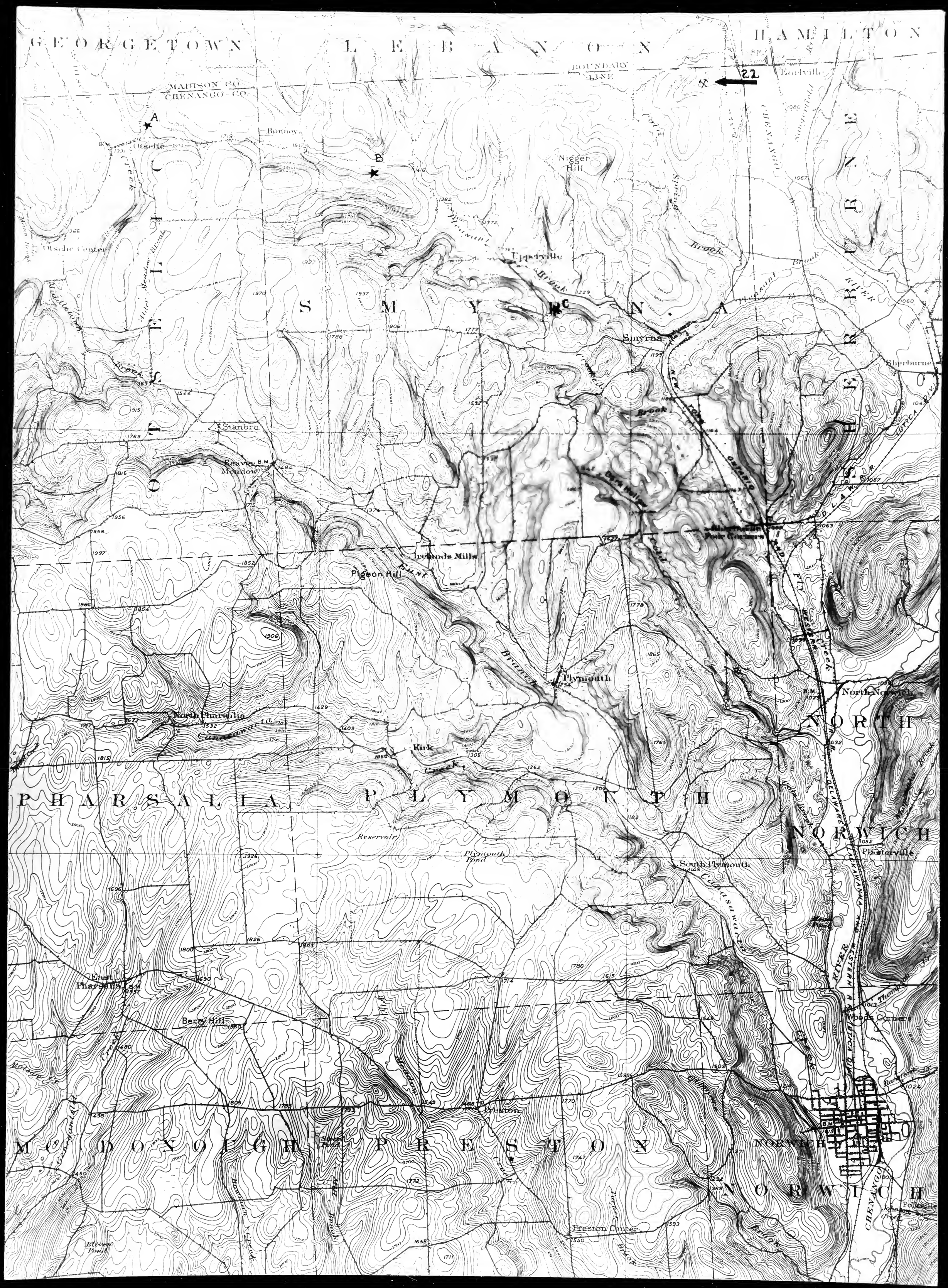
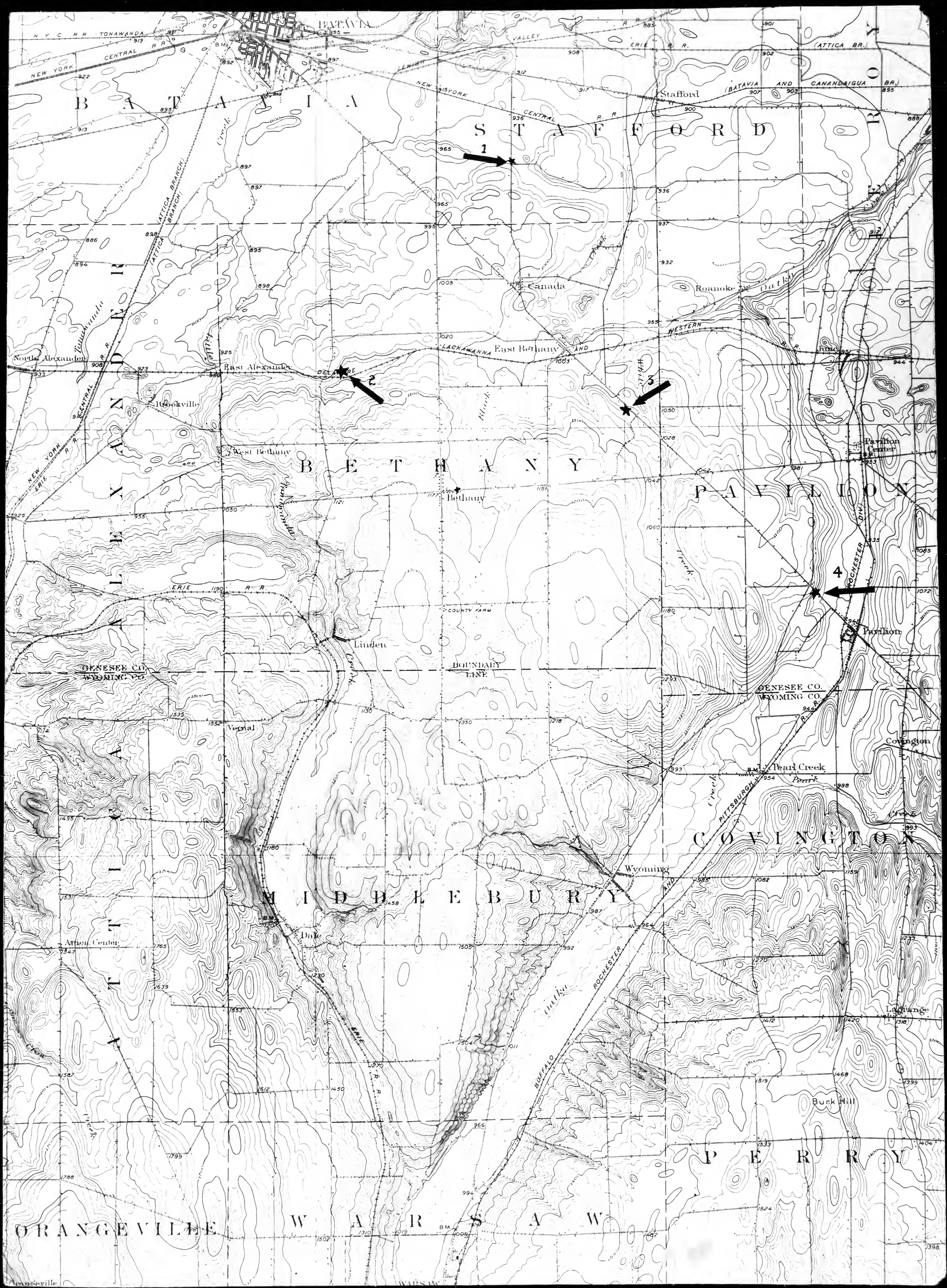

GEORGETOWN
LEBANON
HAMILTON
MADISON CO.
CHENANGO CO.
BOUNDARY LINE
22
Earlville
Bonney
Olselle
Olselle Center
Nigger Hill
Upperville
Smyrna
Sherburne
Stanbro
Beaver Meadow
Pigeon Hill
Plymouth
North Norwich
North Pharsalia
Kirk
Reservoir
Plymouth Pond
South Plymouth
Plasterville
East Pharsalia
Berry Hill
Preston
Preston Center
Woods Corners
Polkville
TUSCARORA
SMYRNA
NORTH
PHARSALIA
PLYMOUTH
NORWICH
MCDONOUGH
PRESTON
NORWICH


BATAVIA
B A T A V I A
S T A F F O R D
Stafford
B E T H A N Y
P A V I L I O N
Pavilion Center
Pavilion
Canada
Roanoke
East Bethany
West Bethany
Bethany
Brookville
North Alexander
East Alexander
Linden
Vernal
Covington
Pearl Creek
Wyoming
M I D D L E B U R Y
C O V I N G T O N
Dale
Attica Center
Lagrange
Bunk Hill
P E R R Y
ORANGEVILLE
W A R S A W
GENESEE CO.
WYOMING CO.
BOUNDARY LINE
NEW YORK CENTRAL R.R.
ERIE R.R.
LACKAWANNA AND WESTERN R.R.
PITTSBURGH AND ROCHESTER R.R.
BUFFALO ROCHESTER
(ATTICA BRANCH)
(BATAVIA AND CANANDAIGUA BR.)
(ATTICA BR.)
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GEORGETOWN
LEBANON
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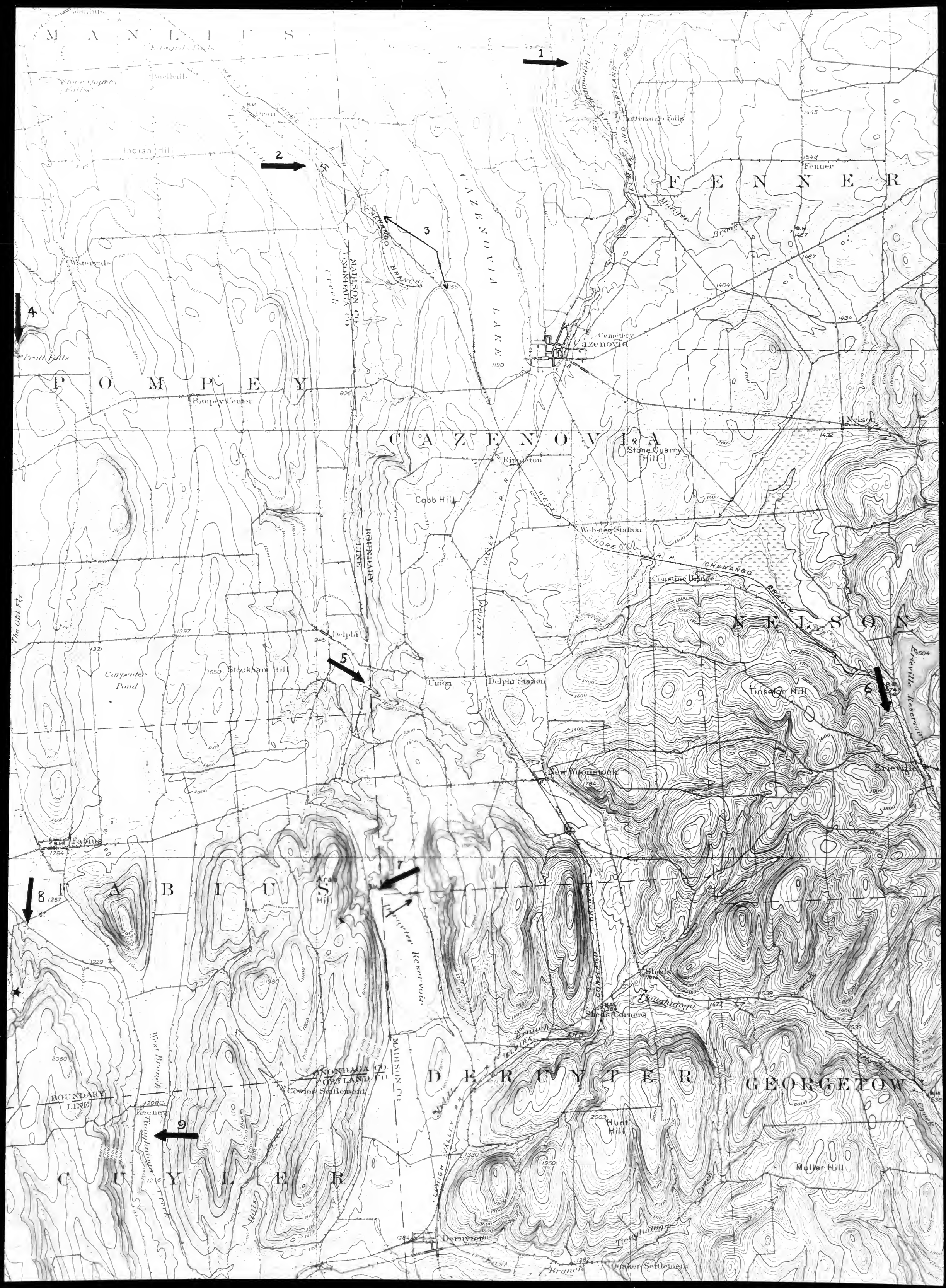
MADISON CO.
CHENANGO CO.
BOUNDARY LINE
Earlville
Bonney
Otselic
Otselic Center
Nigger Hill
Lincklaen
Smyrna
Sherburne
Stanbro
Bark Hollow
Pleasant Brook
Ireelands Mills
Pigeon Hill
Plymouth
North Norwich
North Pharsalia
Kirk
Reservoir
Plymouth Pond
South Plymouth
East Pharsalia
Berry Hill
Preston
Preston Center
Woods Corners
Plasterville
Polkville
NORTH NORWICH
NORWICH
PHARSALIA
PLYMOUTH
MCDONOUGH
PRESTON
CHENANGO RIVER
Chenango Canal
Delaware, Lackawanna & Western R.R.
Utica, Ontario & Pennsylvania R.R.


MANLIUS
Edwards Falls
Stone Quarry Falls
Buellville
Indian Hill
Waterdale
Pratt Falls
POMPEY
Pompey Center
Carpenter Pond
Stockham Hill
Delphi
Delphi Station
Union
CAZENOVIA
Cazenovia
Cemetery
Rippleton
Cobb Hill
Stone Quarry Hill
Webster Station
Constine Bridge
Chenango Branch
Nelson
FENNER
Fenner
Chittenango Falls
Murdock Brook
Tinsellor Hill
Erieville
Erieville Reservoir
New Woodstock
Fabius
FABIUS
Arab Hill
Tuttle Reservoir
Sheels
Sheels Corners
Tanyhunda
Tanyhunda Creek
Madison Co.
Cortland Co.
Onondaga Co.
Cortland Co.
Cowles Settlement
Keeney
Boundary Line
CUYLER
DERUYTER
Deruyter
Hunt Hill
Muller Hill
GEORGETOWN
Tanker Settlement
Lehigh Valley R.R.
West Shore R.R.
Chenango Branch
Erie R.R.
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GEORGETOWN
LEBANON
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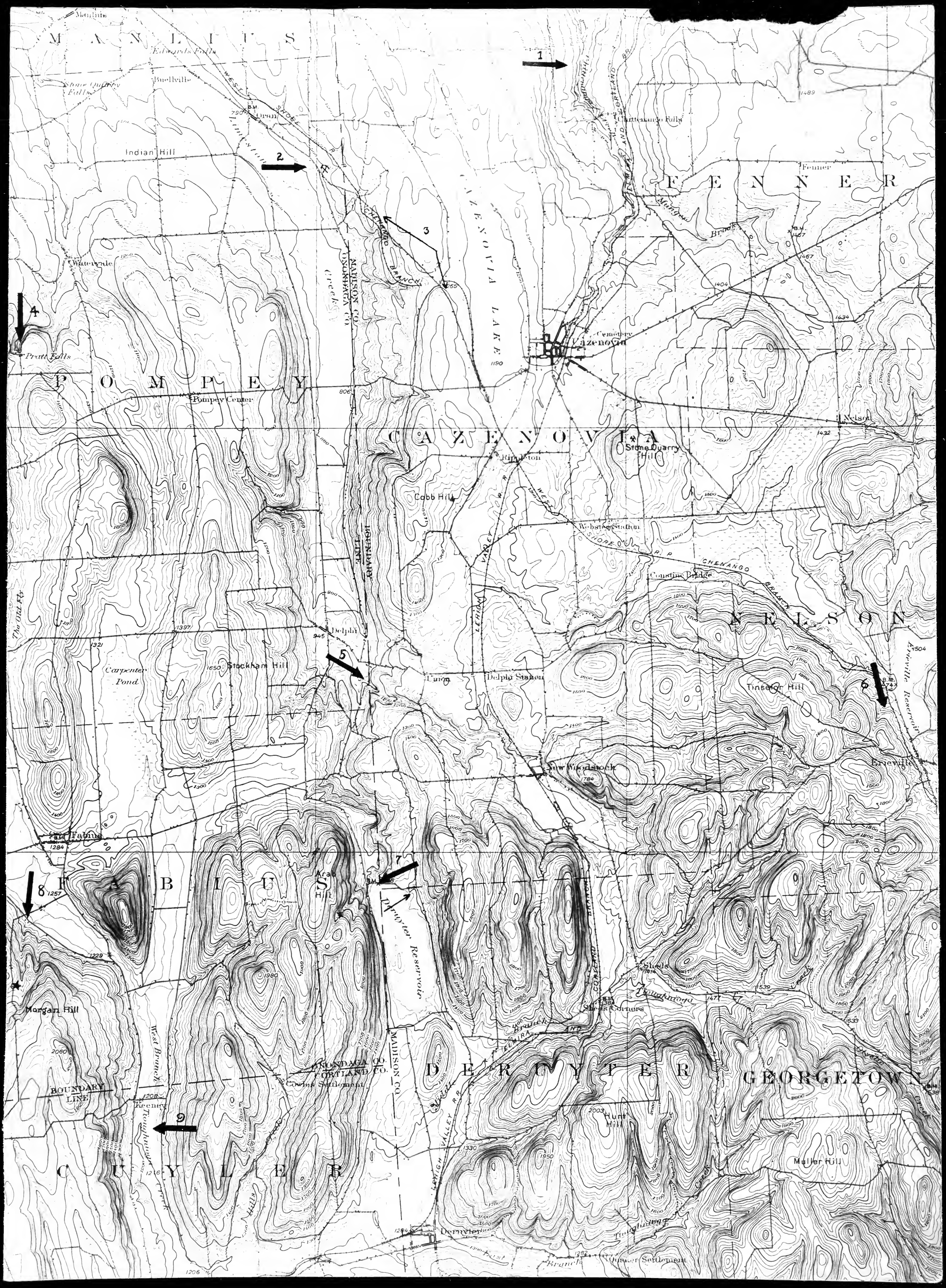
MADISON CO.
CHENANGO CO.
BOUNDARY LINE
Earlville
Sangerfield
Bonney
Otselic
Otselic Center
Nigger Hill
Upperville
Smyrna
Sherburne
Stanbro
Beaver Meadow
Dark Hollow
Four Corners
Ingalls Mills
Pigeon Hill
Plymouth
North Norwich
North Pharsalia
Kirk
Reservoir
Plymouth Pond
South Plymouth
Plasterville
East Pharsalia
Berry Hill
Woods Corners
Preston
Preston Center
Polkville
Blown Pond
PHARSALIA
PLYMOUTH
NORWICH
MCDONOUGH
PRESTON
NORWICH


