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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

1943-5

Memorandum

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18

E. LUCY BRAUN

2702 MAY ST

CINCINNATI

OHIO

1943-5

- July 31. L'Anse to Copper Harbor
Aug. 1 Copper Harbor
" 2 " to Ontonagon
" 3 Porcupine Mts; Lake
of the Clouds
" 4. Ontonagon to Black
River park
Rainbow Falls trail
" 5. Black River rd, &
all the Fall trails
" 6. West of Black River rd
" 7. Presque Isle

GRAND

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July 31

Head of Keeweenaw Bay cut off by beach ridge, is bog (much water) with Larix & Thuja & bog plants.

Sand plains (narrow) near Baraga - pine, red, jack, & some white.

Up hill onto higher area (moraine?) onto hardening much conifer where not suitable for hardening.

Appr. Portage Lake, great areas of marsh lands where there is much black ash elm, apparently more than Larix & Thuja. Y. water lilies, called Pickerel used many aquatic & sedges & grasses in great quantities.

Moravul ridge feet
No. of Russell - large
red oak with maple
Dako cont. to Houghton
nothing from Houghton
to past Bearsavage (mines)
(but would be hardwood)

Then when trees start
again, much red oak,
Fr. s. maple, red maple
Alder spruce, Birch,
Amelanchier, alder,
Thuja

Descend toward
foot of trap ridge
just south of Phoenix
Local dominance of
conifers correlated with
unusual habitats -

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much white pine, spruce
& some fir & hemlock on
descent & much spruce
(bl. & wh.) & white pine &
Thuja on low strip.

Trap cliffs largely
bare but with scattered
conifer veg.

Come thru trap ridge
& hardwood again with
white pine, just Eagle
River

Brockway Mt. -

1735 ft above Lake Superior
41337 ft elev.

Stumps a ft in diam
show that there once were
trees although now it
is treeless except for
shrubby red oak, dwarf
cherry

Aug 2.

Copper Harbor to Houghton
- Ontonagon

On U.S. 41, near
Copper Harbor - steeper
rocky or wet areas are
conifer. such slopes
are spruce (wh), wh pine
& in some places, Thuja
w. a scattering of small
S.M. & some red oak.

Large wh. pine stumps
Sloping areas of deeper
soil are S. maple, y. birch
& a strong admixture of
wh. pine & wh. spruce,
(no hemlock seen)

Some of the hilltops
prevalently hardwood
(S.M. & y. birch w. some
red oak). Where little
soil, conifer.

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Lower slopes & flats
or depressions go into spruce
wh pine (or wh pine - spruce)
here some black spruce
also. In & some Thuja
In wetter parts - bl
spruce, Thuja & Larix.

Admixture of red oak
in all hardwoods notice-
able.

Just S. of Phoenix (&
S. of where 28 temp. leaves
as "Cliff doesn't drive") a
large amount of red
oak with S. & red maple
& Tilia.

Thuja maple area
w. a few big elms &
big wh pine

Houghton - turn
off on M26

Go up long hill,
& into maple woods
(spruce) with Tilia
red oak, & in places
yellow birch & a few
hemlock (none seen
north of here) on K. pen.

Above this level
another ridge rises
(~~the trap ridge~~); it
is a moraine or series
of moraine ridges (at
Tremountain). Good
S. maple, Tilia, Y. birch,
& red oak.

S. maple ||||| ||||| ||||| |||||
||||| ||

Tilia (seen just before,
but repr. here)

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red oak ||||

Y birch |||| ||||

hemlock ||||

Red maple
sample

Soil on road cut (west) is
dark for a ft down. Then
red brown

Underneath - S. maple
Tilia, red oak

- | | |
|----------------|--------------|
| Osor Clay | Clematis |
| Aster mead. | Asp. sp. |
| Aspl. sp. | Clematis |
| Arched fern | Tremula |
| Phyopt. narrow | Prunella sp. |
| Streptopus | Melittella |
| Maianth | Coptis |

continues around
Painesville & on
Fairly steeply rolling
topography.

But see no red oak
White pine (very large)
scattered; & grouped
w. hemlock on a steep
& rocky spot.

