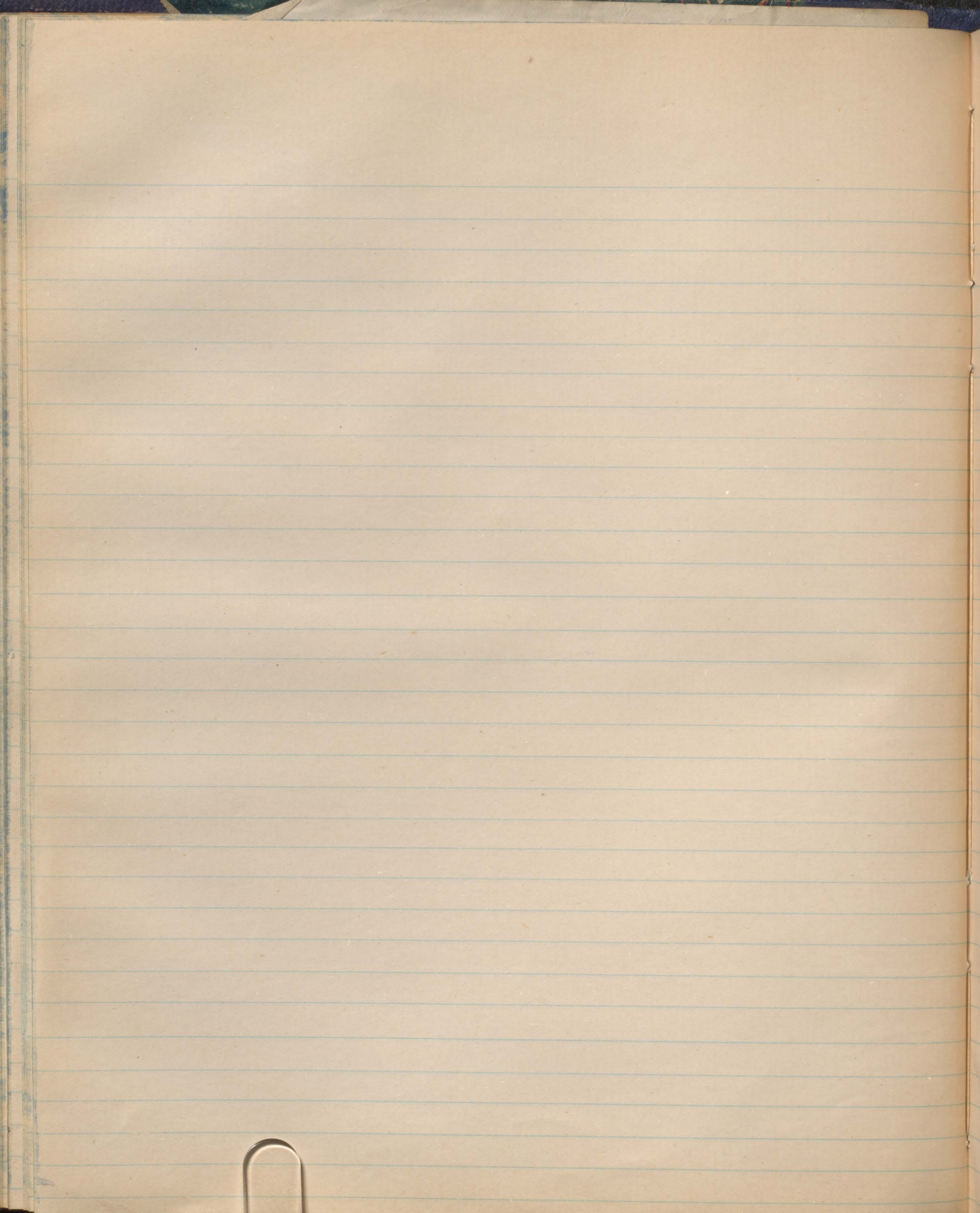
~~1742~~

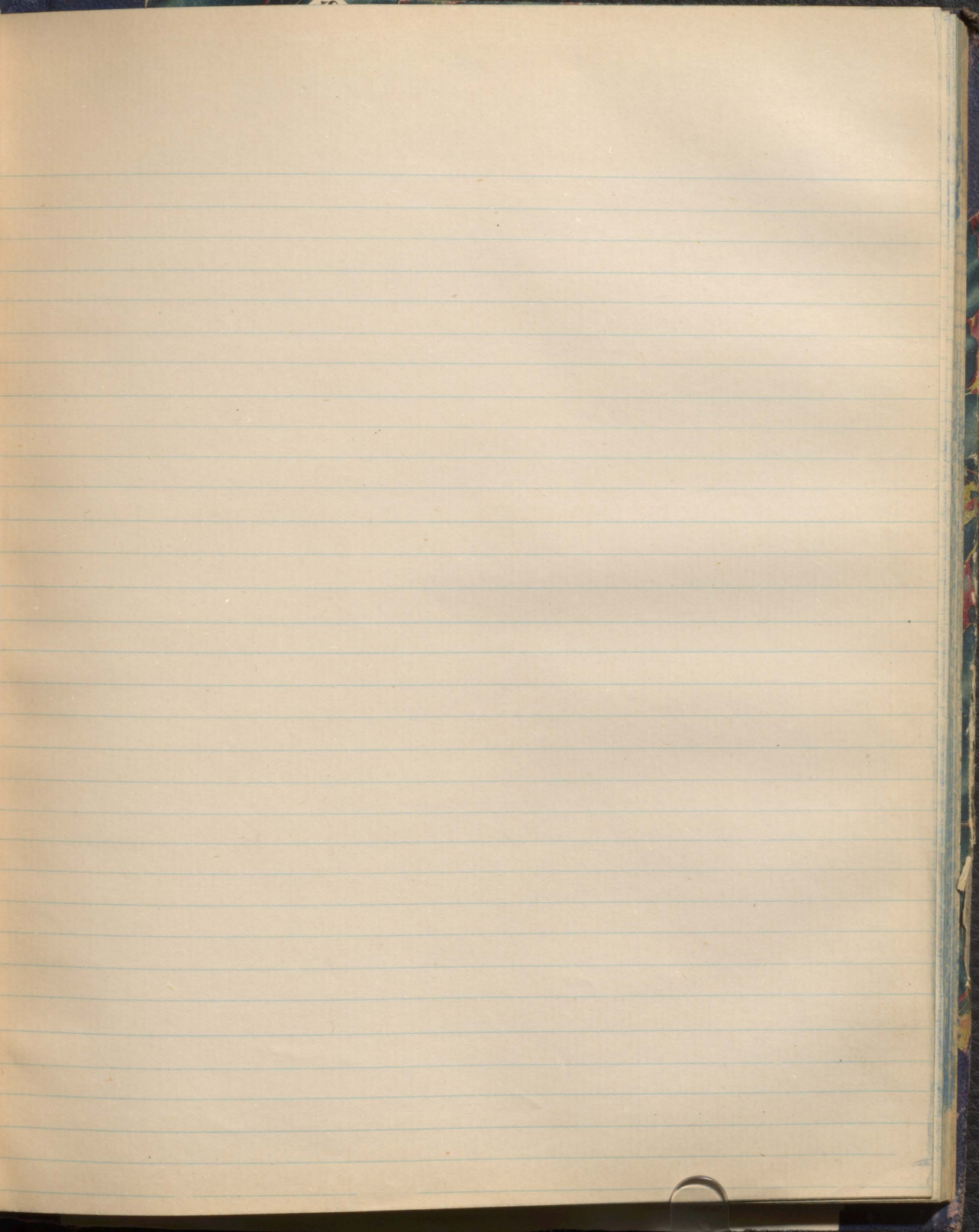


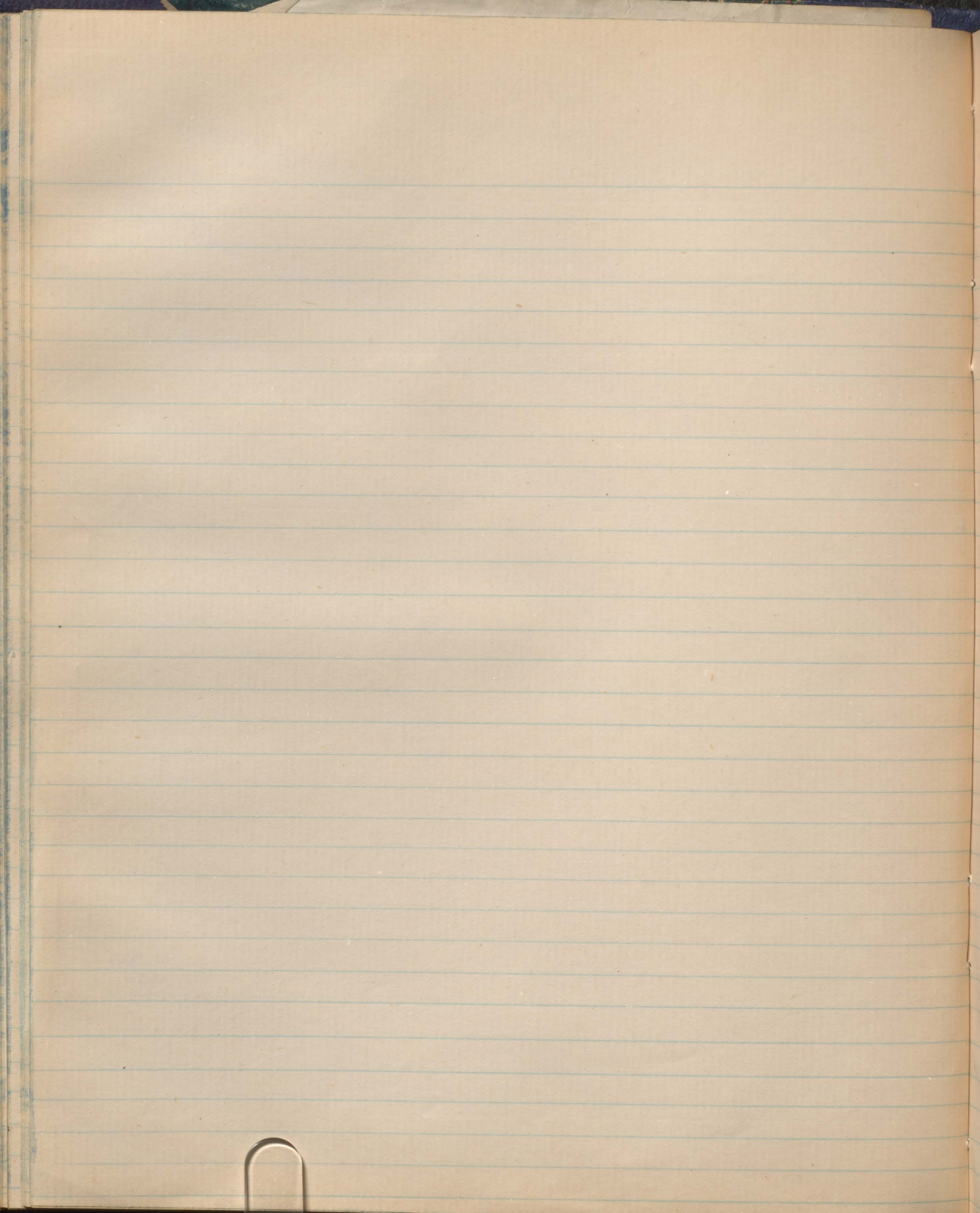
Possible arrangement of rocks at Bay W. shore
Esquimaux.