MANLIUS
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Stone Quarry Falls
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Indian Hill
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Pratt Falls
POMPEY
Pompey Center
Cazenovia Lake
Cazenovia
Cemetery
Chittenango Falls
FENNER
Fenner
Nelson
Stone Quarry Hill
Kimbalton
Cobb Hill
Webster Station
Counting Bridge
NELSON
Delphi
Delphi Station
Union
Stockham Hill
Carpenter Pond
Tinsenor Hill
Erieville
Erieville Reservoir
New Woodstock
Fabius
FABIUS
Arab Hill
Pratt Reservoir
Sheds
Sheds Corners
Morgan Hill
Keeney
Coles Settlement
CUYLER
DERUYTER
GEORGETOWN
Hunt Hill
Muller Hill
Dorrieville
Dorrieville Settlement
MADISON CO.
ONONDAGA CO.
CORTLAND CO.
BOUNDARY LINE
West Branch
Tioughnioga Creek
Otselic Creek
LEHIGH VALLEY R.R.
WEST SHORE R.R.
CHENANGO BRANCH
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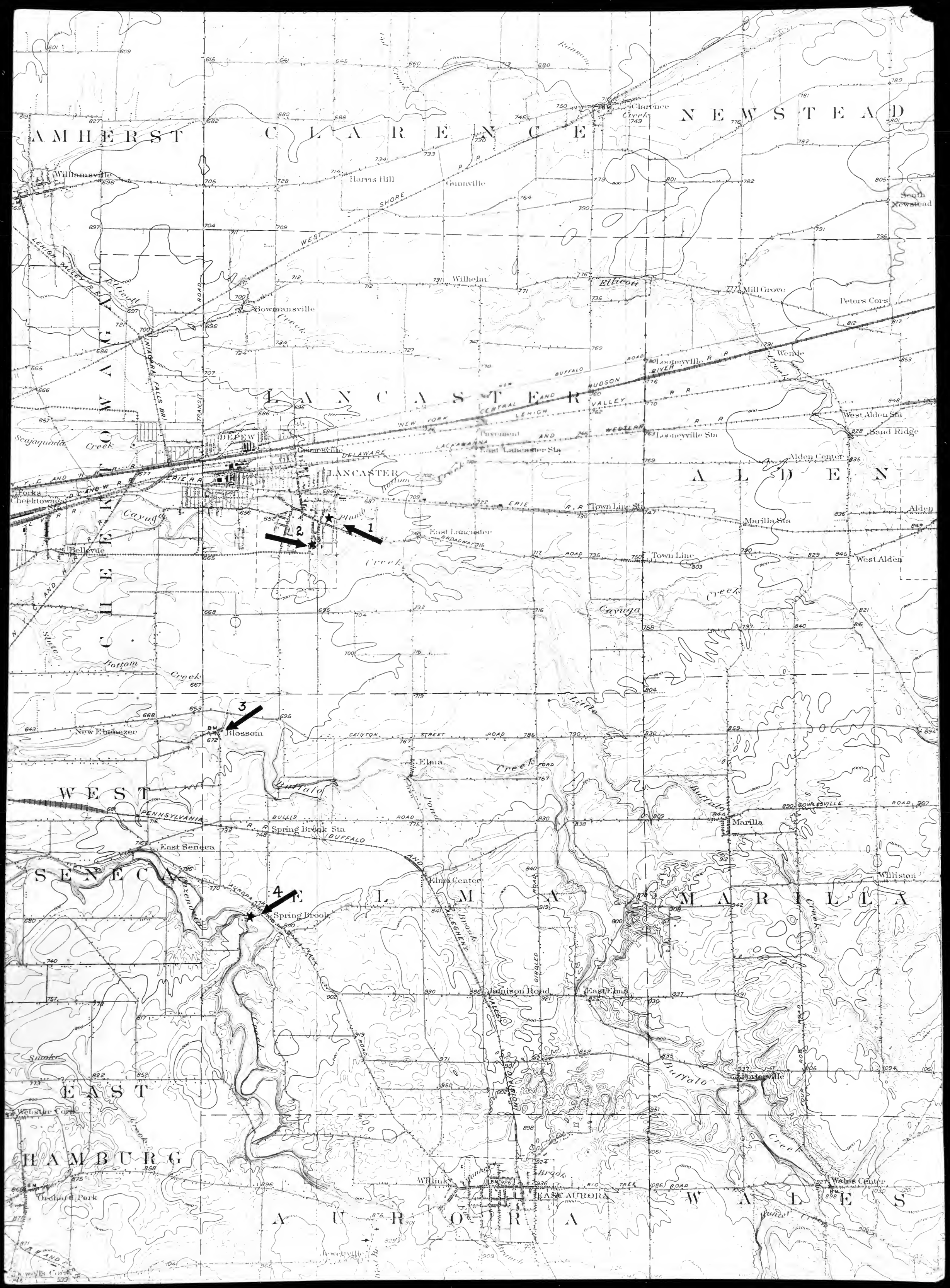
AMHERST
CLARENCE
NEWSTEAD
LANCASTER
ALDEN
CHEEKTOWAGA
WEST SENECA
ELMA
MARILLA
EAST HAMBURG
AURORA
WALES
Williamsville
Harris Hill
Gunnville
Clarence Creek
Wilhelm
Bowmansville
Mill Grove
Peters Cors
Wende
Loomeyville
West Alden Sta
Sand Ridge
Alden Center
Alden
Marilla Sta
Town Line Sta
Town Line
West Alden
DEPEW
Glenn Ville
LANCASTER
East Lancaster Sta
Pavement
Cheektowaga
Bellevue
East Lancaster
Blossom
New Ebenezer
Elma
Spring Brook Sta
East Seneca
Elma Center
Spring Brook
Marilla
Williston
Jamison Road
East Elma
Porterville
Webster Cors
Orchard Park
Willink
EAST AURORA
Wales Center
Seajaquada Creek
Cayuga Creek
Buffalo Creek
Little Buffalo Creek
Smoke Bottom Creek
Slate Bottom Creek
Scajaquada Creek
Ellicott Creek
Rush Creek
Allegheny Brook
Big Tree Brook
Four Mile Creek
Cowlesville Road
Clinton Street Road
Bullis Road
Transit Road
Girdled Road
Big Tree Road
Lehigh Valley R.R.
Niagara Falls Br.
New York Central and Hudson River R.R.
Buffalo and Lehigh Valley R.R.
Pennsylvania R.R.
Buffalo and Lackawanna R.R.
Erie R.R.
Delaware Lackawanna and Western R.R.
West Shore R.R.
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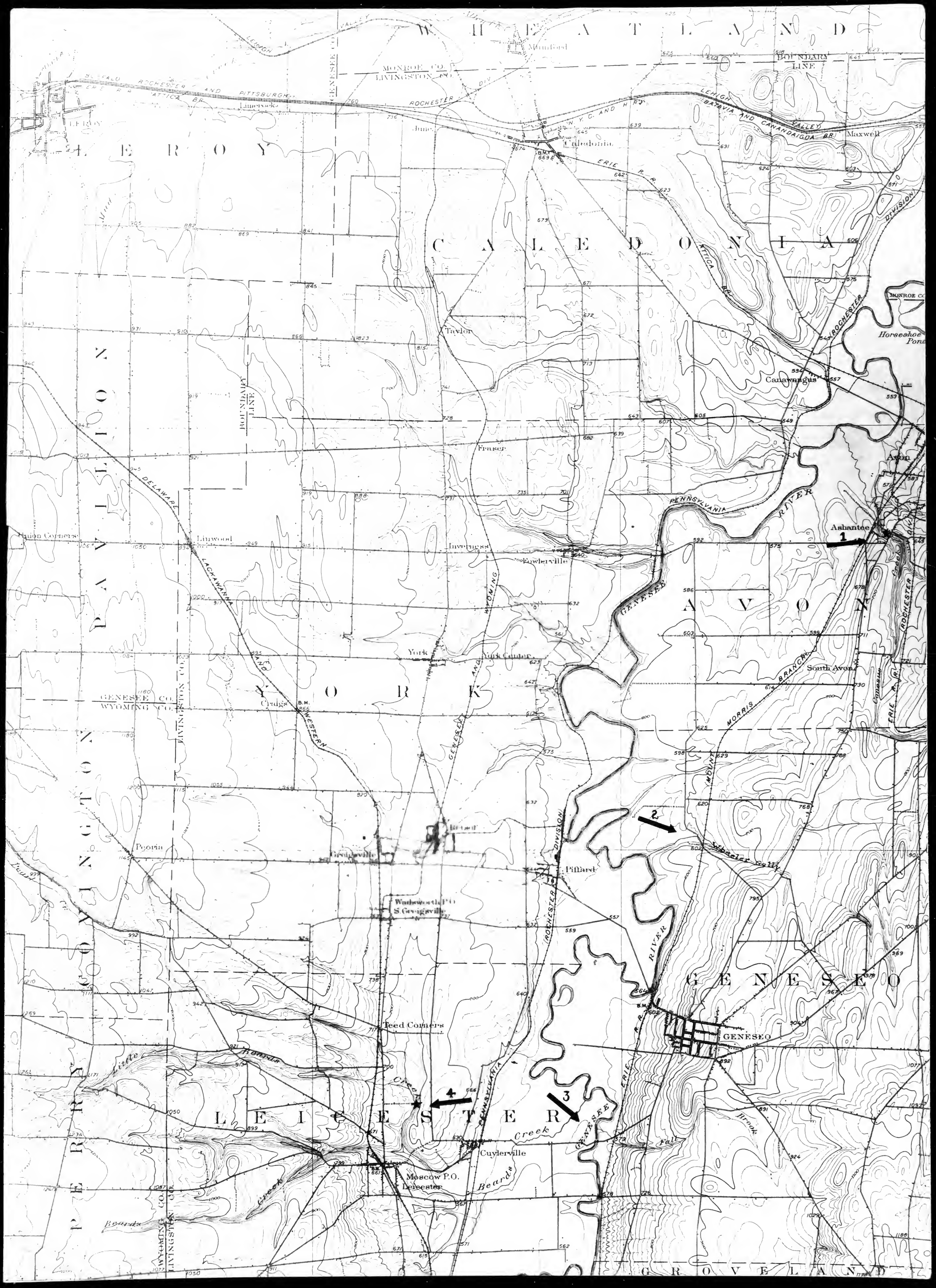
WHEATLAND
LEROY
CALEDONIA
AVON
YORK
LEICESTER
GENESEO
GROVELAND
MONROE CO.
LIVINGSTON CO.
GENESEE CO.
WYOMING CO.
ALLEGANY CO.
WOLCOTTSVILLE
BOUNDARY LINE
BUFFALO ROCHESTER AND PITTSBURGH
ATTICA BR.
ROCHESTER DIV.
N.Y.C. AND H.R.R.
LEHIGH VALLEY
BATAVIA AND CANANDAIGUA BR.
ERIE R.R.
ATTICA BR.
ROCHESTER DIVISION
DELAWARE LACKAWANNA AND WESTERN
PENNSYLVANIA
GENESEE RIVER
WYOMING
Mumford
Caledonia
Maxwell
Lima Rocks
June
Taylor
Fraser
Avon
Asbantee
Union Corners
Linwood
Inverness
Fowlerville
York
York Center
South Avon
Craigs
Peoria
Geneseo
Pifiard
Wadsworth P.O.
S. Geneseo
Teed Corners
Cuylerville
Moscow P.O.
Leicester
Horseshoe Pond
Wheeler Gully
Little Beards Creek
Beards Creek
Fall Brook
Morris Branch
Mouth
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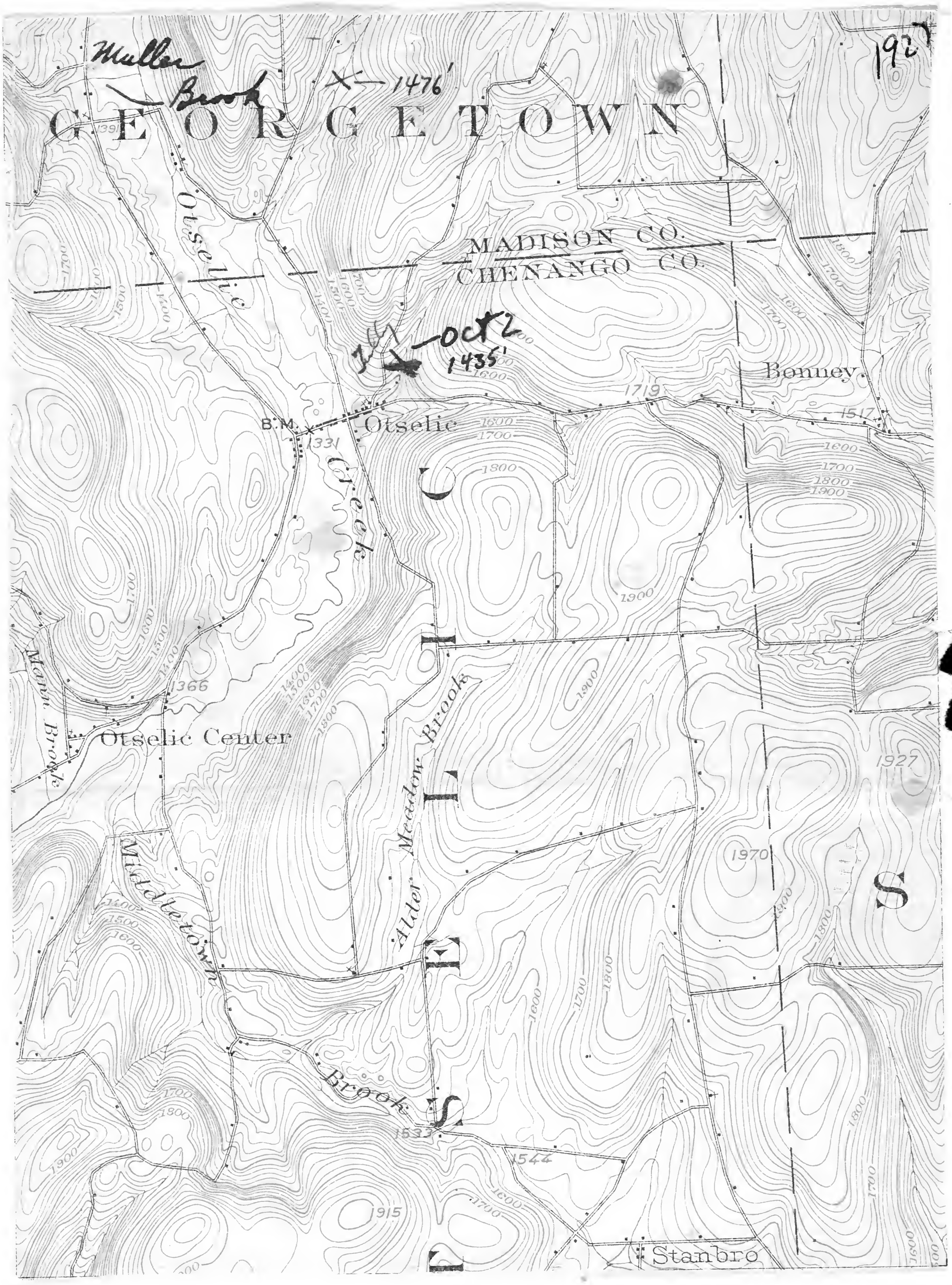
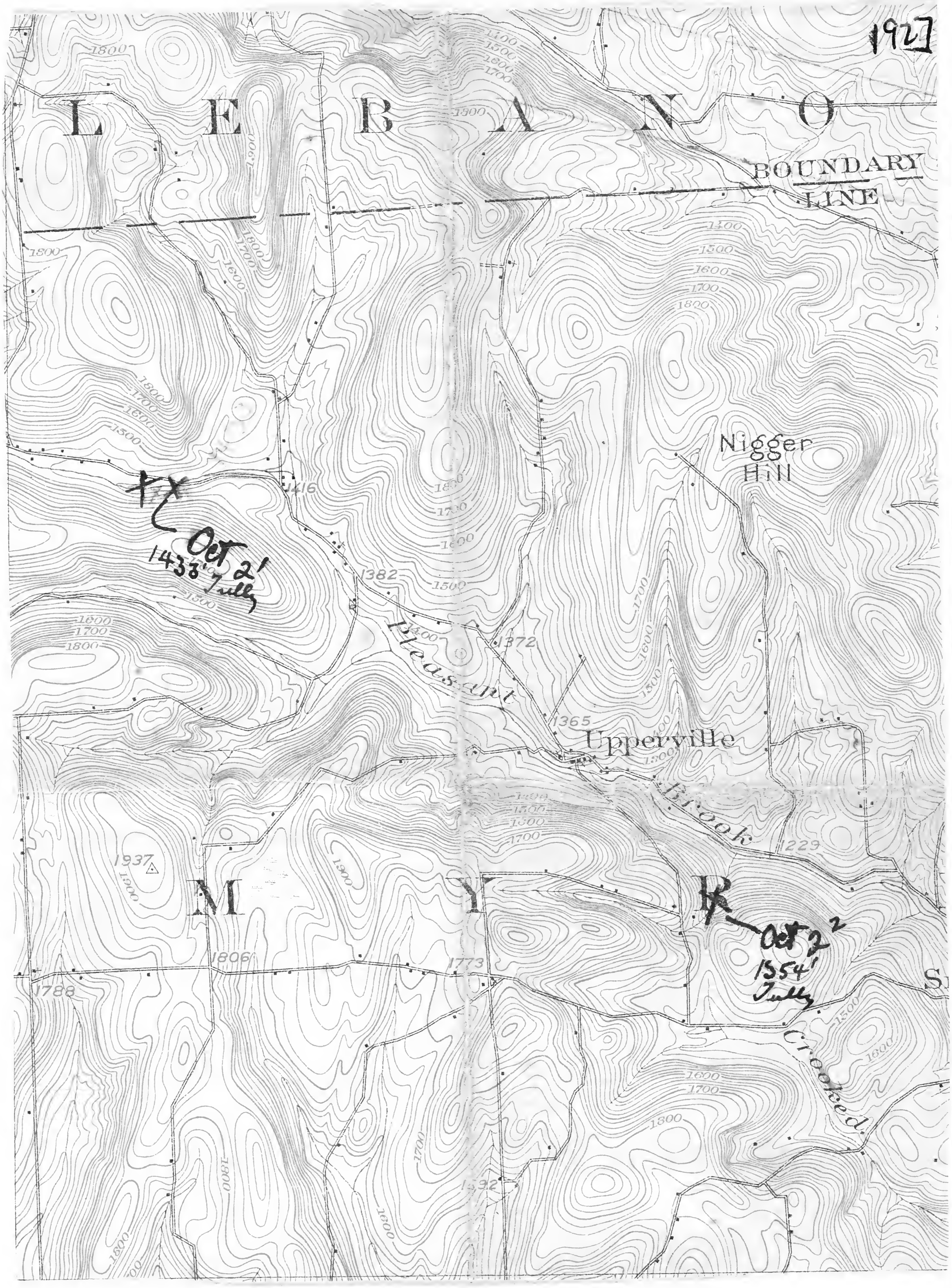
43a


Muller Brook
1476'
1927
GEORGETOWN
Otselic
MADISON CO.
CHENANGO CO.
Oct 2
1435'
Bonney
1719
1517
B.M.
1331
Otselic
Otselic Creek
Mann Brook
1366
Otselic Center
Middletown
Alder Meadow Brooks
1927
1970
S
Brook
1533
1544
1915
Stanbro

4136

1927


L E B A N O
BOUNDARY LINE
Nigger Hill
Pleasant
Upperville
Brook
M Y R
Creeked.
1800
1900
1700
1600
1500
1400
1416
1382
1372
1365
1229
1937
1806
1773
1788
1792
Oct 2'
1433' Tully
Oct 2'
1554' Tully

474

Oct. 2.

Otsego

Jolly's exposure on a branch of Otsego Creek in the village at 1435' A.T. Bottom bed with Hyattidina — the layer is transitional with the Moscow below. Moscow Paleopods were seen in the shaly portion of the bottom bed. Fish granules. Much of the Hy. pumilus is shaly and small corals, Pavona & Cladocora.

The whole section is 28' 1" thick. Top bed shaly, also many small corals. Charles Jones at 28' 6". The whole layer is predominately shaly.

Rides over Creek at 1375 A.T. Jolly is at 1435' A.T. (11 hand lines steps above shale body

8 hand lines to the top. Jolly crosses a small stream 10 steps above the layer and goes up a short shale ravine on the north side of the Jolly on E.D.

Oct. 2

Jolly 3½ miles east of Otsego along the Lansing road. Elevation about 1430' A.T. Thickness = 22' + almost completely shaly — the layer at the river is shaly & a dark colored fossils are shaly & some. Only slightly calcareous. Top of the shaly bed is 4 hand lines & 10 steps above the creek.

Pavona

a. [illegible]

[illegible]

475

2' — Fossils in Moscow shale — Tully for
Upsilocrinus — S. pennatus
Crenocrinus — S. camitus
Crinetocrinus

The Tully ~~is~~ no doubt very likely to the south & east

Oct. 2

Lumber transport near Upperville (1 mi. E) Elevation 1354' A.T. (25 hemlock tops + 3' above stump level). 2' 11" — Fallen — Lumber in Chenango — 8' hemlock tops of block at bottom 8' 9" — 1 hemlock top — small sandstone bed, thickness of exposed part of 9 in.

Remarks.

The Tully appears to be becoming thicker & pluley to the south and east. The ls. layers are thin and in some cases exist as concretionary limestone nodules. Also the Genesee in the upper part becomes a thin ss before it gives way to the Sherburne sands. There is considerable black shale in the Sherburne as was noted in a ravine a mile and one-quarter south of Sherburne Four-Corners.

Nearly the whole of the Moscow is exposed along Pleasant Brook. The thickness indicated in Pleasant Brook is 273' from Hamilton to bottom of Tully 2½ miles west of Upperville

The thickness from Smyrna to the bottom of the Jelly in the glen 2 miles west of Smyrna is 193'. This suggests a bulge along the Creek.

An outcrop of Hamilton was noted in a hillside, Sugarloaf Mountain along a terrace in the hillside. This is opposite a schoolhouse which is at an acute angle road crossing opposite Sugar-loaf Mtn.

Oct 11.

Red Creek, Rapid Falls.

At first bridge across Red Creek from the first highway — (28.) in a separate of Capt. Hungerford's collection — general collection connections. The shales contain a small list and are not unlike those seen in the west — particularly that exposed at the Rapids — the shale is quite gritty. Fossils are fairly abundant.

Q. embolomatus — C. [illegible] —
Pterinopecten sp. nov. — C. terminatus —
C. lepidus — P. radiata —
M. pygmaeus — S. permatus —
P. constricta — C. coronatus —
P. spinifaciles — Pr. hamiltonicus —
M. obsolescens — M. cordiformis —
M. stellistriata — H. arlis —
P. minuta

The A. spinifaciles was found about 5' above stream level.

300 paces from bridge are exposures of similar shales. On the south bank were found [illegible] and several butterfly crinoids. Photographed. Fossils of 300 paces are —

C. coronatus — P. constricta —
Pr. hamiltonicus — M. pygmaeus —
P. terminata — J. Schmeltzeri —
P. radiata — P. minuta
M. stellistriata — P. [illegible]
M. obsolescens

O. cincinnatiensis — C. setigerus
G. cumbata — R. vanuxemi (base)
G. capillaria
N. stigata

The shales are coated with the surface suggesting much pyrite. Crossotus is very abundant.

152 paces from bridge are blue gray shales breaking into flatten irregular lumps. These shales are higher than those below.

C. bronteus — S. cylindrica n
P. emmonsi n — G. cumbata n
H. bellistriata n — P. cornuta n
L. arcuata — H. orbis
C. setigerus — C. terminatus
G. capillaria — P. tenuis
Lep. lam — Lingula sp.
Retinogtenia sp — H. obtusogalea
M. perfoliata — R. vanuxemi n
P. mutata — L. pulchra sp.
H. corbelliformis — H. delicatulus

1317 paces above the bridge the shales are quite sandy. Layers are sandstone many feet. The upper part is regularly flat or sometimes wedge-shaped flats.

Cyrt. lam — A. cumbonata n
G. obsoleta — C. monumentus
G. vicinus n — G. capillaria
S. perneata n — B. leda n
G. perplana n — Lep. lam
G. setigerus — C. semistriata
G. cumbata n — Dich. sp.

479

1577 paces bottom of Rapid Falls. Cliffs about 80' above stud. at bottom of Falls. Shale at bottom of falls. Is assumed that Lower with

C. elongata n.	E. spinosa
E. gracilomorus	E. rectangulata
M. congentrica	C. inscrenata
Ser. [illegible]	E. spinosa
B. leda	E. crenata
Hyalotrachelus sinistra	B. leda
M. trigonata	M. lamellata
C. [illegible] ?	M. [illegible]
P. radiis	S. perflora
P. radiata	P. stenus
Pholidogas	E. rectangulata
R. [illegible]	E. fenestrata

He Falls in 38' high and below opt like that of Dolph. A bed of ledge about 2' thick appears at about 25' above the base of the Falls.

Inoceramus	B. leda
M. [illegible]	M. congentrica
C. [illegible]	Dom. sp. (large)

The bottom of the shale in the upper part of the falls is [illegible] of [illegible] of [illegible] of Dolph.

5'5" above bank of falls: sandy shale, blue gray, few fossils.

E. trunkata	M. [illegible]
Lingulasma sp.	C. [illegible]
E. [illegible]	
E. radiata	
E. [illegible]	
E. capellana	

5'5" – 15'15" above falls – very abundant almost a mass

P. camptotus — A. spiralis
P. squamosus — R. lentinus
Cyst. lenis — M. magnificus
S. peronatus — A. ventricosus
C. hirsutus — A. decurrens
M. stellistriata

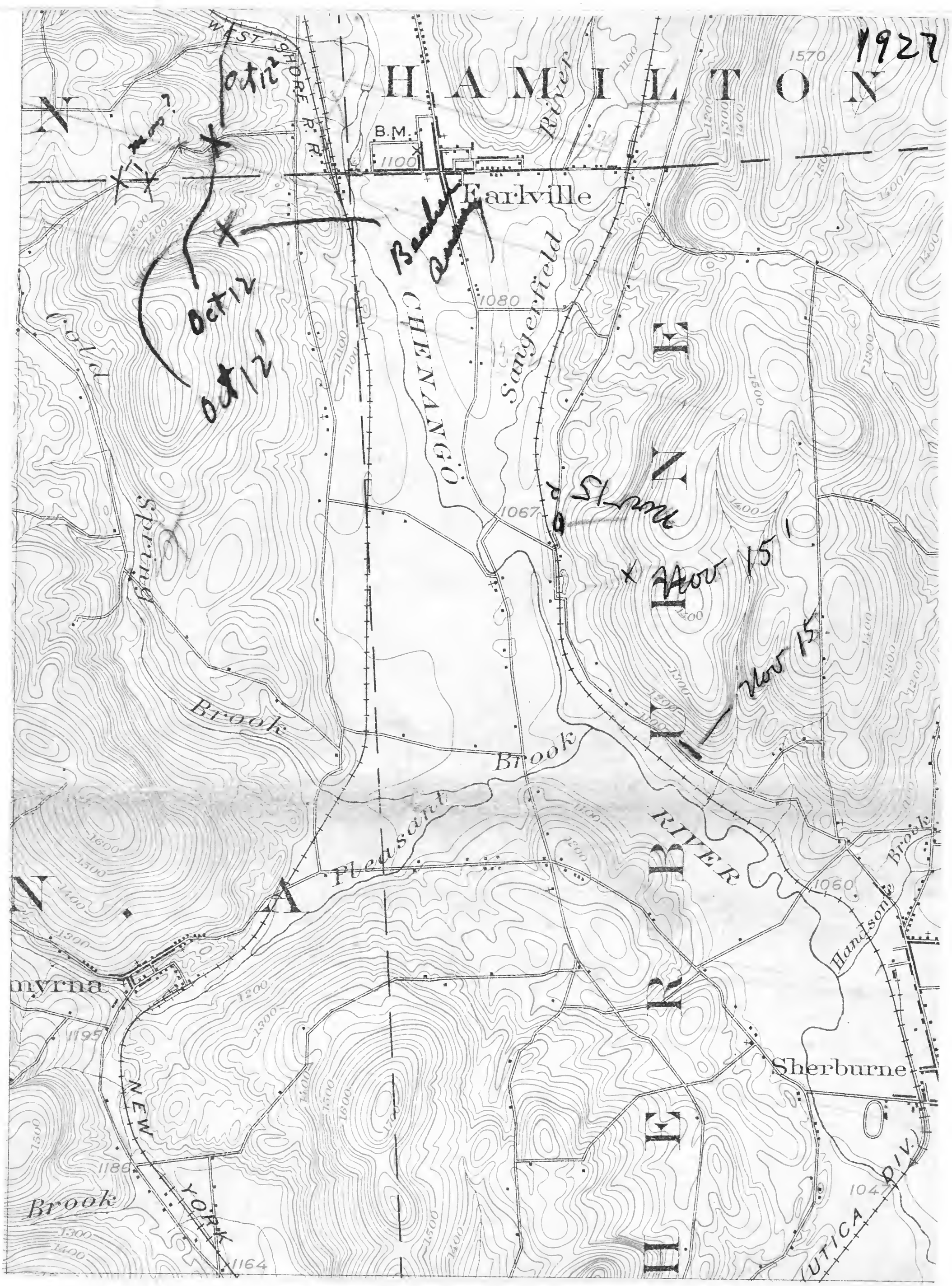
Tricholoma very abundant in the logs.

On top of the land logs above the falls come upon shallow water:

R. semilanatus — R. fimbriata
P. sectilis — R. vernicipes
P. gastilis — T. myomyces
C. nuncupatus — R. decurrens
M. mangorum — P. pinsitus
P. applicatus — R. pennsylvanicus
Cyathus striatus sp. — R. fulvipes
C. templanus

Vegetation stopped at falls on 15 above back of falls.

480a


1927
HAMILTON
Earlville
Sangerfield
CHENANGO
RIVER
Pleasant
Brook
Brook
Brook
Brook
Handsome
Sherburne
NEW YORK
UTICA DIV.
WEST SHORE R.R.
B.M.
1100
1080
1067
1060
1047
1195
1186
1164
1570
Oct 12
Oct 12
Nov 15
Nov 15

Section at S-curve
Hand levelling begun at 1080' A.T.

1080' — 1160'80" — Shales

1160' — 1165'85" — Blue grey arenaceous sh. with
S. permatus
S. cuneatus
A. spinifaciens
S. perplexus
N. trigonalis
S. andacanthus

1165'85" — 1180'100" — Shale — about 3' backwpt top. Here are there about 17' of sh. Additional fossils are:
Cyst. hom.
Cyst. "
M. concentrica
S. tullius?
C. indenta
F. lama
Jaomnus
P. flabellum
P. carinatus
P. constricta
C. crenata
A. undosata
C. bellistriata

1180'100" — 1200'125" — Shales

1200'125" — 1205'130" — Coarse blue grey sandy sh. with
P. carinatus
P. cuneata
Spirifer sp.
S. alleni?

1205'130" — 1240'165" — Black shales crumbling to small fragments, light not apt to show Black Shale below

Fossils

C. numerosus	Pholiodopsis lum.
R. cyclas	S. punctatus
R. Fieiung?	C. corrugatus
Aviculopecten sp.	A. umbonata
P. arcuata	M. bellistriata

Fully 70 or 80' of rocks are more or less continuously exposed above 1240'165'! to the top of the hill. The rock is predominantly a soft ash especially for the first 45' above 1240'165. Then there is an interval of about 40' of no exposures, then patches are seen in the gully up to the top of the hill. Fossils are:

D. carinatus	Crinoid stems
Cyst. hum.	S. crotalum
D. capillaria	C. tenuistriata
S. glomulosus	Leiopteria sp.
T. bronnigs	S. planulatus
P. sinuata	D. reticularis (about 60' from top level)
M. dekayi	
T. subfimbriata	M. concentrica
P. nana	C. inflenta
	C. bowtie

The Moscow must come in near 1205'130"

Nov. 15.'4

Quarry near the Earlville station of the Jamesburg Dairy Co.

Exposures of about 10' vertical and about 100 yds. horizontal, mostly of slabby blue-gray, with some intercalated shale's. and shaley ls.

Fossils

P. flabellum
Cameroceras (large) c
T. cumatus
S. alvesta

Leanum
C. coronatus
S. andularius
D. virgata
R. cyclas ?
M. delicatus

This section is the same as Bacher's Quarry at Earlville. The bottom is at about 1090'.

The ls is cross-bedded, the shell c. is in the form of lenses, often of large size and are composed mostly of Long. Spirifers, Cameroceras, T. cumatus + P. flabellum

191 paces from 1st cascade to top of "Dubby"
Dubby occupies 112 paces.