Spruce & Thuja
in one low spot
Big red maple w.
y. birch in another

This, beyond Painesville
is an *exposed*, excellent
forest of the maple-
birch type, w. scattered
Oak, pine, elm,
Tilia, hemlock

& mostly smalls, maple
w. some red m., birch

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red oak, wh ash, & Tilia
elm

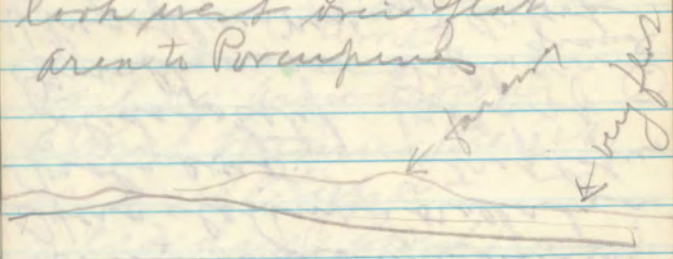
— thru birch-hemlock
This finally goes ^{up} ~~down~~
down & beyond Mesary
Bay rd) to a bl. spruce
bog with Larix & some
wh pine - of many
shrubs - Ledum,
pubesc. vac., Chamad.,
Kalmia
much Sphagnum
Cranberry, Sarracenia
Hebe, Andromeda
little Smilacina,
Common grass - bog - w.
3 leaflets, Hieracium
Chrysothamnus among spruce
Cyperus arund.
Ranunculus w. 3 valves &
speaking to the base of
herb leaf; Listera.

This is bordered by
 hemlock slayer
 slope woods of
 hemlock, y. Birch,
 white pine; fir in
 understory. hemlock, ^{triple} birch,
 with Cornus can.,
 Clintonia, &
 Epipactis, the little no
 nemophila, macaroth
 cypripedium, little green Herb
 (near Twin Lakes, Houghton Co)
 & then up into
 mixture w. maple

This hardwood forest
 type cont, all the
 way to the trap ridge
 near to Mass.

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On the ridge (as far as
 north) much conifer
 mass to Rockland -
 badly cut all over.
 Entering Rockland,
 come over trap ridge &
 look west over flat
 area to Porcupine



Several miles of
 good farm land.
 All a hardwood
 area

Aug 3.

Trail to Lake of the Owl
Concupine Mt

Asp. open	Chenopodium
Acerum can	Hepatica
Artemisia rac	grass (a) 133
" ^{mede}	Adiantum 37
Urtica sp	Arenaria
Heracleum	Conoclinium
Viola sp.	Streptopus
Solidago latif	Viola sp
Osmorhiza, am	Trill. com 3
Phegopteris narra	+ dryop ^{grand}
Aster macro	Galeum sp
Actaea alba	" ^{com}
Adiantum	Saxifraga
Aspl. ff	Aster sp
Botrychium	
Viola rotundifolia	(7)
petioles pub	or pallens

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Acer spic	Lonicera can
Acer sacch	Sierrella
Filix	Ribes cyn
Ylirich	Cornus altern
Rubus parv	Sorbus
Yh ash	Corylus
	Cornus cerc
	Amel

Soil is gray-brown,
& what remains there is,
is mud type

Secondary forest (young)
of spruce, birch, maple
& maple, Filix, yllirich
red oak, etc etc

occ. small hemlock & fir

Conopholis americana pedock

Exposed summits
above Lake of the Cloud
are rocky

Cliff face w. red &
wh pine

grassy top - Shepherdia
Ceanothus - glabrescens
Rosa - long hips
Amel

Arctostaphylos

Salidago sp

Artemisia

Cerastium or ulm

Antennaria near ?

Comandra

Lechea sp

Potentilla trid

Selaginella rep

Dulichonema sp

Convolvulus, erect &
very pub.

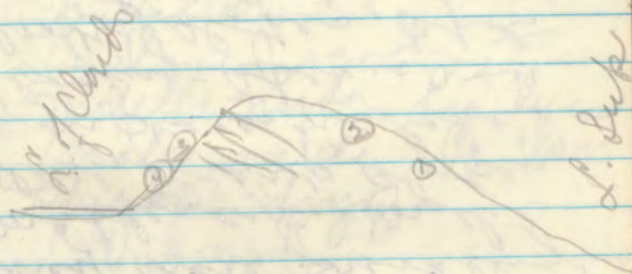
Cheilanthes on rocks

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Campanula rot

Although summit
veg. now is of shrubs
& stunted trees -
there are burnt stumps
14 in dbh

Structure -



The rock gray ref is
① gray with green crystal
inlc.