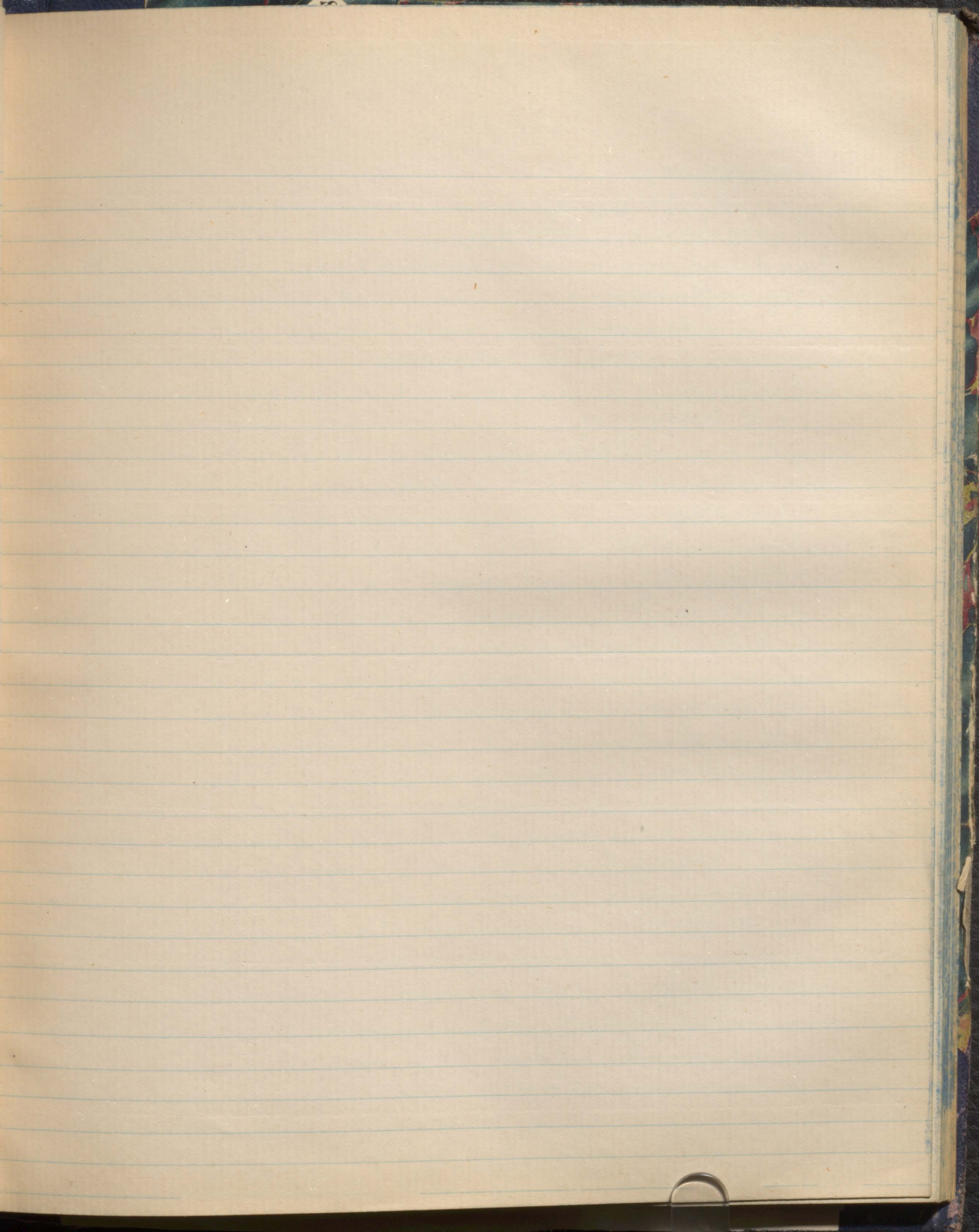


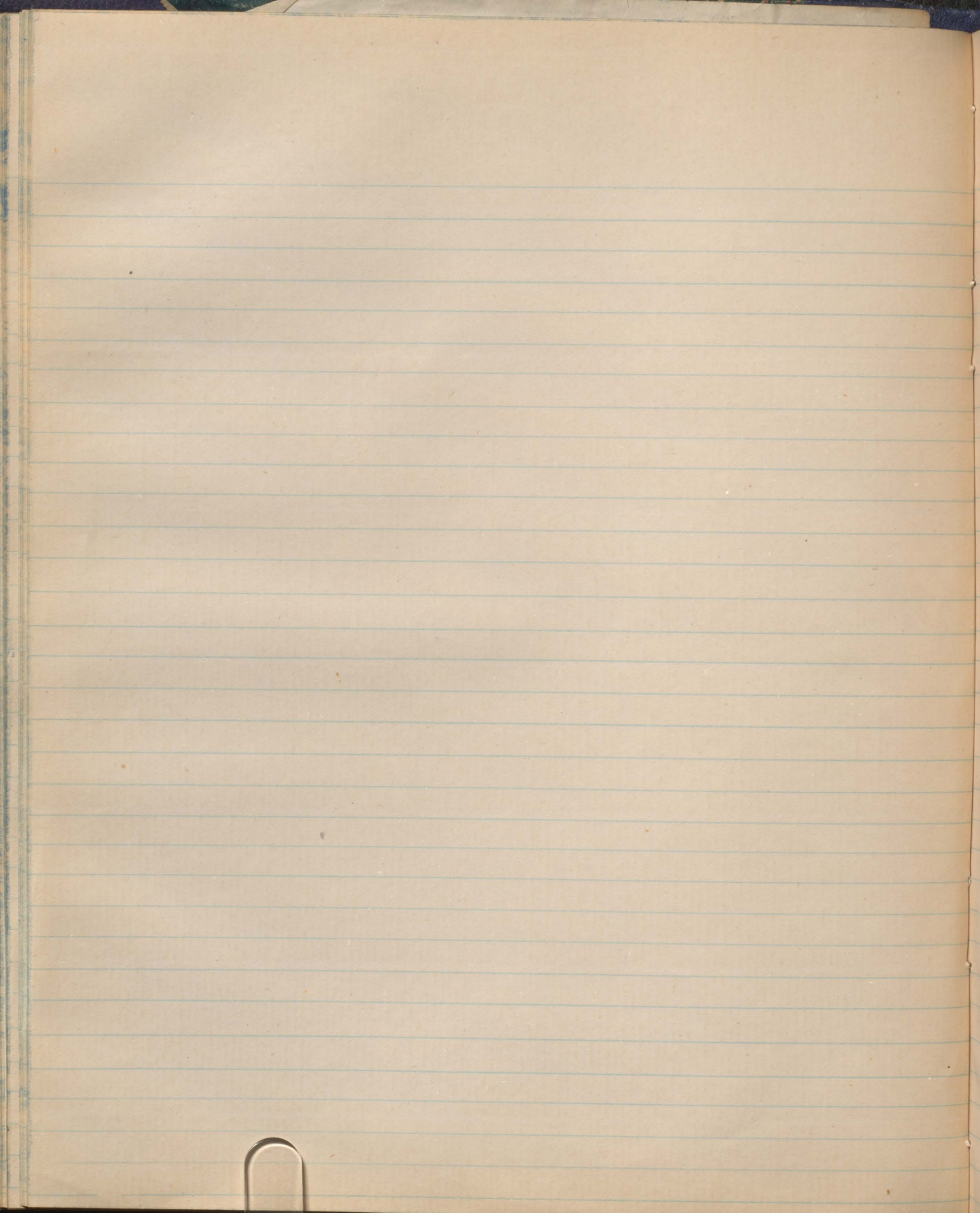


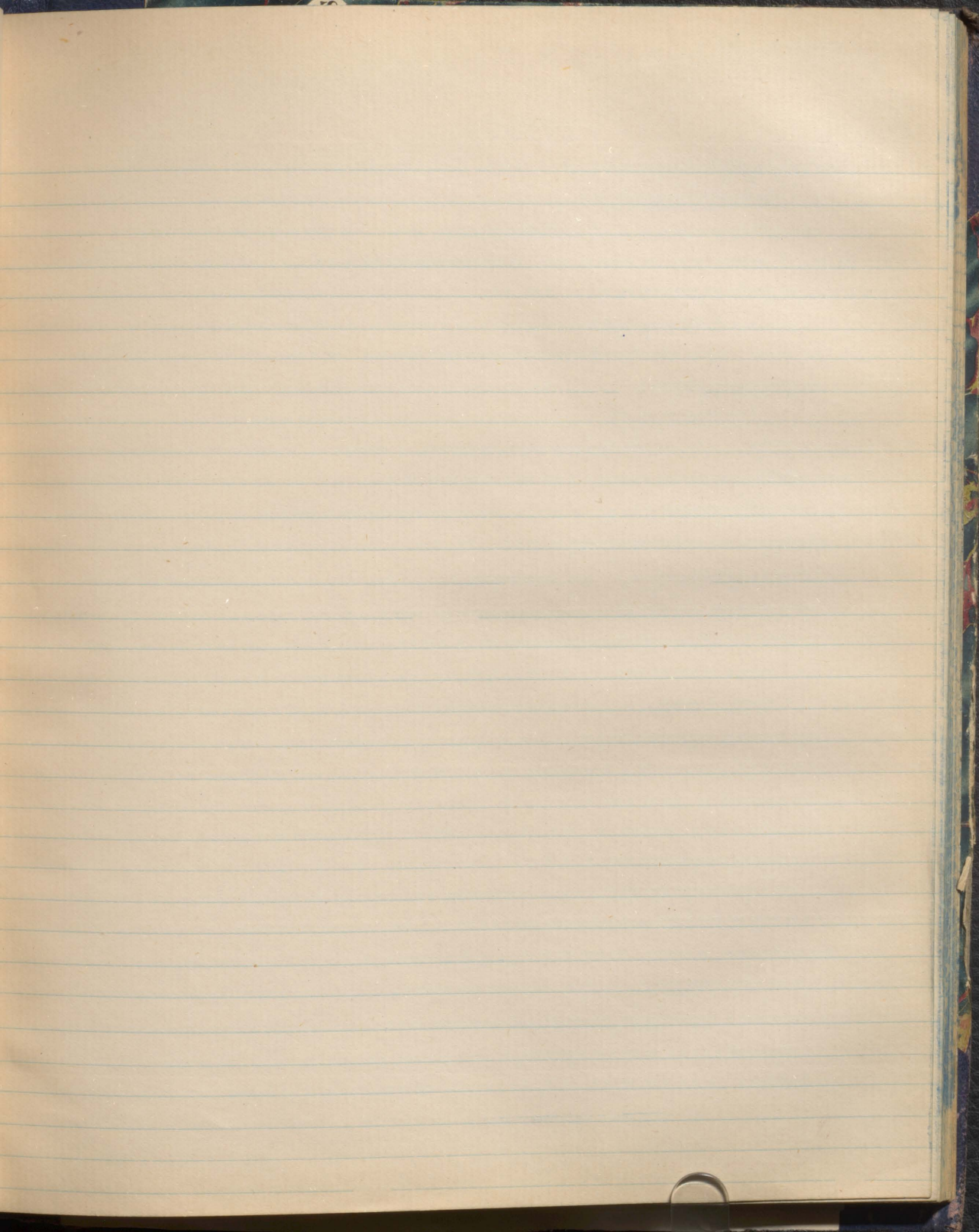


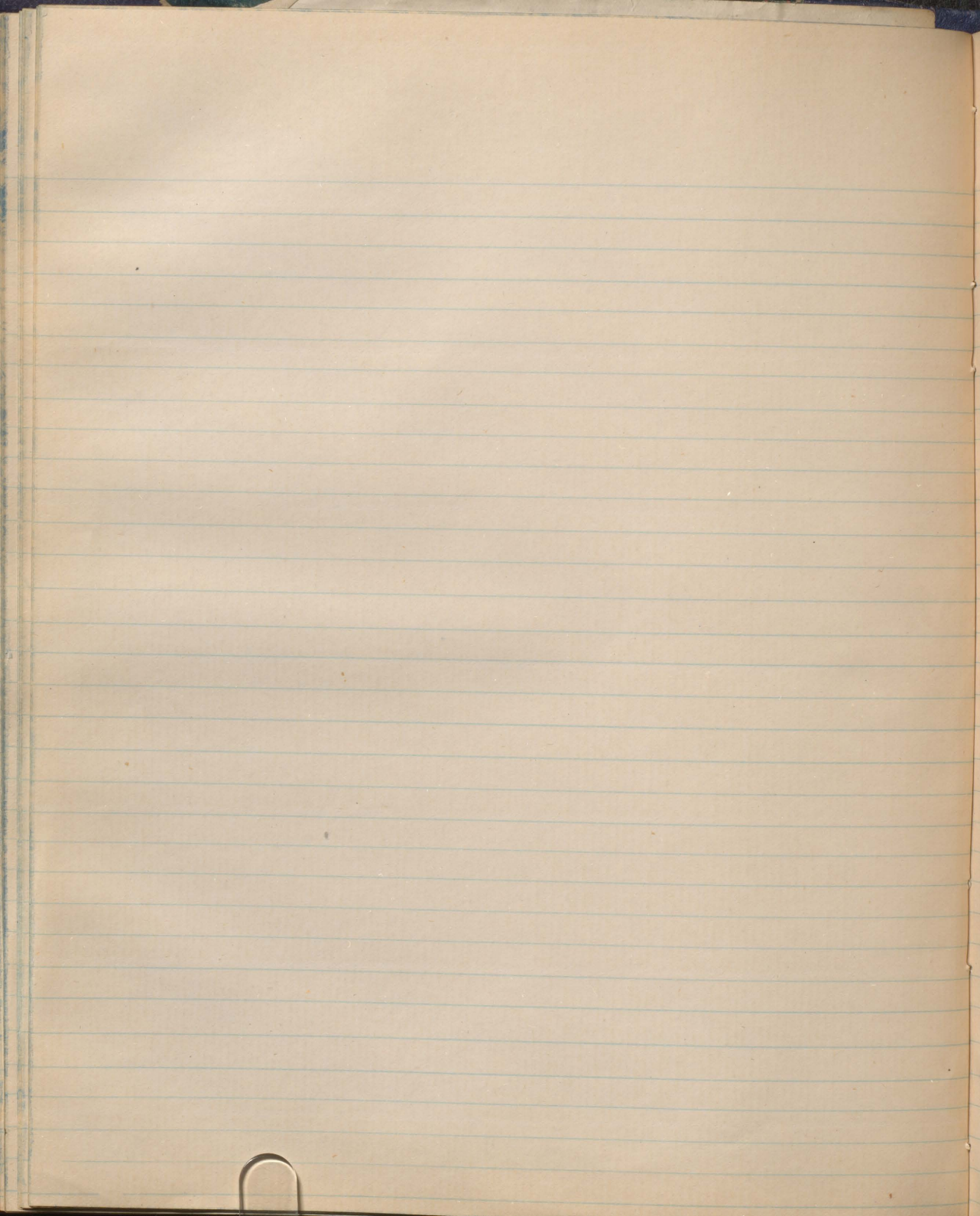


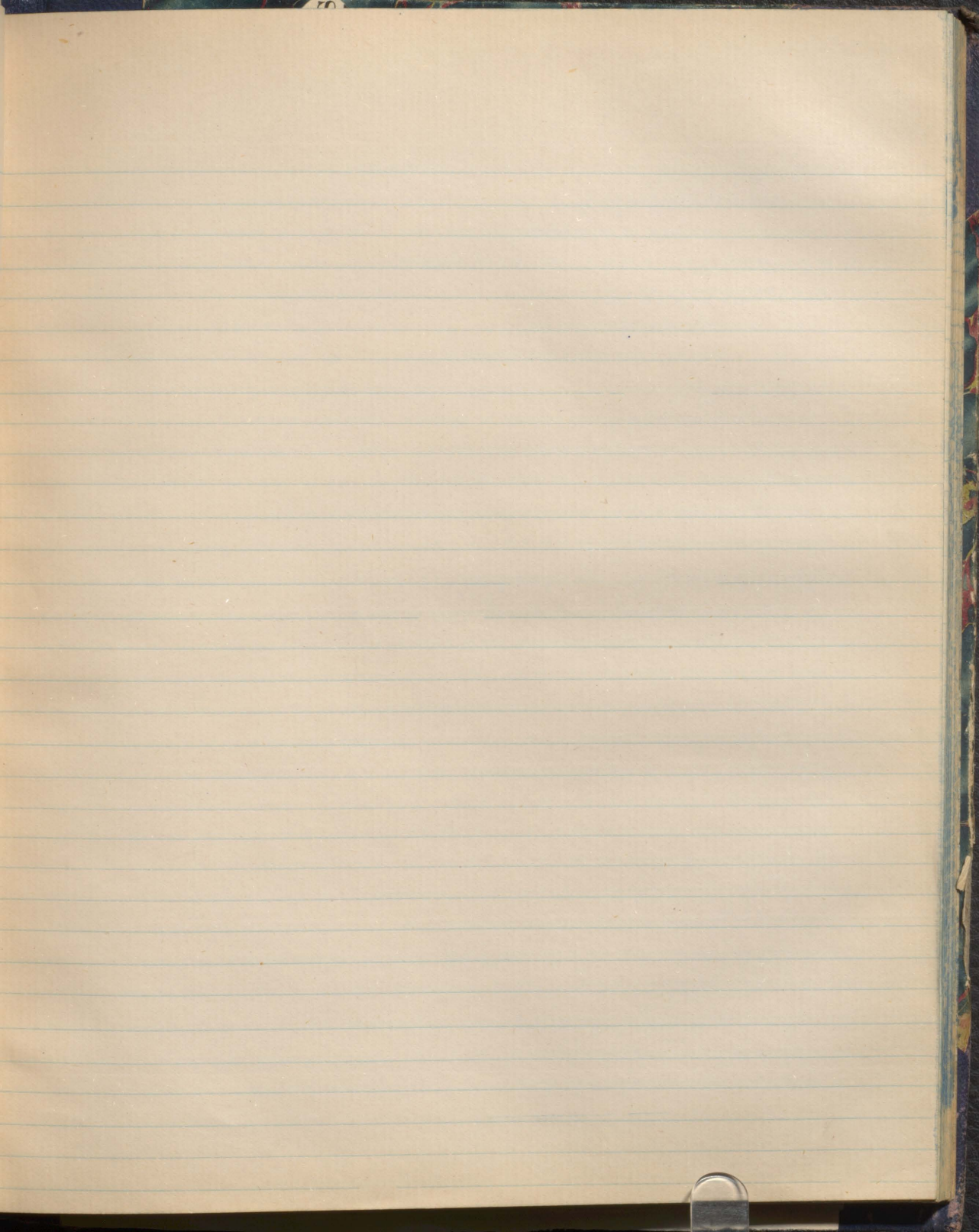


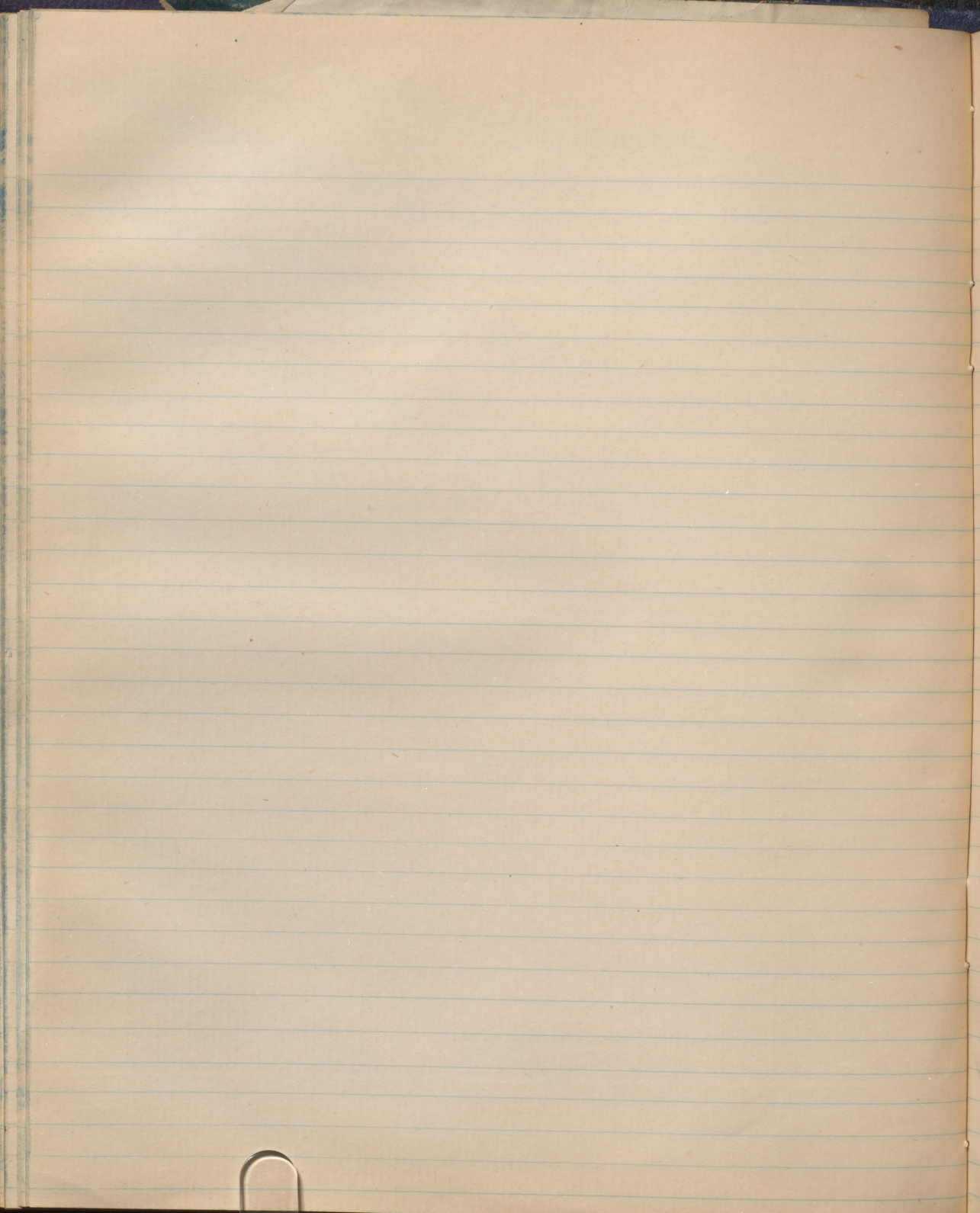


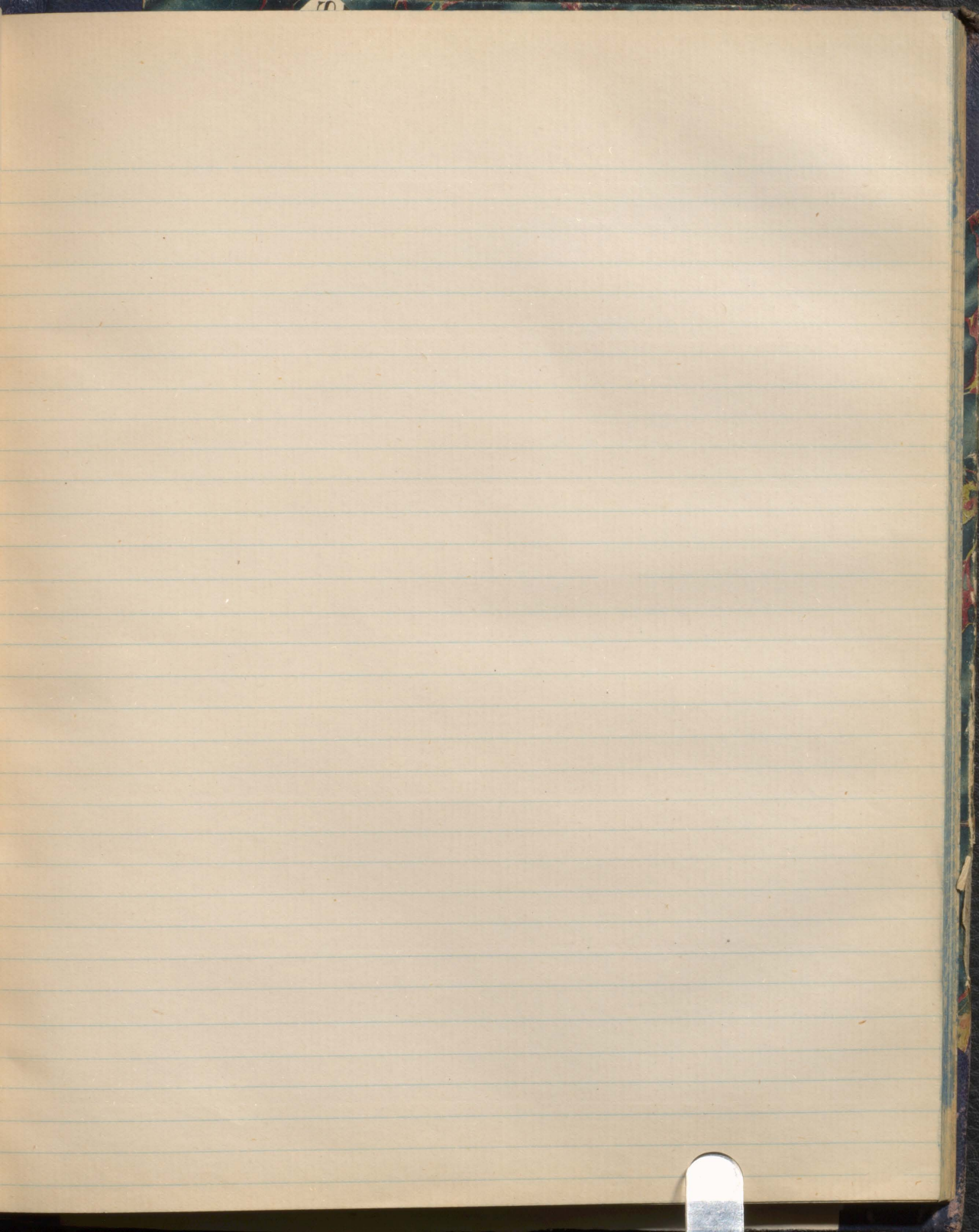


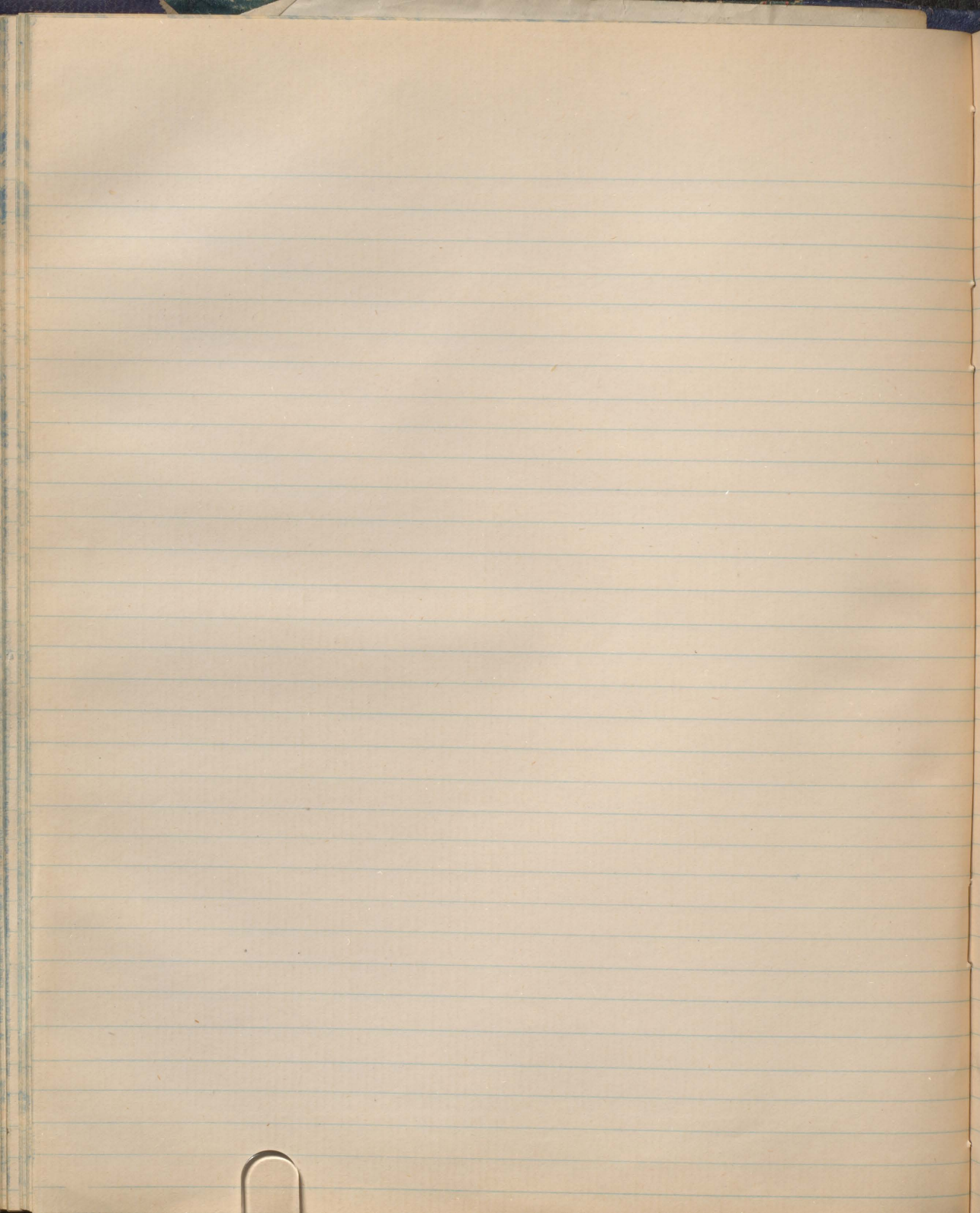


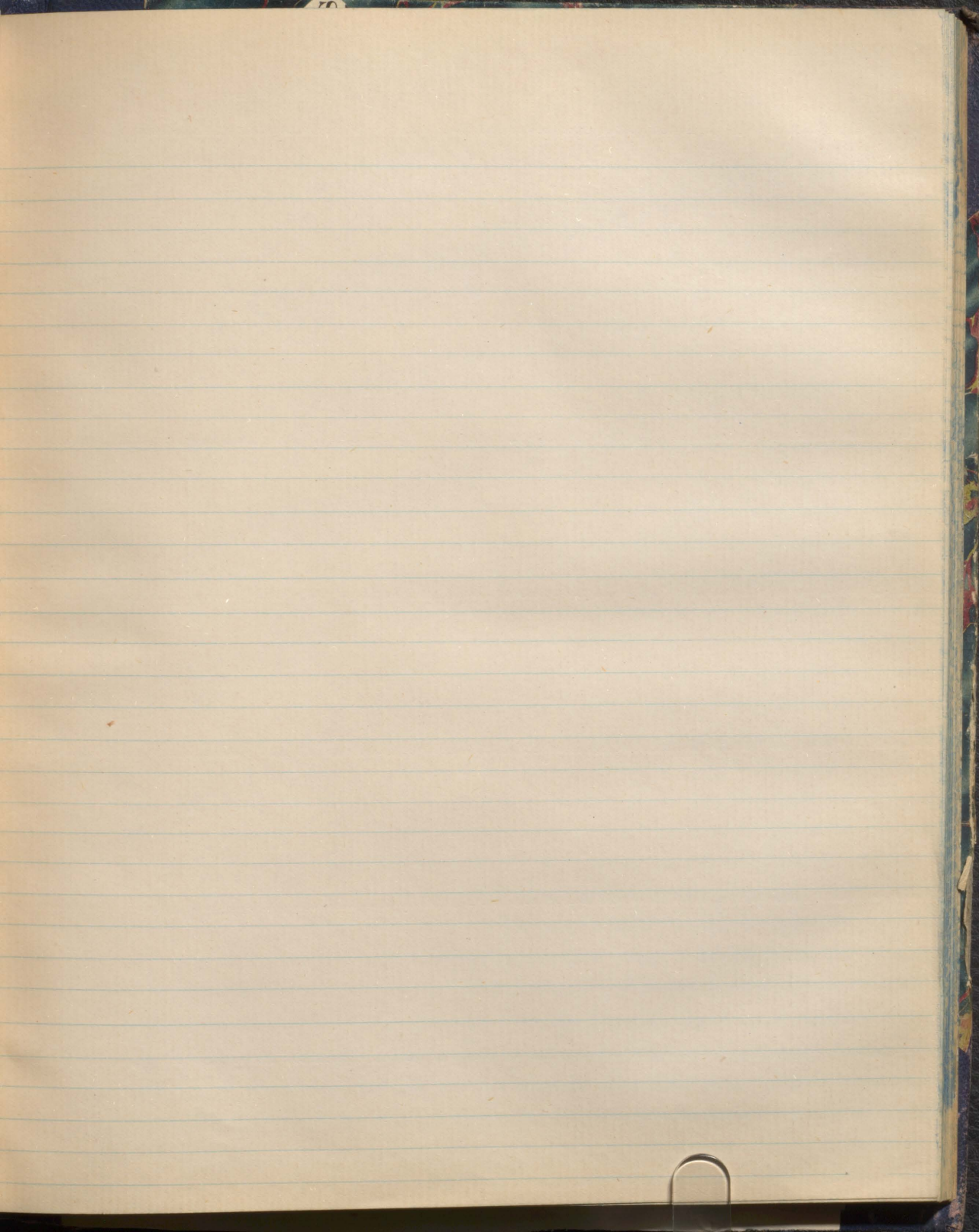


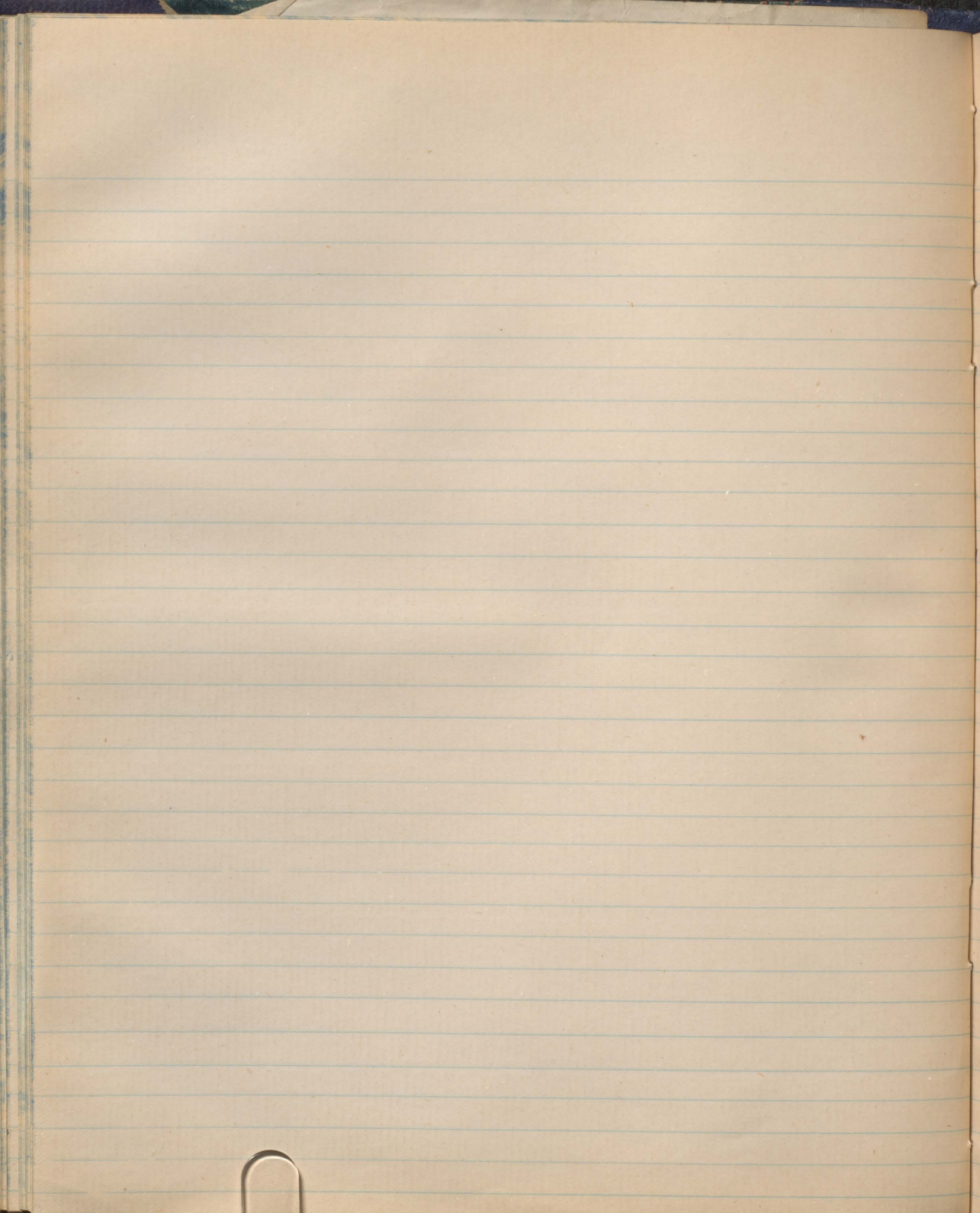


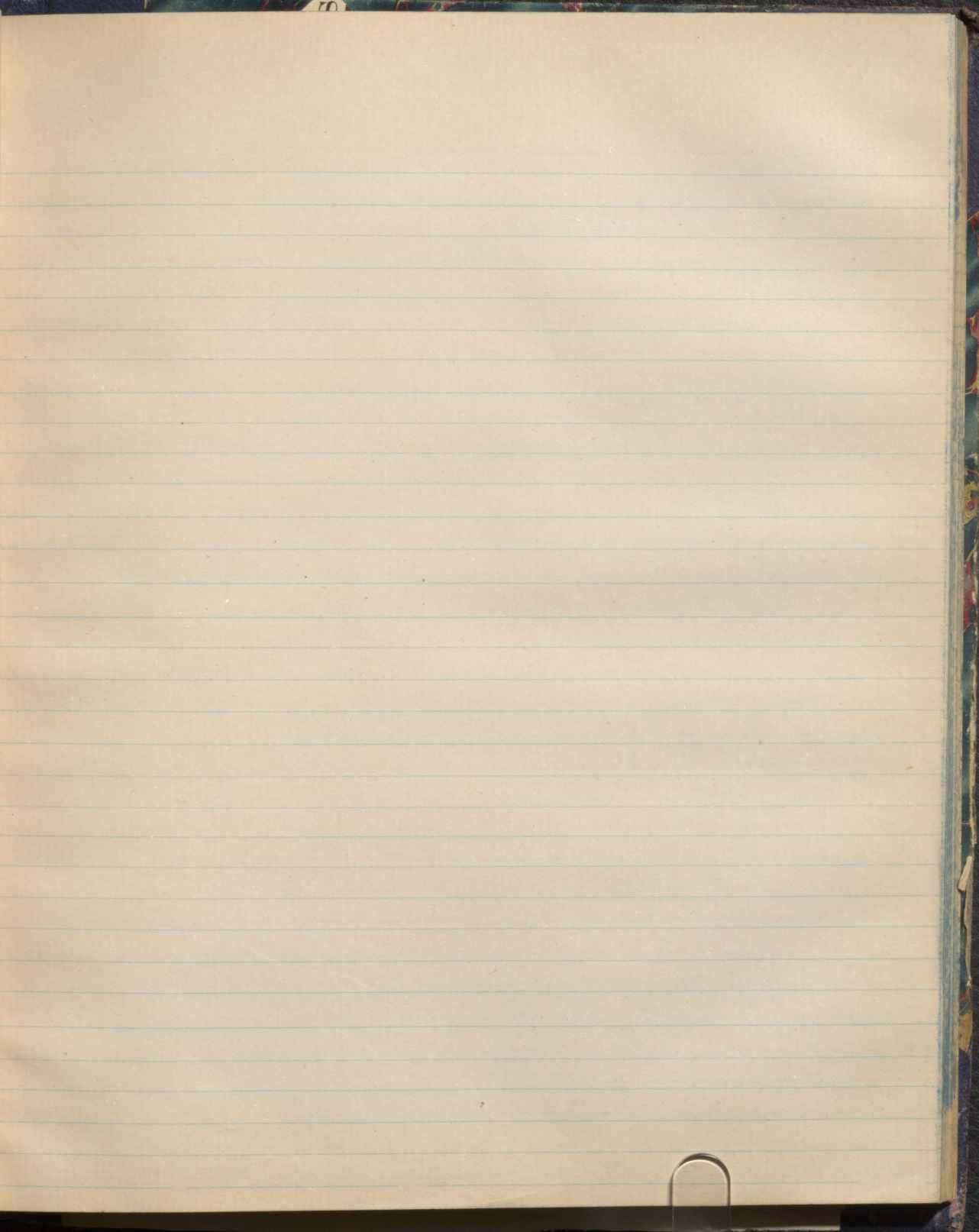


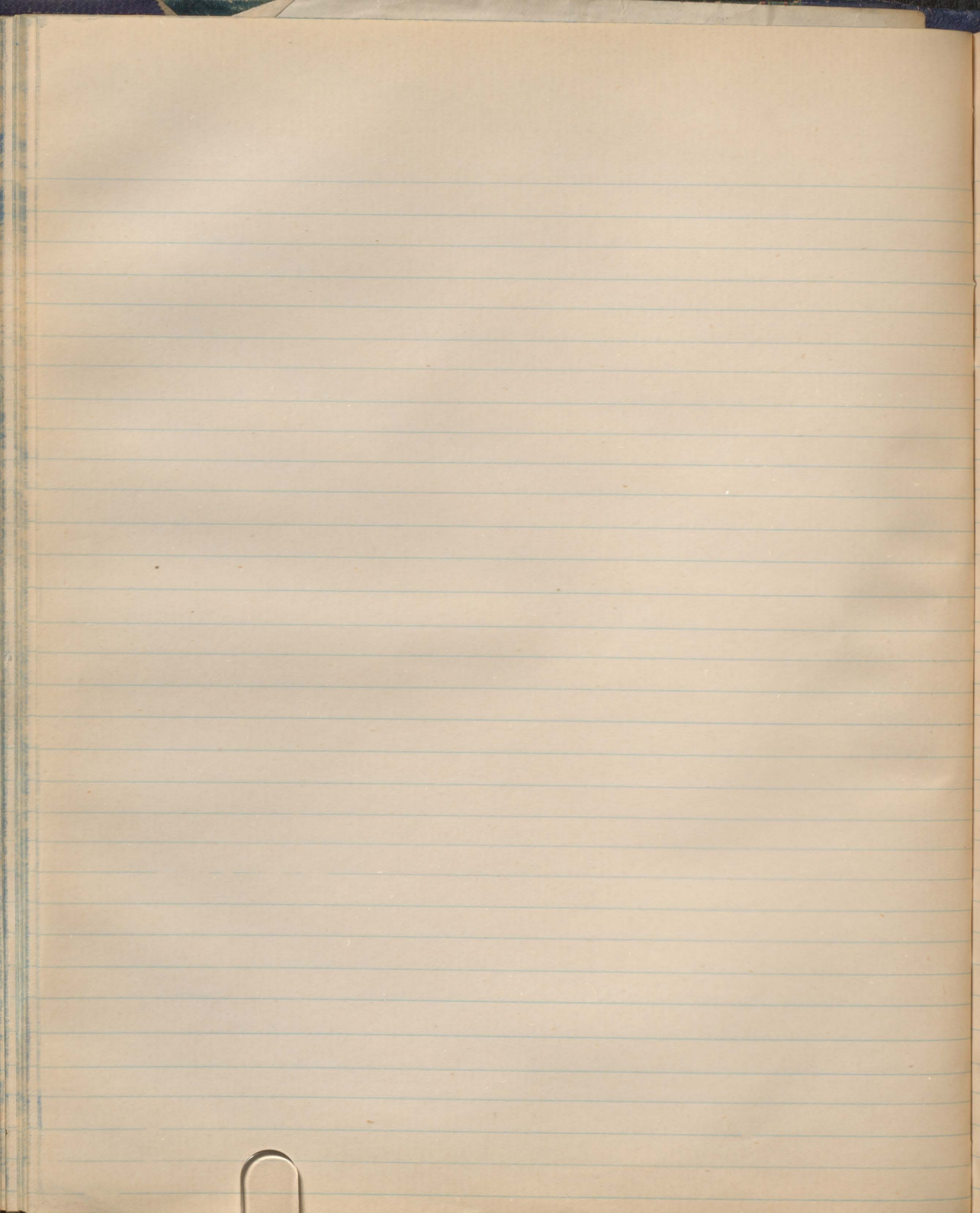


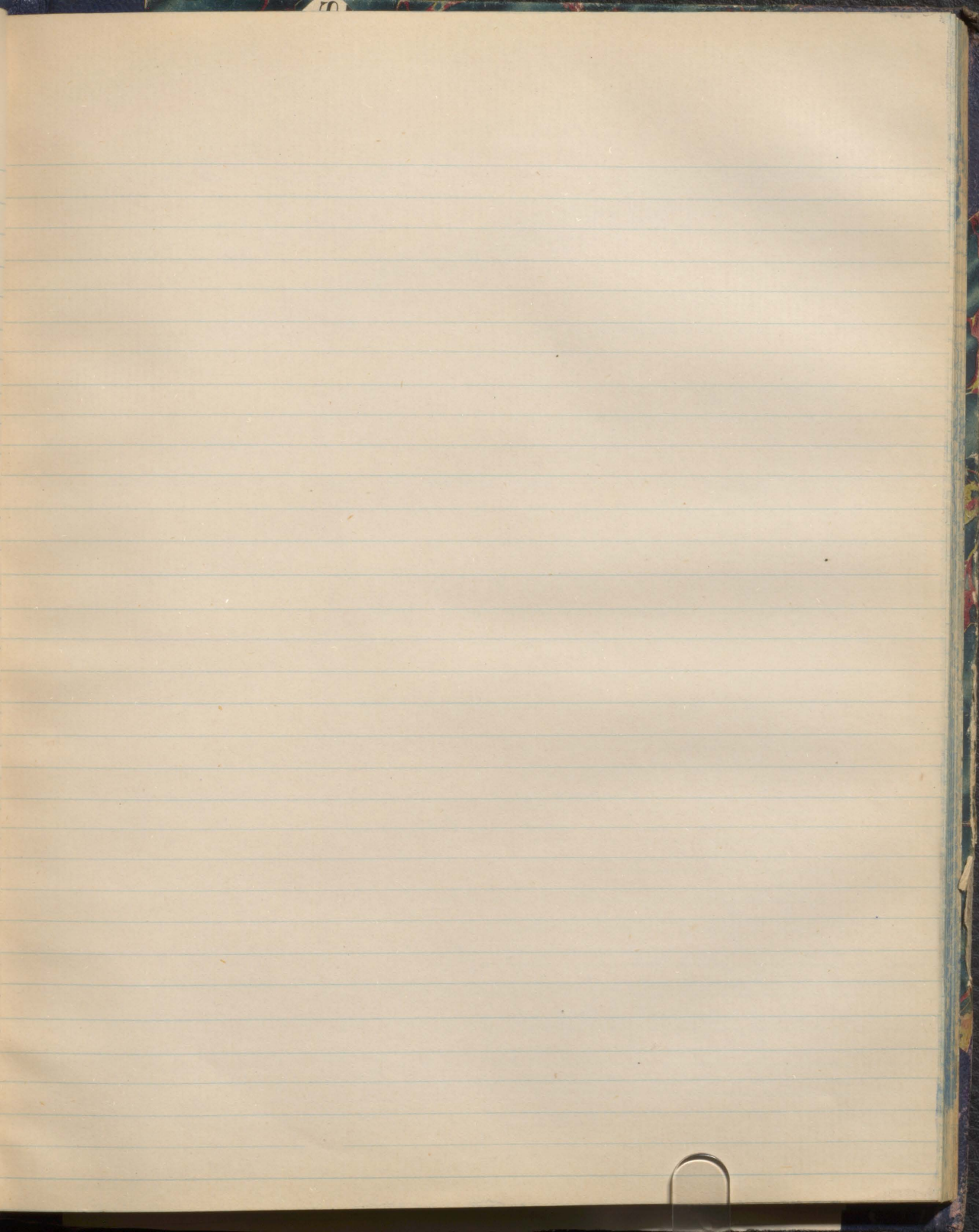


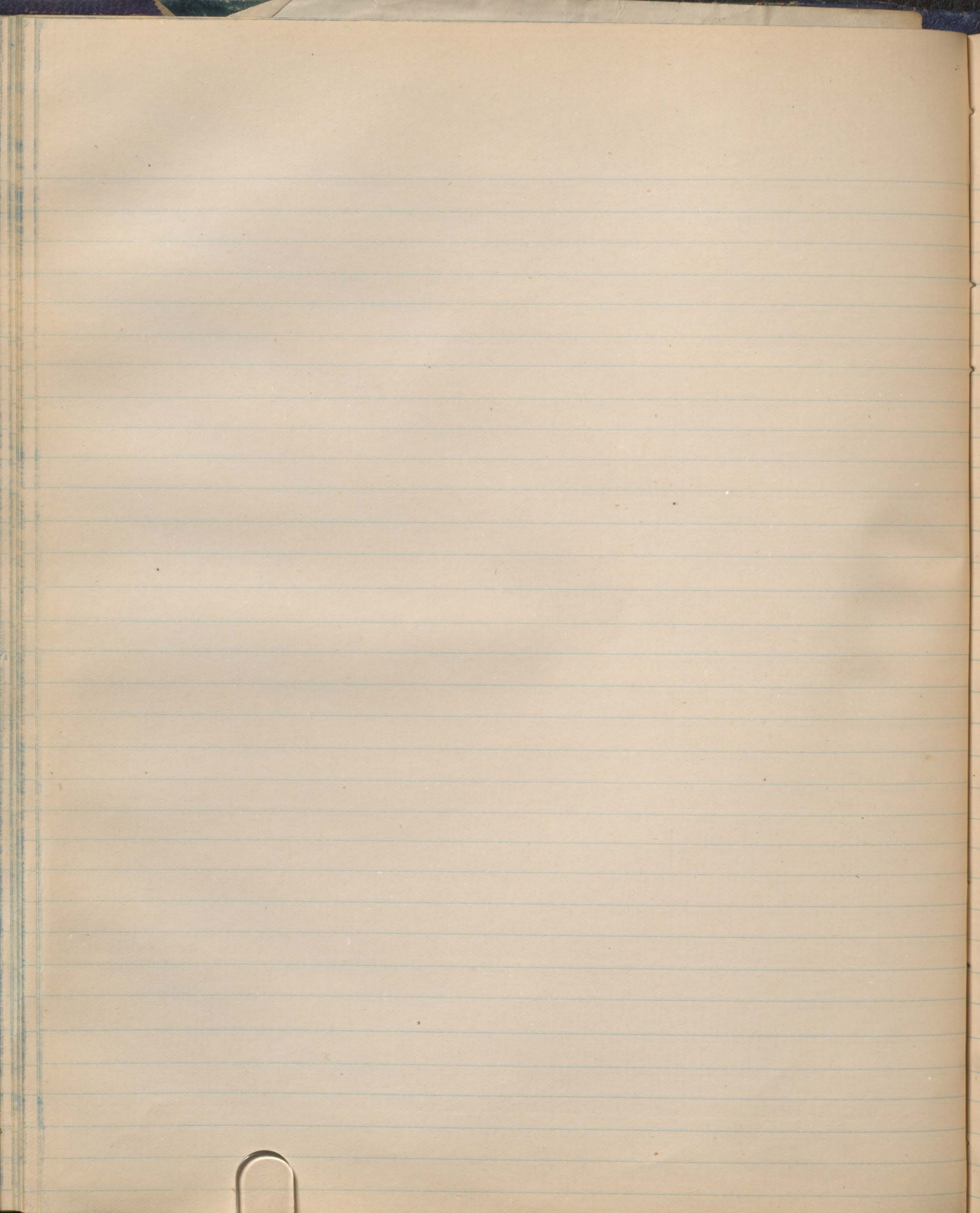


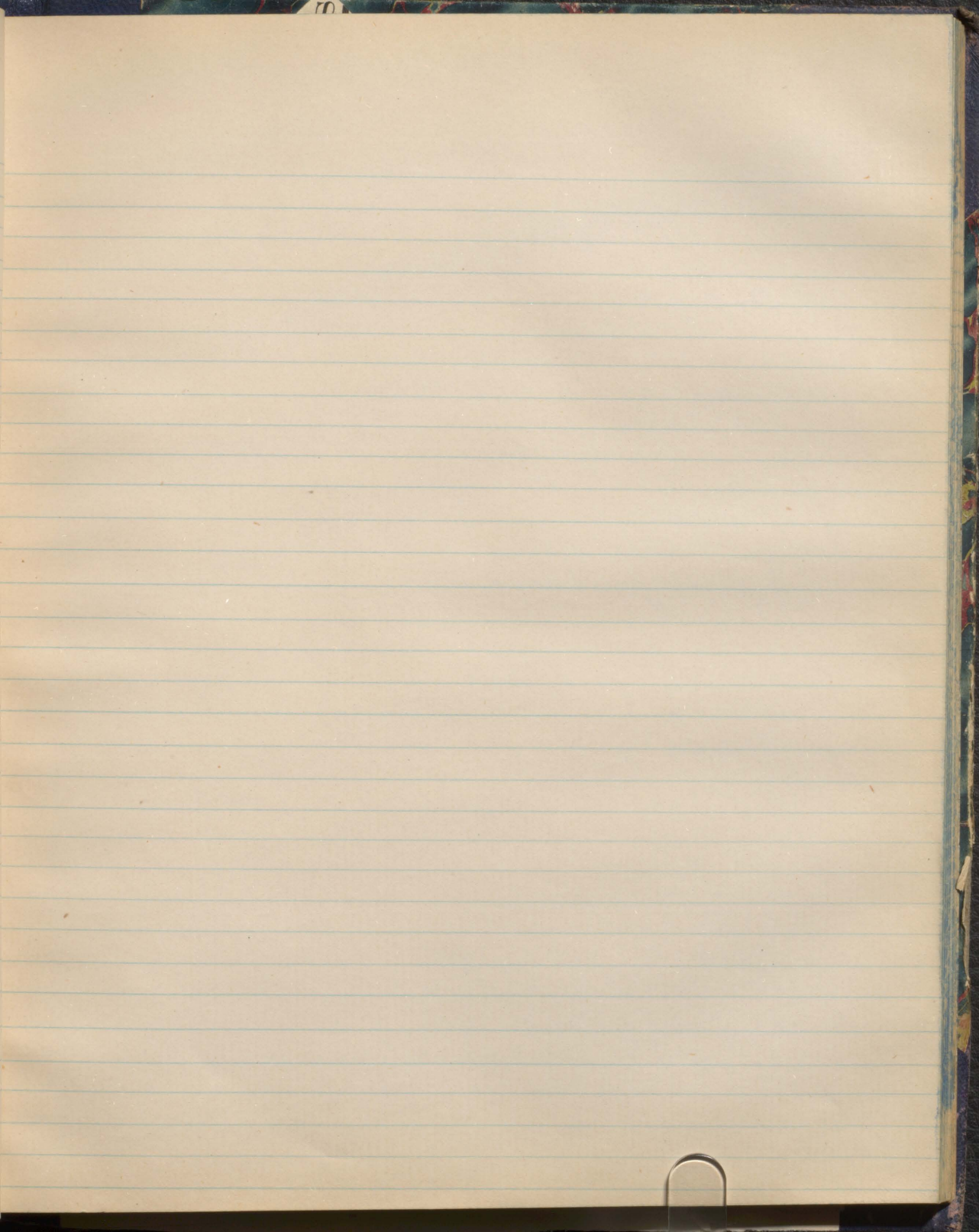


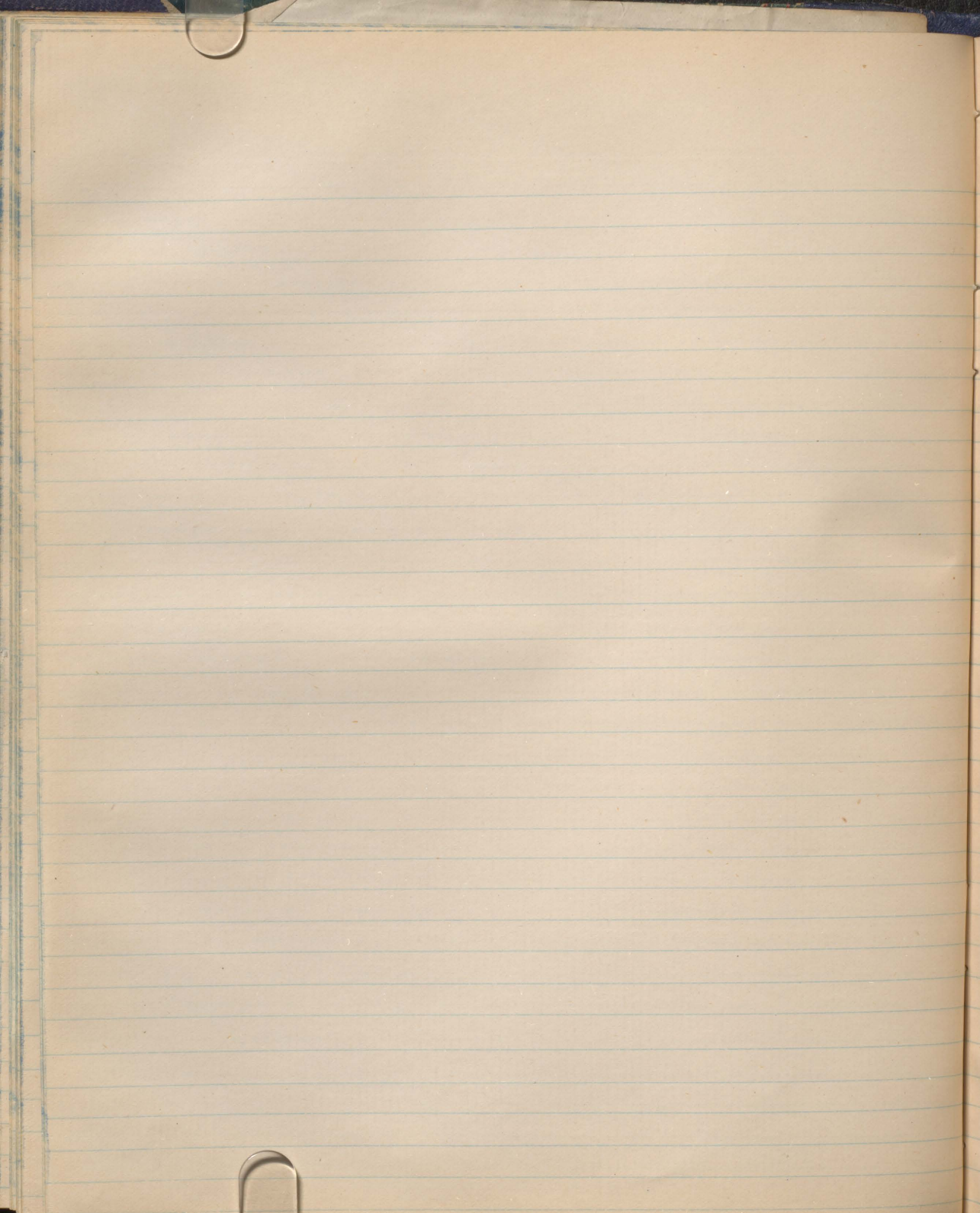


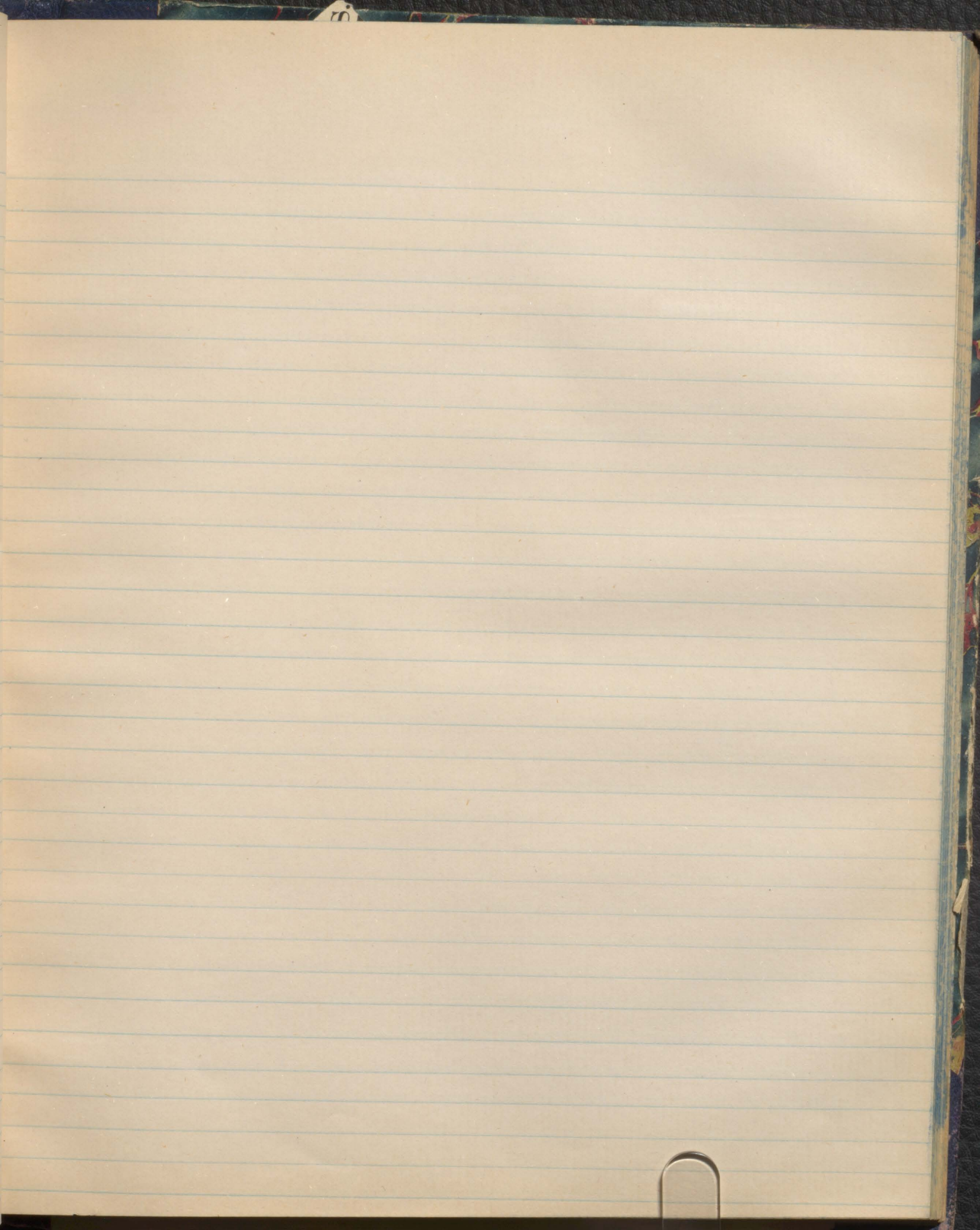


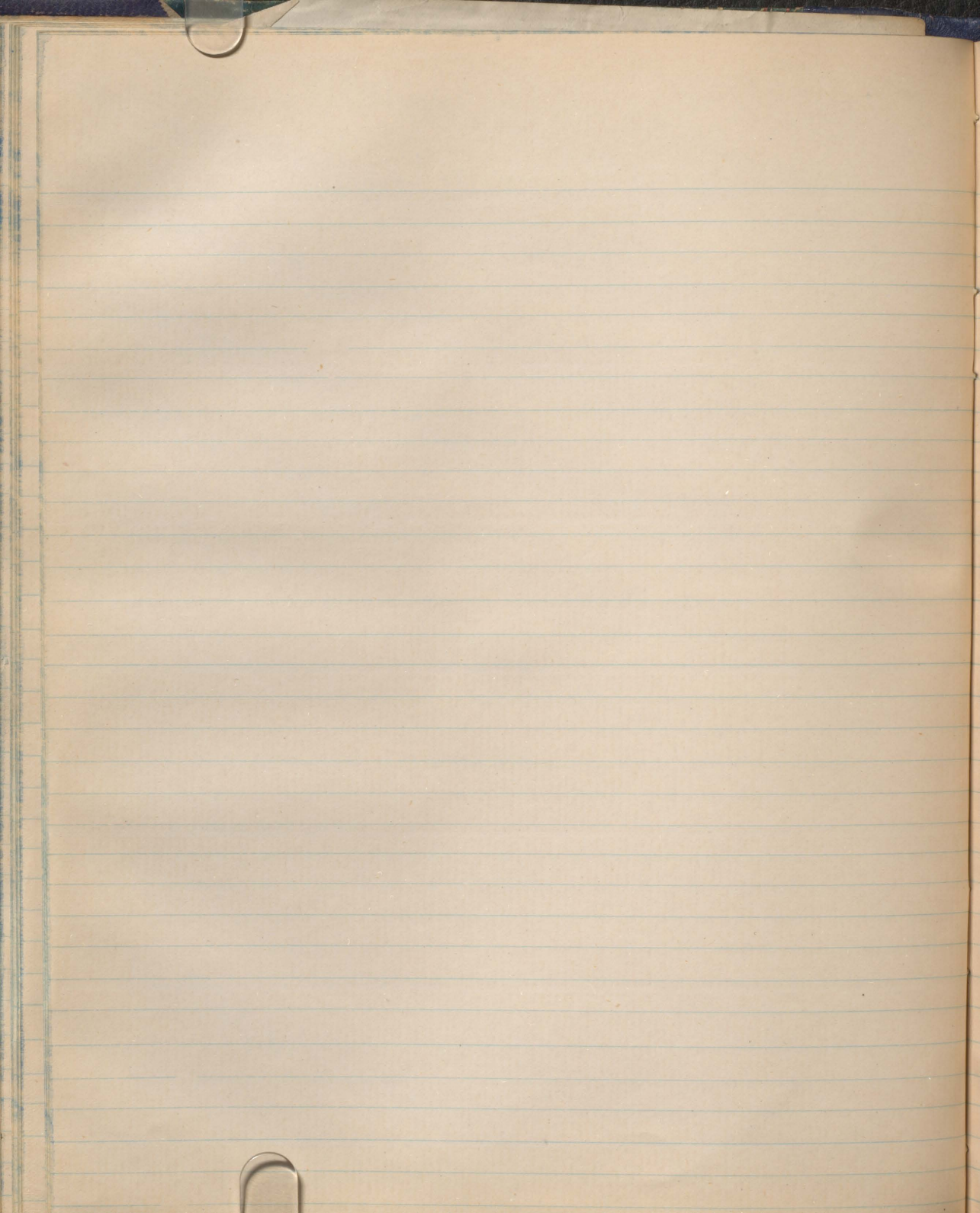


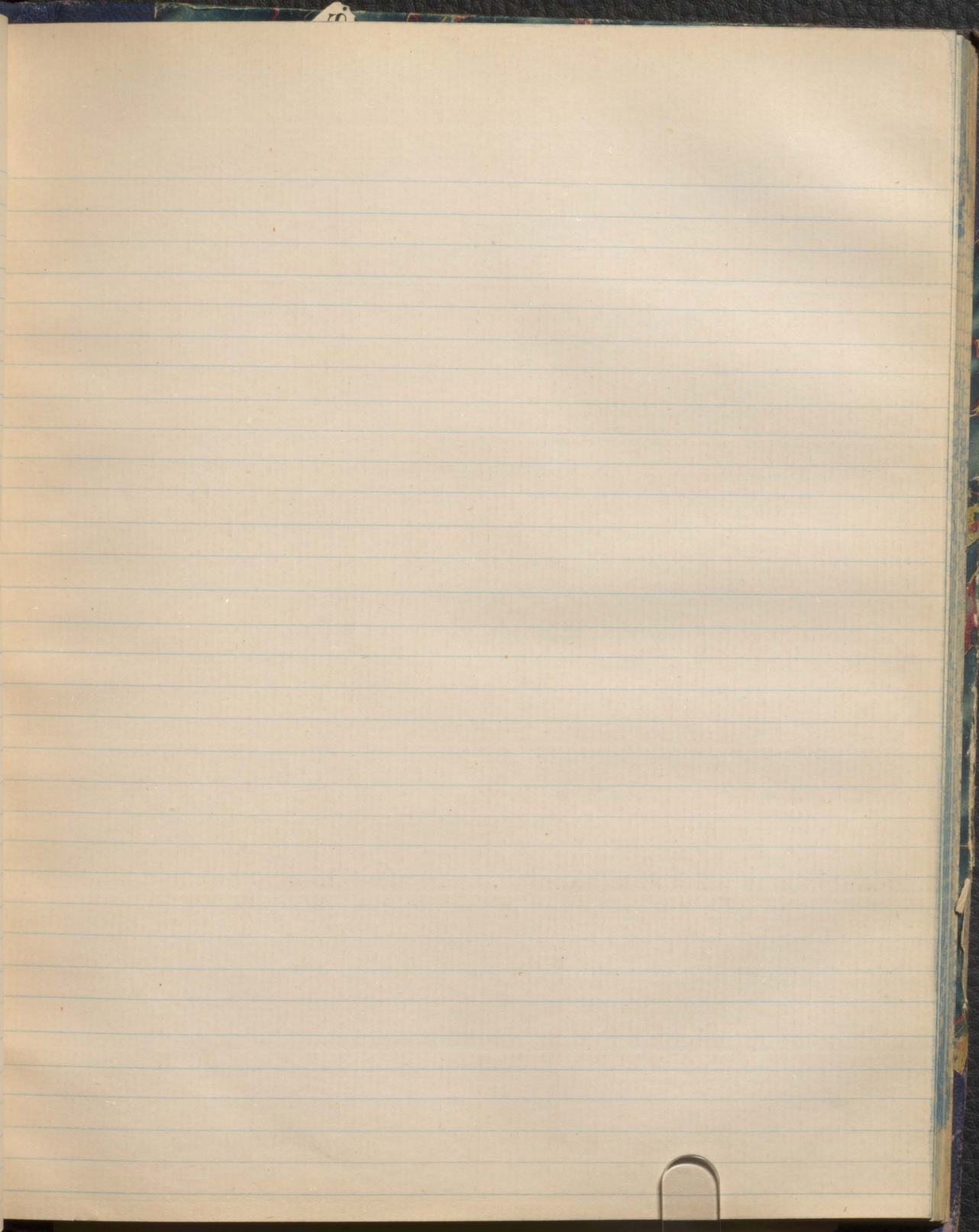


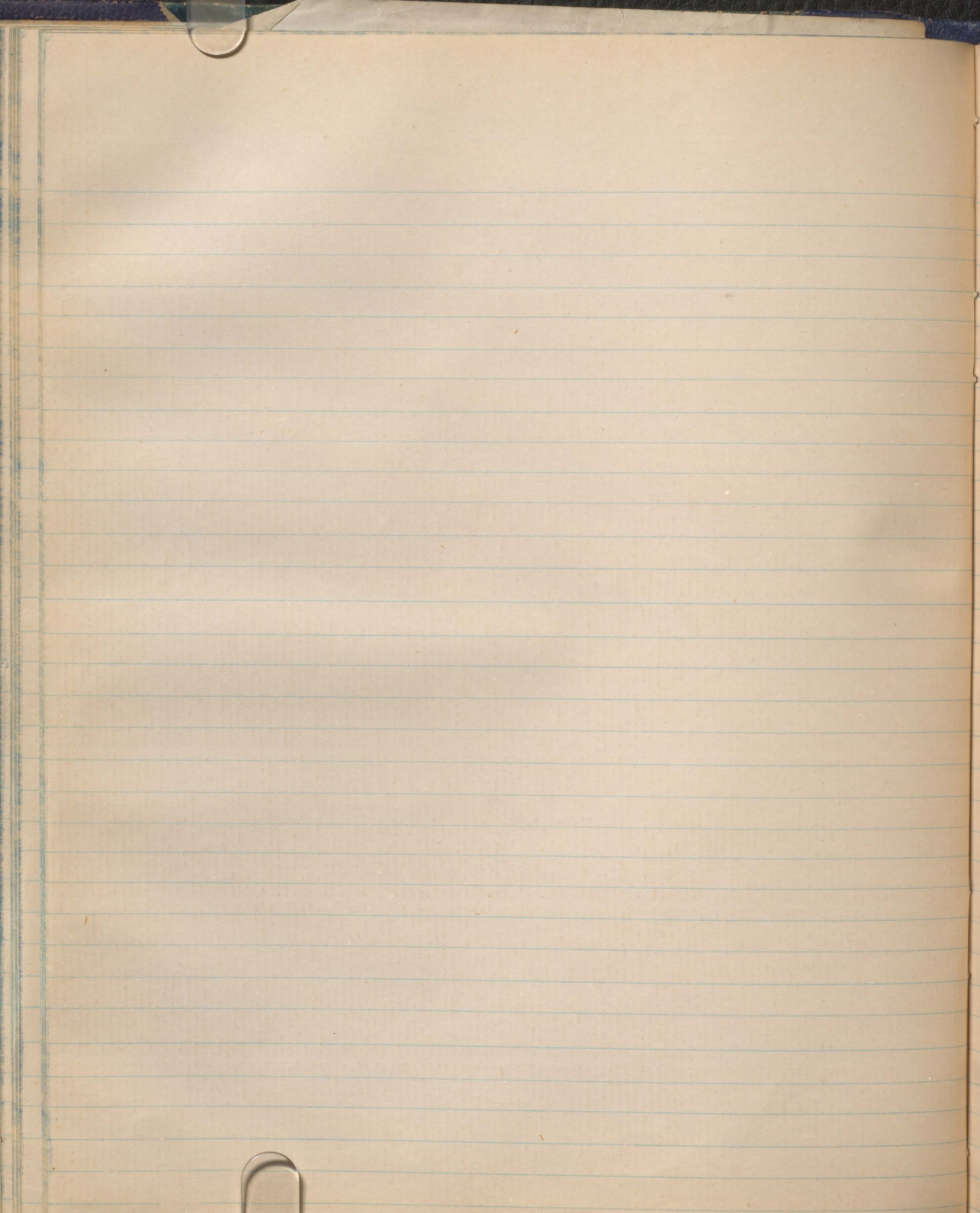


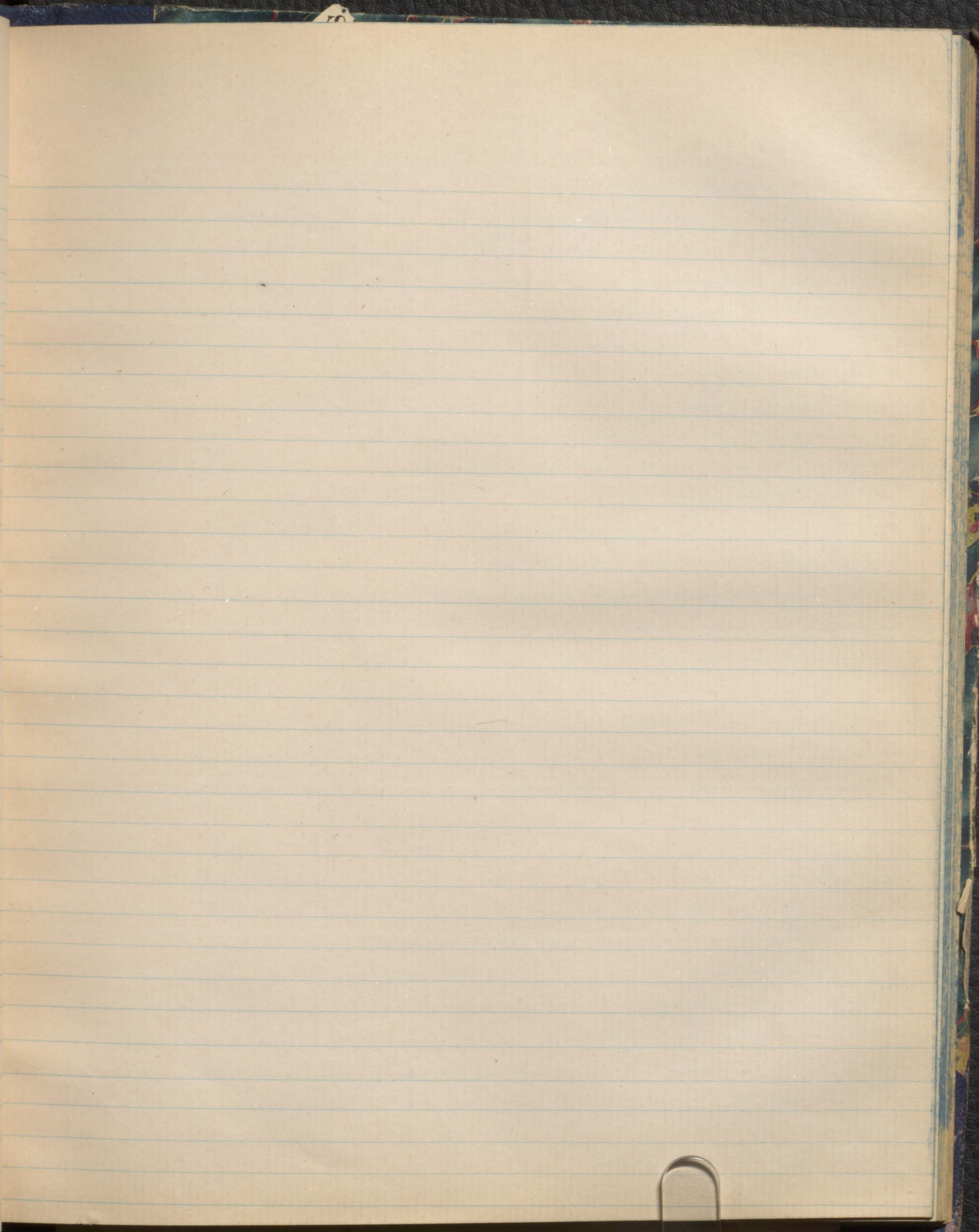


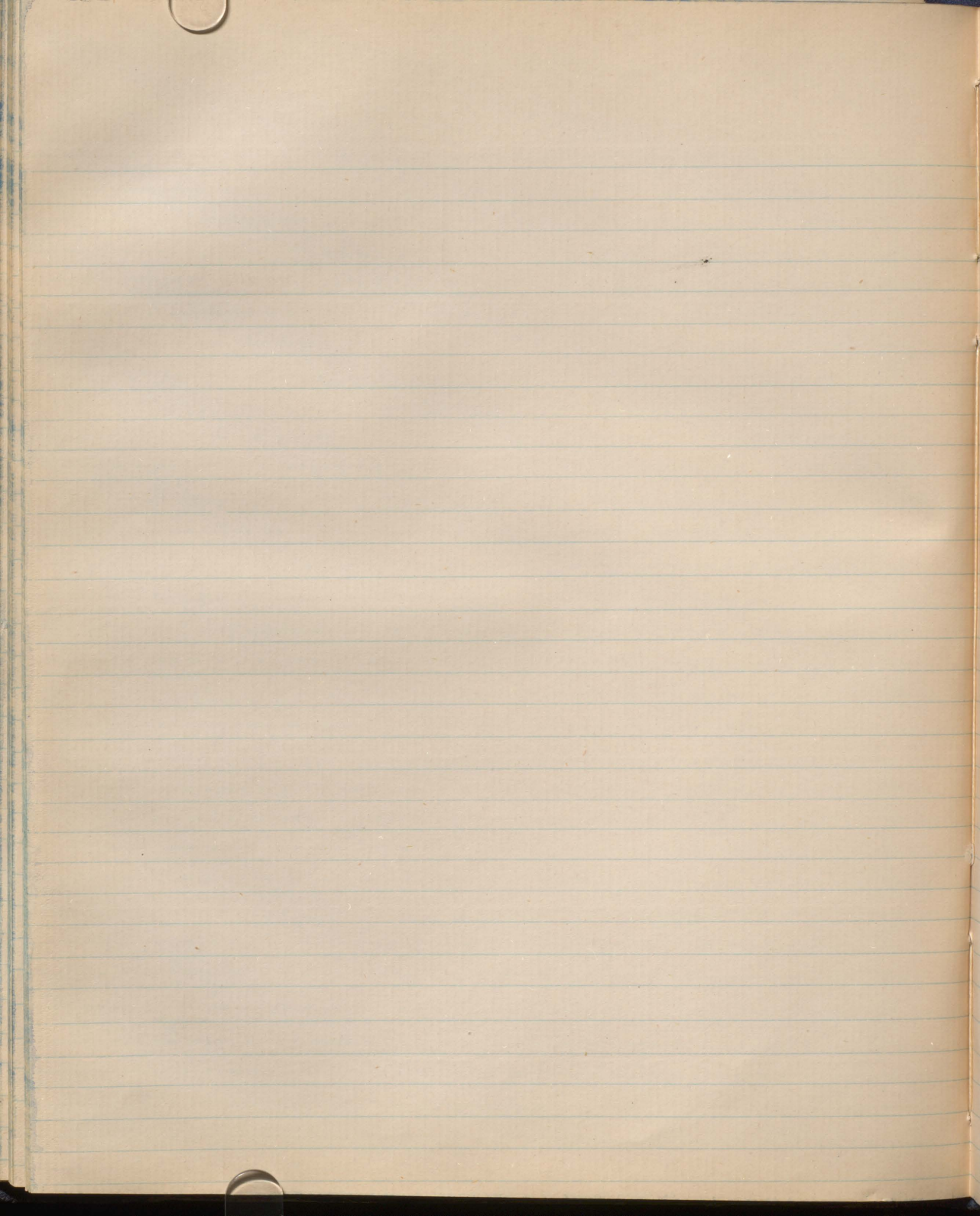


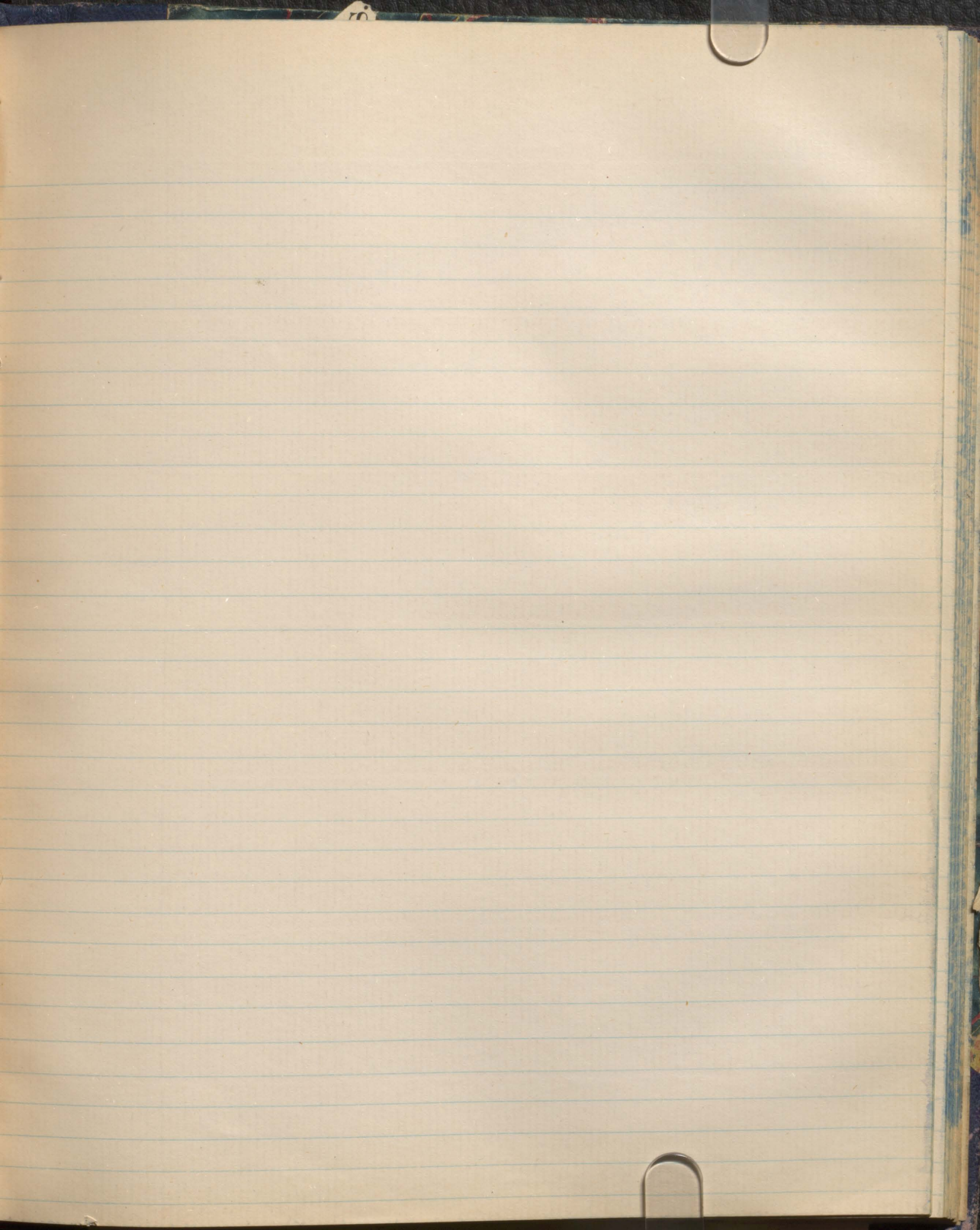


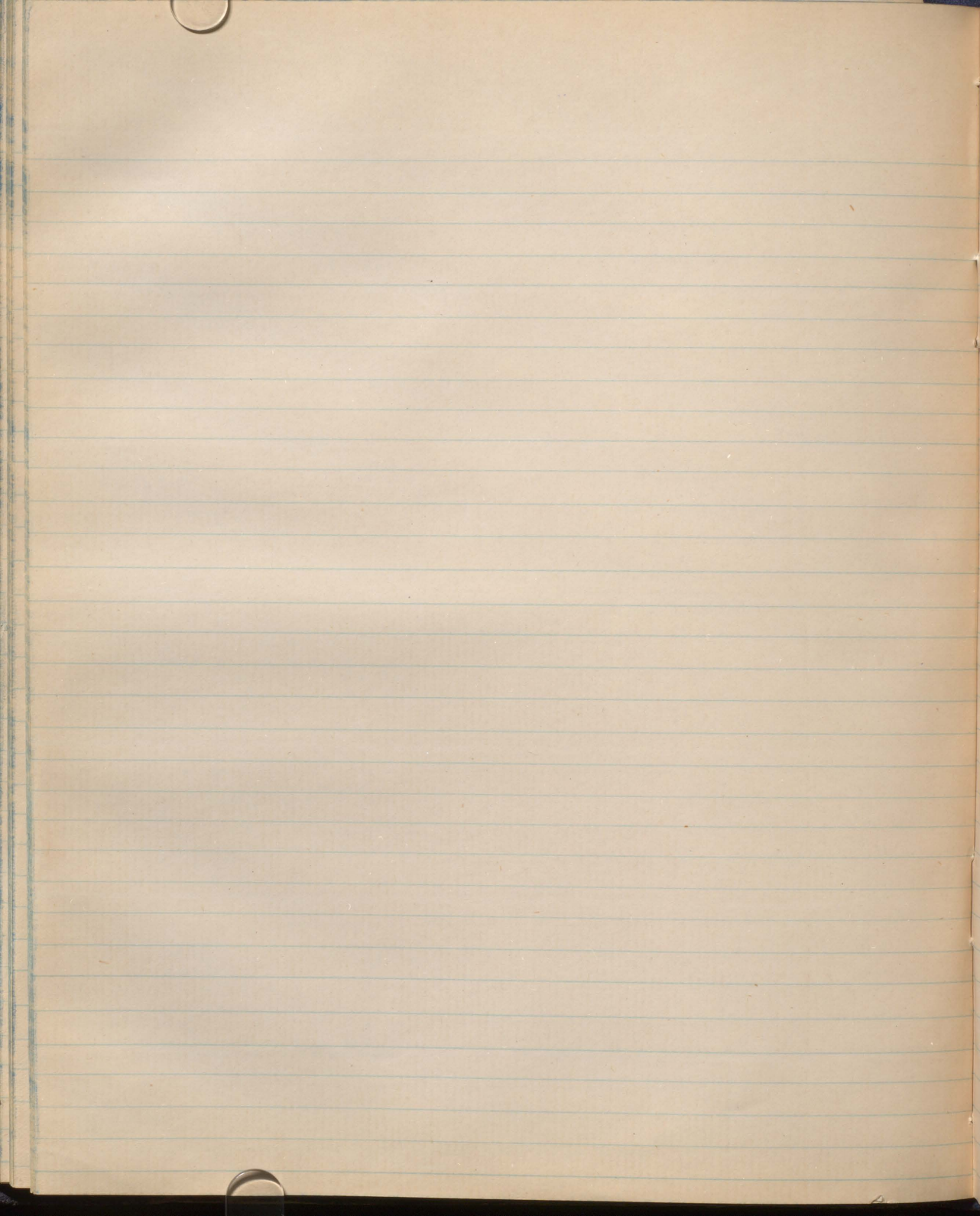


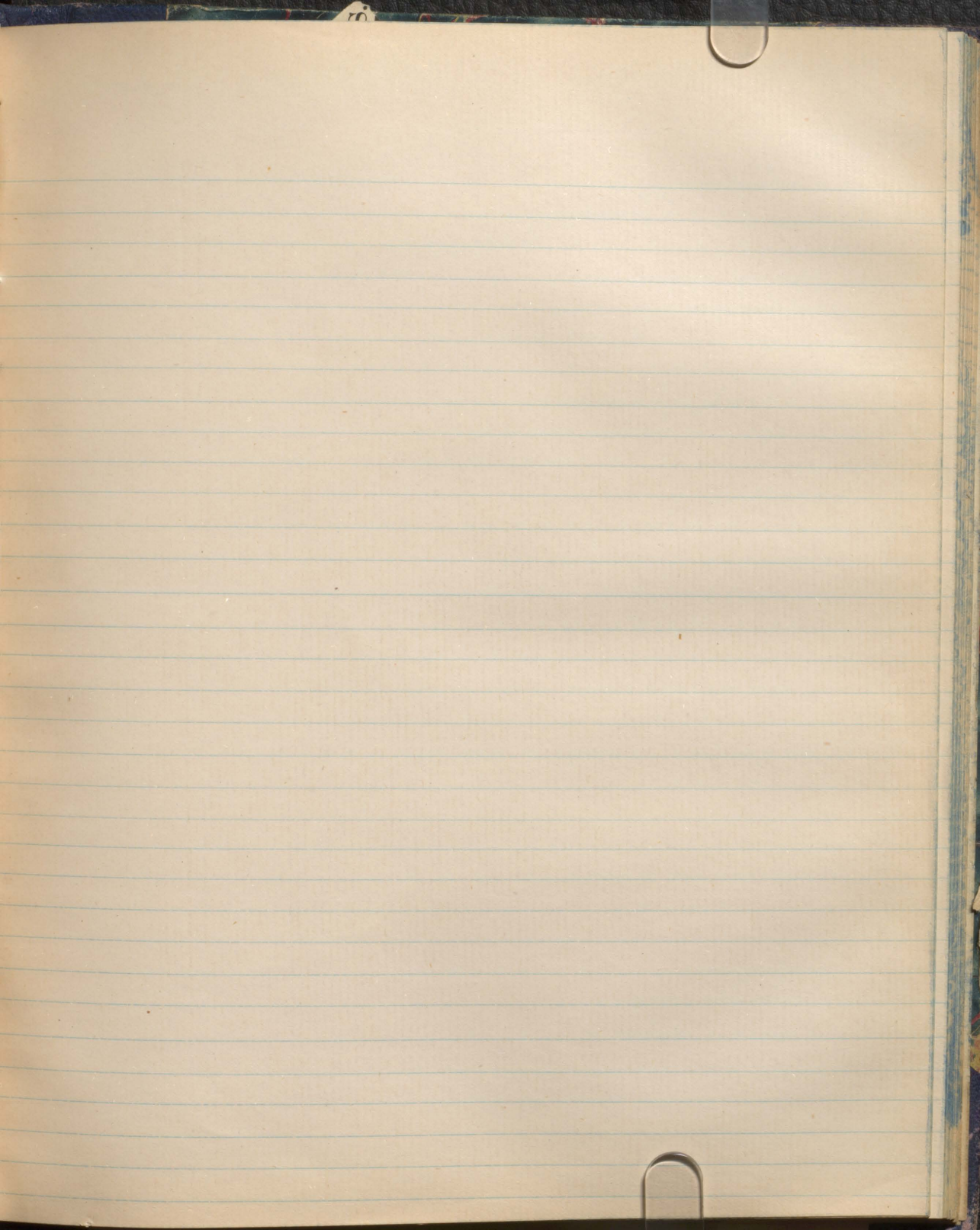


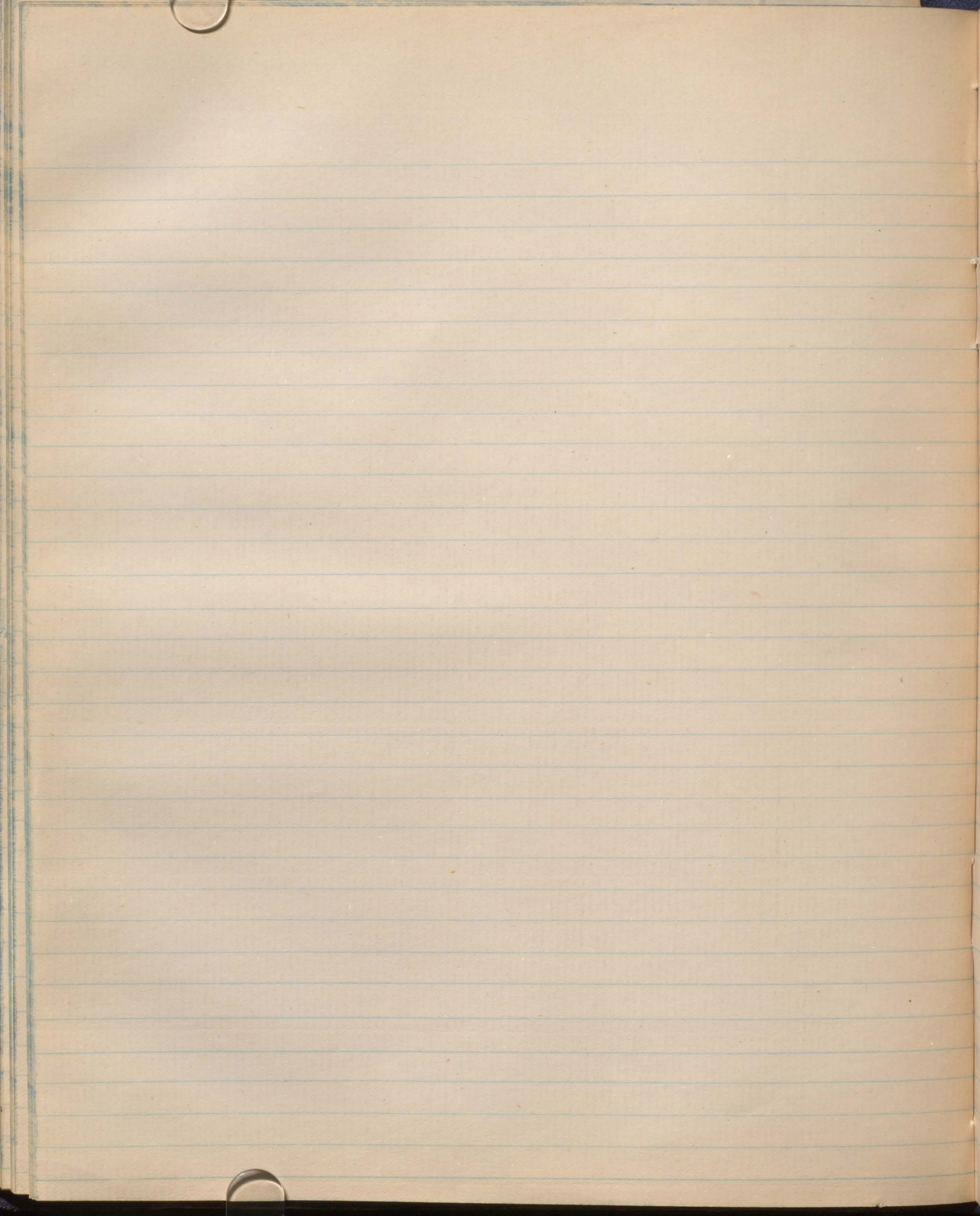


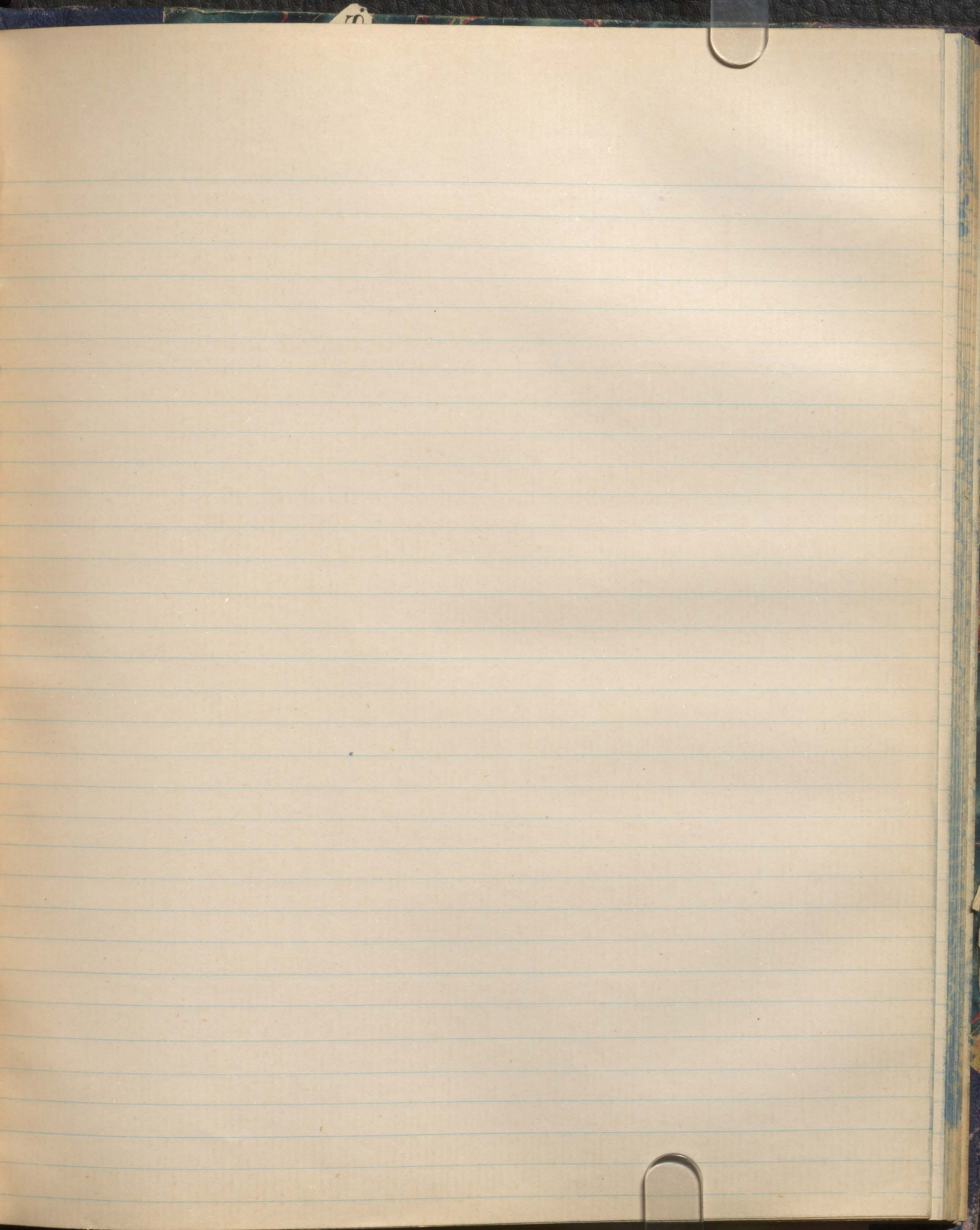


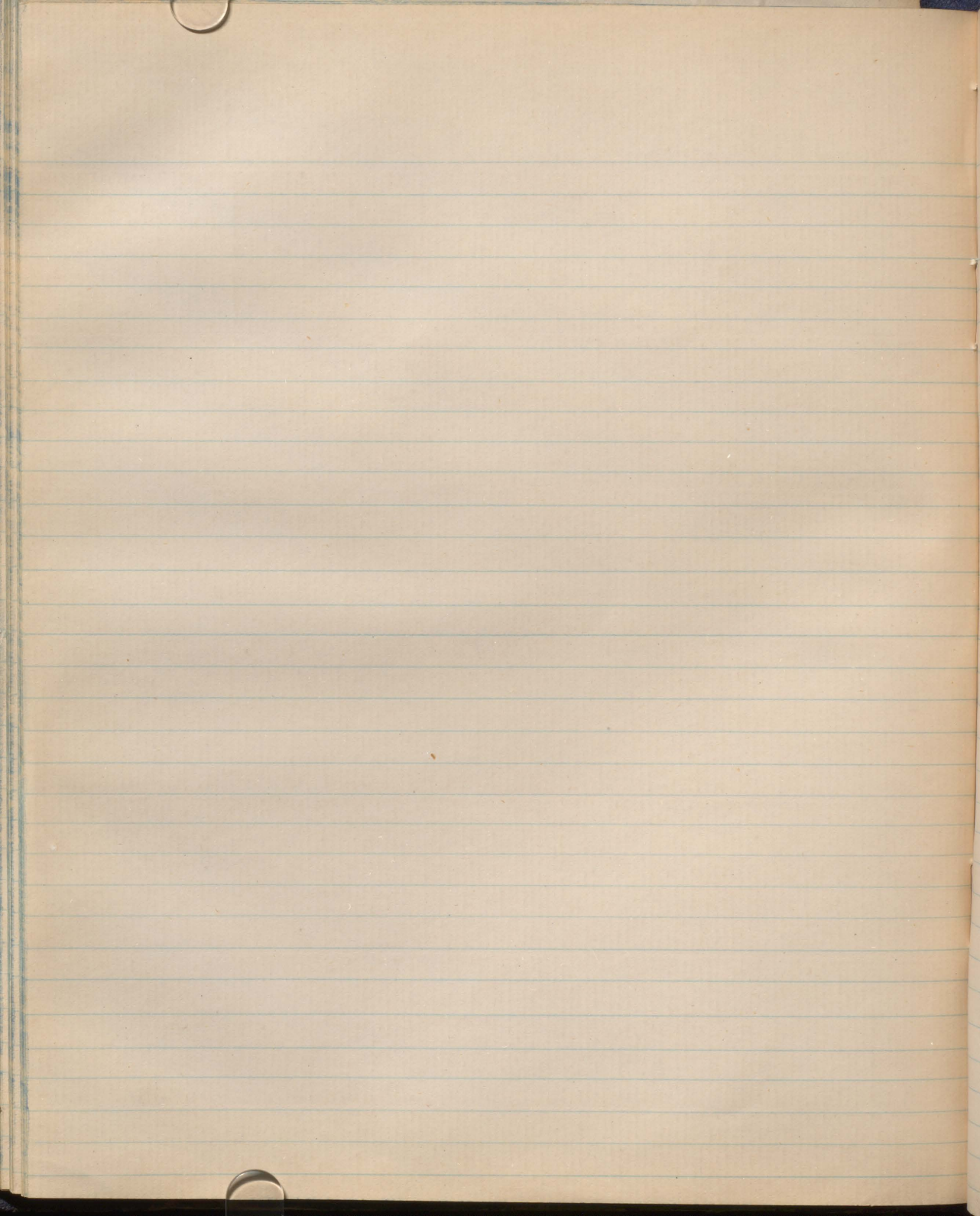


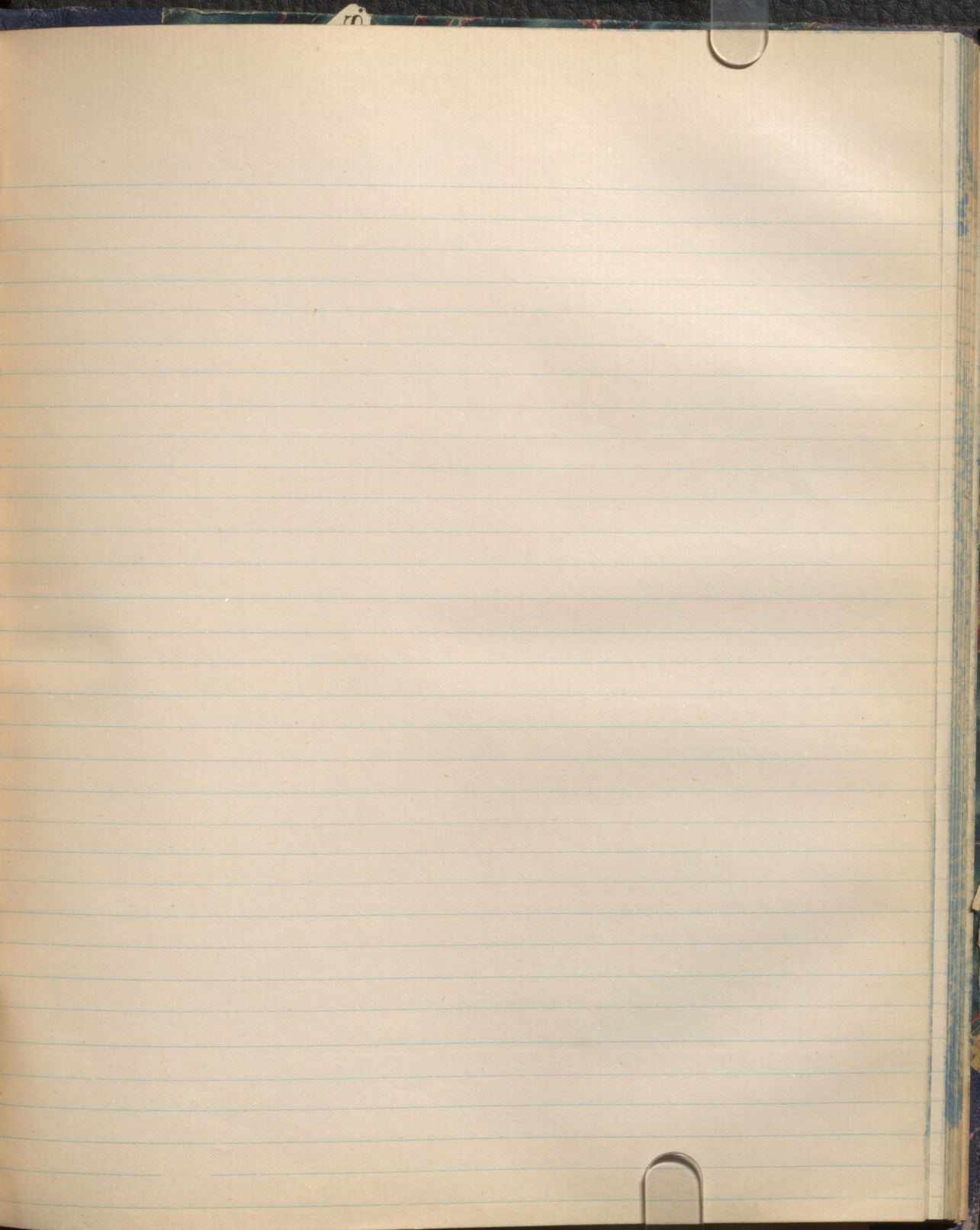


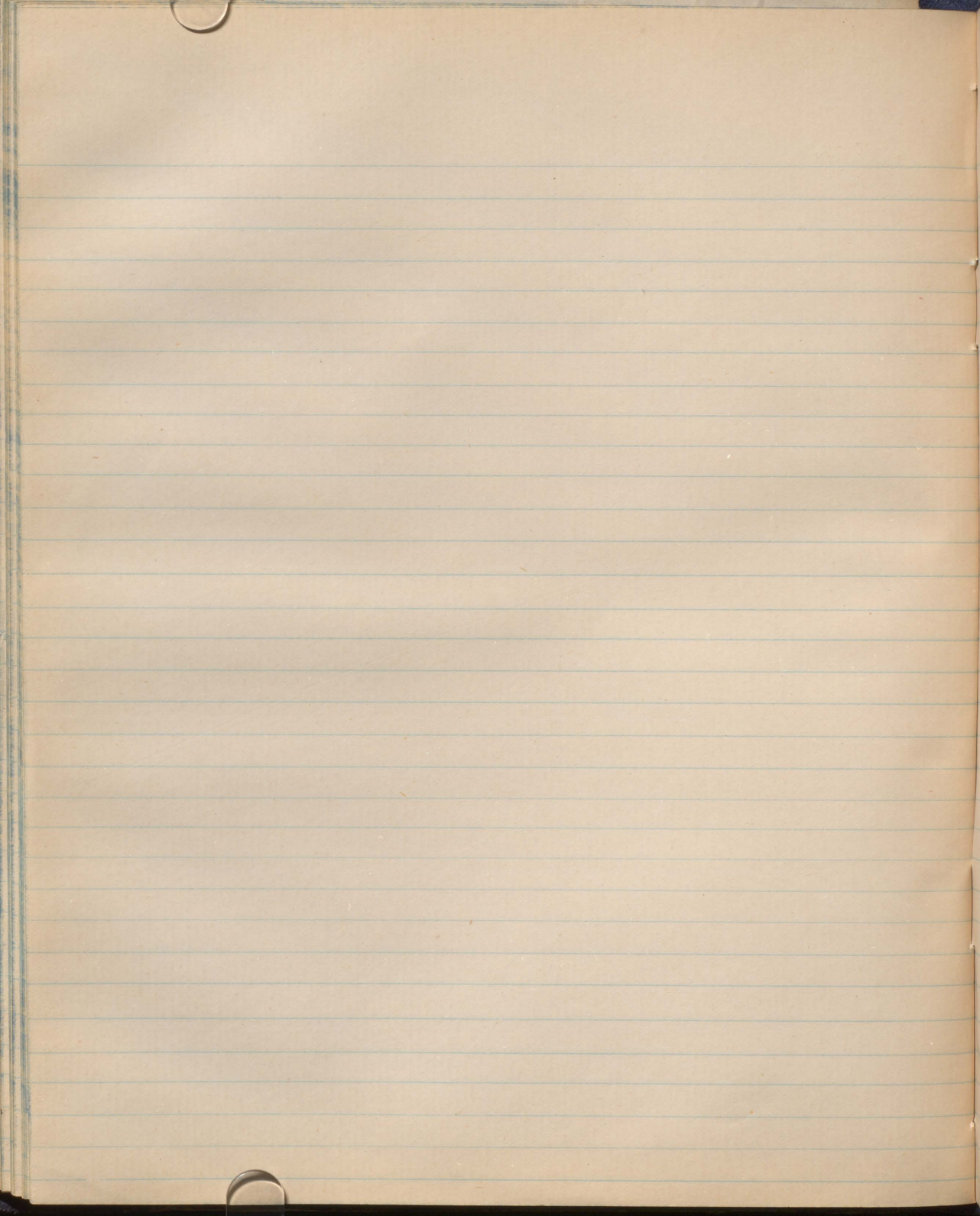


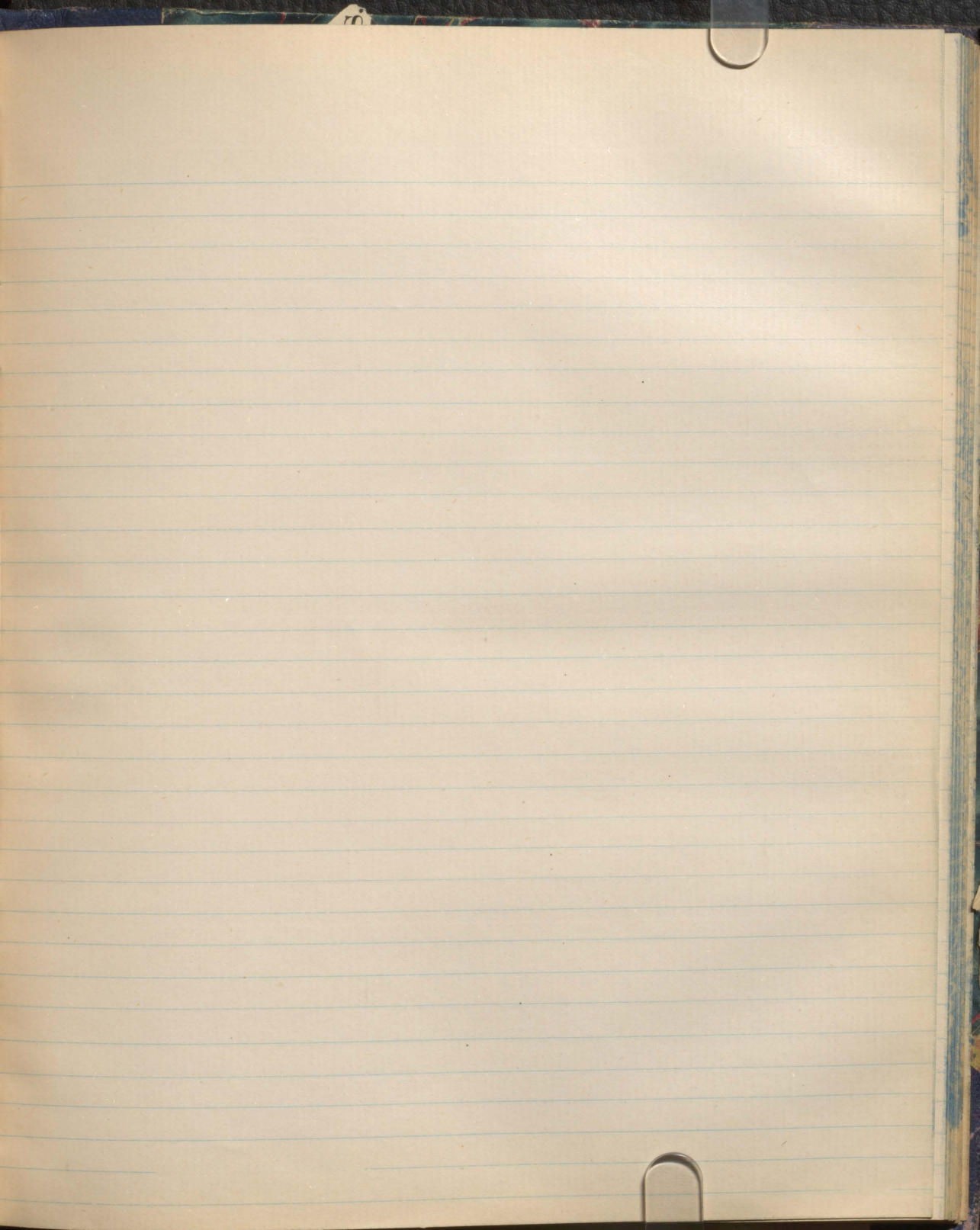


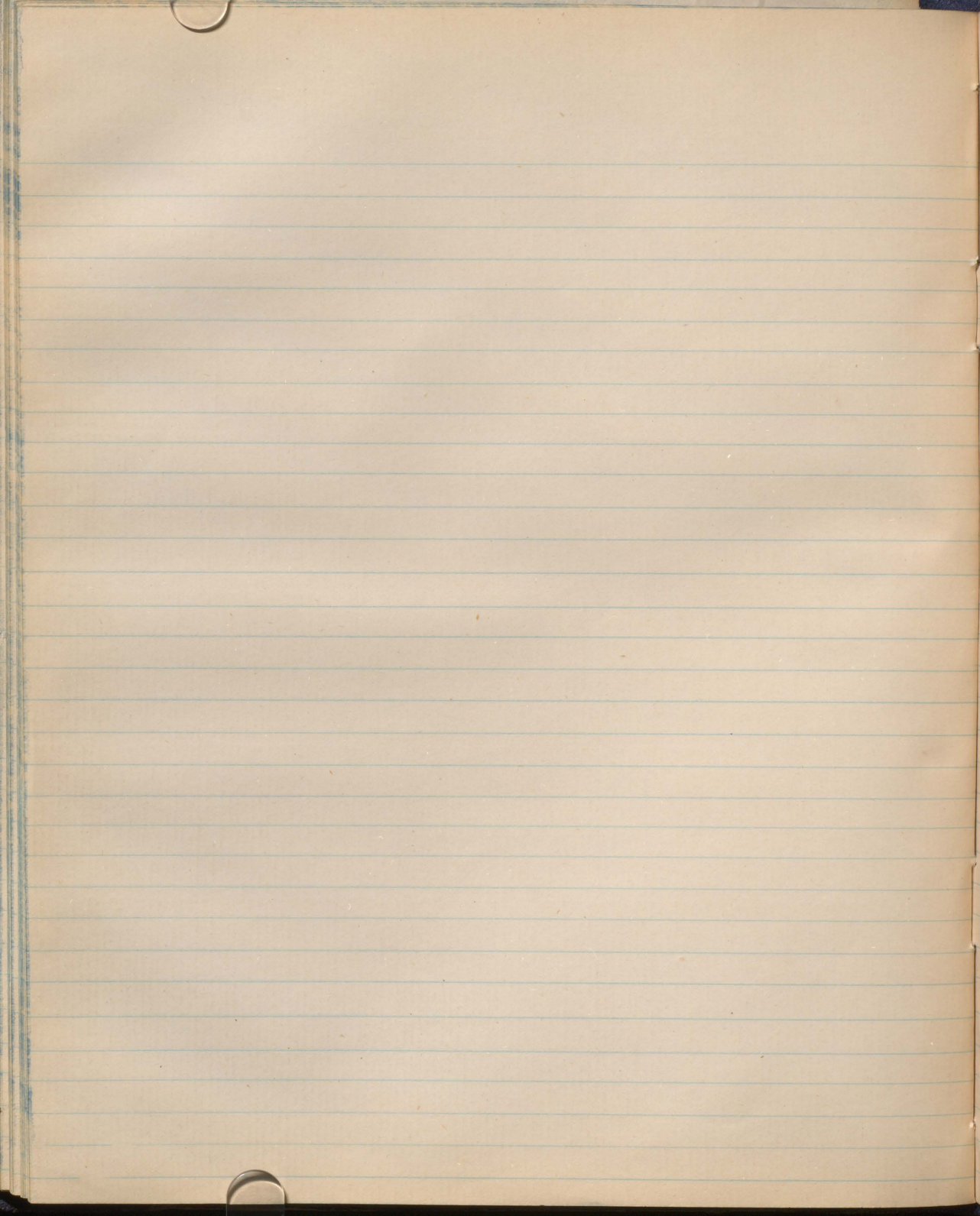


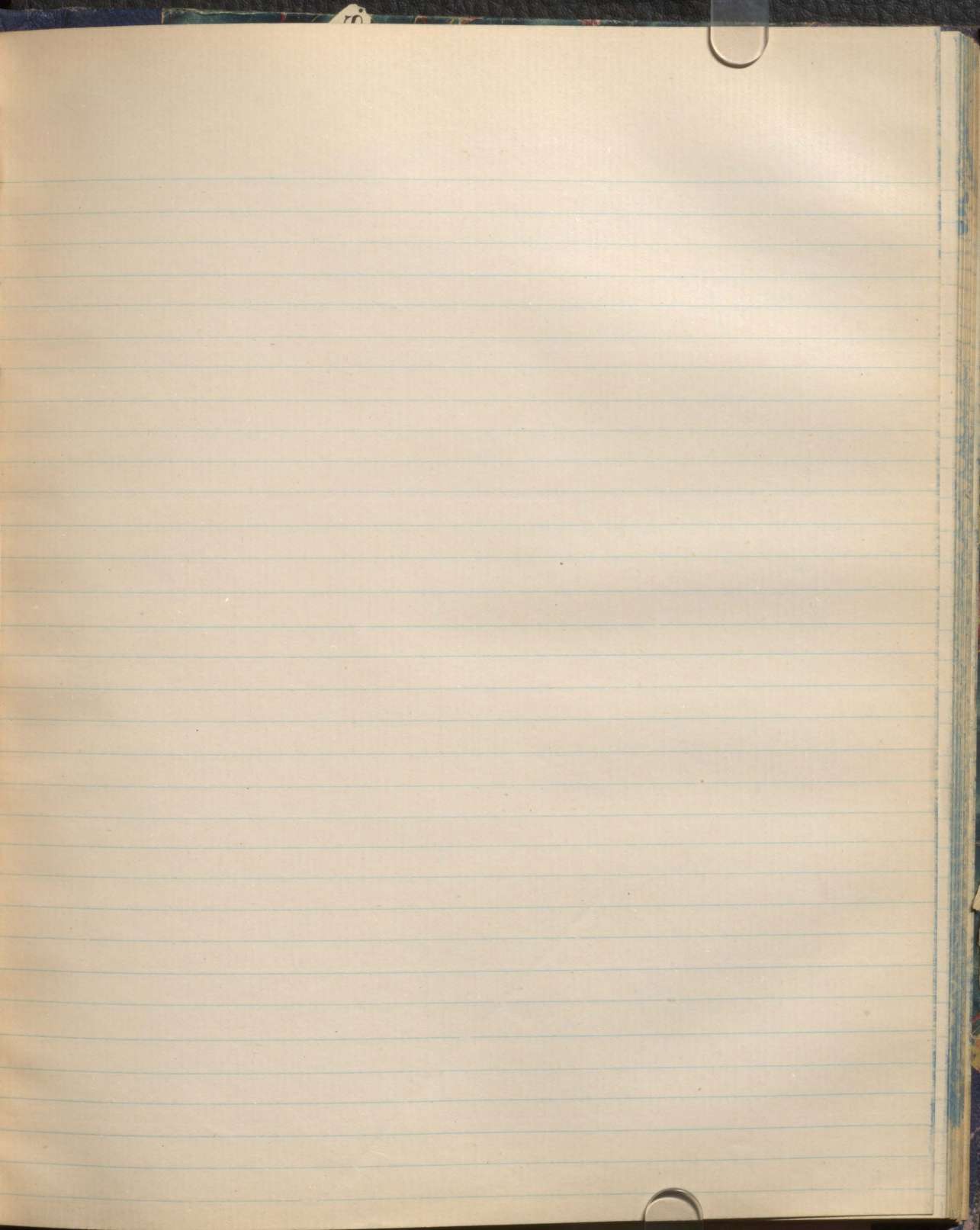


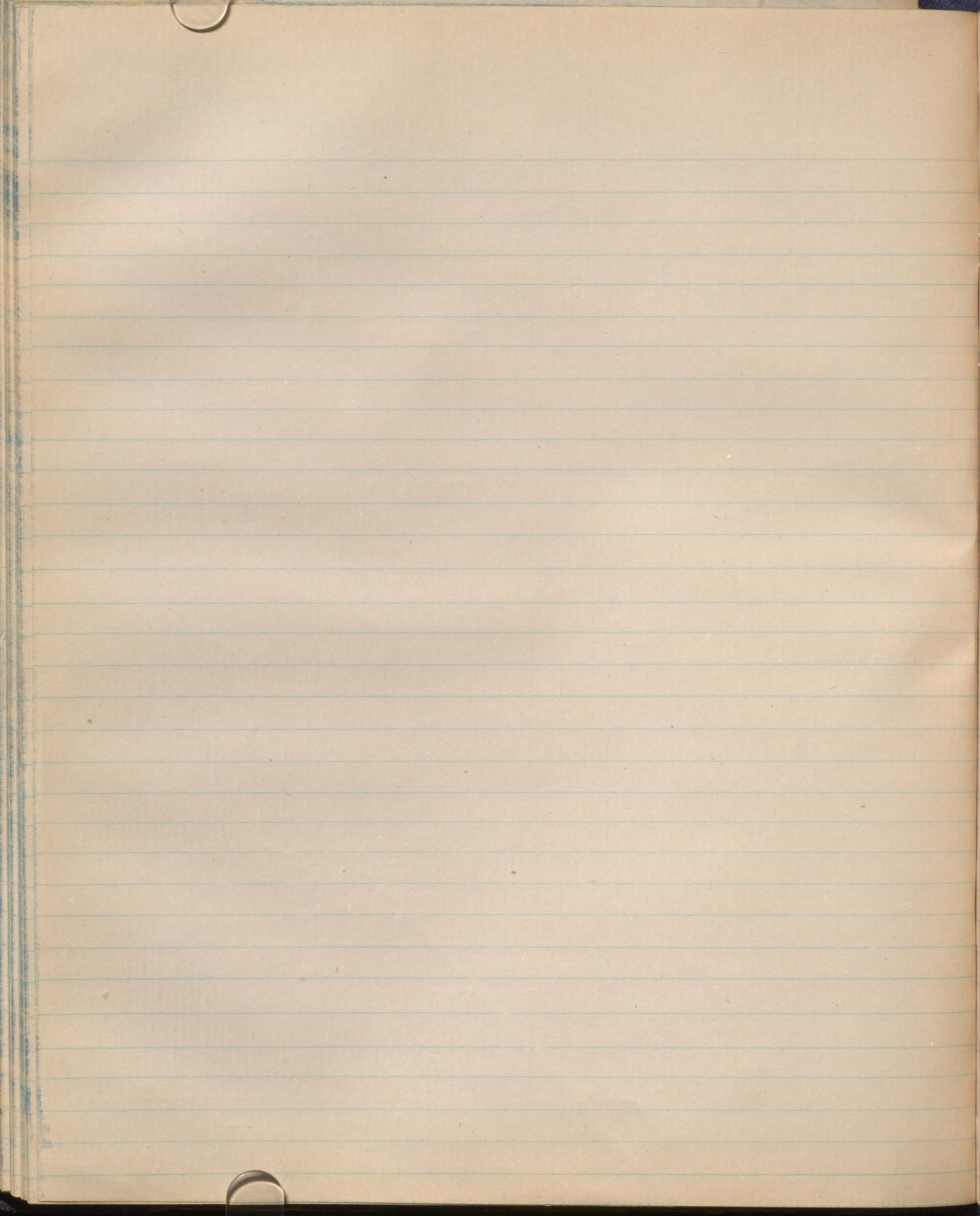


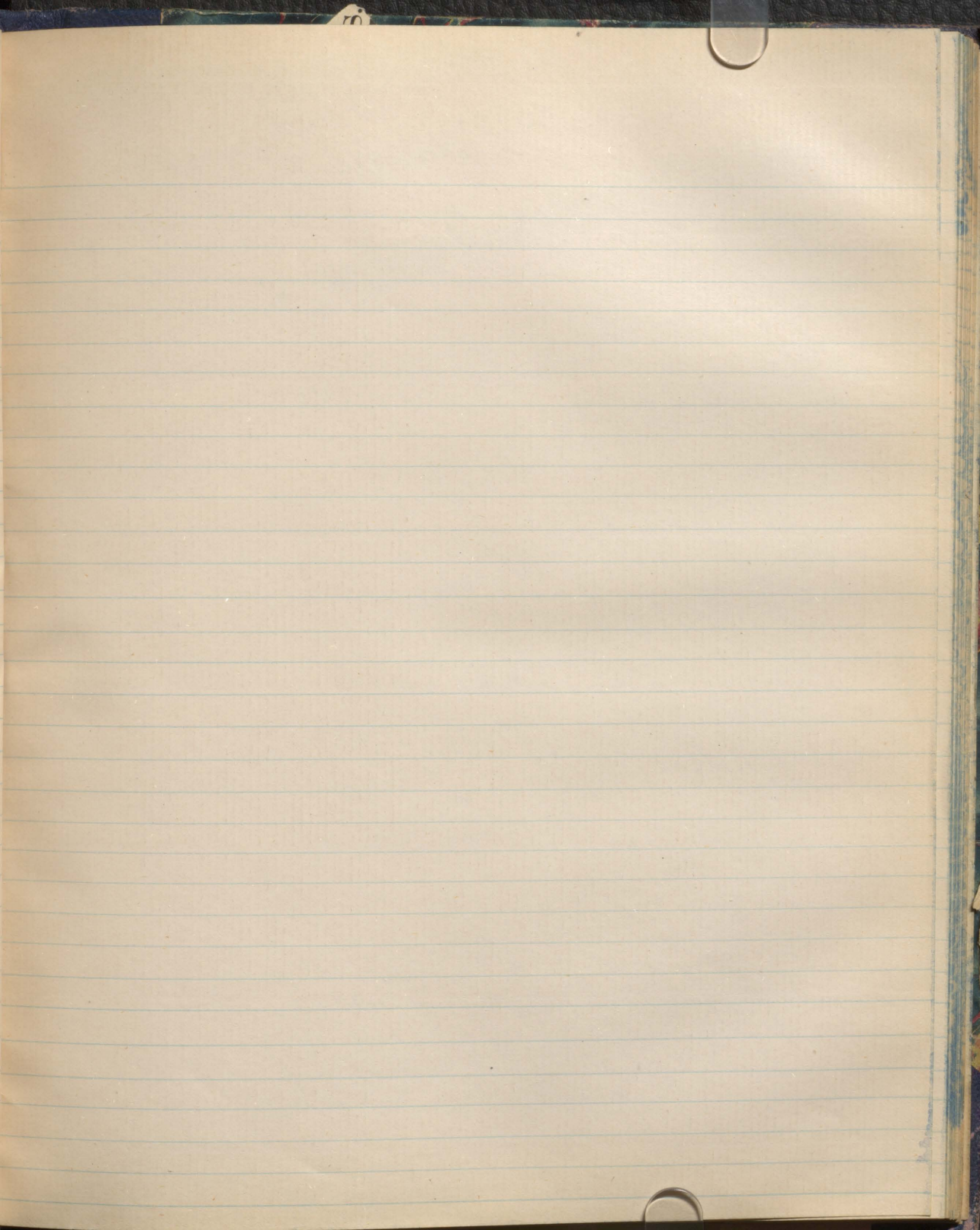


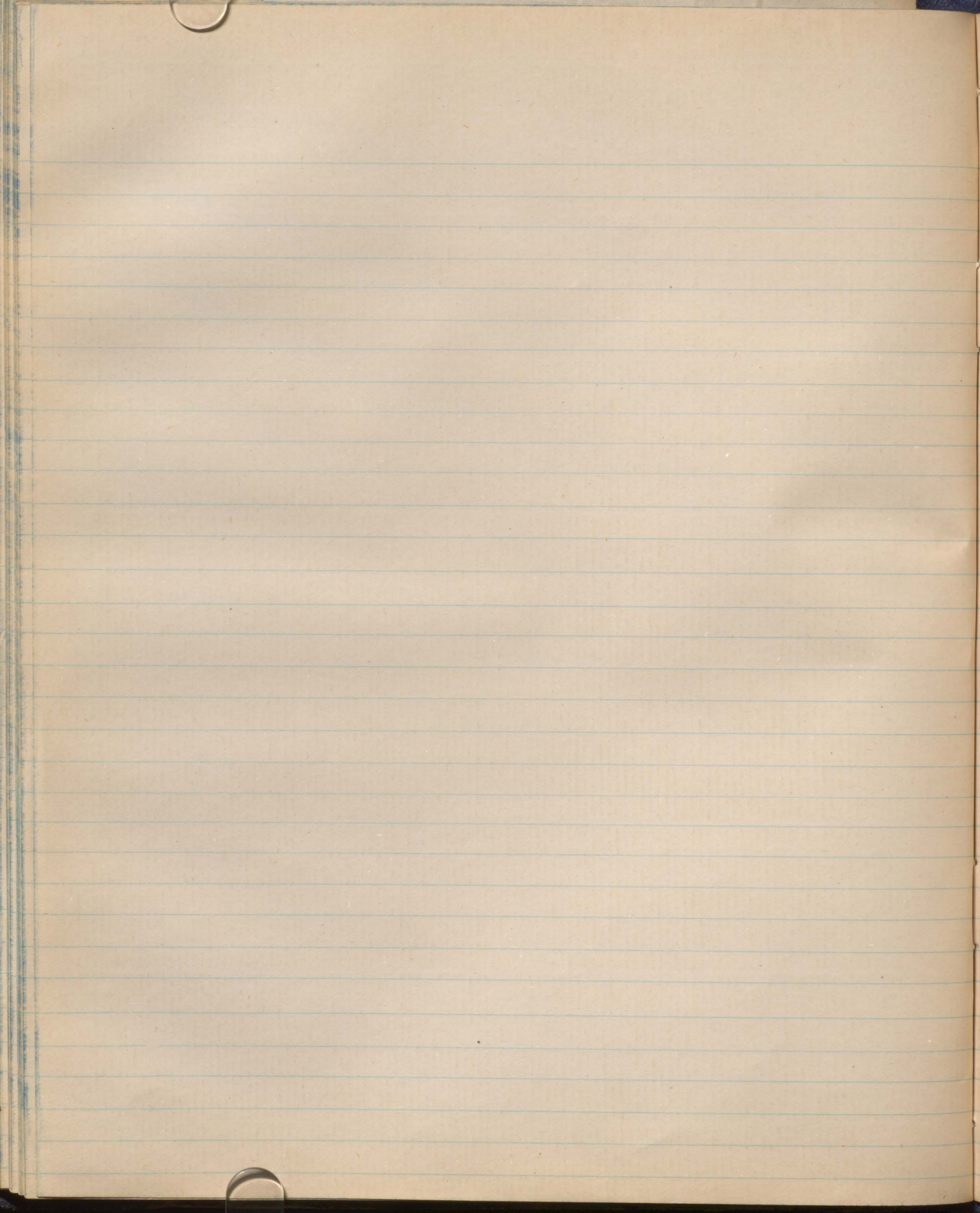


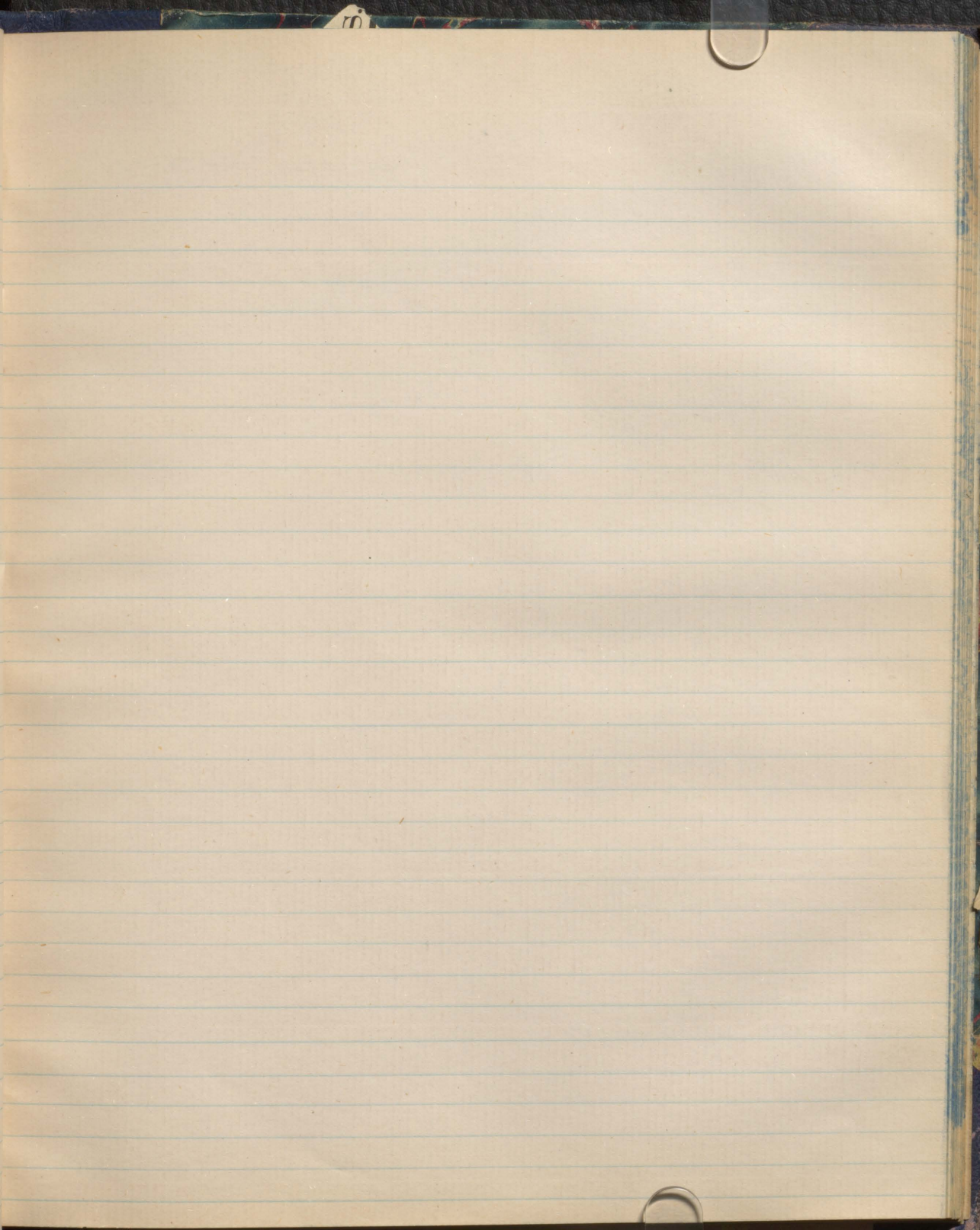


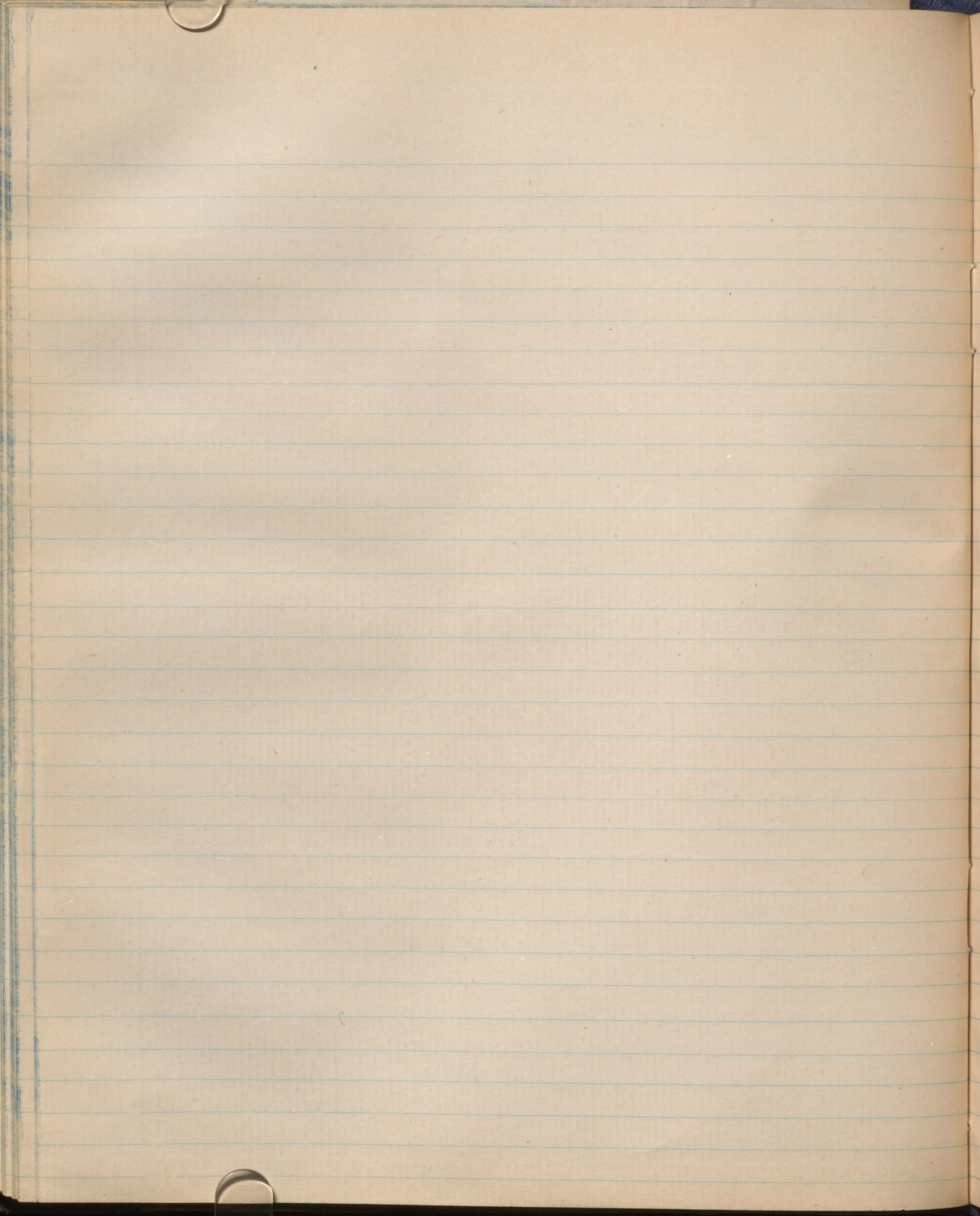


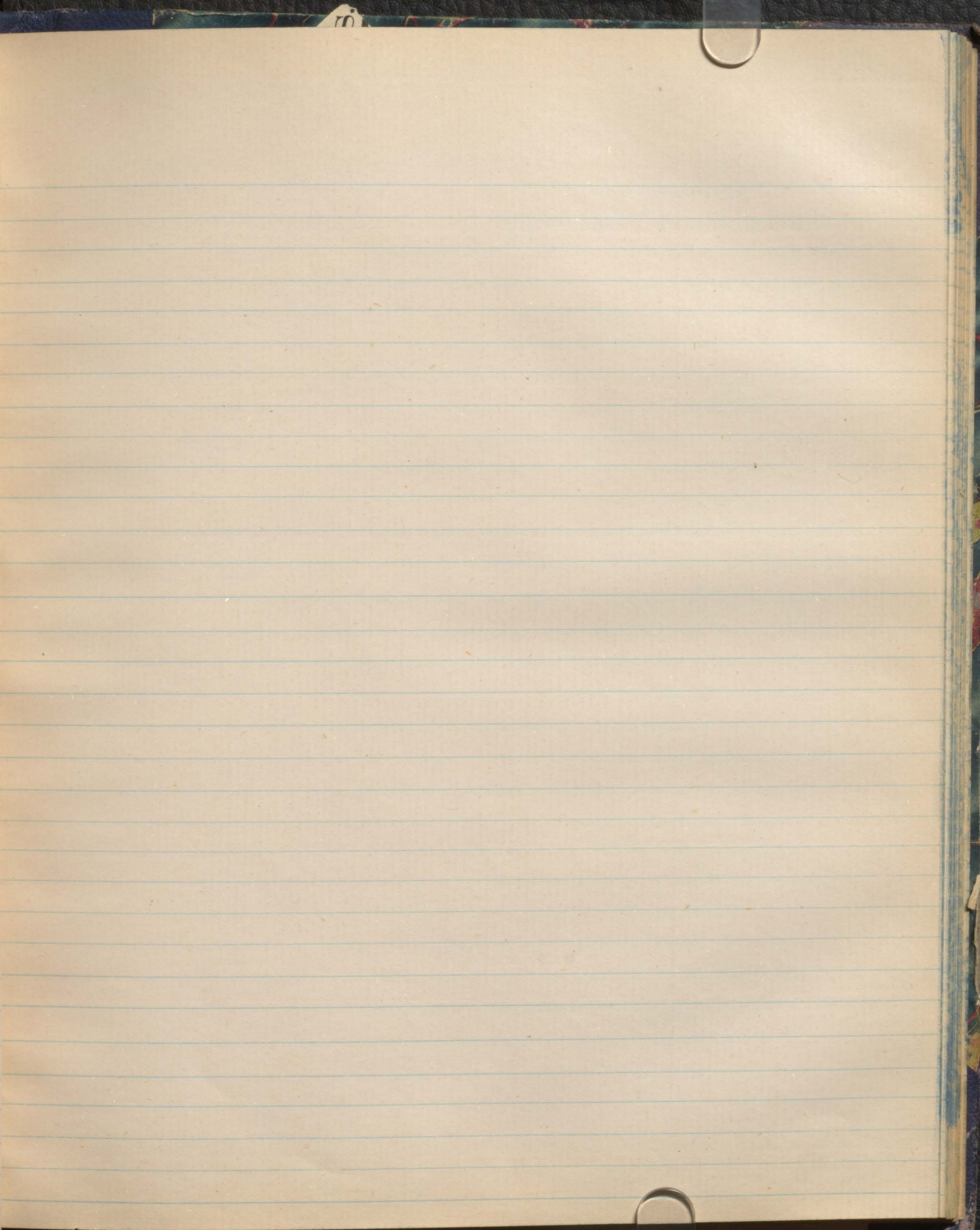


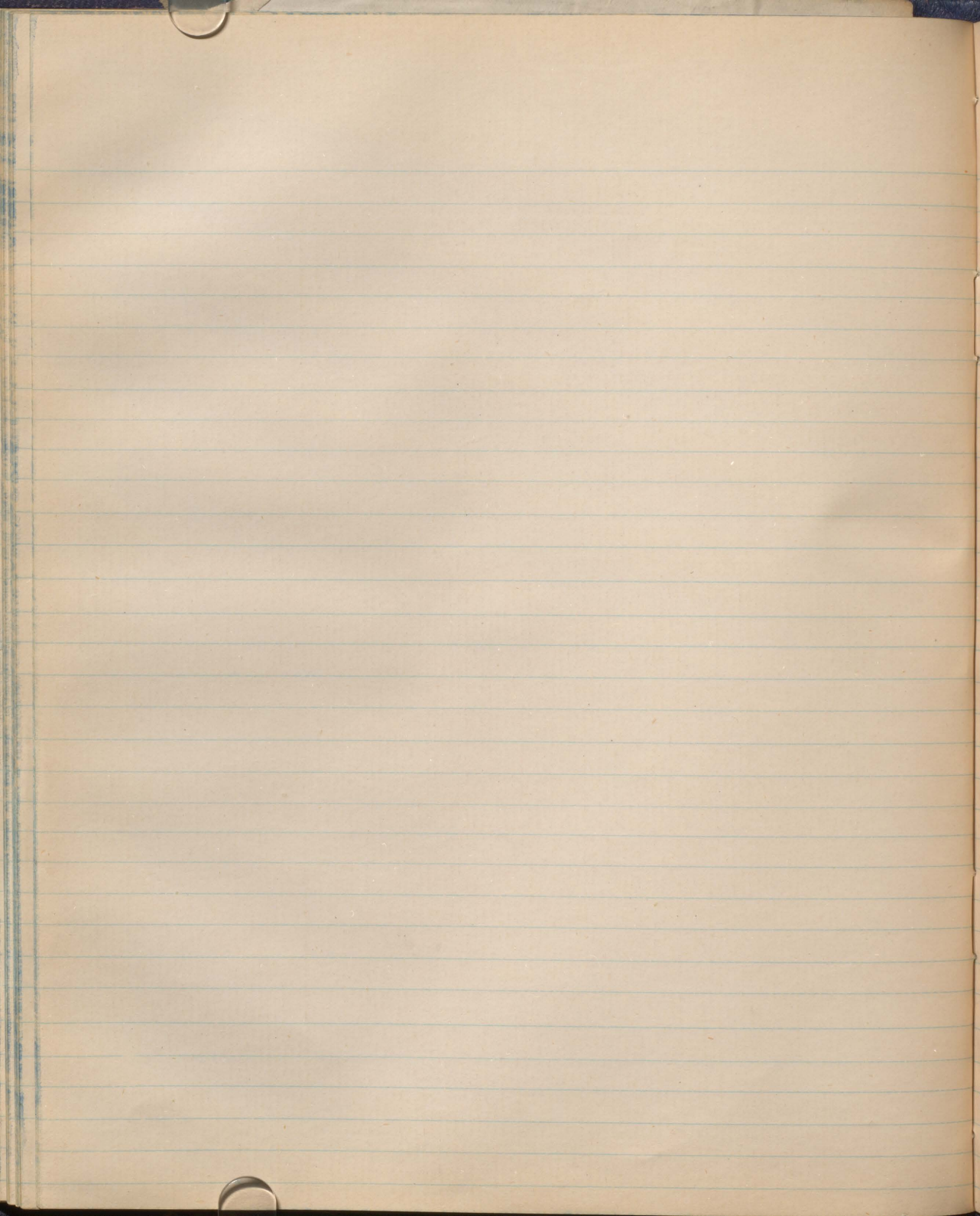


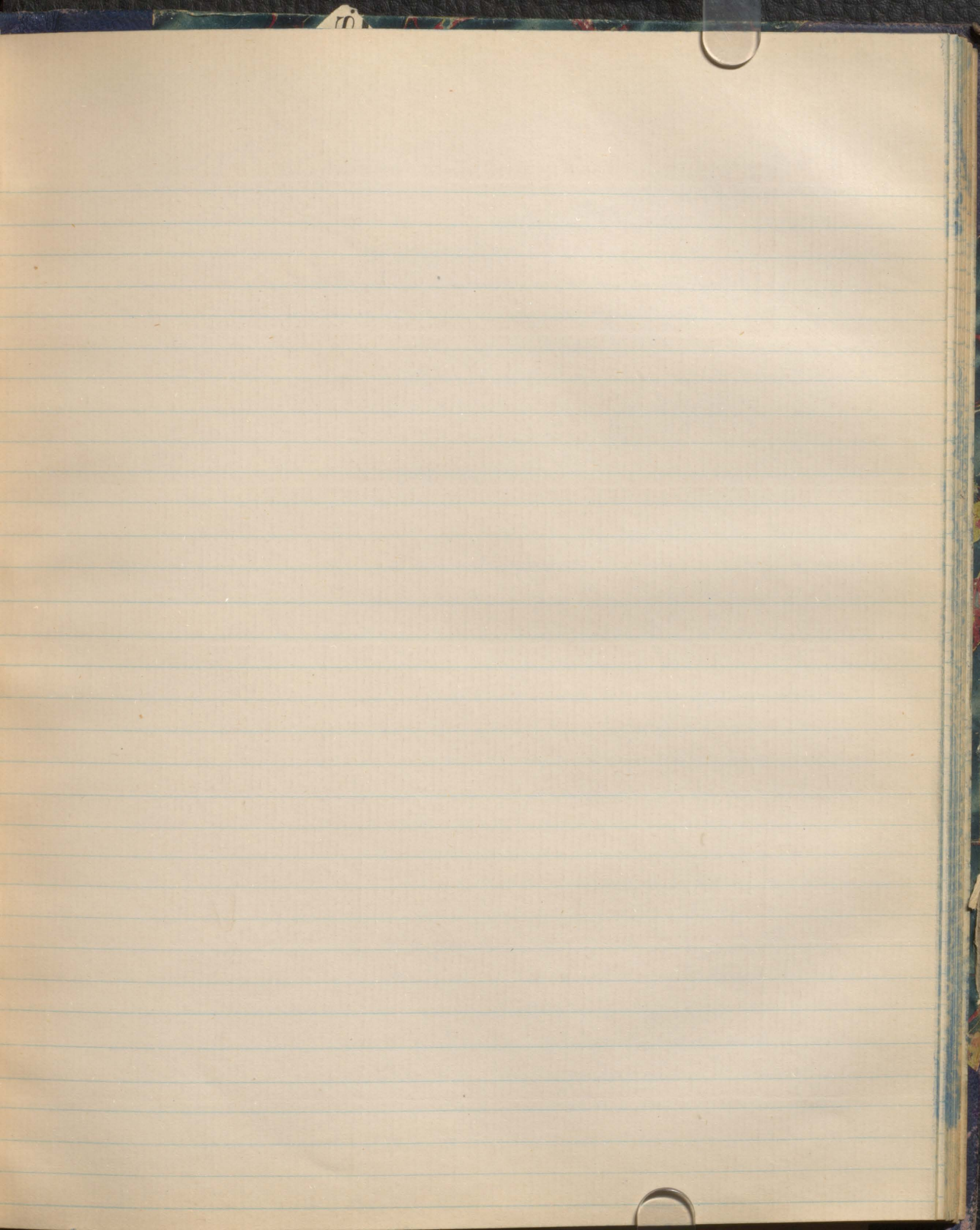


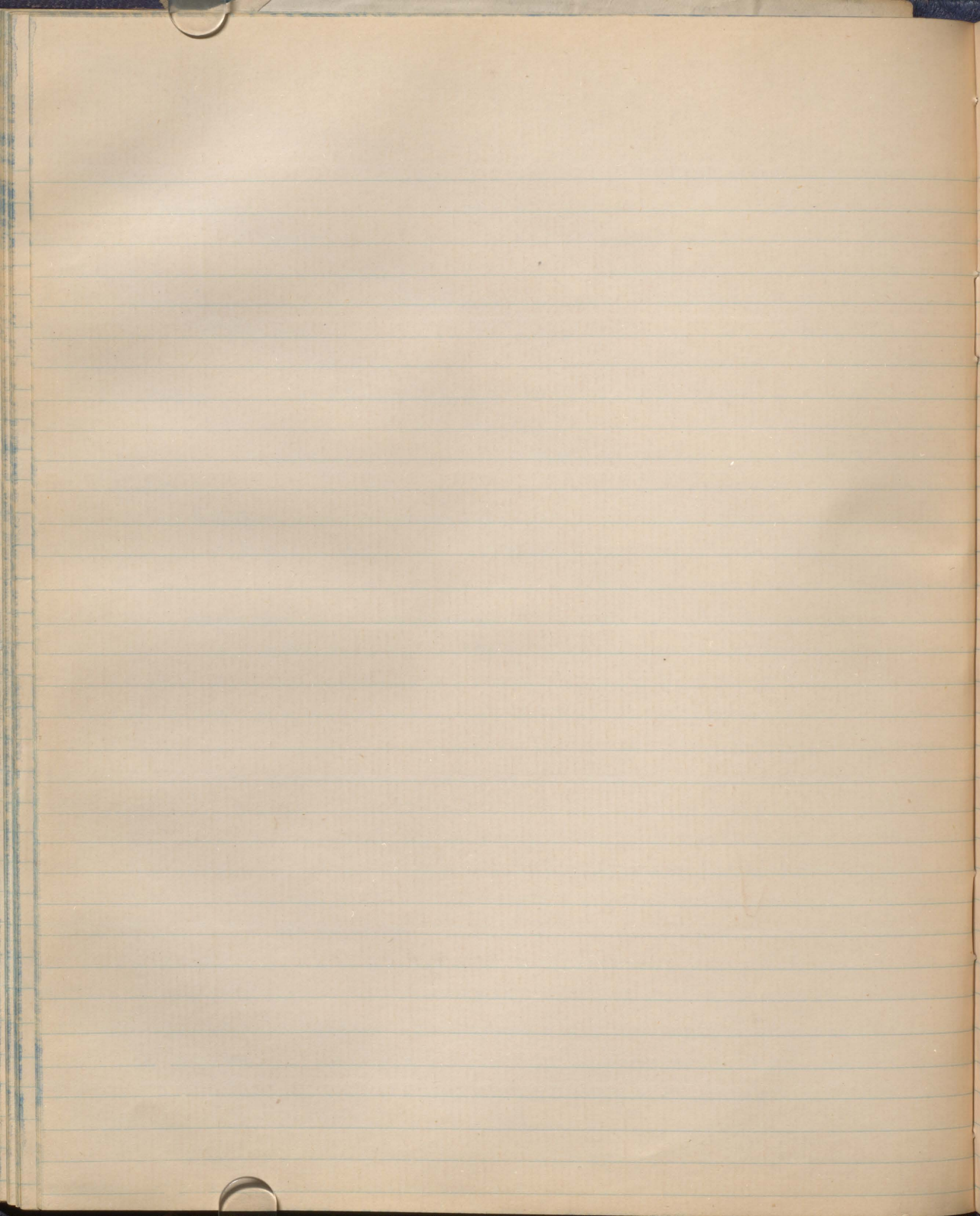


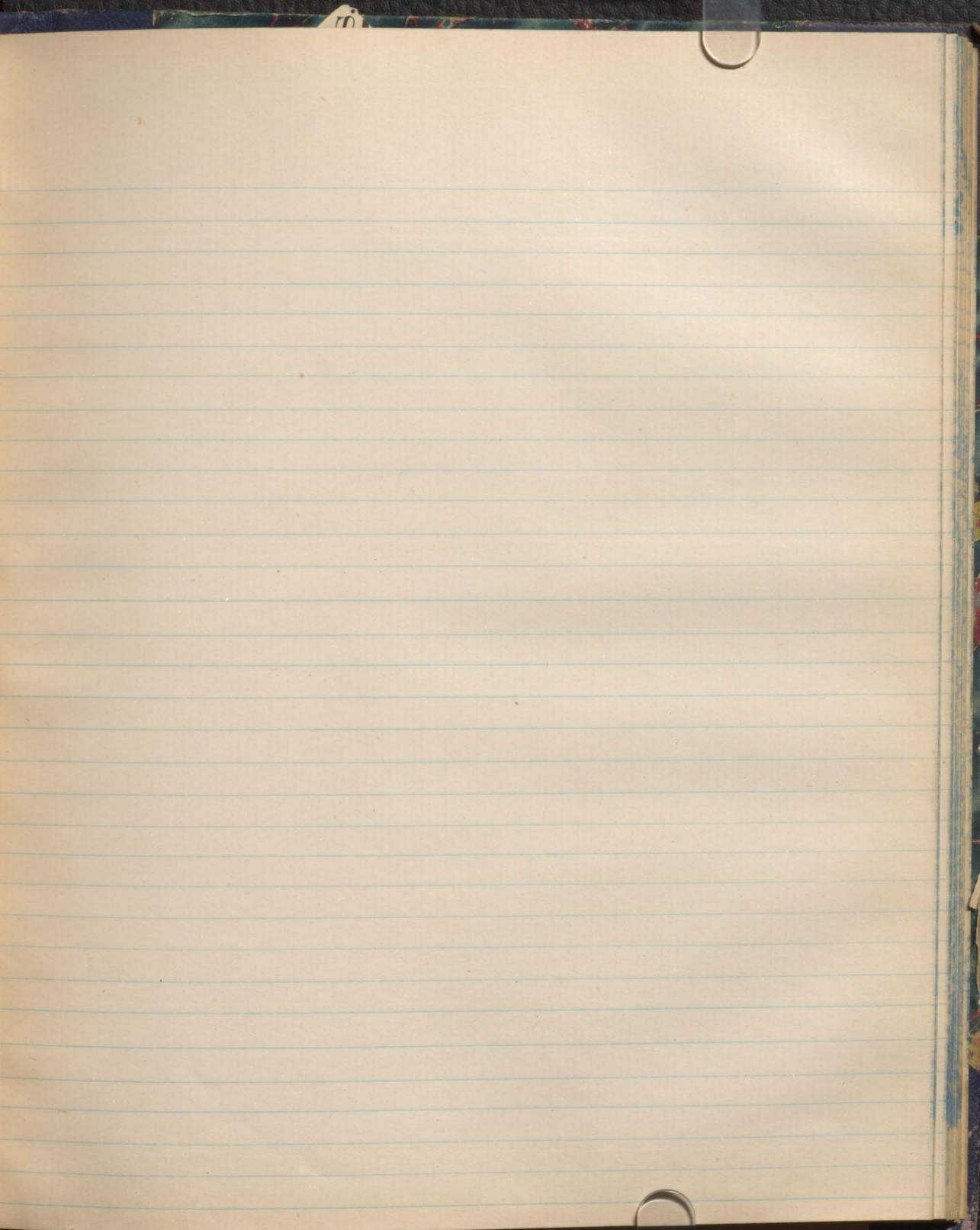


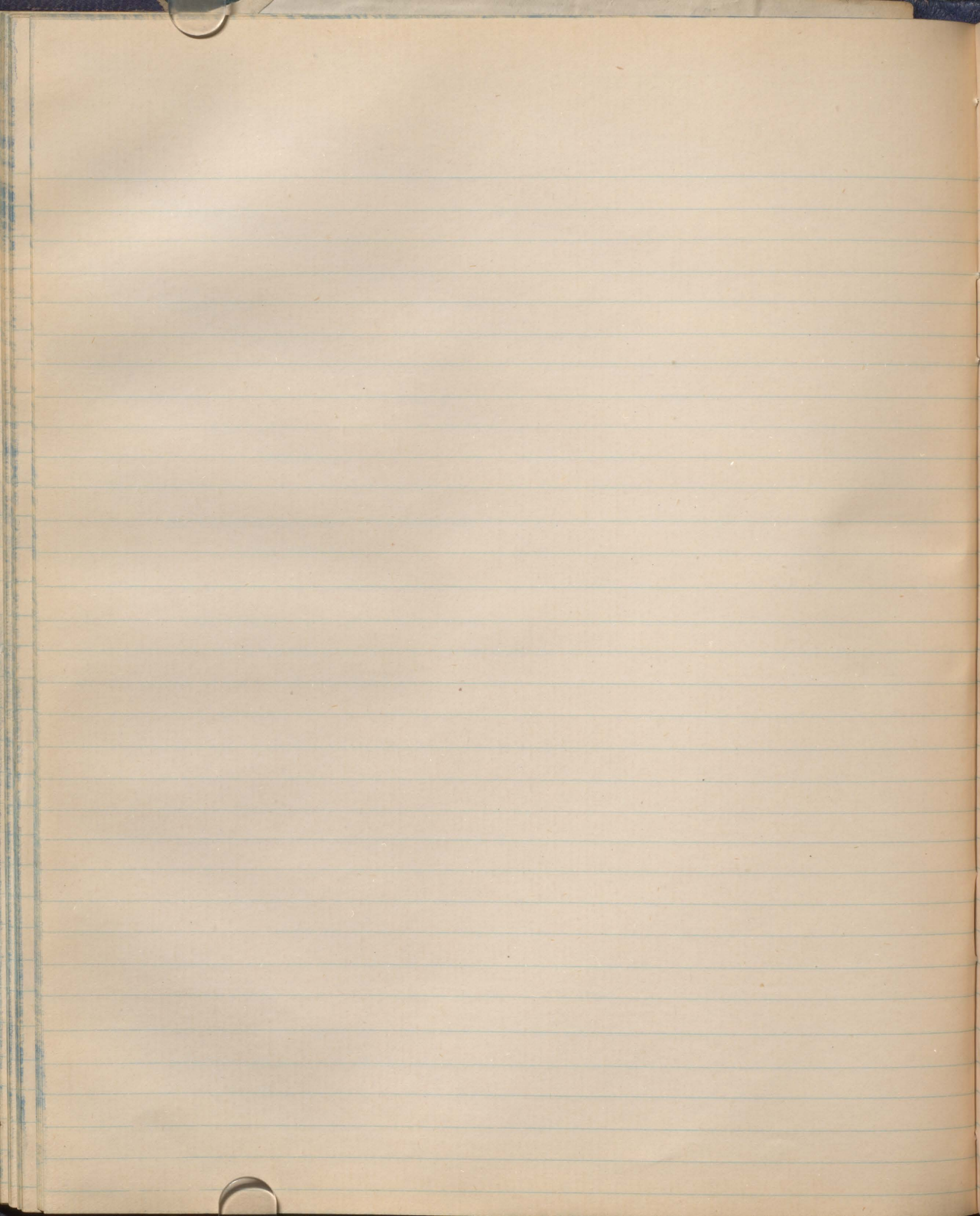


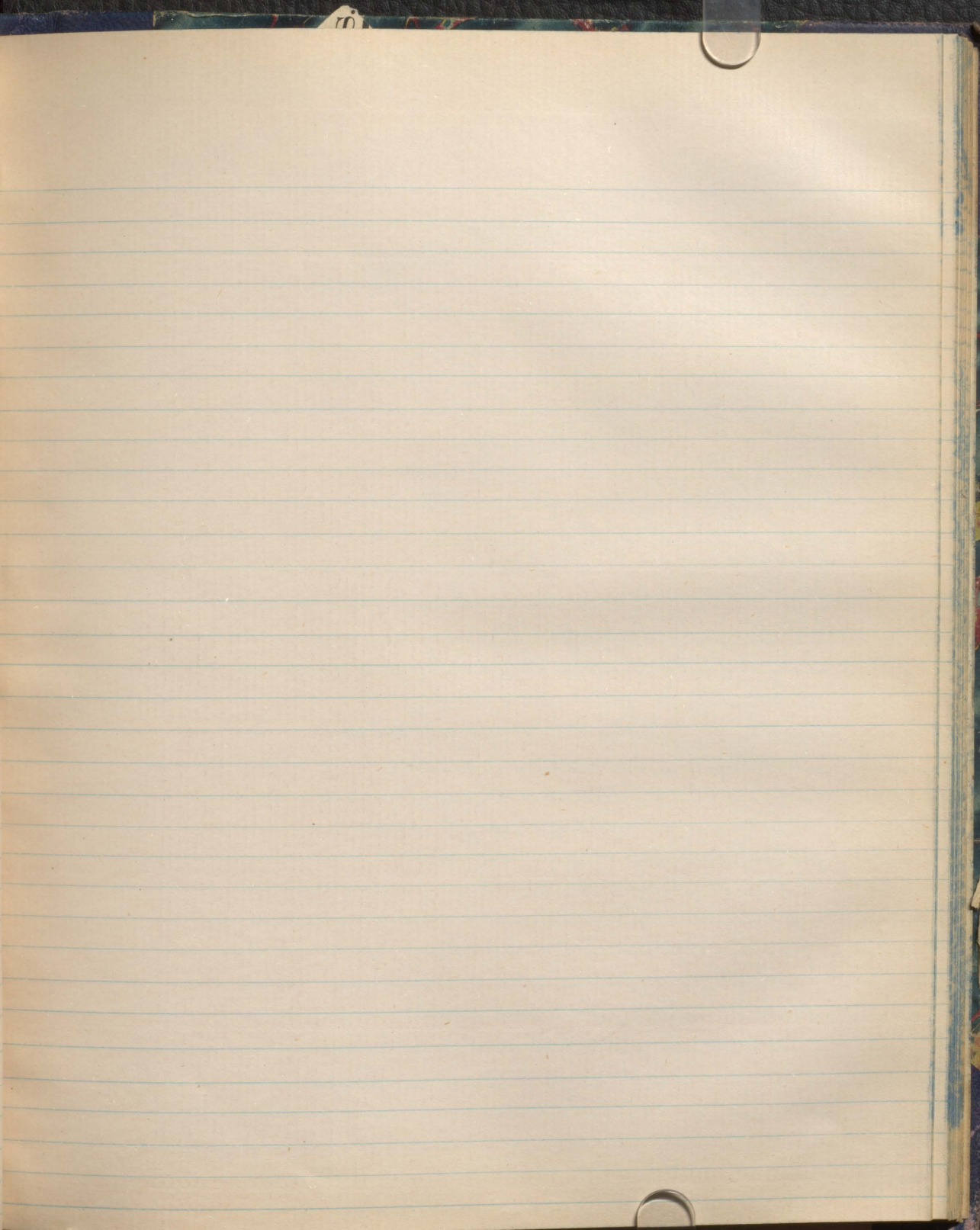


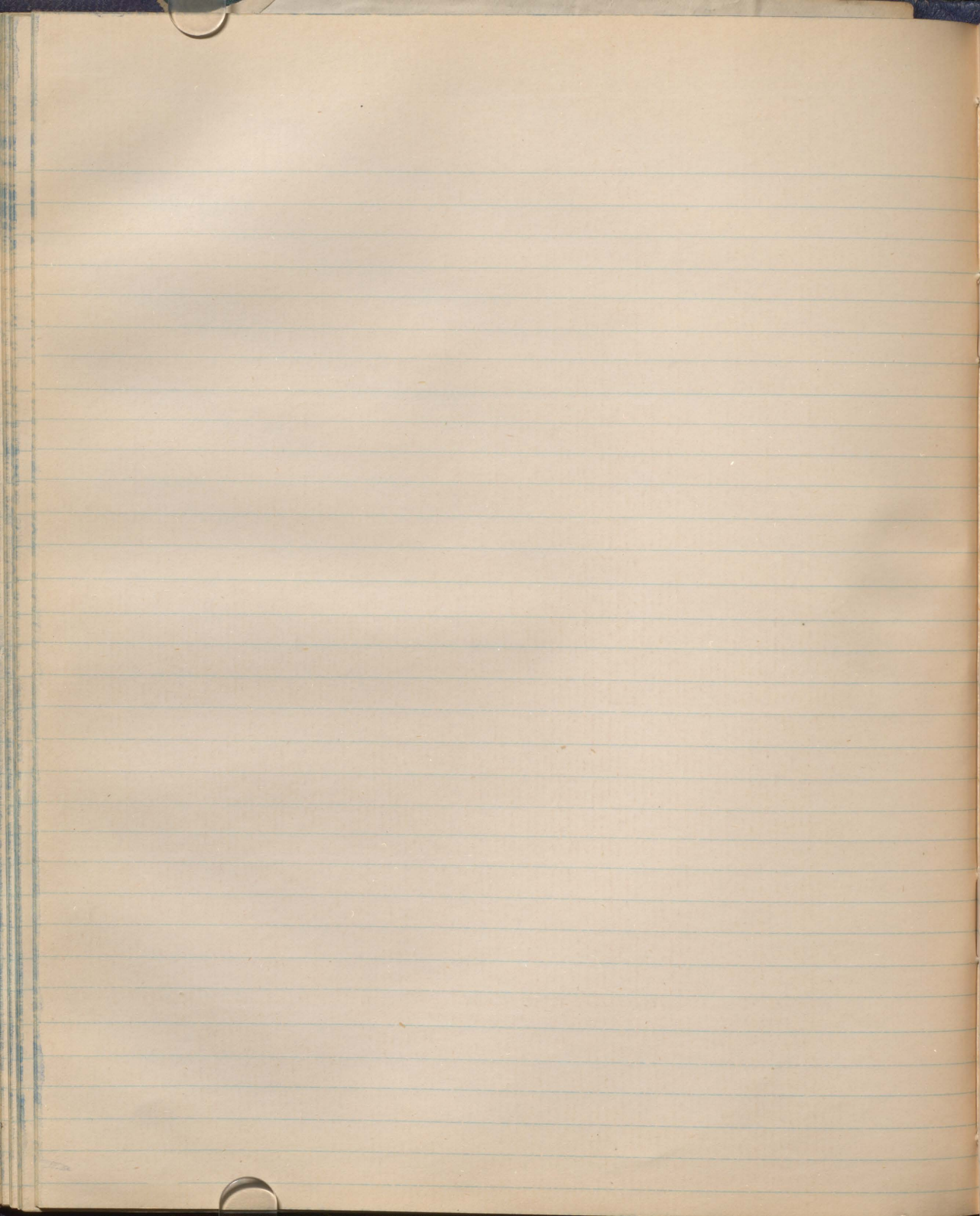


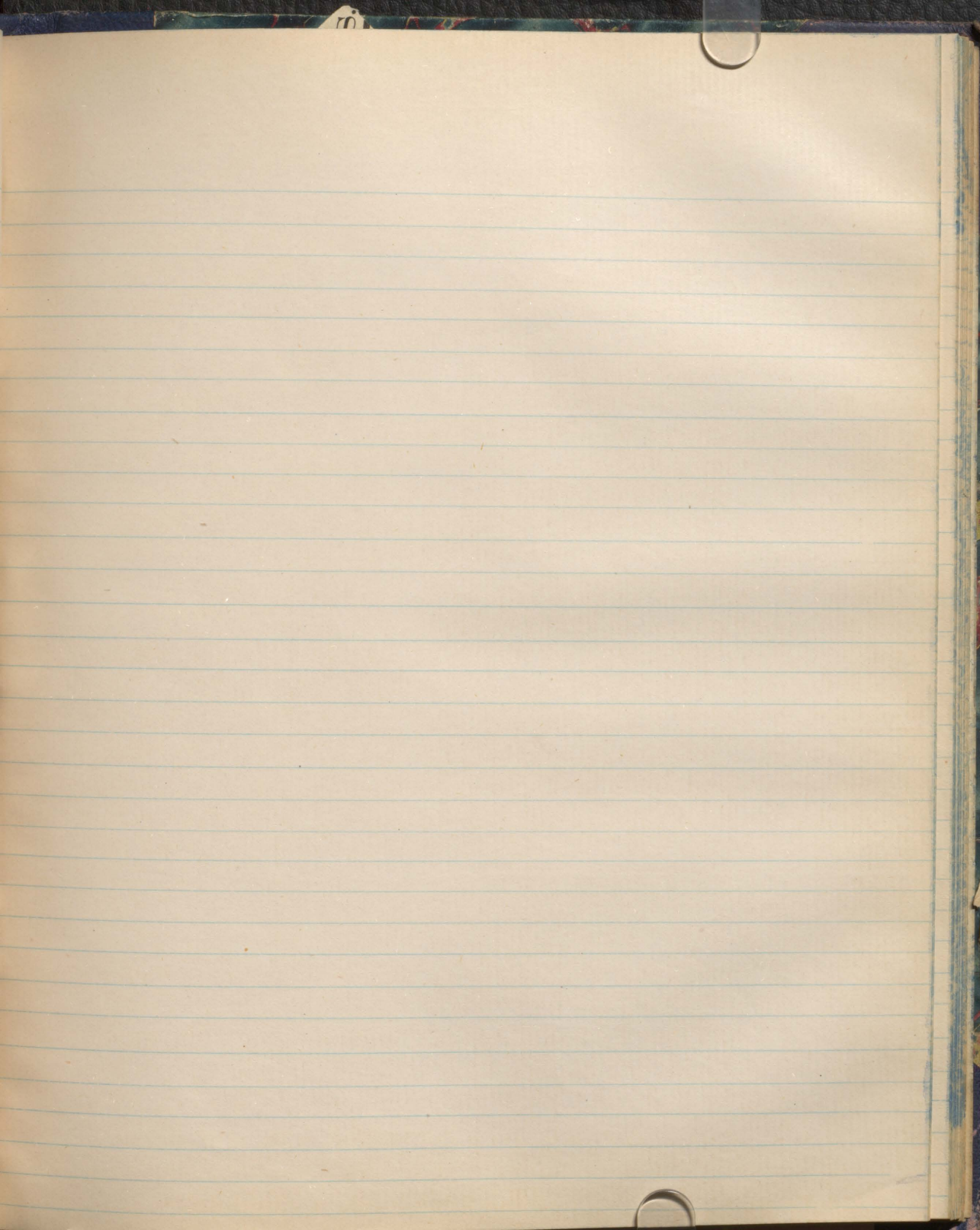


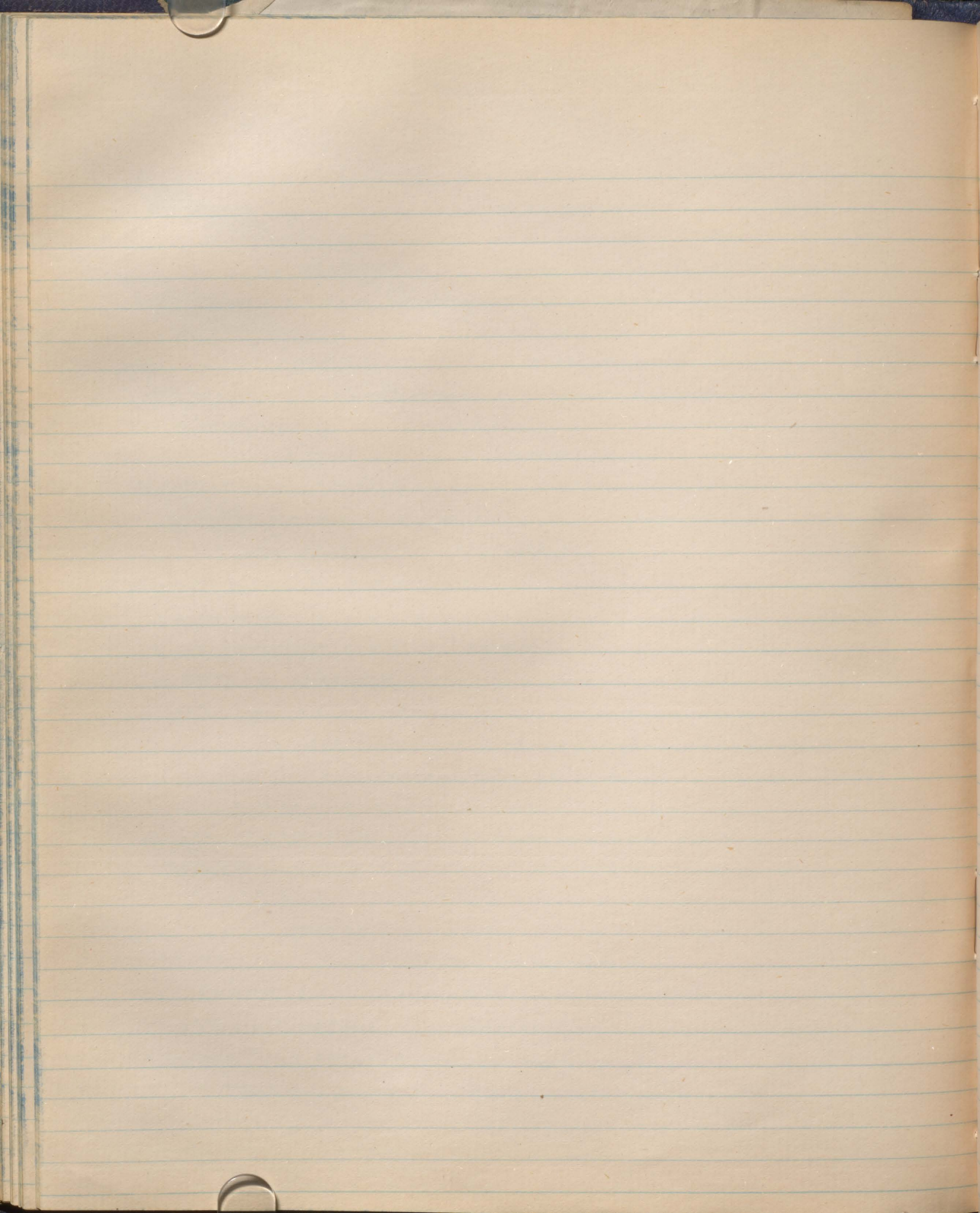


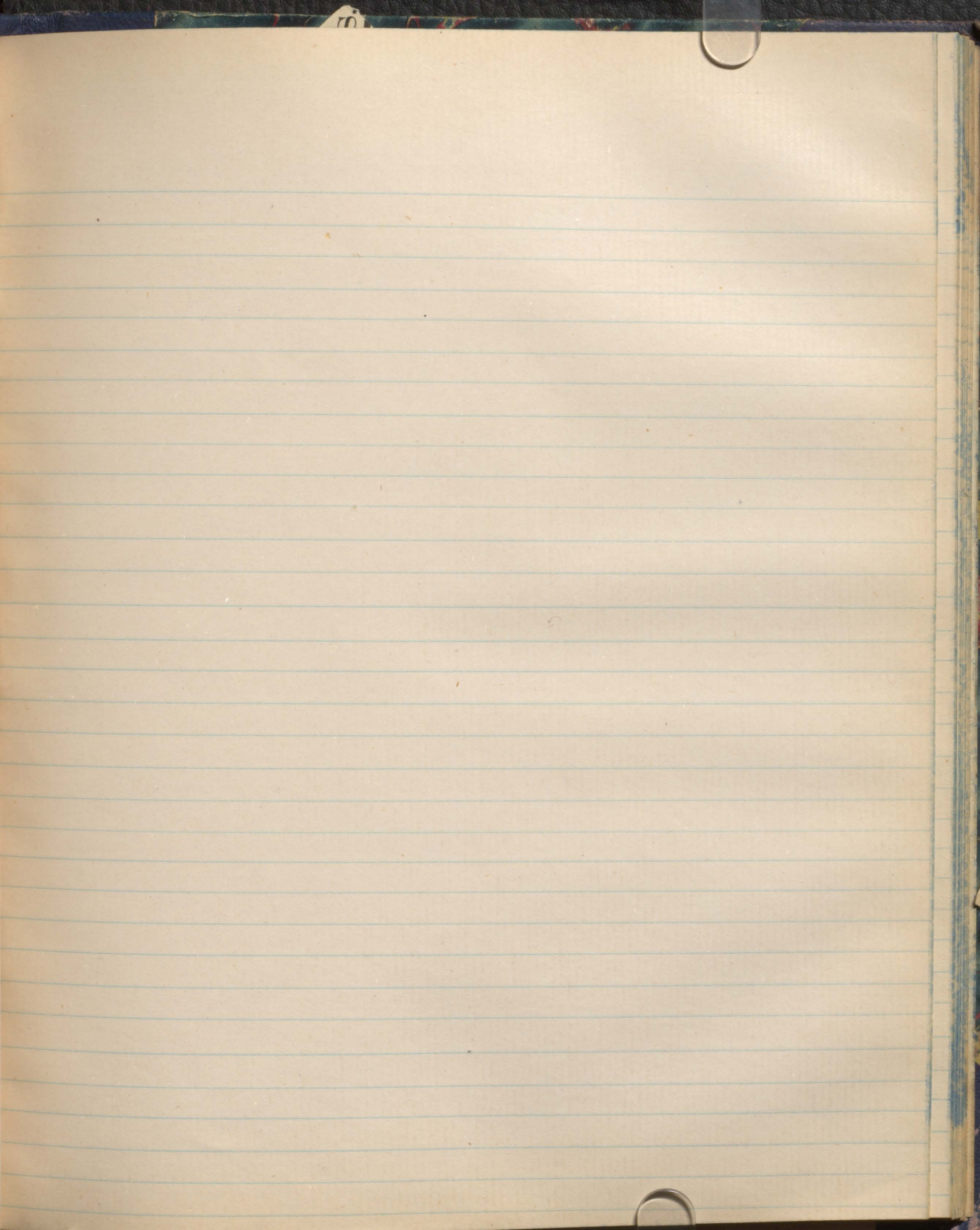


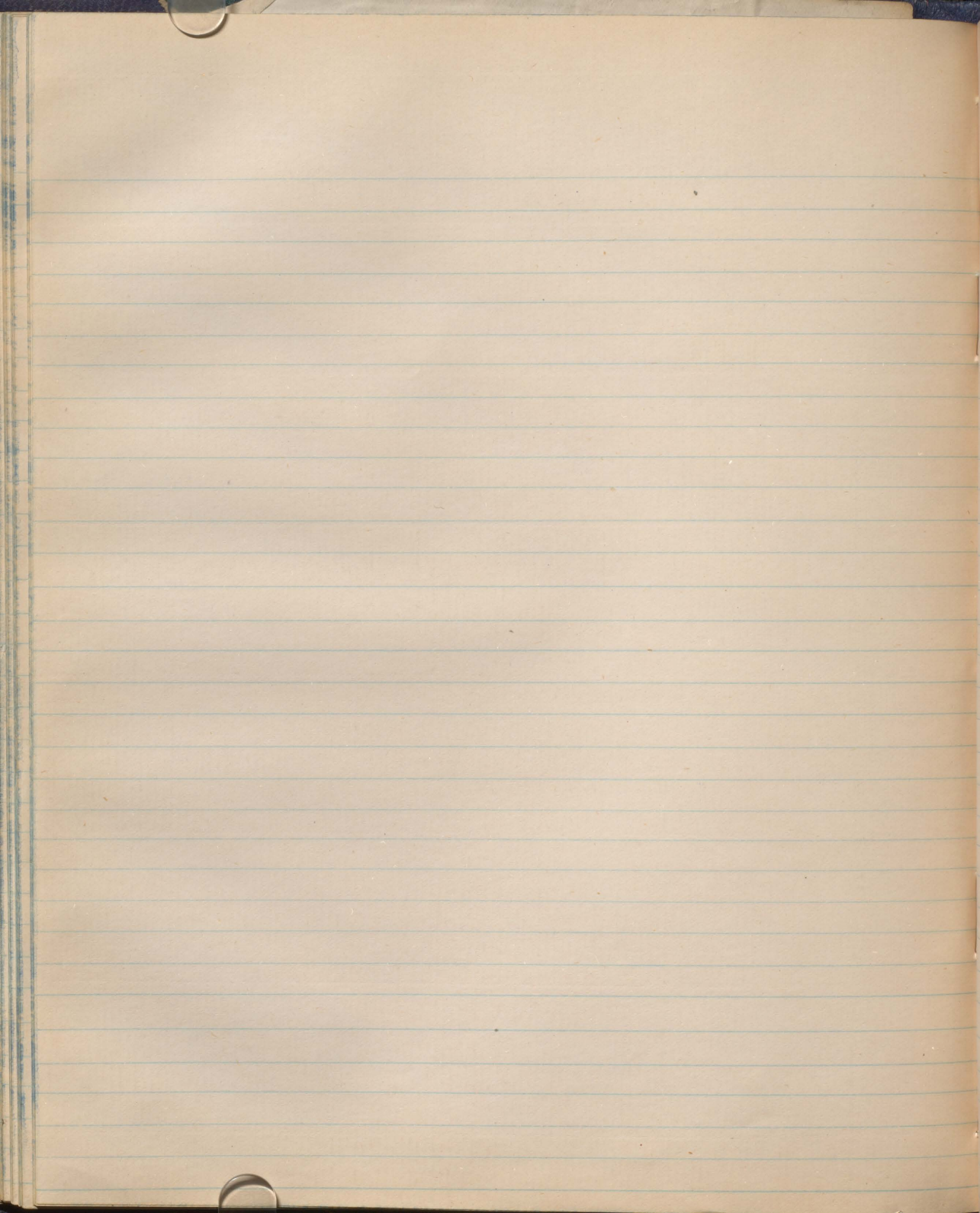


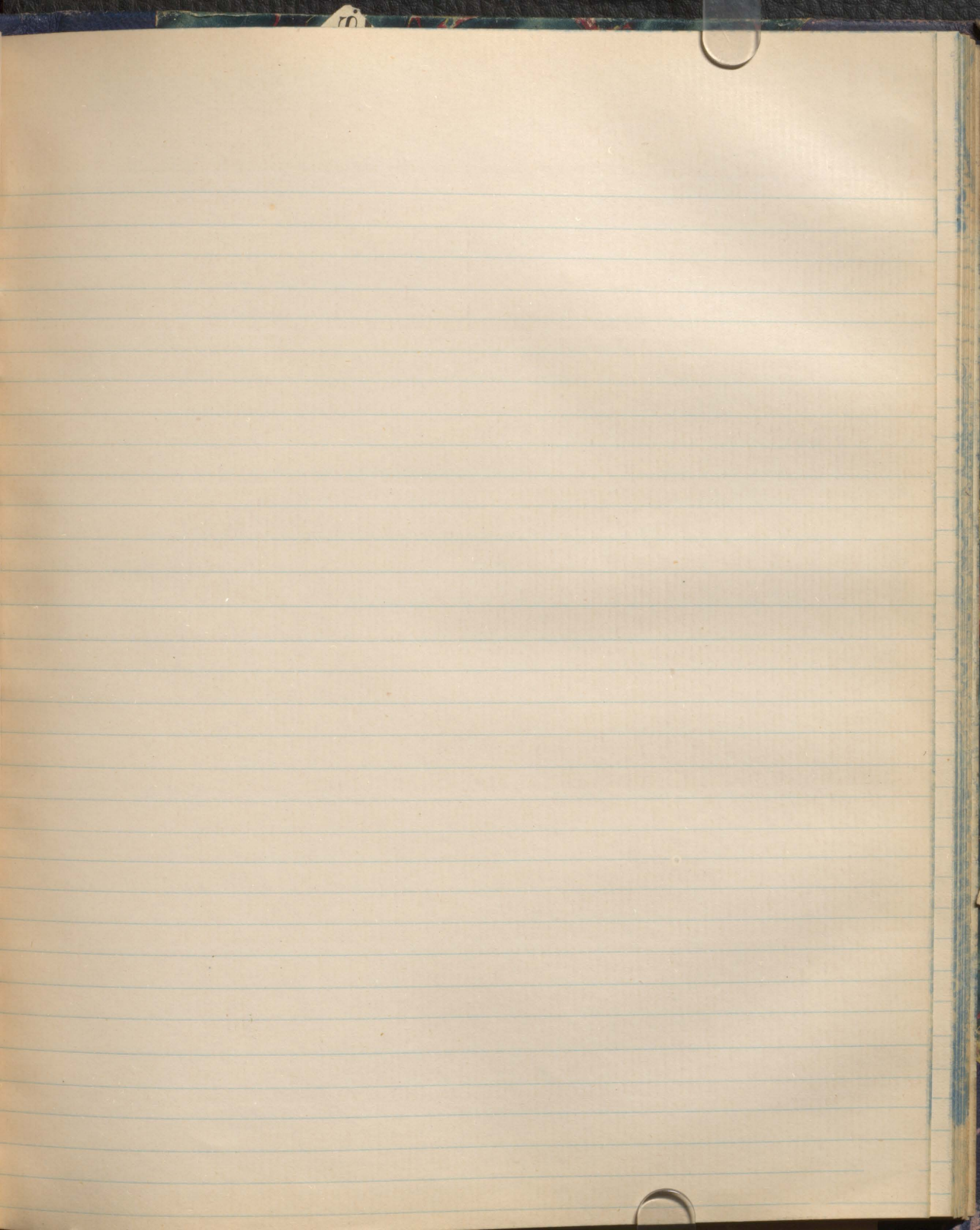


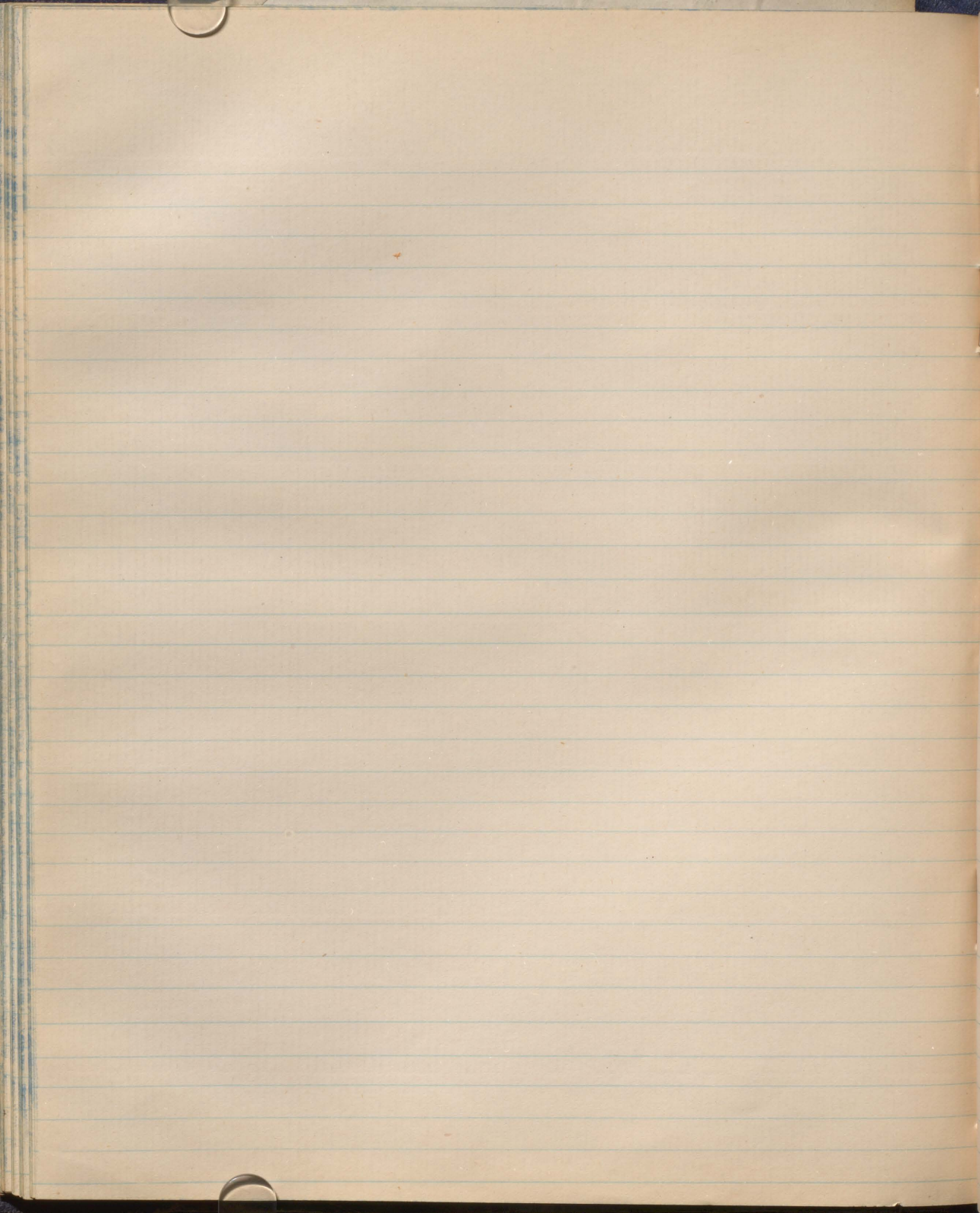


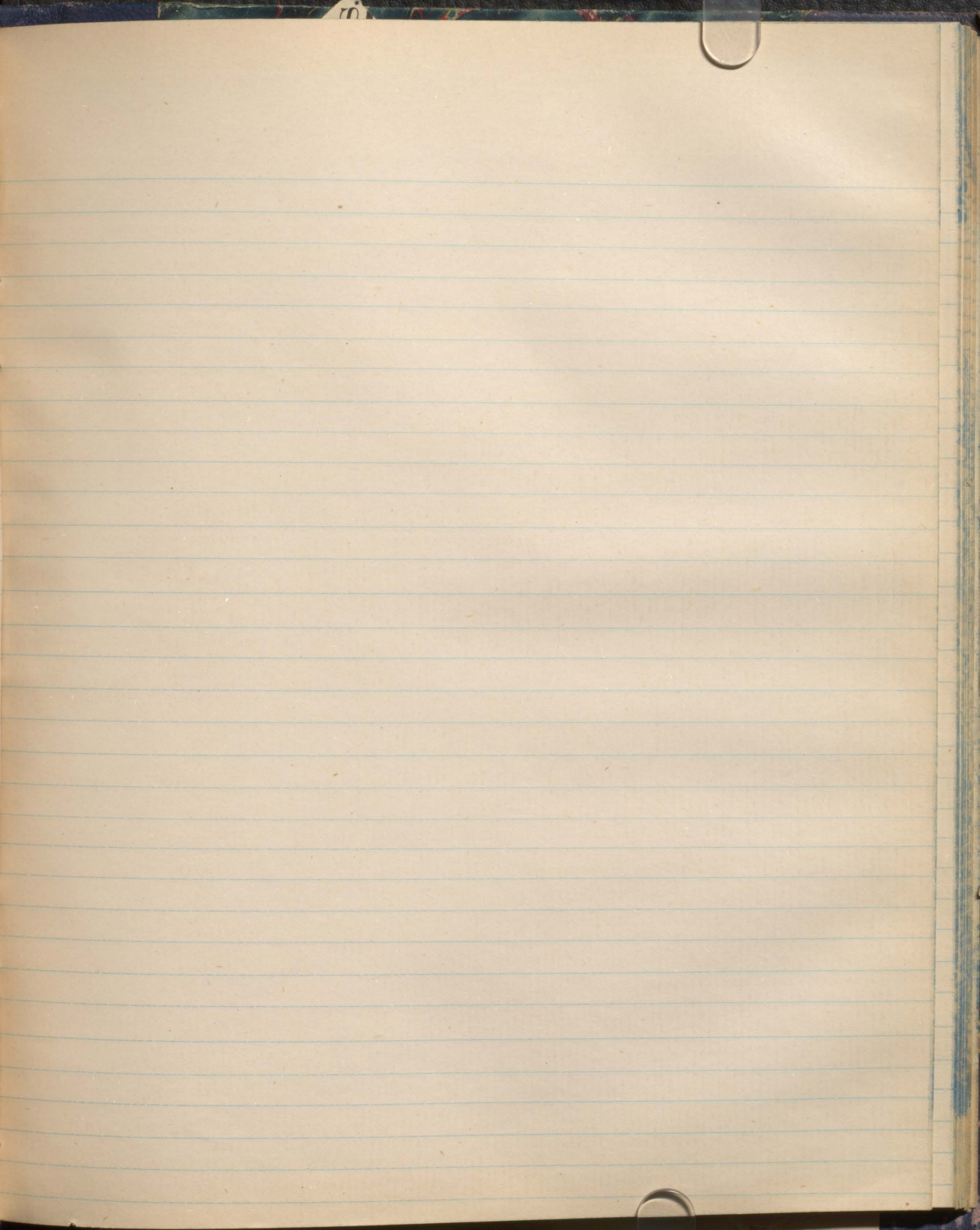


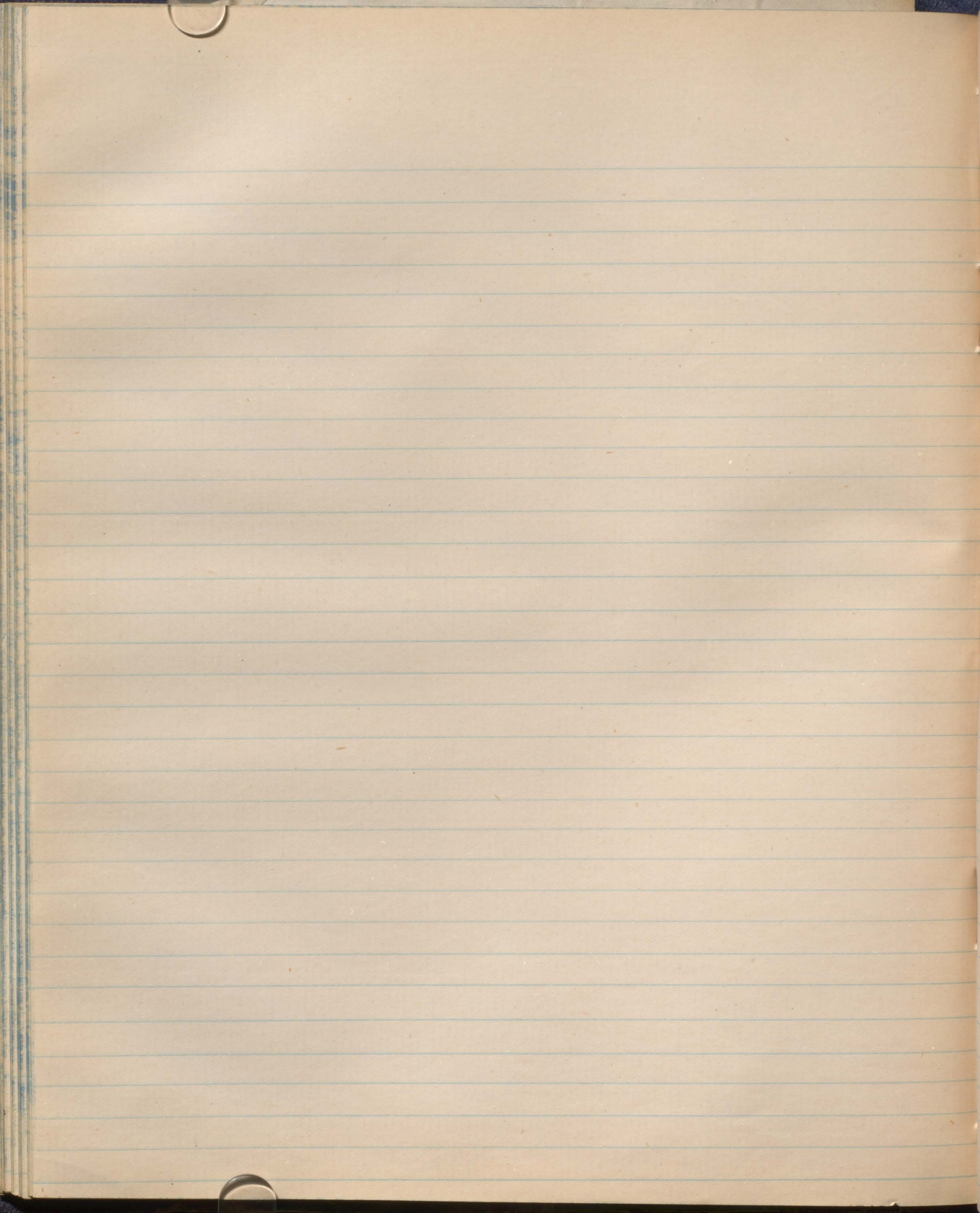


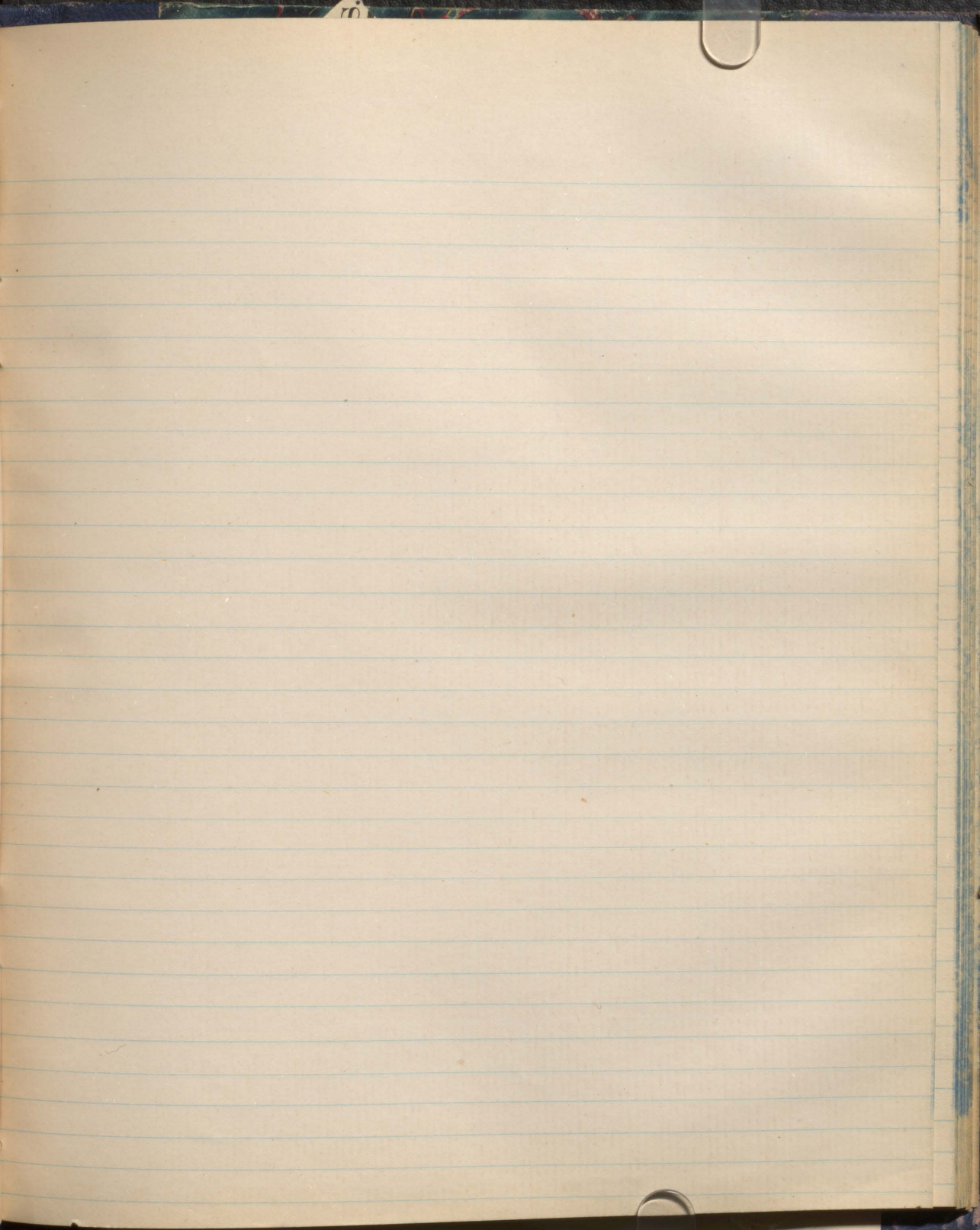


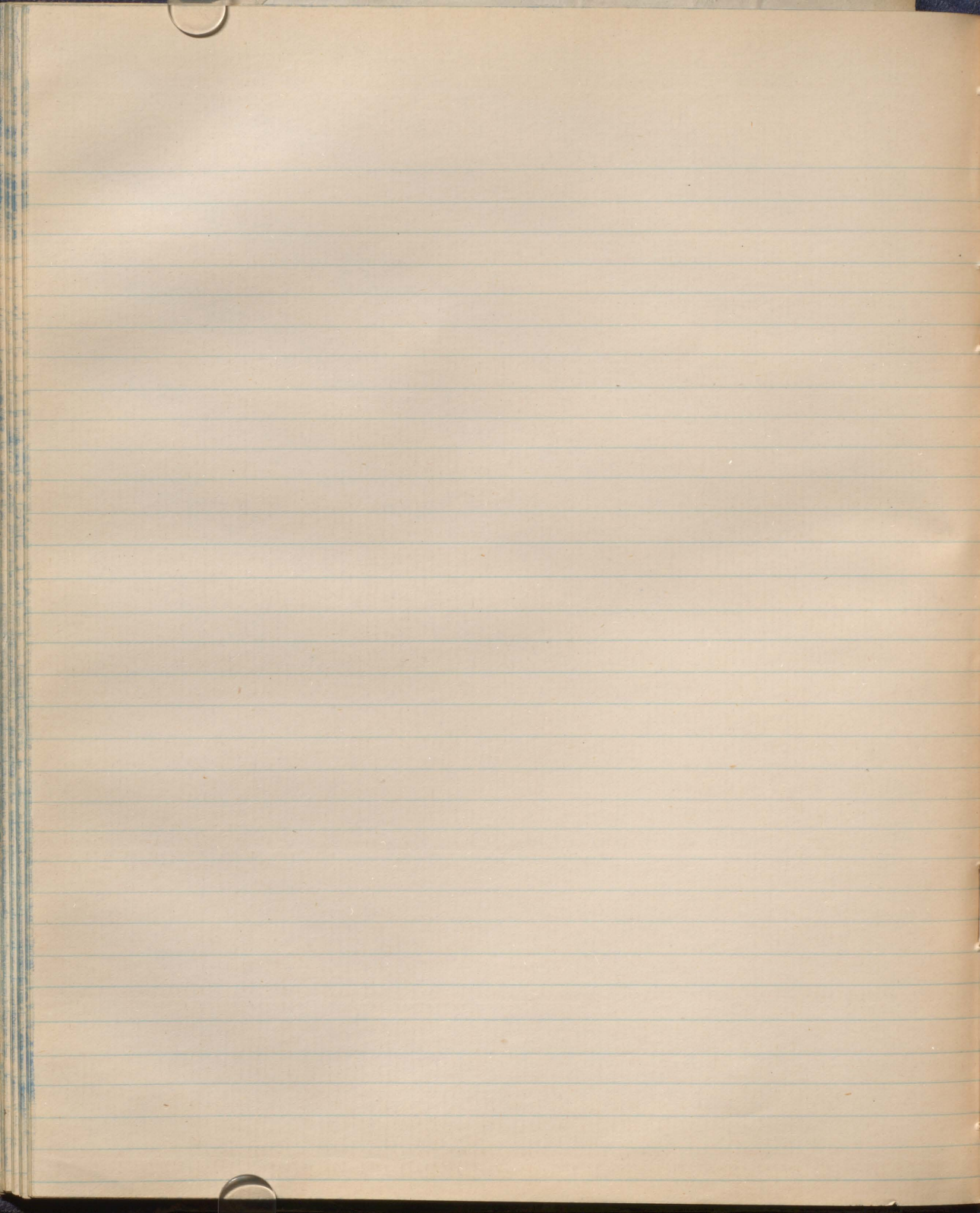


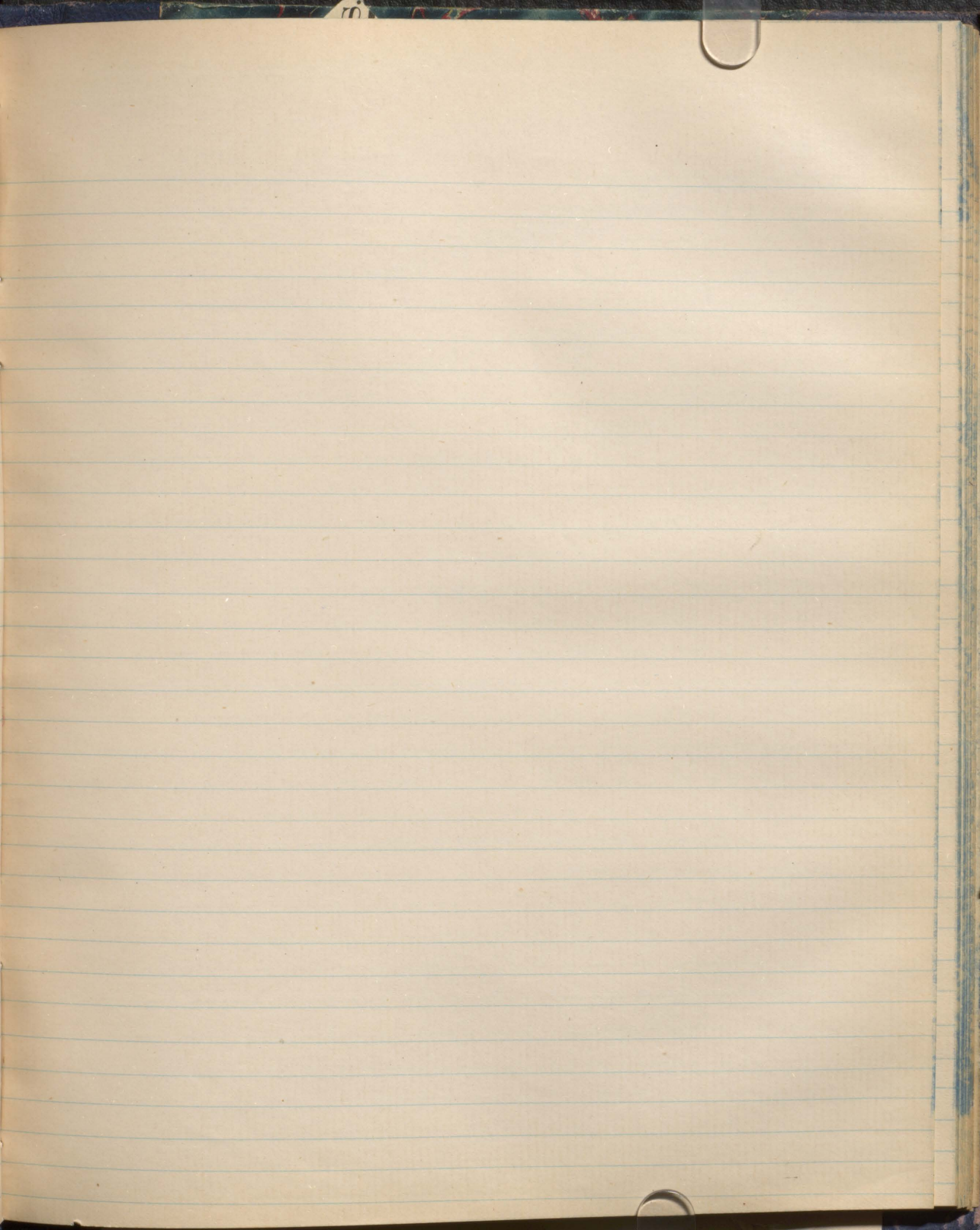


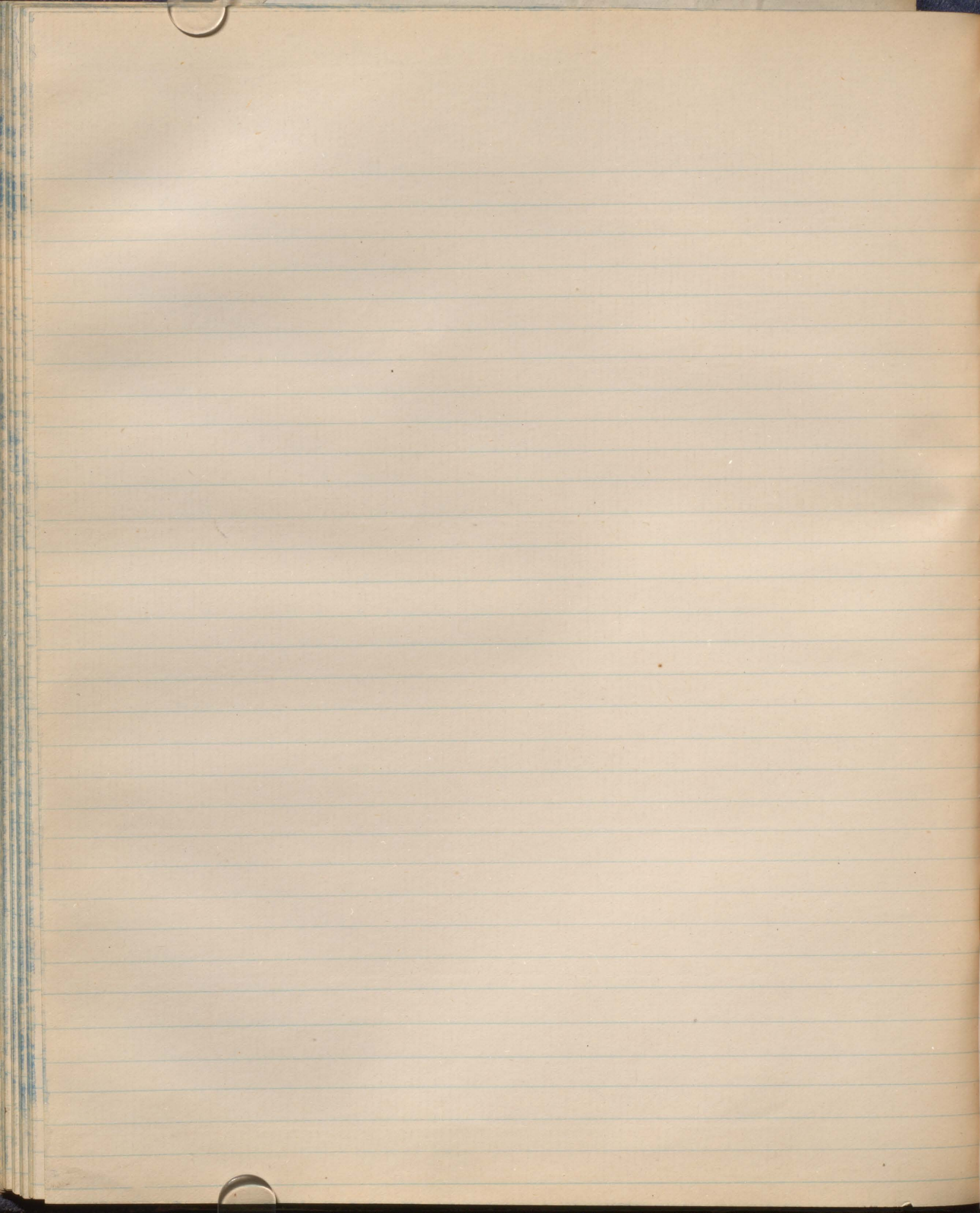


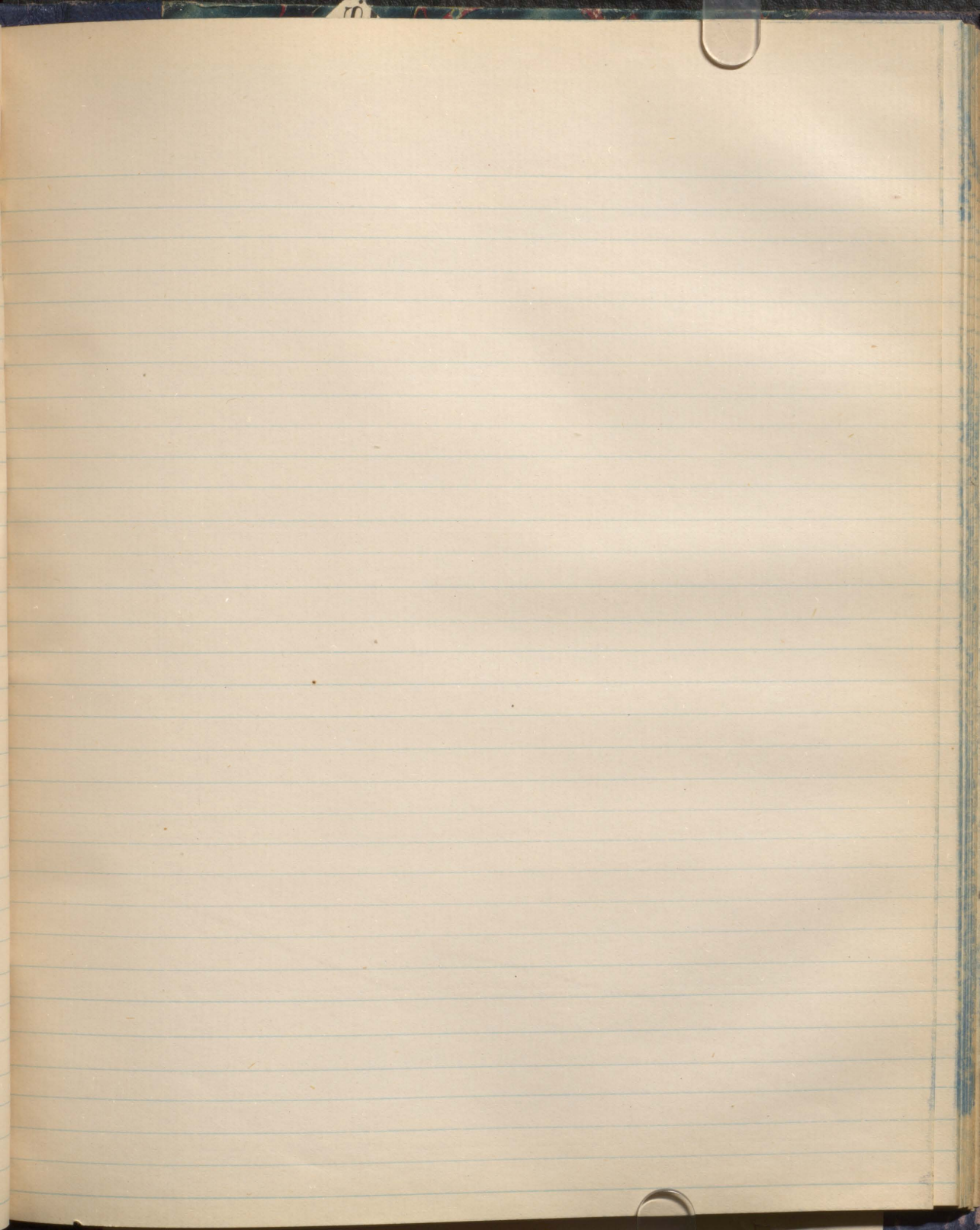


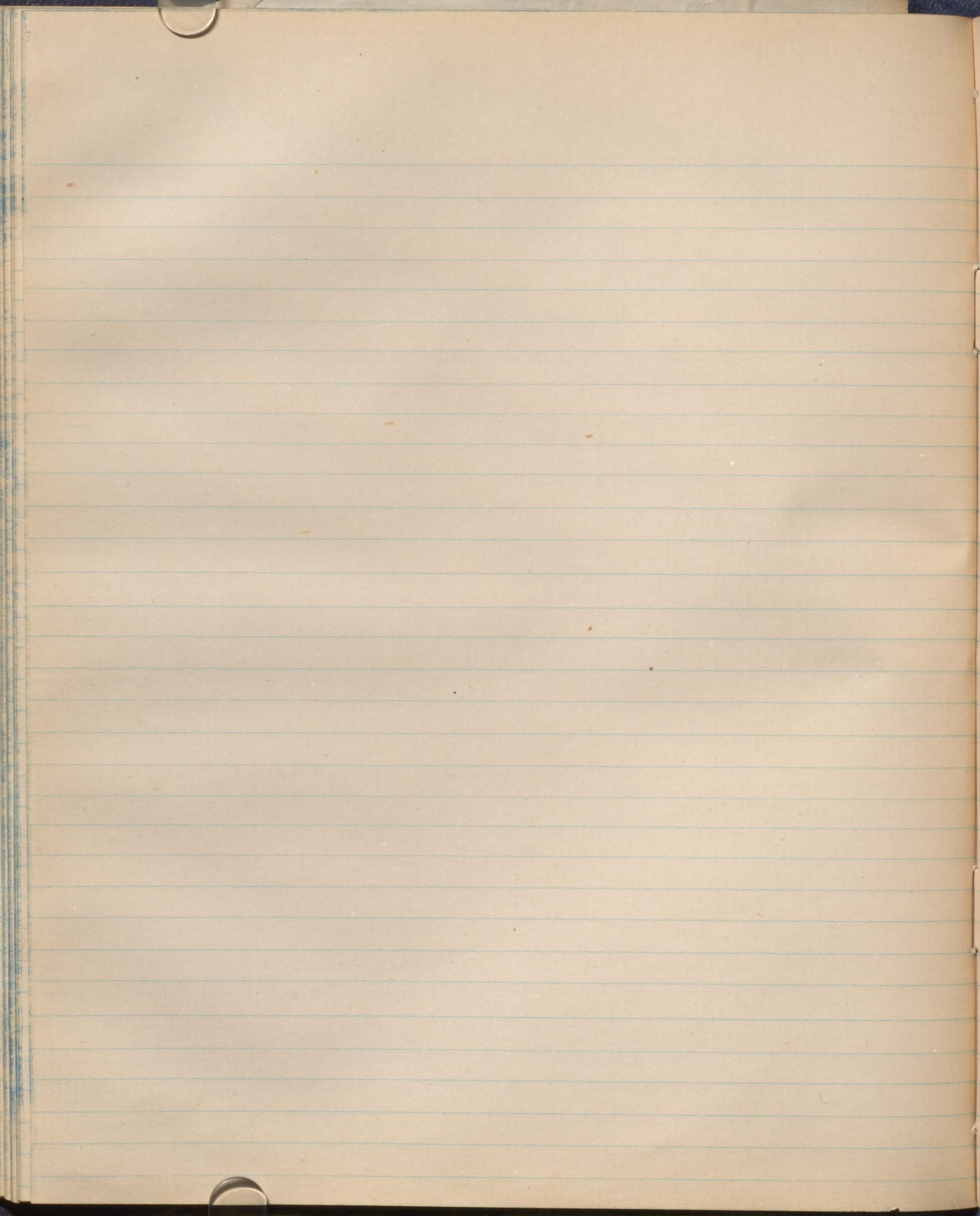


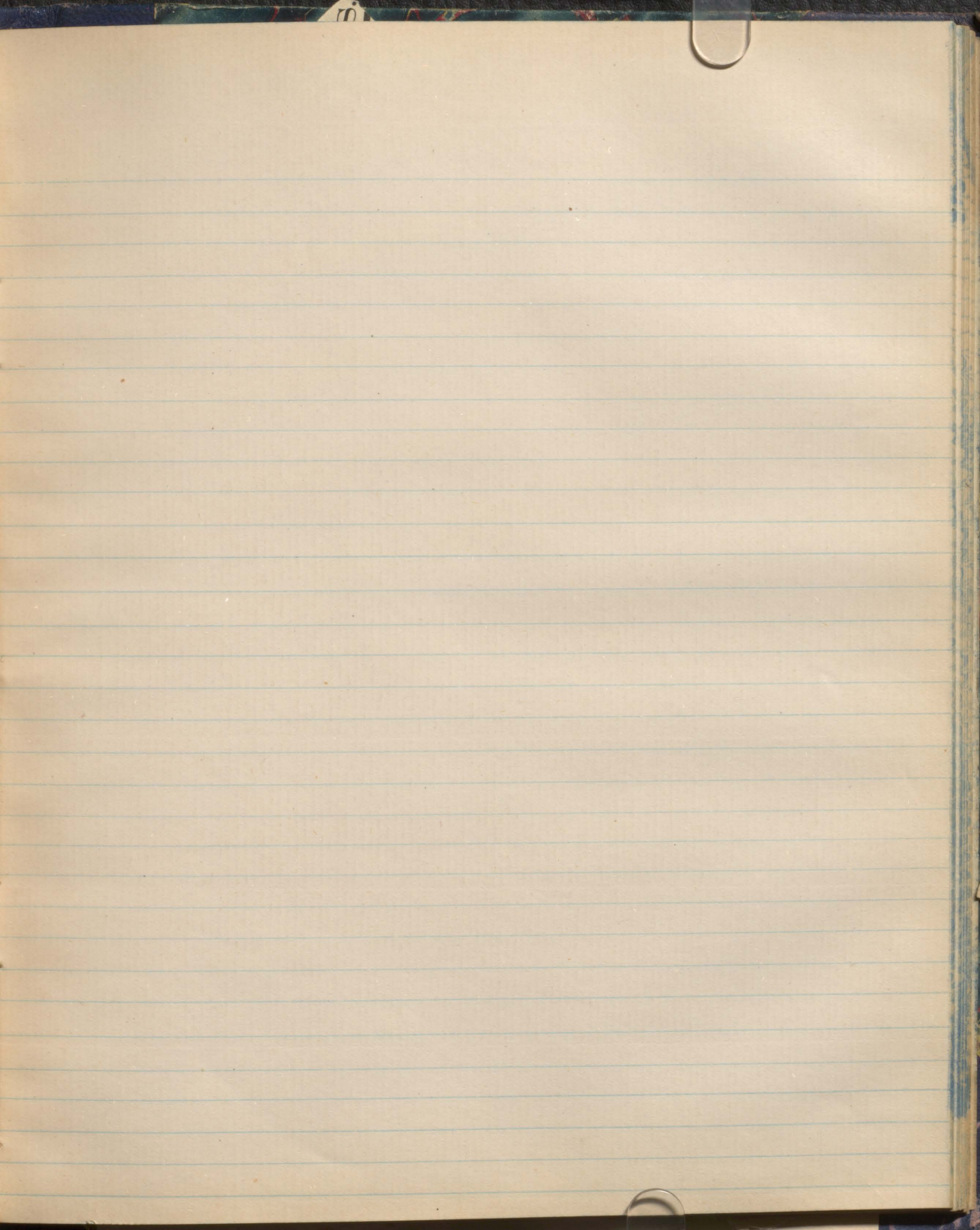


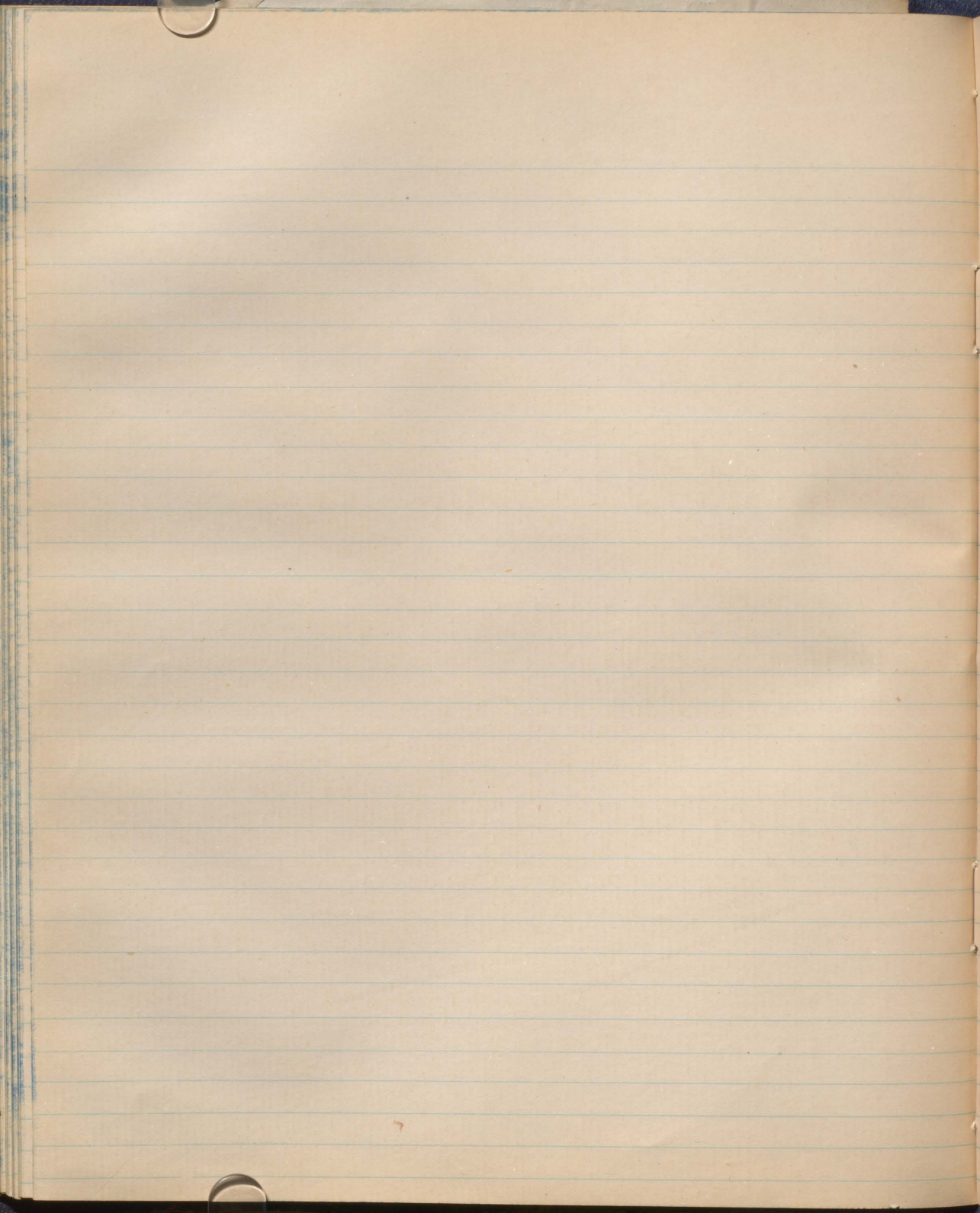


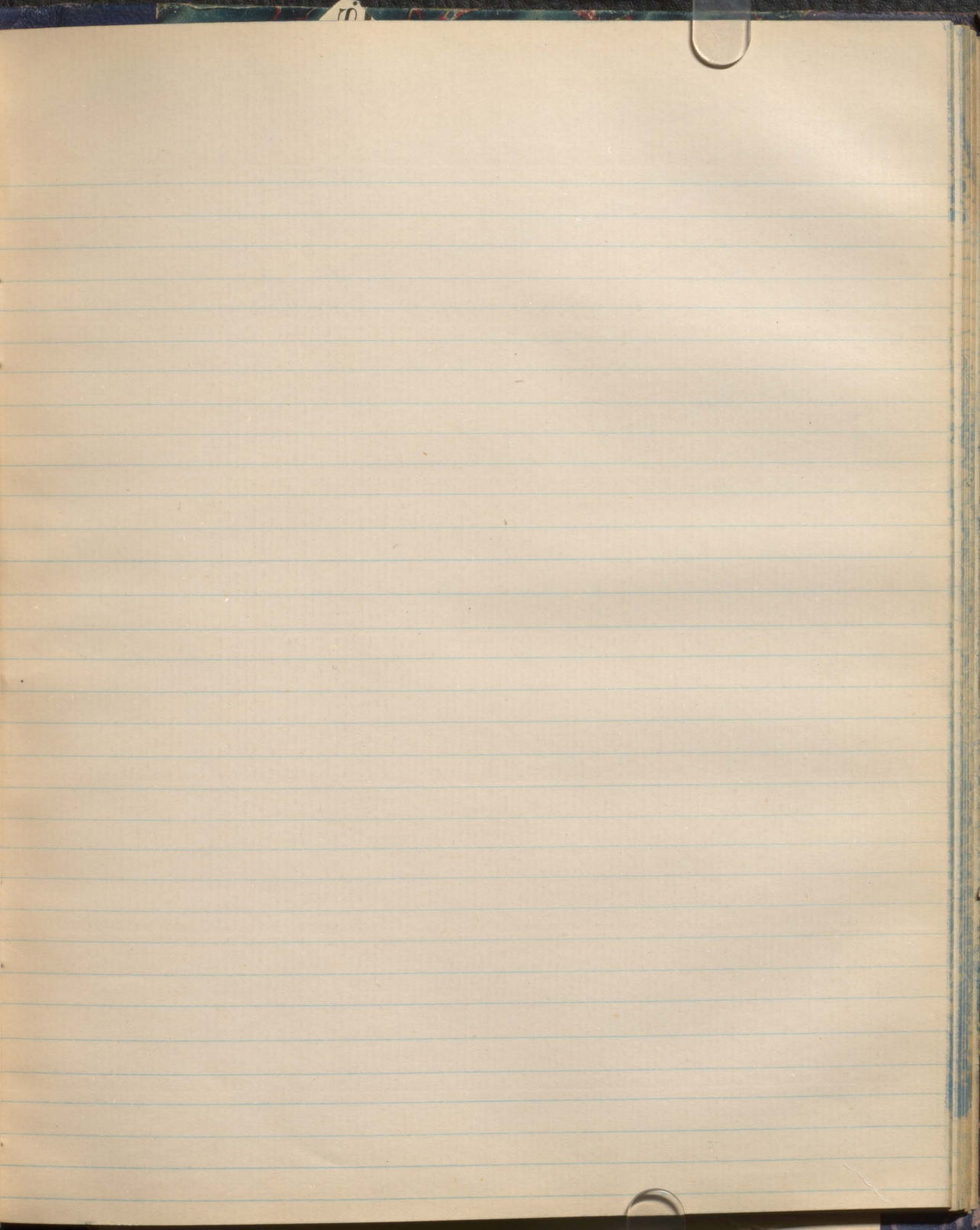


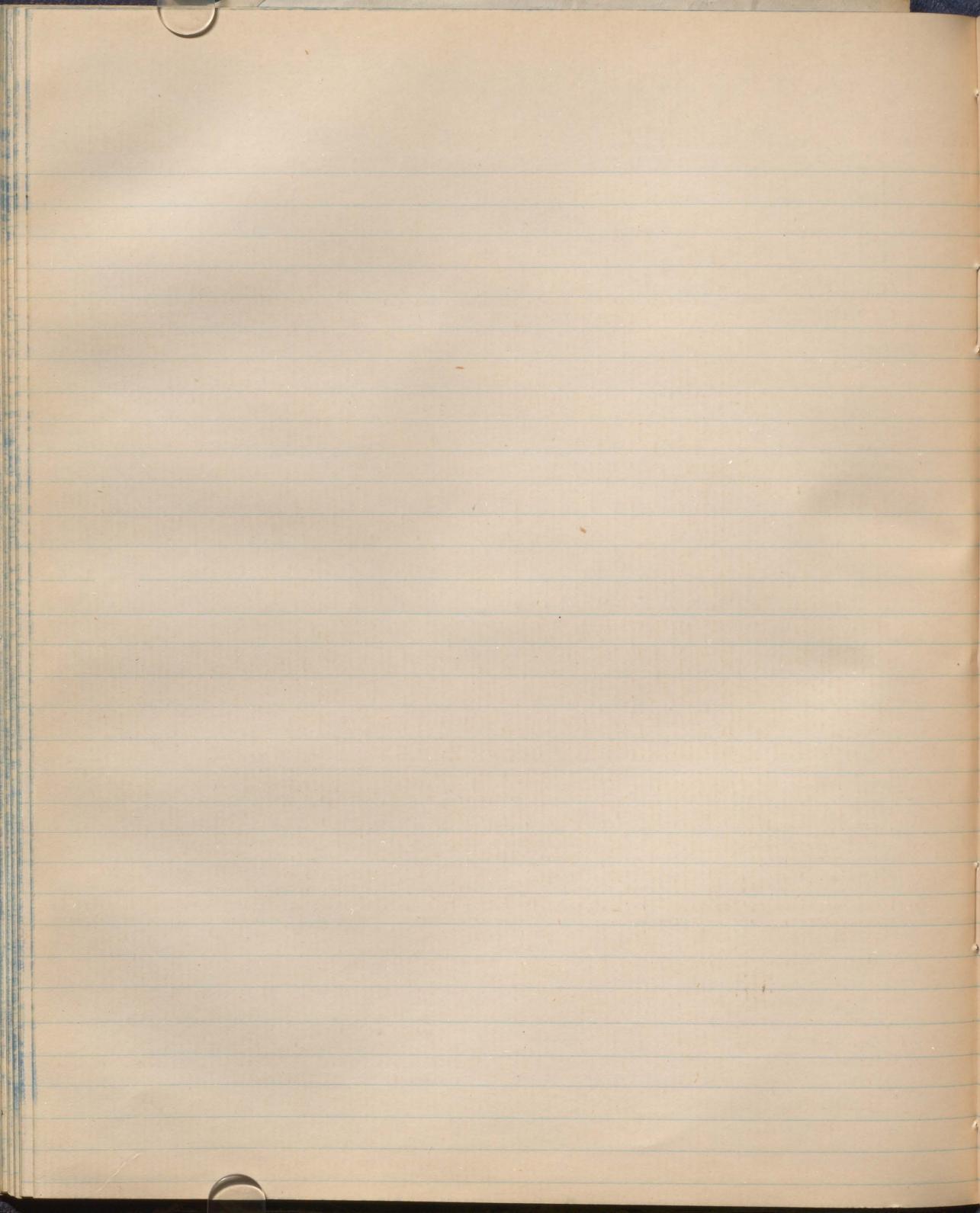


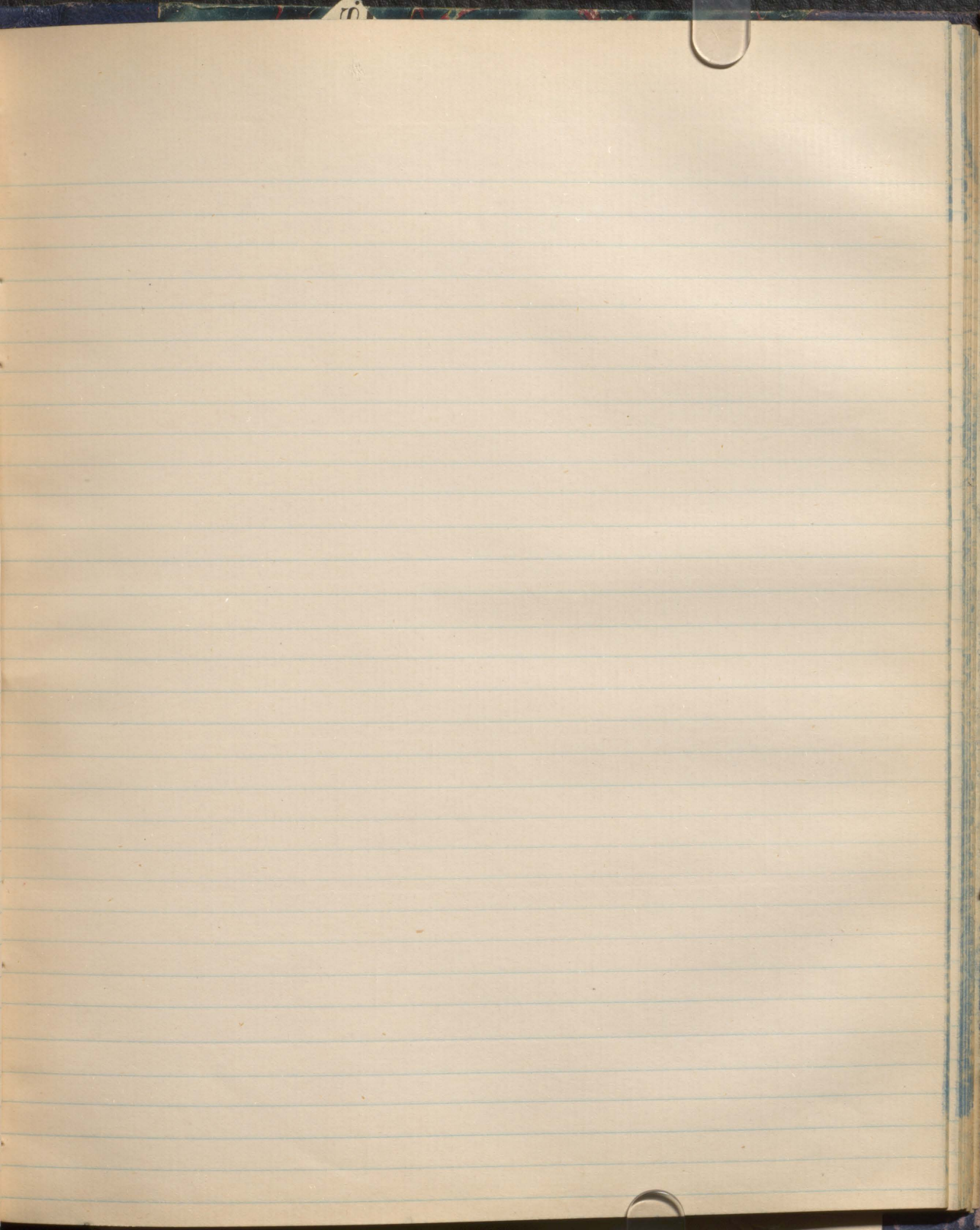


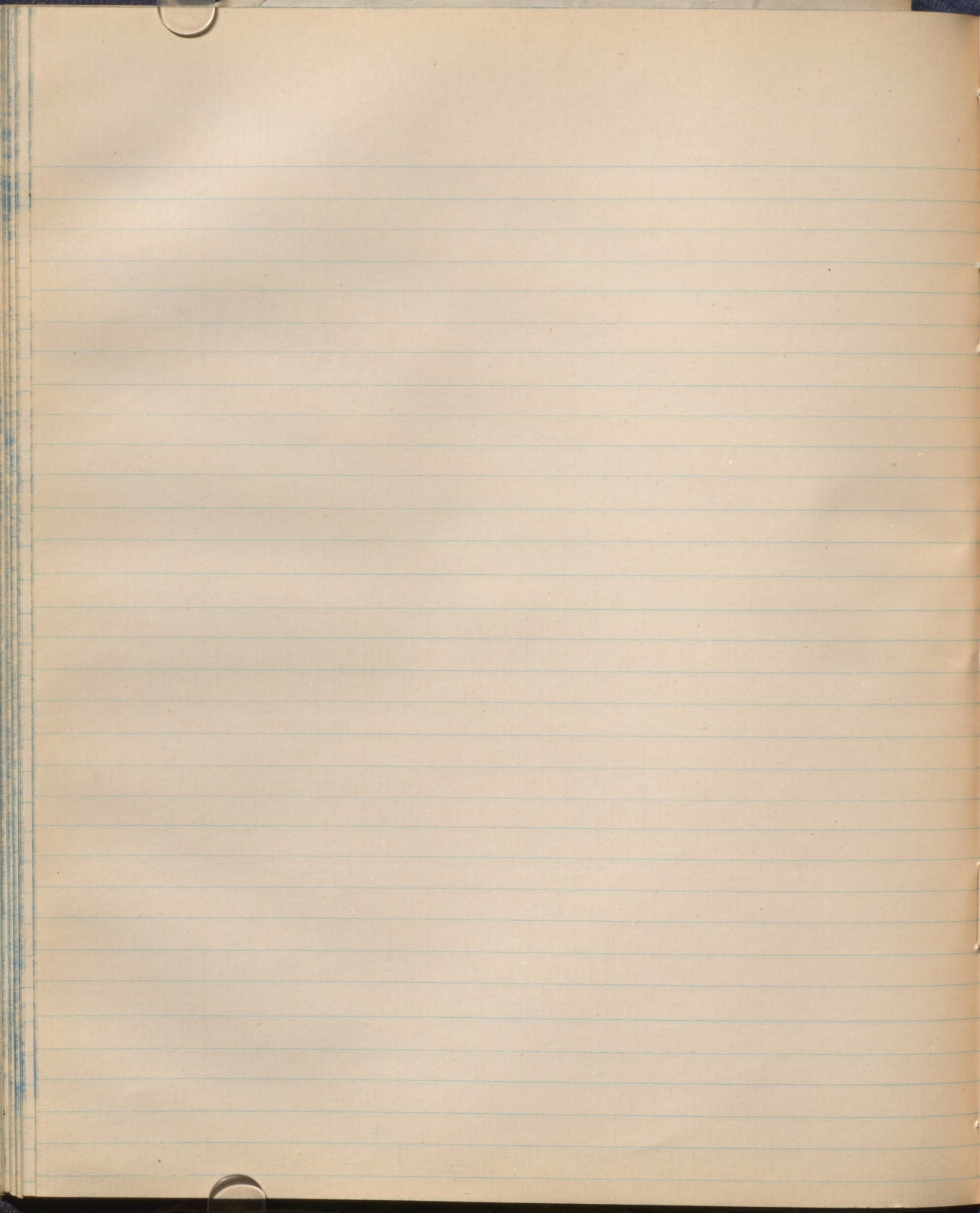


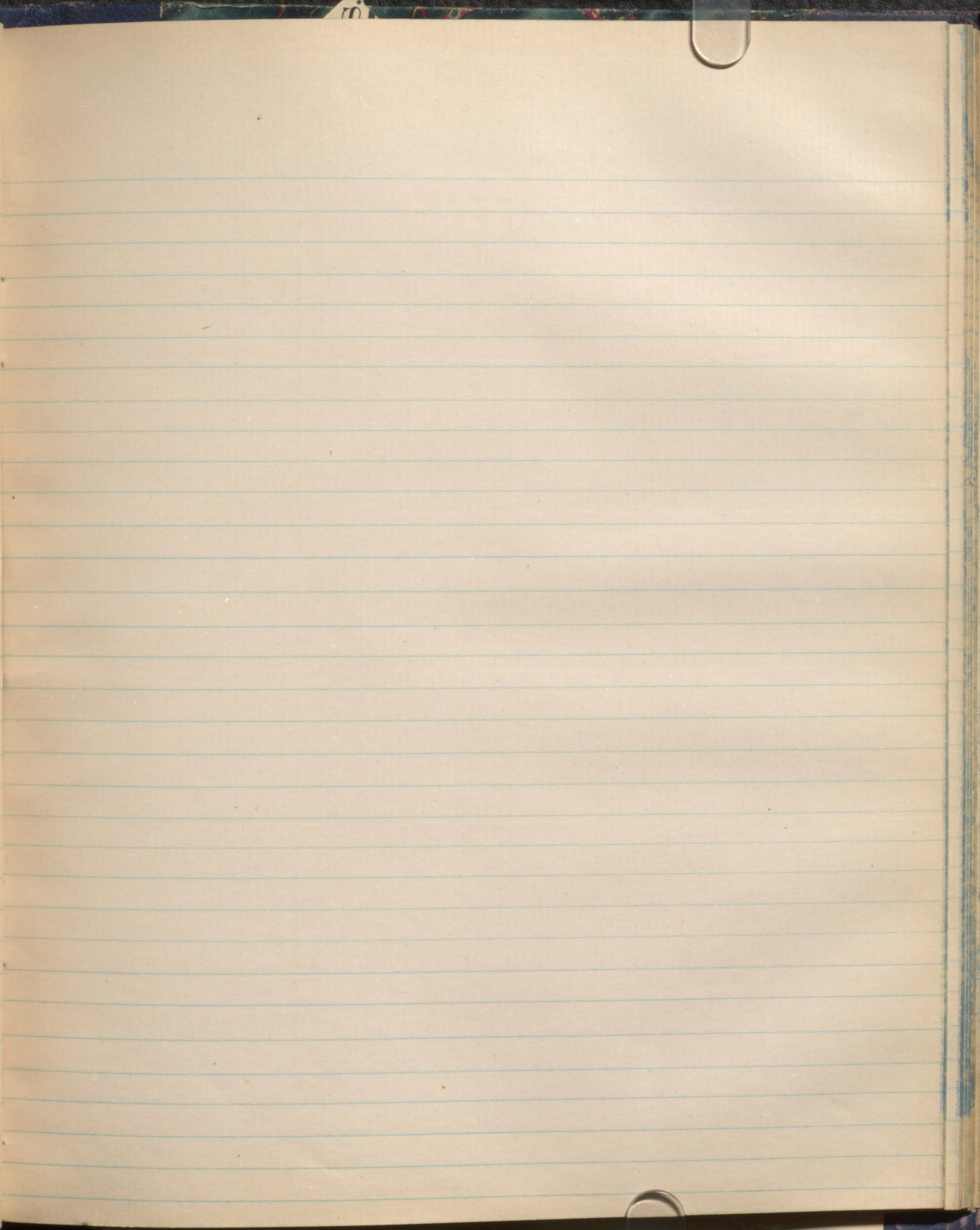


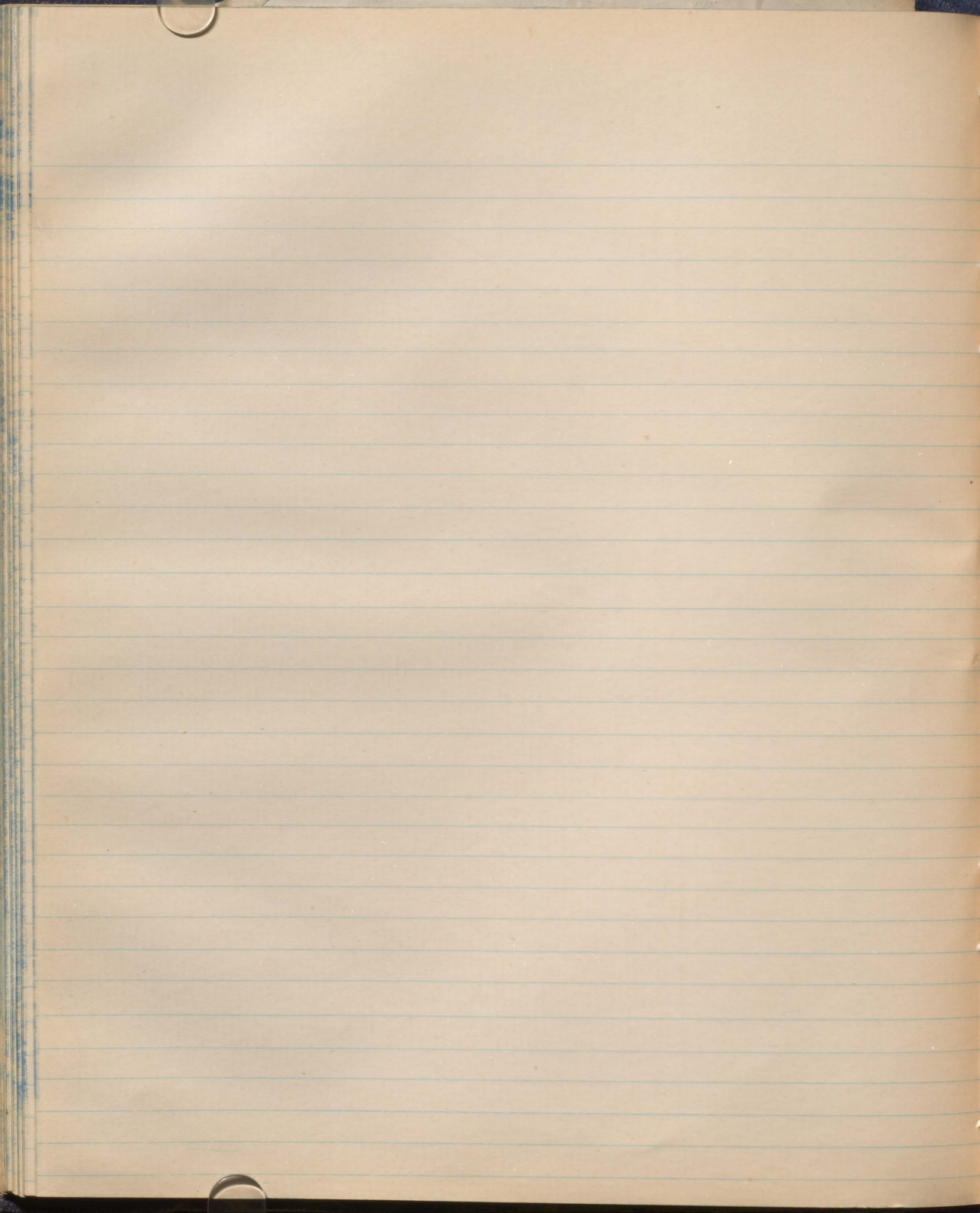


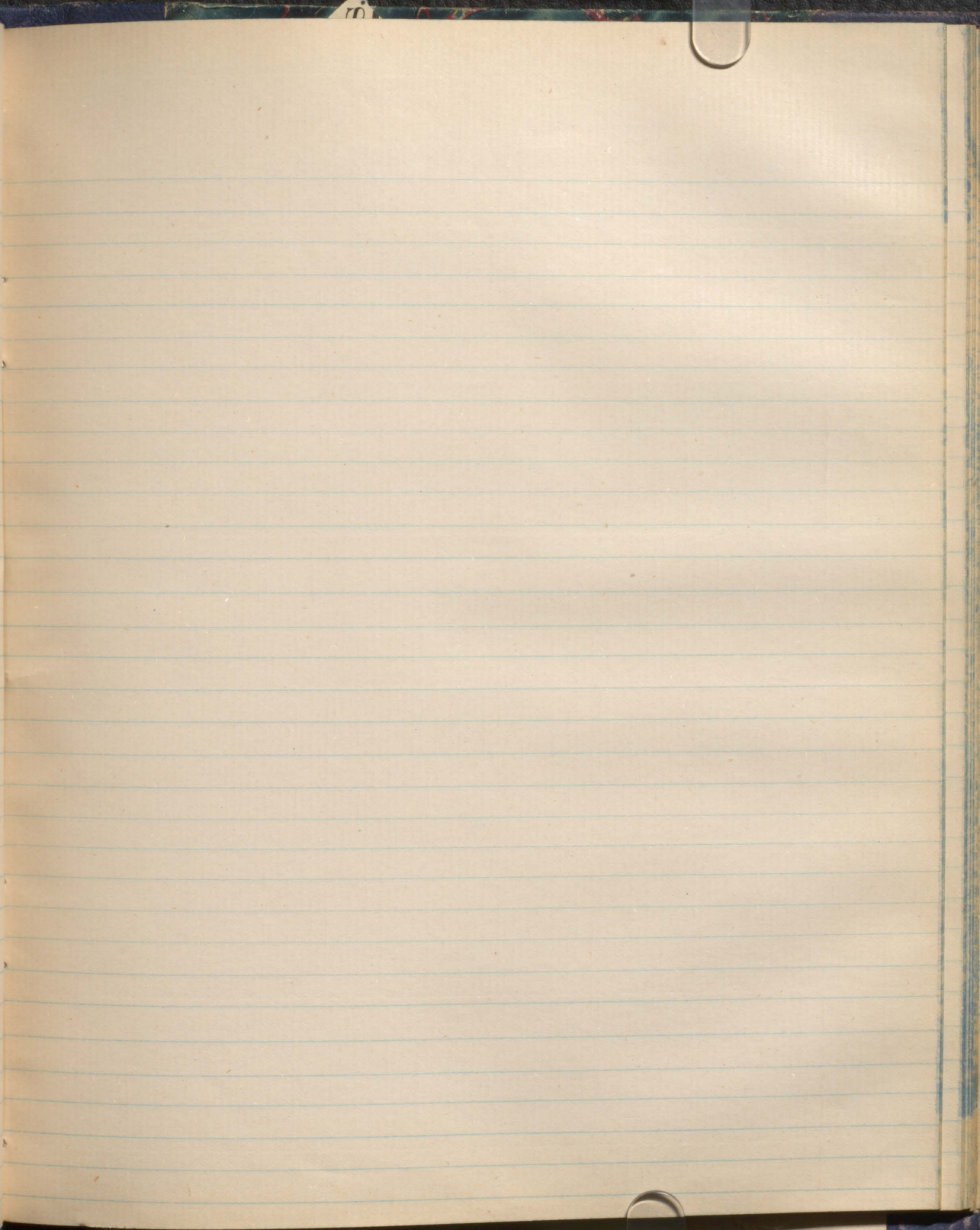


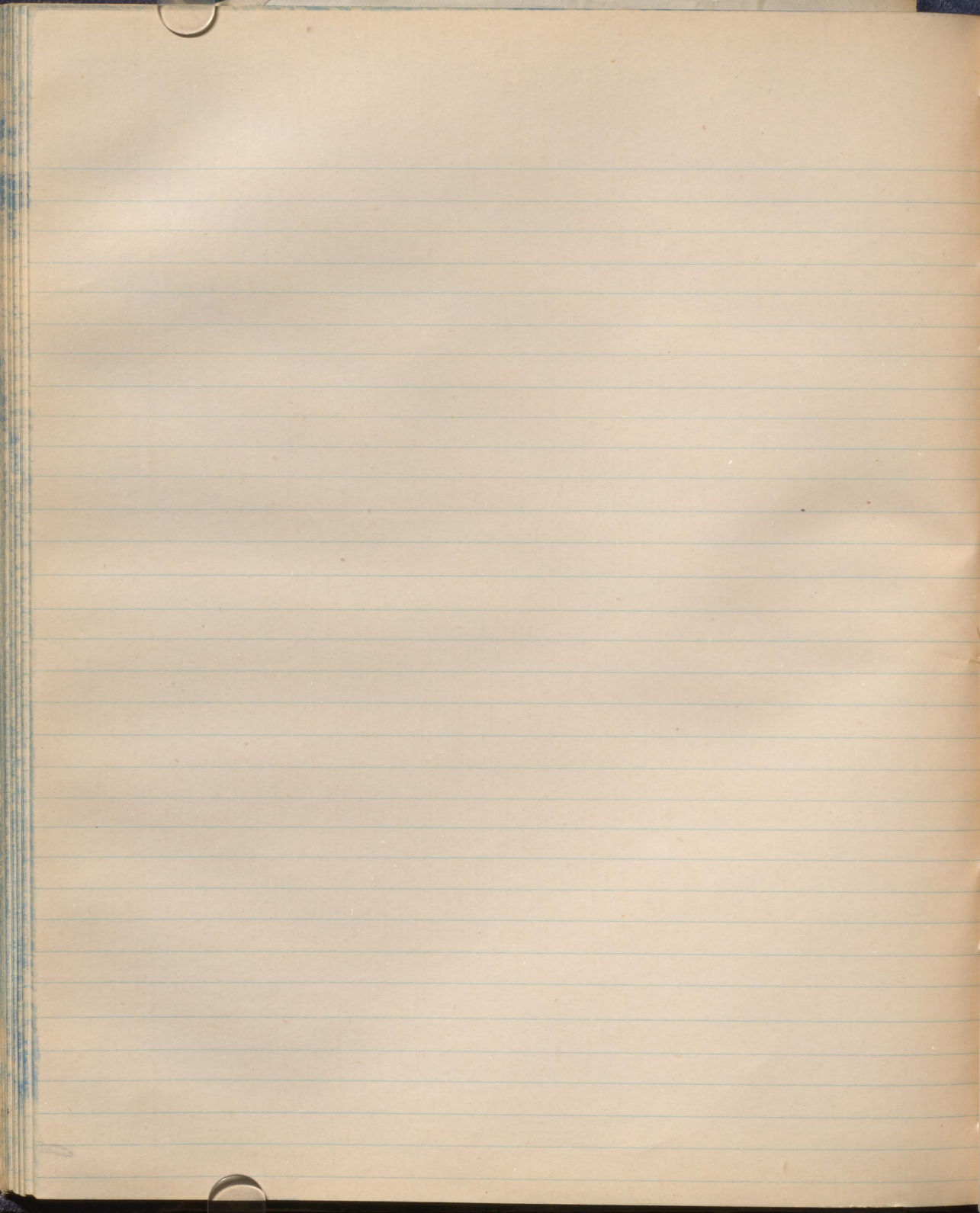


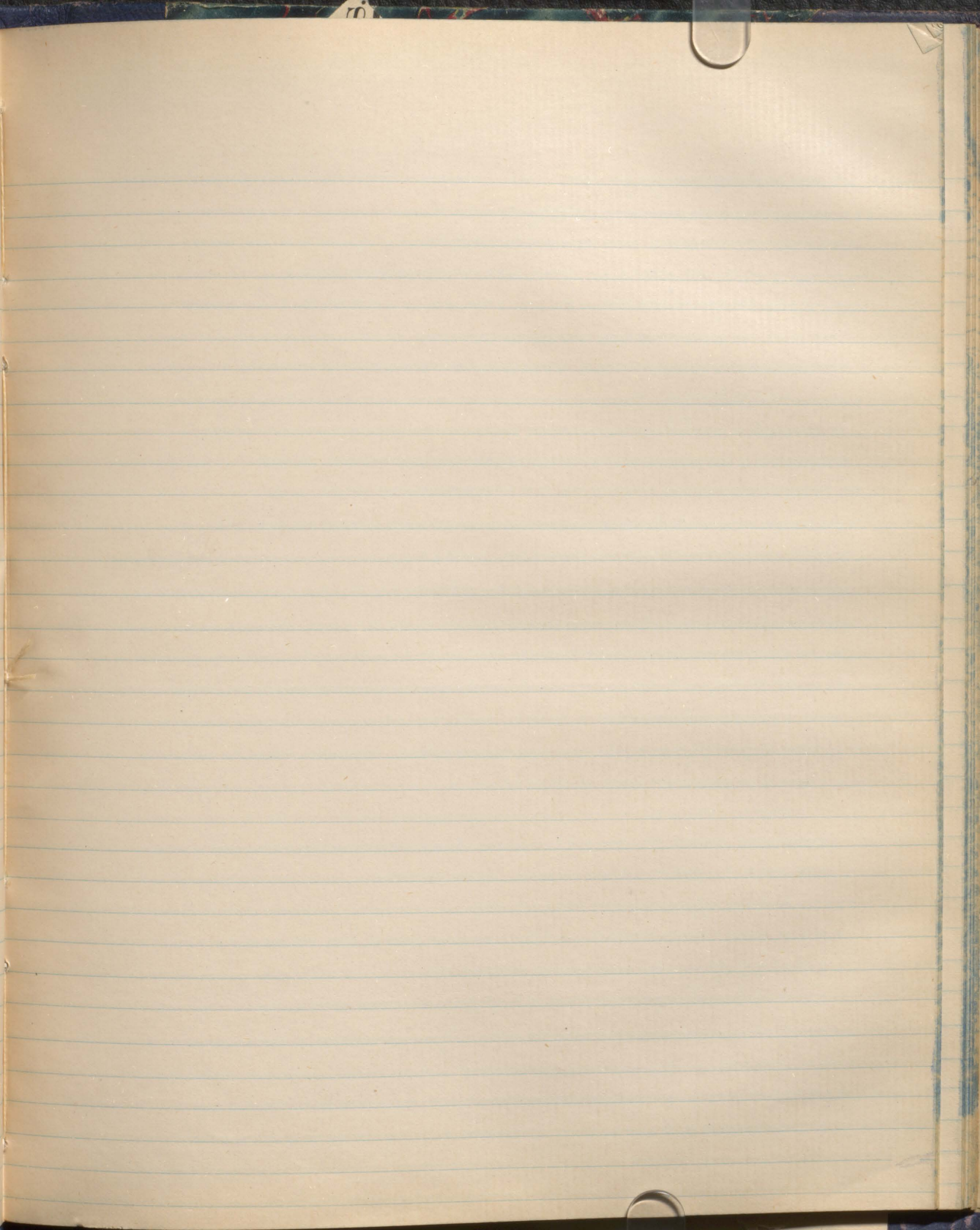


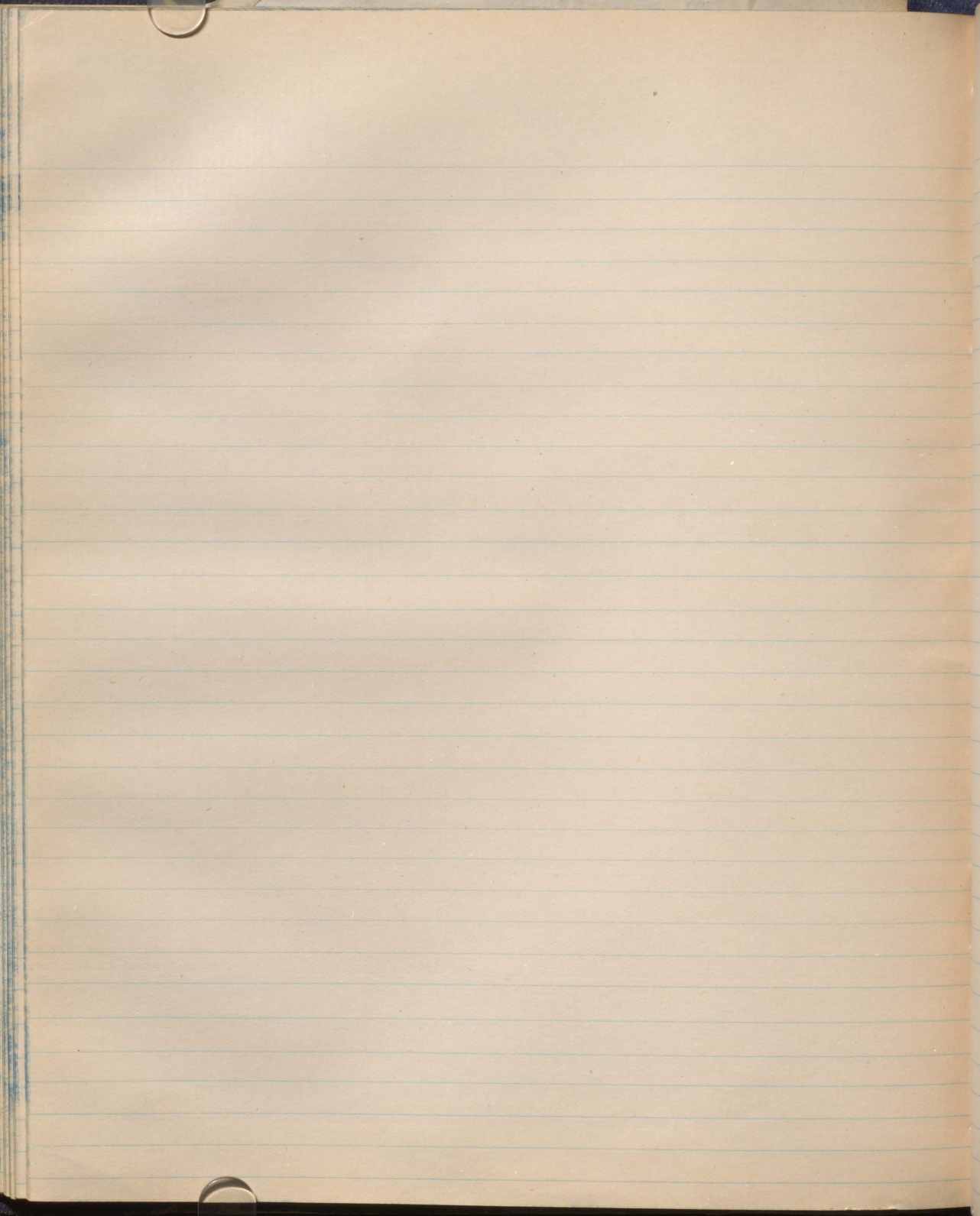


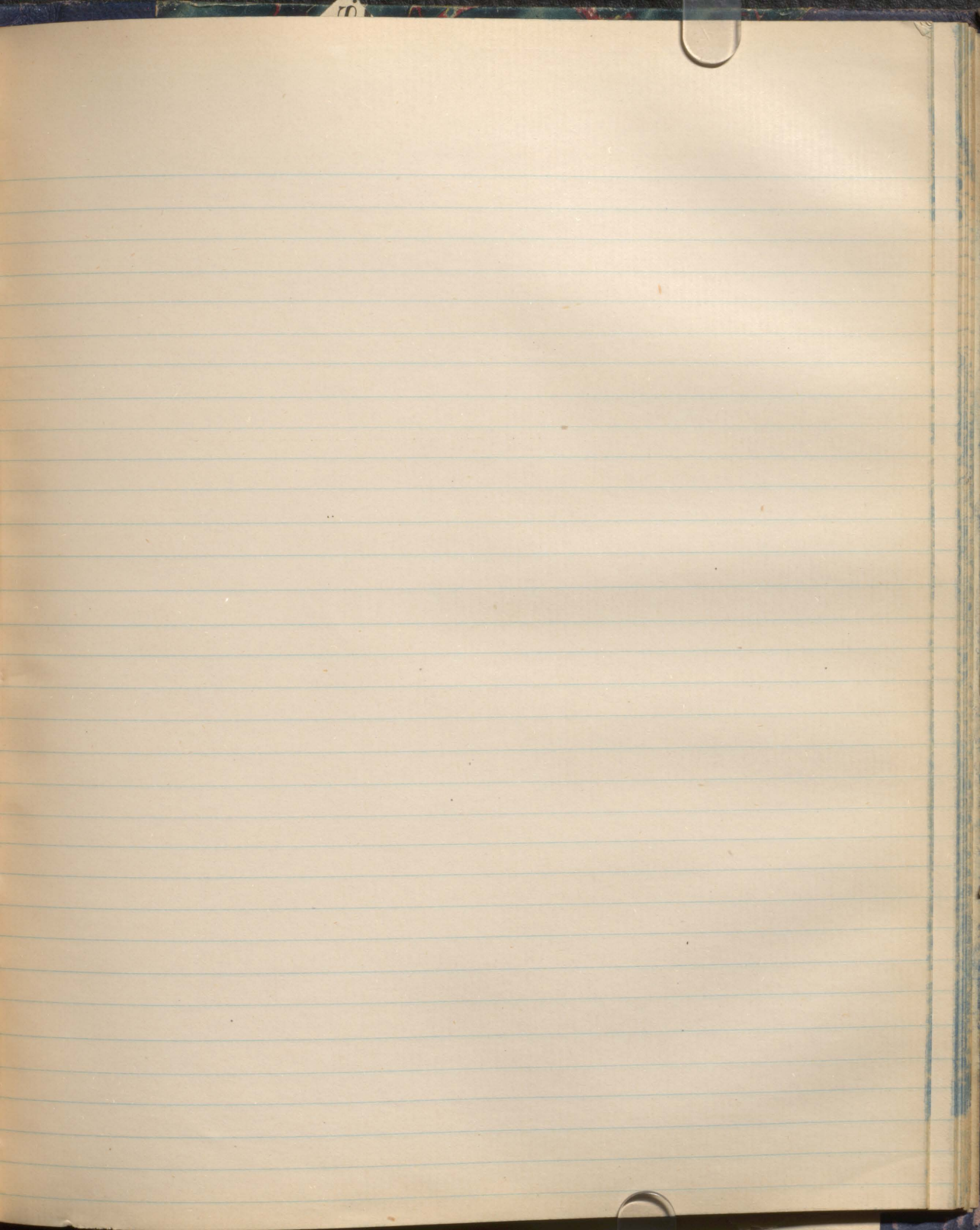


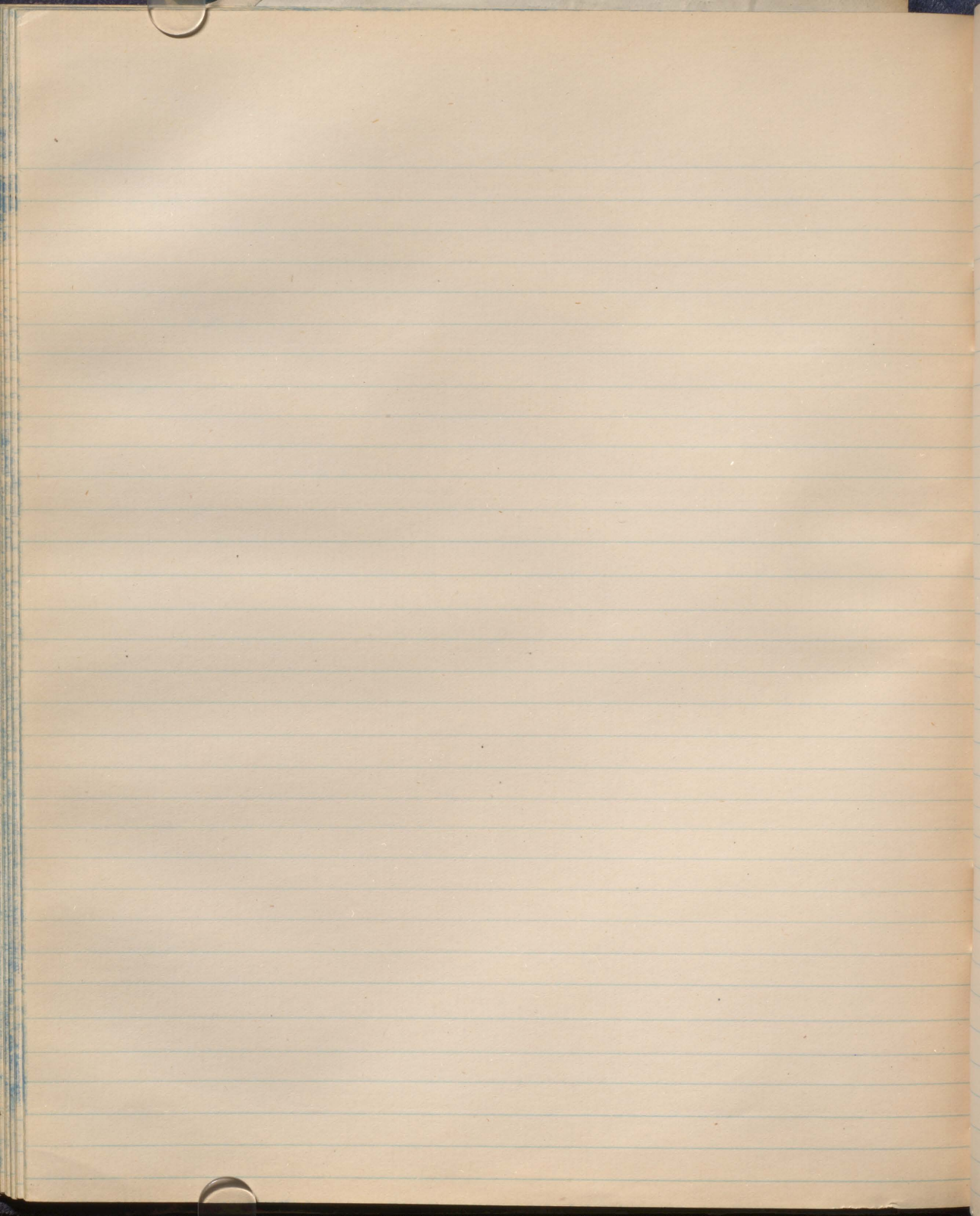


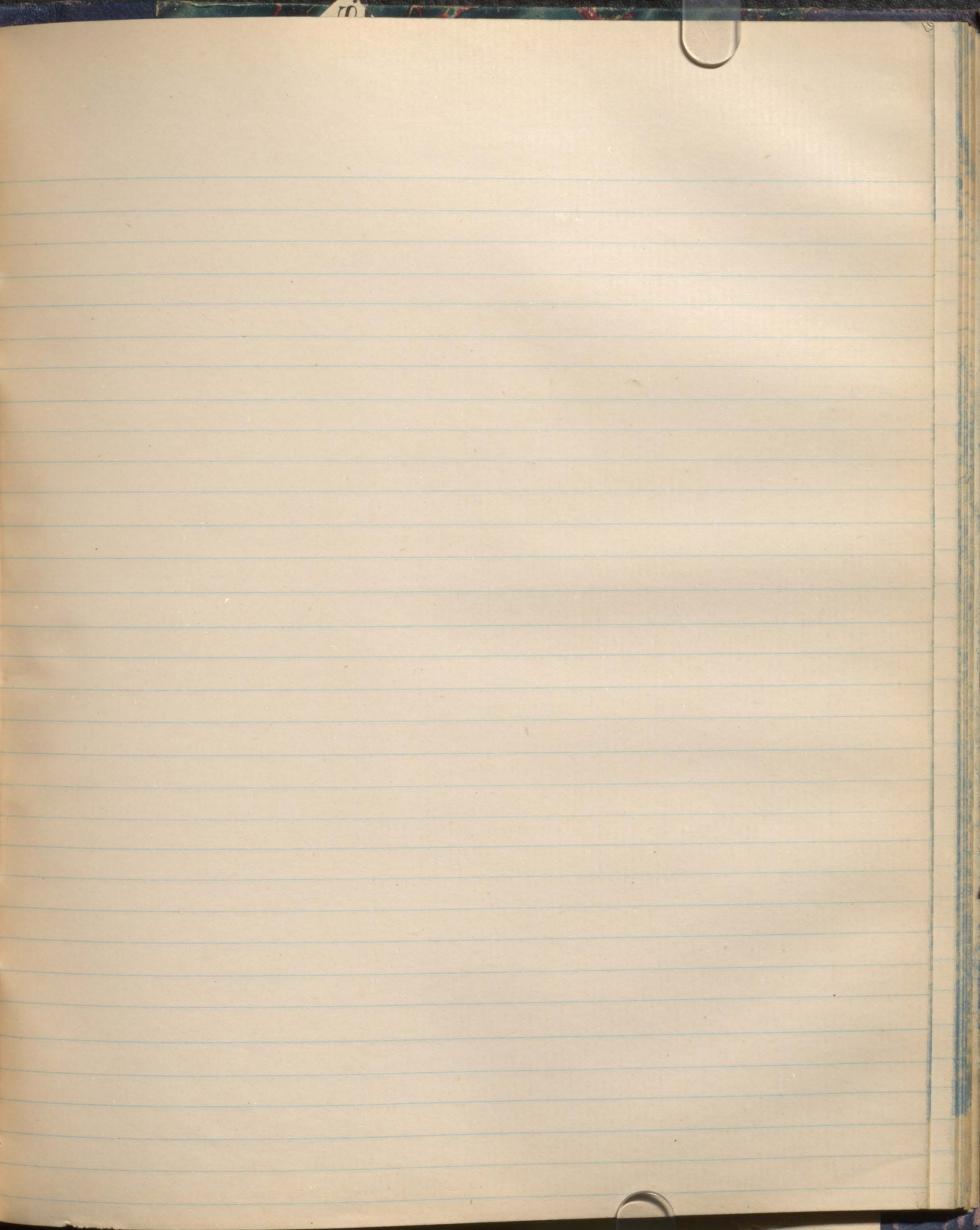


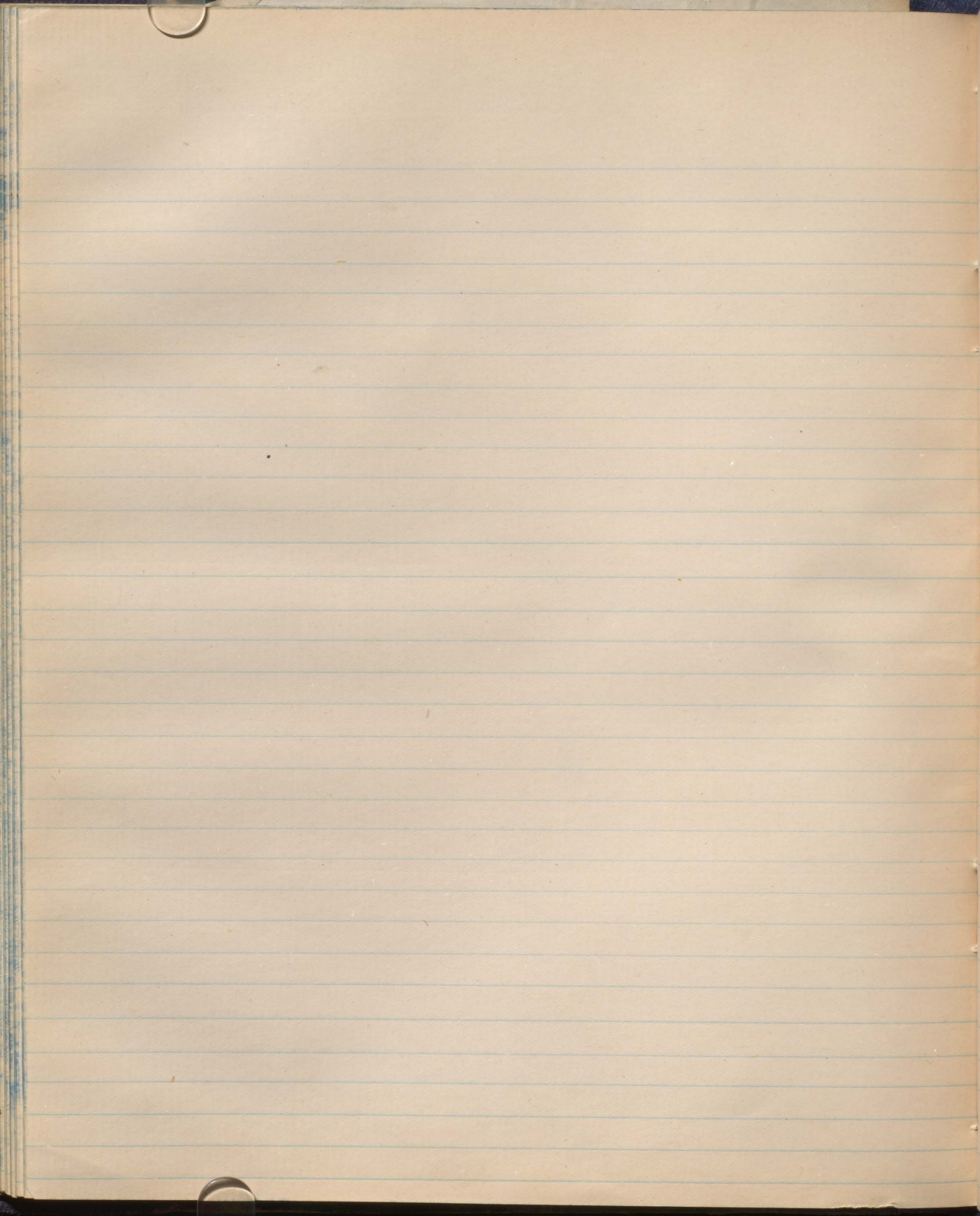


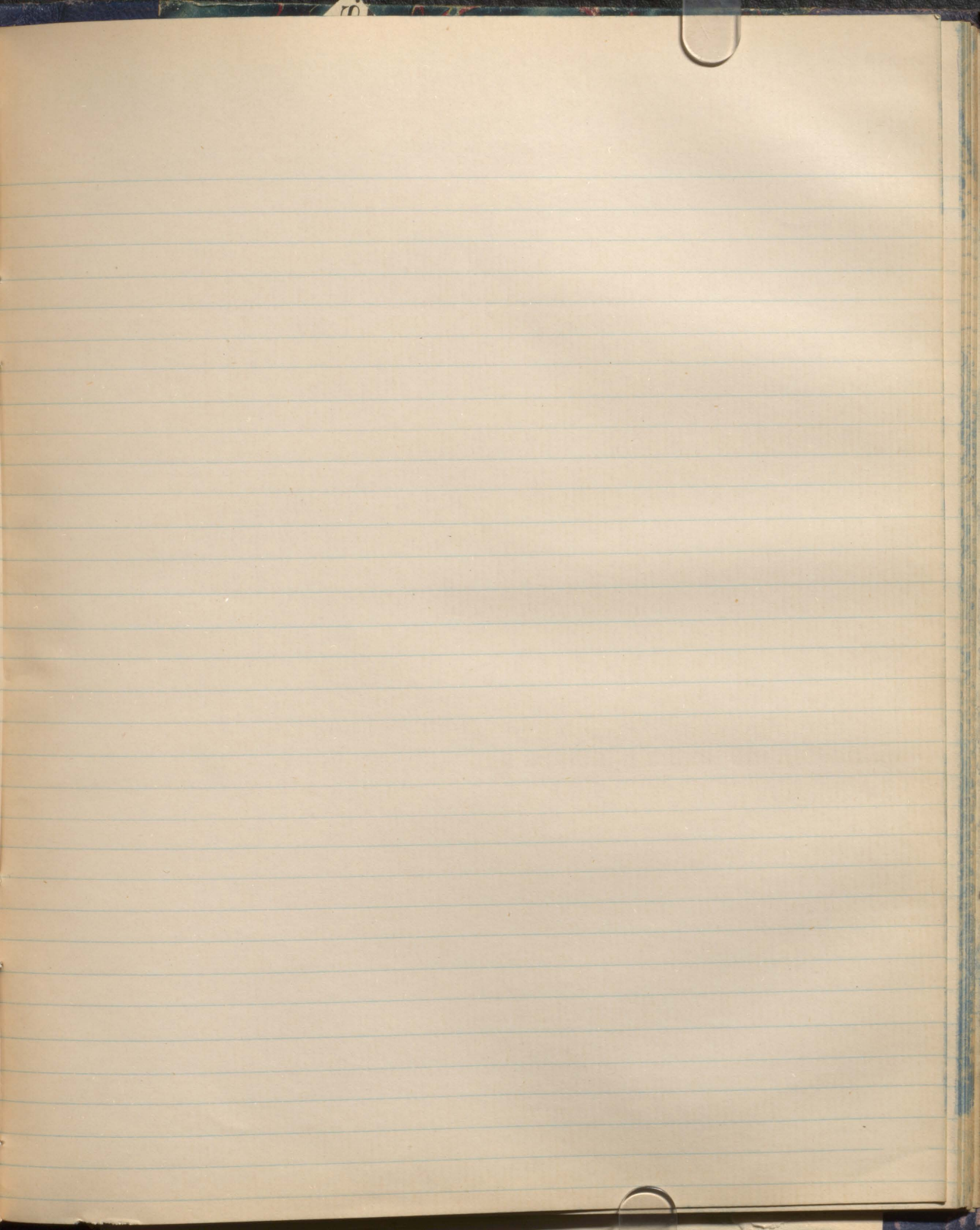


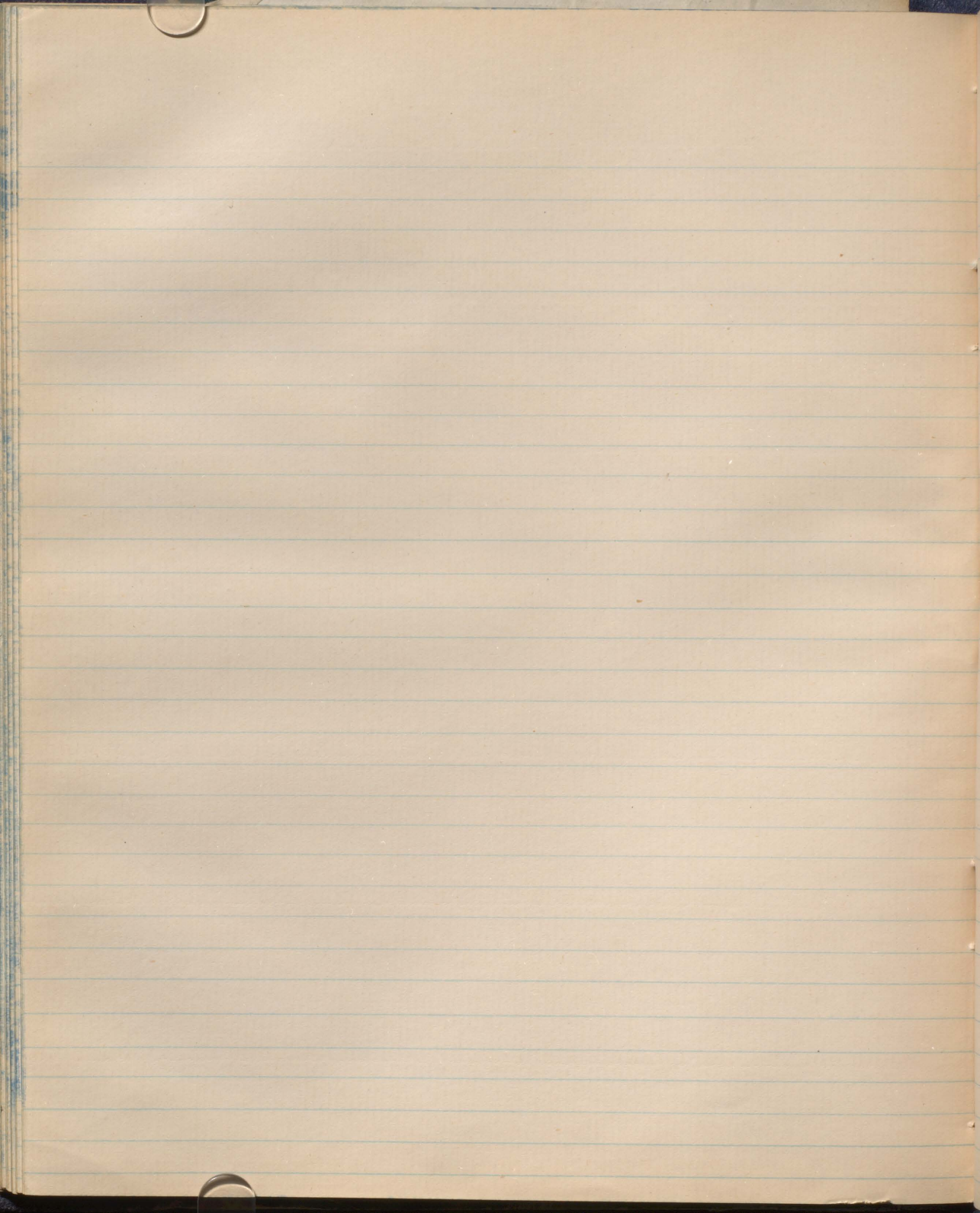


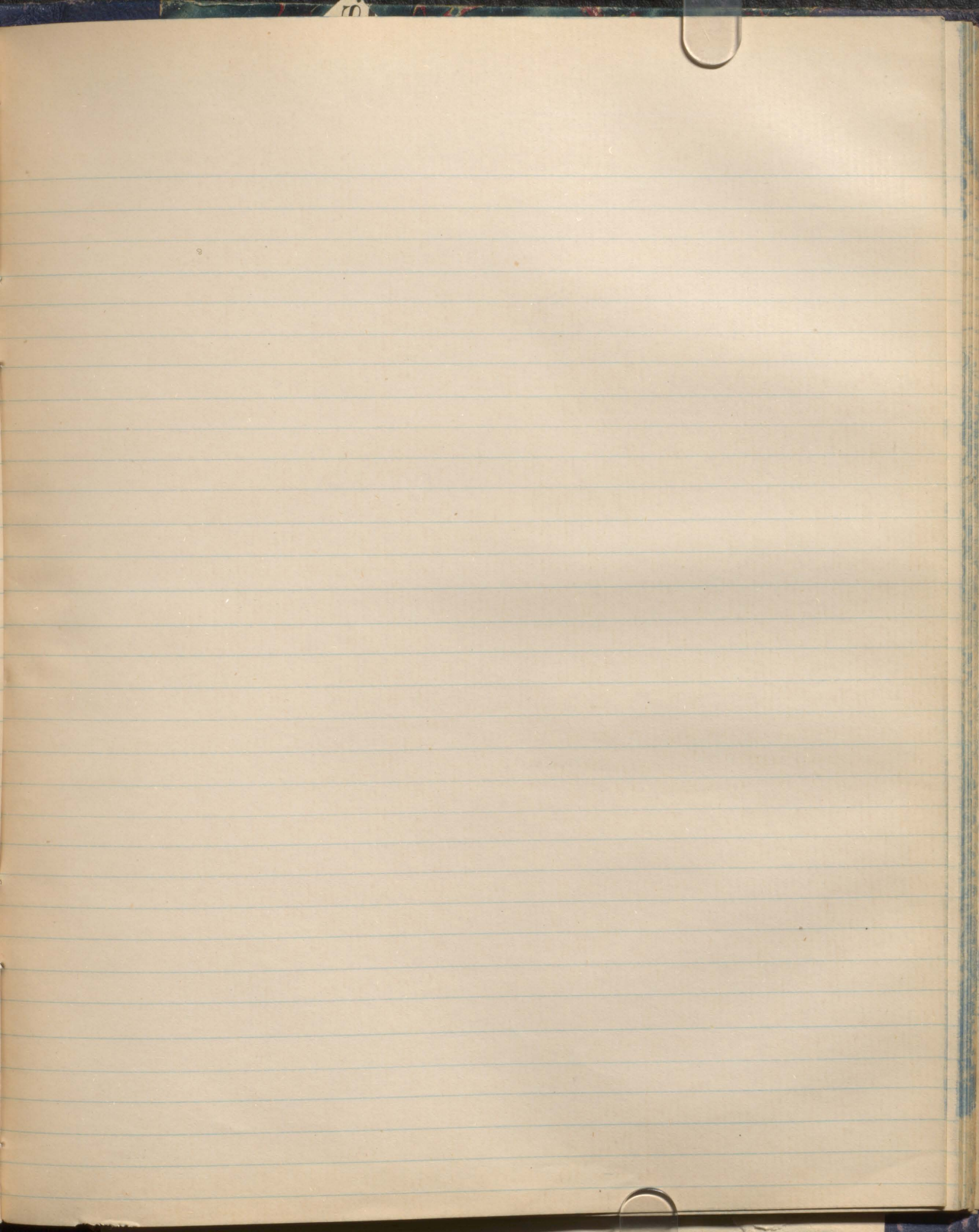


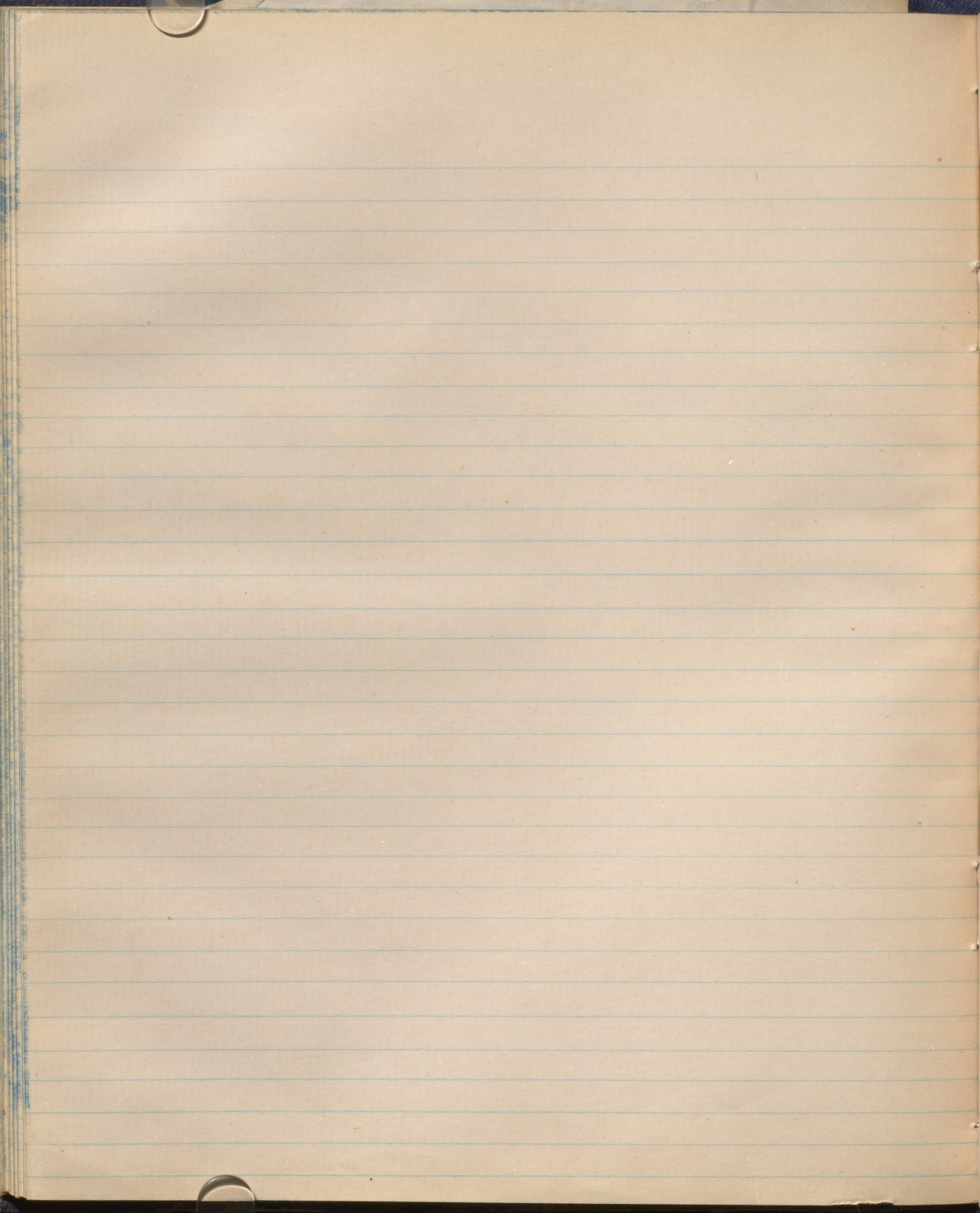


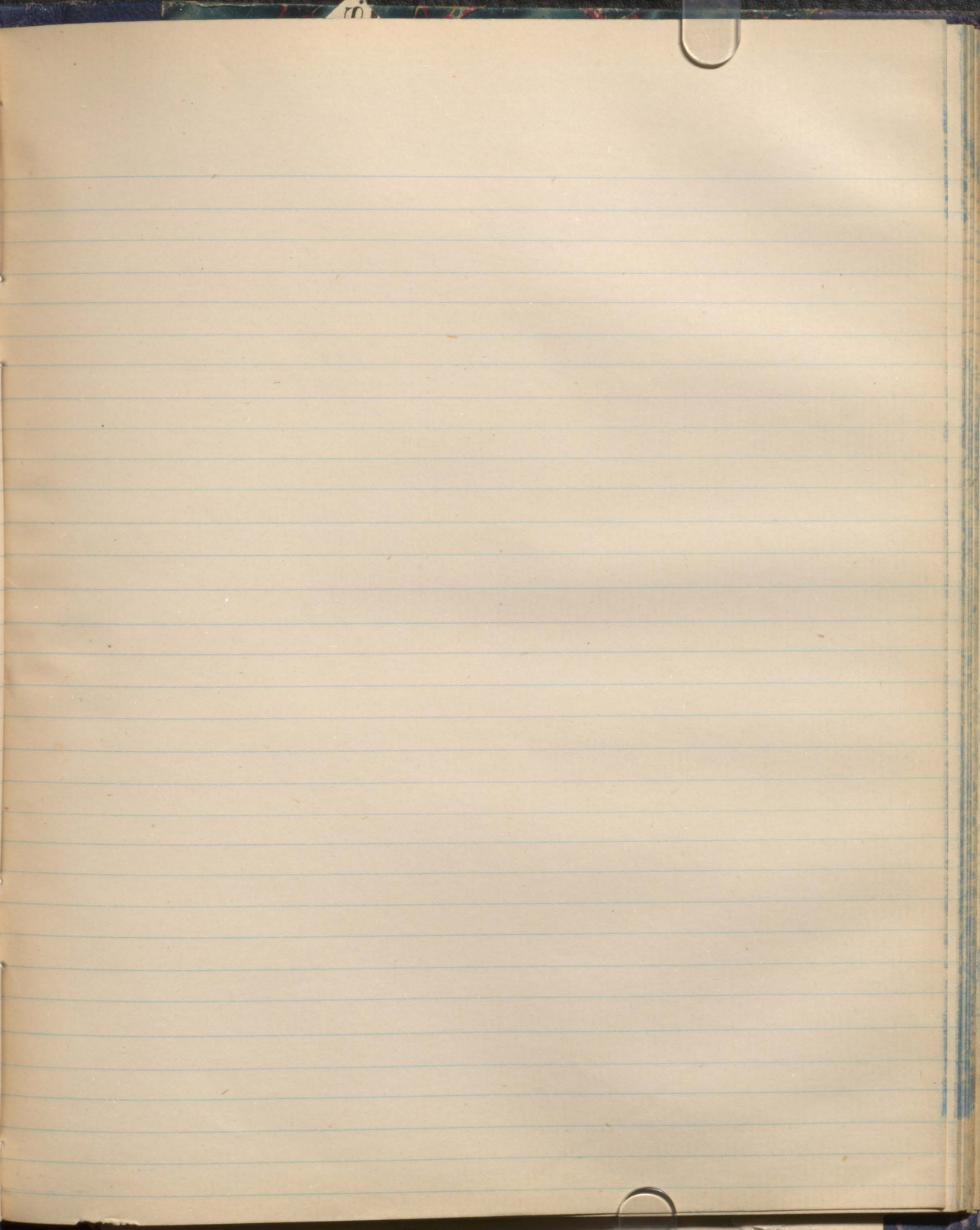


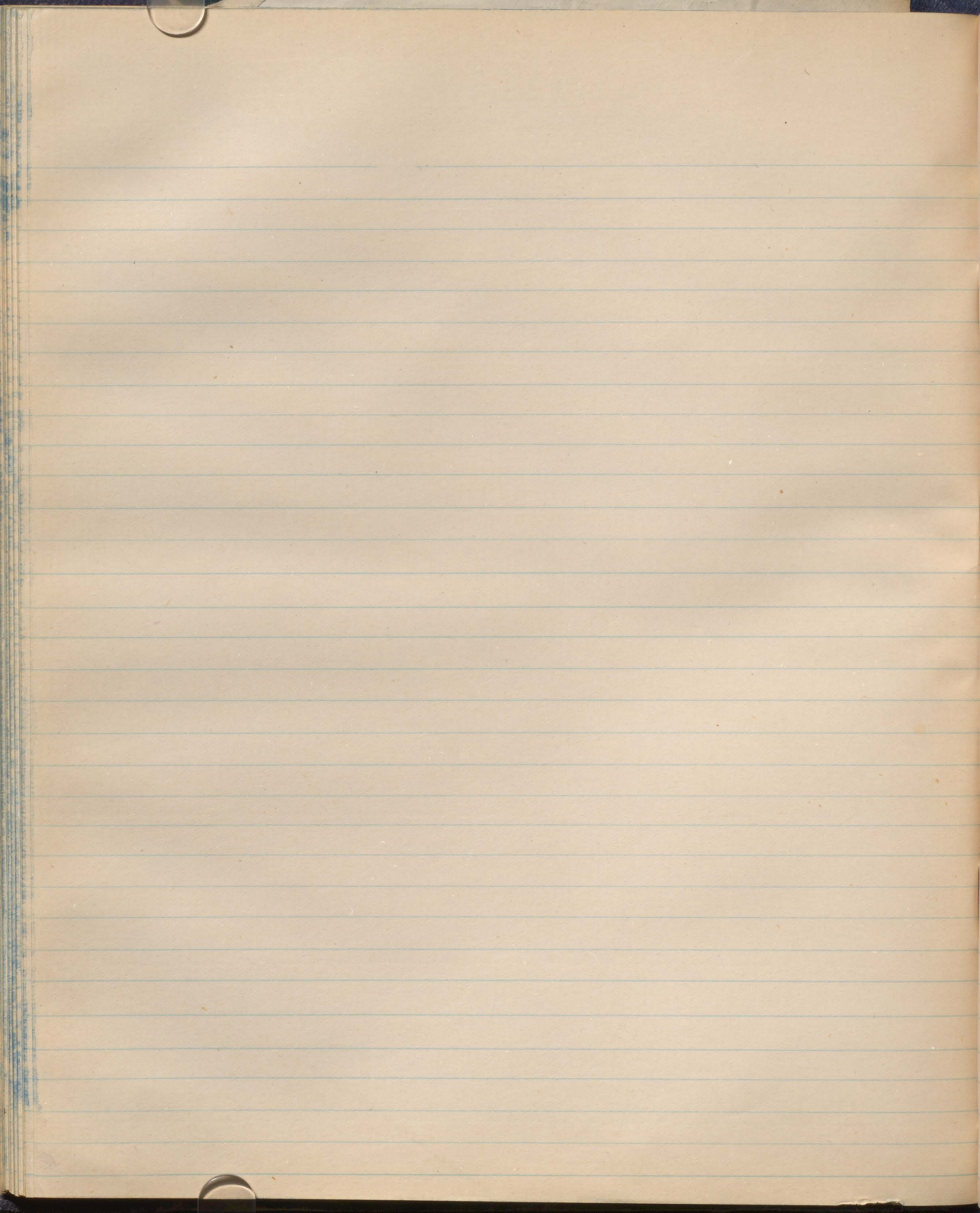


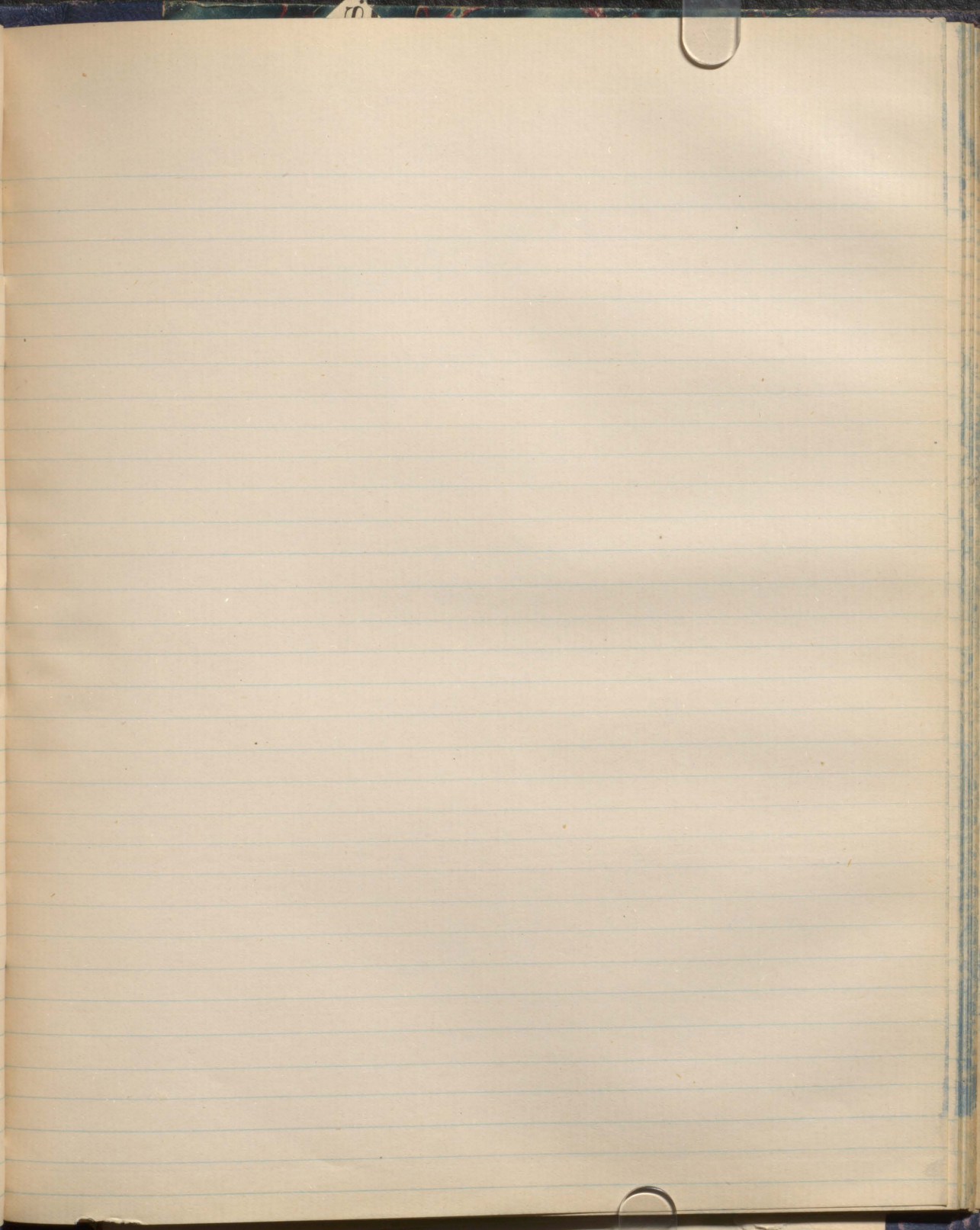


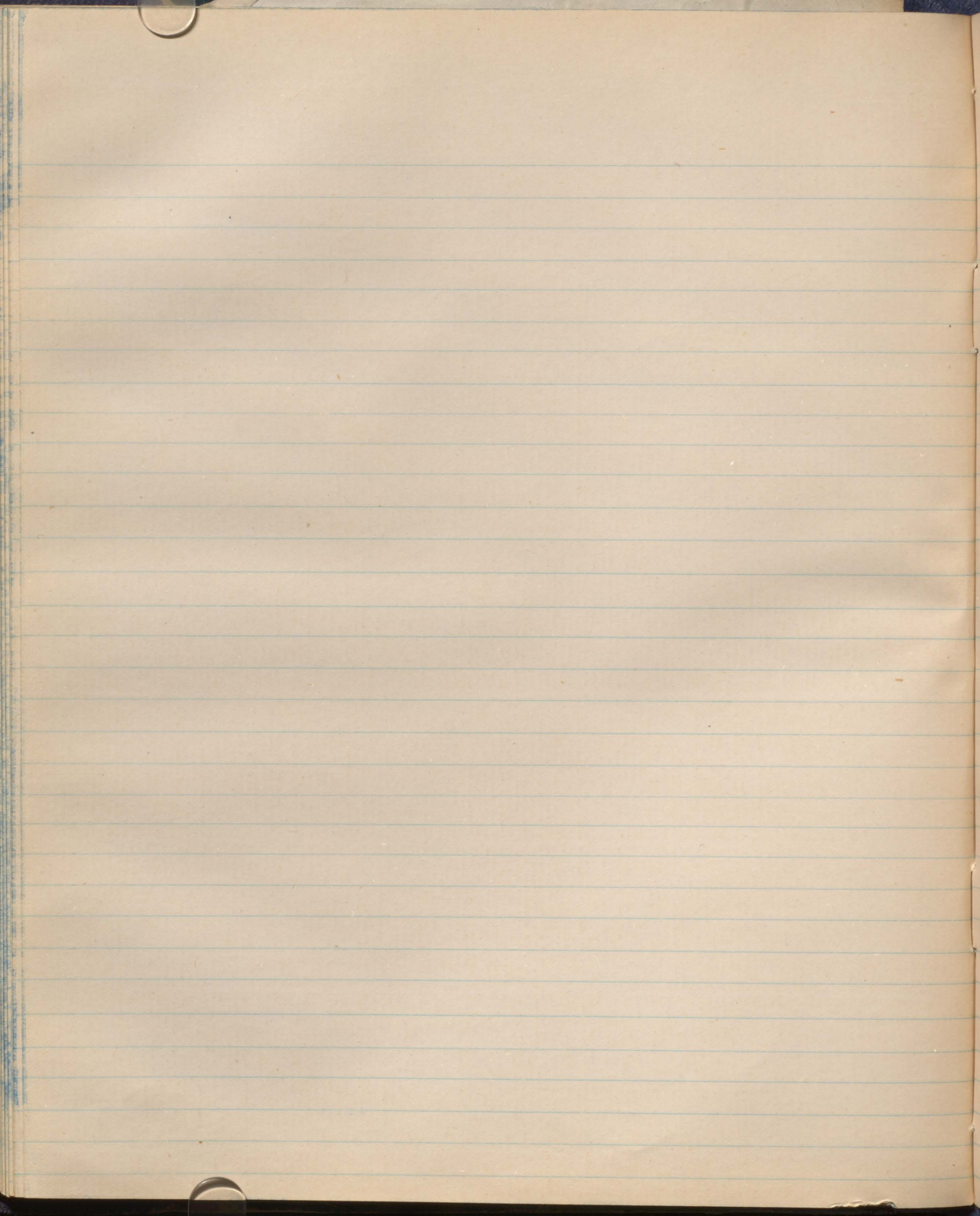


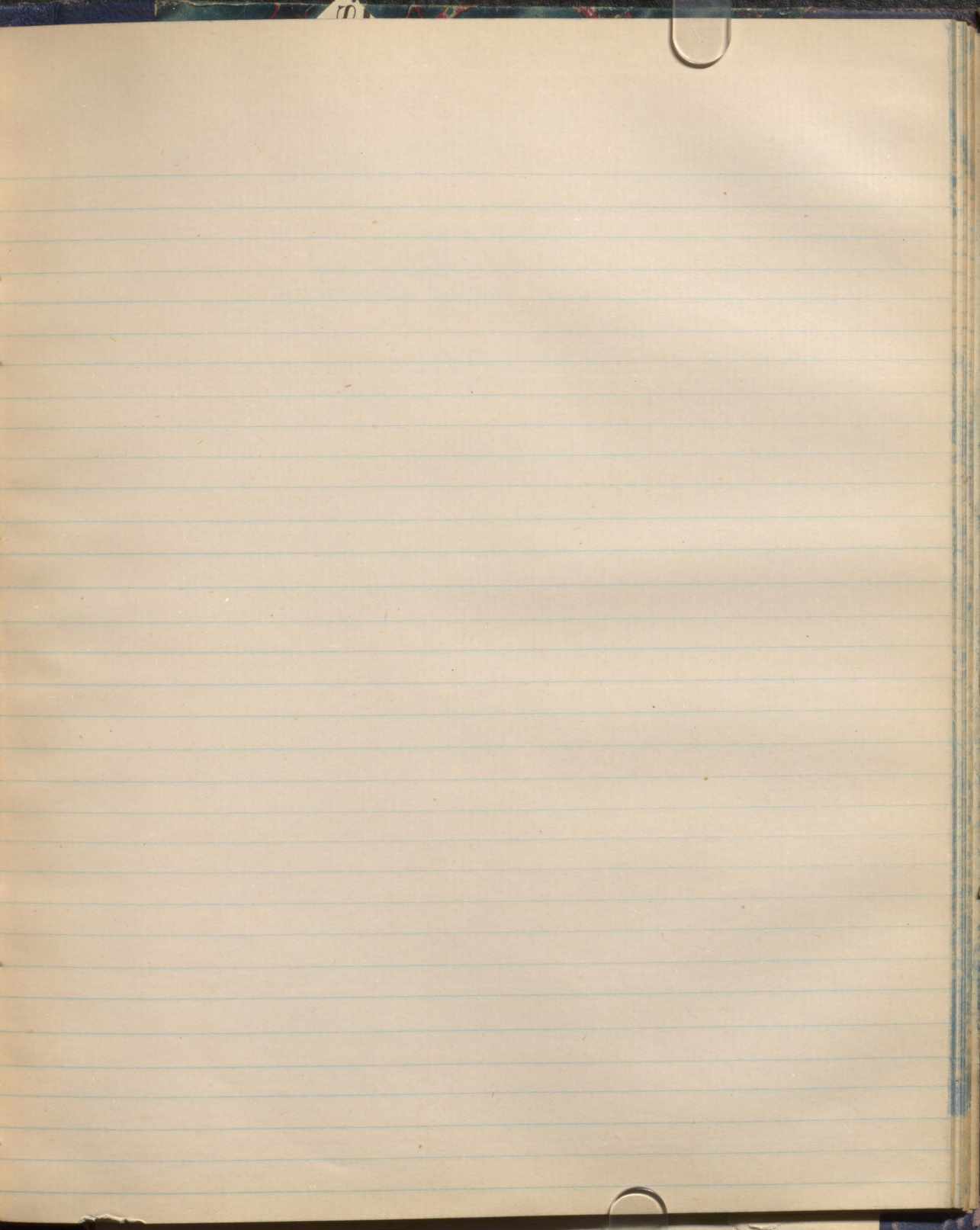


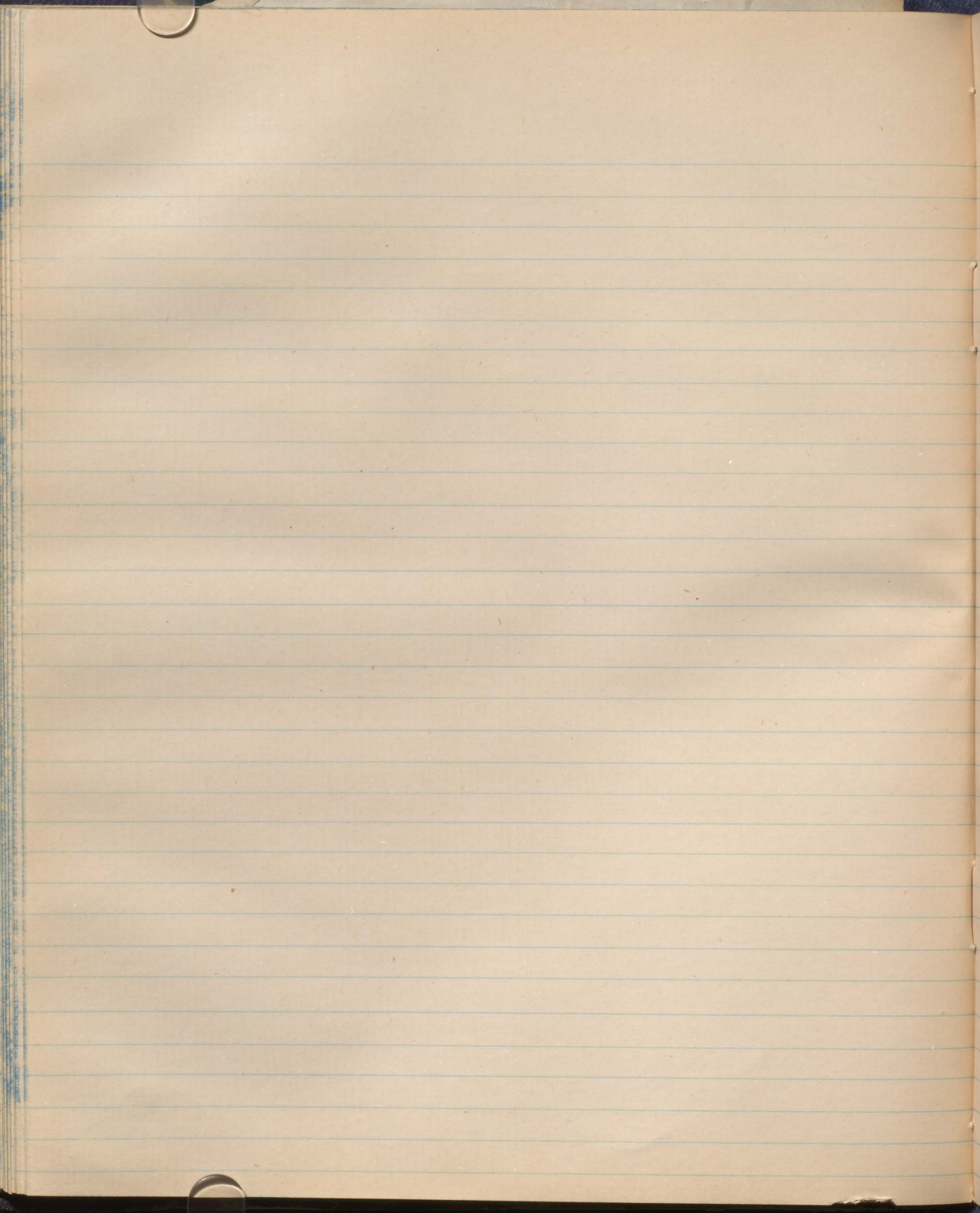


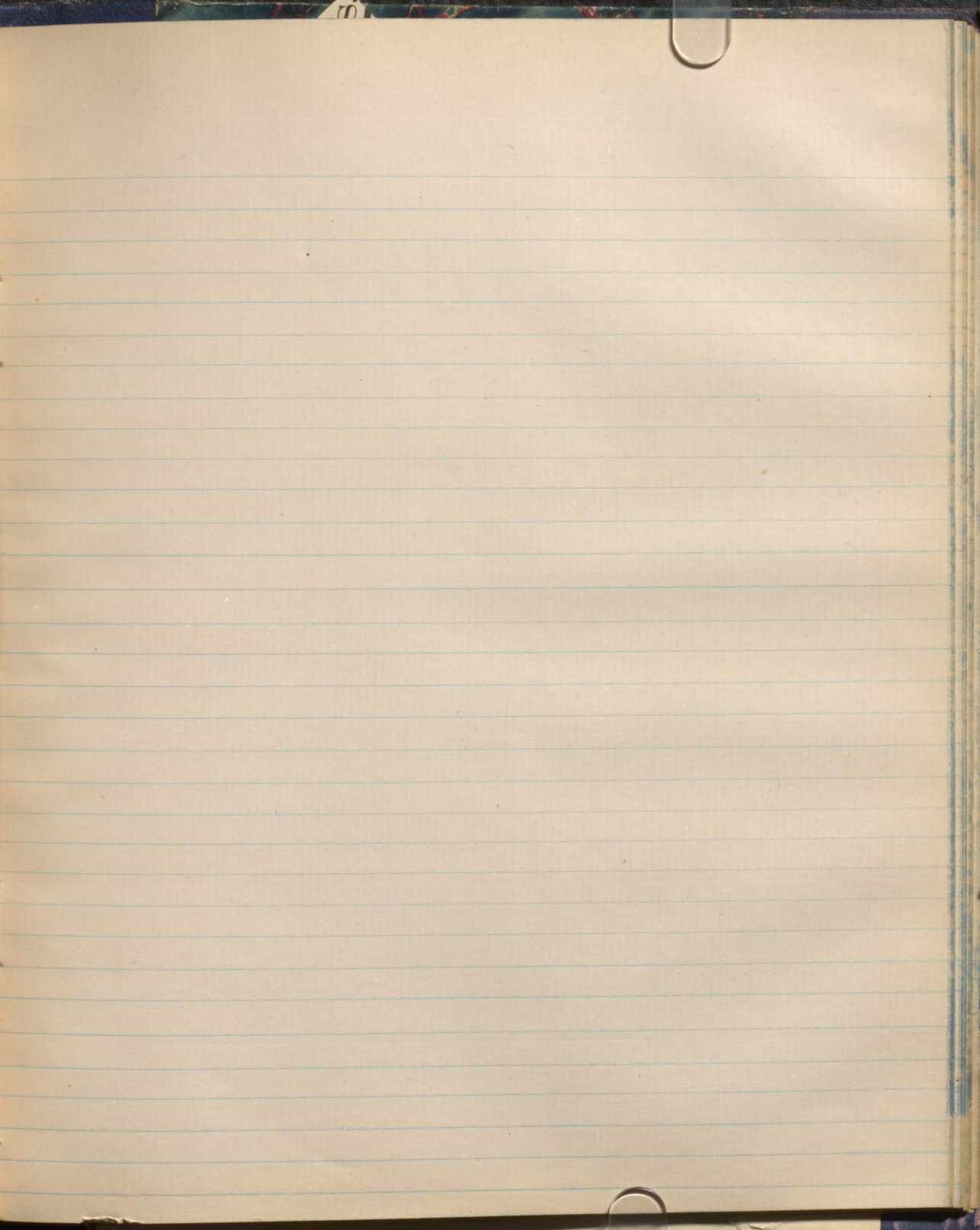


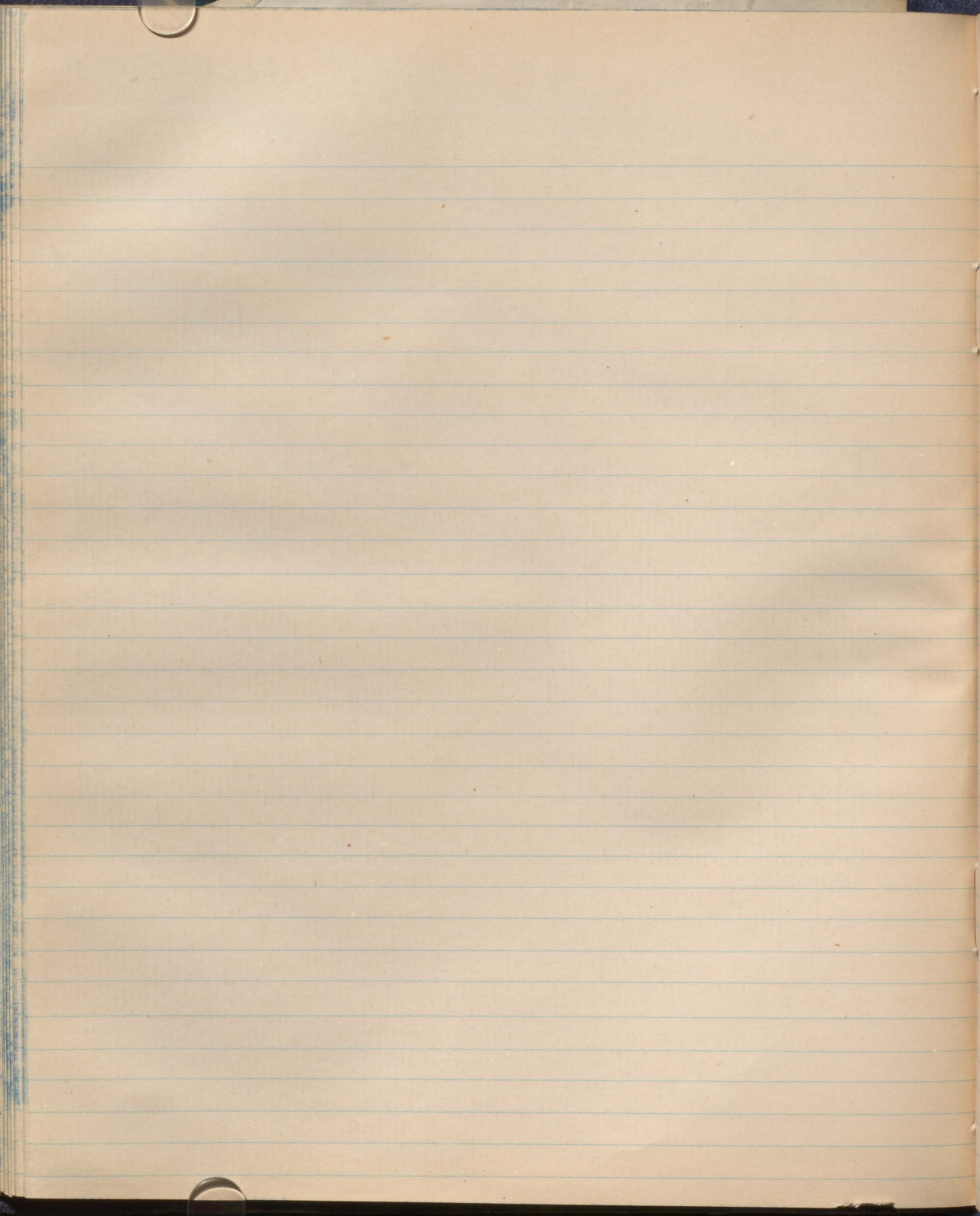


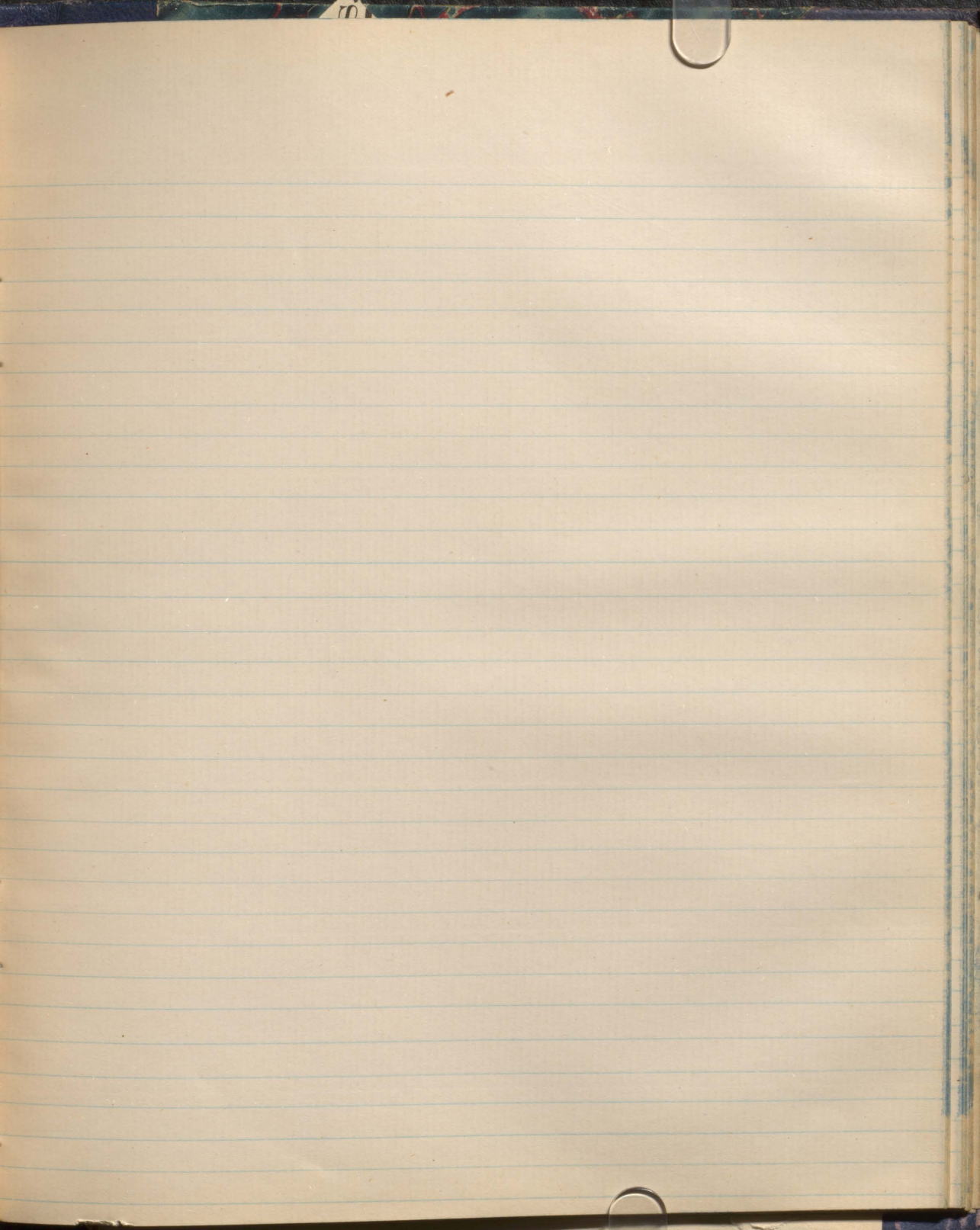


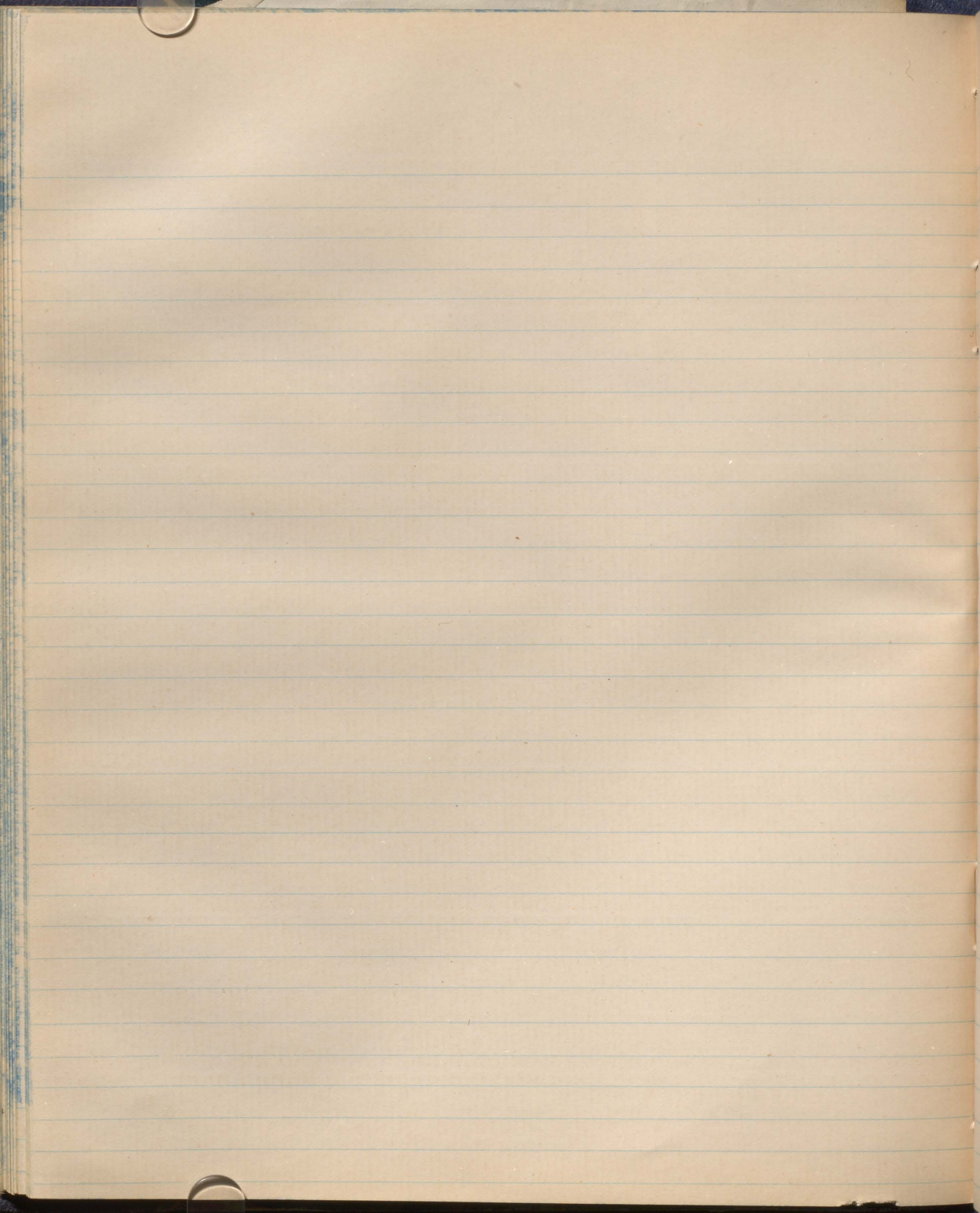


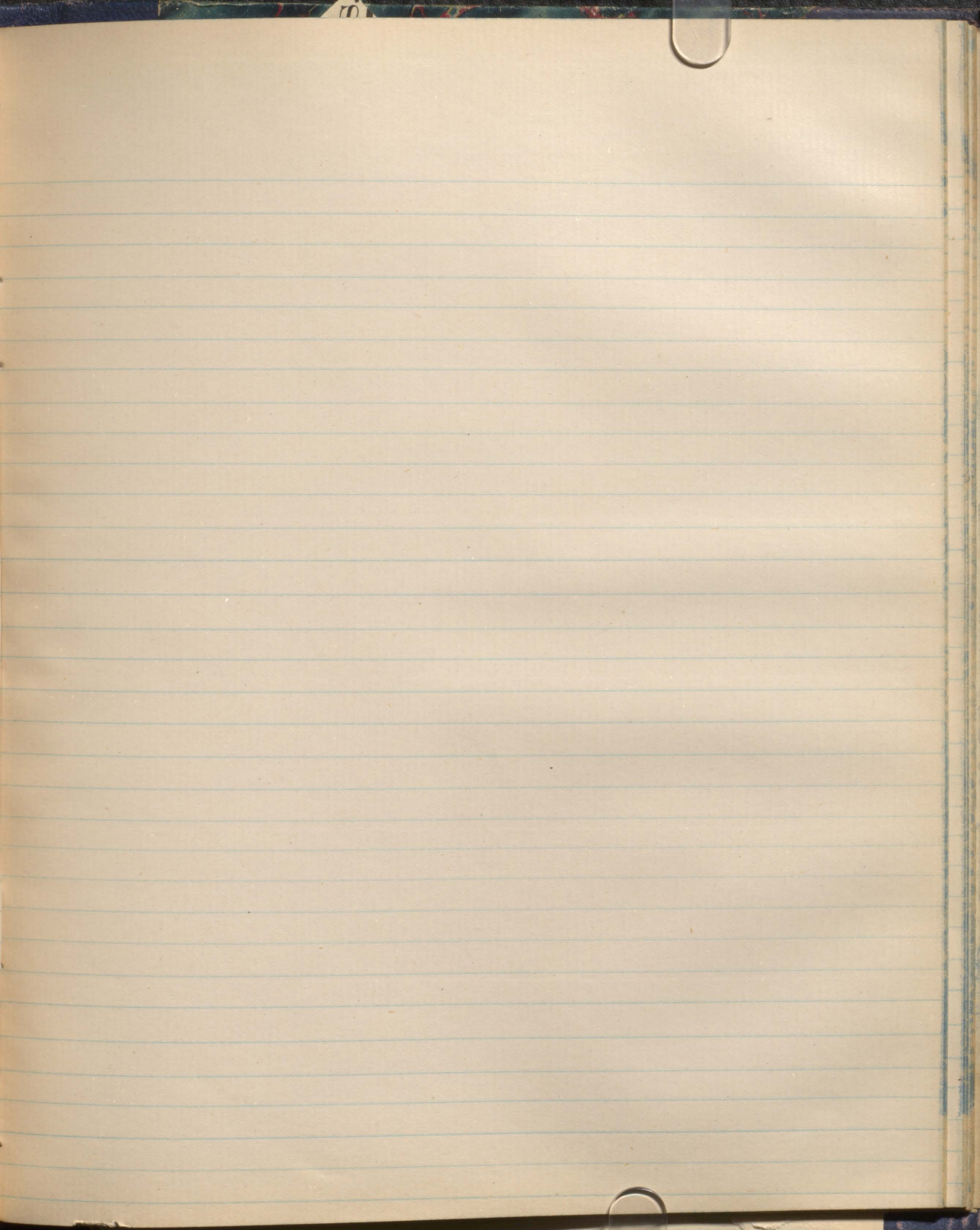


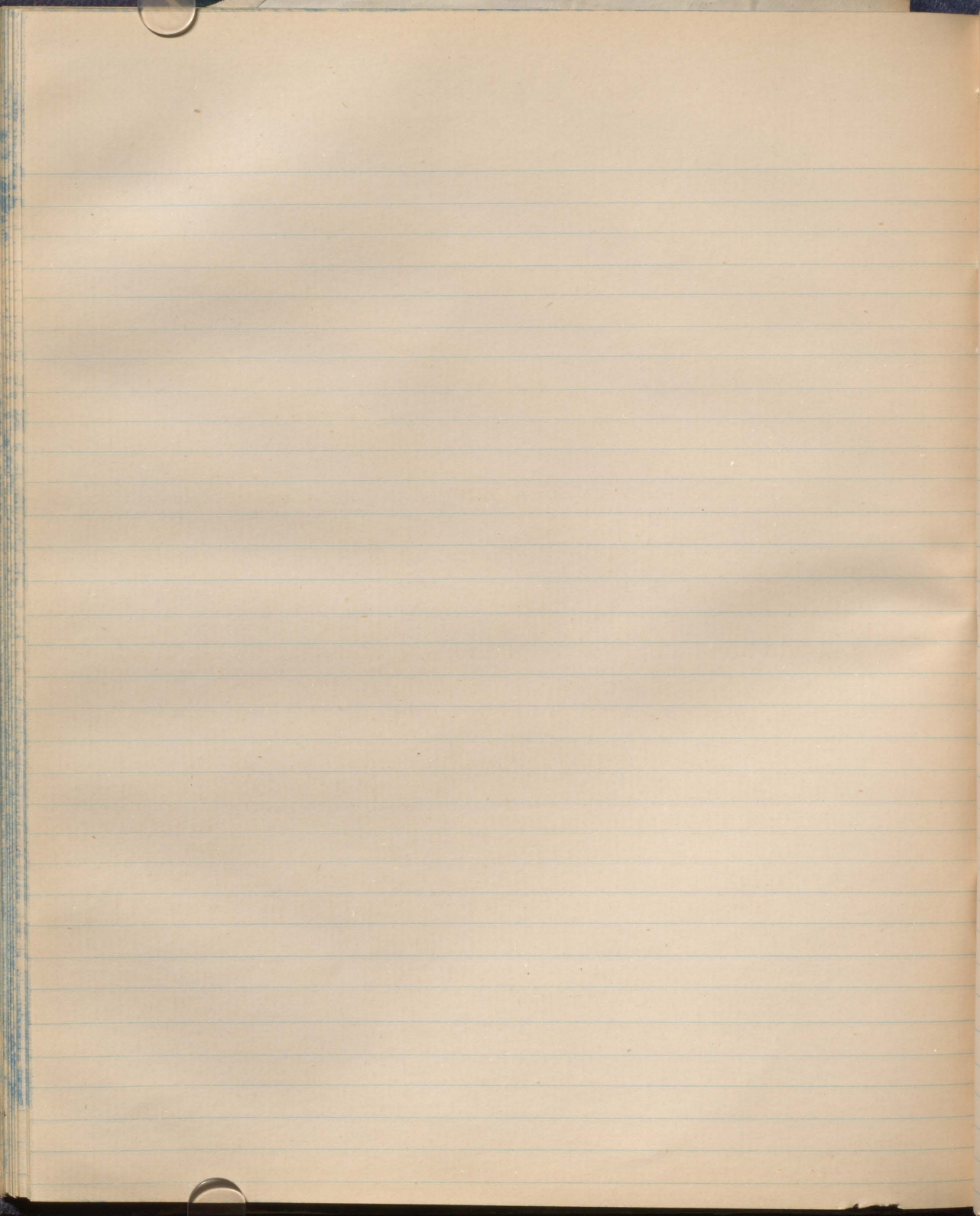


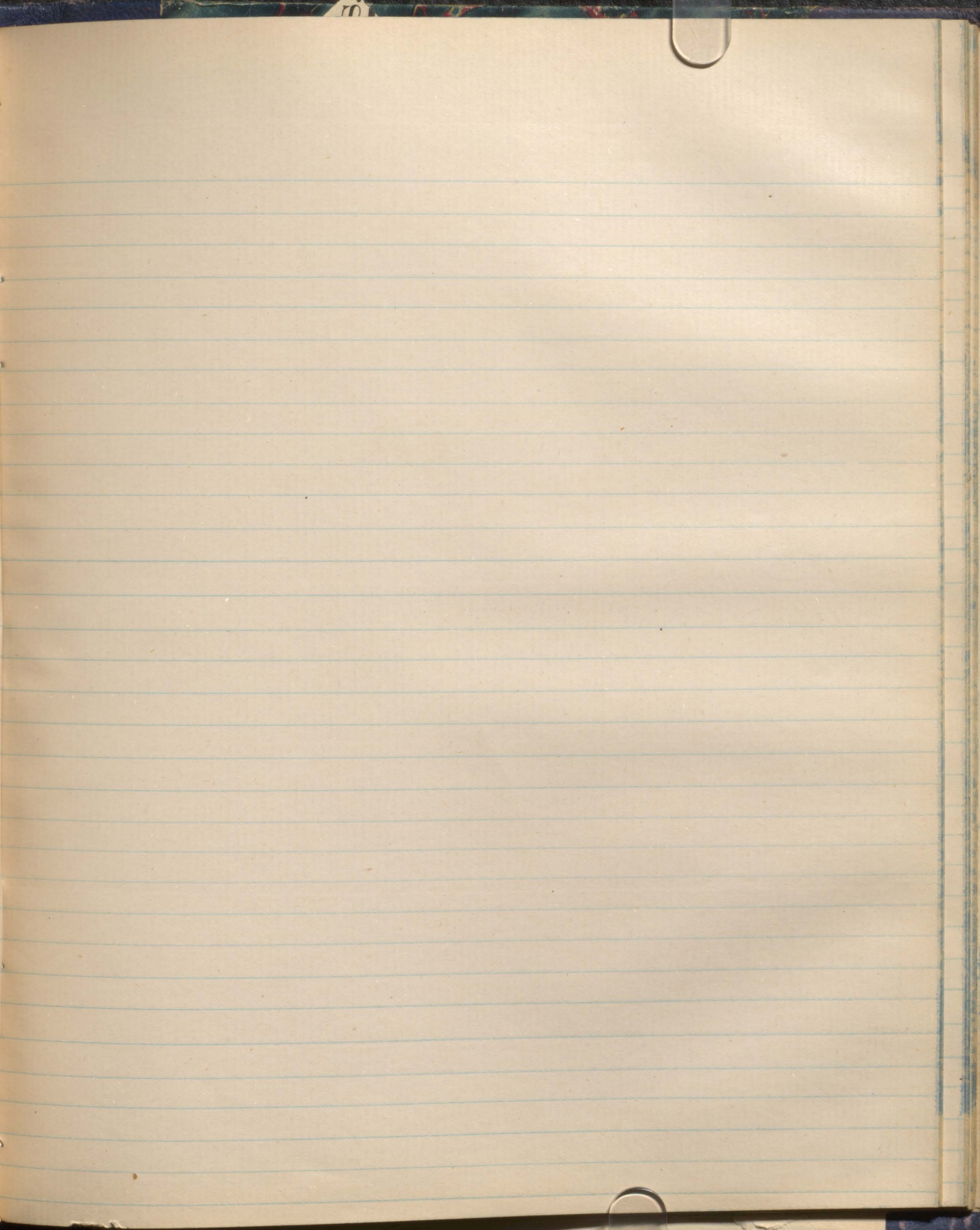


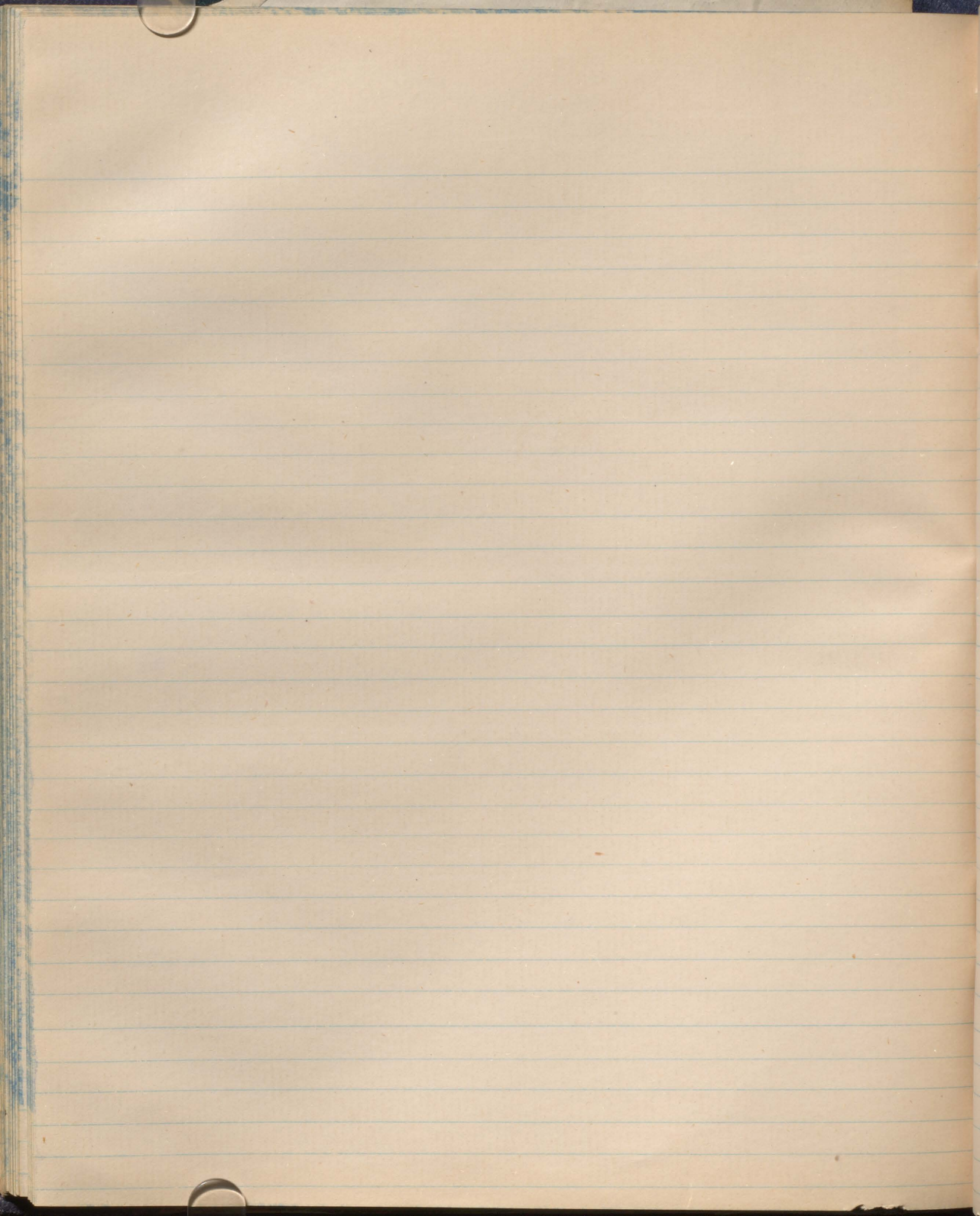


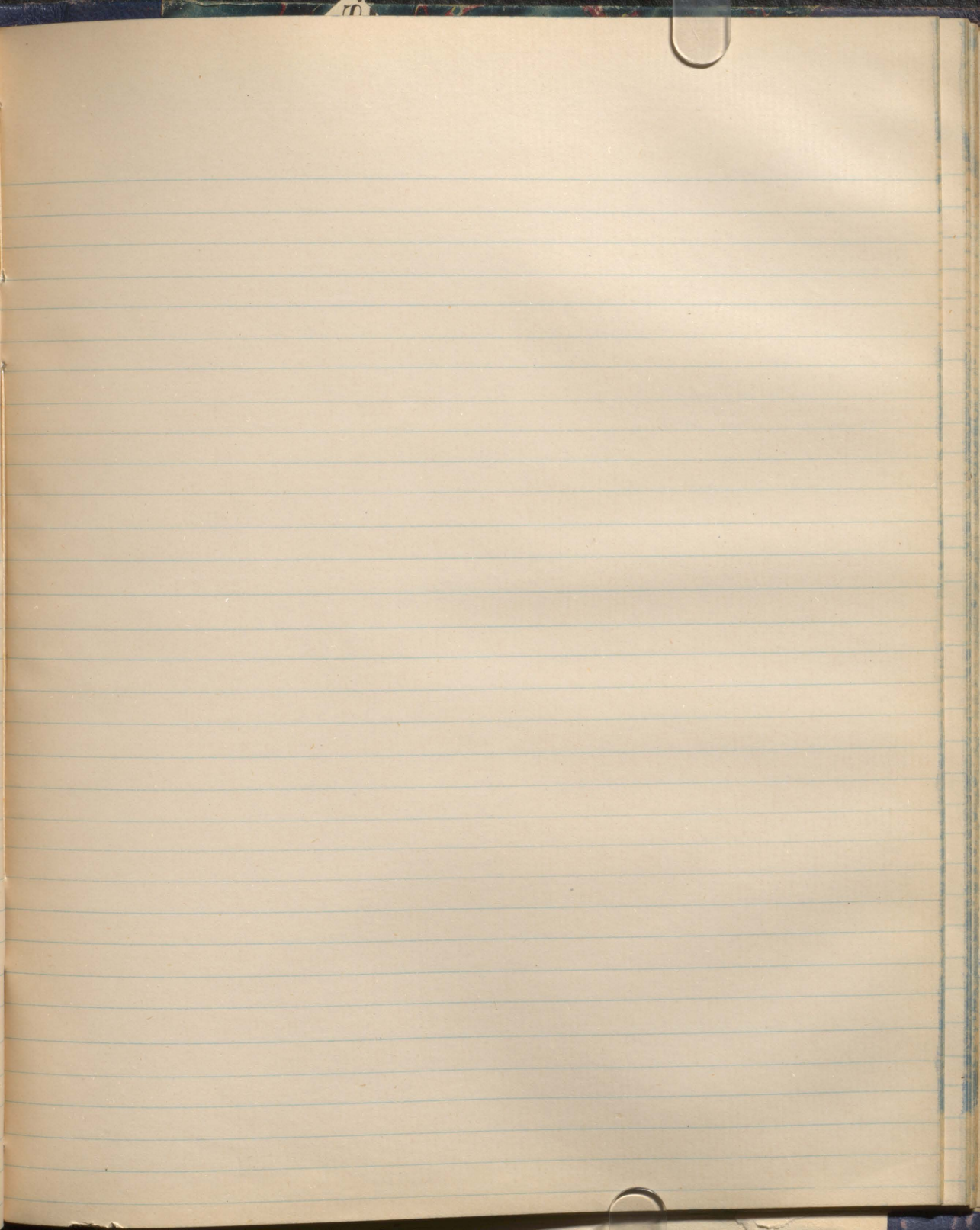


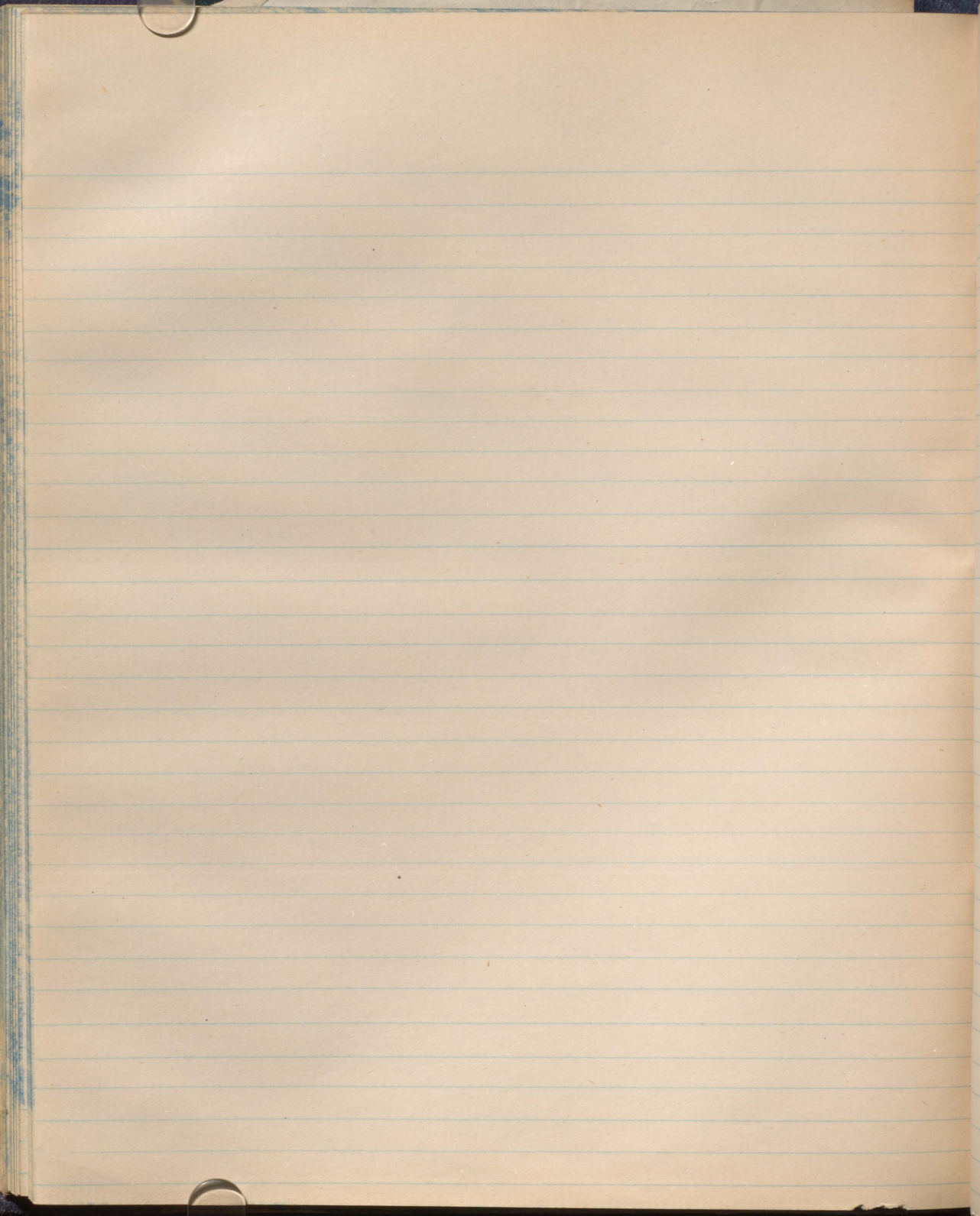


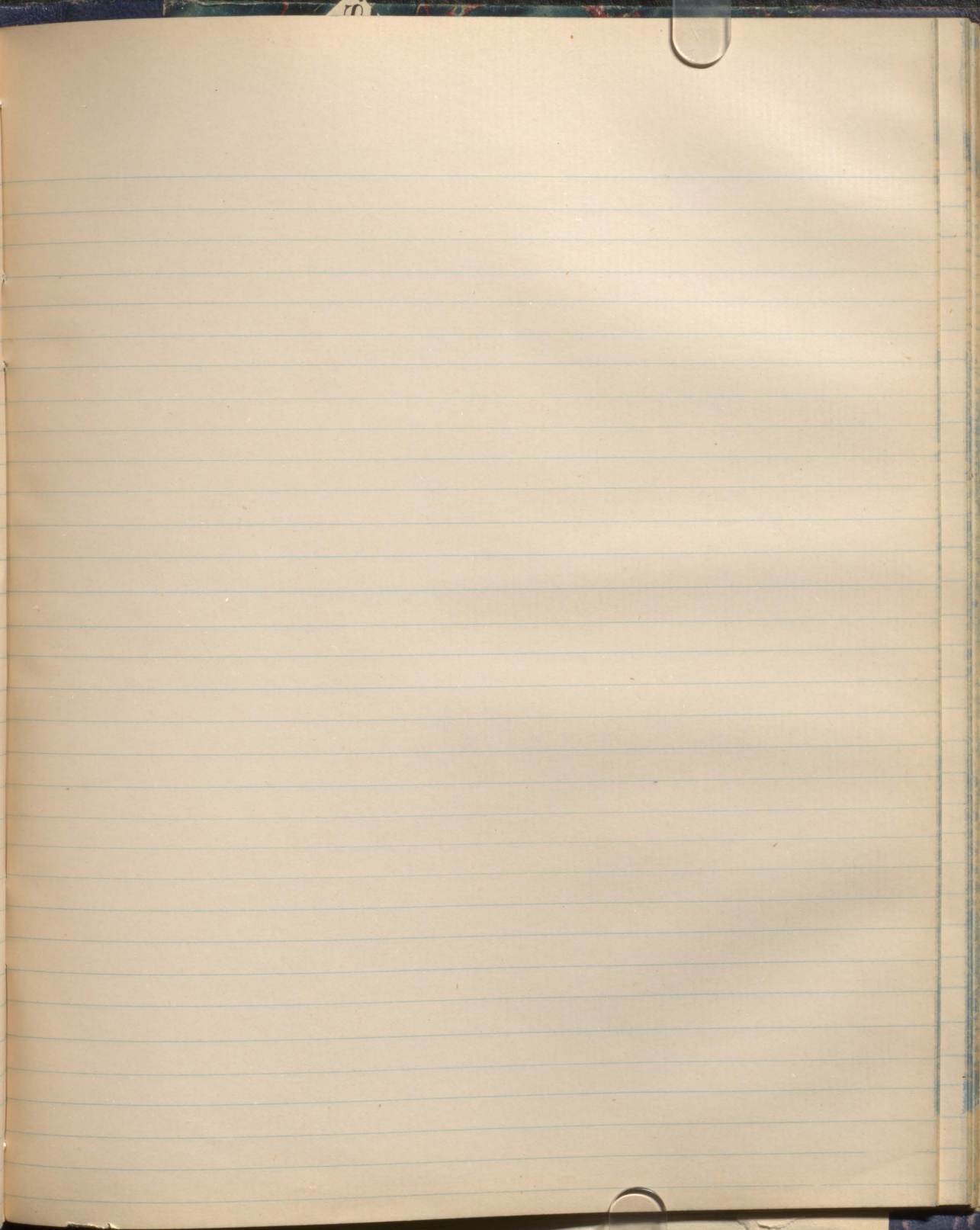


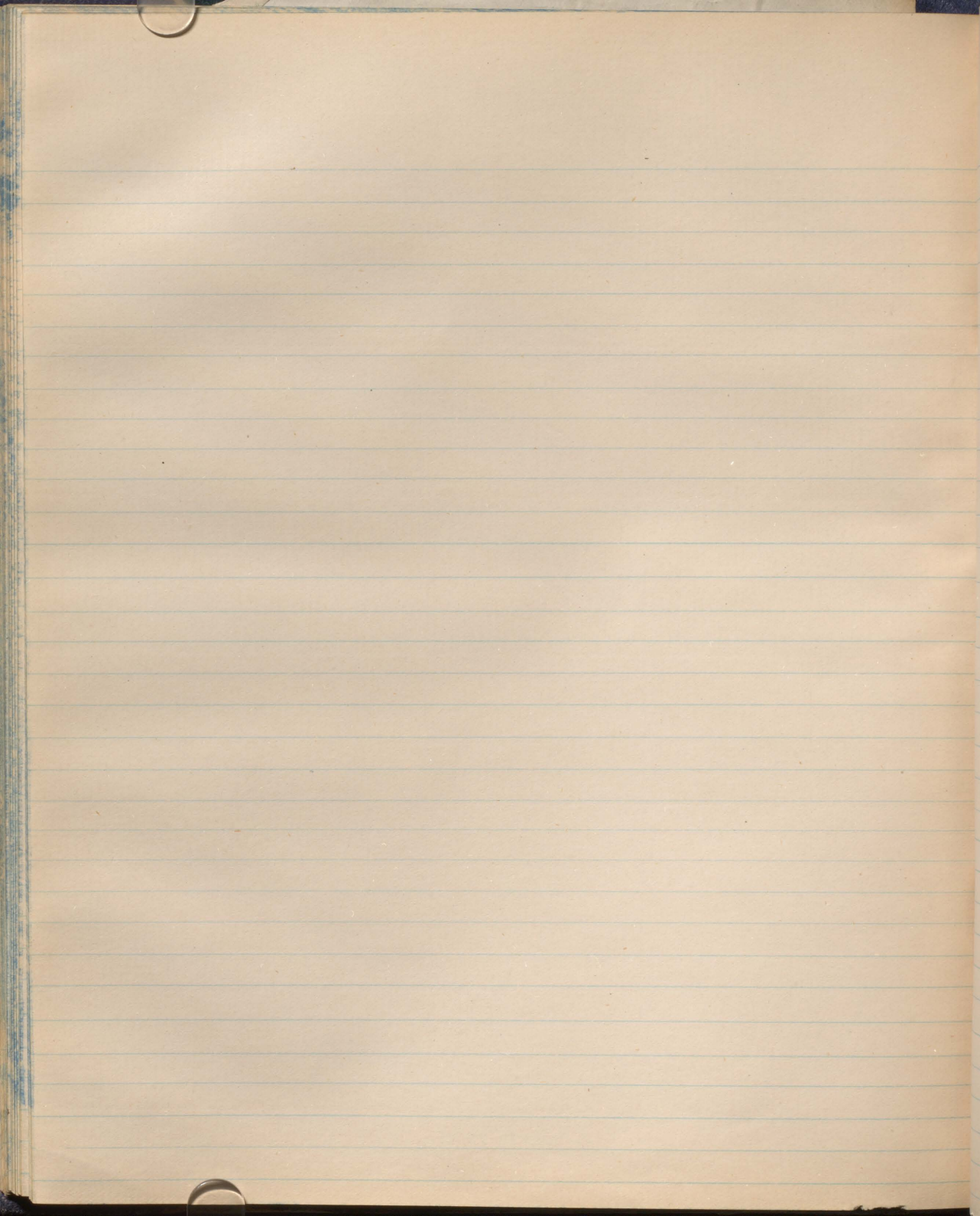


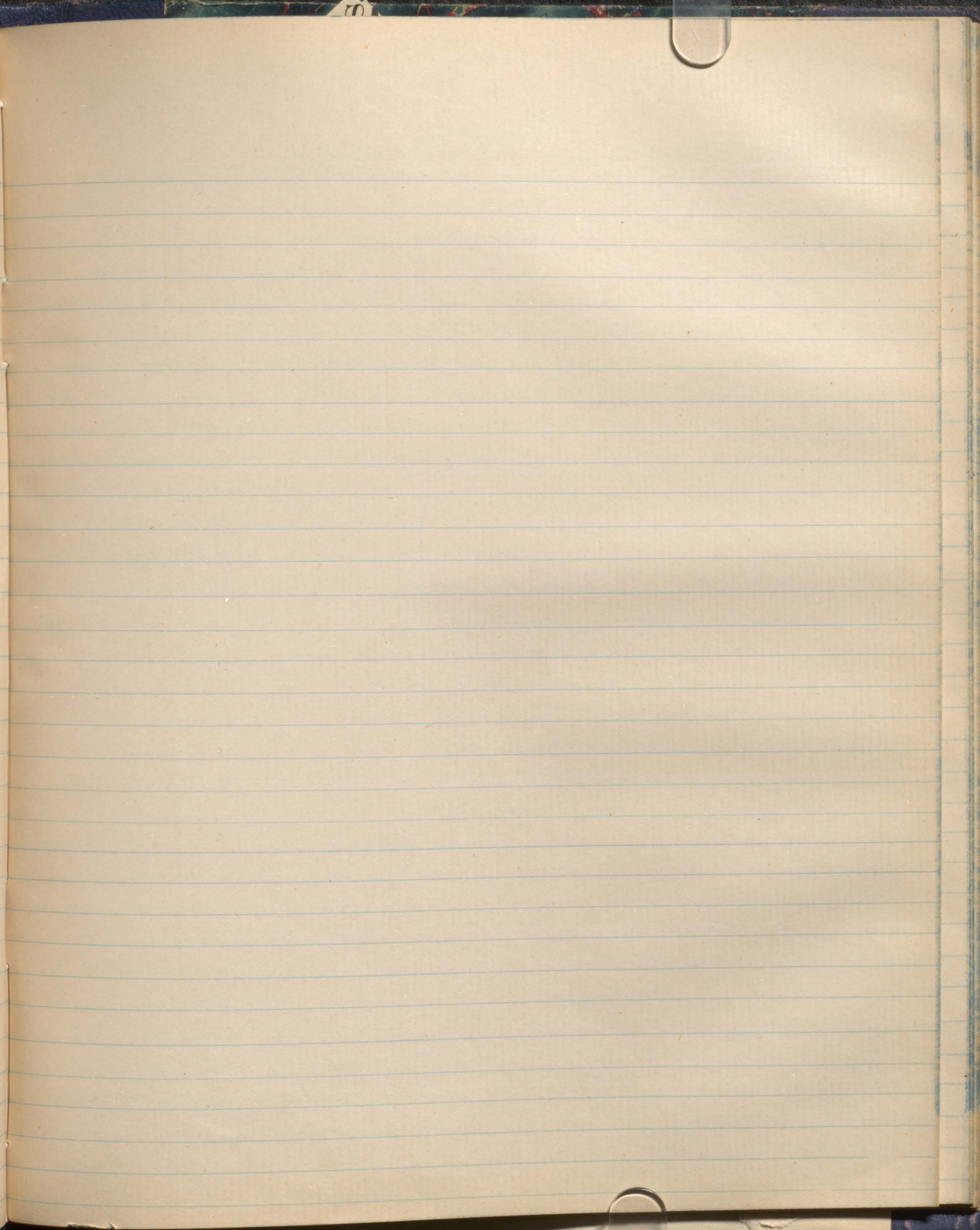


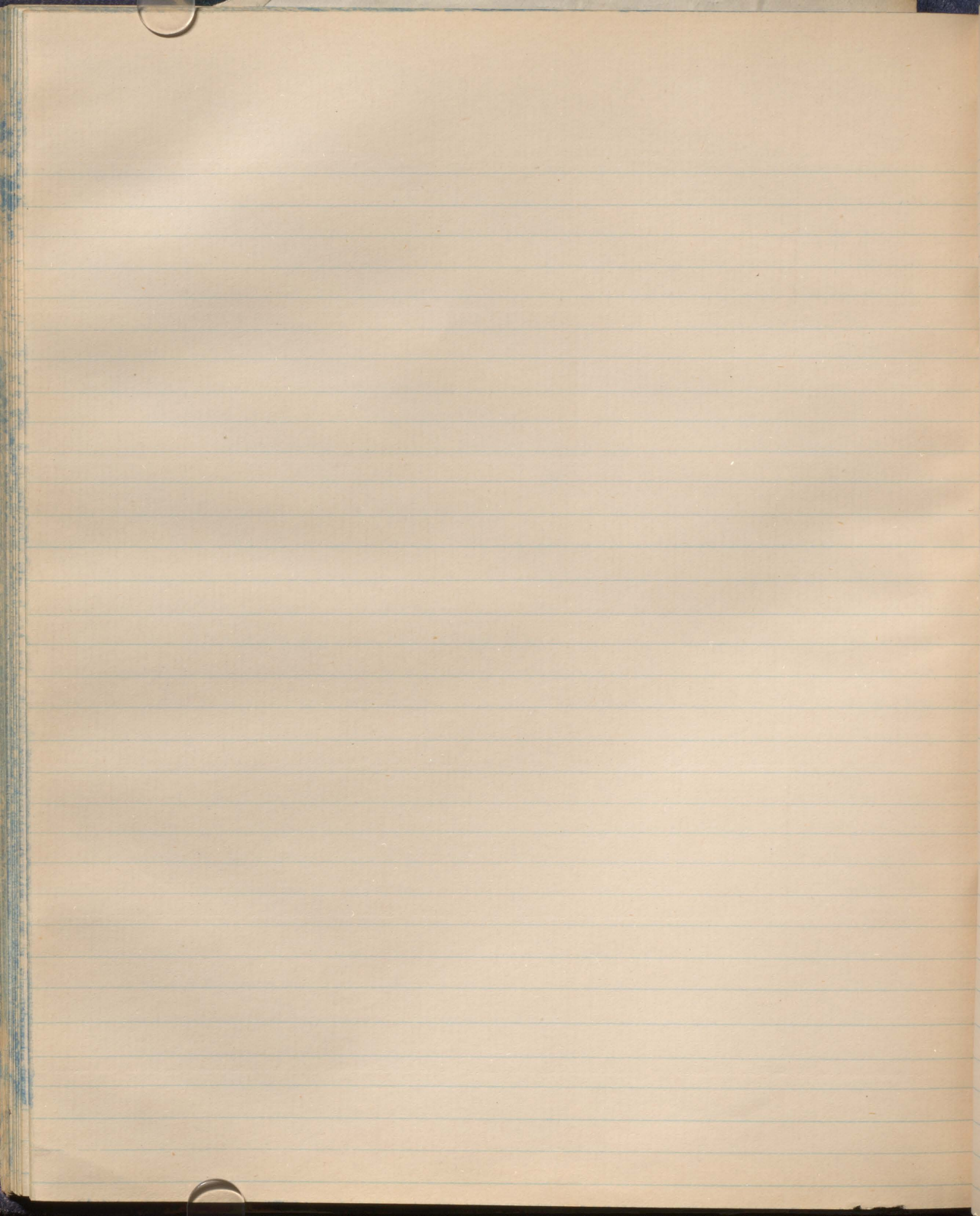


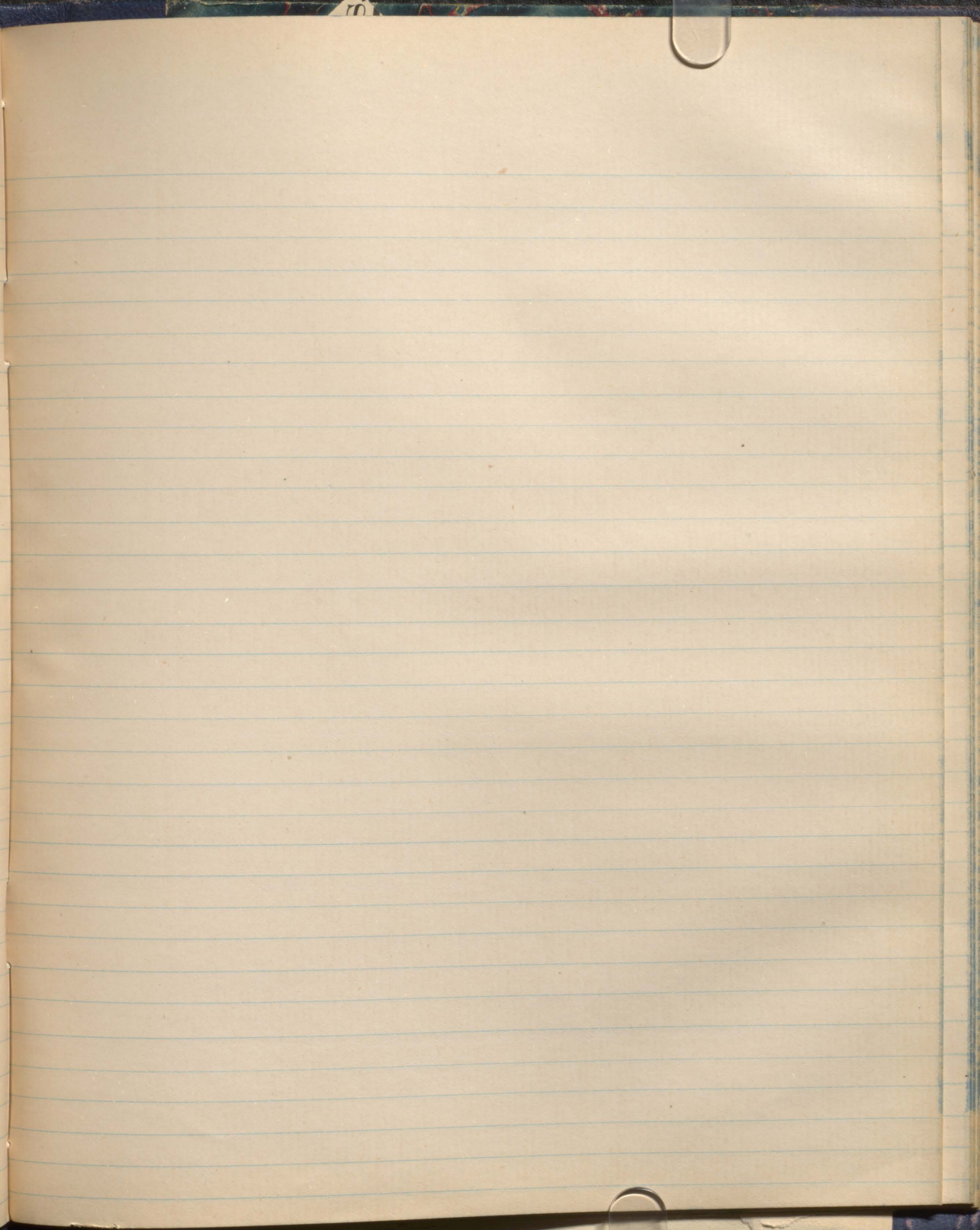


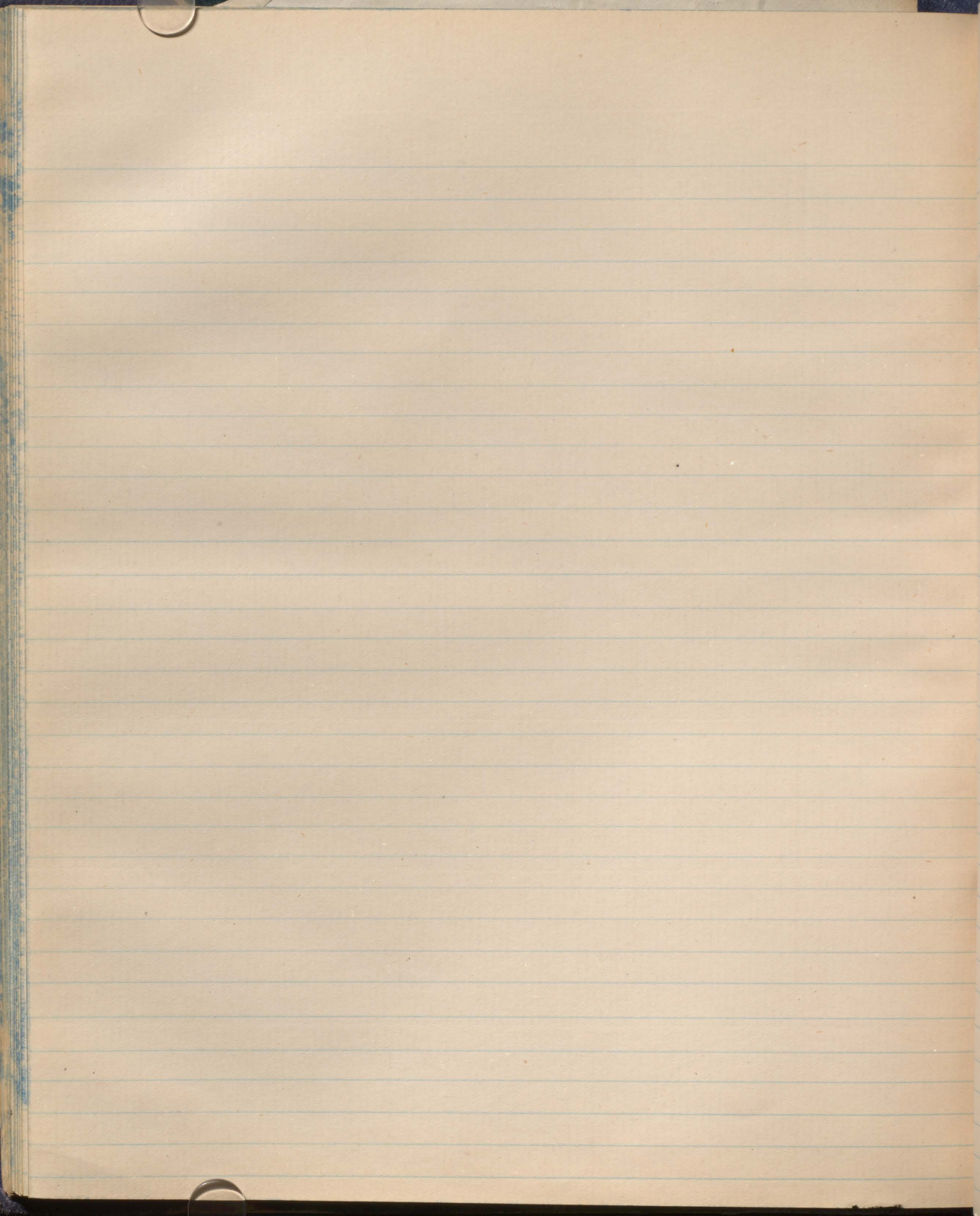


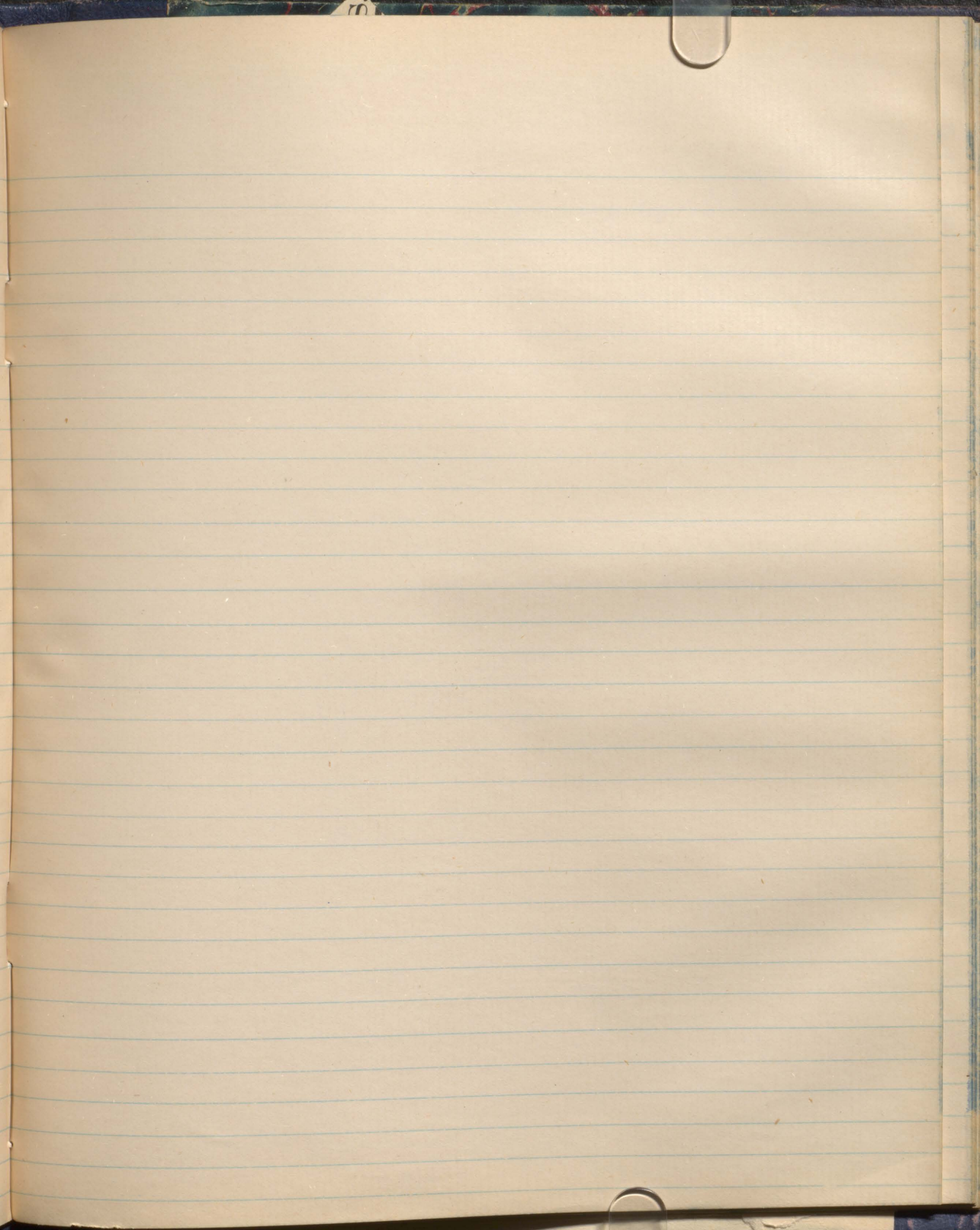


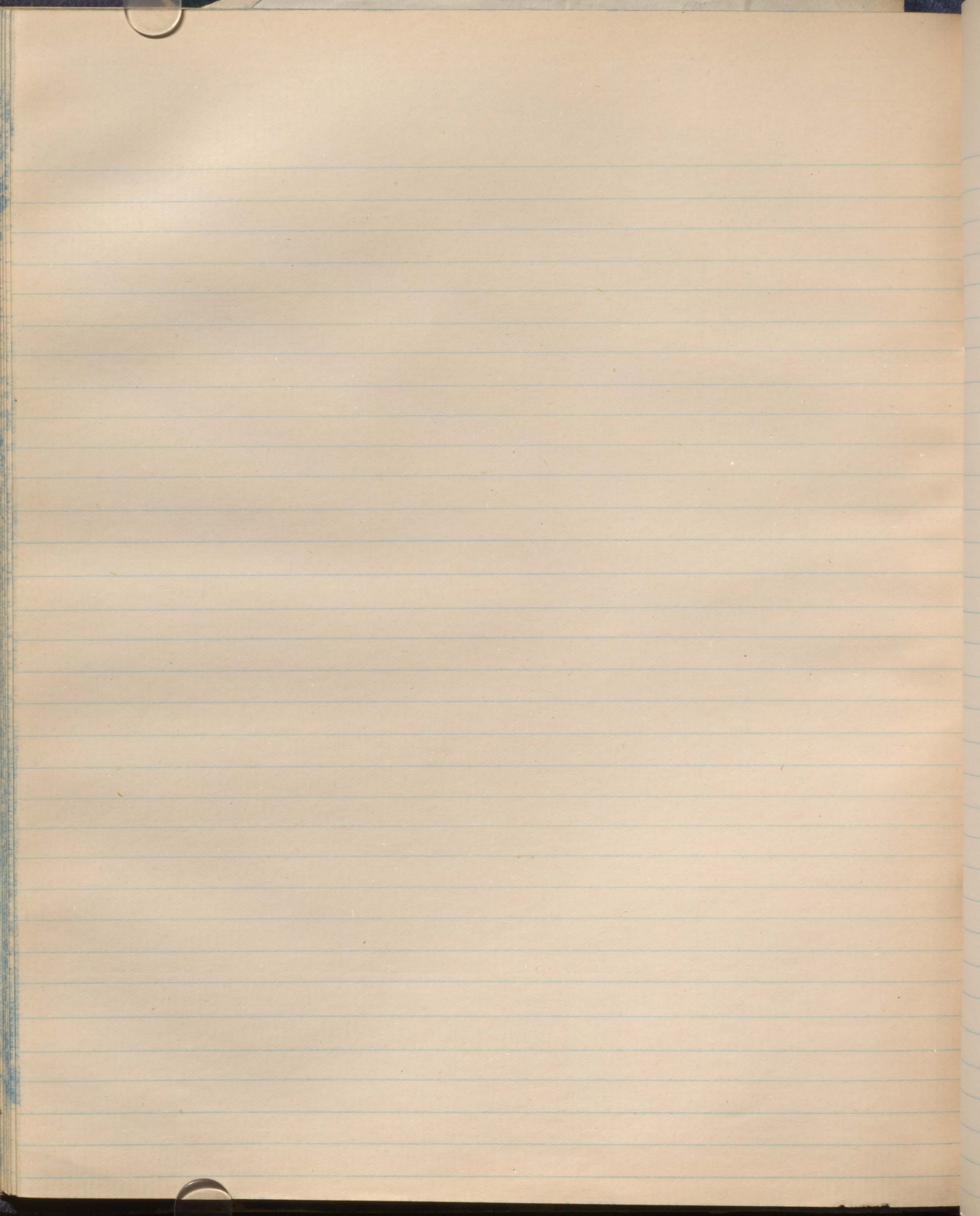


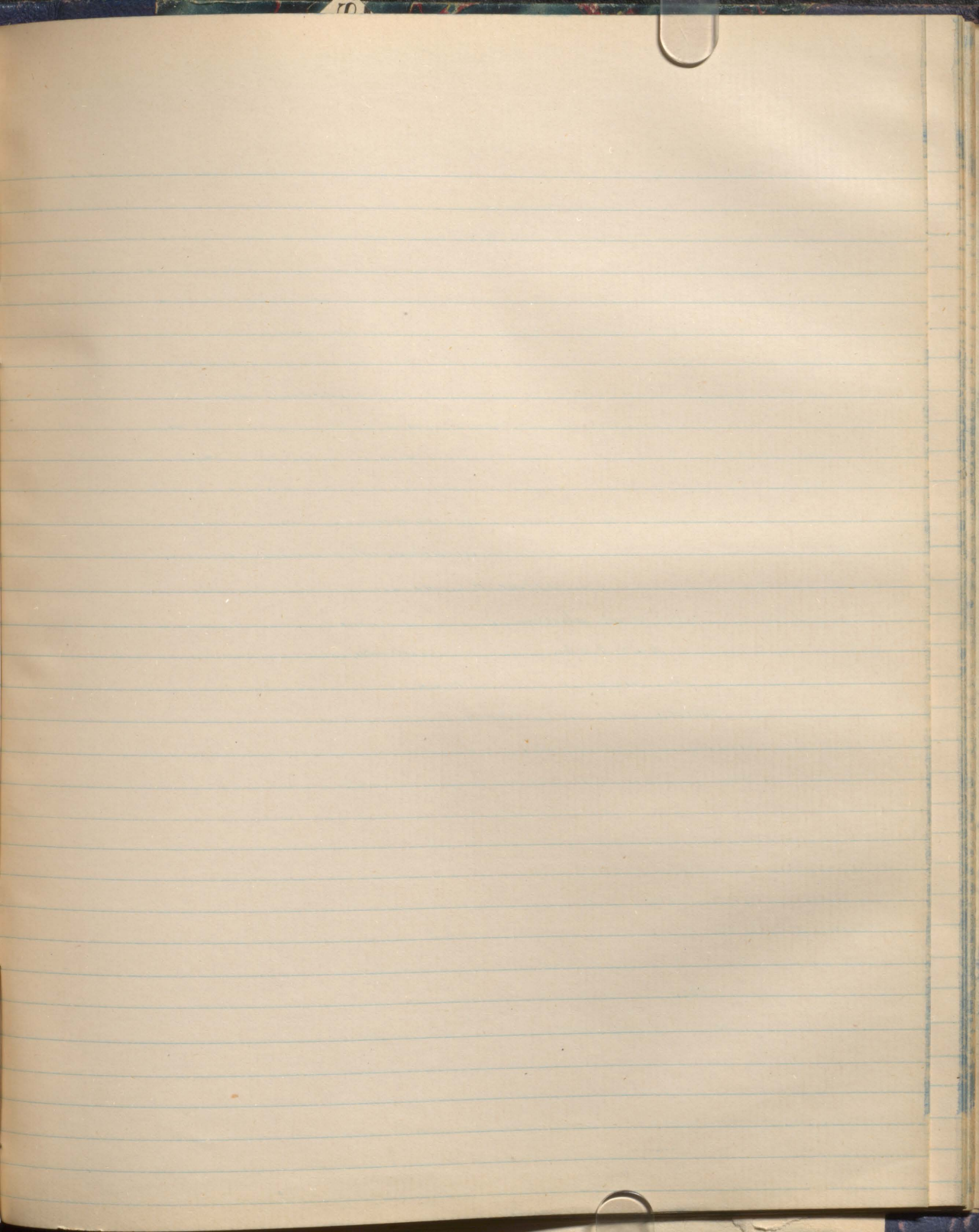


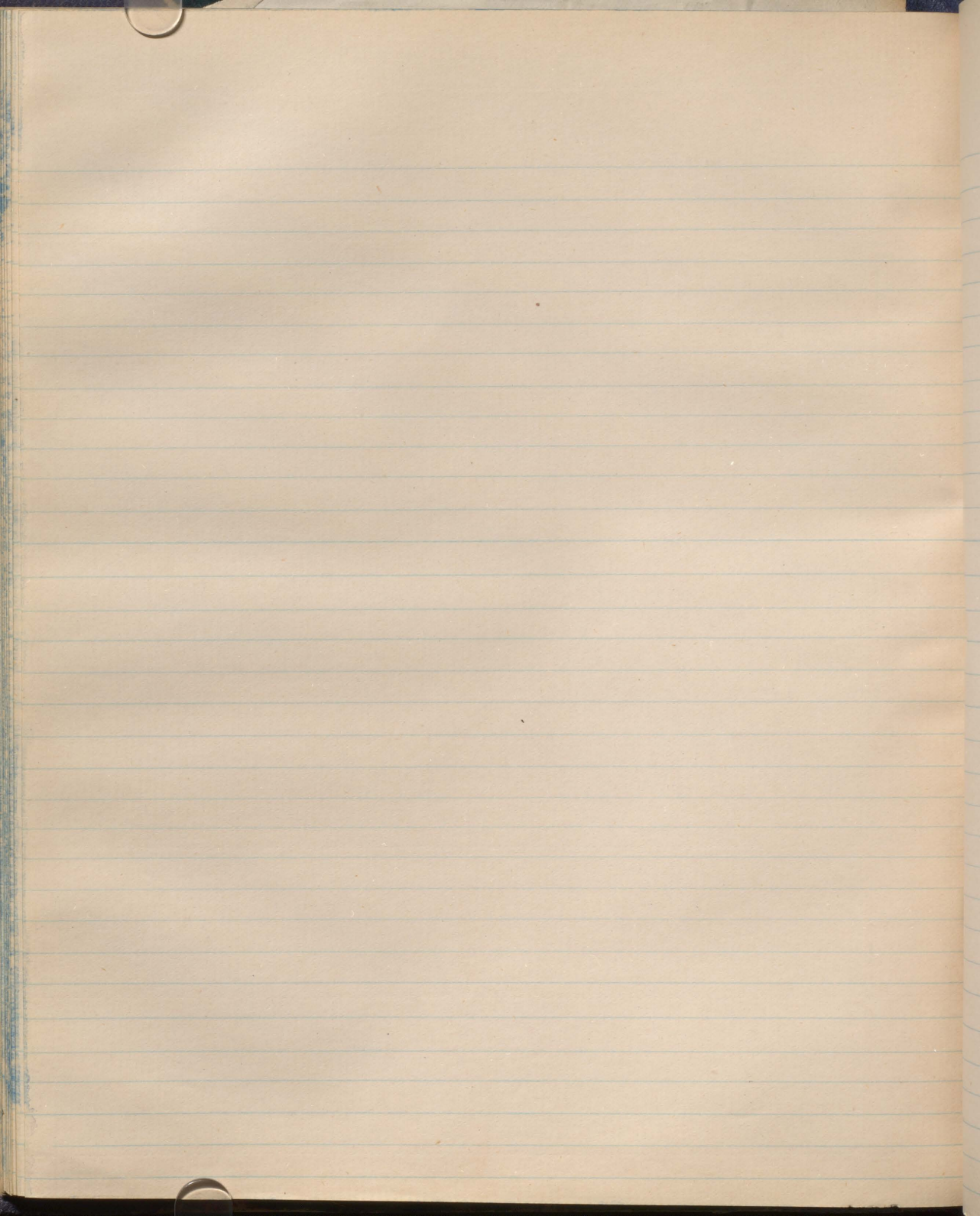


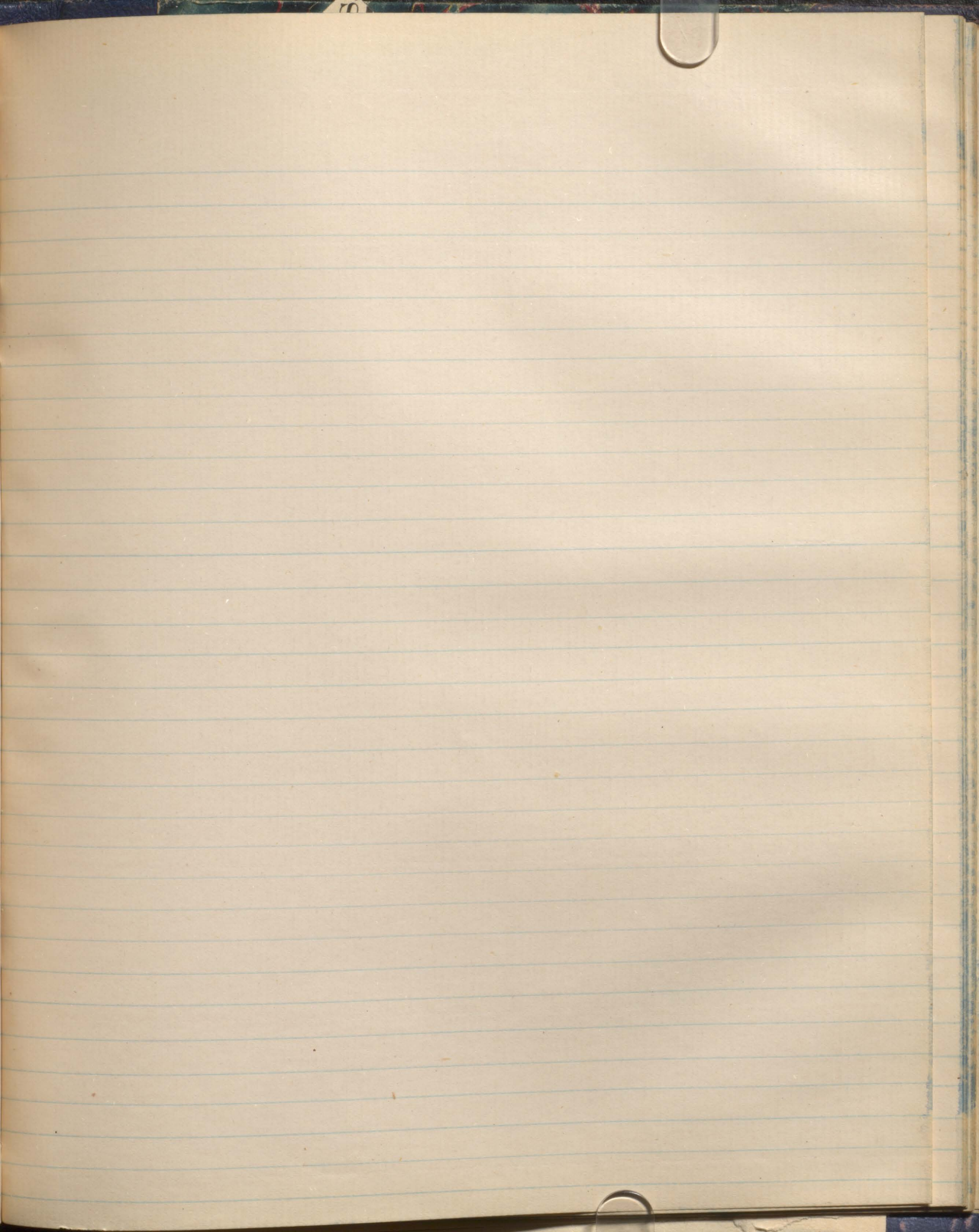


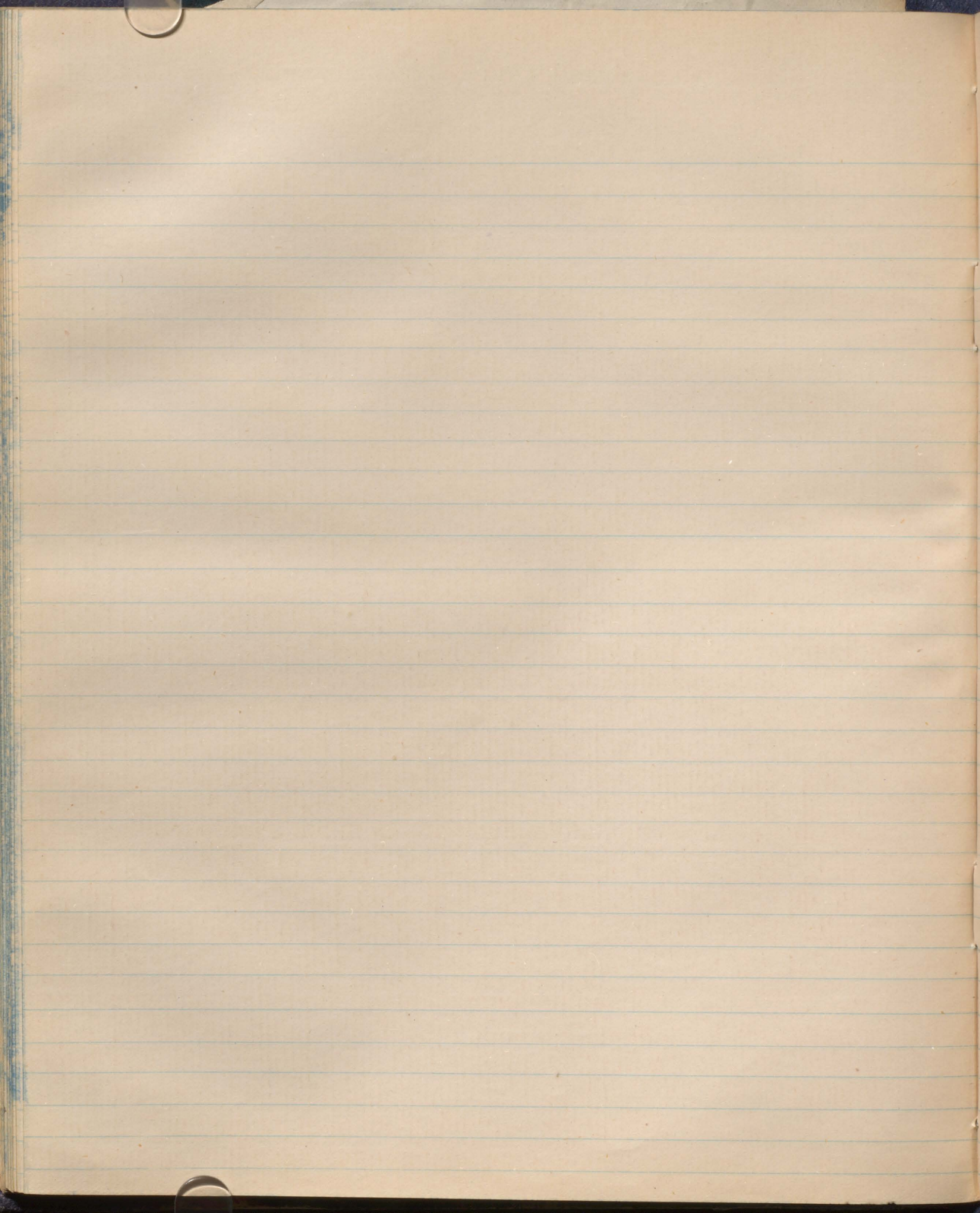


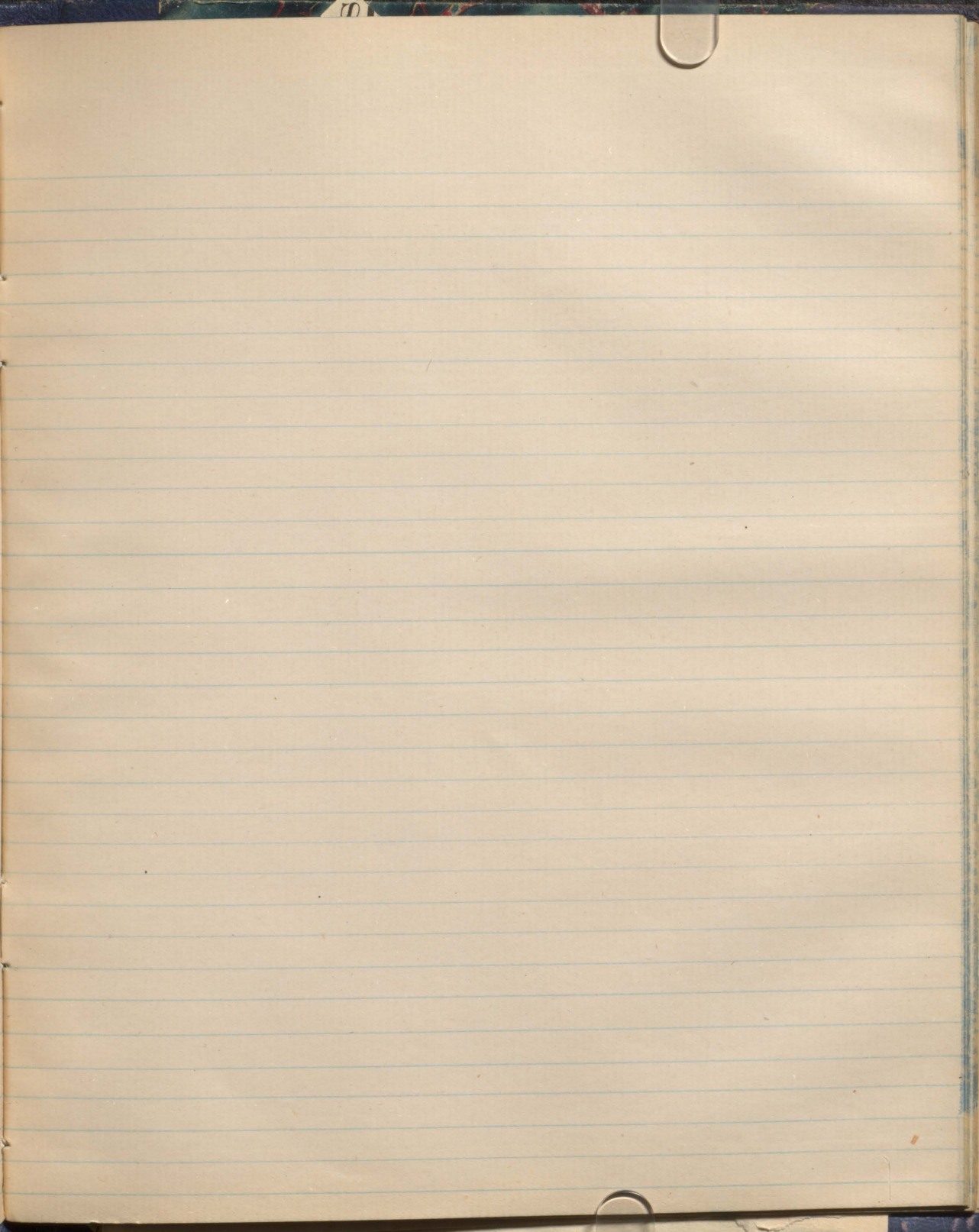


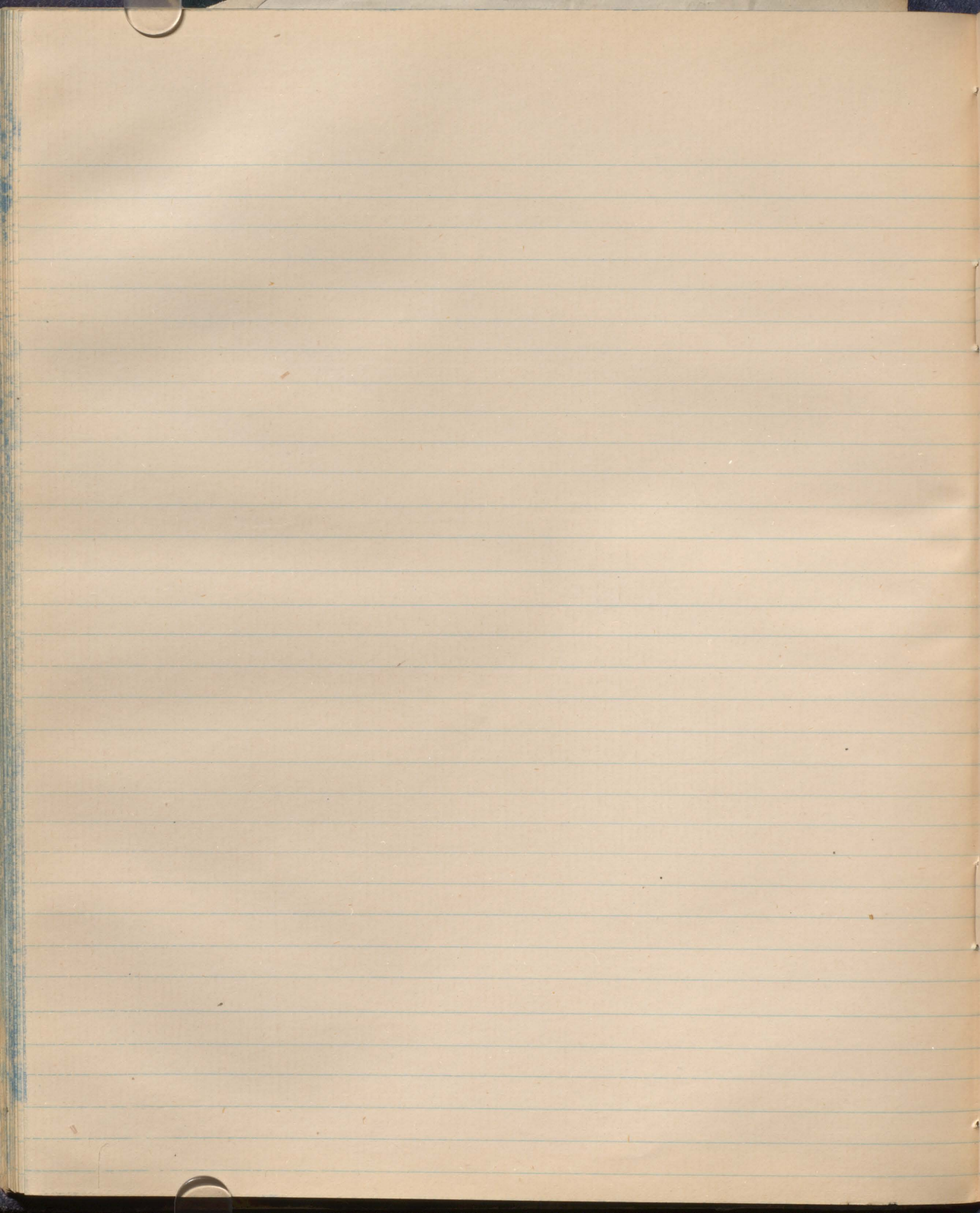


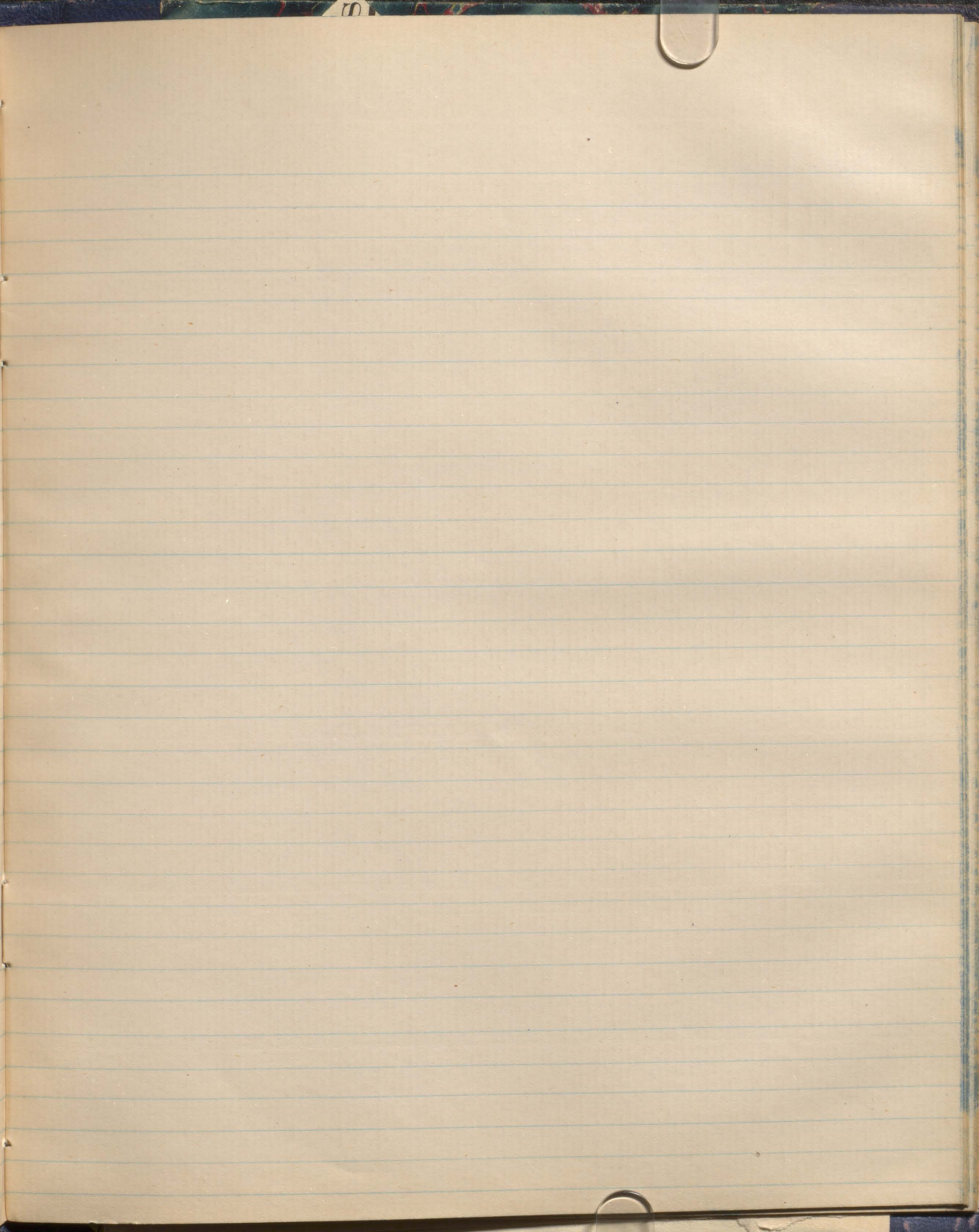


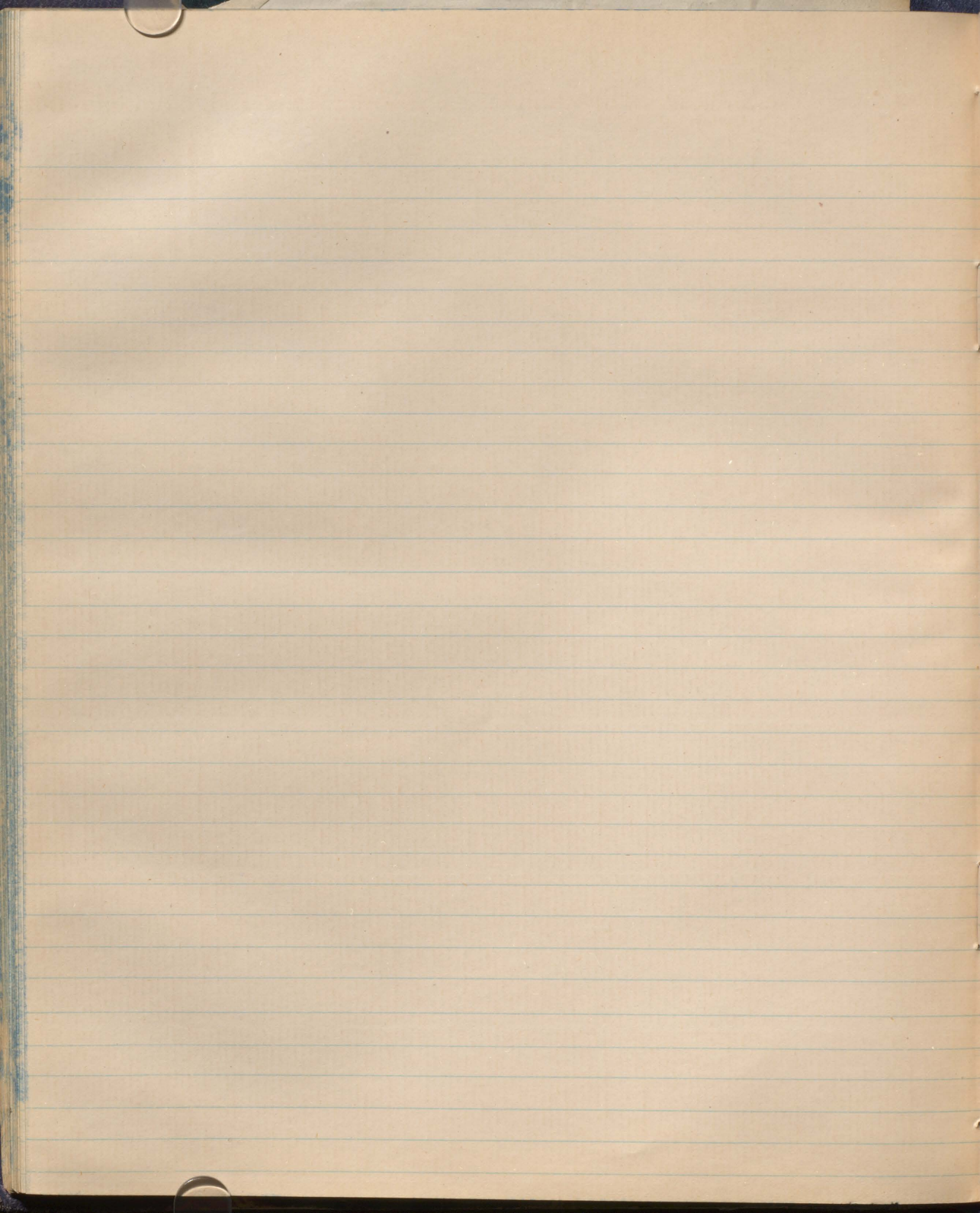


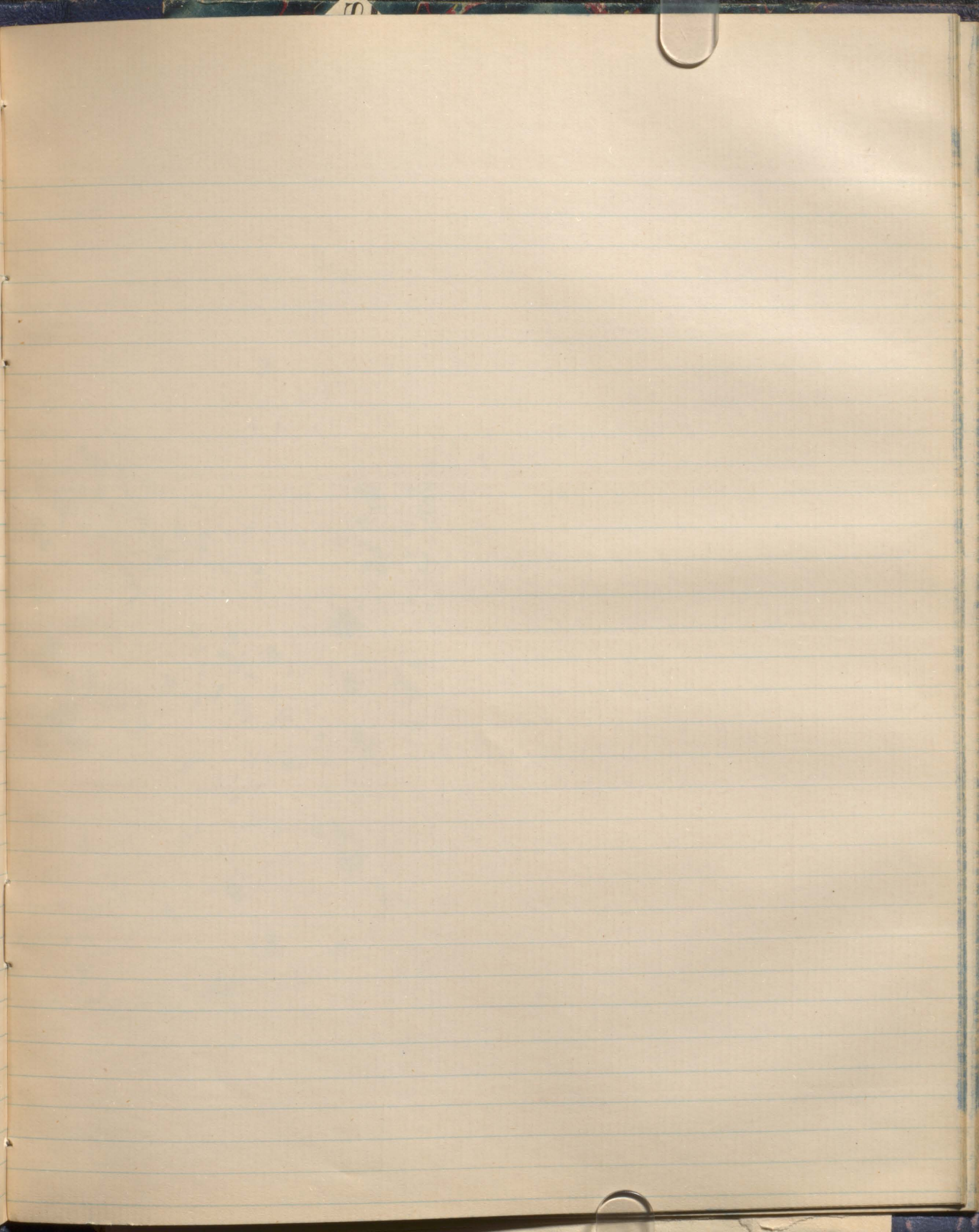


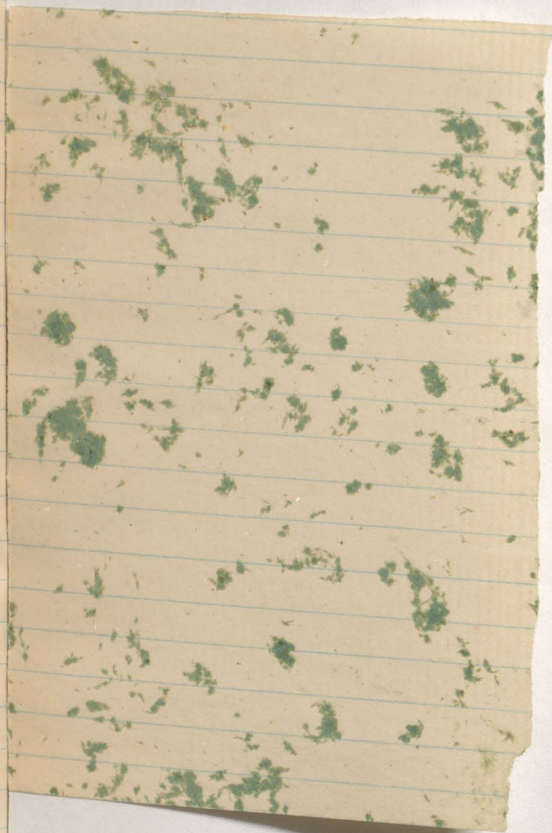


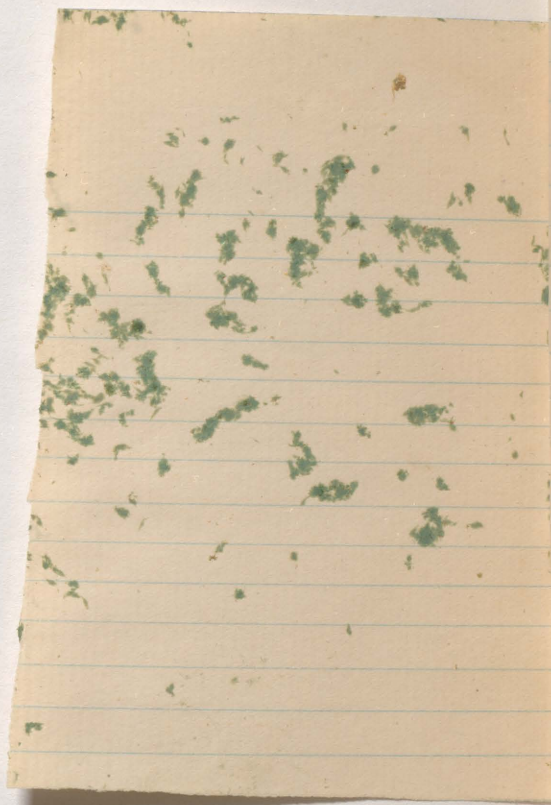


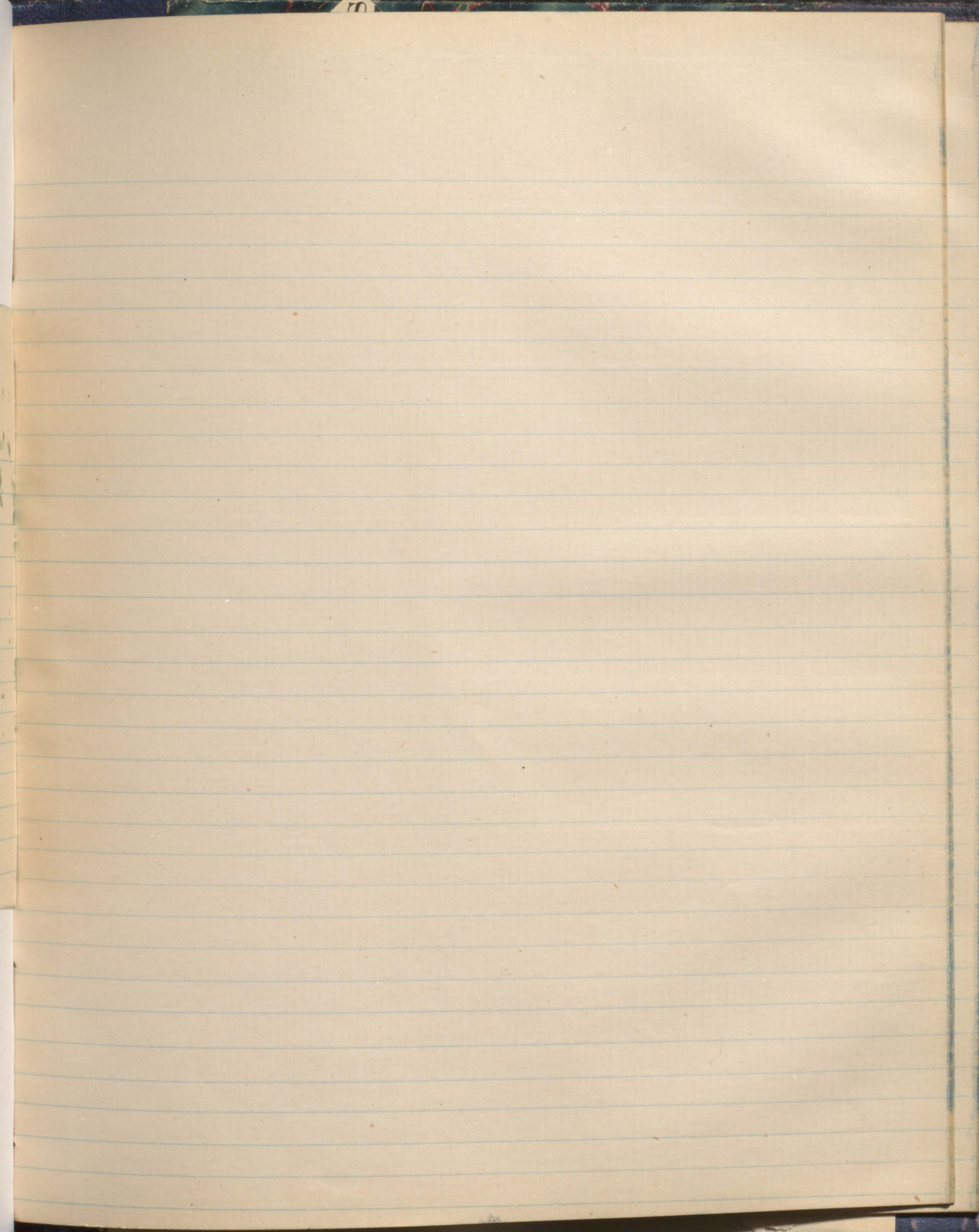


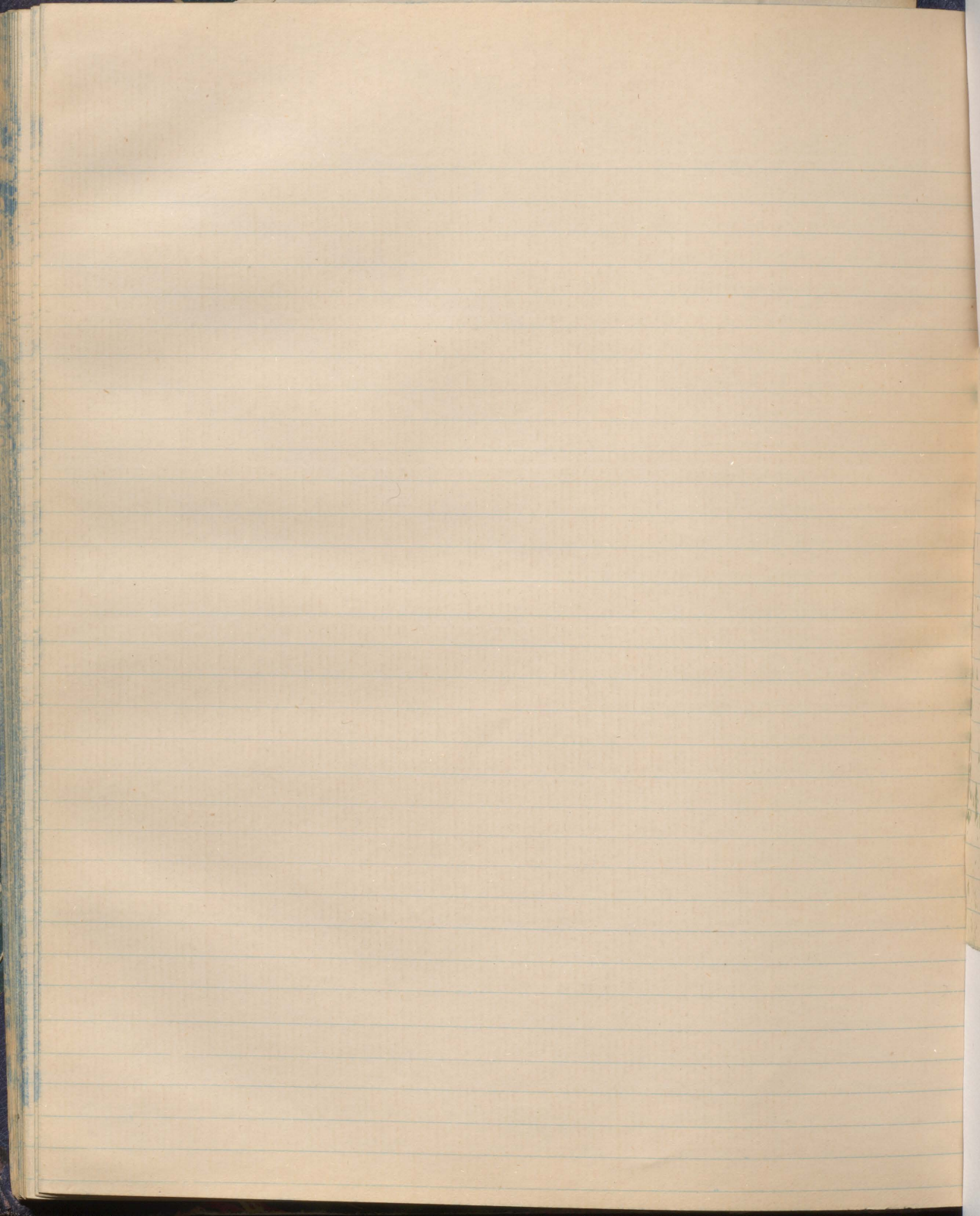


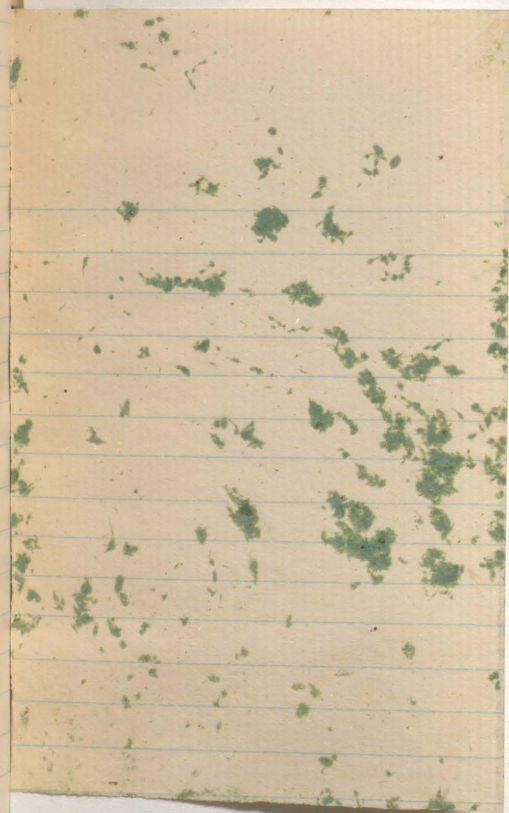


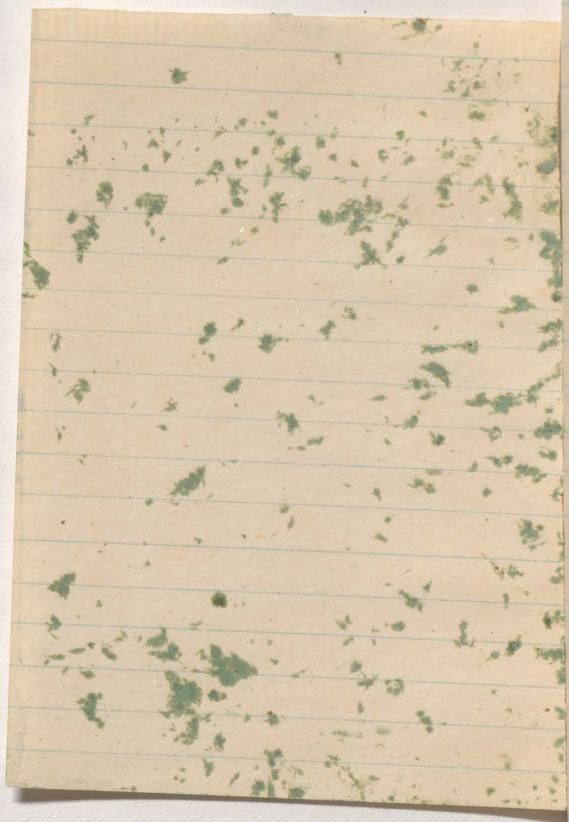


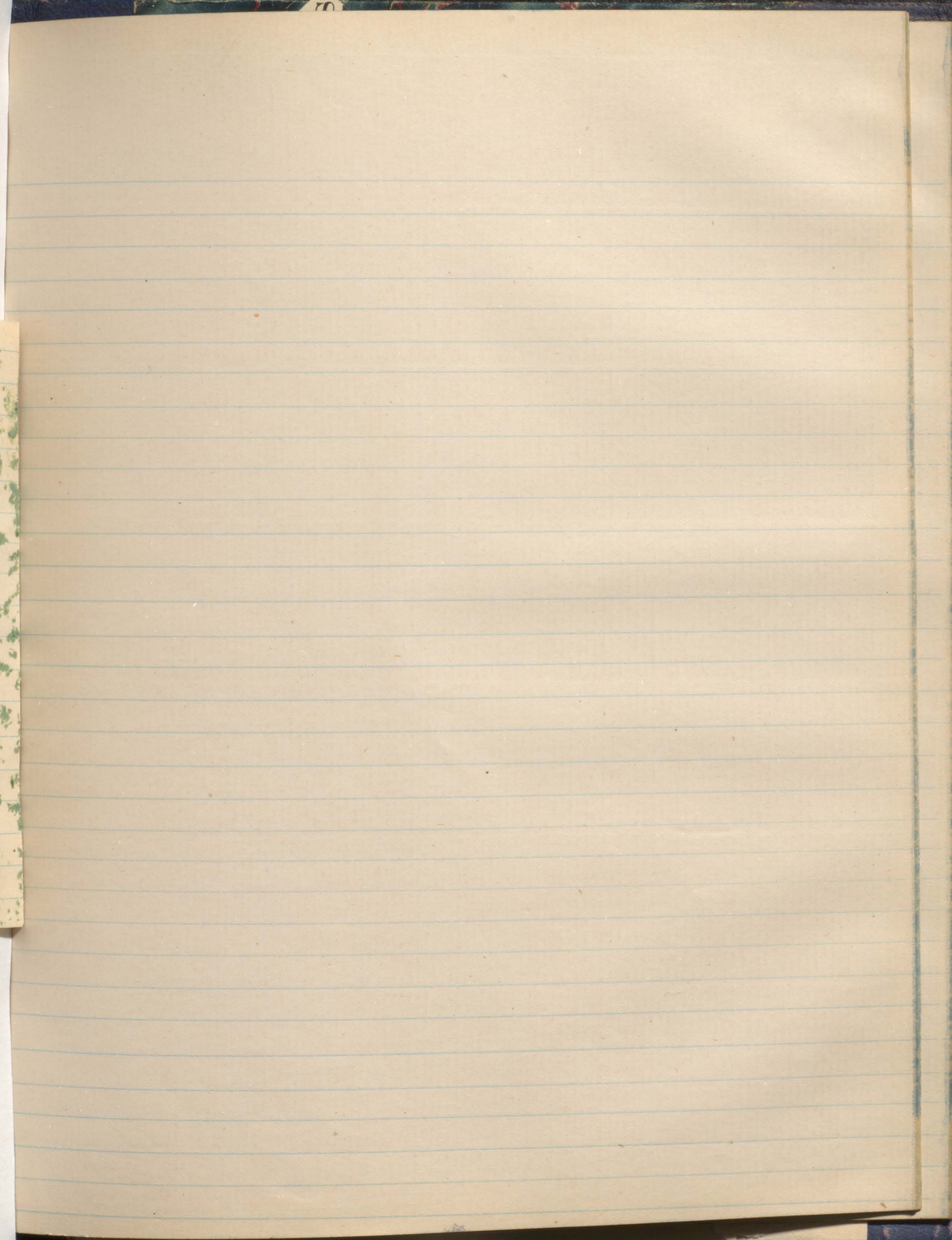


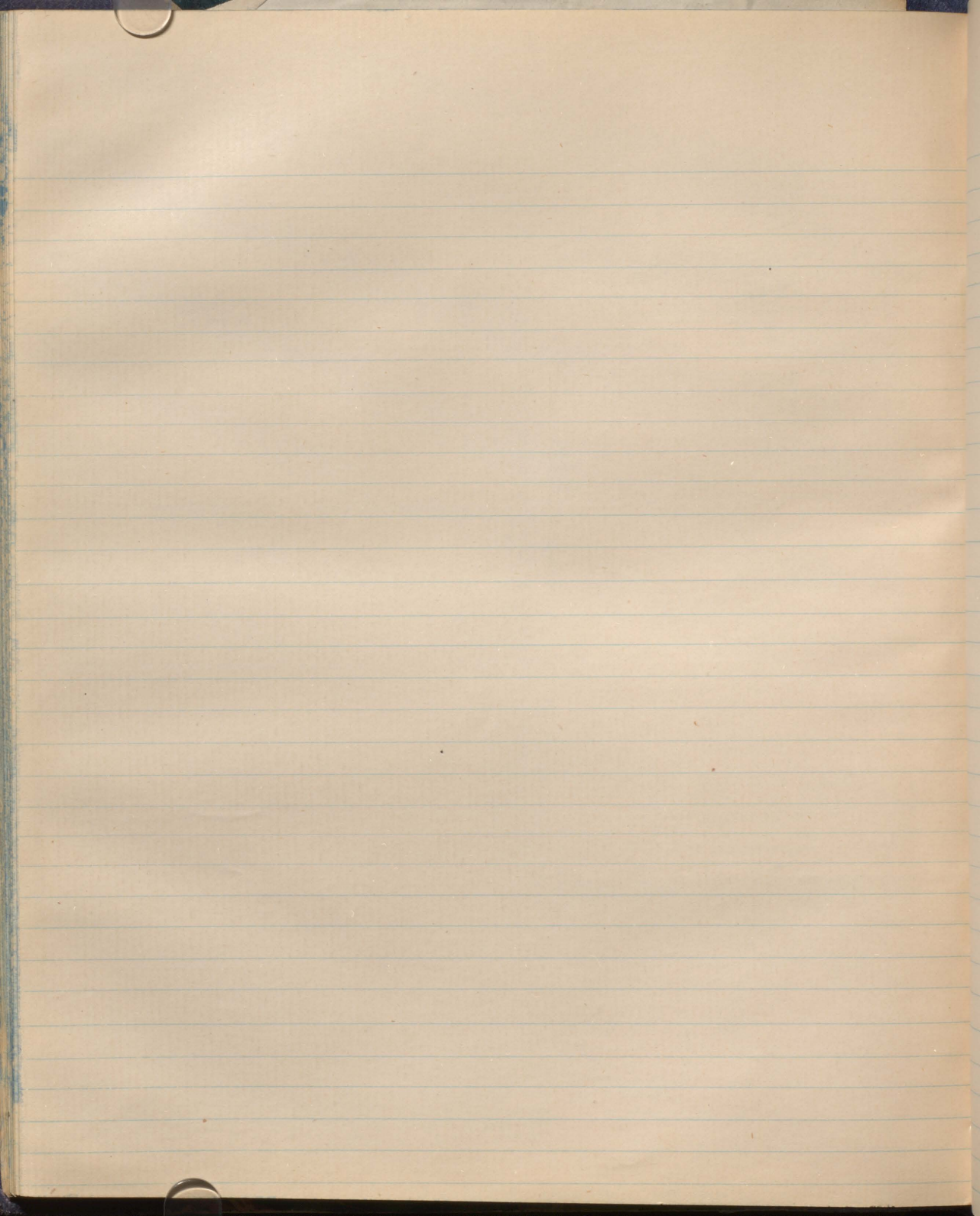


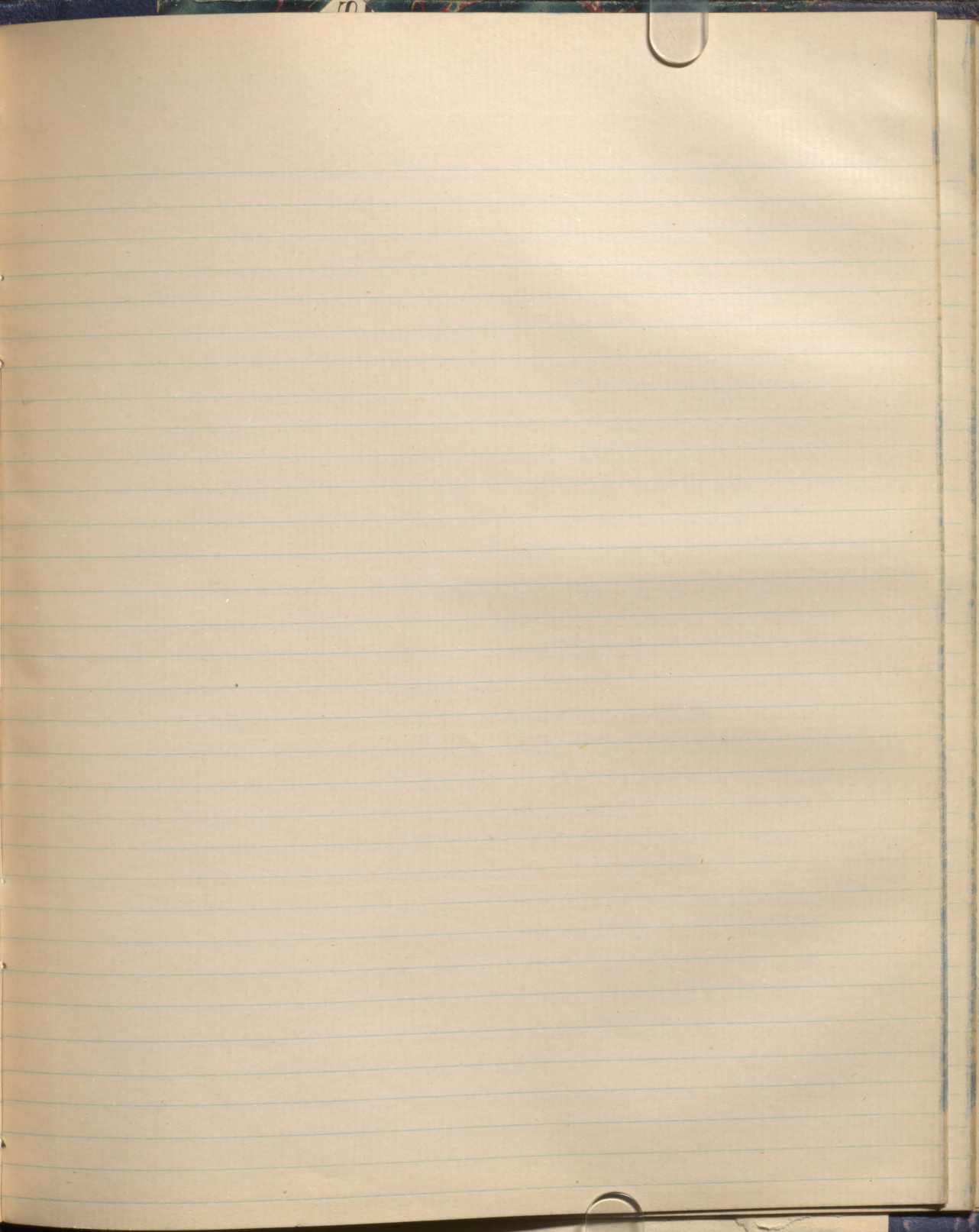


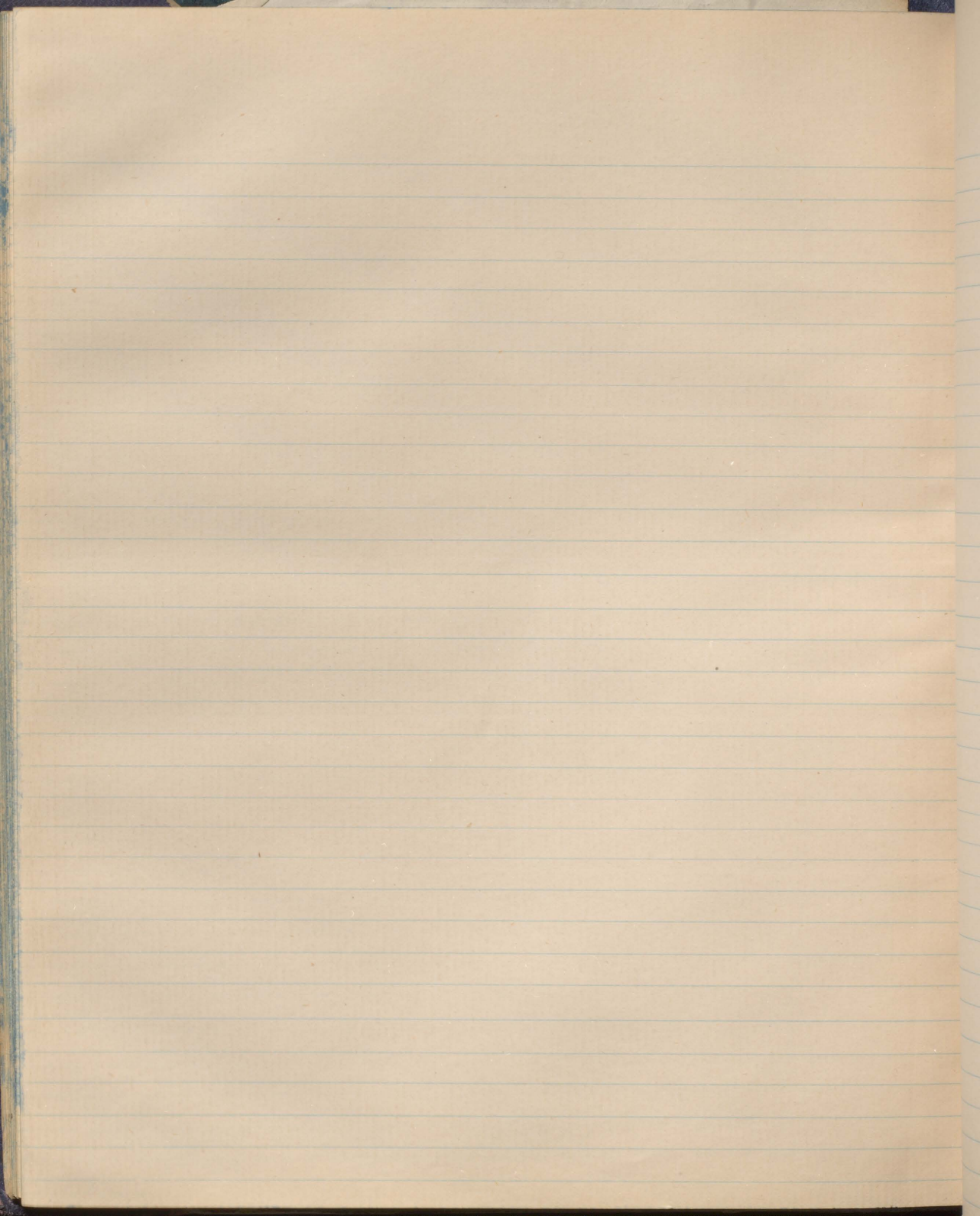


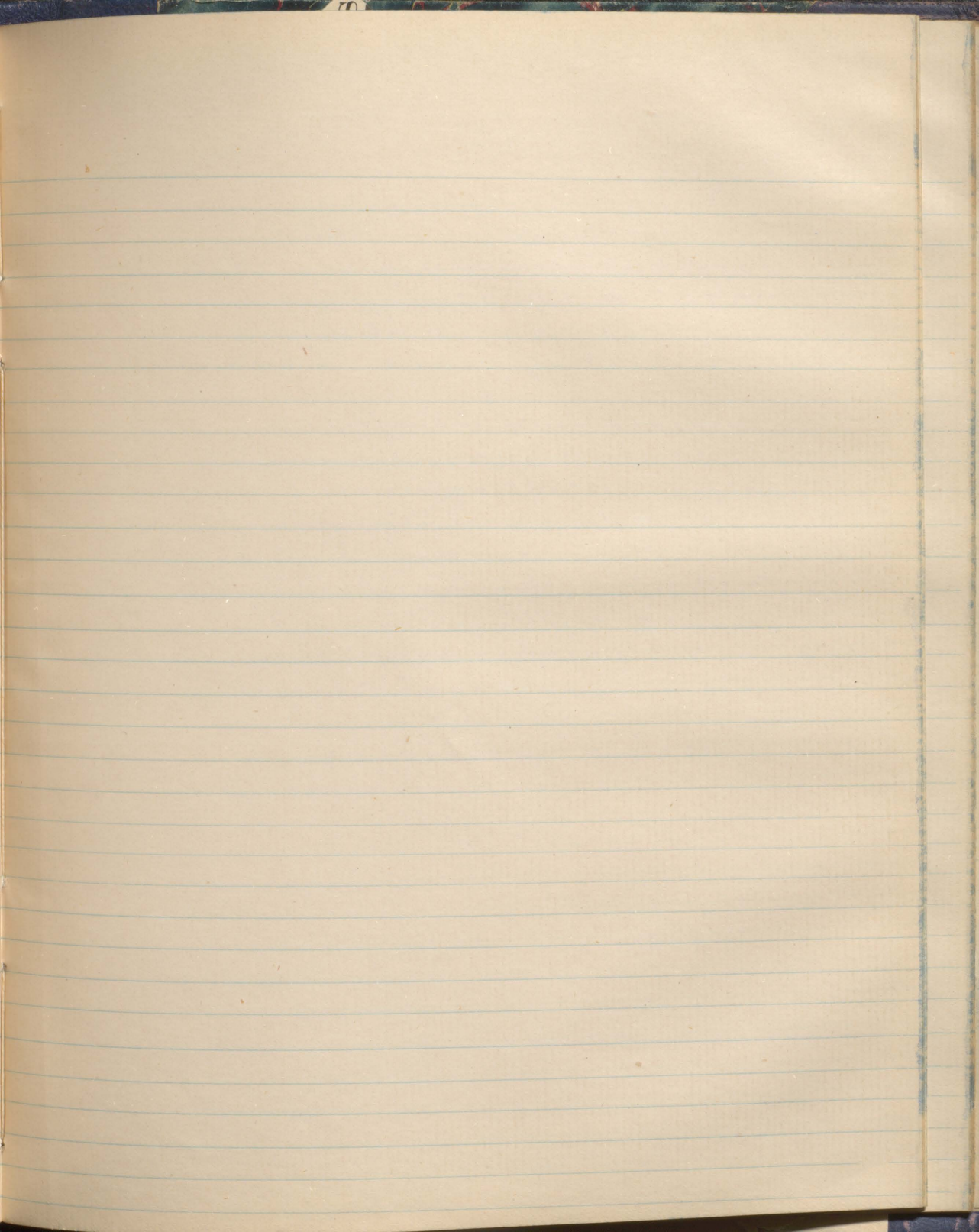


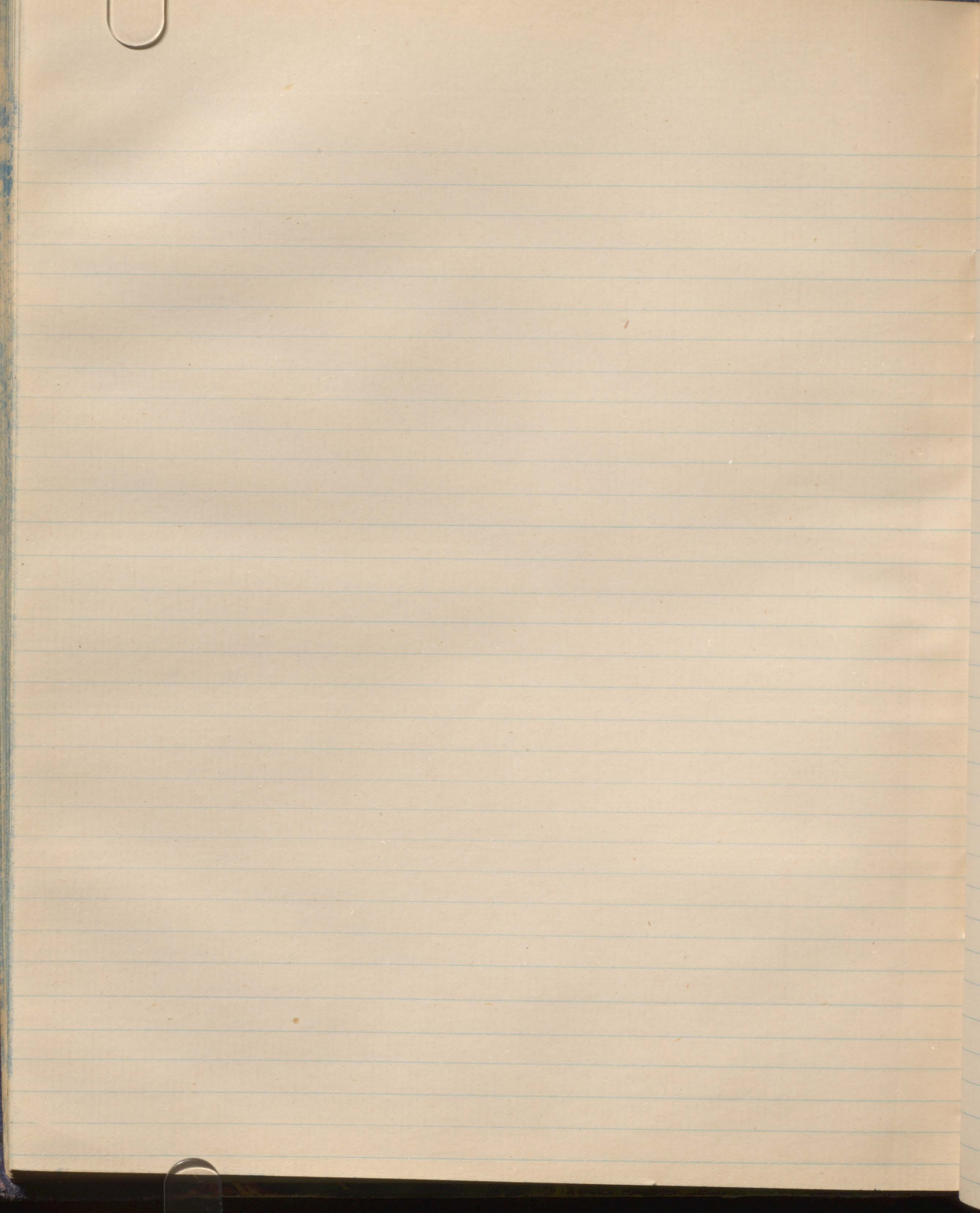


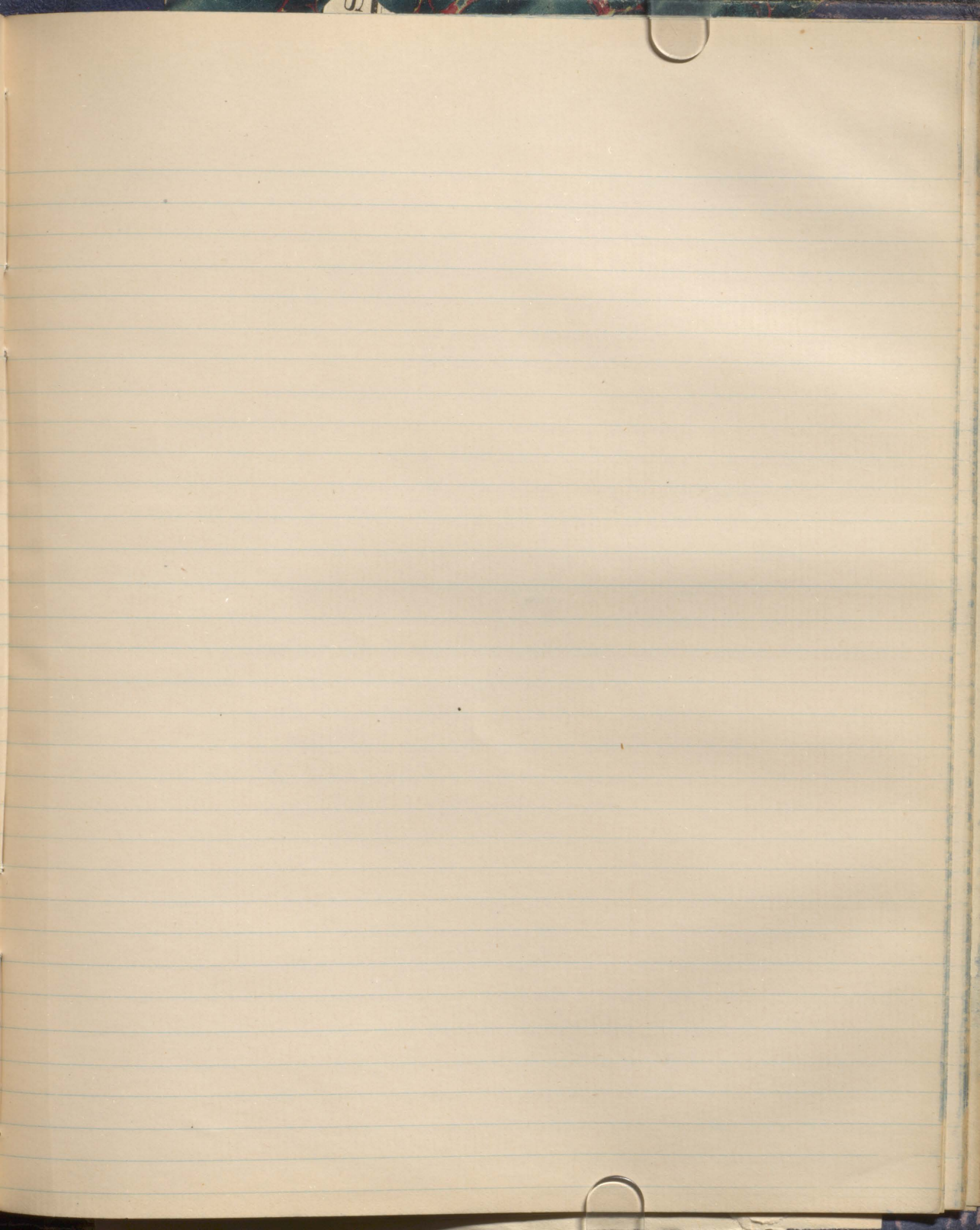


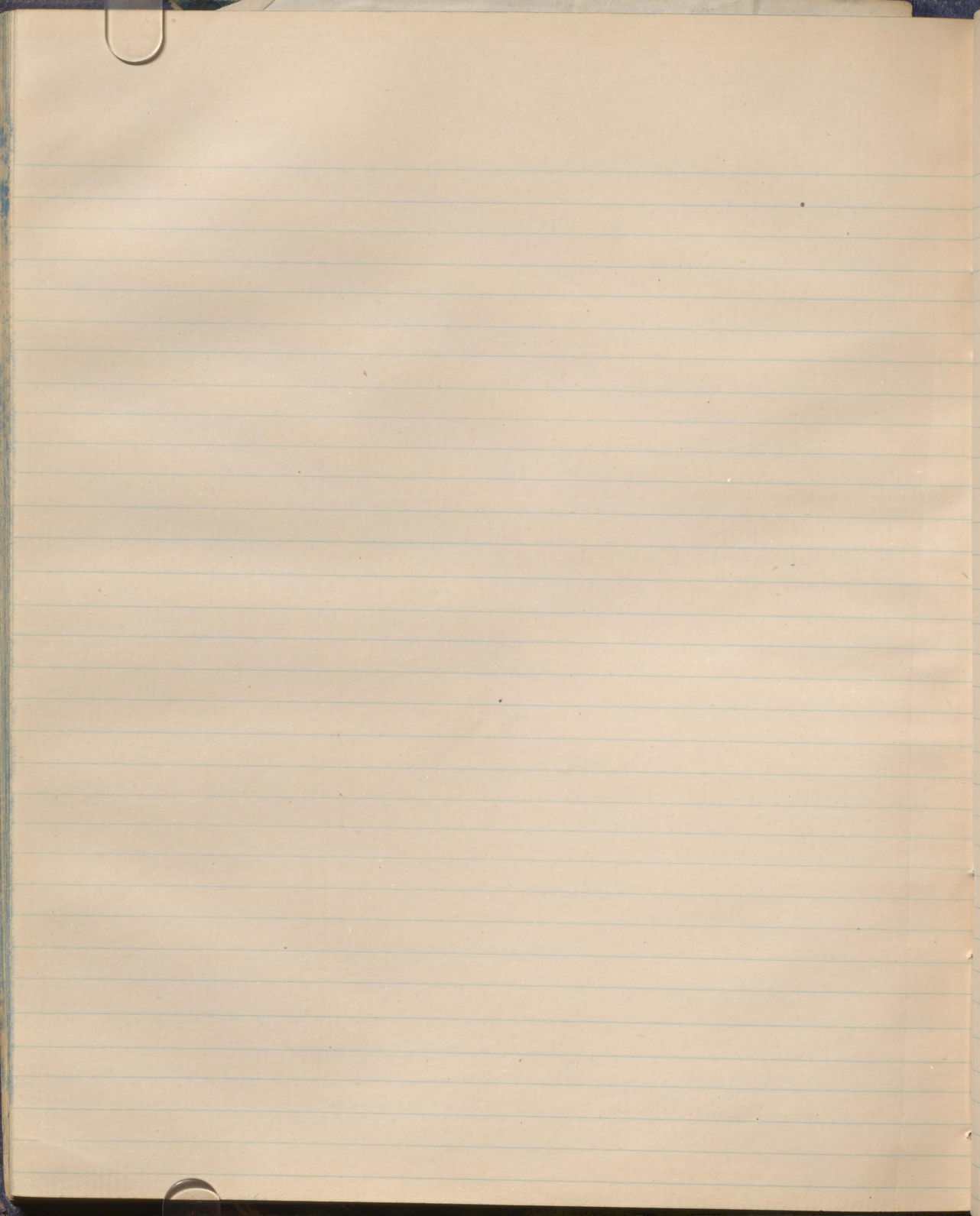


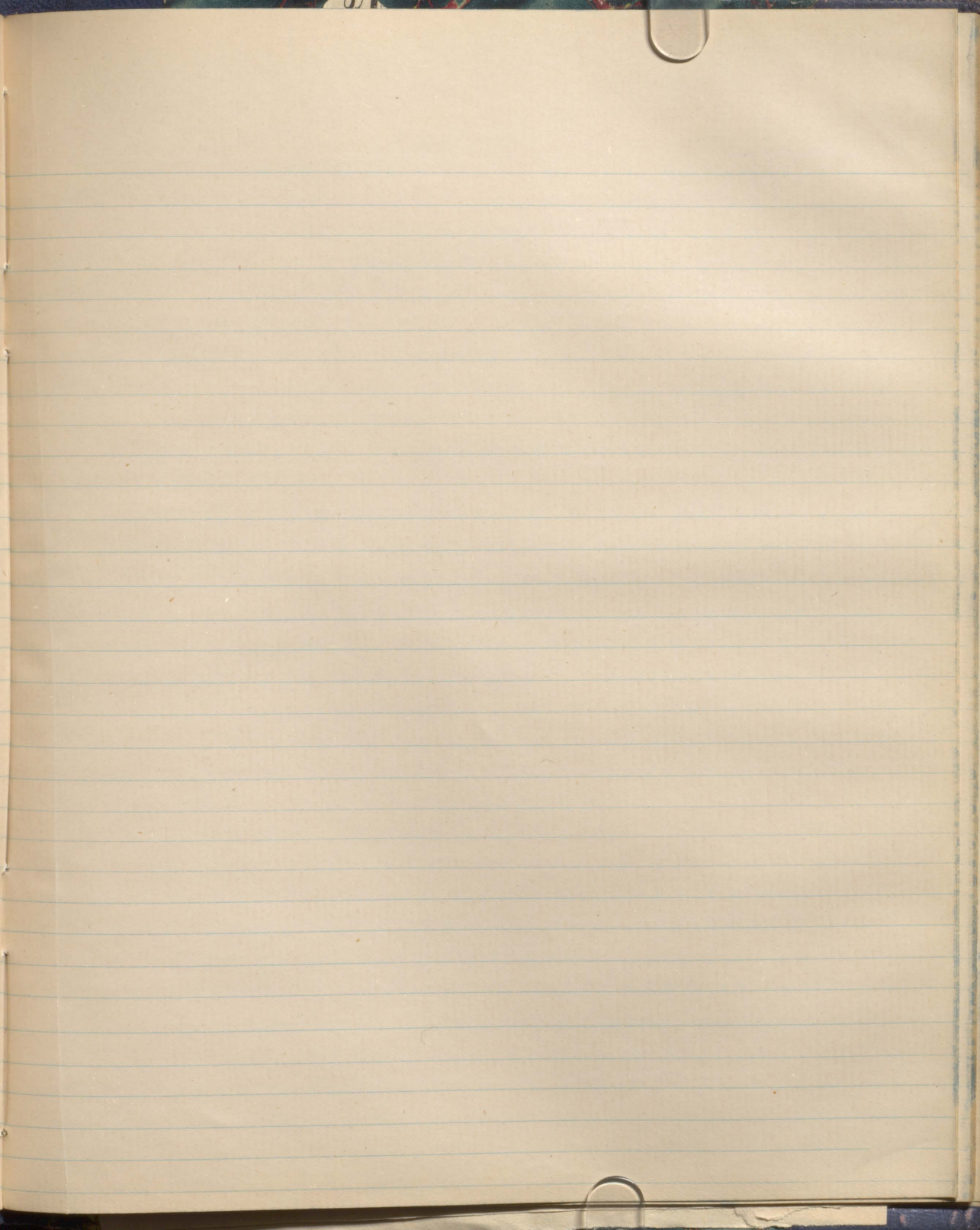


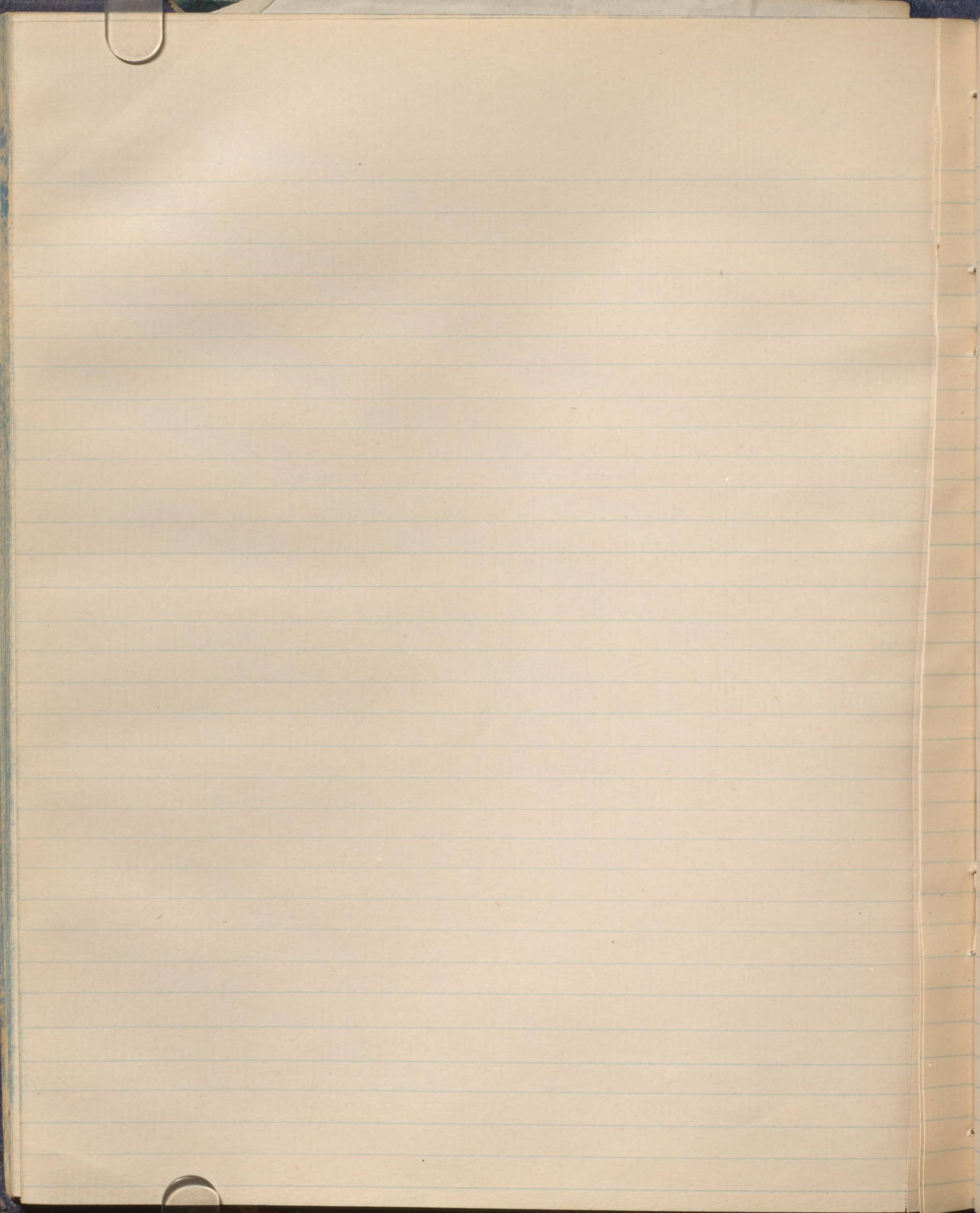


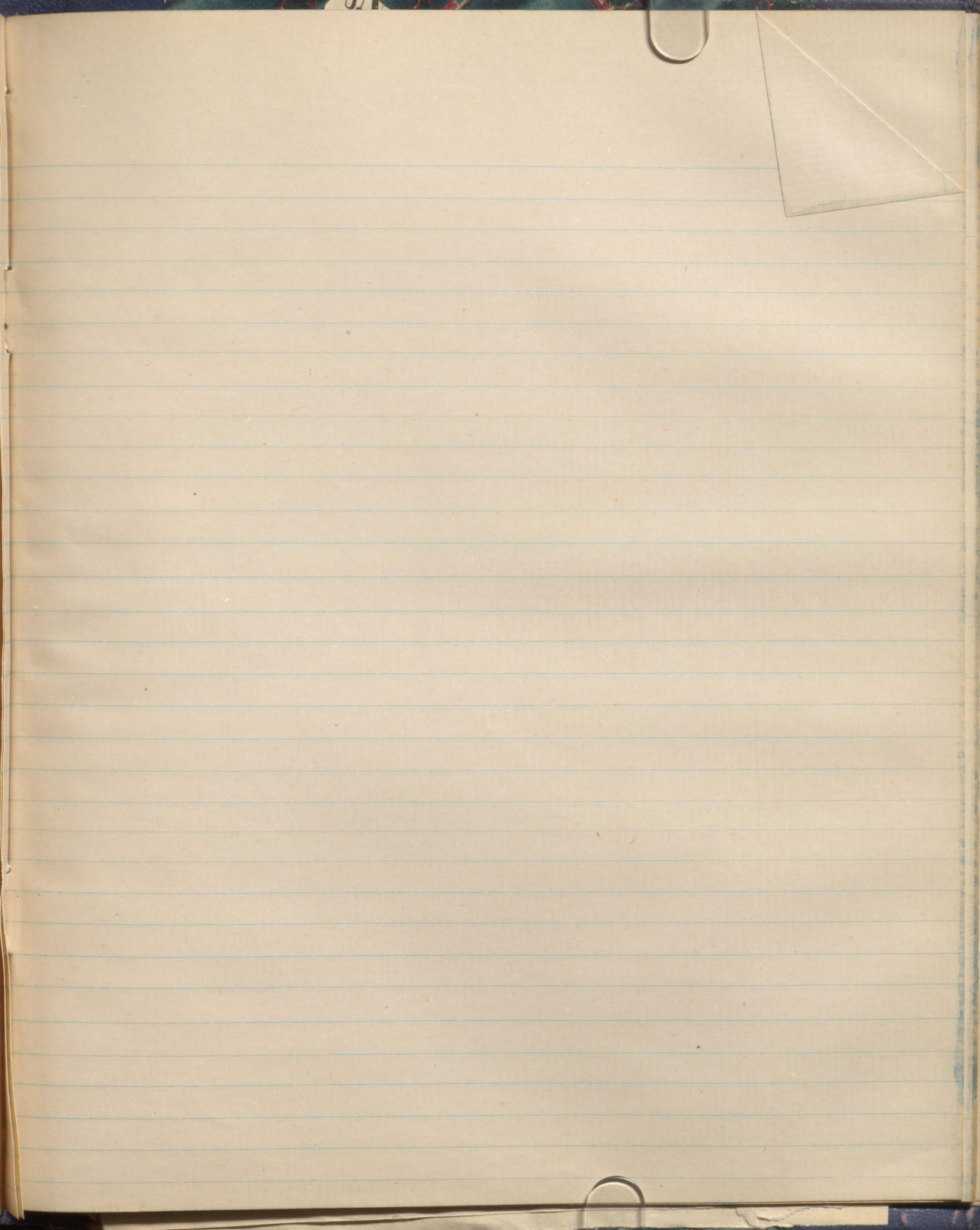


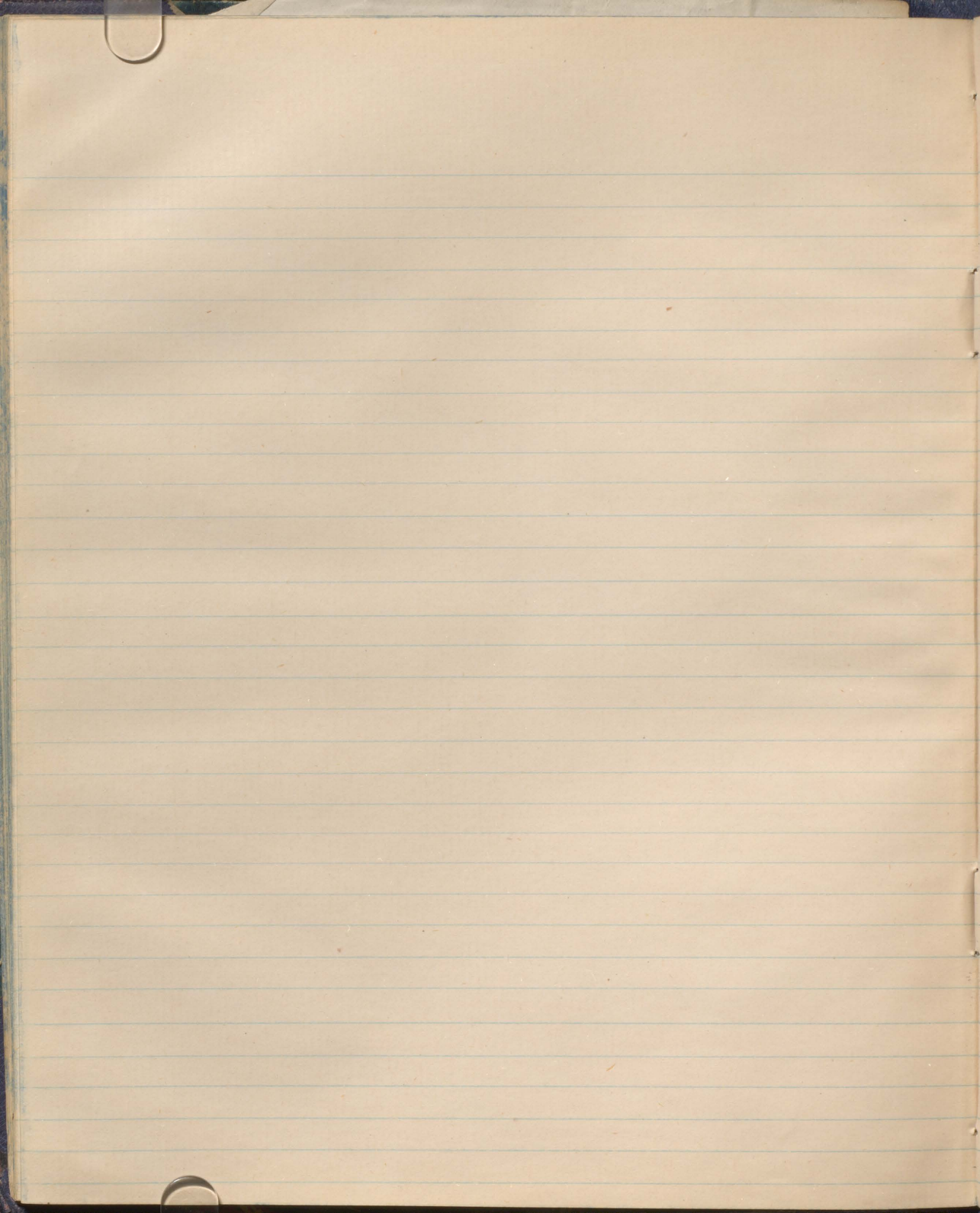


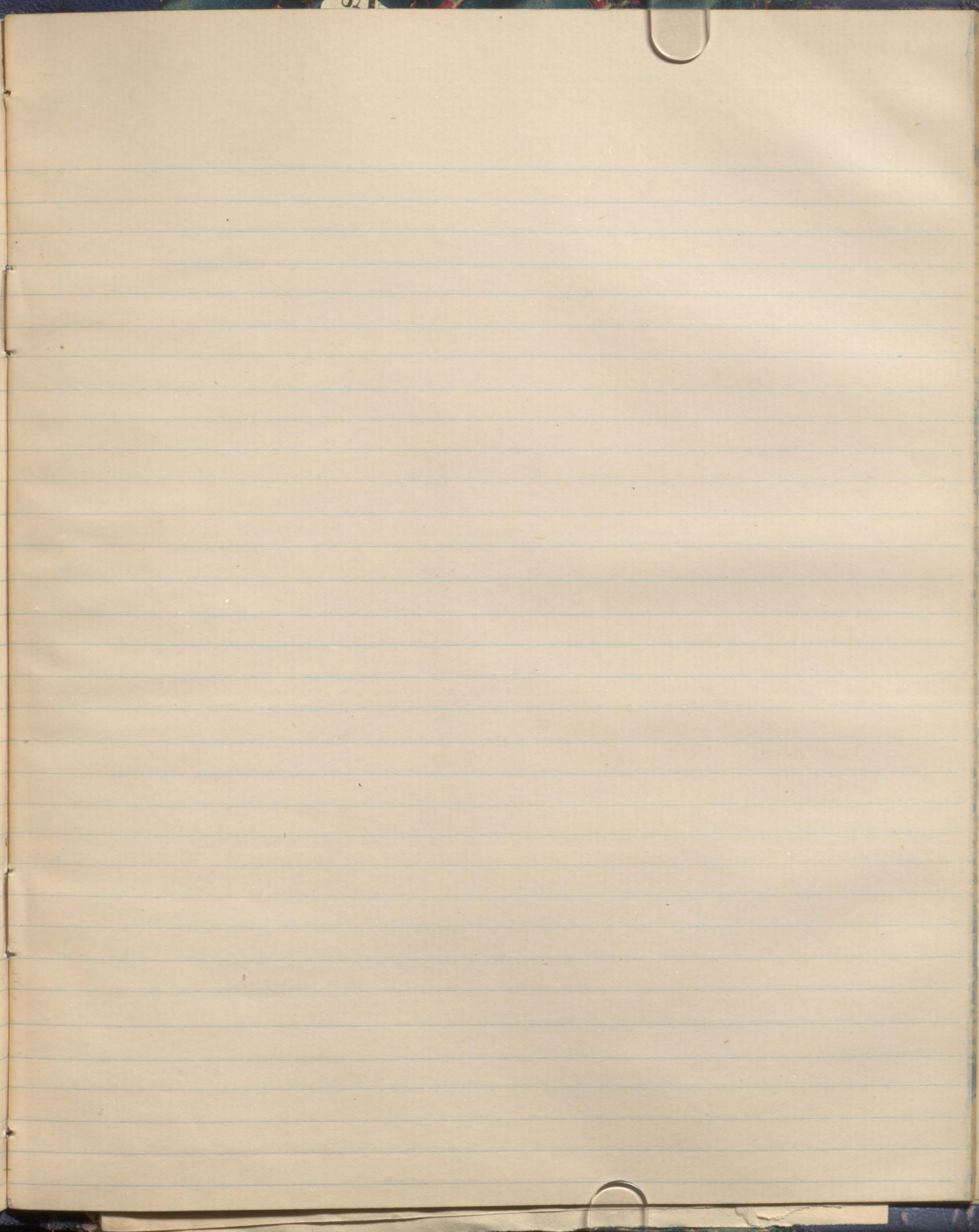


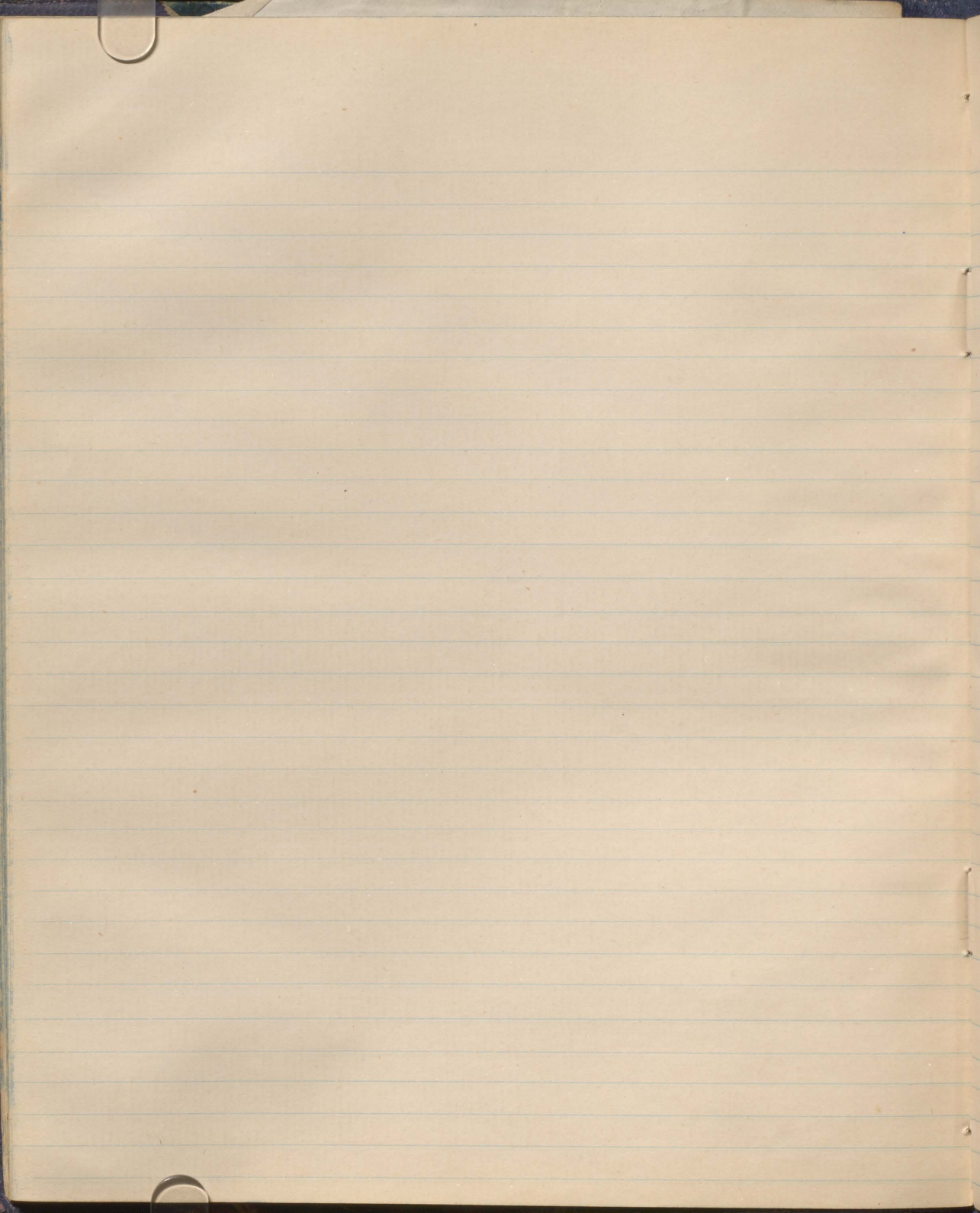


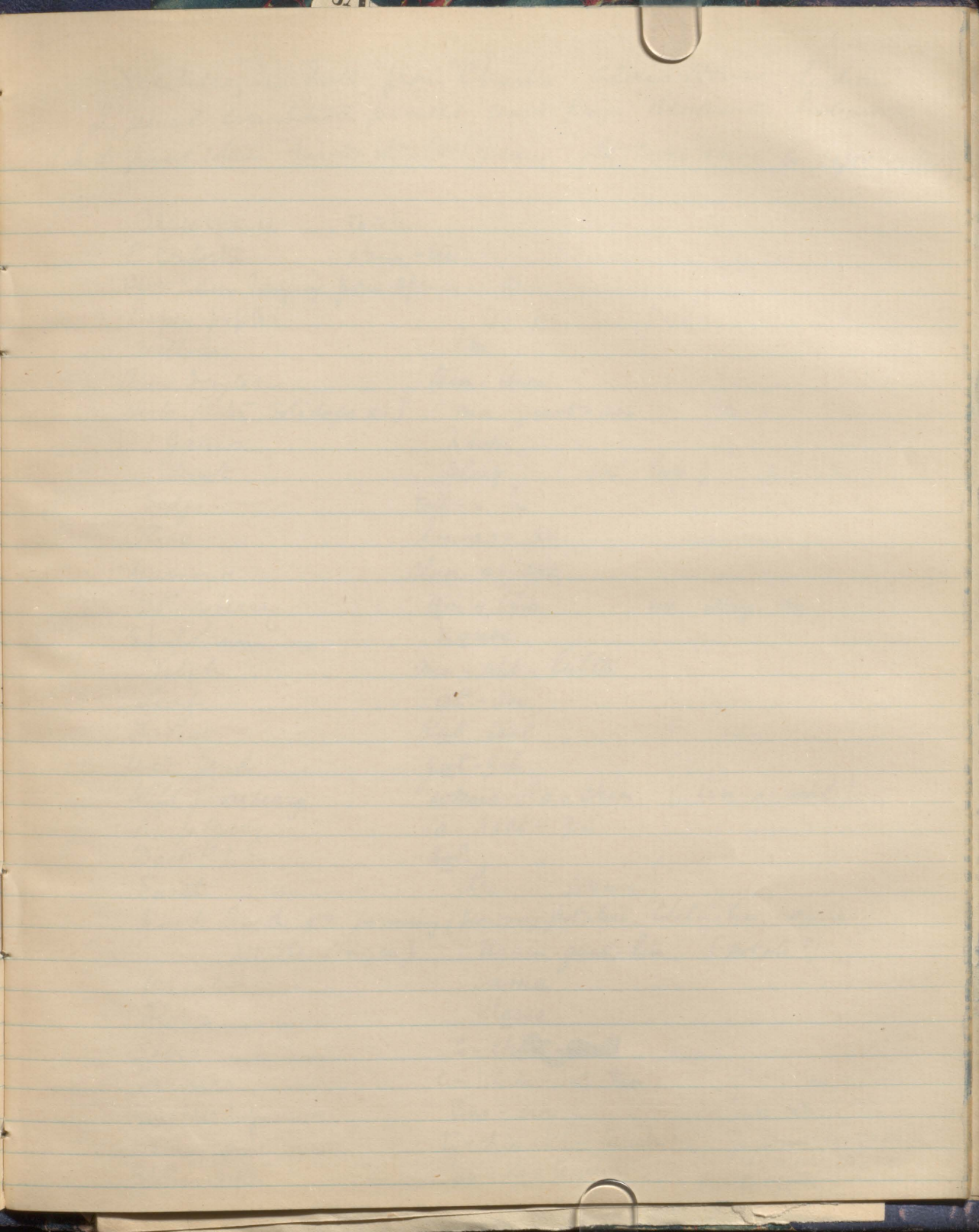














Faint, illegible text at the top of the page, possibly a header or title.

Main body of faint, illegible text on lined paper, appearing to be a list or series of entries.