Nov. 15.

5-8' vertical of blue green sandy shales at roadside between Z-Turn and Sherbourne.

Fossils:—

S. andalusia rr
S. permutata cc
T. exigua
C. bellistriata
L. rogersi
P. patulus
R. stoloniferus
Dictyocaris sp.
N. oblongatus
Cyst. Hamiltonensis
B. cuneatus?
A. erectum
S. angulatus
T. carinatus c
P. flabellum rr
S. Hemangianus
M. corrugatus? rr
Pal. consularis
N. triquetra
C. stutulus
S. perversa
P. vertumnus
S. solenoides
Wood
M. mytiloides
R. cyclas

20'

40' Covered

45'

1240' 160"

1255' 155'

1260' 150"

1225' 145"

1230' 140'

1215' 135'

1210' 130'

1205' 125"

5'

1200' 120"

19'

Covered

1195' 115'

1190' 110'

1185' 105"

5

1180' 100'

1175' 95"

21' 8"

1170' 90'

1165' 85'

1160' 80

1080'

1205
1
1216
1100
116

485

486

Hazard Sheet
Oct. 12.

150' 150' above road a small grove of evergreens which contrast the light yellow grass.

S. pennatula — A. montana
T. minutissima — R. compressa
C. undata — Prosartella sp.
C. boothii
A. decumbens

170' 170' — quite bushy with S. pennatula, T. minutissima

180' 180' — a small patch of the same bushy shrubs mentioned, slight variation of T. minutissima, Prosartella sp., R. compressa, M. montana.

I believe that the species are disposed, but with little point of contact.

1240' A.T. + 150' − 15' = 1405' footing

Oct. 12'
Beeler's Quarry 1188' A.T.
14'

Small quarry ~~Dip~~ light-gray shales and sandstones. The lower part of the quarry is in sandstones and abounds in Ammonites of large size, the same as along the Edgetown-West Eaton road.

Other fossils are:—
1. gronovianus — P. flabellum
2. sandbergeri — Wood.
3. serchensis?

Just the upper part of the quarry the rock is almost entirely shale abounding in Sigmoceras, I. cornutus. Other fossils are
N. trigonatus

Here is the same sequence as the upper 10' of Oct. 5. Not upper 2' like the S. perdonatus + I. cornutus

22' above the top of the quarry outcrops which back with the quarry. They are exposed for about 3' vertically. Here with small shales are exposed to 38' above the top of the quarry where about 10' of blue clay, coarse shale are encountered. These have
I. cornutus — N. trigonatus (large)
I. serchensis — S. bifurcata
Lucretius — S. perdonatus
Also a lot of M. mammillatus,
A. nimrod, P. flabellum.

488

Between 45'45" & 50'50" above the quarry there is a bistern of 3'.

50'50" — 55'55" above quarry — limestone

55'55" — 60'60" — Lower shales are a light grey but when fresh a blue grey. Rhabdocelia may be found here

✓ P. flabellum rc
✓ S. pennatus a (Rogersi)
✓ S. carinatus a
✓ Palicrinetocta rc
✓ Laonomus c
✓ R. primaeva rc
✓ Productella sp. rc
✓ Mollongatus rc
✓ D. carinatus rc

✓ C. bellistriata rc
✓ M. concentrica rc
✓ M. lirata rc
✓ M. spiniferoides rc
✓ A. reticulatus rc
✓ S. angulatus rc
✓ S. perplanus rc
✓ S. pecunia rc
✓ M. triquetra
A. sdrgeons for P. flabellum

60'60" — 65'65" — 70'70"

✓ P. vitulus c
✓ S. pennatus c
✓ D. carinatus
✓ Par. harmi
✓ P. flabellum
✓ M. concentrica
✓ Q. aspera
✓ M. lirata
✓ S. carinatus
✓ M. mollongatus
✓ S. perplanus
✓ P. patulus
✓ P. armatus
✓ P. medialis

S. granulosus
M. dekayi
✓ B. rugosus ?
Lep. hemi.
✓ C. bellistriata
✓ C. velicula
J. bellulus
✓ C. cornutus
✓ P. stemis
✓ C. parvula
P. hemisphaerica
✓ C. cottingham
P. lanceolata
Laonomus sp.

75'75" — 78'78" — same.

The gully ends in a flat of about 80'90" — the high hill to the west has not outcrops.

These rocks are very much like the [illegible] shales.
Quarry on Fred Beecher's property — 48' above the road.

Oct 12

About 1240' A.T. just where stream crosses under the highway is a 5' exposure of arenaceous shales with abundant D. carinatus, L. pinnatus. Other fossils are A. princeps, C. setilla, L. undulatus.
D. carinatus is by far the most abundant fossil.

A few small exposures of blue gray arenaceous shales in the [illegible] on the north side of the road just [illegible] the [illegible] to the NW. have the following.

D. car. ab.
L. [illegible] r.

Just [illegible] of the road at about 1220' A.T. a tree has fallen and exposes the shales which are also exposed in the stream bed. All of the exposures have been unfavorable for collecting. Where the tree fell it loosened many blocks and revealed the following:-

Liopteria a? D. carinatus
L. pinnatus A. reticularis

490

P. flabellum
C. complanata
N. radiopennis
M. connectens
C. serpens
Pudibtella sp.
S. pauplana
M. bellistriata
P. radiata
C. coronatus

A. principes
S. gouldiana
C. bellistriata
S. perversa
Pla. hians
P. tenuistriata
S. tullius
S. demissa ?
C. oculus

Shells are exposed for about 10 or 12 metres of rock up to about 1270' A.T.

At the top of the hill along the second spur for about 25' below the crest of the hill there are the top of the shales here were found:-

P. discoideum
P. undulata

Second to last bed in the hill

Rock is also exposed at the head of the second spur top of the hill.

P. subcarinata
B. alba
C. elongata

C. bellistriata
C. bellistriata
Pomatias

At Pillar shaped shale hill there are the same species as the shales near Tillers appear with the exception of the following species

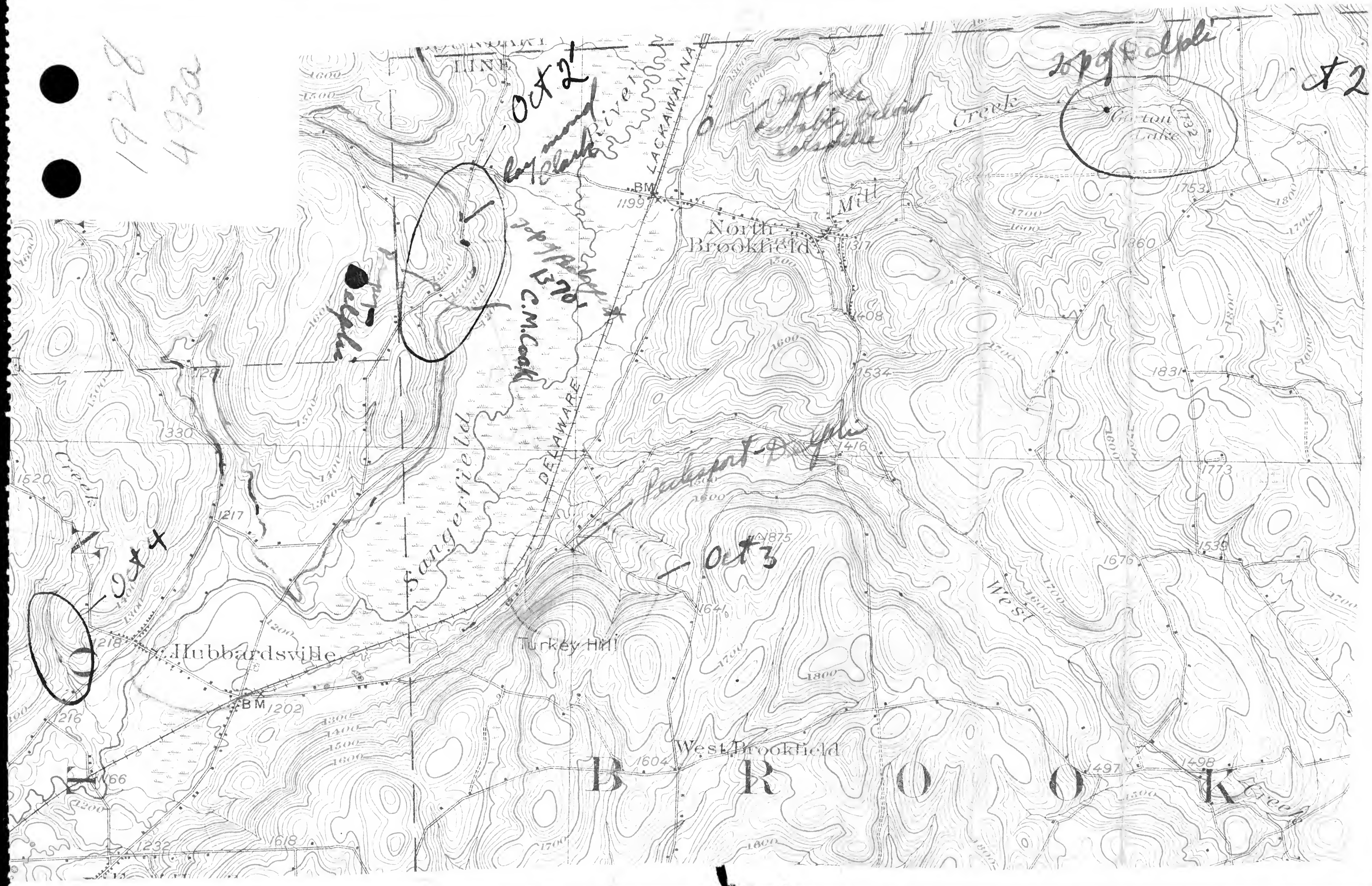
July 29, 1928

491

493

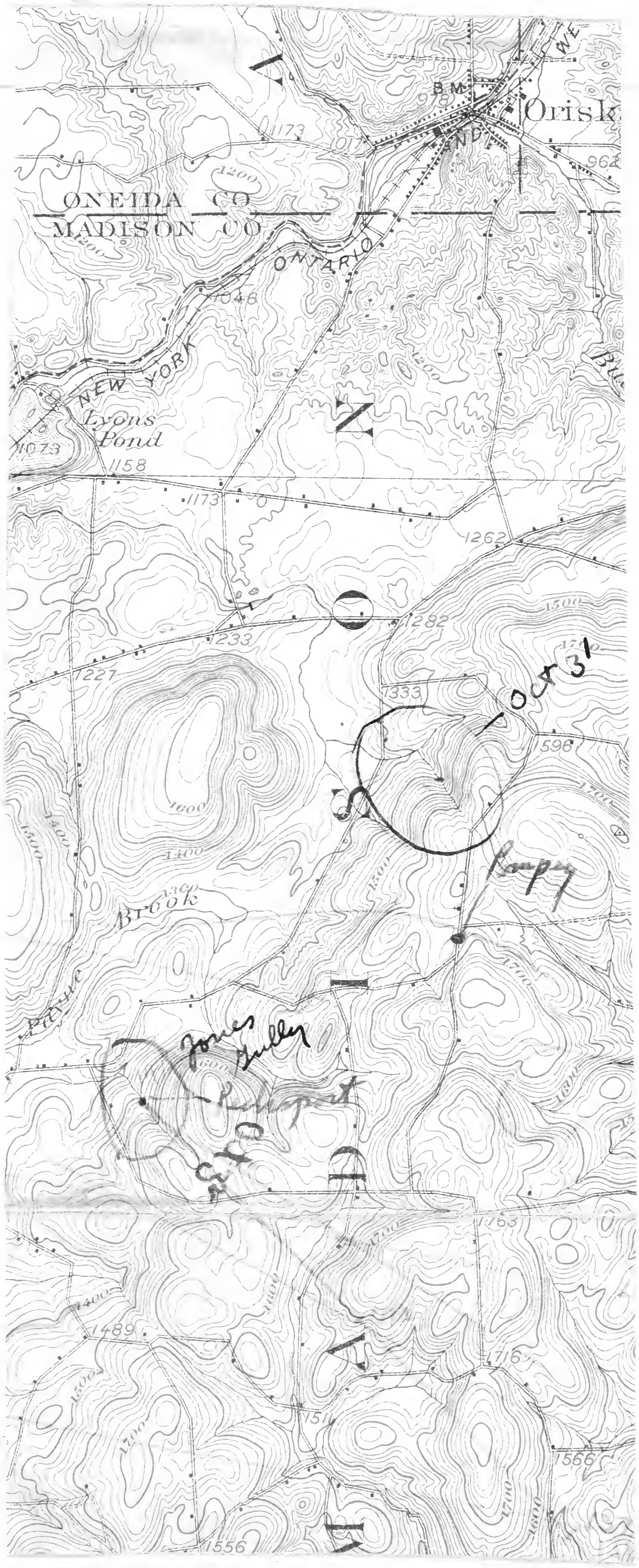
493

1928
4930

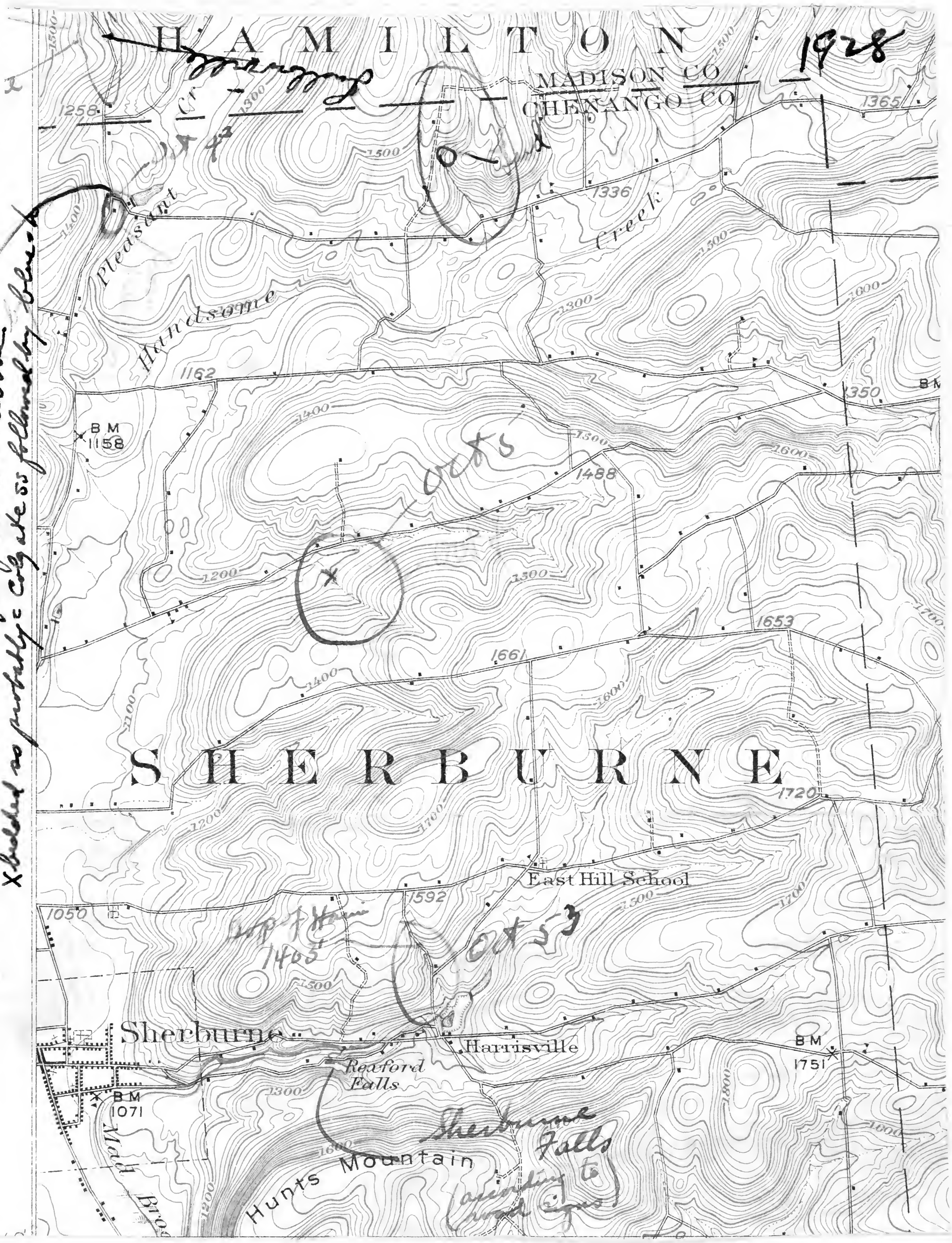

Oct 2
Oct 3
Oct 4
#2
LACKAWANNA
DELAWARE
Sangerfield
Creek
Mill
North Brookfield
Hubbardsville
Turkey Hill
West Brookfield
West
Creek
BM
1199
1202
1217
1218
1216
1330
1620
1232
1618
1166
1317
1408
1534
1416
1875
1641
1604
1497
1498
1773
1539
1676
1831
1753
1732
1360
1700
1800
1600
1500
1400
1300
1200

1928

493b

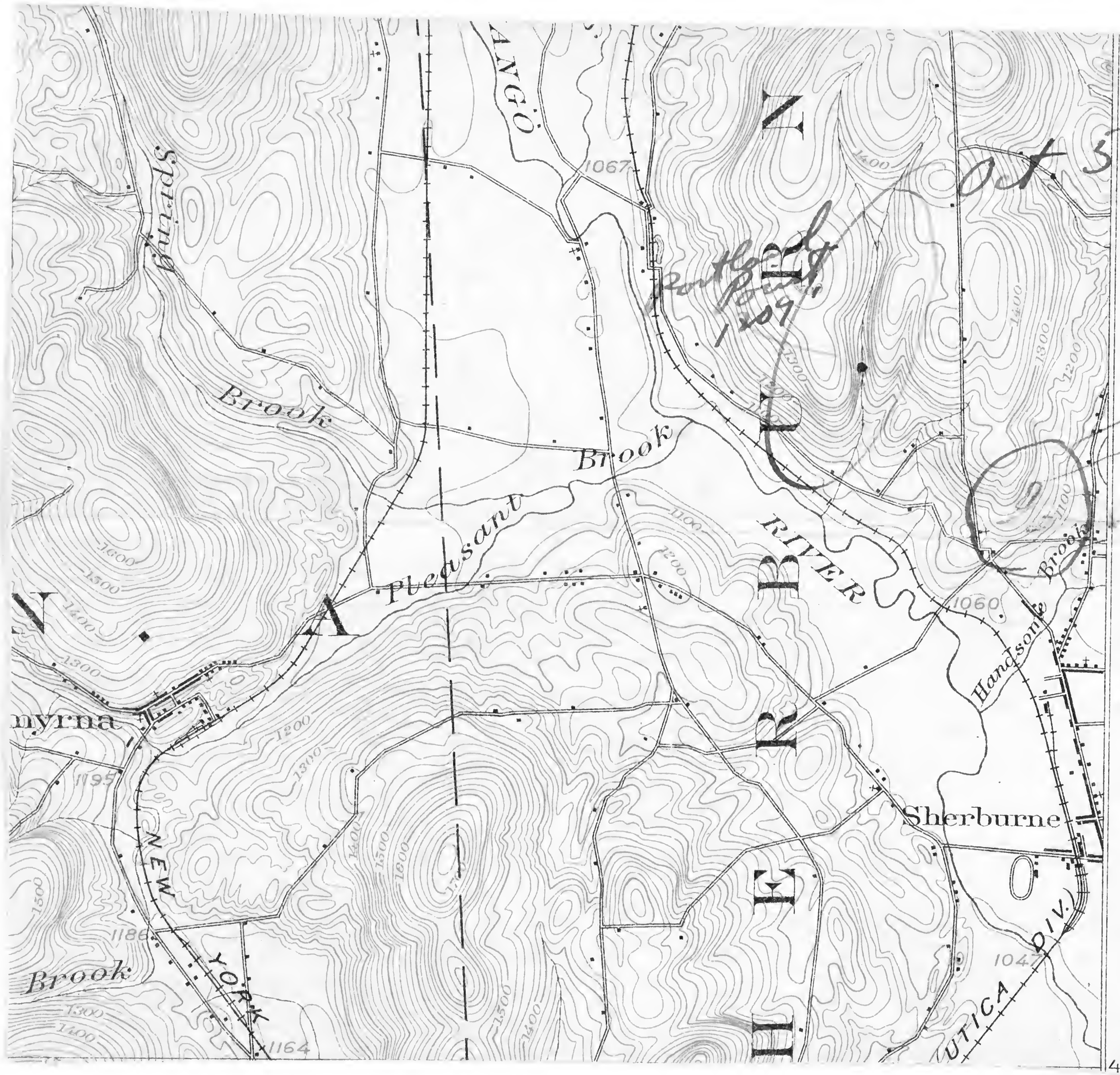

ONEIDA CO
MADISON CO
ONTARIO
NEW YORK
Lyons Pond
Brook
Jones Valley
1158
1173
1262
1282
1233
1227
1333
1596
1489
1556
1716
1566
1763
1511
1073
1046
1200
1300
1400
1500
1600
1700
1800

493c



This ridge of Hunt's Mt. above X bolded so probably the site is followed by blue

12



Oct 5 2 1928

Oct 5 21

493a

494 Sangerfield Valley 494

Oct. 7, 1928

[illegible] Lake outlet

Ludlowville begins at 1580' AT

0' – 30' 30" – covered. The upper 1' of this interval [illegible] [illegible] [illegible] shale [illegible] fossiliferous with the following fossils:

M. [illegible]
M. [illegible]
P. [illegible] a
N. [illegible]
A. [illegible])
[illegible]
A. umbonata c
Leptaena sp.
A. [illegible]

A. [illegible]
L. [illegible]
[illegible] c
C. [illegible]
C. congregata
M. [illegible]
C. [illegible]
N. [illegible]

[illegible] top of the [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] of [illegible] shale.

30' 30" – 35' 35" – covered

35' 35" – 40' 40" – mostly dark arenaceous shale containing A. umbonata. [illegible]

40' 40" – 45' 45" : dark [illegible] arenaceous shale

Pleurodictyum sp.
C. [illegible]
N. [illegible]
[illegible]

T. [illegible]
M. [illegible]
Chonetes sp.
Leptaena sp.

[illegible] of 3' at the top of the interval.

45' 45" – 70' 70" – covered. The top of this interval [illegible] the very base of the [illegible] [illegible].

70' 70" – 75' 75" arenaceous shale, dark, soft.

L. [illegible] c
A. umbonata c
N. oblongata

Chonetes sp.
M. [illegible]
S. [illegible]

495

N. angusta found here & there in the Colorado probably throughout

25' 25" – 29' 30" – [illegible] a little common

S. pennatus — Pettycrew sp.
C. [illegible] — P. [illegible]
N. [illegible] — N. [illegible]

80' 80" – 85' 85" – Quite numerous sh.

P. [illegible] — N. [illegible]
S. [illegible] — P. [illegible]
N. [illegible] — S. pennatus
~~[illegible]~~ — C. [illegible]
P. regularis — N. [illegible]
P. [illegible] — C. [illegible]
P. [illegible] — N. [illegible]

85' 85" – 90' 90" – Quite numerous that common
90' 90" – 95' 95" – [illegible] Quite

N. [illegible] — S. pennatus
95' 95" – 100' 100" – common sh.
100' 100" – 105' 105" – [illegible]

N. [illegible] — N. pentaster
P. [illegible] — S. pennatus
S. pennatus — [illegible]
P. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
P. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]
S. [illegible] — P. [illegible]

496

125'/125' — 135'/135'' — The top of this instrument was at the brink of the falls. At the brink of the falls the following were found:

Bromkorite	Magnetite
Hypersthene	Cummingtonite
Plagioclase	Rosamondite
Cummingtonite in small c	

135'/135'' + y' — top of apparently in-situ bedded blocks, or remnants of a wall built of stones, in small piles of apparently Cyclopean form. Not exact position. Should be recorded. Nearly 8 rods from the edge of the falls — 120 paces from the edge of the falls, but bedrock here. Short cut across the west end of the lake between the falls & the lake. This rock is similar to that at the top of the falls. Hence the top may be the lake level 1732'. This would put the top of the Beagle at about 1609'. Green Lake is about 3' below the top of the falls & the level of the lake.

1732
1609
123

497

Oct 21

Along roadside at Raymond Creek
Top of Rockport at 1375; also at 1500
Shrub Delphi exposed above at top
head of road about 150 yards from
N. Carolina

Paeonia Delphi
Adlumia
P. officinalis
C. longipes
C. bulbosa
C. canadensis
C. montana
C. nutalliana
C. sempervirens
C. fumaria
P. pedicularis
C. canadensis
Tiarella
Lig. persicum
N. angusta
M. Lorentziana
N. triquetrum
P. aconitifolia
P. fischerianum
T. nutalia
P. formosulatus
T. diversiana
P. obsoletus
O. erecta
P. pyglaea

Above the top of the Rockport about 50' of
Delphi in a shaded cove and fine
bed of Tiar. Top of the hill by the
schoolhouse which is 150 paces north
of C. M. Cooke's. Mountain View from house
opposite Cooke's house on the west
side of the road. Flowers very large for
Pergelia in a bed in a dark gully
and back in shade extending 75 paces
from road to the hanging
weathering of the Delphi. Plants of
of proper size at about 1440' A. Along
along the top of the hill by Cooke's
a photo by the top of the hanging

498

Fossils in the bottom of the Kaskaskia
Leptaena Crinoid stems Nucleospira
Myalina Productella Hypothyridina
Pinnatopora Rhombopora Rhombotrypa
Nicholsonia

Reflections

The Gorton Lake exposures are mostly all in the Pompey. The V. pustulosa is apparently in the Pompey Ark. and represents a new development. I believe that all of the rock in the Palmer's gully probably belongs to the Pompey. However the Pompey is considerably changed. I have left the Emmella beds and the Myaxina beds. The Pompey as indicated at Gorton Lake is at least 120' thick. It is quite possible that all of the Pompey is not exposed at Gorton Lake.