② plain, dark

③ gray dom. - red ss

② There were very large trees - wh pine nearly 4 ft d.

General -
all slopes logged
They were predominantly maple etc. on the steep & sharp slopes & in places in lake (boggy - spruce) & on the slopes, spots are hemlock

Along highway.

Hemlock woods: -

Hemlock

Thuja - scattered, but big

?? a few wh pine stumps
occ. of birch (smaller)
occ. of maple (smaller)
occ. of ^{red} " than hemlock
" spruce

with Rubus parvif. layer

Cornus can. Lonicera can.

Slyft

Mitchella

Smilacina rac.

Mitella nuda Pyrola

Aralia nudica To. clav

Phacelia dryas

Chamaenerion

Pyrola, green

Urtica grand

apart of my path & under me

Then a hemlock area

with very little undergrowth

round-leaved orchid, study

(too many deer?) bedding

around

Aug. 4.

Ontonogagon to
Black River Park

On 64 north to
Bergland - go thru
great dominantly
hardwood, with
consid. Tilia, & some
wh. ash. S. maple dom.
Hemlock not as abund.
ant as in yesterday's
count.

Go up over the
high ridge which
we crossed at Rockland
in way to Ontonogagon

• all this hilly land
is maple-based wood
w. y. birch & hemlock,

except in some low
places with hemlock &
wh. pine & spruce or
spruce, or ~~barney~~
Thuja in any.

Intersection of 64 &
M 25 - just west.

Quarry face shows
hill material (spms
of pink (pyrite)
dark bands, gray &
green.

Some of the hills
crossed were moraine
at least of material
exposed in cuts.

Although soil layer
(as exposed in quarry
face) is not deep the
woods on hill above
is maple-based wood.

Approaching Wakefield
 a rd. to north, & to south
 intersects M28:—

Sample strip along
 highway (M28), &
 is maple-basswood
 + hemlock & y. birch

S maple					
			30		
Y. birch			50		
hemlock					
wh ash					
elm					

Ostrya underg. with
 all above

Judging from what
 is on Black River rd

the above may not
 be entirely primary—
 but is very repr. higher
Black River rd.

~~Ill. Lake~~
 from Bessemer north
 to Lake Superior

Rainbow Falls trail
at park entrance
Black River

Hemlock-y. larch-spruce
on forest above
Peak level.

Clintonia	Beer spec
Sheepfoot	red raspb
Trentia	Lower Canadian
Juniperus	trifl. Pubescens
Asp. spum	Samb. pulch
Dryopteris	+ A's 32
Phlyop. dryopt	& near
Pedicularis	Big
Cornus canad	'
Oxalis mont	
Viola pollen	
Arctia nuda	
Maschke	
Mitchella	
Aster macro	
Arisaema	tr. - <u>white str.</u>

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Lyc. annot. obsc, luc
Polygonatum ~~sa~~
Actaea alba

Gorge of Black River
is Hemlock, y. larch,
& maple + wh' pine
Looking across river,
west-facing slope is a
magnificent stand of wh.
pine, br. occ., spruce
with smaller hemlock
& Thuja. Almost no
decid trees, except on
more open lower slope
where some small wh.
& y. larch

East facing, dom.
big hemlock, fir some
very big wh' pine +
occ y. larch; some small
smaller.

Hemlocks of every size, so would be impossible to count canopy

Undergrowth as listed; It

Epipactis, little

Juncus Smilacina

Little Pyrola Sorbus

Circularifera

Chamaenerion Aralia rac.

Aquilegia

Moneses

Open, eye, near waterfall
w. occ. mossy banks

Direction of dip of
red ss also a factor -
oblique dip slopes west
slope; oblige to scarp
east slope.

The wh. pine (bluffs)

disappear up out of
the hemlock

Taxus, on slope in
falls

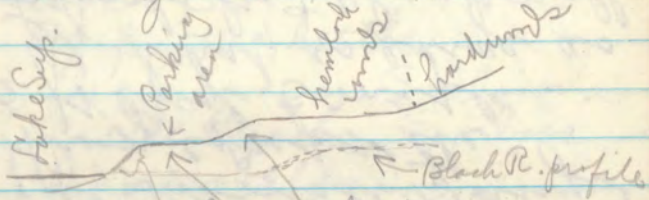
Back onto flat, returning
on trail toward rd.
Aspect is hemlock
woods, w. hemlock of
all sizes above about
4 in. No (or few) small
& few small of any
thing except the
3 ft high maple.