Vocabulary in Dink from 'Charlie' Aleli's House Indian.
 In pencil corrected parallel words from Blackwater Indians.
 (In the pencil column marks this (v) means that word same as before written.)

Black spruce	tsihk	
P. Cortorta	chin-tée	chin-ton
Black lichen hanging from spruce	lehl	uhl
Aspen poplar	tas-pi	baslow poplar Can-dug
Willow	Khi	
Abies douglassii	tsim-tsun	
Herb (Aster solidago d=)	nin-guot-an	yn-wod-an
Grass	Kloh	Klo
Bark	älug	(ul-lug) a-lak
Sedge	tail-a-hi	
Rose	lowas-ka	kurush
Garrow	clun-e-chē	v
Strawberry	un-tyin	(un-tying-tau) in type
Epilobium	Kouse	
Yetch	nin-kut-lulth	
Leaf	at-an	v
Forest	Kul tsul	il-toul
Wet land	gut-zil	v
Wild gooseberry	wkus-ka-chin	(ten-o-whl)
Raspberry	ta-halt-zil	v
Dock(?)	sol	
Earth	ttes	(nun)
Good Earth for farming (growing potatoes. Chelauten name for the Tracy)	Uz-in-guot-lin	(potato?)
Wheat	oame	
Flour	klesse	
Stocs	te-chin-ka	
Trousers	e-klah-hib-tin	klag-us
Handkerchief	tsas-och	tsas och
Wooden pipe	te-chin-ka-tsuh	te-chin-ta-gatsi
Stone pipe	tai-ka-tsuh	clay pipe ttes-e tsi-ka-gatsi

	tsi	tse
Stone		
Red	til - til	
Green & yellow.	tul - tsau	tul - tsau
Black	Klit - is	EW - Kushe
White	Kle - yul	~ Kle - yul
Blue	teat - tsau	til - Kus
- Skin	wz - zaz	r
- Glove	bat	bat
- Mirror	pete - san - elin	et - tuz - nale ^{chunide}
- Comb	pe - seal - zoue	chil - jouk
- Tent	Coh	(pun) S - i
- Shirt	quit - sit - an	tyuz - dan
- Matches	te - Keich	r
Tobacco	tsul - lu	ta - ka
Knife	pent - so	(tohin - il - Kutetz) tesb
- Kumikinic	tin - icht - an	✓ ne - nicht - an ^{not understood}
Iron	tsa - tsan	(tsa - tsun)
- Gold brass &c	tsa - tsan - il - tsau	shunia - ad - el - gurn
- Hat	tsin - a - Koue	tsob
- Straw hat?	hi - tsin - a - Koue	hi - tsob
- paper	tis - t'is	tsuk - lus
- Ashes	t'is - t'ih	tlush - tsis
- Charcoal	Kan - ul - tsuh	ut - ush
Mountain	te'el - Kuhl	tsutl
Valley	Kil - Koue - ch'et	(kil - Koue - it)
Beaver	tsah	r
Marten	sis - chey	chin - ich
- Mink	til - chus	chel - chus
- Buck Skin	man - chiy	tut - niz
Coyote	Chil - ich	Chil - ichi nel - ussi
Large black wolf	nun	yush
- Squirrel	tlick	Mats nash - il - tick
bat	ya - ho - un - le	

- Mouse	Klun	ta-tyung	
- Loon	tan-tain	ta-tsik	
+ Goose	kuh	hoh	
Duck	lün-uhl	(to notte)	mallard tug-üi-chok
- White fish	tra-tsich		
- Saw	put-ta-kut		
- To saw	ut-ta-ta-rut		pa-da-dä-gut
- Snow-shoes	ich		
- Socks	ke-tul		
- A seat	pitch-e-ta-las-tah		guos-o-dah
+ To sit down	tain-lah		
+ To get up	Mit-er-clat		tes-in-yeh
- To away (imp)	tu-un-i-uhl		ten-in-uhl. un-nine-deh
- A bee	us-tung		
White man col-fish Kushman ra-doh	Man (white man)	tie-yon	tee-yuh (perhaps means any)
- Indian	ten-nē	ta-kial	(or all and with can-ne)
- Big man	ten-nē-en-in-chā		ten-ne-et-cha.
- A chief	neity-il-in		mon-dich
- Great chief	neity-il-in-chō		ne-chil-e
- Minor chief	neity-il-in-gus		ne-te-yas
People	ten-nē-o-cont-lin		
- My father	ap-pä		ish-pä
- My mother	a-kul		ish-kuh
- Woman	Ja-goul-tine-teen		che-koh
- My wife	Tsi-at		yun-tunc-ou
- Boy	Chil		Chil (tsai all little boys)
- Boys	Chil-er-kuh		(Chil-a-kah-un)
- Girls	ted-i-o-kuh		(te-deer-kuh)
- My girl	Sis-ki		che-kie te-de-koh
- Young woman	ti-et		te-et
- Old man	ta-gul-tin		ten-ne-a-tcha-cou-te old woman
- Ancestors	io-si-tam		tei-an-a-tas-si

	Chel - accabn	Spoi
Baby	tin - nē - tūh (yesterday to a sick man)	ten - ne - tut - ā
- Sick man	tēt - sa - tā - nūt (speaking of absent sick man)	
- " "		
- Large house	con - fouin - cha	yo - who - cho
- Large stick	tich - in - in - cha	te - chin - tin - chi
- Small stick	tich - in - in - tōut	
Strong	gūn - zūn	tel - tuoh - a
- Old house	Congo - chit	yo - who - chut
- young dog	Klin	Kle - wzy dog Kle - cho
- Ban	Kun - tsun	
kill	ta - byuz - an	Chi - chih to shoot chāg - il - tōh kill with stick chāg - ul - hūy kill with stone (hā - hlen - neh)
wuy - gury Cold	quul - kuul	
alive	cla - tchata - sneh	
wuz - ul Warm	Kun - a - zul	
I	tsun - us	nē - yun
you thou	nun - us	she
he	ku - yin	un - na
they	tsa - us	tsi - e
we	to - ro - tū	ten - il - tit
- we go	Arantsil - ta - ro - tū	un - to - tū
- go thou	tas - kuich	un - in - dū (yūn - un - e - yūh)
- he goes	tsal - kus	
that	Ku - yit	nē - gun - e
this	nihl - te	
- Something far away	nihl - yit	nihl - tsa
All	Con - tlan	tei - uh
- all four	Ka - tse	tee - a - huoh - un - til
many	hlan	te - te - ne - tlan
1	inl - he	thu - ki
2	nan - kuh	nan Koh
3	tie	ta - gi
4	tee	tin - ge

5	is - Kun - la	is - Kun - li
6	utl - chun - ti	it - Kun - taci
7	it - gun - ti - gat - git - in - te	it - ta - gunl - te
8	guh - in - il - te	il - Kut - ting
9		lan - ey - buk - i - un - la
10	it - chil - au - nil - nan	lan - ey - e
20	nat - " " " " "	nat - lan - ey - e
30	tat - " " " " "	tat " " "
40	tin - " " " " "	tet " " "
50	is - Kun - lah - " " " " "	is - Kun - la " " "

- Good bye tā - wā - tā - hān - tāh (Said by one man
going away from a number) ut - ti - unti

- Good day ho - lan - ā - uch

- Good day in - ko - tā - lan - uh (Said by one man
coming to many)

Today Kun - tai

Tomorrow utl - kun

Kan - et - zin

pun - te

- Day after tomorrow ta - tsin - tsin

pun - te - a - pun

Yesterday utl - utl - tan

utl - ta

yes ah - uh

ha

no toh

own - tuh

- they eat ut - tse - un

tse - wah - wah - he

- he eats ut - tā - tōnl

yun - e - ye

- they drink tā - tjit - nan

tse - you - tat - ni

- thirsty tsut - tā - nul - tsi

ta - ou - ta - tes - in - yat

I drink tas - nah

tā - tsut - ni

dance tsin - e - tih

wy - nut - ti

laugh Chit - it - loch

tsut - luh

speech ye - tsil - tich

ya - tsul - tuck

I speak ya - ti - stick

a - cho - gal - tuck

Sing shin

tsut - chun

- they Sleep	tse - kin	tse - yahwa - chin
- Very sleepy	tsut - le - ra - tril	nan - is - te
- they Sleep	nhl - ra - rin - ran	tse - yan - nan -
he sleeps	but - la - rail - shin	an - is - ti
to see	nhl - in	hun - itt - in
they see	tsin - ihl - in	tse - ya - na - nult - in
all see	tin - il - hlan	
to wish	ko - sis - tin	you - nis - te
not to wish	kla - gos - tin	tsut - us - nick
love	pa - na - sen	