499

Oct 3.

Jumbey Hill

Handdrilling begun at about 1250' A.T.

1250' – 1255'5" f carbed.

1255'5" – 1260'10" – About half way up in this step is top of Rockport at about 1259'. Above the Rockport there is about 20' of the hump and down side of the hump is the Rockport Sandstone Step of Springfield Sandstone

1260'10" – 1270'28" – carbonaceous shale appears on back. At 1272' a hard layer 11" fine

1270'30" – 1280'30" – Top of small falls, rock sandy and hard

1280'30" – 1315'65" – Rockport top of Delphi at 1320' A.T. Remainder of the Delphi 61' thick

1315'65" – 1335'85" – covered. At top 3' of the sandstone of the Laurel 3' in falls. 21' thick

1335'85" – 1355'105" – Coarse carbonaceous shale

[illegible] fossiliferous fragments

N. bellistriata — Orthonema sp.

Leiorhynchus sp. — Bronteus sp.

Cyrtospirifer — Mucrospirifer

Cardiola — Modiolopsis

Cyrtonella — Nucula

Atrypa reticularis — Schizobolus

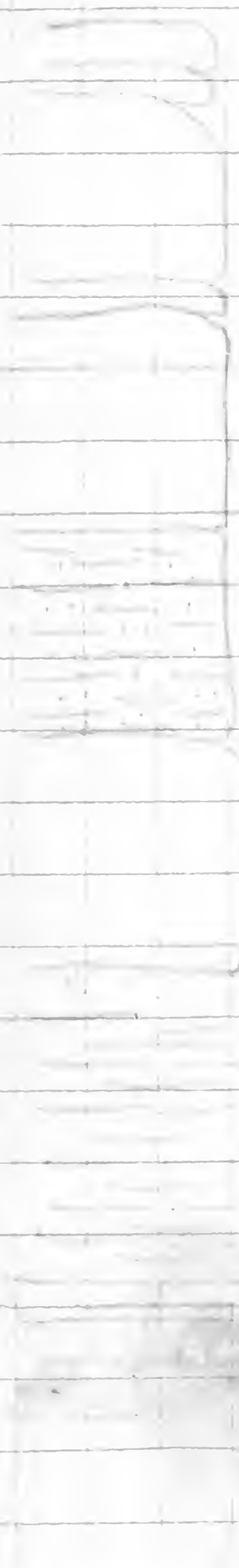
Schizophoria — Schizodus

1355'105" – 1375'125" – covered

1375'125" – 1380'130" – Upper 4' in soft carbonaceous shale with

Schizobolus — Schizodus

1380'130" – 1400'150" – covered. Between 1400' 150" and 1405' 155" [illegible]



500

1400'/50' — 1415'/45' — [illegible]
1415'/45' — 1420'/70' — [illegible] black
[illegible] with [illegible] pine
S. plumata — P. [illegible]
P. [illegible] — H. [illegible]
L. laxa — T. [illegible]
P. [illegible]
1420'/70' — 1425'/105' — [illegible]
1425'/105' — 1430'/105' — [illegible]
black [illegible]
S. plumata — T. [illegible]
P. [illegible] — S. plumata
T. [illegible] — P. [illegible]
1430'/50' — 1440'/90' — [illegible]
S. plumata — P. [illegible]
P. [illegible] — P. [illegible]
1440'/90' — [illegible]
[illegible] of the [illegible] of the [illegible]
[illegible] of the [illegible] [illegible] [illegible] [illegible]
[illegible] completely, [illegible] [illegible]
C. [illegible] — [illegible]
C. [illegible]
[illegible] [illegible] [illegible] 32', [illegible] [illegible]
[illegible] [illegible] [illegible] [illegible] [illegible]
Between the [illegible] [illegible] [illegible] [illegible]
[illegible] [illegible] [illegible] at least 38' [illegible]

501

Side Gully Parker Hill

1405' (155') – 1425' (175') Limestone, covered but a few pebbles of soft sandstone or shale

1425' (175') – 1430' (180') – soft shale gray, some shale:

P. biota — C. [illegible]
C. lama — O. [illegible]
S. planoteo — S. [illegible]
C. [illegible] — O. [illegible]

1430' (180') – 1435' (185') – soft shale –

S. [illegible] — P. biota
P. [illegible] — R. [illegible]

Upper 3½' covered.

1435' (185') – 1445' (195') – covered

1445' (195') – 1450' (200') – soft [illegible]

P. [illegible] — S. [illegible]
P. [illegible] — O. [illegible]
[illegible] — O. [illegible]

1450' (200') – 1455' (205') – [illegible]

P. [illegible] — C. [illegible]
S. [illegible] — P. [illegible]
C. [illegible] — O. [illegible]
C. [illegible] — R. [illegible]
R. [illegible] — C. [illegible]
C. [illegible] — P. [illegible]
S. [illegible] — T. [illegible]
M. [illegible] — S. [illegible]
Capt. [illegible] — A. [illegible]
T. [illegible]

1455' (205') – 1460' (210') – Thin-bedded [illegible] [illegible] in lower 3'.

S. planoteo — C. [illegible]
A. [illegible] — Capt. [illegible]

Upper 2½' covered

502

1460'210" — 1470'220" — covered
1470'220" — 1475'225" — Force 3' covered
Upper 2' partly uncovered on probably
solid at bottom.
1475'225" — 1495'245" — Covered ← in 30.86
but on bottom of it, uncovered at
one place only.
1495'245" — 1480'230" — partly uncovered
Large boulders

1480'230" — 1485'235" — partly uncovered
all of other
Pentremites
Crinoids
Brachiopods

1485'235" — 1555'305" — covered.
1555'305" — 1615'365" — all covered
and shaly.

503

Cut 3'

Hand drilling begun at 1255' AT

1255' – 1325' 26" – covered

1325' 26" – 1330' 75" – soft [illegible]

Nodules (calcareous) / [illegible]

Nodules [illegible]

1330' 75" – 1345' 80" – [illegible]

1345' 80" – [illegible] – soft [illegible]

Carbon [illegible]

1350' 75" – 1355' 90" – [illegible]

[illegible]

1355' 90" – 1360' 90" – [illegible]

[illegible]

1370' 115" – 1375' 120" – [illegible]

[illegible]

1375' 120" – 1380' 125" – [illegible]

1385' [illegible]

[illegible]

[illegible]

1395' 135" – [illegible] – [illegible]

Carbon [illegible]

1410' 145" – 1425' 150" – [illegible]

[illegible]

[illegible]

[illegible]

1435' 180" – 1440' 185" – same

Rest of gulley covered

504

Oct 3rd

Hand drilling begin at 1295' A.T.

1295' – 1409' A.T. Redwood and at top come into Chaetetes Sponge begin.

Dip 7 degrees from Delph

A. [illegible]	C. [illegible]
A. [illegible]	C. [illegible]
C. [illegible]	[illegible]
C. [illegible]	[illegible]
A. [illegible]	[illegible]

7° Delph between 14 & 15 Sp.

The Delphi is 79' thick here and the top contains considerable crown filled Sp. The top of the Delphi and contact with the Pongey is at 1489' A.T.

Contact with upper part Redwood appeared in a gummy 8–10' high.

Fossils at Redwood – Delphi contact

M. multiloba	L. [illegible]
A. [illegible]	A. [illegible]
C. [illegible]	A. [illegible]
P. [illegible]	A. [illegible]
L. [illegible]	C. [illegible]
R. [illegible]	C. [illegible]

Fossils in Delphi – Redwood

Lower Delphi – Almost

On the upper half of the Delphi a band 3 to 4' of the Pongey is included in.

Lot 10 stops there and the Delphi dip 20 to 1 of [illegible] Time and at the [illegible] alongside the [illegible].

Jones gully in the property of J. W. Jones

Fourth Creek

505

Oct 4.

Hard Climbing Digging at 1190 A.T.

1190 – 1210 in 1 chain

1210 – 1220 – 122°30' +3'

D. Sinclair — A. Gottfried

C. Lista — Henry Schlueter

J. Allen — A. Sorensen

J. Hallam — C. Sorensen — L. Lang

A. Sorensen — C. Lorentzen — C. Lista

Mortensen — J. Bellah — L. Olsen

Angusta — J. Tuscotta — A. Hyde

J. Hoffman — Hangsteddt — C. Christensen

Bonkowski — J. Sorensen — C. Lorentz

Here we about H. 1st of heavy, accurate so

exposed in these Dering. Ground becomes

completely made of fairly. Hard to top of the

Delphi and come Stat 1225' A.T. Left Logging

and family, this bed, Left the Family

behind of Tied Mule Train at Hamilton.

Logging —

Lorentzen — C. Sorensen

1210' 30" – 1220' 30" – one chain

1220' 30" – 1230' 30" – Heavy fallen timber

breaking with heavy jungle growth

Crossed Dry Fork Tributary of the

creek, until at 1230' heavy timbered and

dark, gravel in bottom. Indian trail on east

side following up a small creek to

large, boggy land in the middle of a

Corresponding

A. Boyd

506

1245'55" – 1250'60" – [illegible]

C. fragilis — M. substriata
P. fastigiata — C. verrucosa
P. patulus — M. cordata

1250'60" – 1255'65" – [illegible]

[illegible]

1255'65" – 1260'70" – [illegible]

M. concentrica — T. [illegible]
B. [illegible] — M. [illegible]
C. fasciculata — P. patulus
M. hemisphaerica — P. marginata

1260'70" – 1275'85" – [illegible] – [illegible] type
[illegible] a [illegible] and [illegible] slab.
~~[illegible]~~

1275'85" – 1288'98" – [illegible] – slaty [illegible]
[illegible]

P. fastigiata — Lingula
P. flabellum — Orthoceras
(Spirifer plicatus)

1288'98" – 1295'105" – same coarse [illegible]
[illegible] type and [illegible] at the top.
16" of [illegible] – Coming:

D. [illegible] — C. [illegible] — M. concentrica
C. decussata — E. [illegible] — S. permatus
C. [illegible] — S. [illegible] — C. congregata
P. flabellum — C. [illegible] — C. [illegible]
C. [illegible] — C. [illegible] — C. [illegible]
P. marginata — M. [illegible] — M. [illegible]
L. perplexa — C. [illegible]

1295'105" – 1300'110" – mostly covered
1300'110" – 1305'115" – near the middle of this interval that thin slabby sandstones are in the strata they break into extremely ~~flat~~ thin pieces and are clearly Randallsville. Below this at about 1295'105" were seen slabby rs. In the bank above the thin rs between 1300'110 and 1305'115 is a soft, dark, nearly black shale,

507

Looking into very thin plates. Mine in Nearly Randolphville. Fossils are

Hemiaster	I. lunus Conrad
M. pygmaea	L. cornutus
Neolobites	C. vesiculosus
Terebratula (gracilis)	N. obliquatus

The beds of plants have yielded up for fully 20'.

Above the first appearance of above the top of the Exogyra beds are some sandy shales abounding in Cretaceous fossils and belong to the Raritan.

508

Oct. 4.

[illegible] at 1270'

1270' – 1360' 90' – covered

1360' 90" – 1365' 75' – Lower 3' covered upper 2½' in [illegible] [illegible] with [illegible]

P. radiata a [illegible]

A. [illegible] [illegible]

C. [illegible] [illegible]

[illegible] [illegible]

1365' 90' – 1390' 100' – [illegible]

C. [illegible]

Oct. 4. Hubbardsville

Rodaik Station, Sherburne Road

[illegible] [illegible] at 1255'

1255' – 1288' 30' – covered

1288' 30" – 1293' 35" – light gray [illegible] C. [illegible]

1293' 35" – 1298' 40" – [illegible] [illegible] [illegible]

weathered pebbles – [illegible] [illegible]

S. [illegible] a [illegible]

M. [illegible] [illegible]

Seliq. [illegible] P. [illegible]

D. [illegible]

1298' 40" – 1303' 45" – [illegible] [illegible] [illegible]

1303' 45" – 1313' 55" – covered

1313' 55" – 1318' 60" – at the base [illegible] [illegible]

[illegible]

S. [illegible] [illegible] [illegible]

Above this is a platy [illegible] [illegible]

509

Leptaena	Tullomella
Lingula	
Rhynchonella	Parallela
R. acuminata	Grossa
C. elongata	Hillingatra
C. [illegible]	Pectinomus
C. [illegible]	R. [illegible]
C. [illegible]	C. [illegible]
Hypanthina	T. bellerus
Hypothyridina	Pennsylvanica
Hypothyris	Parallela
Delthyris	Microrhynca
C. principes	P. [illegible]
R. [illegible]	S. [illegible]
C. [illegible]	Lonsdalei
Spirifer [illegible]	Crinalata
Sp. [illegible]	[illegible]
Cleiro	

Oct 4th

Below dam

Well cross-bedded as very thin-bedded fossil

Leptaena	T. [illegible]
Strophomena	C. [illegible]

At the top of the ss. & just below the dam is 6" impure lo; in place a coll. [illegible] C. [illegible] is probably red date lo.

Above the lo. is a considerable gray shale [illegible] with

P. [illegible]	
C. [illegible]	
C. [illegible]	

This may be the Shawnee-Ind contact

510

In the gully of Hurts Creek the Pompey was like that seen elsewhere on the Morrisville quad. but the Ernella zone was very thin. In ten feet above it, it was followed by ss. & carbonaceous shale. This was followed by soft shale, typically Randolfville. Apparently what has happen in the Arkadelphia Valley is that the lower or Litilina beds of the Randolfville have become sandy, the Ernella zone is gone so that the Pompey and the lower Randolfville cannot be divided.

Below the dam at Oct. 4 the cross-bedded ss may belong to the Red Gate or Colgate and the 6" of ls. may be the Red Gate L. S. sandy lis & S. divaricatus were not seen however.

511

Oct. 5.

Handkerchief begun at 1180' A.T.

1180' – 1260' 80' – curved

1260' 80' – 1265' 05' – at least 3' of soft shale with the Tomichi 4' of limestone

[illegible]

S. Johnston E. Clark A. Gunton
J. Connelton B. Gibbons C. Letteberto
R. Montgomery Jos. Lowe C. Connelton
J. Knapstrick B. Fischer A. Griffith
Pat Ryan O. Clement R. Fairbrick

1265' 85' – 1275' 95' – soft fossil shale, very black shale fossil fossils

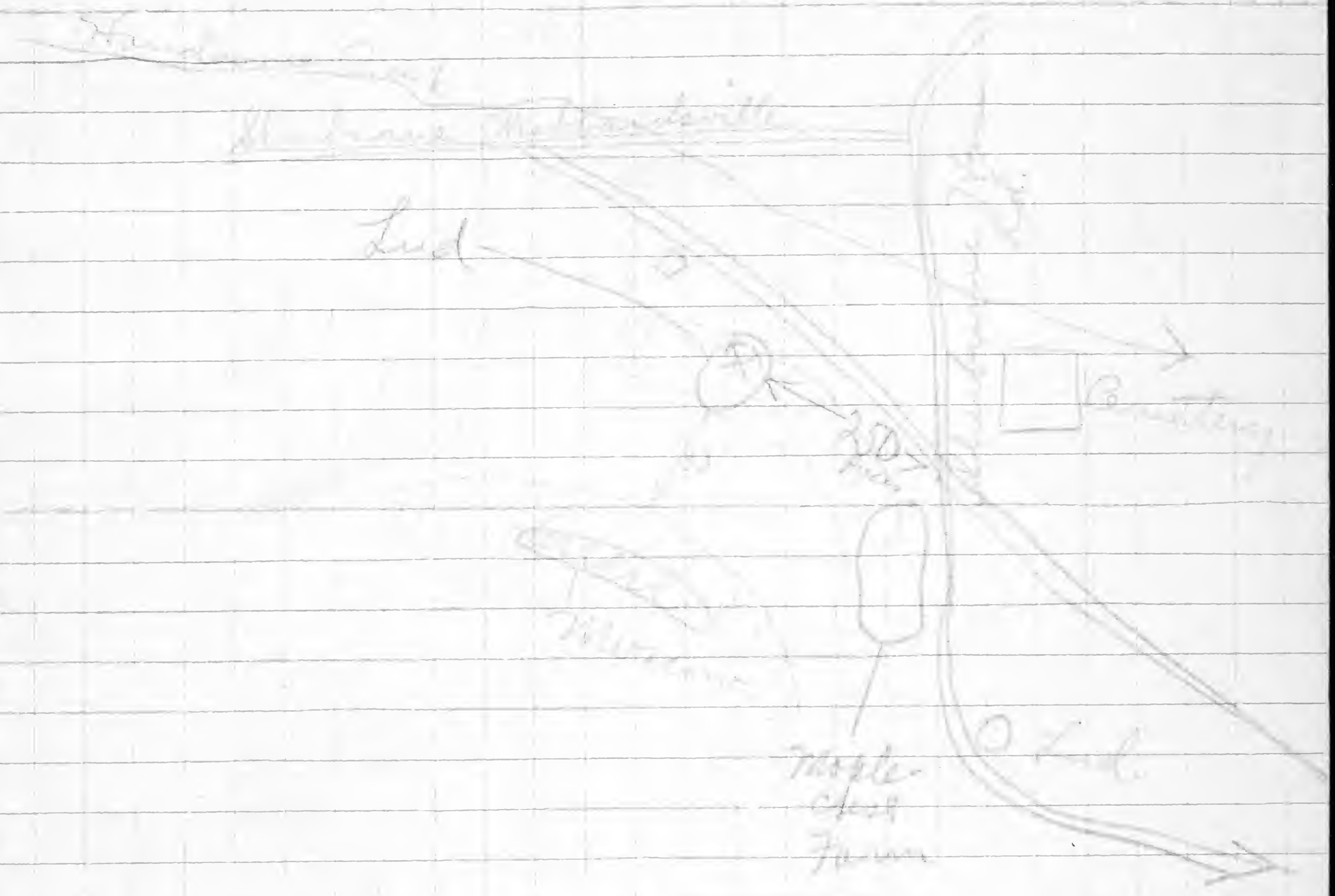
1275' 95' – 1275' 95' – hard crystal [illegible] top of the [illegible] shale [illegible]

[illegible]

[illegible] J. Johnston J. Knapstrick
[illegible] Connelton J. Griffith

1275' 95' – 1280' 00' – curved

1280' 00' – 1285' 00' – nearly curved. Small patch of black [illegible] fossils [illegible]


Maple
Glen
Farm

Oct 5'

H. triquetra
S. pennatus
P. radiata
A. princeps
P. lineatum
A. umbonata
S. [illegible]

R. [illegible]
T. carinatus
M. concentrica
C. pellostriata
Fen. [illegible]
L. perplana

P. flabellum
A. spiriferoides
G. [illegible]
C. granulifera
P. patulus
S. mucronata

This fauna [illegible] [illegible] of Ludlowville [illegible] [illegible] of Hamilton group [illegible]

5' above the top of the [illegible] ledges of [illegible] [illegible] [illegible]

C. mucronatus [illegible] [illegible]
C. [illegible] R. [illegible]
A. umbonata S. [illegible]
N. bellistriata [illegible]

At Bend in State Rd. [illegible] [illegible] [illegible] [illegible] of heavy bedded [illegible]

S. pennatus P. flabellum
M. concentrica P. [illegible]
L. perplana

The top of the Lud-ledges are ~~[illegible]~~ 30' above intersection [illegible] State Rd. and 250 paces from same place. Contact of Lud & Mosc is about 20' above the top of [illegible] ~~[illegible]~~ ledge. There is about 15' of Lud [illegible] and about 10' above [illegible] edges [illegible] [illegible] patch of [illegible] About 10' of [illegible] [illegible] base of the [illegible] [illegible] 55' above [illegible] [illegible] [illegible]

Oct 3

Barbers Gully (On [illegible] property)

Portland Point

1. Basal bed – 6" thick – gray sandstone with concretional [illegible], ~~[illegible]~~ and [illegible] fossils for [illegible] [illegible] about ~~[illegible]~~ 1" of [illegible] [illegible]. This bed [illegible] to contain:

[illegible] [illegible] L. [illegible]

2. 13" – calcareous [illegible] shale

[illegible] [illegible]

C. bellistriata [illegible]

E. [illegible] [illegible]

3. [illegible] [illegible] [illegible] [illegible] 4" of [illegible] [illegible] [illegible]

R. [illegible] [illegible]

E. [illegible] C. bellistriata

A. [illegible] [illegible]

Pentagonia

4. [illegible] [illegible] [illegible] from 3 and [illegible] 2" thick

[illegible] [illegible] R. [illegible] [illegible]

5. [illegible] from 4 – 9" thick

[illegible]

[illegible] R. [illegible]

C. [illegible] [illegible]

[illegible] [illegible] [illegible]

[illegible] [illegible]

[illegible] M. concentrica

E. [illegible] A. [illegible]

C. bellistriata

R. [illegible]

[illegible]

[illegible]

C. concentrica

120
119
1090
1209

514

The Corners of Portland Point appeared
have largely called of late in the
gulley. It was the slip in repairing
the channel — on shown in
the channel. A small tide bed must
be made on a small tide way.

Fools creek
Eastern
Eastern Tube
Eastern
Eastern Tube
Eastern
Eastern
Eastern

Base of PP is 22 feet above mean
Excell of Point Lake is 7 feet above mean
Pt to PP except 1 mile of 20 feet
PP at 1209.47

Gully on property of Wesley Barber
Gully to effect of Entrance of Lake
Pt to Brunswick Cove of Lake

95
5
100

515

Oct 5th

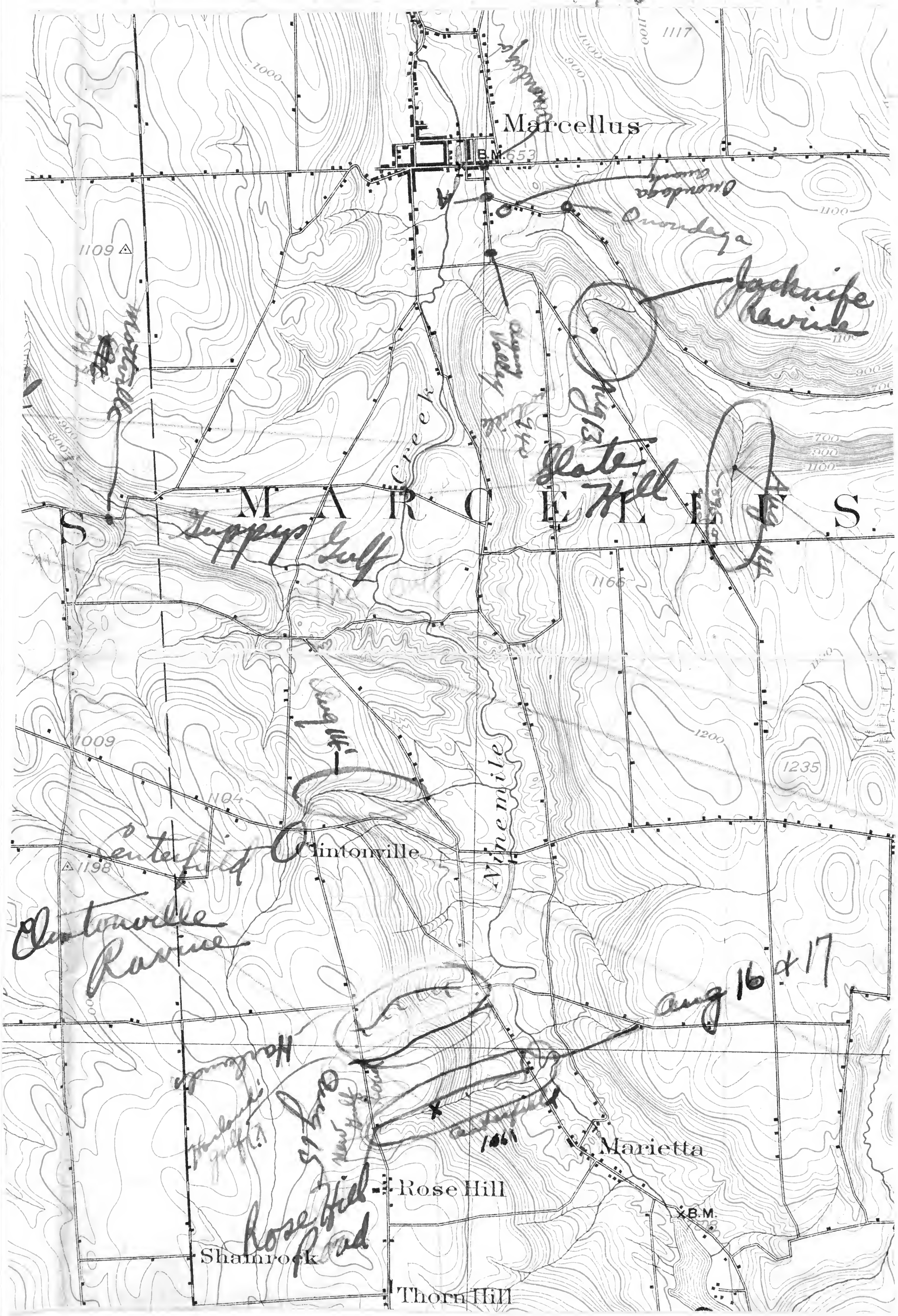
0' – [illegible] – 60' 60" – exposed.
60' 60" – 65' 65" – at the top is 2' of very hard arenaceous sh. with [illegible] on top of coarse spirifer zone
65' 65" – 70' 70" – [illegible] shale
70' 70" – 75' 75" – [illegible]
[illegible]
75' 75" – 80' 80" – [illegible] shale
80' 80" – 85' 85" – [illegible]
85' 85" – 90' 90" – [illegible] of
90' 90" – 95' 95" – [illegible]
shale
100' 100" – 105' 105"
105' 105" – [illegible] shale
[illegible]
[illegible]

Top of ff. is 19 steps above road
Top of [illegible] is at 1420'
Bed of [illegible] is the top of [illegible]

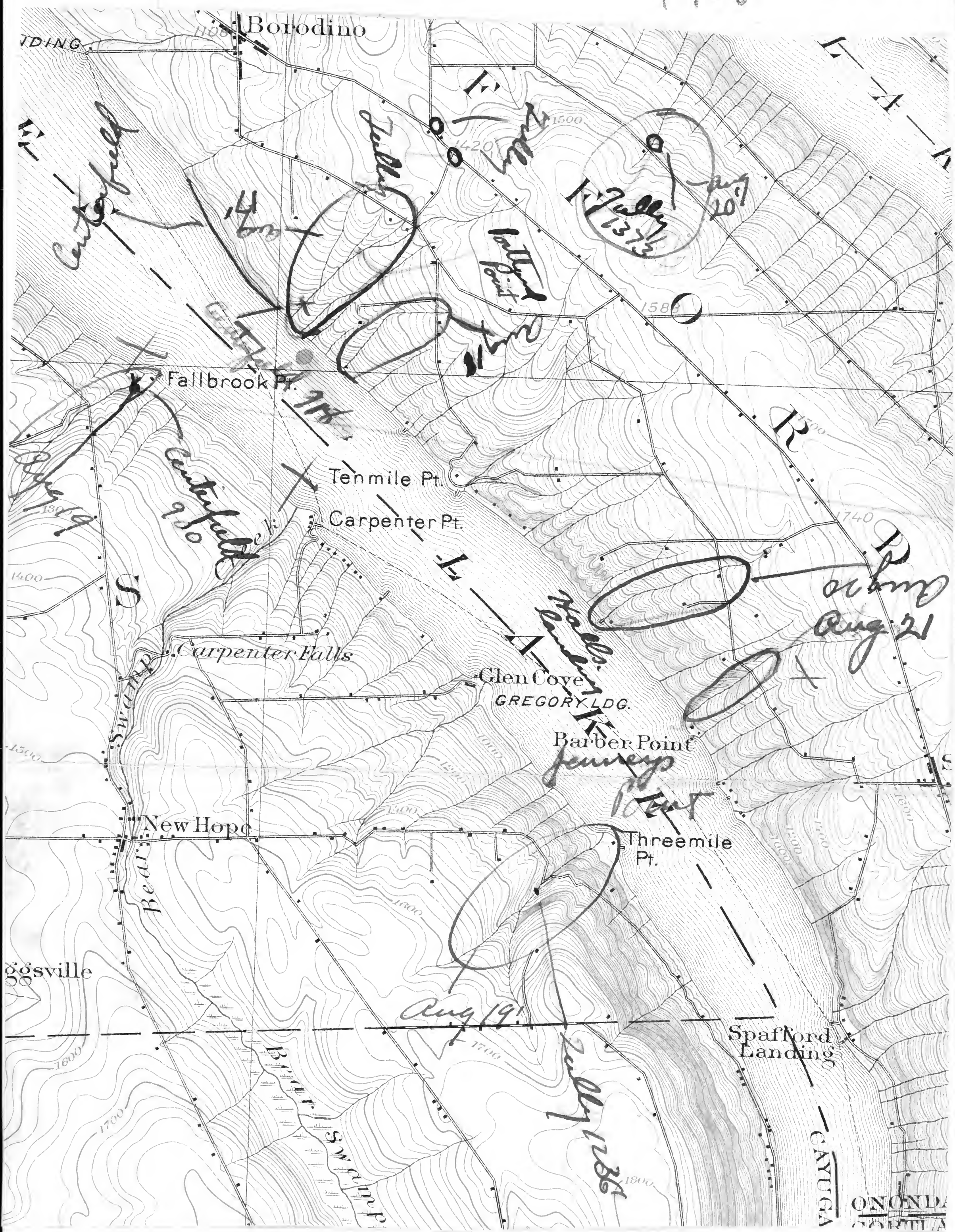
Blue sh. like Genesee was exposed from top of Gully to where Gully crossed road at about 1490'. There was fully 50' of the bluish sh.