A. which as large as
hemlock & also smaller

Dec. large maple
This is probably where slope

(Check - this may ^{start}
be the same beach
level as Conway large
hemlocks

The location of these hemlock woods, & its sudden and sharp inland boundary, suggest a possible correlation with glacial lake levels.



The hemlock woods yesterday was not on a flat place.

~~Between~~ hemlock
not so high

Aug. 5.

On Black River road - ①
A hemlock-y. birch
area, S. of Chippewa Hill

hemlock		
y. birch		
s. maple		
red maple		
Tilia		
elm		
ash		

"Wheat was ripe here in 1847"

A second growth area of maple-basswood & some of birch; ^{white} ash
 Tilia 10 in dbh & one maple a little smaller appears to be sprout forest with seedling maple ash good herb. veg. ^{off by}

Asph. ff	Allium tree
Adiantum	Galium sp
Trellium grand	Osmorhiza
Viola creb	Ribes cyn
Aralia nudic	Caruloph
Peyrola, big	all hummily new plowed not rump taken out
Solidago lat	
Mitchella	
Botrych veg	
Ranunculus, not hep	

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② Sample area, ^{not roadside strip} more or less paralling rd, where rd. has come over slight rise & is starting down a long hill southward. Area then slopes in general northward but very gently. Ground hummily uneven. Humus is of mull type, & in places so well incorporated that no leaf litter remains on ground. Soil dark brown

Trail to Great Calf
Falls.

S. Maple - with some
Tilia & a few y birch

Urtica sessil Corylus
Osmorhiza Sundbucum
Clintonia
Aralia nud
Asp. spin
Trentia
Trollius
Actaea

This slope goes
down to a hemlock-
y birch flattened area;
then down slope thru
maple area & lower
into another hemlock-
y birch - s maple
(podsol) soil sandy

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River gorge at falls
slopes w. Thuja
w/ pines hemlock
y birch, as at Rainbow
falls, but not as un-
disturbed

Gaultheria
Chimaphila uncl
Epigaea
Luzula
Mitchella
Clintonia
Epipactis little
Oralis mont

Gorge falls trail: -

Urtica grand y. holes
Trollius grand Clintonia
Urtica sessil Shrub
Ginger Asp. spin
Arisaema tre gl. macul
Osmorhiza sm + h
Aster macul

Spruce	###	###	###	###	###	###	###	###
y larch	###	###	###	###	###	###	###	###
hemlock	###	###	###	###	###	###	###	###
Thuja								
Lilia	###						###	
elm								

Cercosa alp Pur spic
 Cauloph American
 Polyginta
 Stalacia

One of these y larch tree
 is 10 ft circ dbh

The above patches mixed type alternates
 w. patches prevailing by hemlock
 (omitted in count) in wetter areas

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At the "Sandstone Falls"
 there is poison ivy on rocks
 + bearberry + Cornus cin-
 cinata.

- Falls - Great Cgl. Falls
- Gorge Falls
- Sandstone Falls
- Rainbow Falls
- (listed from upstream
 down)

Rise from Lake Sup. to
 pink area of park abrupt
 & about 10 ft. The longer
 abrupt rise to hemlock
 flat which Rainbow
 of all trail crosses

Aug 6

mixed woods w. hemlock
④ nearby opp. cabin.

hemlock ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~ |||

y birch ~~||||~~ ~~||||~~ ~~||||~~ ~~||||~~

s maple ~~||||~~ ~~||||~~ |

2nd layer:

hemlock ~~||||~~ ~~||||~~ |||

y birch |||

s maple ||

Filix 1

fir ||

Thuja 1

Thuja 1

Aspen Acer spec

Asplacod Rubus parv.

Arisaema Ranuncula can

Streptopus

Polygon. narrow + dry

Piper. obsc; luc

Arabis mont

aralia nud

Trollius und

Clintonia

Mitella

Adiantum

Actaea alba

Trenulales

Cer. nes alp

Marianth

Epipactis n. pul

Umbelaria grand

Aug 7,

Presque Isle ①

maple flat, in lake
but high above it, 100ft^{or}
s maple ||||| ||||| ||||| ||||| |||||

y. birch |||

hemlock ||

2nd Layer

S maple ||||| ||||| ||||| ||||| |||||

hemlock ||

y birch |||

Thuja ||

Ostrya |

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Undergrowth -
dense 3ft maple

Acer spec.
rh ash, Filipia

Asp. spec

Aralia nud.