To kill a man	tun - es - tun - as - tuh	
to wrestle	ut - les - un - til	clen - tsut - nek
to walk	tsi - ut	tsi - ut
to steal	ut - tsin - a - ech	(at - tsin - on - e)
	un - dun - is - ti	not so good
Bad man	tin - ne - nun - tsun	nen - tsu - a - den -
you to give ?	nan - il - luh	in - gan - e - i (give me)
to give	ku - tuk	
- to cry	tsut - tsu	tsut - tsu
- they cry	tsi - a - tsil - tich	tsi - a - whut - sa horse
- Spurs = kick horse	pe - unty - ho - tus	yes - eld - pen - de -
- Saddle	e - gon - clay - ril	yes - eld - eus - ei
- bridle	e - gon - clay - ya - hil -	yah yes - eld - e -
- Caricette	e - gon - claim - kuh	yes - eld - e -
- Stirrup	ka - til	yes - eld - e -
horse	youngs - a - keen	tun - as - titt - is
- to shy	nel - kit	quy - cle
Rabbit	Koh	- Koh
fly	as - tus	as - tus
mosquito	tsih	tsih

Snake	Kla - <u>us</u> - tsin	Kla - gus
Egg	Ah - ris	ug - iz
Short feathers	chüs	phit - yuy
Long feathers	ch tah	
Wings	ut - ah	put - tah
Fish	Cloe	cluk
Salmon	tsaman	ta - lup
My house	Suc - Koh	Ses - kuh ^{est} kuh
Village	Koh	Koh - a - li
Church	hünt - e - a - gul - ta - a - koh	le - chis
Priests house	yaka - stop - ialte - a - koh	
Kettle	mon - si	us - sa
Bow	tad - tsan - kuh	te - te } Ka - yat
Arrow	Kugh	
Axe	tyin - te	tsi - tal
My axe	tsut - abutte	tsi - se - tal
My knife	tsu - peul - so	tsi - se - tsü (tsü knife)
Canoe	tsi	tsi
Raft	hun - üs	hün - yus
Moccasins	kih	keh - kot
My pipe	tsuc - cotsu	tsis - ta - gat - tai
Stick	yab tah yat - ah	yah
Stars	Sun	Sun
Sun	tsih	tsah
Meat	ut - sun	ut - Sun
Fat	a - kuh	a - Koh
Dog	Kleem	kle
Bear	Sus	Sus
to Fox	nan - chis	nan - Kuy
Deer	neitsä	is - tse
Sunrise	ka - pun	pun - da - ta
Midday	tsan - as	tsat - nez

	Evening	Kut-leigh	na-ei
	Night	Utle	tsis
	Spring	a-golt-tsin	} shek-in
autumn	Midsummer	tam tie	
ta-git	Rain	na-goulti	na-whul-tam
Winter hui	Wind	nein-toe	ta-tse
	Thunder	ind-neik	teit-neik
	Lightning	ind-neta-ush	teit-neik-a-kus
	Snow	yus	yus
	Fire	kun	kwun
	Water	töh	to
	Ice	Kol-üh	tün
	Salt	ya-tu	tau-ca-hun-cha
	The sea.	tä-rin-lin	tau kuh
	River	tä-rin-kut	
	Creek	ping	pun-gut
	Lake	klue	kleu-sa-kä
	Prairie	not	nei
	Island	la-sal	le-sel
	Salt	sat-sun	a-tes
	Iron	a-kut	tsun
	Bone (as y deer)	ten-ad-sun	qua-chun
	Leg	ten-me-a-kuh	pei-ke
	Foot	ne- keil keil-a-cho	quäl-a
	Big toe	ne-keil-a-neej	
	Second toe	" " " "	
	Third toe	" " " "	
	Fourth toe	" " " "	
	Small toe	ne-keil-ad-sut	
	Deer's foot	a-kuh	
	Belly (human)	ten-ne-put	pä-put
	Female breasts	ten-ne-adsok	put-ju
	Blood (human)	ten-ne-e-til	ski

Friend	tsil-las	tsil-et-tai
- Friend (aged)	tsün-ä	
- Friend (Old man speaking to young friend)	tsich-eil	
Friend (old man or woman to young woman)	ts sit-ees	
Man		
Head (human)	tän-nē-ä-tya	mut-tai
Beard or whiskers	ne-ta-ra	ne-ta-ga
X Face (human)	tän-nē-nin	ne-nin
Forehead	neitz-e-külh	nin-in-tack
Ear	neitz-ä	neit-tya
Eye (human)	tän-si ten-ee-na	nin-a
Nose	tän-nē-neitz-eh	ne-nin-tai
Mouth	tän-nē-az'i	ne-nick
- Your mouth	Sus-i	ses-ick
- Several opinions	yadt-pil-tick	tai-a-na-dem
- One man's speech	yads-a-tick	you-naste ne
Tongue	matzole	tsu-la
Teeth (human)	tän- mat ä-ö-oh	ne-gou
Neck	tän-ä-o- kut	ne-nil-tyin
Throat	noz-a-whl	na-nul
Arm (human)	tän-nē-a-kon	ne-kun
Hand (")	tän-nē-luh	ni-lah
- Little finger	neil-a-sut	neil-a- tsch
- Third finger	neil-a-suh	tsch
- Second finger	neil-a-neiz	
- First finger	neil-äs-kut	
Thumb	neil-a-cho	
- Finger nails	neil-ä- tsün	Kil-a-Kü
- Body (human?)	tän-a-nus	ne-ye
- Bone (human)	tän-nē-a-kut	
- January (large eagle month)	tein-tsel-esa	
- February (or July?)	min-chus	

Kai

Months rather uncertain

March (hunt-deer month) pun-in-yes-ad-Silch

April (end of winter) o-solt-sin

May (young deer month) in-clay-a-zuk

August (Salmon month) toāmaūda

September (?) tāi-tā-hasa

October (wind month) pun-in-atsi

November (talking month) pun-in-kless-kuun-ctz-

December Keitz-kuun-ctz

December (ice moon) Käl-ūsa

Words from 'Lanny' ^{Chuscu L.} ~~Blackwater~~ Lidian.

Moon Sā

Sun tāin-a-sou-za

October

ele-et-ne

November

ta-geth-nan-ta-tit

December

mil-chih-cha

January

pūn-in-saʒ-ul-tul-tāi

February

hei-clous-a

March. ↙

ta-ras-til

April

em-a-tlas

May

Snow

June

shen-ous-a

July

tuc-cous-ous-a

August

ne-chul

September

tal-ou-gous-a

nan-tle-cho

fish moon
snow fall
Snow out of
white fish moon
little snow falls
much snow
much fish moon
Salmon come
many fish

Words from Blackwater Indians, including a correct list
of the months.

bag - is - li

prairie hen. il - tutt - e

spruce partridge. tick

ruffed grouse. ut - sut

owl us - un

gun the - te

pistol. the - te - uz

belt seh

coat ~~took~~ tshut

blanket. mal - teh

seat to - ki

hammer. haad - ul - bluy

pen - tea - house

October

clou - house

ta - gesting - ei

ta - gus - e

ta - cas - til

te - chesl

nin - ot - las

ken - ous - a

tu - cou - un - ty

ne - chuy

tal - ou - gunya

~~nan - dle - to~~

show four away
nan - de - cho

Great bear yet-tah
pleades Sum-ne-tan-ne

Additional words from Blackwater Indians

Lichen (on wood) tau-tlu₂

Lichen (on stone) tse-gus-ul-chus

Moss yeam-pä

Green scum on water glass Pun-chaw ta-toä

Grave tum-gut

Seed capsules of Moss tous-e-chuck

Matonia tal-gal-chin (Luzula grass used for
eye medicine)

Pyrola rotundifolia tsat-tsau-ä-tam

Geranium Freimonti Tuck-ai-kün

wild pea & vetch tau-ttul

Cornus Canadensis tait-mi

Galium boreale tal-chos-chin

Epilobium kuh-as

Blueberry ilt-tyul

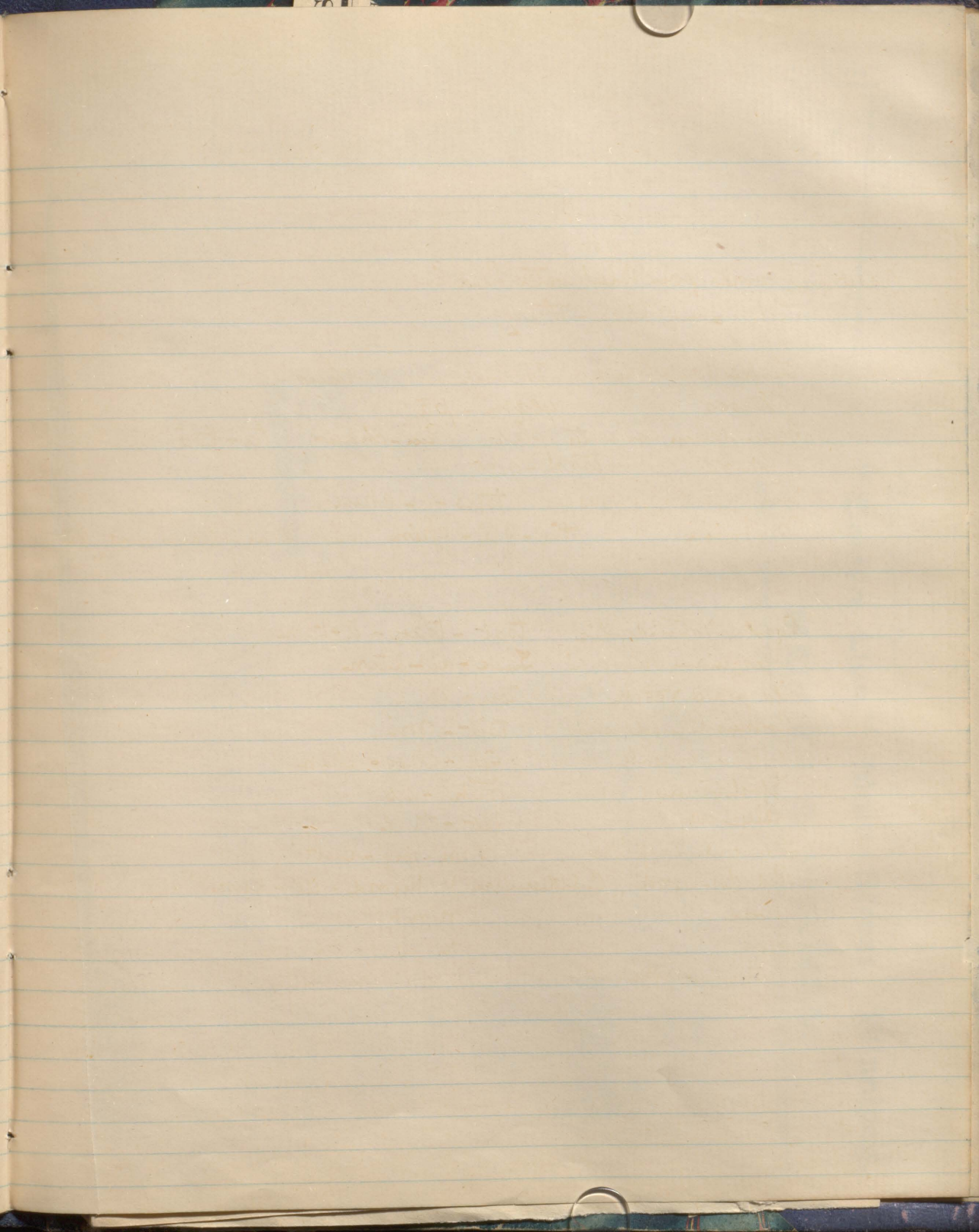
Flowerly raspberry clam-ing-cut

Red dog-wood (*C. Staminea*) Kund-ul-kun

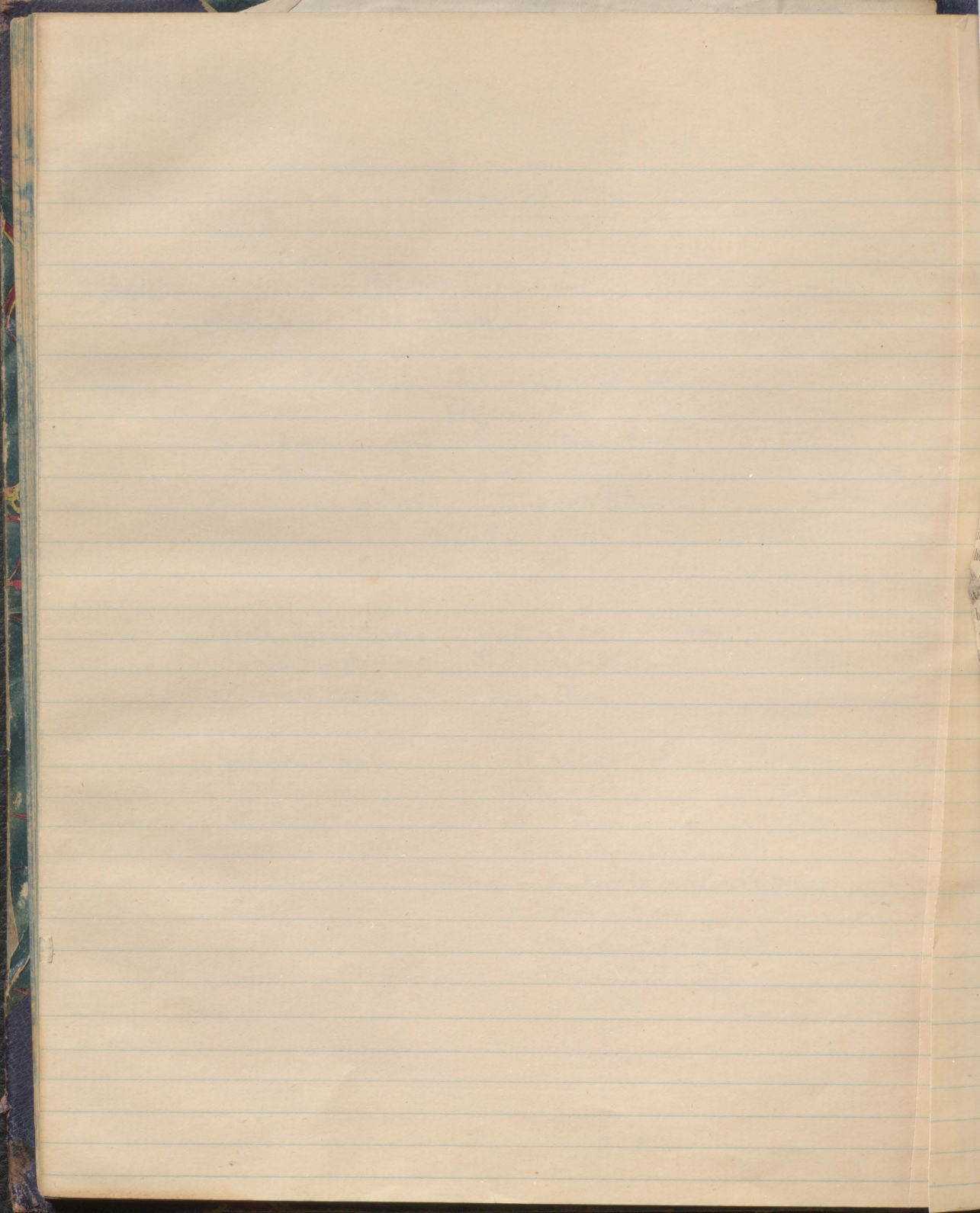
Rose nin-chun

God ne-pa (= pa-pa)

Soul or spirit moud-nil-tu₂.



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the
sera
posit
susta
is m
look
reco
quire
siste
Legisl
sol
ment
only in
neers
stream
report
was seen
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thereon
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I am of
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statistical
tion.—Th
Moorhea