1928

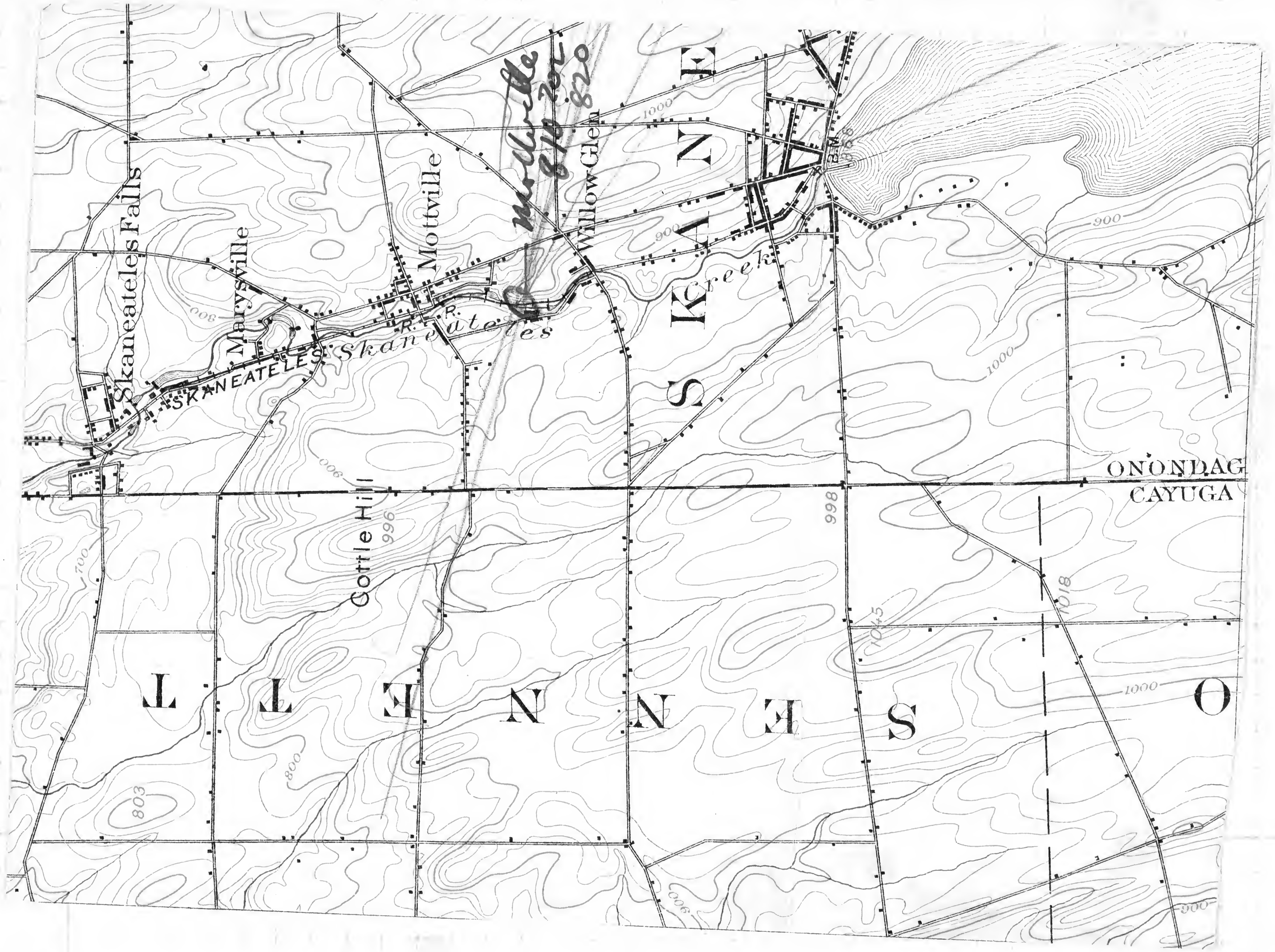
5150a


Marcellus
B.M.653
Onondaga
Onondaga Creek
Onondaga
Jackknife Ravine
Onondaga Valley
Slate Hill
Tuppers Gulf
MARCELLUS
Creek
Long Hill
Centerfield
Clintonville
Clintonville Ravine
Aug 16 & 17
Marietta
Rose Hill
Rose Hill Road
Shamrock
Thorn Hill
B.M.
1000
1100
1117
1109
1166
1009
1104
1198
1200
1235
900
800
700

1928 515a


Borodino
Fallbrook Pt.
Tenmile Pt.
Carpenter Pt.
Carpenter Falls
Glen Cove
GREGORY LDG.
Barber Point
New Hope
Threemile Pt.
Spafford Landing
CAYUGA
ONONDA
Swamp
Bear
Aug 19
Aug 21

5152


Skaneateles Falls
Marysville
Mottville
Willow Glen
SKANEATELES
Skaneateles
Creek
R.
R.
Cottle Hill
996
998
1018
1045
803
700
800
900
1000
BM
ONONDAG
CAYUGA
S K A N E A T E L E S

516

August 18

Marcellus Jackknife Ravine

A Road intersection marked A on the Map is probably the top of a spur. A fence is situated 300 links east of A and 93 links south of the intersection A. This is a distance of about 692 A.T.

Soundings are supposed to be 132 links north of A. QT 256 feet in a straight line to Marcellus Co. of the Cross Marcellus QT 556

13'

The Course from the bottom of the Cliff to the top is as follows

[illegible]

20' 20 – 60 60 – [illegible]

60' 60 – 75' [illegible] – [illegible] of the Top

75' – 81' 81 – [illegible] a light stratum

[illegible] 81 – 92 a [illegible] band 1' thick

[illegible] 92 – [illegible] Sandstone, [illegible] the Marcellus

[illegible] 1' comes the Mottled band

[illegible] the Marcellus to the

Cliff. The bed of the band dipped

of 147 feet. It is called the band dipped

below is the Mottle the Cliff from

be 131 feet thick. The great fossiliferous

[illegible] 1st 87' above the top of the Marcellus

42

42
5
210
18
228
81
147

14) 210 (15
12
90

517

Fossils seen in the Marbles are:

Crinoids	Nucomiana
Pleurotomaria	A. andacula
E. vitis	A. rubricata

On the Marbles the layers are less of the Coloraceous stuff & X layers of Connections at the Marble Lodge & make out the exact limits of the Lower Layer here.

Fossils in the Marble above the Lower Layer are:-

A. rubricata, Lastlogatea, Impressula

Lower boundary is only about 10' above the Lower Layer.

10' 10" - 15' 15" above the Lower Layer were seen

A. rubricata, Impressula

C. Lattin

Yellow Gates

Between 25' 25" & 30' 30" above the Lower Layer were seen Pleurotomaria, P. rosa, About 45' of rock is exposed above the Lower Layer of the Marbles.

The top of the Onondaga here appears at the elevation of 600 where the old highway goes south from Main St. in Marcellus

518

On the road between Marcellus and Skaneateles the Mottville hard band occurs between 30'32" and 55'55" above the steamand highway intersection, in other words at 892' A.T.

The Agoniatites in this ravine occurs about 20' above the valley floor at about 700' A.T. which would bring the Mottville hard layer at 943' A.T. (actually measured at 935' A.T.) The average of the two is probably correct.

42 +5
1
226
18
243
65
308
680
988
+20
1008

220
81
189
238
700
938

65'

Ideal Section in vicinity of Marcellus

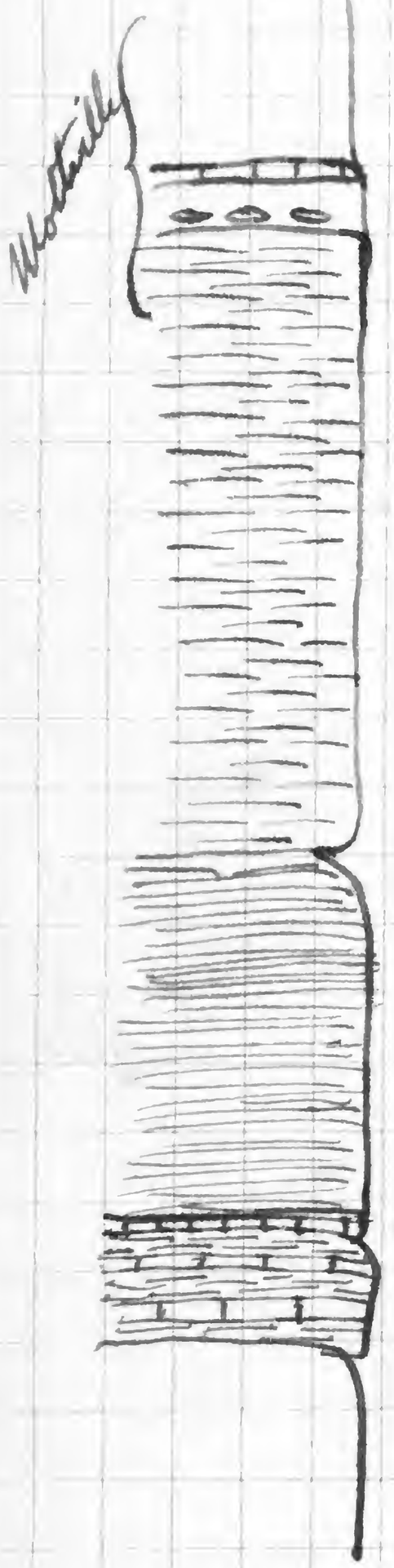
519

519

935
943
1878
939

140' of Skaneateles

185
15
200
680
880
908
1791
895



520

Aug 14.

First rock SE of last stopping August 13.
Hand digging begun at approximately 680' A.T.
0-65' 65" - covered
65'-71'10" - first rock exposed, shale into white
stock - no fossils. 71'10"-100'100" - no
100 Nov - 14 - 1 - [illegible] shale line P. fragilis
[illegible] shale is dark gray very finely
pitty
Bf 185 Rs - [illegible] the excavations made the
Methodist hand Cooper [illegible] is [illegible]
[illegible] The hand Cooper exposed about
833' A.T. [illegible] in the hand Cooper [illegible]
[illegible] R. [illegible] L. [illegible]
[illegible] R. [illegible] C. [illegible]
[illegible] R. [illegible] [illegible]
[illegible]

[illegible] about 810.9' above the
hand Cooper and 1 [illegible] the shale of the
Chapman [illegible] here. All [illegible] should
will be referred to the hand Cooper as a
datum
15'10" - 15'15" - 35'35" - some [illegible] fragments not
[illegible]
L. [illegible] B. [illegible] [illegible]
M. [illegible] [illegible] [illegible]

521

The table is becoming sandy at 5' below
the bed lager and does not pertain to
a range of [illegible] the lager
N. trigonetis, S. [illegible]
at 75' an abundance of Pinnul Tabs were
collected at 80' 80' and [illegible]
P. fragilis, E. punctata, M. pygmaea
[illegible] 85' 90' 95' [illegible]
[illegible]
at 100' 105' — Fragments.
Rock terminated between 130' 130' & 135' 135'
Bed came off apparently 160' 160' [illegible] the
bed [illegible] at [illegible] 1056'.
The 150 feet of Monticello Bed does not differ
markedly from the Cardiff. At Lee Bowers
back the huge concretions of the Cardiff
[illegible] too hard lager at 908 ft.
The [illegible] lager is more regular
at the Monticello. Did not do [illegible]
place by working downstream. There were
145 145' to the bed lager or 157 feet to
the bed lager, subtracting at 7' 13' for
the Monticello bed, the Cardiff about 149'
thick in this manner. The Monticello bed lager
in this manner is at 935 feet A.T.

522

August 14'

Handlevelling from about 790'

Clintonville Ravine, 2½ mi. NNW of Marietta

0–15'15" – covered

15'15"–20'20" – Fossiliferous shale, [illegible]

Fossils were:

C. fragilis Nucleospira Spirifera

Leiorhynchus Rastrospira B. lata

20'20"–25'25" – covered shale, N. lepta

25'25"–30'30" – " Fossiliferous shale, N. lepta

very fossiliferous, fossils were

30'30"–35'35" – covered

35'35"–40'40" – "

40'40"–50'50" – " [illegible]

50'50"–55'55" – covered

55'55"–65'65" – covered

65'65"–70'70" – R. lata, N. lepta, D. [illegible]

M. pygmaea, R. [illegible]

70'70"–75'75" – Nucleospira, N. lepta, R. lata

Leiorhynchus, R. [illegible]

R. lata [illegible] at the top of 80'80" above the

following section:

Fossils at 25'25" were [illegible] in a sandy shale

R. lata, Nucleospira, N. lepta, M. pygmaea

P. [illegible]

125'125" – C. vanuxemi

150'150" – C. vanuxemi, [illegible] P. [illegible], [illegible]

[illegible], N. [illegible], M. [illegible],

P. [illegible], C. [illegible], M. pygmaea

[illegible], W. [illegible], [illegible]

These shales occur at the top of 150'150"

[illegible] of the shale is very [illegible]

fossiliferous. A few concretions in the

lower part were noted. C. vanuxemi is

especially common.

523

150' 150" – 155' 155" – Dark [illegible] shale

M. appressa M. stagnata

C. debilis B. [illegible]

M. [illegible] [illegible]

Rock on the side of the cave [illegible] 25' 25" –

165' 165' Above the [illegible] (169' AT.)

[illegible] – 30' 30" – 110' 110"

Between 110' 110" – 115' 115" [illegible]

M. appressa M. stagnata B. [illegible]

C. debilis P. [illegible] O. [illegible]

115' 115" – 125' 125" – [illegible]

[illegible] and [illegible] a [illegible]

the stream.

C. [illegible] M. appressa

M. stagnata

125' 125" – 130' 130" – [illegible]

[illegible] C. debilis [illegible]

M. [illegible] M. stagnata

130' 130' – 140' 140" – [illegible]

[illegible] and [illegible]

140' 140" – 150' 150" – [illegible]

150' 150" – 170' 170"

[illegible] C. [illegible] P. [illegible]

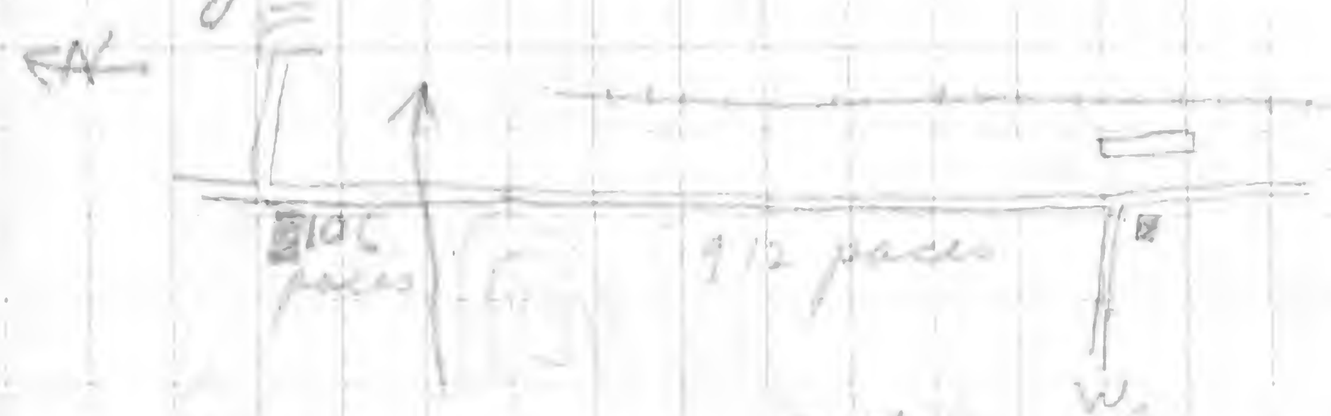
M. [illegible] C. [illegible] M. stagnata

At 170 large (6") [illegible] [illegible]

[illegible]

Aug 15. = Harlands Gulf

Gully is located 912 paces N of roadway with exposures and 106 paces south of a road passing E across the valley



First exposures come 7 steps above highway (78')
Handlevelling begun at 780'

0 – 35'35" – covered.

35'35" – 40'40" – Dark grey shale fracturing into pieces, fossils rare, L. laura, P. [illegible], B. subcarinata.

40'40" – 55'55" – same. B. lodensis, N. oblongatus, B. subemarginata

55'55" – 75'75" – " S. crotalum, O. subemarginata, N. triqueter, N. [illegible], M. pygmaea, O. parvula, P. discoideum

Small concretions are abundant in the shales in the interval especially between 65–75'.

75'75" – 80'80" – first 5' of a falls. S. crotalum, M. pygmaea, P. discoideum,

80'80" – 85'85" – L. laura, N. triqueter, P. discoideum, S. crotalum, N. oblongatus, M. subalata,
at the top of this step the shale is much sandier, altho the fauna is the same.

85'85" – 90'90" – L. laura, S. crotalum, M. pygmaea, N. triqueter, N. oblongatus, S. crotalum, [illegible] (?).

90'90" – 100'100" – the fauna in the shale between 90'90" and about 2' below the top of the falls at 100' has [illegible] in great [illegible] together with [illegible] especially. In the upper 2' of the falls the rock is hard, sandy and has L. [illegible] in some abundance

152
1984
114

100' 100" – 105' 105" – coarse shale continues for 7 above ledge of [illegible]

M. subulata ? | [illegible] | P. [illegible]

M. [illegible] | [illegible] | [illegible]

N. triquetra | C. [illegible]

105' 105" – 110' 110" – shale is soft and breaks into little chips like that at the beginning of the section. Shale becomes gradually sandier from about 20–30" up till it [illegible] by the sandy shale at the [illegible] of the falls and for 7' above it.

110' 110" – 120' 120" – [illegible] of the shale.

N. triquetra, N. bellistriata, P. fragilis, C. [illegible]

120' 120" – 125' 125" – same. L. [illegible].

125' 125" – 140' 140" – 2' above top of 125' 125" comes a calcareous concretionary layer abounding in [illegible] between 130' + 135' [illegible]

S. [illegible] | E. [illegible] | N. bellistriatus

R. [illegible] | [illegible] | [illegible]

[illegible]

Fossils, the same layer as is [illegible] the [illegible] section of Aug 14. Fossils noted at the [illegible] layer are:

P. nana a | M. subulata C | N. arcuata [illegible]

C. [illegible] | N. bellistriatus | B. [illegible]

[illegible] | [illegible] | M. pygmaea.

[illegible] found [illegible] the [illegible] of the [illegible] This is the first N. arcuata I have seen in this [illegible] section.

In the shale above the Gypsum bed are N. bellistriatus, M. subulata ?.

140' 140" – 145' 145" –

N. bellistriatus | M. pygmaea

N. triquetra | C. [illegible]

A. umbonata

380
32
417
332
85

Allegrais spiniferoides c } 85'

35' sandy sh supported by 2' hard calc sandy sh, sandy shale

Dark shale 70-98' (Ledyard?)

hard layer 6-9"
shale 8 feet 8 1/2'
~~shale~~ fossil shale 2 feet (Ledyard?)
shale 2'

25'

Nyman bed 1'6

shale 114'

Cuttingsville?

Ledyard?

526

145'-145' — Algal [illegible] M. subulata
[illegible]

155'-155.9' — 160'-169' — [illegible] Tan [illegible]
above the [illegible] level.

C. [illegible] — P. [illegible]
M. subulata — P. subdomiginata
[illegible]

[illegible] step is a layer of [illegible]
[illegible] shale containing the [illegible]
C. [illegible] — Bactrites — [illegible] (?)
N. trigonata — C. [illegible] — S. permatus

Between the [illegible] at 155'-160' is a layer
of black shale [illegible] 2 feet
and then a [illegible] layer [illegible]
as follows:-

S. permatus — C. [illegible]
Nostlingatus — M. subulata — [illegible]
[illegible]

[illegible] shale [illegible] is a black shale containing
C. [illegible]. The shale above the [illegible] of
S. permatus bed is [illegible] shale and [illegible]:
S. permatus — C. [illegible]
C. [illegible] — M. subulata
M. [illegible]

This shale [illegible] 155'-155' [illegible] which
is a 6-9" layer of [illegible] rock. Fossils [illegible] in
the 8½' of shale between the S. permatus bed
and the [illegible] are:-

C. [illegible] — C. [illegible] — C. [illegible]
S. permatus — P. [illegible]

The [illegible] is mostly soft [illegible] shale [illegible]
but [illegible] [illegible] are [illegible]
in it.

Fossils in the upper 4' [illegible] are:-

S. permatus — C. [illegible]
C. subulata
S. permatus

$$\frac{\frac{10}{10}\cdot\frac{18}{10}}{\frac{10}{10}}$$

527

[illegible] 125'-125' — [illegible] shale [illegible] [illegible] of 6 feet [illegible] [illegible] [illegible] [illegible] [illegible]

[illegible] in the Indian [illegible] [illegible] [illegible] [illegible] representing the [illegible]

125'-200' — [illegible]

O. lobe

S. [illegible]

200'-210' — [illegible] shale

C. [illegible] C. [illegible]

P. fragilis C. [illegible]

210'-220' — [illegible] shale [illegible] has been [illegible] dark, fairly pretty [illegible] in [illegible]. It is dark that the [illegible] below.

220'-240' — [illegible] perhaps [illegible] coarser. [illegible] abundant, and large

240'-245' — [illegible] [illegible] [illegible] occurred [illegible] [illegible] at 240-245'. The dark shale is at about 260'-265' and is then 95 feet thick or 103' thick. The exact contact with the bluish sandy shale with P. flabellum was not observed. Probably 98' is the correct figure. The P. flabellum was found at 265'-265', near the black shale and below the probably five or 10' below. The black shale is probably 90' thick. The shale preceding it [illegible] breaks into large slabs and [illegible] in Dasycladus markings.