Acer spec. *Tricentate*

Lyc. luc. *Arcaea*

Rubus parv. *Dryopsis*

Rubescyn. *Berberid*

Panicum can. *Triticum*

Strept. spec.
(poor herb. layer)

Where parishes cut
this, in way to lake
forest is hemlock hard
with the maple common
just at edge

Flat with wettest
spot, w. *Dem. cinn.*
but no interrupt. to maple

This goes off westward
 into a wetter flat
 with large elm, y. birch
 + hemlock, + middle size Thuja
 w. Rubus, trill
 Carex spp
 with more life due to wet
 + w. Oxalis mont., maranta
 ostrich fern
 Cornus can
 Phegopt dry
 Clethra

& then into hemlock birch
 These all intergrade at
 margins, & here are all
 in a small area + maple

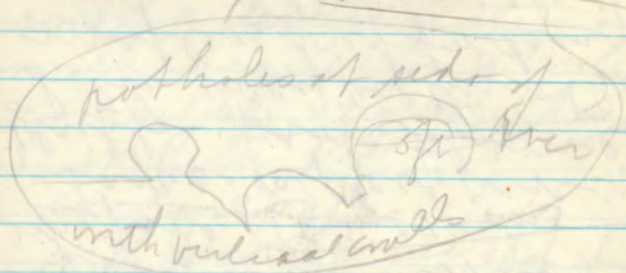
② This mixed area not
 quite so close to lake-
 blubb, ∴ not so well drained

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2. maple		
hemlock		
y birch		
ash, wh		
elm		
Thuja		

Bluffs are Thuja +
 hemlock.
 Presque Isle is red +
 wh. pine (fruit to trees)
 Taxus on steep pine
 bluffs - prob. ~~the~~ would
 have been all there the
 maples, but for deer
 Rim slopes (very steep)
 hemlock, Thuja + y birch

with Taxus, Pinus



Chim. umbr.

Where not quite so tall
forest is hemlock-y birch
as at Rainbow Falls

Opposite slope (west)
is hemlock - white pine
or in places white
pine (on steeper parts)
as at Rainbow Falls
(Falls in stratified
dark massive
slaty rock)

Forest along top of

river bluffs is hemlock-

y. birch

Soil profile no.
~~upper part of~~ about
half way up (along
near cut where trap
steps being built)

— 2 in black hemlock
duff

— 5 in light brown
fine sandy & silty

— 19 in dark reddish
brown

— slight band

— not quite so dark

near upper part of slope
 but on a ridge (tham)

moss
 - black duff { 2 1/2
 - gray w. darkish tinge
 - 4 in depth
 - 8 in depth
 grayish brown in the
 the tinge
 - - - - 8 in. depth

red w
 pebbles

- at 13 in depth
 } not quite so
 } red

These profiles on
 hemlock-birch slope

run of

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③ Slightly dissected -
 & not very far in from rim of

maple	###	###	###	###	###	###	###	###
hemlock	###	###			###			
y birch	###	###	###	###	###			
Thuja					###			
fern					1			

Further along - hemlock-y birch
 under sound of big falls

(4) Follow stakes N from
end of rd -

S maple						
hemlock						
y birch						
wh ash						
Thuja						
Lilia						
red maple						

Asp. spec	Acer sacral
Aspl. acrost	Lonicera lan
Trentalis	Acer sp
Phegopt. nana	Aralia nud
Micaunt	Picea luc
Viola pallens	Shepherdia
Arisaema	wh ash
Delphinium	Clintonia
Delphinium	Corylus

Dist. ferns & Drosera in damp spot
Epipactis n^o
Orchis mont
Aster macro
Dryopsis
Terra in hummocky
Anemone ~~one~~ quing

A good boggy old & dead
hemlock of inds
adv. toward dominance
of hardwoods

Another area of
the same thing on a
lower level
i.e. no correlation
with levels.

On road coming out
to Wakefield - steadily
rise - on high part
great increase in Lilia

(red)

where roadside strip
shows about same situa-
tion in 70 of Julia as
count of Aug 4 in Wake-
field.

307.5 Trail to
Chipmunk Hill
(on west)

308.