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of Goose
mile;
4,000
the fe
age fe
foot pe
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Fort A
Fort W
Fort P
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tribes or whiskey battles between the
dit traders and their victims. Mr. McDougall
all has been known to go single-handed and
alone into a whiskey trader's camp, armed
only with his patent as a magistrate of the
Dominion, and spill their Indian poison on
the ground passing out through a crowd of
strong men cowed before the quiet dignity
of a noble man doing his duty at the risk of
life.

Numbers of our citizens sojourning for a
time on the Saskatchewan, and travellers
across the continent can testify to his ever
ready hospitality and care for the stranger,
whether foot sore and weary or wrapped in
the full appliances for travelling
which abundance of ready money
may usually obtain anywhere. Mr.
McDougall did not belong to the class
of men who take the name of missionary
without much of the danger and inconve-
nience usually attendant upon its duties.
His ardent evangelic nature seemed never
satisfied unless when upon the very fron-
tier of civilization; and though frequently
overtaken by all the accessories of comfort
and ease he was ever reaching out to new
fields, passing successfully from Garden
River to Superior, to Norway House, to Vic-
toria, to Edmonton, and, finally, to Morley-
ville on Bow River, near which he met his
unfortunate death. The events of the dis-
astrous visitation of small-pox among the
the Indians in 1869-70 displayed Mr. Mc-
Dougall's heroic qualities in bold relief. Dur-
ing that dark and dreary time when nearly
every Indian tribe and family were afflicted,
he and his family were unwearied in their
attendance upon the sick, and numberless
times buried the dead with their own hands.
In this noble devotion to a duty which they
might have escaped two of his daughters
fell a sacrifice. His recent services to the
Dominion have been fitly referred to by
the Premier, in Parliament; but something
beyond that seems desirable in recognition
of his life-long devotion to civilization and
Christianity.

Following is the letter of Col. Smith:—

March 31st, 1876.

DEAR MR. YOUNG:—With deep regret I
observed in the FREE PRESS of this day that
you have received confirmation to the re-
port of the death of the Rev. G. McDougall.

Although my acquaintance with him was
but casual, and that I do not chance to be-
long to the same religious connection, I can-
not refrain from expressing to you my dee-
regret for the loss we have all sustained in
the unexpected deprivation to Christian
civilization.

I am sure you will understand that I ad-
dress these few lines to you with no intru-
sive purpose, but as this is at present the
centre of our young North-West civilization,
I earnestly trust some movement may be
set on foot under your auspices for a testi-
monial of some sort to which I may be en-
abled to contribute my mite.

I write in haste as I am called away in
connection with the frontier embroglio.

Believe me faithfully,

W. OSBORNE SMITH.

THE SILVER GLUT.

One of the results of the depression of the
intrinsic value of silver coin is that the
older provinces are again becoming flooded
with American silver coin; and the newspa-
pers and business men are discussing what
is best to be done to get over the difficulty.
It gets circulation mainly by produce deal-
ers buying silver at a discount and paying it
to farmers at par. It has been suggested
that legislation is required. The *Globe*
speaking hereupon sensibly scouts the no-
tion that a remedy can be obtained in this
way. It says the men who take the depre-
ciated coin at its par value "calculate on
"getting a little more nominally if they are
"paid in silver, and then they look to get-
ting what they want in the

report of the pistol. The deceased was an electrician in the employ of the Electrical Construction Co., and came here over here a year ago from St. Johnsbury, Vermont. In his trunk was found an unfinished letter directed to his sister, closing as follows: "I shall be glad when this life is over, even if my portion is to be in hell in the next world. I don't think there is a hell, and that is a comfort. You may expect to live in heaven, but I expect a total blank; think of death as a perfect slumber."

A French Scientist Explores the Indian Mounds of the Pacific-Coast Indian Remains on Vancouver Island.

ERROR BUREAU.—The southern and eastern part of Vancouver Island seem, at a period not very far back, to have been inhabited by a very numerous population; wherever we go, on the sea shore where there is a spring of fresh water, or on the larger rivers, we are sure to find traces of former occupation; immense shellbanks and shell mounds exist for miles above the rapids on the arm above Victoria, and sepulchral cairns are to be found by thousands at Gadhoro Bay and vicinity. We will try here to describe these remains and show that the people who built them is the very same as the one now living on the island of Vancouver, Puget Sound.