P. flabellum C. [illegible]

P. [illegible] C. bellistriata

[illegible] C. [illegible]

528

245'-24'-' - 280'-275'-' - falls.
280'-280' - 285'-285' - Coarse sandy blue-gray shale marked by Pecten sp.
S. perplana
Pall. constricta

This rock is most very fossiliferous and must represent the zone above the Plenodesty zone. The latter was not seen and is in the face of the falls a block from 18 rods back which contained P. Pallatellum & A. granulosa. The P. Pallatellum found at 265-270 must be near the top of the Plenus zone

At about 332' was a hard layer in the stream about 3' thick forming a cascade and a flat in the valley floor. Fossils found at the base of it are
F. hemiplicatus — R. granulosa
Favosite sp. — M. concentrica
In the upper part
F. cribriatus — S. sculptilis
At 325'-325'-330'-330' the hard sandy shales are followed by soft shale containing
S. perniciosus — H. pustulosa
C. rectus

330'-330' - 335'-335' - 5' of soft gray shale like that above
S. spinferoides — L. perplana — Fox Run
P. Pallatellum — S. perniciosus — C. rectus
335-335'-340'-340' — M. [illegible] and hard
M. rudiata — S. perniciosus — A. spiniferoides
340'-340' - 345'-345' same shale
M. biata — L. lama
P. terminata — Prorlenkella
A. spiniferoides

345'345" – 350'350" – same as ab[illegible]
A. spinifer[illegible] [illegible]
[illegible]
C. [illegible]dacula

350'350" – 360'360" –
A. spiniferoides c
C. [illegible]
D. [illegible]
~~[illegible]~~
D. acuminatus

360'360" – 365'365" –
Blue gray sandy shale reminding one
of the [illegible] shale.
A. spiniferoides c
E. penitus
C. acuminatus

365'365" – 375'375"
A. spiniferoides
S. [illegible]
R. penelope
[illegible]
[illegible]

The [illegible] 385' [illegible] appears [illegible] all of the way.

[illegible] located [illegible] south of the first [illegible] of Rose Hill [illegible] of this intersection.

The section seen today has few elements in it that aid in determining the section. I have not found any rock that I believe is the equivalent of the Centerfield. The band with Nyassas probably represents the thinned equivalent of my Pompey and the layer with A. boydi may represent the Delphi. These would be risky correlations. The shale above the Nyassa bed may represent the 5' above the Pompey and the ten feet in the Bear Mountain Ravine that has calcareous lenses.

530

The dark shale above the Spirifer pennatus bed I believe is the representative of the Ledyard. It is 90-98' feet thick. It has B. detrostriata which is rare in other horizons. It is succeeded by shale carrying P. flabellum, then sparsely fossiliferous coarse shale for a number of feet and the calcareo-arenaceous shale containing corals. These corals are diagnostic of the Centerfield, but may also represent the coral beds on Lords Hill member. The shale above this I do not place but with S. demissa in it it appears to be the shale above the coral beds at Fellows Falls. The V. pustulosa is a mystery.

531

Aug 16.
Marietta

125'/125"

Point rock seen between 75'/75" and 80' above road. At the very top of 125'/125" was seen the one foot conglomerate and calcareous layer

Fossils seen below the Hyalina bed were

C. vertebra L. decipiens Productella sp.
N. obliquatus N. tigrina L. lamellosa
S. permatus N. pygmaea L. dubium?

Fossils in the Hyalina bed were

A. bovis N. tigrina Phyllopora
C. vertebra N. deflis Lingula
P. argata N. obliquatus
P. lata Fenestella
Bucanomagnata S. permatus

The ~~bed~~ level of the Hyalina bed is a white band made up partly of shells and contains the Hyalina. Just above and below it.

Just 1' above the Hyalina bed is a thin layer containing the shells

S. permatus C. vertebra Lingula
N. tigrina Orthis N. obliquatus
P. lata C. bucanomata C. nucleomata

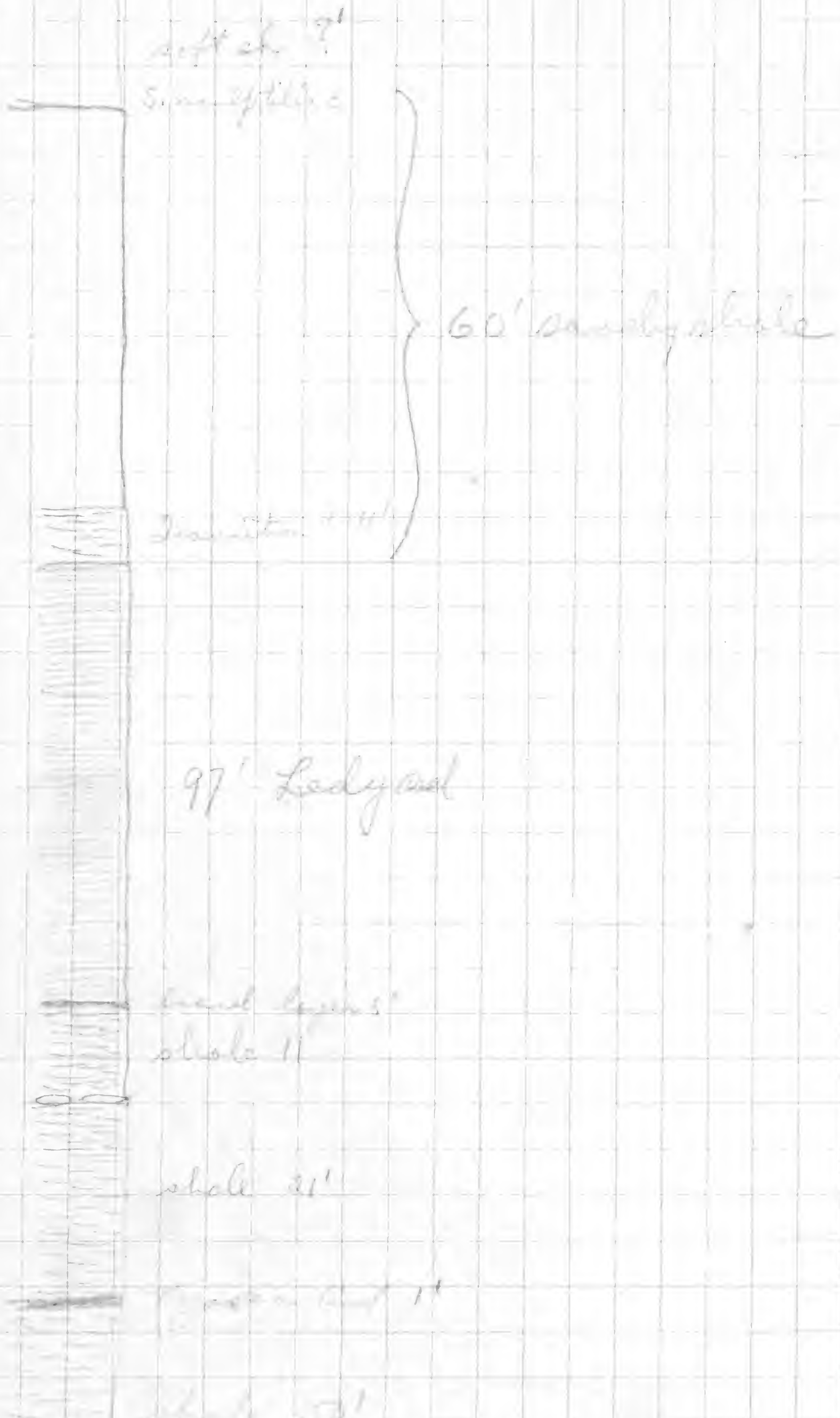
125'/125" – 130'/130" The first 2' of white sandstone calcareous numbers of fossils as noted above, but in the shale above these the following were seen

C. vertebra N. obliquatus
C. [illegible] N. tigrina
Pal. constricta

130'/130" – 135'/135" – covered

135'/135 – 140'/140" – partly covered, dark shale

140'/140" – 145'/145" – a layer of limestone with dark fossil shale above


60' available
97' Ledyard

532

145'145" – 155'155" – Lower Lodgepole shale
Lower Lodgepole between the concretionary bed and the Upper bed up to the Mississippian
Characteristic fossils are about 1 ft thick
Crinoid columns are 1/4 inch diameter & about
a foot each. Lower bed is highly
fossiliferous.

Gastrioceras Mississippian
Cravenoceras

Between the concretionary bed & the Lodgepole
Shale are Mississippian

Spirorbis	S. Carina	C. Scotia
G. stellata	M. tenuiseptata	D. rudis var
P. hirsuta	M. pygmaea	M. elongata
C. gastrogata		

The Lodgepole shale rests on a second of the so
Above the Upper Lodgepole is a second of Lower
the Lower Lodgepole is a second of
nearly black shale this to be the
beginning of my Bedford shale

155'155' – 160'160' – five feet of Bedford
160'160' – 175'175" – crinoid
175'175" – 185'185" – dark shale
185'185" – 245'245" – same
245'245" – 250'250" –

C. subcrenata	Kon. tumosta	C. gracilentus
Spirorbis	C. booth	P. hirsuta
G. pseudogastro	L. pepelum	L. gracilis
P. hirsuta	P. flabellum	C. [illegible]
Lonchodomas	M. magnifica	C. [illegible]
C. [illegible]	C. pleurocaps	P. hirsuta
C. elongata	M. constricta	M. subulata
M. convolutum	M. crenicrista	D. [illegible]
C. indenta	L. [illegible]	C. [illegible]
C. [illegible]	L. [illegible]	P. [illegible]
B. fimbriata	Schizoblasmopsis	P. [illegible]
C. [illegible]	S. [illegible]	D. [illegible]
[illegible]	Pomnus	G. [illegible]

533

The fossiliferous zone is a loose block in the side of the cliff at 25'-30' the last of the E. Oneonta was seen at 20'-25' and from here to 35' the beds were found the rock becomes sandy & the Kaiser is about 97' feet thick

25'-35' - 300 yrs - Falls. Place where forming the ledge was reached. The falls is a hard calcareous sandy rock without fossils above it is shale & thin layers of hard sandy rocks containing the following fossils. T. dumalis, varians, ad C. bellistriata ~~Rhynchonella~~ S. sculptilis. The rock when fresh apparently was hard and calcareous. The rock feels spongy with a dark brown gray weathered surface.

T. varians	T. sculptilis
R. oneonensis	D. incaperstrata
M. concentrica	C. bellistriata
S. dumalis	Camarotoechia sp.
T. granulosa	

534

Cadwell section, New Salem, Ill.
Lower 1 rock exposed in the Kelyand shale
2 ft. dark shale, brownish white.
Fossils
P. fragilis A. ambonata H. trapezata
P. solenis C. setigerus
P. genuatus C. micronotus

0'–20'20" – Kelyand
20'20"–80'80" mostly covered
80'80"–85'85' – Acrocoma shale, blue-gray in color
fossils abundant.
A. ambonata
C. micronotus
B. globosus
85'85"–90'90" – same shale

P. flabellum	Gyr. truncata	Sowerbyella
T. argenta	P. ruta	T. cornutus
G. decorata	C. scitulus	A. magnonota
P. fimbriata	C. coronatus	Par. lam
L. perplana	C. indenta	P. rana

90'90"–95'95" –

sandy shale 60'

covered 10'

Ledyard shale .76'

535

We are 10 miles (125') from the lowest approach to the Rose Bridge intersection. Above the Ledyard-Kingsley [illegible] crossing at about 1002 A.T. the [illegible] [illegible] 20 = one foot below 23 piers (136') leaving the [illegible] [illegible] 1061 A.T. giving 159' thickness for the winter [illegible]

536

Aug 12.

Study along the New Shelf Road

The beginning of the Study is at the Nyassa Road exposed at 86' feet 17 of 1 steps above the intersection of the New Shelf road & the Pleasantville - Marietta road. Sands rain in the Nyassa large lens are in

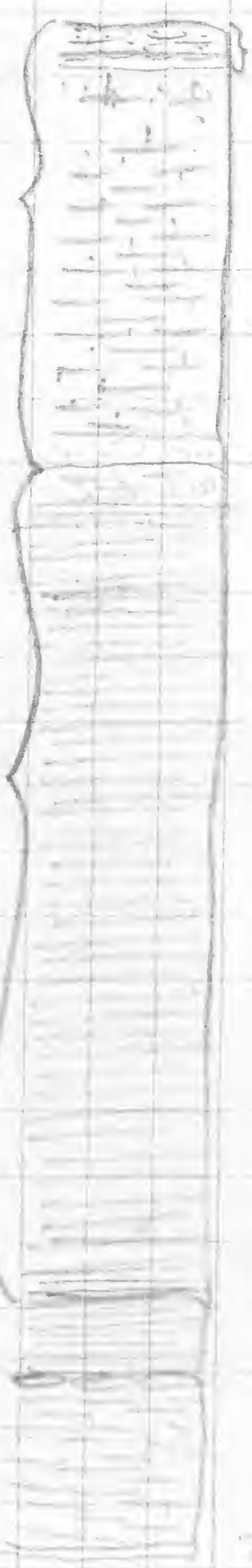
Castilian	Pal. constricta	Ohio
Marginata	Cincinnatia	Richmond
Speciosa	Burnsense	Richmond
Obovata	Prima	Richmond
Gistrionica	Eudora grata of Jerpharia	
Pleata	Mad. Cora	Nyassa
15'15" 10'10"	[illegible]	
[illegible]		
Bella	Pinnulata	Richmond
Castilian	Pal. [illegible]	Richmond
Speciosa	Pal. [illegible]	

at 90' 7 1/2' [illegible] large lens of hard fossiliferous limestone. Also [illegible] for the intervals like the above. Above this comes 1 [illegible] layer 10" of soft shaly fissile black shale followed by Speciosa, capped by a hard layer of 6" containing the usual fossils followed by [illegible] black fissile shale. The last 10' [illegible] 10' from the hard layer to the Nyassa rock is about 90'90" above the hard layer at 1001 feet A.T.

0'-15' [illegible] Nyassa

P. Alternata	Cincinnatia
Pin. Cora	Marginata
G. Obovata	
G. Castigans	
P. Pleata	

About 13' above the top of the Nyassa is a layer made up of shale & crinoidal [illegible] & other fossils. It is probably here


alternations 5'.
Centerfield? 60'
trunk 5'7-10'?
Dark shale 98'
hard layer 6"
shale 90'1/2
shale 24'
Hyatt

537

Good 2½ feet 2" thick. The same as they are 16 inches below the Tetramerus layer and 2 feet above the 2" carbonaceous layer and 2 feet above the C. bellistriata layer.

The rock was very hard & impossible to take the fossils in.

15'12" – 20'20" shale below

D. connatus — Platycrinus
D. occidentalis — Platyblum
M. monotrigonia — Crinoids
Camarotoechia
C. bellistriata

20'20" – 25'25" –

C. bellistriata — Platyblum — D. connatus

The shale line seems much less fossiliferous than that below.

25'25" – 35'35" – shale becoming finer & harder, & few fossils, & strongly resembles the Cleveland shale of the Centerfield. The fauna is also much like that of the Centerfield.

35'35" – 45'45" – reef bed of massive, strongly resembles Centerfield. Dormers, D. cornutus, D. monocrinus

45'45" – 50'50" – same but massive shale

D. granulosus — Tabulata — V. punctulosa
D. incertus — T. cavinatus — Atrypa hamilton
E. lineklaeni — P. rara — S. arcuata
P. patulus — L. Regularis — S. perversa
A. umbonata — C. boothi — V. debayi
Pan. bam. — S. sculptilis — Proetus

About 2' above this step is a layer of shale about 8" thick. The Vitulinas were found exactly at the top of this step and below the thin shale band, dark, soft bluish gray.

538

Above this thin layer of shale comes the Rand Eolian sandstone rock. Thin layers and a few shale also occur in the first 2' of the Centerfield the following fossil occur:

J. cernuus M. concentrica
C. [illegible]

10'50" – 55'55" the Centerfield ends here

J. cernuus C. bellistriata N. oblongatus
R. vanuxemi N. varicosa M. concentrica
C. communis S. sculptilis Z. fragilis
Pal. emarginata Pan. [illegible]

Top of Centerfield 1061' A.T.

On top of the Centerfield comes a soft dark shale ditto which it alternates for 3' from the thin shale band noted above. This shale is soft crumbly and contains:

J. cernuus C. cornutus
S. perustus Camarotoechia sp.
S. sculptilis C. boothi
A. andacula P. patulus
L. perplana Pan. [illegible]
Cam. [illegible] Cyr. [illegible] var. recta
Pal. constricta C. zetulus
D. macrostriata L. [illegible]
E. epiliffyisles C. bellistriata
M. subalata

87

539

Aug 17

Bully S of Bordeaux

Ka Alewelling begins at Fake level 863'

0 – 35'35" – covered

35'35" – 45'45" – hard calcareous sandy rocks

These rocks are exposed above 45'45" and thus are at 918' A.T. Fossils observed are

Favosites Scutellum Jamesia

Pleurocera Cariniferus Spongia

Rugulosa

The blue gray sandy limestone and is overlaid with the same rock as the Ka Alewelling. Hundreds of times from the top of the Cliffs at 918' A.T. Some of the rock half is a fine sandstone.

0' – 55' – This rock is succeeded by a thick dark arenaceous shale abounding in fossils

S. cancellata P. stylopsonia

Cancellata

55'5" – 10'10" – covered

10'10" – 15'15" – same shale

E. granulosa S. pennatus A. carinata

F. carinatus N. bellistriata

F. carinatus A. rotundus?

Jamesia H. concentrica

C. scitula a (at 10'10" – 15'15")

At about 15'15" crinoids are common and with them were seen:

Articulata A. spinifera

C. scitulus P. radiata

Q. granulosa

This evidently appears to be but a local patch, but may also represent part of the reef of farther down the lake

Section Aug 17

135
200
14
54

540

15'15" - 20'20" - same shale
S. permatus — Sm. hamatum
S. granulosus — S. stricticus
C. stellata

20'20" - 30'30" —
C. stellata — C. conica
S. 35' - 40'40" — [illegible]
S. [illegible]
40'40" - 45'45" —
S. [illegible]
S. [illegible]
S. [illegible]
45'45" - 55'55" - 60'60" - 65'65"
S. [illegible] — S. [illegible]
S. stellata — S. [illegible]
60'60" - 65'65" — [illegible]
cascade
S. permatus — S. [illegible]
S. flat [illegible] — same
65'65" - 70'70" — [illegible]
S. [illegible] — S. [illegible]
S. permatus
S. [illegible]
70'70" - 75'75" —
S. [illegible] — S. permatus

75'75" - 80'80" —
C. bellostricta
80'80" - 85'85" — 90'90" — 105'105"
S. permatus — S. [illegible]
S. [illegible] — S. [illegible]
S. [illegible] — S. [illegible]
C. [illegible]
125'125" - 130'130" - 135'135"
S. permatus — P. magnostriata
S. petrolicus — B. [illegible]
S. [illegible]

541

The rock becomes gradually coarser till at 135'/135" it terminates, it at 1' ~~ca~~ becomes a coarse conglomerate containing the following fossils:-

G. rotaliforme	G. rimosa
L. gemma	G. capitata
L. planoconvexa	G. compressa
L. peculiaris	G. rotundata
L. planulata	C. crassum

135'/135" - 140'/140" The rock gets finer again with the following:-

S. petrosus	S. stellata
S. mamillata	C. crassum
R. spectabilis	A. [illegible]
S. [illegible]	S. carinata
	S. gemma

140'/140" - 145'/145" -

G. rotaliforme	G. [illegible]
Pal. agricolaica	C. [illegible]
	S. planulata

The rock at the base of this interval is becoming harder and darker.

S. [illegible]	S. [illegible]
Streptelasma	G. rotaliforme
S. planulata	R. [illegible]
S. carinata	P. flabellum
S. planoconvexa	

145'/145" - 165'/165" - covered -

At the top of this interval is 8' of coarse shale fragments with stringers of limestone. At no place is bedrock visible.

165'/165" - 170'/170" - covered!

170'/170" - 175'/175" - same coarse rock, 3' exposed

S. [illegible]	P. flabellum

175'/175" - 185'/185" - at the top about 1' of very coarse sandy rock is exposed forming a ledge in the stream. This rock is essentially a flagstone. This is probably the bed exposed at 110' on Aug 18.

542

185'185" — 220'220" 1 foot over hundred year rock.
220'220" — 225'225"
At the base of the Lake's Sphinx overcome rock has worn at 185' an 3' sufficient analogous rocks followed by soft shale.

225'225" — 245'245' 7.8' floor of lake

M. crassus — A. Stenosta
S. septemsp. — G. notiniana
H. pumilum — D. conmata
C. sectilis — S. perneta
P. [illegible]

The bottom of the lake at the top of the bedrock is at 186' A.T. This 7.4' of the bottom consists of soft shale in a 2' layer of blue mud.

Above the shale of the lake is a foot of sandy ooze topped by 1' of [illegible] to the present point. This is followed by 2.4 feet of rock cut in strong in a hard sandy layer ~~[illegible]~~ about 3' thick this layer is followed by soft shale to the bottom of the lake

543

My Randolfsville shale may disappear in the same fashion as the Pedyard, by appearance of V. pustulosa at bottom & Atlantis etc. Randolfsville here is a typical Leiorhynchus zone. Apparently Pedyard when becoming sandy receives influx of fossils & disappears

215
18
4
237
867
1104

544

Aug 18

0.9 mile NW of 10-mile Pt.

80' + 80'80" — covered

80'80" — 85'85" — fluvial gravel, shells, belonging above the Centerfield —

85'85" — 95'95" — 100'100" —

100'100" — 105'105" —

105'105" — 110'110"

140'140" — 175'175" — covered

175'175" — 180'180"

N. Dellenbaugh

180'180" — 185'185" — [illegible] Top of [illegible]

210'210" — 215'215" + 4'

N. Dellenbaugh

This interval is capped by a hard calcareous sandstone which occurs at 1104' A.T. It is hard and bluish but does not ~~appear~~ appear to be the base with the Jurassic of Sedimsa

545

215'/215" – 235'/235" – coarse sand rock
for 18' above this lie 4 large old heads
with thick chunks, 3' below top of step
an softer shale & coarse sandstone

235'/235" – 245'/245" – fell over sandy shale
245'/245" – 270'/270" – softer shale & stringers
of sandstone & a piece of
a sandstone
at 295'/295" – coarse hard sandstone
Portland Point seats

546

August 19.

Gill Brook

At the mouth of Gill Brook the Centerfield appears along the lake forming a low cliff for several hundred feet. Appears like the same rock as seen on the opposite side of the lake forming high cliffs.

0'–30'30" – top of the cliff, elev. of 900' A.T. cliff is at the top a calcareous shale and partly strongly differentiated and shales beautifully with Sponge rods.

30'30"–40'40" – covered

40'40"–45'45" – as described above

Q. cuneata
C. [illegible]
S. [illegible]
? [illegible]

45'45"–50'50" – covered

50'50"–55'55" – Upper 2' of this stratum is very shaly.
S. [illegible] M. [illegible] S. [illegible]
C. [illegible] C. [illegible] S. [illegible]
S. spongiosus

55'55"–60'60" – similar calcareous shales as in the above part of the bottom of this stratum
S. [illegible] the rods of this stratum appear to be limited to thin layers in the calcareous shale by the accumulation of sponges.

60'60"–65'65" –
S. spongiosus
S. [illegible]
M. [illegible]
C. [illegible]
A. [illegible]

Cyathophyllum Manitoulin
Pan [illegible]
Pan [illegible]
M. [illegible]
M. [illegible]

65'65"–70'70" – 3' below the top of the cliff a thin shaly layer in the shale is distinctly differentiated.

[illegible]

[illegible]

100' [illegible]

130'

Centerfold

547

70'70" - 75'75" - sandy shale
L. laevis C. bilineata
M. lineata
L. spiniferus
75'75' - 90'90" -
C. spiniferus
90'90" - 95'95" - 100'100" - 105'105" -
Pal. plana C. tortus
P. Palatina O. spiniferus
L. laevis
105'105" - 110'110" - harder shale
S. rectum n Pleurotomaria n
Tornoceras Orthoceras n
L. spiniferus Actinoceras n
C. bilineata n O. neumatus n
Pal. constricta n M. fasciata n
M. umbilicata n O. fasciata n
Productella L. laevis

110'110" - 120'120" - First occurrence of Devonian
C. bilineata n O. devonicus n.
L. laevis
O. spiniferus
Shale 115'120" is a hard calcareous layer containing
A. rectilineus P. ~~[illegible]~~ derbiana
O. principalis
120'120" - 125'125" - 2½' of soft arenaceous shale like the 90'90' layer the hard layer
M. umbilicata L. laevis C. bilineata
125'125' - 130'130" -
O. neumatus O. laevis O. spiniferus
M. umbilicata O. laevis O. rectilineus
135'135" - 140'140'11
O. neumatus L. principalis
P. plana C. gracilis

145'140' - 145'145" -

548

Those lists from 140'/140' - 145'/145' published

G. retiolaris S. denticulata N. [illegible]
N. consimilis S. geometra [illegible]
S. [illegible] S. geometra [illegible]

145'/145' - 155'/155' - same - at the top of 155'/155' the rock is a little harder as it first set foot in Canada in the stream.

155'/155' - 160'/160' -

S. geometra C. microcrater
S. corrugata B. lida
B. epidlende L. denticulata
N. [illegible] S. [illegible]

160'/160' - 165'/165'

S. [illegible] [illegible]
B. [illegible] [illegible]
[illegible] B. [illegible]
[illegible] J. corrugata

165'/165' - 170'/170' - same as above
170'/170' - 175'/175' -

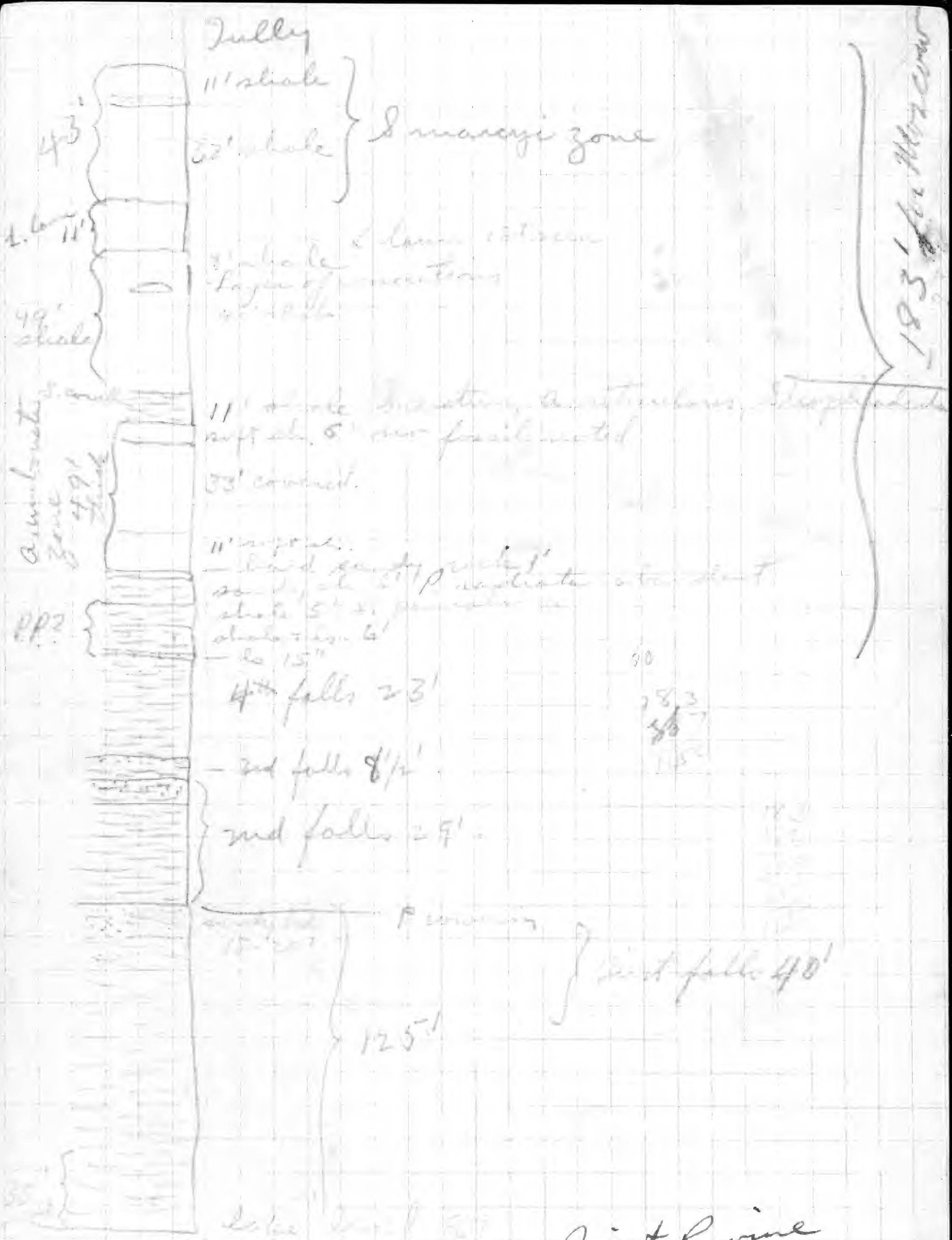
[illegible] G. [illegible]
[illegible] S. [illegible]
S. geometra [illegible]
[illegible] C. [illegible]

At the bottom of the steps the rock is hard and sandy

175'/175' - 185'/185' - the rock a foot below 185' 185'/185' is hard, sandy, calcareous. for about 21' 185'/185' - 190'/190' - 21' - being 4' in to bridge. The last 7½' above 185 are very coarse hard rocks, essentially sandstones breaking into coarse rough layers. The bridge is at 188' about this level or at 1075'.

549

192' 190' — 217' 215' — cont'd.
215' 215' — 222' 220' — At the base is a hard
layer of sandy rock finding naturally into
large flat / coarse slabs.
S. pinnata c. S. [illegible] Eu. lam.
A. [illegible] c. [illegible]


Tully
11' shale
32' shale
Smaragdi zone
11'
49' shale
11'
4th falls 23'
3rd falls 8½'
2nd falls 24'
125'
first falls 40'
Thacher Mill Point Ravine

550

Aug 19'

Rhizomb Pt Rainier

[illegible]

30'30" – 25'25" – [illegible] of the

Fallowville

A. spiferinka T. cana.

A. fallacina

[illegible]

40'40" – 45'45" – The rock [illegible]

by J. and in fine ~~[illegible]~~ [illegible]

A. [illegible] S. [illegible] S. [illegible]

A. [illegible] S. [illegible]

[illegible] M. [illegible]

[illegible] – 50 50 – [illegible]

50'50 – 55'55 – [illegible]

[illegible] of the rocks in places [illegible]

[illegible] The rocks by layers [illegible]

55' and at the top is a layer [illegible]

Forming at the top of the following

S. [illegible] A. convertica

A. spiferinka C. carnatus

A. fallacina S. permatus

A. fallacina S. [illegible]

A. [illegible] K. peplana

K. peplana S. [illegible]

P. [illegible] is especially abundant

the 1½' layer on the very brink of the

falls. The hard rocks of the first

falls are followed by soft shales

which gradually upward

into [illegible] rocks. I will [illegible]

the most [illegible] within 5 of the

contact are:–

S. permatus S. [illegible]

A. [illegible] A. fallacina

A. [illegible] A. [illegible]

A. [illegible] A. [illegible]

551

Pradita P. Kalleen
Nicomedes Pal. Samuelson
Anselmo M. Villafuerte
A. Santos J. [illegible]
P. Salvador

Top of the 1st fall is at 5' 1/2" on
29' high. He appears to be 55' to the
top of the 2nd fall. The water
falls at the top in one sheet.
P. Kalleen A. Samuelson
Idemnes

Perpendicular of the 2nd falls and the
by a straight line, the top of the
second fall is only 3' from the
top. 8 1/2' high. Digs near the center of
the pool and falls in
6 pieces. A. Santos M. Gonzalez
Pol. Pastrana

At the top of the 3rd fall is a level
calcareous rock in one piece.
P. Kalleen J. Idemnes
Superintendent A. Tinlon
A. Santos J. Gonzalez
A. Philippines M. Concepcion

He has a rock at the 3rd falls given
up the top of a circular pool
by the top of a circular pool
by Gonzalez J. Gonzalez
J. Pernates C. Villafuerte
The falls is 23'. He appears to be
standing just the falls. Over 9.15"
bed of hard crystalline
J. Pernates Camantelina
J. Pernates
V. Pastrana

Portland Pa.

The Cy. [illegible] rests on a [illegible] of sandstone.

For the present all sites are expressed above the limestone.

2'–5'–10' 10"–15' 15"

R. vanuxemi c [illegible] [illegible]
S. [illegible] [illegible] H. [illegible]
S. [illegible] R. [illegible] [illegible]
The crinoidal layer [illegible] 5' of [illegible] and calcareous shale [illegible] on fossils [illegible] [illegible] and S. [illegible] [illegible] [illegible] [illegible] followed by 5' of shale and then by 6' of arenaceous shale [illegible] by R. radiata, [illegible] the [illegible] point is [illegible] [illegible] [illegible] the crinoidal [illegible] [illegible] 6 1/2' of sandy shale
S. [illegible] [illegible] [illegible]
R. radiata c [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] followed by 1' of hard [illegible] arenaceous shale in 3 layers 1/2' each forming a falls. This band also contains R. radiata, S. [illegible], C. [illegible].

2.

553

Following the Phoebella dyke 51 opposite with

Porcellanite C. antiquus Caryocrinites
S. Phoebe Can. Lime. Pel. concentric
S. Nemagraptus C. Phoebella Pel. concentric
Pl. Gracilis Caryocrinites Caryocrinites
Pl. Gracilis Caryocrinites Caryocrinites
Pl. minutus C. Phoebe

On the top of the dyke the beds are soft and S. nemagraptus common. Beyond appears 11' above the Phoebella bed. From 11' above the Phoebella bed to 43' above the dyke is covered.

At the top of 45'-45' above the Phoebella bed were seen

Graptolites
Lingula
Nemagraptus
Diplograptus
Dicranograptus
Climacograptus

Between 45'-45'' & 52'-53' there is a covered cut bridge from the lake of is 308' 49' above the S. coralline bed & there were noted in the lower C. antiquus indently only range for 12' here as the end of the S. Phoebe range. Thus the S. nemagraphe in the upper 11' of the S. nemagraphe range were seen

Graptolites
Nemagraptus
Climacograptus
Dicranograptus
Dicranograptus
Dicranograptus

554

32' upon the S. coaline zone and for 2 feet upward and calcareous black bituminous shale below the Sully bed and then the regular Vitulina zone does not appear on this side of the lake at any rate not at this place. The Mecone is here about 177' thick. The Sully comes at 1234' A.T. The Sully is 54' above the level of the stream according to my level. At the fork of the stream down 30' above the bridge. I presume a well located in a section of the layer at the fork of the stream at the base of the Sully over the Sully.

555

August 26 Hall's Landing (De Boos Cottage)

The very top of the Centrefield is at 1/2' above lake level disappearing below the lake a short distance south of the ravine. The contact of the Centrefield with the soft shale is excellently exposed.

0'-5'3" (base of the Centrefield)

C. granulosa	C. decussata
V. cornutus	Camarotoechia c
R. [illegible]	R. cyclas
L. [illegible] fauldensis	S. [illegible]
M. simplitoides	M. [illegible]
E. [illegible]	Sp. [illegible]
S. perplexus	L. [illegible]
E. [illegible]	Gyrodacula
C. [illegible]	Val. [illegible]
Jaomnus	P. [illegible] 2' above Centrefield

Fossils seen in the top of the Centrefield are

Jaomnus	C. corobratus
V. cornutus	S. sculptilis
S. perplexus	S. perplexus
V. bucklipleiurus	Camarotoechia

The Centrefield and the shale above are transitional for 2'to 5'. The shale above is soft, blue grey, crumbly, sandy.

5'-30'30" - same shale.

30'30"-35'35" - as a shale at top has small [illegible] constriction with [illegible]

S. perplexus	[illegible]
[illegible]	

35'35" - 40'40" - same

40'40" - 45'45" - "

[illegible]	N. [illegible]
C. bellistriata	M. pygmaea

45'45" - 55'55"

[illegible]	Cattocerus
G. andacula	
G. [illegible]	

55'55" - 65'65" - [illegible]

Section at Mill Creek

November 1927

30' shale

8' shale + sm.
4' sandy shale + sand, sh
sh 27' (top 2' very sandy, resistant
sandstone P. serrata

196
12
269

196
25
221

El. 8 70'5"

Cut to field 637'

556

85'105' – 95'95' – [illegible] [illegible] [illegible]
O. [illegible] C. [illegible] C. bellistoch

95'95' – 85'85' – same
[illegible] – 95'95' – same

95'95' – 105'105' –
L. [illegible] L. [illegible] L. [illegible]
L. [illegible] P. [illegible] [illegible]

105'105' – 125'125' – [illegible] [illegible] [illegible] [illegible] from
the [illegible] of the [illegible] [illegible] [illegible] [illegible]
S. [illegible] S. [illegible] P. [illegible] P. [illegible]
S. [illegible] S. [illegible]

125'125' – 130'130' –
S. [illegible] S. [illegible]
S. [illegible] S. [illegible]
S. [illegible] S. [illegible]

130'130' – 135'135' – 2 [illegible], 1 [illegible]
135'135' – 140'140' –
[illegible] S. [illegible] S. [illegible] S. [illegible]
S. [illegible] S. [illegible]
C. [illegible] [illegible]

140'140' – 145'145' – [illegible] [illegible]
[illegible] [illegible]
S. [illegible]

145'145' – 150'150' –
S. [illegible] S. [illegible] [illegible] M. [illegible] M. [illegible]
[illegible] [illegible] [illegible] [illegible] M. [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]
[illegible] [illegible]

187
196
274
+ 390
1
867
1320

150' 150' – 155' 155" – are
155' 155" – 180' 180' – 185' 185' ft falls – Landsand
rock forms about 21' of the falls. Photo-
graph taken from brink of 1st falls
which is 64' high.
The sandy rock of the top of the falls
is covered by soil which is quite deep
and apparently all round very small
although that of any 19' pool.

185' 185' – 190' 190' – 195' 195' – Pot Kettle pools
195' 195' – 200' 200' –
C. Kellerman Pat Costello
C. Stephens C. Costello
Geo. Lovell H. Carrington
Sam Lane A. Dimmick
Superintendent Pioneer

200' 200" – 210' 210' – Top of second falls, over
3 of sandy rock, but not quite
abrupt as the 1st falls is 4' of a gradual
slope giving it the usually irregular
appearance of a flight of small steps.

210' 210" + 4' – top of 3rd falls.
214' 210" + 8' – top of 4th falls, including
5½' of post whole graded into sandstone or
clay sandy shale. It is the main bed
and the small red hills in Eng 19' bounds
in this bed are!
M. Carrington P. Kellerman
Gil Gonzales H. Lange
Superintendent C. Stephens

The 5th falls is 30' high & has 3' of
coarse sandstone
Elevation of Portland Point 1132' A.T.

54
3
174
184
187

867
263
3
187
1314

558

Delly at Indian 7 31' to 135' makes it at 1320 A.T.

D W Ingham Jr.
218 West Ave.
Ottawa, Ill.

Best Ludlowville section is that located in Halls Landing Ravine where the Centerfield is at Lake-level. The Ludlowville here is 265 feet thick. It is divisible into three distinct divisions -

1. The softish shale from the top of the Centerfield to ~~the~~ and including (perhaps individual) the Pholidostrophia band.
2. 27'-30' above the Pholidostrophia bed to
3. The 8' falls - and the shale + ss to the base of the Portland Point L.

The top of the Moscow on the west side of the lake did not have any representative of the Vitulina-Leiorhynchus zone, the shale being essentially blank right to the contact. On the east side of the lake at Halls Landing two or three feet of dark shale were noted but on Otisco Lake the upper 5'5" (5½') of the Moscow contained S. Sullivanii, altho V. Justalosa & L. lunata were not seen this is one of the important elements of the Leiorhynchus Vitulina zone.

559

Aug 21.
Barber Point

10' above lake-level in the soft shales above the Centerfield is a thin bed of corals probably representing the tail end of [illegible] reef. The layer is about 3-4' thick, abounds in corals. Other fossils are:
P. [illegible] C. [illegible] L. [illegible]
A. spiriferoides N. corbuliformis

The coral bed is followed by soft rather unfossiliferous shales containing:
T. P. fragilis S. pennatus
4½' above the first coral bed occurs some discontinuous patches of a [illegible] [illegible] [illegible] [illegible] [illegible].
C. [illegible] is not uncommon in the shale between the two coral horizons.
From lake-level to the Pholidostrophia bed is [illegible] 15½'. The fall is about 15 or 20 [illegible] [illegible].
The Pholidostrophia bed is 1½' thick and the P. iowensis ranges at least as far down as 6' from the top, but appears most abundant at the top. Other fossils in this bed are:
G. [illegible] S. pennatus L. perplana
C. coronatus A. princeps

Fossils in shale above P. iowensis bed:—
S. pennatus a C. [illegible] ve S. [illegible]
M. [illegible] C. erectum
M. [illegible] T. [illegible]
A. spiriferoides A. princeps
P. [illegible] P. [illegible]
C. [illegible] M. concentrica
C. [illegible] L. perplana
N. [illegible] D. [illegible]


10"
29'
8'
4'
28'
144'

The top 3' of the bed above the [illegible] bed is a hard sandy rock forming a falls. This layer gives way to a softer shale and then to sandy rock again for 1½'. Then the layer above the [illegible] bed is a soft shale passing gradually into a very hard sandy, rather calcareous in places at the top and breaking naturally into irregular lumpy blocks, very frequently having a curved surface.

In the sandstone of the 4' layer are: [illegible]

P. flabellum G. ornata L. [illegible]
T. acuminata S. [illegible] C. granulosa

The 4' bed is followed by about 5' of soft, sandy shale and this by 3' of irregularly bedded sandy rock. In the shale were seen:

L. [illegible]
A. rectum

In the 3' layer:

C. [illegible] [illegible]
P. flabellum [illegible]
A. rectum [illegible]
T. acuminatus c
A. granulosa

The 8' ledge is followed by 7' of shale softer than the sandy rock [illegible] that harder than the soft shale that follows it. It contains:

[illegible] T. acuminata
S. [illegible] M. [illegible]
S. [illegible]
[illegible]
[illegible]

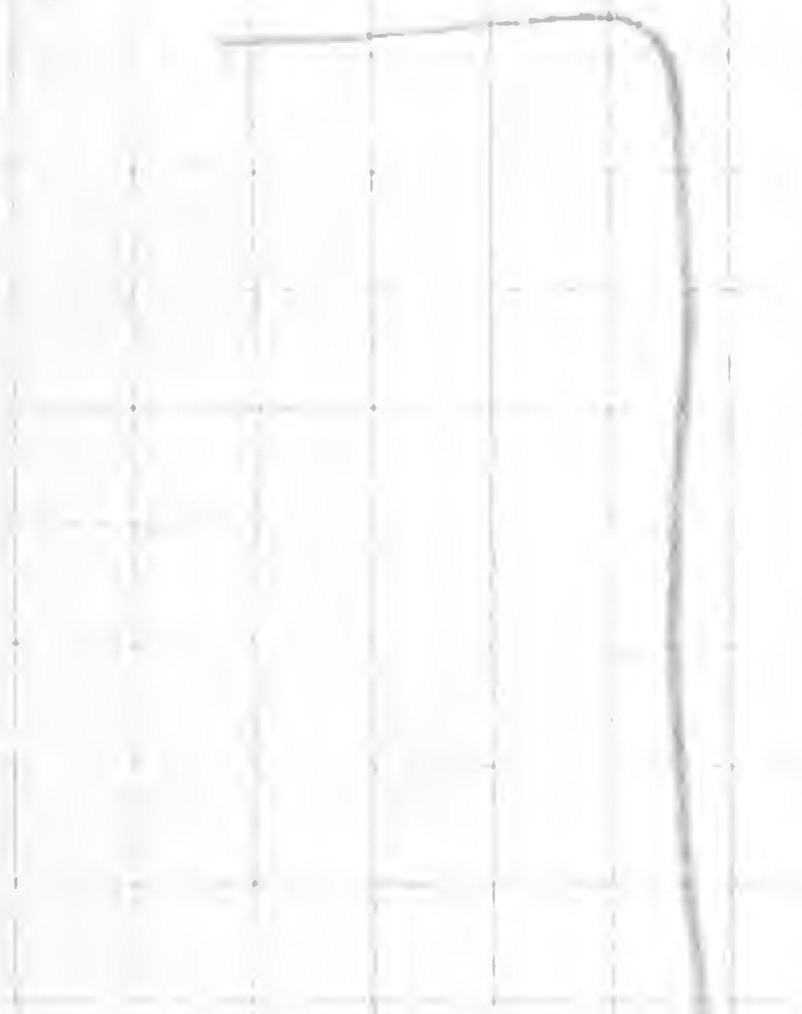
[illegible]

G. [illegible] c
[illegible] c
C. [illegible] a
S. [illegible] r
S. [illegible] r
P. iowensis r

[illegible] c
C. impressa r
G. [illegible] r
Platyceras r
H. dalsoni r
A. macidnata

R. [illegible] c
[illegible] a
[illegible] pustulosa r
P. nana r
Pholidops r
C. indenta

Gully



3½' soft dark shale
5½' arenaceous d. blue

12½
21½

32' shale [illegible]
calcareous arenaceous rock

L. [illegible] 9'
M. pygmaea.

561

Scale 5' above to 81 feet. Dense
and dark brown soil 7 feet
below 5' which took above and the
following:-

Gaudarella n. Aquamosa n.
Epiphinides n. Siliquosa n.
Epiphiceps n. Porferius n.
Epipelma n. Gastrum n.
Polychaeta n. Pisum n.
Retinoptera sp. Superversus n.
Adeducta n. Micrantha n.
Epizonites n. Pecamatus n.
Subdistata n.

Specials were taken from 5' to 16' above to 21'
below are:-

Ser. Gum Cantilena Polycystata
Pleurostella Subdistata Pecamatus
Pachystella Subdistata Micrantha
Epizonites Cassigines Epipelma
Pecamatus Pisum

The upper part begins line 39 feet
and plus about 5 feet below sea level to
the top. Bounded by the Pitch of Point
Loma at 1092 A.J.

The upper 30 interval of the following
is like the two same intervals on
the Cove near Quadrangle at Pablo.
The rock just below the Point of Point
Loma is a light yellow sandy
Gaudarella a shale which appears to be
hollow.

The bed of the Portland Point
is 16' thick. It is made up of a
similar shell because Pecamatus
which seems to be a brown-grey color.
Utahna was most common but the
Lowest 4'. The Cantrellas were
found near the top.

562

Above the crinoidal bed the rock for
5'5" was covered
0'-5'5" covered
5'5"-10'10" sandy shale with some calcareous
sandy shale
Alaunetus Rumpfianus R. spiriferus
C. thuringiaca Nautilus gracilis
Crinoids are seen at depth of 10' above
the top of the crinoidal bed and also 10' below
Point the crinoid rock to the Portland
Point member.

10'10"-15'15"-2 lbs. Tough yellow shale
about 1 inch in 5 minutes to 2 inches
1 inch in 5 minutes
This zone forms a bed 5' thick of hard
yellowish sandy shale. It differs from
the sandy shale below in being harder
than the hard layer and the soft
hard layer above. Fossils:
B. radiatus Rhynchonella Palmata
C. thuringiaca R. spiriferus Terebratula
Pecten Crinoids
Pl. Sowerbyi Pl. textoria
C. [illegible] P. radiata
W. [illegible] Pl. [illegible]
15'15"-20'20" Soft yellow shale about 2' covered
above 2' [illegible] shale had fossils and
hard layer 6" thick of sandy shale
followed by 9" of soft shale and 3" of
hard rock. The fossils are the
Rhynchonella and Terebratula
5 minutes
2 minutes
clothes of shale above it occur:
2 minutes Rhynchonella Terebratula
2 minutes C. thuringiaca Sclerodomus
Growing up P. radiata
5 minutes C. [illegible]

563

Sixth Sunday Bed
Lycopodium
Ill. constitution
Cinnamomum

The Sixth Sunday Bed is 20/8
where Lycopodium stands first and
Cinnamomum — This work is also used
Cinnamomum
Lycopodium a Pathological Cinnamomum
Lycopodium Pathological constitution
Cinnamomum Pathological constitution
Lycopodium Pathological Phenomena
Lycopodium
~~5" 10/10"~~ Small stone is especially
abundant in this interval

5'5"–10'10" same
10'10"–15'15" same as 5'5" Small
constitutions are common.
M. tinctorum P. tinctorum
Phosphorus and Bromium.
15'15"–20'20" same
20'20"–25'25"
P. nodosum Tinctorum P. nodosum
P. Pellitorium Lycopodium P. nodosum
P. Pellitorium Cinnamomum Pellitorium
P. planum Lycopodium
Colocynthis C. vitigenus Cornelia
M. Pellitorium

25'25"–30'30"
P. nodosum P. nodosum
Lycopodium P. nodosum
Colocynthis P. tinctorum
C. vitigenus M. tinct.
P. nodosum
Lycopodium
P. perversum
C. Pellitorium
Pellitorium

564

30' 50' [illegible]

35' 55' [illegible]

[illegible]

40' 40' [illegible]

[illegible] the [illegible] of the [illegible]

[illegible] is about 5' thick.

45' 45' - 50' 50' - [illegible] of [illegible] is a

[illegible] of [illegible] [illegible] [illegible]

in the following [illegible]

Q. [illegible]

E. [illegible]

A. [illegible]

G. [illegible]

R. [illegible]

L. [illegible]

[illegible]

55' 55' [illegible]

[illegible]

60' 60' - 65' 65' - [illegible]

[illegible] holding [illegible]

[illegible] all the

appearance of a [illegible] [illegible]

into [illegible] [illegible] [illegible]

into small fragments [illegible] [illegible].

105
8
173
57
56

75'75" – 85'85" – same
85'85" – 95'95" – same

S. pinnatus
O. [illegible]
[illegible]
S. costalis
Sph. [illegible]
Pol. constricta
[illegible] sp.

N. [illegible]
N. [illegible]
[illegible]
I. granulosa
P. rosa
C. [illegible]
A. spinifrons

At the top of this interval is a large calcareous concretion.

95'95" – 100'100" –

N. lirata c
S. tullius c
C. [illegible]
Pol. constricta
G. armata
D. capillaria
A. spinifrons
V. [illegible]
C. [illegible]
C. [illegible]

C. umbonata
P. rosa
N. oblongatus
H. [illegible]
S. costalis
[illegible] sp.
S. pinnatus
C. [illegible]
C. [illegible]

100'100" – 105'105" –

L. laura
P. [illegible]
C. umbonata

S. tullius

The L. laura comes in 3' below 105'105" or at 56' above the top of the [illegible] zone. At the very top of 105'105" is a layer 2" thick having the following fossils

A. spinifrons
C. [illegible]
C. [illegible]
M. [illegible]
L. laura
C. micromatus
I. carinatus

N. lirata
N. oblongatus

$$\begin{array}{r} 1092 \\ 186 \\ \hline 1278 \end{array}$$

$$\begin{array}{r} 190 \\ 190 \\ \hline 3610 \end{array}$$

566

105' 105" – 110' 110" – [illegible]

[illegible]

115' 115' – 120' 120' – 125' 125' – [illegible]

140' 140' – 145' 145' – [illegible]

[illegible]

1278 A.T.

567

568

Aug 22.

Fossils in 15' of shale above Centerfield
[illegible]

P. vetusta
S. mucronatus c
T. carinatus c
[illegible] c
Pa. ham. c
A. spiriferoides cc
R. vanuxemi c
P. iowaensis c
C. [illegible]
A. granulosa
P. radiata
C. bellistriata
C[illegible]
P. patulus
Pal. plana
Pal. constricta
C. pleurostria
R. [illegible]
O. parvula

A. umbonata
R. fimbriata
Pal. emarginata
L. [illegible]
A. reticularis
Schiz. chemungensis
S. perversa
S. perplana c
S. capillaria
N. concinna
B. capillaria
P[illegible]
C. [illegible]
B. crenistria
M. [illegible]
P. [illegible]
Cam. ham
E. princeps

Fossils 6' above the Pl[illegible] bed

P. flabellum
Pal. perplana
S. [illegible] c
T. carinatus
C. coronatus
P. emarginata

C. bellistriata c
A. spiriferoides c
P. constricta
P. tenuis
A. reticularis
P. perplana

569

Papers in the sy. of the E' fells are:
Effbellum 18. Kanima
Elgandra

Recollections on the Skaneateles Region.