I will begin by the small sepulchral mounds which I design under the name of cairns. This name is used on account of the striking resemblance between this Indian cairn mound and the celebrated cairns of Scotland, Wales, &c.; they vary very much in dimensions and shape, varying from a perfect circle to a rectangular form, though the circular ones are the most numerous. For the digging of the graves and the building of the cairn, a circular space has been cleared) I am speaking now of a circular cairn) and a receptacle dug right at the centre to a depth of from three to five feet. In this receptacle the ashes or the body have been deposited, cremation and common burial have been in use contemporaneously among the cairnbuilders; the receptacle is then filled up with loose earth to the level of the cleared ground. Then on the top a large flat stone, weighing in some instances 300 or 400 pounds, closes the receptacle. All round that central stone others of large dimensions are set on end, forming a circle. Then at a distance of one and a half to five feet from the central circle is another one of smaller stones set on end, forming the outer circle. Between this and the inner one we find, when we have cleared the rubbish, ashes, charred bones and charcoal, seeming to indicate that a sacrifice was made to the manes of the deceased. After the sacrifice was over the whole was covered with loose rocks and earth so as to form a mound of a conical form, of a height of two to six feet above ground. If instead of a circular mound a rectangular one was to be built, the same precautions were taken to have the receptacle right in the centre; and instead of two stone circles we had two rectangular layers of stones set on end with large rocks forming the four corners. It is a very interesting fact to find on this coast remains so similar to what we are used to see in the old Celtic countries; and from such a fact hasty observers might make some very startling deductions. But here I must say that the skulls and bones found in the cairns opened by Mr. James Deans and myself belong undoubtedly to the Indians, and I will be more positive in affirming that if they did not belong to individuals of the actual tribe of Indians, (the Cowichan) now living in the southern and eastern parts of Vancouver Island, they certainly had very great cran- iological and morphological resemblance to them. The bones are only found in a small number of cairns; most of the time we only found the ashes, showing that cremation had taken place. In the mounds that I opened in company with Mr. Deans I found bones in only one in four. The bones are extremely brittle, showing traces of great age. The skulls found are dolichocephalic, long and narrow, presenting an artificial flattening of the occipital bone—deformation due to the manner in which the child is held tight to the cradle among the Northwestern tribes, the back of its head resting on the board. If I compare any of them with those found in the shell mounds of more recent date, or with those of the actual Cowichan Indian, I can hardly trace any difference. It would be too long to enter here on the morphology of the skull, but suffice it to say that, in my own opinion, I have not the slightest doubt that the cairnbuilders whose bones have been lying in the ground for six, seven or more centuries, were the ancestors of the present race of Indians. Among the skulls found was one presenting a very peculiar deformation, the forehead is pressed upwards, and the back part of the head has suffered the same deformation, together with the process of flattening. It has given to the knoll the comical aspect we are used to find among the old Inca Peruvians. No implements of any kind have been found in these cairns, either by Mr. Deans or myself. I believe that all the personal property of the deceased was burnt with him, but the most valuable objects, such as bone or stone implements and utensils, were burnt only in effigy; that is to say that images of said implements or utensils made of wood were burnt with or near the body, and the original ones distributed among the relatives of the deceased. I have been able to trace this custom to different tribes of the north-west coast. The bodies deposited in these cairns have all been doubled up Indian fashion, the head lying generally toward the west, the hands resting on the knees under the chin. Outside of these customs there does not seem to have been any particular way of laying the body, as some of them are found with the face downward, some others with the face upward. I paid formerly a good deal of attention to the way in which the bodies were laid by the Indians; but I have found that there is no particular rule in which they do it, and I have been obliged to give it up altogether as an ethnological sign; so it is with the cremation and the common burial. I believe they have co-existed formerly as they do still now among tribes closely related to each other.

Shellbanks, Klokkomodings and shell-mounds. I fore proceeding any further I must explain the three words here used. A *shellbank* is a large accumulation of shells in flats near a river, where formerly was a village; in it we only find shells, broken bones and broken implements and utensils. A *Klokkomodng* or common *shellmound* of the Danes is composed of the refuse of the repasts of the savage, and is found to contain shells (clams, mussels, oysters, etc.), broken bones, (human bones have been found in large quantities among those I examined at the arm, showing that the Indians were in the habit of eating human flesh, probably that of their enemies killed in battle), and broken implements and utensils, as in the shell banks; in fact, the shell banks are nothing else but Klokkomodings, which seems to have been leveled by the action of time. The Klokkomodng is always found in the impacement of former villages, but the sepulchral shell mound is generally a distance back of the village, on a small eminence and contains the bodies, together with utensils, implements, ornaments, etc. At the "Gorge" about three miles up the Arm from Victoria, are remains of a very extensive village; we can trace for miles the places where the houses stood, as the embankment mounds against the low parts of the walls of the houses are still traceable. It was at that place I concluded to make my researches.

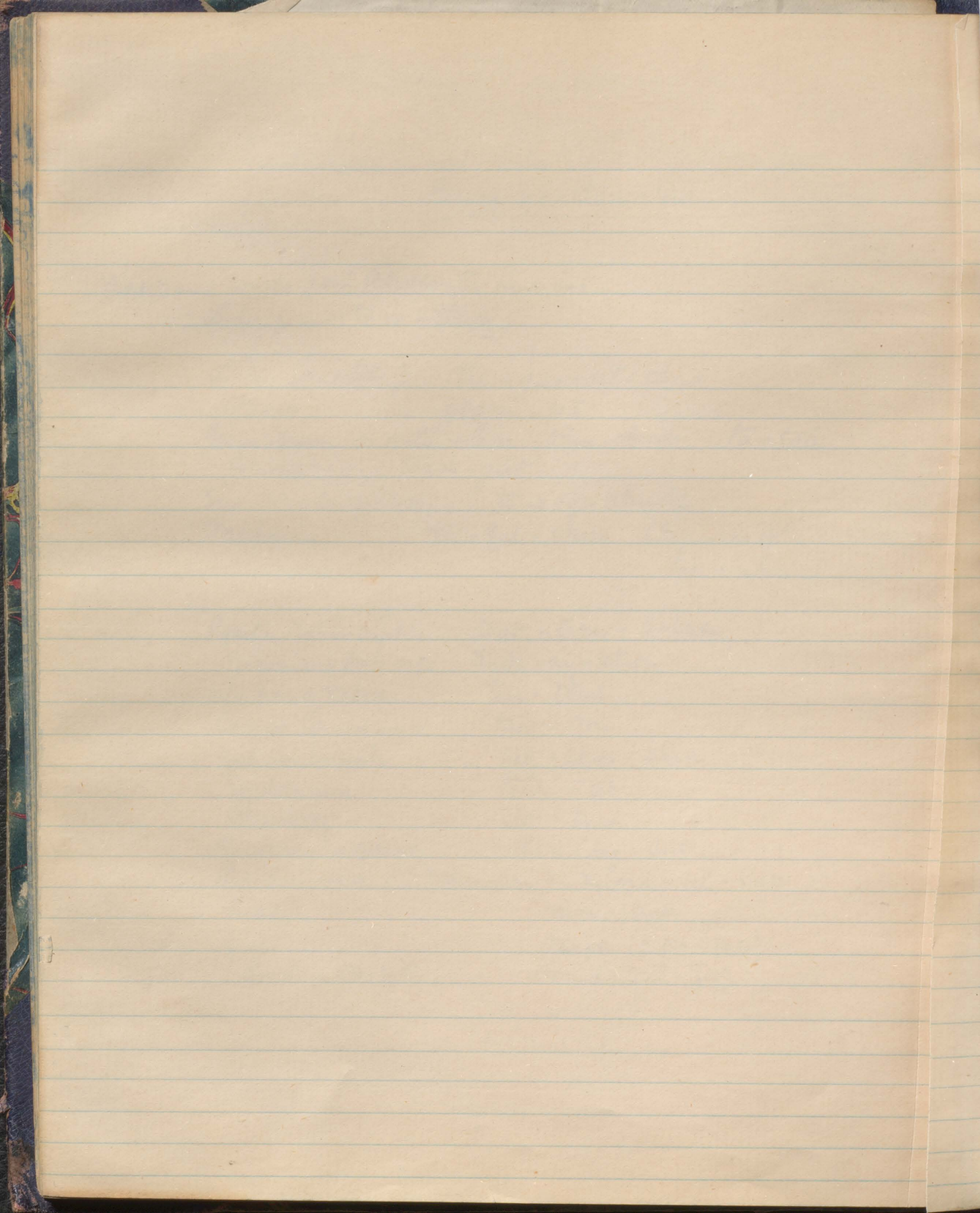
A large spectral mound had been already partly removed by Mr. Dodd to build his house, and during the removal of that portion of the mound he came across a large number of skeletons, together with stone and bone implements. In my own diggings I was fortunate enough to discover a whole skeleton, skulls and bone implements, utensils, ornaments, etc. In this place, too, I found that the bodies had been deposited without any fixed rules—some were doubled up, some were lying at whole length; by

the side of the complete skeleton was a very extensive fire-place, wherefrom we took a large amount of ashes, together with charred bones and charcoal. The skulls found in the mound are similar to those of the living Indian. Quite a number of those found on the upper level of the mound present the conical deformation alluded to above as resembling the deformation in use among the Inca Peruvians.

I will conclude with certain remarks on the way of burial in the shell mounds of Vancouver Island, and show the difference existing between the mounds of Vancouver and those found in California. On Vancouver Island, when a place had been chosen as a burial ground, the bodies were brought and laid down on a bed of hard earth, mixed with small rocks and gravel, then covered up with shells. A fire was then lit near the body, and all the earthly possessions of the deceased were buried with him. If the deceased was a man of wealth or renown, slaves were killed and buried by the side of their master—practices still common among the Tlinkit tribes of Alaska. As soon as the fire was over the ashes and the body were covered with another layer of shells and everything was over until a new burial took place near or on the top of the preceding one, this is to explain the extent and elevation of some of the sepulchral shell-mounds. In California, we find only one kind of mound, which seems to have been used at the time as a "Klokkomodng" and a burial place; everything taken out of the hut of the natives, the refuse of cooking, or any other rubbish, was thrown on this mound; or if any body died the body was buried in the mound itself, so that California mounds are at the same time burial mounds and "Klokkomodings."

Before I close this paper I must mention that in connection with the cairns above spoken of are generally to be found large ditches inclosing in their area quite an extent of ground, cutting off sometimes from the mainland—a small promontory and forming in that way a fortified enclosure, where the natives could defend themselves from the incursions of warlike tribes, inside of the enclosure formed by those ditches, and protected by the embankments thrown up on the inside of the ditch, from the earth dug out, are to be found remains of houses. Such fortifications are found along the southern and eastern parts of the island, all along the coast from Victoria (one of these fortified ditches is found at Beacon Hill) to Co-

ALPH. PINART.



Dyking the Fraser.

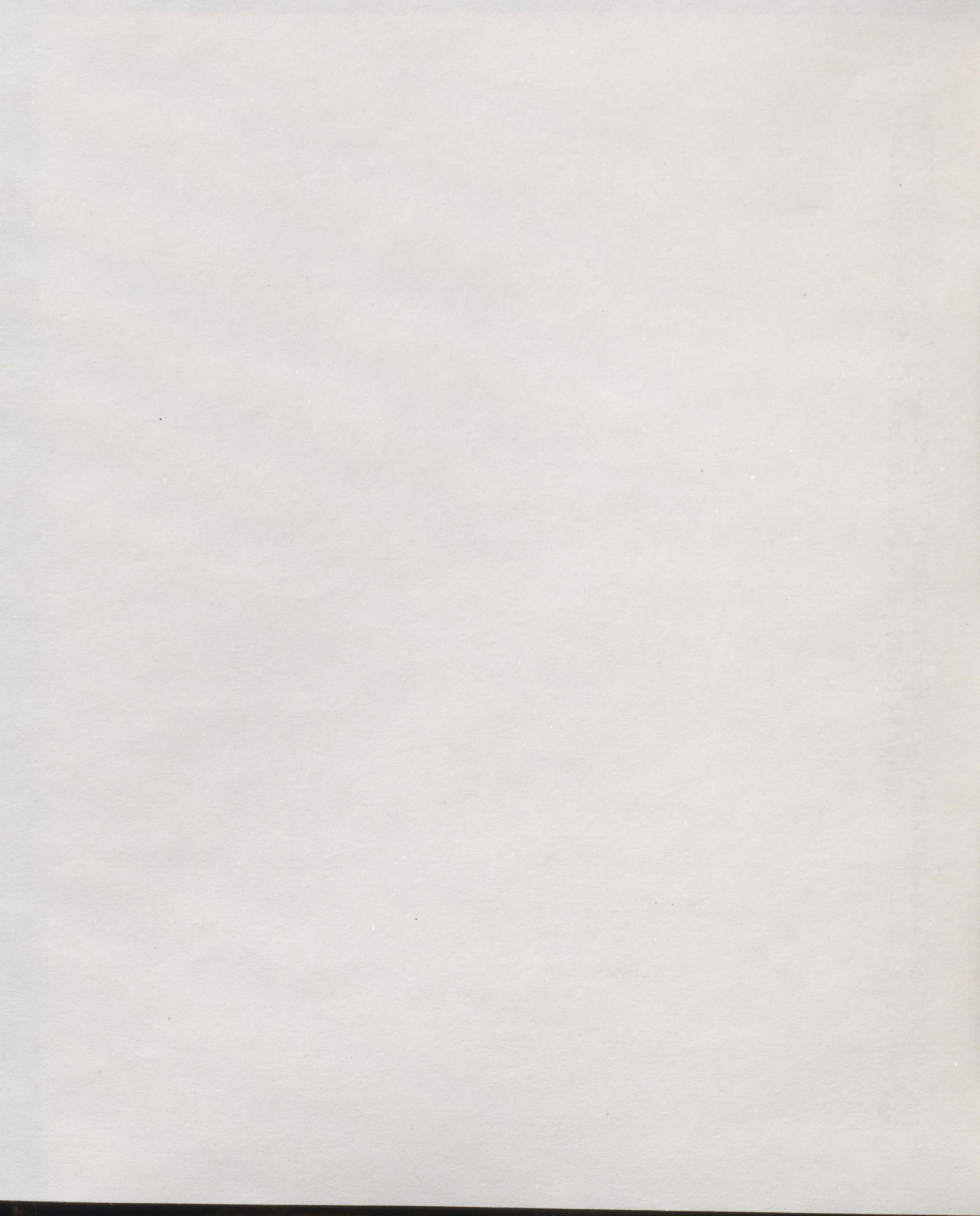
EDITOR COLONIST—SIR:—My attention has been directed to an article appearing in your issue of the 5th inst. from James Chadsey, a Sumas farmer, giving a detailed account of what might be justly termed a sad calamity to the people in these settlements from the recent overflow of the Fraser.

Being one of the sufferers and a resident, I believe that I am capable of giving an opinion as to the truthfulness of the article referred to, and candidly say it was the truth. As the waters are receding and the farms are beginning to make their appearance at the highest points, clothed with mud or sediment deposited by the water, the appearance is a gloomy one. Some people might justly think this gloom would take possession of the farmers and cause them to give up in despair and become thriftless; but, fortunately, I don't believe there is a more energetic class of people in the Province than ours. They have a strong hope that by perseverance their difficulties will yet be overcome by dyking out the Fra-

—Woodstock Sentinel.

IMPORTANT EXPORTATION OF
HORNS FOR CANADA.—A Canadian
has recently purchased Bow
farm, near Toronto, Canada,
head of which firm is the Hon. G
Brown. From the recent spring
and by private treaty, Mr. W
Ashburner, of Ulverston, their
in England, has bought 50 of the
Bates animals in the United King
25 of which left the Mersey on T
day, the 1st June, in the steam
Polynesian, and will form the
valuable cargo of live stock ever t
from this country. The purc
price of the fifty animals is upwar
£20,000, and for single female
much as 2500 guineas and 2000 g
eas has been paid to the Duke of
vonshire and Colonel Kingscote
pectively. The following is a list
the 50 animals:—Bulls: Duke of
ford 38th, Duke of Oxford 30th, Gr
Duke of Thorndale 2d. Cows
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Oct 7. 1876.

Yours, &c.,
CATHOLIC.

THE BUFFALO MOVING EASTWARD.

Herds entering Manitoba.

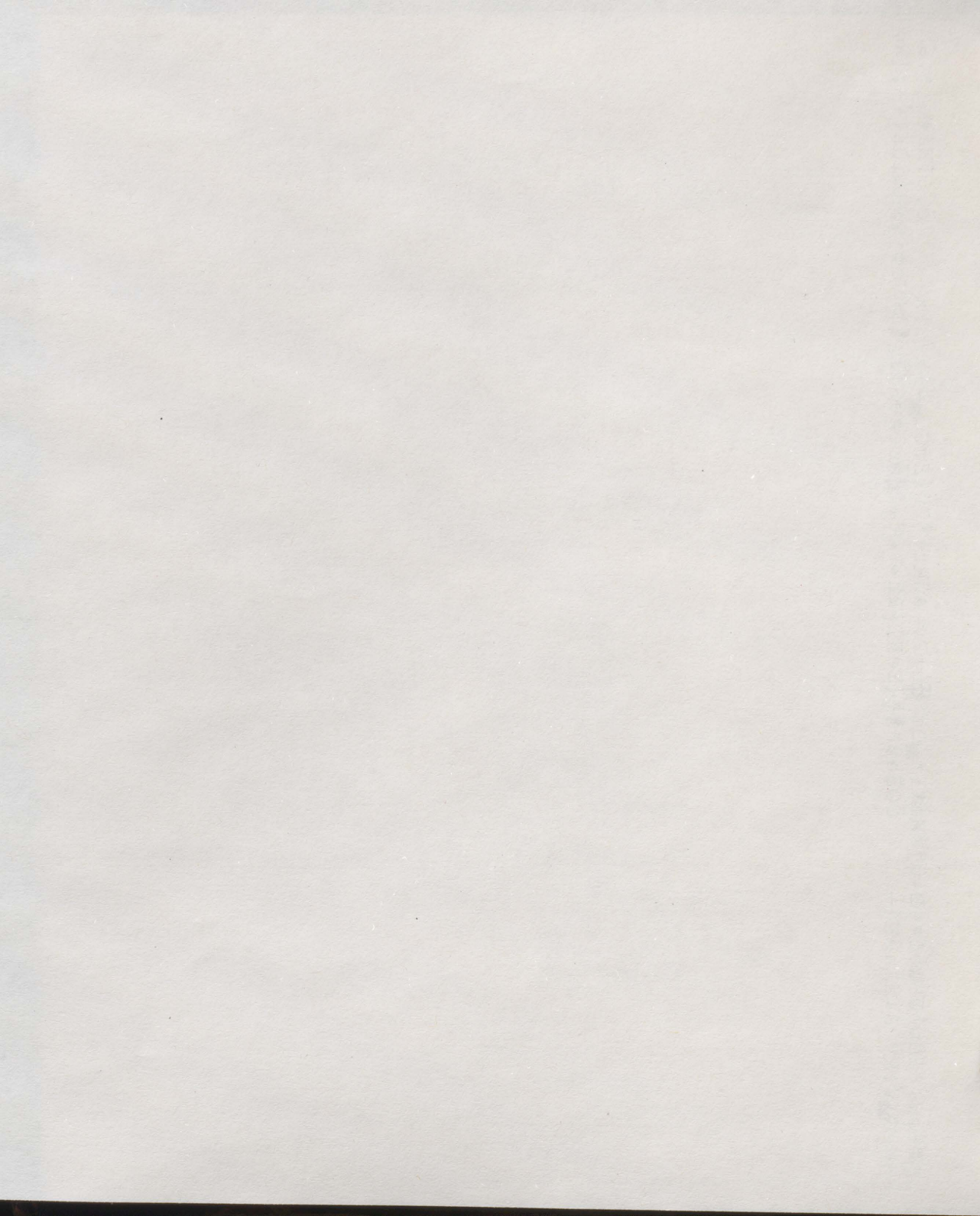
A gentleman in whose integrity we have complete confidence, and whose information is based on authentic accounts, arrived from Emerson Friday morning, and brings intelligence of the actual arrival of the vanguard of migratory buffalo herds on the western boundary of this Province, which these animals have not approached for years.

The Sioux Indians residing at Devil's Lake, in Dakota, have already been on a great hunt, and have returned to their homes with an abundance of buffalo met and numbers of robes.

A half-breed who arrived from the west at the Jo settlement reports that great herds of bison were seen about six day's journey from Red River and that some bulls were passed but four days off. This statement (estimating a journey at 20 miles) would place the nearest buffalo at about 80 miles distance—that is to say actually on the western boundary of this Province; and, as from all the accounts received, the herds are migrating eastward, it is not unreasonable to assume that by this time they have entered Manitoba after ten years of total absence.

The party of Mounted Police who came into the city yesterday, from Fort McLeod and the Cypress Hills, passed immense herds during their journey, the last seen being about seventy miles west of the Mounted Police post at Qu'Appelle, heading eastward.

It may be remembered that Sergeant-Major Frances' diary of the route from the Cypress Hills to Winnipeg mentions having killed a buffalo calf three days journey west of Qu'Appelle (these were a good deal longer journeys than those made by ox-cart), noting the fact that it was unusual to meet with this animal so far to the eastward. The place where the calf was killed is this side Chaplin or Old Woman's Lake, which may be found on most maps of the North-West.



rapid motion. If a well or cistern be under
ver, or shaded by buildings, so that the
nlight will not fall near the opening, it is
ly necessary to employ two mirrors, using
ne to reflect the light to the opening, and
nother to send it down perpendicularly
to the water. Light may be thrown fifty
a hundred yards to the precise spot and
ected downward. We have used the
irror with success to reflect the light
round a field to a shaded spot, and also to
arry it from a south window through two
oms, and then into a cistern under the
orth side of the house. Half a dozen re-
ections of the light may be made, though
ach mirror diminishes the brilliancy of the
ght. Let any one, not familiar with this
ethod, try it, and he will find it not only
seful, but a pleasing experiment. It will
erhaps yield a mass of sediment at the
ottom of your well that has not been
ought of, but which may have been a
uitful source of disease by its decay in the
ater.

**Murder Out After Twenty-three
Years**

A few days ago, some men in Alleghany,
hile excavating for a cellar at James and
hird streets, came upon the bones of the
g and arm of a man. It was immediately
called by the neighbors that about seven
ears ago the skull and a portion of the
binal column of a skeleton were found in
he same place. Rumor has it that they are
he remains of John Busch, who disappeared
uddenly on the night of Christmas, 1853,
aving gone out to buy some toys for his son.
e fell in with a countryman, one Ernest
einhard, and the two spent part of the
vening in John Harris' saloon. From that
lace the two departed. Busch was last seen
or near the house of one Hart, who had a
aloon at Gerst Avenue and Second street.
t the time Hart was suspected of the mur-
er, and arrested for it, but the evidence
d not warrant a commitment.—Reading
agle.

The Young Execution.

John Young, the elder of the murder
s of Abel Macdonald, was hanged on Friday
nd Sept., at Cayuga. The

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Intelligence from the North-West.

We are indebted to Mr. Skeffington Thompson, formerly a member of the Mounted Police Force, for some interesting information from the far West.

He started from Fort McLeod on the 3rd Sept, in company with the party of Mounted Police who arrived in this city Thursday, 28th ult., and travelled by way of the Cypress Hills, which were reached seven days from date of departure.

Sub-Inspector Neill, with Sergt.-Major Francis, four sub-constables, and the six recruits enlisted at Winnipeg, was met fifty-five miles west of Fort Ellice. They had with them a train of ox carts conveying the four mountain guns and ammunition destined for Fort Walsh, and were making but very slow progress owing to the badness of the roads.

Immense herds of buffalo were passed on the other side of Qu'Appelle, heading eastward. Last winter there were none hunted in the immediate proximity of Fort McLeod, though buffalo were very abundant the previous seasons. Great numbers of Crees and half-breeds are out on the hunt, the latter destroying the animals in their usual reckless and unthrifty fashion. Mr. Thompson adds his testimony to that of all other travellers from the West as to the urgent importance of speedy legislation to prevent extermination of the buffalo. He says that this is an all important question to the Blackfeet and several other tribes, who are entirely dependent upon the bison for their food supply.

Provision were getting somewhat cheaper at the distant posts. Flour now sells at Fort McLeod at \$15 per sack of 100 lbs; last winter the price ranged from \$20 to \$25. Tea is \$2.25 per lb.; other articles in proportion.

A gross case of rape was perpetrated in the village at Fort McLeod by a trader who is a member of an influential firm. Though the Mounted Police were brought to the house by the cries of the Indian woman subjected to outrage, the non-commissioned officer with them hesitated to break in the

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Six sugar beets—John Harrower, 1st, and
Ophile Jette, 2nd,

Twelve white field carrots—W.G. Fonseca,
1st; Thos. Anderson, 2nd.

Thirteen large red carrots—Mrs. Pritchard,
1st; D. F. Knight, 2nd.

One mammoth field pumpkin—Mrs. Prit-
chard, 1st; W. Peel, 2nd.

HORTICULTURAL PRODUCTS.

Twelve crab apples—W. B. Hall, 1st.

Assortment dried native fruit—Robt. Bell,
1st.

Assortment preserved native fruit—W. B.
Hall, 1st; W. Corbett, 2nd.

Assortment pickles—Mrs. Palk, 1st; Mrs.
Pritchard, 2nd.

Bottle tomato catsup—W. B. Hall, 1st; R.
Egan, 2nd.

Bottle native wine—R. Bell, 1st; Pere
Richot, 2nd.

Bottle mushroom catsup—Alex. McPher-
son, 1st; T. W. Gravely, 2nd.

VEGETABLES.

2 qt. kidney beans—Pere Richot, 1st.

2 qt. any other kind—Pere Richot, 1st;
H. R. O'Reilly, 2nd.

6 long blood beets—Hudson's Bay Co., 1st;
H. J. Arkland, 2nd.

6 turnip beets—H. J. Arkland, 1st; Wm.
Corbett, 2nd.

6 long table carrots—Wm. Nimmons, 1st;
Donald Sutherland, 2nd.

6 early horn carrots—W. A. Farmer, 1st;
E. H. G. G. Hay, 2nd.

6 parsnips—Bishop of Rupert's Land, 1st;
Donald McIvor, 2nd.

6 table turnips, white—J. Harrower, 1st
H. J. Arkland, 2nd.

6 table turnips, yellow—H. J. Arkland, 1st
2 heads early cabbage—H. R. O'Reilly, 1st
Robt. Morgan, 2nd.

2 heads Savoy cabbage—Jas. Tait, 1st
Robt. Morgan, 2nd.

2 heads winter cabbage—Richard Egar
1st; Robt. Lowes, 2nd.

2 heads early cauliflower—Mrs. Pritchard
1st; Robt. Morgan, 2nd.

2 heads late cauliflower—Robt. Morgan,
1st; P. G. Laurie, 2nd.

6 heads celery cauliflower—Bishop of Ru-
pert's Land, 1st; H. R. O'Reilly, 2nd.

4 cucumbers—Thos. Taylor, 1st; Theo-
phile Jette, 2nd.

citrons—D. Flett, 1st, Charles Mollard, 2

MANITOBA FREE PI

and all succeeded in carrying off prizes. Other entries which reflected credit on the fair makers, are also worthy of mention, but the impossibility of learning the names of the exhibitors prevents us referring to them more fully.

A fine display of Osborne sewing machines is made by Capt. Scott. Mr. Wellband makes a good exhibit of boots and shoes, for which prizes were awarded him.

Mr. D. Ede exhibits some tombstones, in the lower hall, which are highly finished and very creditable to his establishment.

We omitted noticing yesterday a very handsome sideboard, manufactured here by Bishop & Shelton.

STOCK.

The storm that set in on Wednesday evening kept back a good many entries in stock. There were, however, a few excellent animals. Mr. Jefferson, of Greenwood, had the only herd on view, and he certainly has made a good start. The best stock is generally acknowledged to be kept in the western portion of the Province, but no entries were made from there. Messrs. Robinson and Wilson, of Rockwood, carried off the Skead prize with their fine bull.

The display of horses was limited in number, but excellent in quality.

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door to seize the offender; the result is that he has so far evaded arrest.

At Lee's Creek, seven miles from the foot of Chief's Mountain, and about two miles from the boundary line, some traders sank a prospecting shaft fourteen feet deep, and, without reaching the bed-rock, washed out gold to the amount of three cents to the pan. The "color" is to be found in every stream flowing out of the Rocky Mountains.

A trader named Fred Kanouse some time ago found good prospects in a locality close to the Kootenay Pass into British Columbia, but unfortunately got into a difficulty with the Indians and killed two of them in self-defence. He then found it expedient to take his departure, but is very anxious to return whenever he can do so safely.

The want of postal facilities is a great source of dissatisfaction, and the organization of the Government of the North-West is anxiously looked forward to as affording a prospect of improved arrangements. At the present time letters from Fort McLeod are sent *via* Fort Shaw, in Montana territory, bearing U. S. postage stamps, when, if a post office were established at Fort McLeod, the Canadian Government would receive revenue from the money so expended.

Hellmore.

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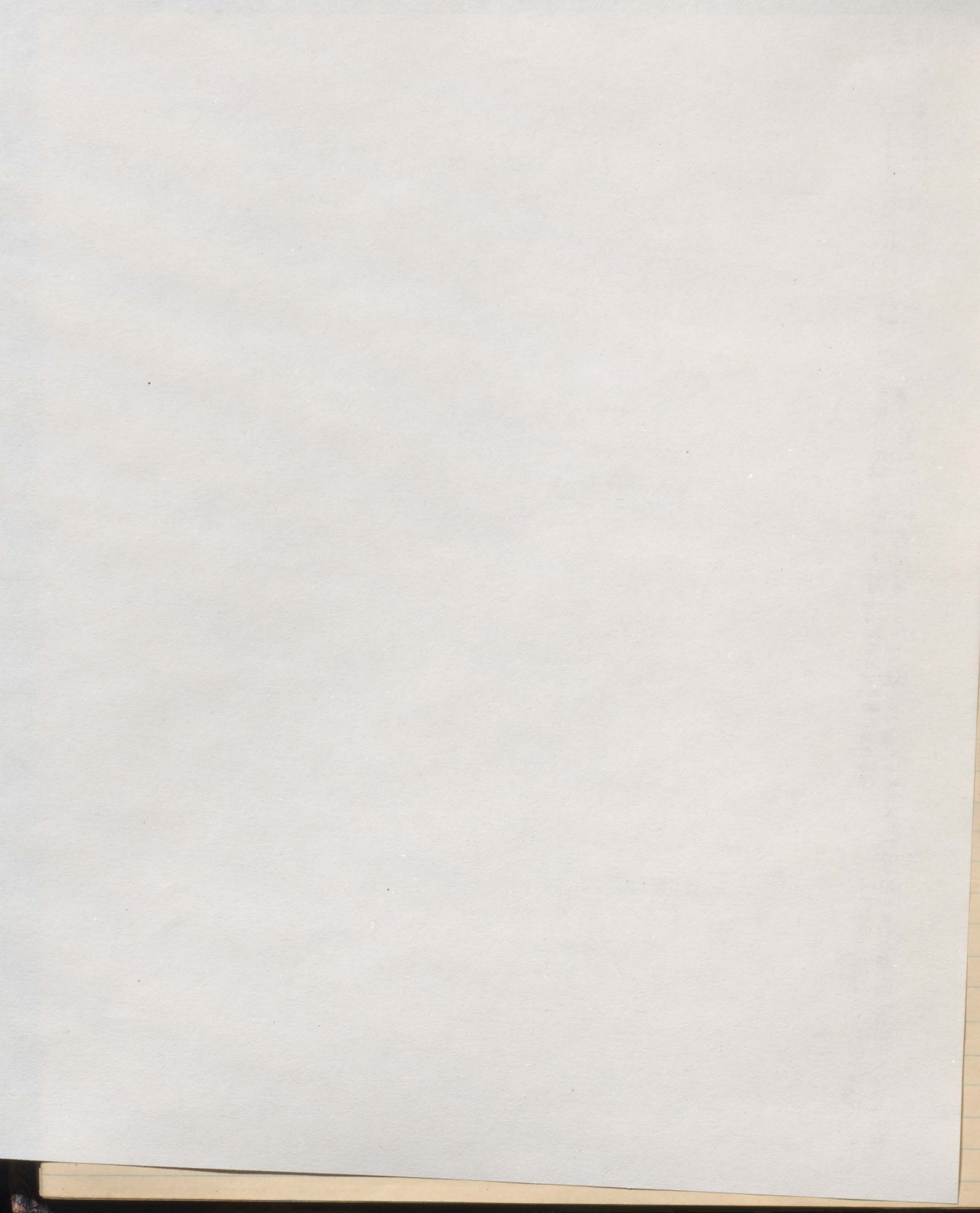
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THE ACADEMY.

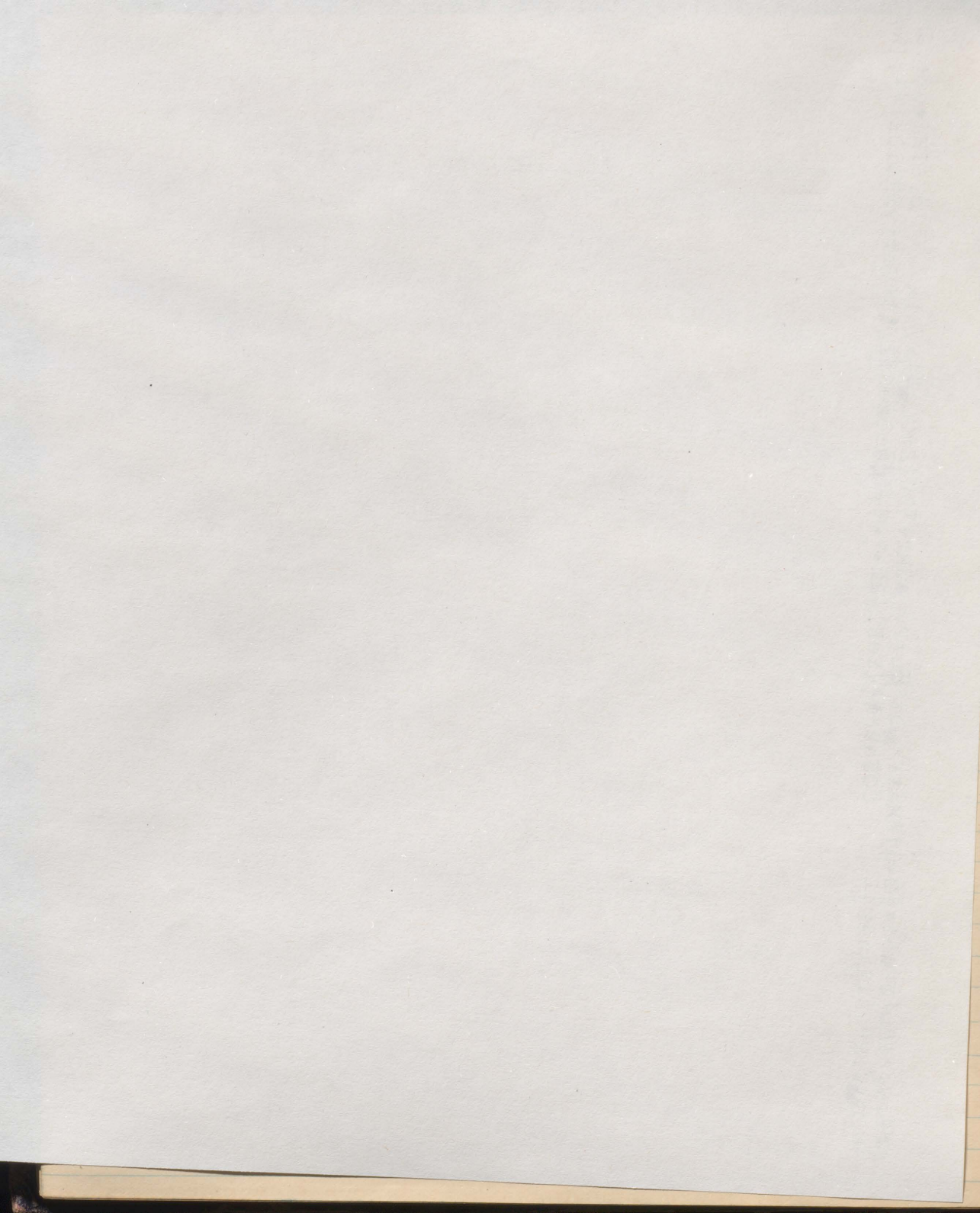
her knee. This is the better work of the two, soft in colour, and mostly very agreeable. Hodgson, *The Armourer's Shop*: another Tunisian specimen by this able painter, carefully and nicely executed. Waterhouse, *Margaret, Scottish Martyr*. This uncommon-looking subject has been painted before; the Scotch girl who, for Cameronianism or some other religious obliquity, was judicially sentenced to be drowned by the flood-tide, and was left, bound to a stake, to perish as the sea rose. Mr. Waterhouse gives us the moment when the tide is just beginning to turn:
 ... had passed the

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THE ACADEMY.

MR. W. H. BALLY, of the Geological Survey of Ireland, has issued another part of his "Figures of Characteristic British Fossils," thus completing the Palaeozoic division of this valuable work. The volume in its present form contains forty-two lithographic plates, comprising 700 figures, while numerous wood-engravings are dispersed through the letter-press. The figures have been selected with much judgment, and a large proportion are original. This collection of engravings will be of great value to all students of our palaeozoic formations.



Medicine.

PREFEZIONE strengthens, enlarges, and develops any part of the body, \$1; Nervous Debility Pills, \$1; Invigorating Pills, \$1; all post-paid. DR. VANHOLM, 161 Court Street, Boston, Mass. 50

SAMARITAN NERVINE, the great Nerve Conqueror, cures Epileptic Fits, Convulsions, Spasms, St. Vitus' Dance and all Nervous Diseases; the only known positive remedy for Epileptic Fits. It has been tested by thousands and has never been known to fail in a single case. Trial package free. Enclose stamp for circulars giving evidence of cures. Address DR. S. A. RICHMOND, Box 741, St. Joseph, Mo. 15-dw

NEPENTHE BITTERS ARE AN excellent herb preparation. Tested and proved a thorough stomachic that will regulate digestion, strengthen the secretive and assimilating organs, and help nature to throw off any poisonous matter that has found its way into the blood. It is therefore a thorough blood cleanser that really will do its work well. Sold everywhere. A. NORMAN, 118 King street west, Toronto, Wholesale and Retail. 63

D'ARVY'S CURATIVE GALVANIC BELTS, Bands and Insoles are made on the most approved scientific principles, and will certainly cure sexual weakness, nervous disorders, rheumatic affections, neuralgia, weak back and joints, indigestion, constipation, liver complaint, consumption and diseases of the kidneys and bladder. All these yield to the mild but powerful application of Electricity. The only Galvanic Belts patented in Canada. Send for circular to A. NORMAN, 118 King street west, Toronto. 63

IRON IN THE BLOOD.



The Peruvian Syrup Vitalizes and Enriches the Blood, Tones up the System, Builds up the Broken-down, Cures Dyspepsia, Debility, Dropsy, Chills, and Fevers, Chronic Diarrhoea, Nervous Affections, Rickets, Humors, Diseases of the Kidneys and Bladder, Female Complaints, &c.

Thousands have been changed by the use of this remedy from weak, sickly, suffering creatures, to strong, healthy, happy men and women, and invalids cannot reasonably hesitate to give it a trial.

CAUTION.—Be sure you get the "PERUVIAN SYRUP" (not Peruvian Bark). Sold by dealers generally.

A 32-page pamphlet, containing a treatise on iron as a medical agent, and other valuable papers, testimonials from distinguished physicians, clergymen and others, will be sent free to any address. **SETH W. FOWLE & SONS**, Proprietors, 86 Harrison Avenue, Boston.

DR. ROBERTS'S CELEBRATED OINTMENT,

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is confidently recommended to the public as an unfailing remedy for wounds of every description; a certain cure for Ulcerated Sore Legs, even of twenty years' standing; Cuts, Burns, Scalds, Bruises, Chilblains, Scorbutic Eruptions and Pimples on the face, Sore and Inflamed Eyes, Sore Heads, Sore Breasts, Piles, Fistula and Cancerous Humors, and is a Specific for those afflicting Eruptions that sometimes follow vaccination. Sold in Pots at 1s 1½d and 2s 9d each.

Dr. Roberts's Pilulæ Antiscrophulæ,

or **ALTERATIVE PILLS**, confirmed by sixty years' experience to be one of the best medicines ever compounded for purifying the blood and assisting nature in her operations. Hence they are useful in Scrophula, Scrophulic Complaints, Glandular Swellings, particularly those of the Neck, &c. They form a mild and superior Family Aperient, which may be taken at all times without confinement or change of diet. Sold in Boxes at 1s 1½d, 2s 9d, 4s 6d, 11s and 22s each.

BY THE PROPRIETORS,
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SCIENCE OF LIFE;

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WRITTEN by the Chief Consulting Physician of the Peabody Medical Institute, author of a Treatise on Diseases of the Throat and Lungs, Physiology of Woman and her Diseases, a Treatise on Nervous and Mental Diseases, late Surgeon U.S.A., etc., etc. It treats upon **MANHOOD**, how lost, how regained and how perpetuated, cause and cure of **Exhausted Vitality, Impotency, Premature Decline in Man, Spermatorrhoea, or Seminal Losses** (nocturnal and diurnal), Nervous and Physical Debility, Hypochondria, Gloomy Forebodings, Mental Depression, Loss of Energy, Haggard Countenance, Confusion of Mind and Loss of Memory, Impure State of the Blood and all diseases arising from the **Errors of Youth**, or the indiscretions or excesses of mature years.

"The Book for young and middle-aged men to read just now, is the Science of Life, or Self Preservation. The author has returned from

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Hon. Mr. LAIRD moved the second reading of a Bill to amend the Dominion Lands Act, which, he explained, was intended to encourage tree-planting in the North-West. In the United States, and especially in Minnesota, they had done a great deal in this direction, and about half a million of acres had been set apart for that purpose. From the reports which had been published on the subject, it appeared that the attempt had been on the whole eminently successful. As to the desirability of doing something in the same way in our own North-West, he quoted from the report of Mr. G. M. Dawson, of the North-West Boundary Survey, and he mentioned that to the suggestions of that gentleman were owing the leading provisions of this measure. There were other provisions in the Bill which would be explained in Committee.

In reply to Sir JOHN A. MACDONALD, Hon. Mr. LAIRD stated that the law was pretty much the same as in Minnesota, but scarcely so exacting.

The second reading was carried, and the Bill referred to Committee of the whole, Mr. Young in the chair. Clauses one and two were carried without discussion. On clause 3,

Dr. SCHULTZ thought these provisions were very unfair to the holders of county warrants to whom the grants had been made without any such conditions as were now proposed.

Mr. SMITH (Selkirk) said if these warrants were in the hands of those to whom they were originally granted, there would be some force in what was said by the hon. member for Lisgar, but unfortunately they were too frequently in the hands of speculators, who held them for speculative purposes, and prevented settlement.

Sir JOHN A. MACDONALD said it was manifestly unjust to any party who had purchased those warrants that their acquired rights should now be interfered with in this way.

Mr. SCOTCHERD agreed with this view of the case, and could not understand upon what principle his hon. friend could propose such an interference with vested rights.

Hon. Mr. LAIRD contended that it was in the interest of the country that there should be some restrictions upon the power of speculators holding these warrants to prevent settlement. If the rule laid down by the Right Hon. member for Kingston were to be strictly applied it would prevent the reservation of lands for railways purposes in the North-West.

Mr. SMITH (Selkirk) urged that there should be some means of preventing speculators from locking up whole townships, which there was a tendency to do, with a view of holding them until settlement around them would make them more valuable, which really interfered very seriously with populating the country.

Dr. SCHULTZ said he had studied the section over very carefully, and he suggested that the hon. member was the more anxious to have it passed because it provided for the exclusion of the Hudson Bay Company's lands, which would be held until they were surrounded by settlements, and thus greatly enhanced in value.

Hon. Mr. MACKENZIE said the clause would be allowed to pass *pro forma*, and the amendment of the hon. member for Lisgar, as well as one suggested privately by the Right hon. gentleman from Kingston, would be considered before the next stage of the Bill was taken.

The fourth and fifth clauses were passed without discussion. On the sixth clause, providing that claims to homestead rights on account of actual settlement must be made to the local office, within three months from the completion of the same,

Dr. SCHULTZ thought the time was too short. The section, after some discussion, was allowed to stand over. On section nine, with respect to settlement by Committees, Mr. SMITH (Selkirk) suggested the addition of the following words:—"Provided that in such community the provisions respecting improvements by cultivation and otherwise shall not be less stringent than those exacted in the case of individual homesteads."

Hon. Mr. MACKENZIE promised that the suggestion would be considered before the next stage.

The remaining clauses of the Bill were passed with little discussion. The Bill was then reported, and the amendments read the second time; the Bill was then read the third time, and passed, an amendment having been added providing that the provision referring to county warrants would refer only to those issued after the passing of the Act.

(To be Continued.)

Mont. Gazette

July 76

A correspondent of the L'Original Advertiser, writing from Minnesota, gives the following vivid account of what he witnessed of the grasshopper plague:—

"I started from Porham and came down through what is called Rush Lake settlement. I had come but three or four miles when I came into the army of grasshoppers. I travelled forty-five miles on Monday, and all the time amongst the most destructive army of pests I ever witnessed, or anyone else, for they were so thick I could with difficulty get my team along, and where they had been only one day and night there was not a bit of grain left. Otter Tail county is nearly all cleaned out. I came down through Clitheral, Nedross, Eagle Lake, Leaf Mountains and Millerville townships, and all the entire way, sixty miles, they were thick. A few miles along by Chippewa village they were not so thick, but down in Ida, Douglas county, the fields are just black with them, and the fences and fence posts are so thick with them that you could not put the point of a pin down for them. One cannot find language to half tell the story. Only seeing will give anyone an idea. A swarm of bees when they are swarming is something like the sight. These are some of the remarks that the farmers make. One of them said to me, "I did think that the machine agents were the worst pest I ever knew or heard of, but I had rather see one hundred machine men all coming for me at once, than have a one thousandth part of a grasshopper." Some men I met going to the railroad with their last load of wheat, but when they saw the "hoppers" coming they turned and went to mill, and others said they could live upon their cattle one year. But, oh! who will buy our cattle with nothing to buy with? In Becker county, when I came down through there, the wheat looked magnificent, and bid fair to yield 25 to 30 bushels per acre, but the heavens were literally full of the pests travelling in that direction, and they have reached there ere this, no doubt. Wheat would have averaged 20 to 25 bushels per acre throughout Otter Tail county had it not been for this pest.

OUTLYING PRAIRIE SETTLEMENTS EAST OF RED RIVER.				
Springfield, 28	30	45	25	300
Prairie Grove & Sunnyvale, 35	50	50	40	350
Cook's Creek, 35	40	50	60	200
Rosseau, 30	40	60	30	300
OUTLYING PRAIRIE SETTLEMENTS NORTH OF ASSINIBOINE RIVER.				
Rockwood, Victoria & Grassmere, 25	55	40	20	250
Greenfield, 30	40	50	30	350
Thompson, 45	70	110	45	500
Woodlands & Meadow Lea, 30	35	50	20	200
Ossawa, 40	25	25	10	140
OUTLYING PRAIRIE SETTLEMENTS SOUTH OF ASSINIBOINE RIVER.				
Pembina Mt., 35	50	30	150	
Boyer River, 38	60	60	300	

REMARKS.

EMERSON.—Later growth here much retarded by heavy rains, and a local hailstorm which battered grain down; about $\frac{1}{2}$ of whole area sown on the fresh soil, and produced 18 to 20 bus. per acre.

WHITENAVEN.—Being a young settlement and crops sown on new ploughed land this average is very satisfactory.

SORATHING RIVER.—Crops mostly on new ploughed land, its average however is about 15 to 18 per acre.

KIDONAN.—Loss of average here owing to rust and mildew; rains very heavy in latter part of season.

S. SR. ANDREW'S.—Wheat light, and all crops shrunken from effect of unusually heavy rains in August.

N. SR. ANDREW'S.—Average below ordinary season. Harvest very wet and trying. Roots will still increase in product.

SR. CLEMENT'S & SR. PETER'S.—Wheat and barley suffered from wet season still average will likely be higher than given.

SR. JAMES.—Great loss here from lodging, samples inferior and somewhat shrunken by extreme wet weather.

HEADQUARTERS.—Barley and wheat will be poor color, but all grain heavy. Root crops will yet be good. Peas a comparatively light crop; very wet season.

POPPIAR PORT.—Grain did not fill as well as usual. The wettest season known since '59; crops too luxuriant in stalk, but grain heavy.

HIGH BUTTE.—All crops suffered in quantity and color from heavy and continued rains.

PORTAGE LA PRAIRIE.—Average higher than given; season wet; roots much damaged.

WOODSIDE.—Loss here from blackbirds.

PARTRIDGE.—Loss of average here by local causes and inferiority of seed.

TORNOX.—All grain, and oats particularly, suffered from blackbirds and lodging by heavy rains.

SPRINGFIELD.—Some injury here by rust from wet harvest, grain very much delayed in ripening.

PRAIRIE GROVE.—Damage by blackbirds and rains.

SUNNYSIDE AND COOK'S CREEK.—Average lessened here by drowning in low lands and wet harvest. Root crop light.

ROCKWOOD, GRASSMERE & VICTORIA.—Crops here not up to usual average; considerable grain lodged.

WOODLANDS & MEADOW LEA.—Average five bushels less than would have been in average season. Seed inferior.

OSOWA.—Most of area sown here newly broken ground, average lessened thereby.

PARKIN MOUNTAIN.—Less returns on account of large area sown on first ploughing but even then good half crops returned.

BOYNE RIVER.—Blackbirds destroyed one-tenth of the crop. Settlers complain of unoccupied homesteads.

It may safely be assumed that but for the special causes mentioned, such as heavy rains, old seed and sowing on new land the returns of the whole Province would have been one-sixth better. We have collected the averages in divisions of areas separated by the great rivers which have respectively formed the nucleus of settlement and of whose rich valleys this city is the natural marketing centre, as follows:

AVERAGE PRODUCT PER ACRE.

SETTLEMENTS ON RED RIVER.—Wheat 32 bushels, barley 42, oats 44 $\frac{1}{2}$, peas 27 $\frac{3}{4}$, potatoes 182, turnips 400.

SETTLEMENTS ON THE ASSINIBOINE RIVER.—Wheat 33 $\frac{1}{2}$ bushels, barley 40 $\frac{3}{4}$, oats 53 $\frac{1}{2}$, peas 29 $\frac{1}{2}$, potatoes 150, turnips 750.

SETTLEMENTS ON WHITE MUD RIVER.—Wheat 35 bushels, barley 40, oats 60, peas 31 $\frac{1}{4}$, potatoes 287 $\frac{1}{2}$, turnips 1,000.

SETTLEMENTS EAST OF RED RIVER.—Wheat 29 $\frac{1}{2}$, barley 40, oats 51 $\frac{1}{4}$, peas 32, potatoes 387, turnips 700.

SETTLEMENTS NORTH OF ASSINIBOINE.—Wheat 30, barley 39, oats 41, peas 23 $\frac{1}{2}$, potatoes 253, turnips 700.

SETTLEMENTS SOUTH OF ASSINIBOINE.—Wheat 36 $\frac{1}{2}$ bushels, barley 60, oats 55, peas 25, potatoes, 225, turnips 600.

THE TOTAL AVERAGE PRODUCTION throughout the whole Province of Manitoba this year, will therefore be found to be, as nearly as may be: Wheat 32 $\frac{1}{2}$ bushels, barley 42 $\frac{1}{2}$, oats 51, peas 32, potatoes 229, turnips 662 $\frac{1}{2}$.

This is a much less total than was expected in the early part of the season, still greater than was latterly looked for it being feared that the continual rains during the usual term of harvest would have utterly destroyed the crops in many sections.

The figures cited above, together with others in our possession, would indicate to be about: Wheat, 480,000 bushels; barley, 173,000; oats, 380,000; peas 45,000; other grains, 5,000; potatoes, 460,000; turnips and other roots, 700,000.

It has been feared by some that the effect of the bountiful yield will be the reduction of prices below a paying point. However, while prices are sure to range much lower than they have for many years past, we think that next spring, when the immigration which is sure to pour in begins, will demonstrate that those who have sold their wheat at much below one dollar a bushel are considerably out. Estimates, based upon importation statistics, place the Provincial and North-West Territorial consumption of flour for the next year at ninety thousand barrels, an equivalent of 360,000 bushels of wheat. This would leave only 120,000 bushels for seed and holding over—plainly insufficient. However, we are disposed to believe that the flour consumption has been slightly overestimated; but not so much so, as to leave any considerable surplus of wheat after the next twelve months' requirements

The Manitoba Fire Press.

SATURDAY, SEPT. 16, 1876.

THE CROP OF 1876.

It was our intention to have presented full reports of the crop prospects throughout the Province about the middle of August, but many causes have contributed to prevent our doing so until after the harvest, and they may now be discussed in the full light of the process of threshing and obtaining the first exact returns, which we hope our friends will be good enough to furnish for publication. In the meantime we wish to express our thanks to the various gentlemen who kindly took so much pains, often at great loss of time, in collecting the necessary data for this summary.

It will be seen by these returns, gathered simultaneously in thirty-four different settlements by intelligent farmers, who in some cases spent days in inspection before summing up their conclusions, that the famous average of Manitoba's growth has been somewhat lessened by various causes, some local and some general, but mostly peculiar to this year. The unusually heavy rains of the late season have done their share, especially on low lands selected last year—an average season; whereas this has been the wettest known since 1869. Another cause by which the average has suffered materially is the sowing on a first ploughing, as done often by new settlers rather than await the slow process of rotting the sod; the half crop grown is, however, better than none at all, and will go far towards provisioning those settlers' families for the winter. The loss by the depredations of blackbirds in some neighborhoods suggests an enquiry into a means for their destruction. Another cause strongly felt in some places is from old and deteriorated seed, it being remarked that where new seed was used the difference was easily perceptible.

These returns are interesting also, as showing the remarkable evenness of the productive quality of the land and its capacity for producing what would be considered most surprising returns elsewhere under such special disadvantages as ruled this season. We have great cause to thank the Almighty Giver of every good that just now when our commercial interests are so heavily pressed by isolation that another year's loss of crops might have blotted our future for the next decade, and our specially burdensome hills of reserved lands and unsettled titles combine to check immigration and prevent development, our land should be so signally blessed by abundant crops, while throughout the continent the contrary result has been so general. Just now when it seems so distinctly marked that the middle and eastern States and Ontario are becoming less reliable for agriculture, the endless virgin lands of our North-West are becoming known as specially productive wheat fields, and may be offered to their people for settlement on condition, only, of building railroads to reach them by.

AVERAGE PRODUCT PER ACRE.

SETTLEMENTS ON RED RIVER.

Wheat, Barley, Oats, Peas, Potatoes, Turnips.	25	40	50	25	200
Emerson, Whitehaven, Plum Creek, Scratching River, Union Point, St. Vital & St. Norbert, Kidoman, St. Andrew's, N. St. Andrew's, St. Clement's, St. Peter's,	35	40	50	35	200
SETTLEMENTS ON THE ASSINIBOINE RIVER.	30	40	50	30	250
St. James, St. Charles, Headingly, S. F. Xavier, Bale St Paul, Poplar Point, High Butte, Portage la Prairie,	30	40	50	22	200

SETTLEMENTS ON WHITE MUD RIVER.

Totogon, Woodside, Westbourne, Palestine,	35	45	50	35	400
	35	60	60	30	1000
	40	60	40	150	
	55	40	25	200	

are supplied. The flour manufacturing capacity of the Province has been increased by twenty run of stone.

Of the coarse grains the supply will be greater in proportion to the demand, and prices thereof may be expected to range low. But even these we confidently expect to see fairly remunerative, as a large quantity will be consumed in fattening meat for our own market which hitherto has been supplied, almost entirely, by importation, not for the want of stock so much as the want of grain to bring the same to fair slaughtering condition.

Thus, taking everything into account, it is really doubtful, had we shipping facilities, whether they would be called into requisition for grain exportation even with this year's production on our hands.

Immigration being bound to keep pace with our increasing grain growing, it may be reasonably deduced that long before we have a surplus for exportation eastward we shall be in possession of competing routes of transportation in the Canadian Pacific Railway to Thunder Bay, and the American railway system. Neither is it going too far in the hopeful direction to conjecture that when we have a surplus to export an abundant and high priced market will be available in the wants of more southern provinces and states for new and hardier seed. A very high authority on the subject has predicted that for the first ten years of our surplus production it will be exported for seed purposes, and at the expiration of that time the North-West will be known all over the continent as its principal granary for the supply of breadstuffs. In view of the general feeling of joy and congratulation we think it would be well to proclaim a day of thanks giving and prayer throughout the Province for the grand results of an abundant harvest.

N.B.—Persons desirous of copies of the above article for transmission to friends beyond the Province, will get the same gratis by applying at the Free Press office, either personally or by mail.

ribes or whiskey battles between the dit traders and their victims. Mr. McDougall has been known to go single-handed and alone into a whiskey trader's camp, armed only with his patent as a magistrate of the Dominion, and spill their Indian poison on the ground passing out through a crowd of strong men cowed before the quiet dignity of a noble man doing his duty at the risk of life.

Numbers of our citizens sojourning for a time on the Saskatchewan, and travellers across the continent can testify to his ever ready hospitality and care for the stranger, whether foot sore and weary or wrapped in the full appliances for travelling, which abundance of ready money may usually obtain anywhere. Mr. McDougall did not belong to the class of men who take the name of missionary without much of the danger and inconvenience usually attendant upon its duties.

His ardent evangelic nature seemed never satisfied unless when upon the very frontier of civilization; and though frequently overtaken by all the accessories of comfort and ease he was ever reaching out to new fields, passing successfully from Garden River to Superior, to Norway House, to Victoria, to Edmonton, and, finally, to Morleyville on Bow River, near which he met his unfortunate death. The events of the disastrous visitation of small-pox among the Indians in 1869-70 displayed Mr. McDougall's heroic qualities in bold relief. During that dark and dreary time when nearly every Indian tribe and family were afflicted he and his family were unwearied in their attendance upon the sick, and numberless times buried the dead with their own hands. In this noble devotion to a duty which they might have escaped two of his daughters fell a sacrifice. His recent services to the Dominion have been fitly referred to by the Premier, in Parliament; but something beyond that seems desirable in recognition of his life-long devotion to civilization and Christianity.

Following is the letter of Col. Smith:—
March 31st, 1876.

DEAR MR. YOUNG:—With deep regret I observed in the FREE PRESS of this day that you have received confirmation to the report of the death of the Rev. G. McDougall.

Although my acquaintance with him was but casual, and that I do not chance to belong to the same religious connection, I cannot refrain from expressing to you my deep regret for the loss we have all sustained in the unexpected deprivation to Christian civilization.

I am sure you will understand that I address these few lines to you with no intrusive purpose, but as this is at present the centre of our young North-West civilization, I earnestly trust some movement may be set on foot under your auspices for a testimonial of some sort to which I may be enabled to contribute my mite.

I write in haste as I am called away in connection with the frontier embroglio.

Believe me faithfully,

W. OSBORNE SMITH.

THE SILVER CURE.

One of the results of the depression of the intrinsic value of silver coin is that the older provinces are again becoming flooded with American silver coin; and the newspapers and business men are discussing what is best to be done to get over the difficulty. It gets circulation mainly by produce dealers buying silver at a discount and paying it to farmers at par. It has been suggested that legislation is required. The *Globe* speaking hereupon sensibly scouts the notion that a remedy can be obtained in this way. It says the men who take the depreciated coin at its par value "calculate on getting a little more nominally if they are paid in silver, and then they look to getting what they want in the store as cheap-

RED RIVER IMPROVEMENT.

To the Editor of the Free Press.

The appropriation of \$10,000 for the improvement of the Red River of the North, proposed by the Commerce Committee of the House of Representatives at Washington, is a surprise to the most sanguine friend of that measure. It is extremely difficult to get a new item into the River and Harbor Bill—the total amount of appropriation not being large, and the enterprises numerous which press for recognition; and in this year of all others, when the whole drift is to reduce expenditures, the exception in favor of Red River, affords a striking proof of the attention now drawn to the trade with Manitoba and Central British America, and of the efficiency of the Minnesota delegation in Congress.

No member, however influential, can secure an appropriation for a river or harbor without a severe preliminary probation. The first struggle is to obtain a reference to the United States Engineer's office—a bureau of the War Department. Then follows a close scrutiny by an army officer, independent in position and with a scientific reputation to sustain; and only when a favorable report is made will the Committee on Commerce look again at the measure. Even then a recommendation by the committee requires to be seconded by a great and persistent effort. Although for ten years, the Legislatures and Boards of Trade of Minnesota and Dakota, have urged the improvement of the Red River of the North, it was only in 1874, that, on reference to the Engineers office and a careful survey of the stream between Moorhead and Pembina, the report of Col. F. U. Farguhar in its support, was secured and published, and two years have elapsed before any affirmative action thereon by the House Committee on Commerce.

I am of the impression that Col. Farguhar's report has been reprinted or fully abstracted in the Free Press, but a few of its statistical statements will warrant reproduction.—The average fall of the river from Moorhead to Pembina is seven-tenths of a foot per mile. From Moorhead to the head of Goose Rapids the fall is half a foot per mile; the length of the main rapids is 4,900 feet with a fall of 4 to 5 feet, and from the foot of the rapids to Pembina, the average fall does not exceed three-tenths of a foot per mile.—The rainfall in the Red River Valley has been observed twelve years at Fort Abercrombie, 15.42 inches; 5 years at Fort Wadsworth, 18.95; and three years at Fort Pembina, 13.16 inches.—The difference of level between high and low water marks at Pembina is 45 feet, at Moorhead about 36 feet.

Col. Farguhar presented a three-fold proposition; first, to remove snags and boulders from the channel, and overhanging and fallen trees from the banks, with temporary wingdams at Goose Rapids, which will probably absorb the appropriation of \$10,000; secondly, to dredge the bars, involving the removal of 63,887 cubic yards, at a cost of \$32,380; and thirdly, to overcome the fall at Goose Rapids by dams and a lock of 50 by 150 feet, with a lift of 6 feet, requiring an expenditure of \$185,000.

It is quite likely that the Steamboat Company would assume the construction of the wing or temporary dams at Goose Rapids, for the purpose of making the appropriation as effective as possible in removing snags, trees and boulders, and dredging the most troublesome bars. Capt. Alex. Griggs is an adept in this sort of construction, having already applied his experience in the Minnesota River to the management by wingdams of the current at Goose Rapids.

Col. Farguhar's survey terminated at Frog Point, 22 miles by the course of the river below (north of) the Goose Rapids; but he will doubtless be detailed to continue the survey to the northern boundary of the United States.

In conclusion, I would request the publication by the Canadian Railway Survey, or other competent authority, of any facts bearing on the regimen of the Red River, its width, depth, current, &c., from the international boundary to Lake Winnipeg, and beg leave to express the hope that when Col. Farguhar shall have completed the survey from Fergus Falls or Breckenridge to Pembina, that a similar report may be at hand of the remaining course of the Red River of the North.

Winnipeg, April 11th.

J. W. TAYLOR.

The Temperance Concert.

The Maple Leaf Lodge of Good Templars held a successful concert Tuesday night in Temperance Hall. The room was well filled, and good order and good feeling prevailed during the entire meeting. A portion of the programme was omitted, owing to the unavoidable absence of several performers, but on the other hand two songs and a speech, good style, Thomas Nixon Esq., occupied the chair and opened the proceedings with a few pointed remarks, which were loudly applauded. The Good Templars opening ode, "Friends of Temperance," was then sung by the company, and was followed by a recitation, The Natural Bridge," by J. Duncan. Then came a song, "Memories Dear," by the congregation, "The Seventeenth

passed, and the Council, and officers appeared. Messrs. John A. McRea and John H. Bell.

Mr. John J. McRea, collector elect, offered as his sureties, Messrs. John A. McRea and Adam McBeath.

On motion of Thos. Anderson, seconded by John Flett, the sureties were accepted by the Council.

The bonds of the treasurer and collector respectively were then signed, also the declaration required by the Municipalities Act.

Mr. John Flett reported that he had seen Thos. H. Smith, and he thought a ferry road could be obtained from Mr. Smith on the west side of the river, and there would be no difficulty of getting a ferry road on the east side.

Wm. Matheson reported that he had seen Angus Matheson, the present proprietor of the ferry, and after seeing parties he had failed to obtain a road on the west side, opposite the present ferry, and he therefore could not run the ferry this year as a public ferry.

Mr. Anderson reported that lower down he had seen John A. McRea, who would give a ferry road on the east side, but he was not prepared to report respecting the west side.

Wm. Matheson gave notice that at the next meeting of the Council he would introduce a by-law relating to pounds, and pound-keepers and fence viewers.

John Flett gave notice that at the next meeting of the Council he would introduce a by-law relating to dogs.

It was agreed that the Council sit as a Court of Revision of the assessment roll on Saturday, 20th May, at 2 p. m.

Moved by Thos. Anderson, seconded by John Flett, that Wm. Matheson and John where and at what cost a ferry road can be procured, also what person if any can be obtained to take out a license and run the ferry when the road is procured, said committee to report at a special meeting of Council to be held at John Matheson's on Thursday the 13th inst.—Carried.

Thos. Anderson gave notice that at the next meeting of Council he would introduce a by-law relating to certain animals running at large.

By-law No. 7 was then passed appointing John J. McRea collector of taxes for the municipality.

By-law No. 8, appointing Adam McBeath treasurer for the municipality, was also passed.

By-law No. 9, defining the duties of collector, was next introduced and passed.

The principal provisions of this by-law are, that the collector complete his duties, set- tle his accounts, and return the roll to the treasurer by the 15th December, or on such other day as the Council may direct. He is also to keep a book in which he is to record, 1st, name of party making payment; 2nd, the lot or other property on which payment is made; 2nd, the amount; 4th, the date; 5th, the number of the receipt. The last clause provides "that he shall give receipts by him, and preserve the stubb of the receipt, on which he shall note all the facts contained in the receipt.

By-law No. 10 was next passed. This by-law divides the municipality into three road divisions as follows:

Division No. 1.—From the south boundary of the municipality to the north line of John Matheson's (councillor's) lot on the west side of the river, and the north line of John H. Bells' lot on the east side of the river.

The Pacific Railway Progress.

From the Globe.

In a speech which all who heard it admitted to be a wonderfully clear and succinct exposition of a most difficult subject, the Premier last evening described the progress made, and the policy of the Government, so far as it can be determined upon, in connection with the construction of the Canadian Pacific Railway.

Noticing in the first instance the difficulties which stared the Government in the face in their assumption of office, he referred to the Herculean task of surveying the several routes it had been necessary to examine in order satisfactorily to locate the line through British Columbia, and fix upon the western terminus. The total cost of Pacific surveys has been spent west of the Rocky Mountains. From the first the Jasper House Pass in the Rocky Mountains has been looked upon as the one that would certainly be adopted. From that point the most natural course would have been to seek the waters of the Pacific at New Westminster, by the way of the Fraser River, or else to have sought Bute Inlet *via* Clear Water River and the Big Bend of the Fraser. But the course of the line traversed on the last named survey was arrested by mountains 9,000 feet in height, formidable for their glacia and other difficulties. The New Westminster route would be more favorable, but the enormous cost of tunnelling and rock excavations would have made the penditure so great as to virtually preclude its adoption. From Tete Janna Cache to Fort George, at the bend of the Fraser, some 200 miles, the route for so rugged a country is singularly favorable. From that point several routes present themselves; one *via* Stewart River and Stewart Lake, to the Upper Branch of Gardner Inlet, would be the shortest road probably for the trade of the East. The gradients, however, would be very heavy, and this line may therefore be regarded as still under examination. Another route by which, *via* Kamsgnot Lake, the south branch of the Gardner Inlet would be reached may also be considered as open to further consideration. A third by way of Black Water River to the north branch of Dean Channel is being very carefully explored, and presents some favorable features. The route by the Homahon Canyon to Bute Inlet has often been referred to. On this the most favorable grade would be one of 115 feet to the mile for fifteen or sixteen miles, with a large amount of tunnelling and excavation in the face of rocks rising precipitously from the river. The route *via* the Kamsgnot River is a few miles shorter, and has grades not exceeding 104 feet to the mile, with a rest of three-quarters of a mile in length in the middle. The summit level is reached at a distance of 70 miles, and is 3,460 feet above the sea. Between that point and the Stewart River the line is favorable. From the lowest level of Stewart River to Fort George is 2,860 feet, and the highest 3,750. Some 50 miles would be saved by adopting Dean Channel as the terminus as compared with Bute Inlet, while the line, if carried to Bute Inlet, would strike the middle of Vancouver Island. The Dean Channel route traverses a country very sparsely settled, and one hundred miles north of Vancouver. This is, of course, an important element in the question of location. The foregoing applies solely to the progress of surveys in British Columbia, and on the assumption that the Jasper House Pass would be the one in any case adopted

\$5,000 further.

The survey is completed from Selkirk to Livingstone, 266 miles, and the route is virtually determined upon from Livingstone to the Saskatchewan, which it will strike at White Mud River, some 15 or 20 miles south of Fort Edmonton. The entire distance for which the telegraph is constructed is 720 miles.

It may then be assumed that from Fort William to Fort George, at the bend of the Fraser, the route of the Canadian Pacific is practically settled, the distance between these points being 1,730 miles. From Fort George to Bute Inlet the distance is about 300 miles.

The question may be raised, is it practicable? Why, yes; because such works have been done with decided success in different parts of the world. But would it not be such an expensive undertaking that it would be impossible for the people and Government to undertake the work at present? No; because nature has done the principal part of the work. The shape of the valley is oblong; one end abuts on the Fraser, the other at the 49th parallel, about 15 miles in length. The sides are already dyked by a chain of mountains on each side so the work of dyking is confined to the end touching the Fraser, a distance of about five miles. At least half of this distance is already dyked by what is known as Chilliwack mountain, about two miles long, and Miller's mountain, half a mile in length, leaving a balance not exceeding two and a half miles to dyke. What would be the probable expense? I firmly believe that the total loss estimated at Sumas this season from the water (\$30,000) would meet half the expense of building a substantial dyke, and what would be the result from such a dyke? It would utilize thousands of acres of prairie land for the raising of all kinds of crops which are now almost a waste from the annual overflow of the Fraser, thus creating labor and homes for hundreds of people, and would retain in the Province thousands of dollars which now go out to a foreign country for the commonest staple articles of life consumed in the country, thus draining it so heavily that it is bound to be kept in a state of poverty. I claim that public works of this nature are reproductive, and if the late Government when expending such large sums of public money had grasped the idea of reclaiming the overflowed lands on the Fraser, they would to-day see that money reproducing itself in fields of grain and immigrants coming to our shores.

The immigration policy of the present Government is drawing nearer the desired purpose by the appointment of agents at New Westminster and Victoria, instead of, as it used to be, at London and San Francisco. Now, the duty of these agents will be to secure all the immigrants that come to British Columbia. What better inducement could an agent give than by telling a settler that the Government had some prairie lands dyked and perfectly secured from water at \$5 or \$10 an acre, where they could go and raise a crop as soon as it was fenced? Such land at the price would go at once. What better proof as to the practicability of dyking Sumas than the fact that the landowners are almost unanimous in favor of cooperating with the Government in this work—willing to bear their portion of the expense. Provided that sufficient time be given by paying annual instalments, they will pay both principal and interest in ten years.

The first step to be taken in this scheme would be for the Government to employ a practical engineer, and if there is none in the country import one from the United States or Europe, and test the nature of the ground and suggest or draw up a plan and scheme for the dyke, and also give the probable expense. Then the people and Government would have a basis to work upon. I trust and hope that the Government will see its way clear to move in this matter soon, for there are other places similar to Sumas to be reclaimed and must be. There are Matsqui Prairie, Pitt River Meadow, and the Delta of the Fraser.

SUMAS FARMER.

Sumas, B.C., July 10, 1876.

The Turko-Serbian War.

From the conflicting and somewhat uncertain character of numerous dispatches received since the commencement of the Turko-Serbian war it has been almost impossible to form a correct idea as to the probabilities of success of either party or to estimate the relative strength of the belligerents. The following article taken from the *Toronto Globe*, however, gives a very general and, as near may be, accurate statement of facts concerning the war which but a short time since threatened to involve the great European powers:—

At the present moment the exact military strength of Turkey as compared with that of her revolted provinces becomes a question not only of great interest but also of great importance, as largely determining what the final issue of the struggle will be. It is impossible either to reconcile the conflicting accounts which have been published or to furnish anything like an accurate estimate, but in all probability the following figures will be found not very far from the truth. The total active force or standing army numbers over 200,000 men. Of these 32,000 have been engaged in trying to put down the insurrection in Herzegovina and Bosnia, while 48,500 have been stationed as an army of observation on the Servian frontier. The garrison at the capital is composed of 20,000 troops. There are 30,000 scattered through Albania, Bulgaria and Epirus; 7,000 in Crete, 17,000 in Syria, 20,000 in Kurdistan and on the Russian frontier, and 8,000 dispersed in isolated garrisons. There are 30,000 Kurdistan and Syrian troops not yet called out, and 35,000 reserve soldiers who have just been called to active service. It seems surprising that with all these forces at its control the Porte should have had any difficulty in suppressing what any well conducted government would have regarded as a petty insurrection; but it should be borne in mind that the disaffection among the Christians was general, and the above distribution of the forces shows that the rulers were aware of the fact.

The Porte was, moreover, seriously embarrassed for want of money, its own suicidal policy of repudiation having effectually destroyed its credit in the only quarters from which the necessary funds could be expected to come at its call. Nor has this embarrassment ceased; it may, on the contrary, be expected to grow more aggravated, and to have an important share in determining on whose banners victory will finally perch. Want of funds may embarrass the insurgents as well as the Turks; but they have already been supplied liberally with both money and munitions of war, and if there is likelihood of their proving victorious more assistance of the same kind will doubtless be forthcoming when need arises.

the maintenance of the policy of non-intervention was impossible, in view of the massacres and bloodshed now occurring. All the powers except Russia had declared Roumania's demands unreasonable.

The Slavistic Committee in Moscow has issued an address solemnly promising a general uprising in Russia and armed intervention, if the Servians are defeated.

LONDON, 24.—The *Daily News'* Belgrade special, dated the 22nd, says the Austrian Consul-General on Friday ordered some Austro-Sclavonian volunteers, who had landed here, to return to Austria. Upon their refusal, a discussion followed; the Consul seized a Servian General. The citizens warned him to desist if he wished to depart in safety. The Consul has proceeded to Semlin.

PARIS, July 24.—The *Gaulois* says Schauloff, Russian Ambassador to Great Britain, insists upon being recalled, as his position in London is intolerable.

LONDON, July 24.—The *Telegraph's* Berlin special says:—"I am informed Serbia has solicited Germany to reconcile Russian and Austrian views in the negotiations that must ensue should further reverses compel Serbia to sue for armistice, so that Turkish demands may be modified and the integrity of the Servian territory preserved."

The *Standard's* Vienna despatch, dated Monday evening, says:—"It is rumored that Tchernayeff, in an interview with Prince Milan, mentioned the advisability of an armistice."

The *Standard's* Alexandria despatch says that 1,000 troops started for Salonica on Sunday, and 1,200 on Monday.

ENGLAND.

LONDON, July 21.—The mysterious death of Mr. Bravo, barrister, continues to occupy public attention. The *Manchester Guardian's* London correspondent says:—"There is an extraordinary report gaining currency that Government has thought it expedient to apply for the exhumation of the body of the late Capt. Ricardo. The remains are in the

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THE BANE AND ITS ANTIDOTE.

Though Manitoba is now happily free from the grasshopper plague and may look forward with some confidence to immunity from the scourge in future, we cannot withhold our sympathy from the settlers in certain parts of Minnesota who are in less happy circumstances. While the farmers of this Province can rejoice this year in overflowing granaries, the contents of which will find a home market at remunerative prices, they will doubtless take some interest in the troubles of agriculturists in the State to the south of us, albeit the scene of disaster is some hundreds of miles from our own more favored land.

We are not inclined, as a rule, to place much confidence in the reports which reach the newspapers from independent sources on a subject like this, as they are far too frequently of an alarmist and exaggerated character. We have now, however, an official account before us which affords trustworthy data respecting the extent and locality of the disaster in the State of Minnesota. About a fortnight since, Governor Pillsbury commissioned the Hon. D. Bassett, of St. Paul, to traverse the devastated territory, to ascertain and report the facts. Mr. Bassett went out on the Sioux City road, and first saw grasshoppers in considerable numbers at St. Peters, but no great damage seemed to have been done, until Watonwan county was reached. Leaving the railroad at St. James, Mr. Bassett procured a team and thoroughly traversed the counties of Watonwan, Cottonwood, Brown, Renville, Redwood, Yellow Medicine, Chippewa, Stevens, Kandiyohi, Wilkin, Otter Tail, and Swift. He finds that in all of the above and so far as he could learn, in the counties south and west of them to the Iowa and Dakota lines, that at least one half the crops are destroyed. Owing to the drought which prevailed during the early part of the season the yield would have been comparatively light, and with the grasshopper plague added he is of the opinion that eight to ten bushels of wheat per acre is the utmost that will be realized, upon an average, throughout the entire region above referred to. Most of the farmers are comfortably provided with stock of various kinds, but many of them were obliged last spring to either sell their stock or mortgage it to procure seed and the means of maintaining their families until harvest time, only to find themselves with no crop to harvest. The wheat harvest is substantially finished (though the grain is not yet stacked) and what there is of it is in good condition. Mr. Bassett's observations extended through a strip of territory about two hundred miles in length and one hundred miles in breadth in Minnesota, and the extent of damage beyond the Iowa and Dakota lines must also be considerable. Through all this territory the hoppers have deposited their eggs, giving the farmers every reason to fear a renewal of the plague another season, unless they should hatch this fall, and freeze to death. On the line of the Sioux City road, Watonwan county has suffered most severely, and on the line of the St. Paul & Pacific, Kandiyohi county is the greatest sufferer.

It will be admitted that the above account is disheartening enough for the people of Minnesota, who might well become discouraged as they, year after year, witness the destruction of their crops. There is, however, a bright as well as a dark side to the picture, and in the same issue of the St. Paul *Pioneer-Press*, in which we meet with the information condensed above, we come upon the following account of the triumphant progress of a new-found destroyer of the settlers' fell enemy:—

A remedy is at hand in the shape of an egg-eating bug, which is surely and certainly destroying all the eggs laid by the grasshoppers this year, thus ensuring Minnesota an exemption from the ravages of this voracious and destructive insect next year. This bug is of a deep red color, about the size of a flea, or rather a louse, resembling the latter also in its shape and movements. Ex-Governor Stephen Miller has forwarded to President Drake, of the St. Paul & Sioux City road, a box full of earth which originally contained grasshopper eggs, but which had been transformed by these parasites into a quantity of loose soil, mingled with the remnants of discolored egg shells, with a multitude of the fat little red bugs prancing around on the surface apparently in pursuit of something more to eat. Now, as to the

utility and complete success of these bugs as destroyers of the grasshopper eggs there would seem to be no doubt in the minds of those who have given the subject a general examination, as well as of those who have personally inspected their mode of operation and the places where they have already utterly destroyed the eggs laid by the hoppers a few weeks ago.

SOME PROOF ON THIS POINT.

is furnished in the letter of Governor Miller alluded to above, dated on Wednesday, and written at Windom. Governor Miller says: "Last evening when we reached Worthington from Lake Shetek, there was quite an excitement in Worthington, owing to the fact that the citizens were generally convinced that a red parasite was destroying the grasshopper eggs. I examined the matter carefully myself, and became convinced that the destruction of the eggs in that immediate vicinity was well assured; but I determined not to write you and excite any hope until a further and more complete examination could be had. We therefore furnished our Bohemian friends with a bottle of eggs, and their pests, and the commission left in high spirits. We postponed further investigation until this morning, when I left and prosecuted the examination with vigor. The farmers in the vicinity knew nothing of these signs of deliverance until the visitors from Worthington reached them, and I feel safe in saying to you that in a circle of ten miles from Worthington there will scarcely be an egg left by to-morrow night. I send you a bottle herewith containing the cones and the parasites. We could scarcely find a cone, or sack, except as they were indicated by the parasite on the surface; and each cone which was not entirely destroyed had from five to fifty red laborers at work upon the eggs. We found scores of cells with no eggs left except the shells. As soon as the bug finishes one cone it starts upon an expedition for more worlds to conquer, and in instinctively finds and conquers the new world. I, of course, informed our station agents and others at Hersey and Heron Lake of this discovery, and they also promised to make a thorough investigation, as I will do here, and the matter will be reported forthwith. If the matter is general, deliverance is near. * * * I stopped for fifteen minutes one and a half miles west of Wilder, where Section Foreman Smith took me to that portion of his farm where eggs were deposited. We could find none by general digging, but wherever we found, as we frequently did, the red parasite on the surface, we found the cone beneath, with the parasite at work consuming the eggs. * * *

I am aware that two years ago this parasite was found working upon the eggs at Madelia and other places, but here we have the remedy almost as soon as the eggs are laid, while in the former instances the parasite was only discovered in the spring."

Since the letter from which the foregoing is an extract was written, Governor Miller has received a despatch from a gentleman at Heron Lake, in which the latter says: "I find that parties were in town this morning, talking about the red insect which is effectually destroying the grasshopper eggs. They were found three miles east of here, and also four miles southwest, and all engaged in eating the eggs. I will at once have further examinations made in other directions, and report to-morrow."

WHAT SHOULD BE DONE NEXT.

The gentlemen interested in the St. Paul and Sioux City, the Winona and St. Peter, Southern Minnesota and St. Paul & Pacific railroads should, and, no doubt will, take prompt measures to have this important matter thoroughly and properly investigated and the facts made known to the public without delay. There can scarcely be a doubt that an antidote for the grasshopper pest has at last been furnished by nature, and the fact that there is no likelihood of any extended damage from the grasshoppers next year should be widely circulated. In addition to this collection of information on the operations of the parasite, every man owning an acre of unbroken land should at once strike out boldly and plough for a crop next season. The damage inflicted by the grasshoppers during the present and previous years can by this means be measurably repaired next year. Certainly the signs are hopeful that Minnesota will at last be relieved of one misfortune that has afflicted it for several years, not alone in the destruction of a portion of its valuable crops, but also in the uncertainty and demoralization which have attended the annual visitation of the infernal grasshoppers. For this blessing let us all give thanks.

THE MERCHANT SHIPPING BILL, RESPECTING WHICH SO MUCH INTEREST HAS BEEN TAKEN IN CANADA, WAS FINALLY PASSED BY THE IMPERIAL PARLIAMENT TO THE SATISFACTION OF CANADIANS.

The Commons carried one important amendment against the Lords. Having accomplished the end for which he was specially sent by the Dominion Government, Mr. Smith, Deputy Minister of Marine, sailed for Canada on the 17th ult. The Hon. Edward Blake, whose assistance had doubtless been given to Mr. Smith in accomplishing his task, was to sail on the 24th.

LOCAL AND PROVINCIAL.

The river is rising up above.

A TEACHER is wanted for the Point Douglas school.

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DAVID EDE,
Dealer in American & Italian Marble.
Keeps constantly on hand and furnishes to order on the shortest notice all kinds of marble work, such as Monuments, Tomb Tables, Head Stones, Counter and Table Tops, Mantels in marble, and Marbleized Slate.
Also, Scotch Granite Monuments imported to order.

New Shop, one door east of new Post Office
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WINNIPEG.

R. GERRIE & CO.,

Importers and Jobbers

OF

STAPLE DRY GOODS,

Main, cor. Post Office St.

Gold and Silver Watches.

FINE

Gold Brooches

Ear Rings

Locketts

Ladies' and Gents' Gold Chains

Gold Pens and Pencils

Gold Solitaires and Shirt Studs

Also a large stock of fine Goldfine Goods.

SPECTACLES

To suit all ages and sights.

Watches, Clocks, & Jewellery

Accurately repaired and Warranted.

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Main, opp. Notre Dame Street.

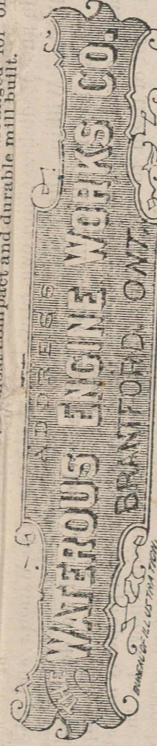
193



PORTABLE GRIST MILLS

One, Two or Three Runs—with or without power,
30, 32, 36 and 42 inch stones set in Portable Husk Frame.

Furnished with bolt, reel and chest, smut machine, elevators, conveyor, etc., all made and put together in a workmanlike manner, equal to any of our best mills, numbered, taken apart, boxed ready for shipment. We furnish full plans with these mills, numbered, they will turn out flour equal to best custom mills. Can be arranged for one or two floors, and in either way make the most compact and durable mill built.



Dick & Banning, Agents, Winnipeg.

185-237

SPRING, 1876.

NEW GOODS.

P. R. Young has now received and opened out a very fine stock of

DRY GOODS,

among which are some very cheap

Prints and Cottons.

Men and Boys' Ready-made Clothing.

A magnificent stock of

**Boots and Shoes, Groceries, and Grockery, with
fine lot of Preserve Jars.**

Altogether comprising one of the best assortment to select from in the country, and we will sell for cash at a great reduction from former prices.

St. Andrew's North, June 18, 1876.

P. R. YOUNG.

182-195



The 20-Horse Power Patent Portable Sawmill.

Which took first **MEDAL** and **DIPLOMA** over English, French and American competition at the World's Fair, Santiago, Chili, S.A., 1875, cutting out of logs refused by the others, 1060 feet inch lumber in 40 minutes, edging it with large saw in same time.

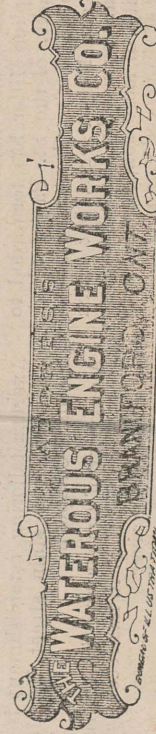
Read the following:

Waterous Engine Works Co.:

Gent—Your millwright, Mr. John Welsh, has started our 20 h. p. mill, and everything works very satisfactory, having sawn 1233 feet inch lumber in the space of thirty minutes.

W. L. DICK, Inspector, of Simcoe, Proprietor.
References in Manitoba:—Dick & Banning, Winnipeg; 30 h. p. mill; Macaulay & Jarvis, Westbourne, 20 h. p. mill and portable grist mill; Hogan, 25 h. p. mill; C. P. Brown, ment mill, Battle River, 20 h. p. mill; Kenny & Luxton, FREE PRESS, 5 h. p.; W. R. Chambers, Winnipeg, 5 h. p.

LYNDOCK, Ontario, May 17, 1876.



Dick & Banning, Agents, Winnipeg.

185-237

OPENING OF RIVERS.

A well-informed correspondent, who has paid considerable attention to this matter, gives his views in the following letter, which will be found well worth perusal;

To the Editor of the Free Press.

To some of those who are now so anxiously looking forward to the opening of navigation it may not prove uninteresting to read an account of some observations which I have been enabled to make during the past few years on the breaking up of our rivers in spring. My opportunities have made me acquainted with the mode in which the ice disappears on the Winnipeg, the Broken-head and Red Rivers. They all flow into Lake Winnipeg, but the nature of the country which each drains is quite dissimilar. This to some extent varies the conditions under which the ice disappears in each. The Red River, though having its sources in the lake and timber country of north-eastern Minnesota, flows for the most part through a vast plain destitute of timber, except along the banks of the river. The banks have, consequently, an almost uniform altitude. One would imagine that a stream making its way through a level country, where no rocks nor timber obstruct its course, would do so in almost straight direction. The reverse we know is the case with the Red River. Its course is of the most sinuous kind. Its many bends have much effect upon the disappearance of the winter's ice. The depth to which the ice forms on the Red River is from 2 to 3 feet—the average being about 2 feet 6 inches in an average winter. The shores of the river are in many places composed of soft mud. The water and mud both freeze, and from the shore out to deeper water the depth of ice is greater than the average, being frozen to the mud under forming a solid mass with the mud underneath. In the spring, after the snow begins to thaw, or after a fall of rain, this portion of the river is always flooded, the reason being that, unlike the ice over the flowing water, this is prevented from rising. It is always the last to rise or to move, and it may be seen some time after the main body of ice has been in motion rising to the surface in large masses and black with mud. This is what is called ground ice; it is, however, not always confined to the shore, but may sometimes be found formed and adhering to the ground under the flowing water. The conditions under which it forms in that position are not easily determined; but it is quite probable that ground ice of this kind may tend to choke up the outlet for the surface ice as it rolls along with the current. The first portion of the river in which the ice shows signs of decay, is where the current is most rapid, or where eddies are formed by bends or obstructions in the channel. After a good many of these openings are made the ice moves in a mass. At Winnipeg, no movement takes place until the water first rises from the result of thaws or rains; and the final movement depends upon the pressure of the downward mass of ice. Partial movements take place which leave open spaces, but these are entirely local, and do not extend beyond the first bend of the river. When the full pressure of the ice coming down is felt, every available spot is covered with ice more or less broken, and often impelled in large cakes upon the shore with slow but immense power. The movement of the ice is seldom rapid, the channel being so much occupied. By this time the water has gradually risen, until it is on a level with the second or lower bank of the river. For a great many years it has not risen over this bank. While the ice is in motion a roar not loud but very determined is produced by the grinding and crushing of the ice. Some miles to the north of Winnipeg, when the current is swift, this roar is much louder and is heard at a distance of a mile or two, and before the ice is seen and while it is beyond the next bend, one feels an inclination of stepping back a pace or two to let it pass. The ice before moving is well advanced in dissolution, and as the decay seems to be produced in a perpendicular direction to the water the ice is said to be "honeycombed" or to be in "candles." It is somewhat singular that dung which is usually productive of warmth should have a contrary result on ice. Wherever on the river holes for watering cattle have been dug, the ice surrounding these is the last to decay, and when other ice is pounded into fragments large floes covered with dung may be seen flowing intact for long distances. The principal points of interest in connection with this subject to the people of this Province are the time when navigation may be expected and whether floods may take place. With respect to the first of these all sorts of theories are advanced. The breaking up of the river is said to depend upon the time at which winter set in; or the severity of the winter; or the depth of the snow; upon the spring rains, and I have met with some who believe in the direct agency of the moon in the matter. A much wiser and safer conclusion is that it depends on the weather; but I would confine the period during which the weather affects the opening to the month preceding that event. The fall snow, the intensity of cold during winter, nor the time at which winter set in, I believe have nothing whatever to do with the opening of the river. Two years ago March the winter was severe, but upon the 17th of March we had heavy rain continuing for sixteen hours with a raw east wind, but the river was open only on the 1st or 2nd of May. Last year we had very mild weather on the 29th of March, and a heavy thaw, but the river was not open until the 29th of April. This year we have had no thaw to compare with those I have mentioned, and yet the belief is general that the river will open early. A week or ten days of cold, cloudy weather in April will do more to retard the breaking up than an unusually cold winter. It has to be remembered that the ice once formed to a thickness of two or three feet it will continue intact if you but leave it at a temperature of 32, and it is at that temperature nearly every night in April. The destructive process has therefore to take place during the day, and upon whether the winds are northerly, and more particularly upon whether the sky is cloudy, will depend the time taken to destroy the ice. I therefore hold that if any one can predict the weather for April, he may be safe in predicting a day at which navigation will open. With respect to the second point of interest—whether we are to be subjected to flood or not—it will no doubt appear strange to most of your readers to be told that the great floods of which they have heard so much, have never been occasioned by the breaking of the river or the ice at all, and they did not occur for four or five weeks afterwards. Floods spreading over the prairie have taken place in Minnesota and caused by the

ice jamming in the river on this side of the line, the water from that cause is never higher than the upper bank. The local movements of ice begin five or six days before the last shove or clearance occurs. At Winnipeg, last year, there were partial movements of ice about the 24th, and the river was clear during the night of the 29th of April. The water continues rising until the final "shove" takes place. During the twenty-four hours preceding the final shove this rise is very rapid. This is occasioned chiefly by the ice becoming jammed at some of the bends below where the rise takes place. The moving ice attempts to force a passage underneath the still stationary ice, and it may be heard groaning and roaring as it rolls and tumbles underneath. The large blocks continue their progress under the other ice in a series of somersaults, but they sometimes fail to find room in which to turn, and are brought to a standstill, and so a jam is formed and the channel through which the water escapes is almost blocked up. From this point upward the water will rise, and continue rising until the jam gives way. In some places where the current is rapid a jam thus formed will raise the water ten feet in as many minutes. At some places on the river lime-kilns are built at a point considered to be beyond high water; but a local jam of this kind will raise the water so unexpectedly that the kilns are inundated, and the lime slaked for that season. When this occurs a beautiful cloud of steam is seen to issue from the top of the kiln. The distance which the last departing ice travels in a day varies at different points on the river. From Upper to Lower Fort Garry is a distance of thirty miles by water, and it takes at least one day to travel this distance. It is somewhat singular that of all the immense body of ice which forms and which ultimately flows on the river none reaches Lake Winnipeg. Much of it is thrown on the banks, but the continued friction which goes down and the contact with the open water causes a rapid dissolution, notwithstanding the ice is very powerful when first in motion, and no vessel can withstand its pressure with safety, at least on this side of the line. I have now, I think, shown that a flood is not to be apprehended from the outgoing of the ice, except in quite a local and circumscribed way; and it is not likely to last more than a few hours. The floods of which history and tradition make mention have to be traced to other sources. The water falls rapidly after the last ice disappears, and gets down almost at once to a depth of about seven feet over low water level. From this point it goes down more slowly until the end of May, at which time its further course is stayed by rains. Upon the continuance and extent of these rains it appears to me depend the occurrence of floods. To some extent the nature of the winter in Minnesota and Dakota may affect the lakes, swamps and marches by not allowing the rains to become absorbed by reason of surface frosts, and hence cause their overflow into the Red River and its tributaries; but an acquaintance with that region and its climate would be necessary before coming to any conclusion on this point. The Brokenhead River is a much smaller stream than the Red River, and flows altogether through a timbered country, although without rocks or gravel. The banks are not high, nor is there any irregularity on their surface. The ice on this river does not shove or move. It remains until it dissolves utterly. No fragment of it is seen to float. It first decays in the middle of the stream and disappears towards the shore. There is little if any current in the river, the sun and air alone act on the ice, but so slowly and steadily that no movement of the ice is occasioned. I have reason to believe that the outlet of this stream gets frozen up during the winter and that no water escapes, at least during the latter months of winter. The depth of water on the bar at the open water is but four feet, and with a feeble current the ice might freeze to the bottom. During March the water of the river changes color, becoming of a reddish tinge. The taste and smell become bad. This may be caused by stagnation. There are, however, at every water immense quantities of dead fish—like minnows—from which this discoloration and bad taste might arise; although it may be more probable that the fish have been killed in consequence of the stagnation of the water. The water in summer is clear, and of a light brown color. The Winnipeg River is in marked contrast to the Red River. The latter after flowing through hundreds of miles of level prairie is almost lost in a delta formed from its own deposits. No less than three well defined channels (the largest of which on its bar has only seven feet of water) lead it into the lake, while innumerable smaller and more devious creeks conduct its waters also in the same direction. The Winnipeg River runs a shorter course, but in a much grander fashion. With a volume of water ten times greater than that of the Red River, and borne from a wooded and rocky region, and having as reservoirs the Lake of the Woods and Kainy Lake, it flows down, now with gentle and untruffled surface, expanding its bosom, until lakelets are formed and anon confined between granite walls topped by a rush of thunder over precipices, it again falls below, finds greater freedom and becomes again smooth and quiet. The shores on its estuary are high and well defined. For some miles its course may be traced through the bay which has its outer boundary at Elk Island. The channel here, as everywhere in its course, is deep, although on each side it is lined with rocks, the heads of some of which are visible, but most of them are under water, although, in many cases, only a few feet; it is then dangerous in sailing to leave the course as rocks may best one on every hand. Of course, at the falls the river never freezes—some distance above and some distance below remaining open all winter. This is the case, too, at many of the swifter currents. In the wider reaches of the river the ice remains much longer than on the Red River, there being no current to waste it nor rise of water to displace it. The rise of water on this river is not perceptible when the ice goes away nor is there any indication of high water until the middle or end of June. The large lakes toward the outward flow and the numerous smaller lakes formed by the river itself give so much space that the effects of spring thaws or summer rains are but very indifferently felt. There is no general movement of ice from one end of the river to the other. Between each rapid or fall the ice moves sometimes in an unbroken mass of a hundred acres. As it approaches the rapids it gets jammed between the shores and breaks up, but this process takes some time, and a large mass may be seen hanging over

the falls from one side to the other for two days before finally working its way over. Before the next fall is reached the ice is dissolved. Consequently, no ice flows into the lake. In the fall on account of its depth and of the wide bays the Winnipeg is slow in freezing, being about ten days later than the Red River, and, as such, is of some value as a harbor of refuge in case of being caught on the lake after the other rivers freeze. Four days after the closing of the Red River, and when an entrance there was hopeless, I have sailed into the Winnipeg. It must be remembered that the lake does not freeze for a fortnight or three weeks after the Red River is frozen. The water on the Winnipeg overflows the ice to a height of six or nine inches and in many places renders traveling disagreeable. This is caused by the weight of snow and the pressure of winds. In other places the ice is unsafe, being worn to a thin crust underneath by eddies. There are some few such spots on the Red River which become dangerous only in spring and it is at these places that accidents occur. The water of the Winnipeg is brown and clear and remains cool all summer.

March 29th, 1876. M.

by the imposition of duties on wool and other agricultural products, and argued that whenever we could buy any article more cheaply than we could raise it, our interest was consulted by its importation.

Mr. Patterson recognized in the policy of the Government a willingness, if any adjustment of the tariff were necessary, to regulate it in the interests of the manufacturers, but, when no addition to taxation was necessary, he was not disposed to condemn the Government for not making any financial changes. He showed the insincerity of the Opposition in attempting, after voting the other day for protection to the manufacturers only, to now tack on the agriculturists merely to catch votes.

Mr. McDonald (Cape Breton) advocated a duty on coal.

Mr. Carmichael pointed out that the mining interests, shipping interests, and fishing interests were all ignored in the resolution. If protective duties were to be inflicted why were these great industries ignored? But protective duties would destroy the shipping interests. The thanks of the House were due to the Government for having adopted a truly national and not a sectional policy. The debate was adjourned to be the first order of the day on Wednesday.

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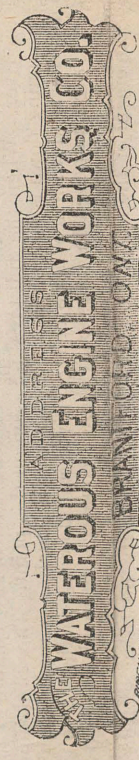
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