Marcellus - The Marcellus-Onondaga contact is in the village of Marcellus near the elevation of ~~P~~ 690' A.T. Between this contact and the Agoniatites ls. is about 13' of limestone and shale, both jet-black. For this division I would suggest the name Union Springs member. Then follows the Agoniatites ls. only seen in the Jacksons ravine but said to be about three feet in thickness. Then comes the black fissile shale of the Marcellus which I make to be 81' thick. This is followed by the Cardiff shale here 13½' thick. The Marcellus & Cardiff formed by my Marcellus formation but for this I would substitute the name Chittenango formation, which would be subdivided as follows:

~~Chittengo~~
Chittenango formation { Cardiff member
Marcellus member
Cherry Valley Member
Union Springs Member

The section about Chittenango is excellent and would form a good type section

Cardiff - The Cardiff is well exposed in the Jacksons ravine and the one next southeast of it. 137' of soft gray shales, barren of fossils for a considerable distance but becoming fossiliferous near the top. This division is limited at the top by the Mottville member, fossiliferous for 10 or 15', containing concretions and a calcareous band. This is clearly a representative of the Stafford to the west and forms the base of the Skaneateles.

Total

98
260
358
20
11
389

1

Skaneateles: The Skaneateles in the Skaneateles, the type region was a great surprize and consists of more divisions than I had dreamed of. At the base is the Mottville, which is followed by soft shale like the Cardiff for approximately 260' where a thin concretionary layer abounding in Myasoa is seen. 20+ feet above this layer is a concretionary bed and then 11' of shale abounding in S. pennatus and A. umbonata followed by a 6' bed of sandstone, making of this division in all 290'±. The S. pennatus beds are followed by 98' of blackish shale like the Tedyard in Jamna and lithology but clearly referable to my Randallsville shale. This terminates up about 10' of beds transitionary lithologically to the Centerfield member. Thus the Skaneateles is about 389' thick

Skaneateles { Randallsville member
Unnamed division which is the equivalent of the Pecksport, Delphi, & Bruyer members

Be careful about naming a name for this division as it may cause trouble. The Bear Mountain member or Marietta member might be permissable, altho taking the name Marietta would probably encroach on Prof. Smith's rights.

Ludlowville- The Ludlowville opens with the Centerfield which is made ~~26~~ 60' thick and is followed by shale and sandstone for 265'; making a total for the Ludlowville of 325'. The Centerfield is a very sandy zone, but extremely limey in places. The presence of Vitulina and Emmella convinced me of its

identity with the Centerfield of the Cayuga Lake region: Prof. Smith claims to have followed this along the shores of Owasco Lake to the back by the hotel at Emmons, and eastward down the shores of Skaneateles Lake as far as Burden Point on the east side of the lake. He has also followed it down Otisco Lake where he finds it at the mouth of the Buckbill ravine and at the top of the Fellows Falls. Eastward it must be the equivalent of the campus Quarry sandstone.

This Centerfield is succeeded by bluish-gray sandy shales with P. laminatus, D. sculptilis in abundance. This is also the only occurrence of P. stylopoma. It is interesting to note that this fossil was only found above the Red Gate bs. on the Moriasville quadrangle. Hence this is essentially the ~~the~~ same position as at Skaneateles Lake. This shale continues to the top of most of the first falls in the gullies where a bed with Pholidostrophia occurs. This division capped by the hard rocks of the Pholidostrophia bed forms a natural division and should receive a name. This is followed by soft shale grading into ss., and this by the same sequence each division about 30' thick. These likewise could receive names. Hence the Ludlowville of the territory between Skaneateles Lake and Cazenovia could be subdivided into 4 members.

Ludlowville	New member	Moriasville
	" "	Earlville shale
	" "	
	Centerfield member	

 573

Moscow formation — The Ludlowville formation is succeeded by about 16" of black shell breccia containing among other fossils Centronella impressa and Vitulina pustulosa 2 shells diagnostic of the basal limestone of the Portland Point member. This is succeeded by sandy shale, calcareous sandy shale and limestone containing essentially the same fauna as the limestone. These aggregate about 11' and are referred to the Portland Point member.

The Portland Point is followed by 5' of soft shale abounding in S. pennatus and then by about 7' of ~~the~~ sandy shale containing especially Pholadella radiata. Then comes the Amboroelia zone for fully 40', followed by the S. corolline zone, not clearly differentiated by me and the Modiolla zone for fully 30', followed by a Leiorhynchus-Spirifer Fullini-Amboroelia zone for about 11', then the S. mucrum zone. On the west side of Shaneville lake in Three-mile Point ravine there was seen no black shale, fissile, below the fully but on the east side of the lake there was 3' of it and on the west side of Otisco lake about 5½' of it containing S. tullius in abundance. Apparently then my unconformity is more clearly defined than I realized, the Hamilton having been denuded & planed off in the Skaneateles region. East of Otisco lake the Leiorhynchus-Vitulina zone comes in in full force and is an important part of the Ovid.

Note:— V. pustulosa was also noted above the Centerfield and the upper foot or two of the Centerfield contains the same fauna as in the shale above it. The two beds are clearly transitional, faunally & lithologically

5.

57.4

Section on Skaneateles Lake 57 N 68 45 22 67

Hamilton	Moscow formation	Ovid member	175'
		Portland Point member	11'
	Ludlowville shale formation	New member	30'
		New member	42'
		New member	196'
		Centerfall Member	60
	Skaneateles formation	Randallsville member	98'
		Bear Mountain Member	280'
		Total Hamilton —	892'
Chittenango formation		Cardiff member	137
		Marcellus member	81
		Cherry Valley member	3
		Union Springs Member	13'
		Total Hamilton & Chittenango —	1126'

575 1927 575

Aug 18.

Along the east shore of Shawnee Lake at about stop no. 6 I took at some place about 2 miles south of the village on the water and 100 feet above water dark gray shale that looks not fairly hedge and also the shale were black and I found a piece of old cow tooth and a piece of two-thirds other jaws and also the Shackleton, Lincoln ap. Above this gray shale that have a black shale that is very soft and easily cut. Very fine. Dip 20°. The black shale is 5' of the 5' shale and contains a to π fragments. Of the upper 8 or 10' of black shale, left after cutting a gold for a coal vein the Sixteen Lower the Lake.

Other I have never seen the coal vein on the east side of the lake and believe that it belongs to the Centerfield and not to Lincoln. Further I would suggest in Oklahoma Bulletin, in page 85 (USGS Bull 20) that the Hartshorne is about 1½ miles from the bed of the lake. With the bed of the shale, exposed at the low relief of the land along the south end of the lake, I believe that strongly likely the coal known as that of the Centerfield. Omitted from shale like the Shawnee, for at least 2½ down the lake road. Some of least may have been in the lower 1 Shawnee

July 17

Smoke Creek at Windom

Beds at [illegible] below Highway bridge [illegible] of shales [illegible] [illegible] [illegible] at 4 ft the [illegible] the

C. boothy [illegible] [illegible] fragments
[illegible] [illegible] S. pennatus and [illegible] were seen at 5 ft and for about 4 ft vertical the shales are crowded with [illegible] formed concretions [illegible] [illegible] (Styliolina?) and [illegible] [illegible] Leiorhynchus penelope There is [illegible] [illegible] [illegible] of ls. [illegible] [illegible] with [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] about 15–20 ft of shale [illegible] [illegible] [illegible] [illegible] yielded the [illegible] fauna

P. iowensis c
C. [illegible]
A. [illegible] c
S. granulosus r
S. pennatus cc
G. spinifida c
P. concentrica a
L. [illegible] r
Fl. [illegible] cc
Small corals
L. [illegible] a

[illegible]
M. [illegible]
Productella
S. [illegible]
B. leda
R. penelope
C. [illegible] [illegible]
Platyceras sp
[illegible]
C. [illegible]
C. [illegible]

The shales [illegible] [illegible] [illegible] [illegible] harder [illegible] was observed at [illegible] [illegible] also at the same place [illegible] [illegible] of blue gray ls. with

A. [illegible]
C. [illegible]
[illegible]
A. [illegible]
Platyceras
F. [illegible]
[illegible] [illegible] [illegible]

S. pennatus
Many bryozoa
Crinoid stems
G. spinifida
C. [illegible]
R. [illegible]
[illegible]

At 1100 paces the band with P. iowensis crosses the stream. 17 paces above another band of Ls with P. nana crosses the stream & shale of a few inches thickness intervenes.

At 1300 a Ls band with many Spirifers & P. nana causes a cascade in the stream. At 1775 paces the highway bridge at Bolinger's Park is encountered.

On the upstream side of the bridge is an exposure of upper Ludlowville about 20' vertical showing some bed calcareous concretions. This exposure is like those on 18 mi Ck.

300 paces upstream is another exposure and the Tichenor is in it about 15' up. Here the Ludlowville has S. plumatus & A. spiriferoides in abundance.

596 paces upstream the Tichenor is only 6' above the stream. It [illegible] the shale bank. [illegible] & [illegible] [illegible] At 726 paces upstream the Tichenor crosses the stream & forms a falls. It is 21" to 2' in thickness & has a very pitted uneven surface.

578

Moscow

The first 2 miles of walk on the Pickburn base

S. Lillian

S. pinnata

A. spiniferoides

O. [illegible]

Corals

Pecten

The A. spiniferoides of the base measures of and approaches the perfection of size as those in the Lindbergh's

3' up hard bound with Streptelasma corals forms a ledge in the stream.

1180 paces a bank of Moscow about 30-35' high 100 yards now for fossils

at 2100 paces the second highway bridge crossing of the Electric railroad is shut. There a 6. ledge in the uppermost Moscow corals, the bedded on the downstream side. The Genundewah 6. must be on the upstream side of the bridge 8:30 200 yds. above bridge a limestone ledge [illegible] [illegible] [illegible] [illegible]

579

All of the steam heat out frame work of houses on the floors and ~~side~~ beds are exposed for great distances.

This permit a critical study of the upper portion of the structure in detail more before this was reached.

July 21

Spell Board [illegible]

Examination [illegible]

Townline road

10-248 [illegible]

248-435 — covered

435-590 — same [illegible]

590-650 — covered

650-680 — [illegible]

680-819 — [illegible]

819- [illegible] — at [illegible]

Examples

[illegible]

581

[illegible]

[illegible]

[illegible]

1303 - 1387 - [illegible]

1387 - 1580 - [illegible]

1580 - 1630 - [illegible]

[illegible]

1630 - 1264 - [illegible]

1264 - [illegible] and [illegible] [illegible]
[illegible] at [illegible] [illegible] to a small [illegible]
[illegible] - [illegible] [illegible]
A [illegible] of [illegible] [illegible] [illegible]
[illegible] C. [illegible] [illegible] [illegible]
[illegible] [illegible]

582

Bridge 1630

1630 - 1110 -

1110 - 1135 -

1135 - 2230 -

2230 - 2353 -

2353 - 2511 -

2511 -

Section

583

Lower Pebbly Sandstone Series

H. [illegible] c G. bellerophontis c
G. [illegible] c P. constricta
G. [illegible] P. cordiformis
H. [illegible] H. rochelatensis c
O. [illegible]

2861 – Lower Pebbly Sandstone Series. Drift
[illegible] 10" of pebbly [illegible] lower pebbly shale
and [illegible] shale

G. [illegible] c P. [illegible]
G. [illegible] c C. [illegible]
G. [illegible]
G. [illegible] c

H. rochelatensis G. bellerophontis
P. [illegible] P. [illegible]
Beds c G. [illegible]

2899 – [illegible]

2899 – 2079 – [illegible] shale

2079 – [illegible] shale

[illegible] the top of the Spring Brook Beds
[illegible]

P. [illegible] P. [illegible]
[illegible] P. [illegible]
[illegible] shale [illegible] limestone
[illegible]

H. rochelatensis G. [illegible]
H. [illegible] P. [illegible]
P. constricta

[illegible] 35 29

[illegible] stream at 4?? paces down-stream from bridge at [illegible] Creek [illegible] at [illegible] mouth of creek at the crossing — 212 paces N from bridge, about 6 10'

765 paces from bridge at [illegible] [illegible] [illegible] 14 inches thick, the upper about 1 foot thick. The upper surface is [illegible] irregular and in the [illegible] [illegible] [illegible] manner. It does not appear to be a weathered surface.

1. [illegible] 3' [illegible] shales —
In the 1st 2' —

A. spinifera — Recept.
S. [illegible] — A. umbonata
S. rectum — C. indenta

Below [illegible] D. [illegible], A. spinosa [illegible], C. [illegible]

6–10 [illegible] shaly ls. 2.
3' [illegible] shale 1.
[illegible]

585

586

587

587

July 24

Stafford

Large outcrop of Onondaga under the village. Stafford not found in the village itself. A short collecting trip produced little from with a Mr. Gillis but the collecting was in a stone wall, all was glad however. The legend is to place in a black bank but on a fresh fracture is grey. Many tables and very abundant of

Fauna:

M. barrisi
S. audacula
Ptinigastera sp.
Tilodia sp.
C. coelomangiata
P. rana
C. bootheii
S. inscriptata
Cordodia sp.
Proetella sp.
C. bootheii

in N. of the G.C. My location is fully a half mile south of the Sam-Tuf-Lind letter.

August 2

Jackson Point

There appears to have been some danger to the highway of the ravine, at the time of the original bridge. There was a street laid on the road and a house at the head. The bend and house are still here but abandoned. The Jackson is found in the side of the ravine just south of the house and has nearly 6' of shale above it and about the same below. It is just about on the 100' contour.

Rock below the Jackson

At 20 paces from the old bridge is of shale and exposed below the Jackson. There are also two rocks, one of which appears to be Endophyllum. The left side is worn and the left foot just below the feet more as a slight indentation. The appearance is not worth more time.

Jackson 6

Rock

Dimensions

Represents

Of specimens

Rupelstage.

The Jackson here has a thickness of about 1' (11"-13") for the compact bed, with about 3' of grey shaly to the north.

589

Dickson limestone crosses the brook in place it splits into two layers, the lower 3' and the upper one 6" thick. The former is simply filled with fragmental crinoids.

On the Dickson rest about 15' of sh. the first foot of which are band and form a ridge in the stream-bank. Blue shales above are soft and somewhat less calcareous. This leaf contains a few Tarbinella, P. limestone, a Reinschia, R. polymorpha, Phaenomphalus. At 126 paces the Dickson is again cut and in place, tilted, dipping off to the south but flattening out & about distance to the mouth, R. Smithii, M. concentricus.

At 200 paces, a bank about 65-70' high exposes black shale all the way up. But 48 ft up the bank, in the black shale, there is a thin layer of limestone, at 300 paces another layer, and another at 400 paces. Beneath the limestone layers the shale breaks up into a fine gray loam. Collected:

Z. lamarcki
P. [illegible]
C. [illegible] on cobble
C. vicinus
Z. carinatus

At 429 paces, a bed of black shale the lower part of which could be made out to be 29' thick, rest on the Dickson. Beyond this bed, at 34' 7" Rood along the road, is a bed of the 30' specimen to 25 paces, beyond the Meristella [illegible] 5-6 ft. The lower part of this bed could be made out to be 3 feet of gray [illegible]

fossils. The surface is very irregular from unequal solution and weathering. Below this are 7 ft. 8 in. of the Middle of the Grande Coll. C. mucronata and Pal. conentrica? which have found 150 feet from the top of the Coll. were found. Very abundant. Little or no clay. Then there appears 290 feet from the top of the Coll. Dark gray shale containing an abundance of Inoceramus — large & transverse, also Pentacrinites, & pinnules & centrals. Impossible that the shale is 2 ft. above the Inoceramus at Wheeler Bluff is the same as that and that the Mosasaurus is thickening there.

At 2.15 pm. the last Coll. was reached, and here 1st 10" above the 222nd piece was a bed characterized by many concretions, and 5' 5" above this there is a limestone that from the fossils just below. Thus the Inoceramus & concretions are equivalent. C. mucronata, Pan. hamitoides, R. fundatus, C. undecimalis, Inoceramus, C. sonoratus

The beds from the top of the Coll. to the top of the shale are stiff and contained

C. Mucronata, Inoceramus, & Pentacrinus
C. Mucronata, C. undecimalis, C. Pentacrinus

At 2.31 pm. there is 20 ft. of shale, then 5 ft. of the Nodular Ledge, then 4 ft. of shale, then 1 ft. of Ledge, then 1 ft. of shale, then 1 ft. of Ledge, then 1 ft. of shale

591

than layers. This black band with thin layers

At 225 paces in patches and layers of

S. fasciata C. B. fasciata
S. permata
C. minima S. minima
A. umbonata
A. spinifera

At 500 paces there are still about 20' of Hamilton rocks. These seem to be two bands in them, but the whole appears as pretty well mixed. A small stratum has formed in the lower layers. 3½ paces in this bed

A. spinifera

One of these bands is an actinella and lies about 11' above the stratum.

Aug 24 1976

Tilly Valley Ravine

First rock in ravine seen at 15 hand-level steps over road or at 550 paces upstream.

0'15" – 30'80" – ~~[illegible]~~ – dark gray, fossiliferous shale, fine-grained

30'80" – 35'85" – covered

35'85" – 70'90" – covered

90'90" – 125'130" – mostly covered. At 1' above 120'125" bed of hard, fine-grained, [illegible] sandstone at 701' above sea level. Fossils seen in this 1' of bed – below the limestone [illegible]

L. lama P. regulata L. perplexa
N. regulata S. [illegible] A. [illegible]
C. [illegible] [illegible]

The limestone bed is about 1' thick & [illegible] at the base. The fossiliferous [illegible]:

S. cornuta O. palmata
P. [illegible] M. [illegible]
S. [illegible] [illegible]
[illegible] S. cornuta
N. regulata P. radiata

120'125" – 125'130" – [illegible] to 1' above [illegible] layer
125'130" – 130'135" – gray shale

N. corrugata C. [illegible] P. [illegible]
S. cornuta [illegible] C. [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
[illegible] [illegible] [illegible]
P. [illegible] N. regulata [illegible] crals
[illegible]

130'135" – 135'140" – covered

135'140" – 140'145" – The rock in the lower part of 140'145" has [illegible] so that just above the third layer fossils are abundant.

P. [illegible] A. [illegible] [illegible]
N. corrugata P. [illegible] [illegible]
[illegible] [illegible] [illegible]

100
175
350
180
805

1111
805
306

112
52
27
17
208

208
46
112

208
105
103

~~49~~
17
27
~~46~~
17
27
~~47~~
~~208~~
91
117

208
96
112

199

210'

17' [illegible]
[illegible] 20'
Cardiff [illegible] 121'

593

P. sana
Blackish limestone with a few
Mottled nodules about 3' below the top of
100'/100' - Thus ends the Mottled beds of
17 feet of very fossiliferous shale
in a most [illegible] dipped from 15' above
the top of 140'/140' to 20' below
B. submarginatus Ostrovum sp.
N. mandalli
C. umbonata a

140' 140' - 145' 145' -
R. umbonata C. religiosus
B. submarginatus Spyridiana sp.
145' 145' - 150' 150' - same
150' 150' - 175' 175' - [illegible] and the [illegible]
cliffs and patches of the crinoidal gray shale
[illegible] 3' above the top of the Mottled
Z. [illegible] and [illegible]
175' 175' - 180' 180' - [illegible] dark gray shale -
No fossils were seen [illegible] but [illegible] abundant.
180' 180' - 190' 190' - [illegible] gray shale -
L. bella a N. obliquatus H. [illegible]
L. longa S. [illegible] B. submarginatus
M. subalata C. octagonus C. [illegible]
Cyrtolites Pseudo sp. Halio
Ellipso Schuchertella

190' 190' - 230' 230' - same shale exposed in the
banks and cliffs. At about 220' there is a hard
dark colored layer [illegible] of the Pompeyville
Rafinesquina members

230' 230' - 240' 290' -
L. longa M. subalata
J. submarginata Z. [illegible]
L. [illegible] Spirifer - large.
B. submarginata
C. [illegible]
[illegible] [illegible] a

Many of the elements of the Delphi can be seen in this interval.

255 255
240' 240' – 265' 265' –

M. mytiloides c — C. mucronatus — P. cylindrica
L. lirata c — R. [illegible] — G. [illegible]
M. concentrica — E. punctata — N. bellistriata
N. oblongatus — C. boothi — [illegible]
B. leda — R. fasciculatus — R. [illegible]
[illegible] — E. [illegible] — P. [illegible]
P. flabellum — C. [illegible] — Pal. [illegible]
A. undulata — C. mucronatus — O. [illegible]
M. pygmaea

255' 255' – 265 265' – apparently the Delphi member ends here and the shale becomes finer and more crumbly and the large fossils have disappeared. There is no well-marked division line between the Delphi & the Pompey, but may be taken just about where the big fossils cease to be common. This would put the top of the Delphi about 167' above the top of the Mottville hard layer.

265' 265' – 270' 270' –

[illegible] — Orthoceras c — N. [illegible]
[illegible] a — M. pygmaea — [illegible] laevis
C. [illegible] — N. ~~triquetra~~ — N. elongatus
C. [illegible] — Camarotoechia

This shale also has many of the forms such as are seen in the bottom of the Pompey at Delphi or on the Sandy NY Oneida creek. In debris at the head of the falls were seen:

N. triquetra — C. mucronatus — [illegible]
Pal. constricta — ~~[illegible]~~ — ~~[illegible]~~
~~[illegible]~~

~~This is probably belongs to the Pompey and it is just where the C. [illegible]~~ ceases.

9 40
10 20
2 80
23 70
75
28 5

45
35
85
40
34

183
15
198

310
26
336

510
986

595

The falls over the top of the Pompey is 32' high, coming at 1,300 (300) gives a thickness to the shale of the Pompey of 225' to the top of the Portland Stone. The rock is fairly regular till at the top the rock is very shaly but is a flagstone so on the Portland Stone.

Possibly on the brink of the falls is:

Conocoronatus — Pseudolatia — Y. regata
B. Hollowayi — Stropheodonta — S. perplana
P. Halliana — Microcentrum — S. patulus.

In the 5' of sandy shale above the falls are seen:

A. trapezoidalis — Hybolithes — S. perplana
Orthis — P. Halliana — M. concentricus
Conocoronatus — Y. regata

This belongs to the upper part of the Pompey. Below the 5' of coarse shale come softer shale but it is not accessible. For 200' above the top of the Pompey no exposures were seen. Specimens in fairly common in the Pompey at this locality.

Proceeding again from the Mitchell hard layer to the top of the Pompey gave 36 steps of 3' or 198'.

falls 1

The section exposed in this ravine does not appear to be as thick as that in the Bear Mountain ravine, but apparently there is considerable shale looking at the top which would add some, but not sufficient to bring the total up to 300'. I believe that this section is locally thinner. It apparently will not match the section in the Bear Mountain ravine. It will not do to use this section at all.

Shale in vicinity of exposure in Pa to lead to Grassy

C. bellistriata	C. vidata	Dorigna
C. fimbriata	C. nana	C. affinis
C. [illegible]	C. micrometa	Par. [illegible]
C. [illegible]	C. [illegible]	C. [illegible]
Zeacrotis	C. [illegible]	C. [illegible]
Calcaratis		

I believe my hand-levelling was O.K. as I climbed the hill from 220'/220" ~~and~~ or ~~20~~ 100'/100" above the hand layer and there were just 16 hand-level steps up to the Nyassa bed. But beyond this bed the shale for some thickness contained Atrypis, C. micronatus and R. vanuxemi. I believe that there must be 30 or 40 feet more shale above the brink of the falls which belongs to the Skaneateles and I would put the total thickness here at 250-260'. According to my recollection the Skaneateles in the Bear Mountain Ravine was just 300' thick

Fossils in the Encrinal are:–

C. [illegible] a	L. [illegible]	~~C. [illegible]~~
[illegible] a	S. [illegible]	
T. carinatus a	Small snails	
R. vanuxemi c	L. pennatus	
S. tullius	A. granulosa	

Fossils in B. upper part:–
P. [illegible] (large)
S. pennatus c   The type is a blue-
T. carinatus a   gray calcareous arenaceous
At the base are seen:
S. pennatus   C. a shale. The shaly
T. carinatus   bottom is hard and
P. [illegible]   [illegible] not calcareous.

Fossils observed in the coarse ss of C. are:
S. pennatus [illegible] in 10' & 12' of [illegible] in
C. of the massive shaly bed.

The Pholidostrophia bed lies in 2 layers, the upper one of 6-8" carries the Pholidostrophia & the large Leptostrophias. The lower bed was not carefully examined for fossils but seems to be only less of them. It is 8" thick. The 6' ft interval is not clearly defined and probably had better not appear in a columnar section.
Below the Pholidostrophia bed are 22' of sandstone the upper 11 of which are cross bedded and contain small sandstone concretions like those of the University Quarry. The rock for 13' below the cross bedded ss. is of shaly ss. not exhibiting its bedding clearly but exhibiting irregular horizontal cleavage.

599

Fossil in the 12th shelf series.

P. decussata P. undulata
P. flabellum P. semen
P. [illegible] P. grandiflora

He moves that the shelves to the back of the shelf series be placed in the following order, but that the flat cases be placed in the middle of the shelf, and that the back of the shelf be placed about 18 inches off the wall.

P. gracilis P. [illegible]
P. [illegible] P. [illegible]
P. [illegible] P. [illegible]

Mr. [illegible] moved that the Curator be instructed to purchase the following specimens:

Eggs H. dekayi
P. [illegible] L. principis
C. [illegible] L. [illegible]
P. [illegible] L. [illegible]
P. [illegible] A. [illegible]
P. [illegible] A. macrotis
P. hubbata M. [illegible]
P. [illegible]
P. [illegible]
A. [illegible]

1928

Aug 25

Section of Falls

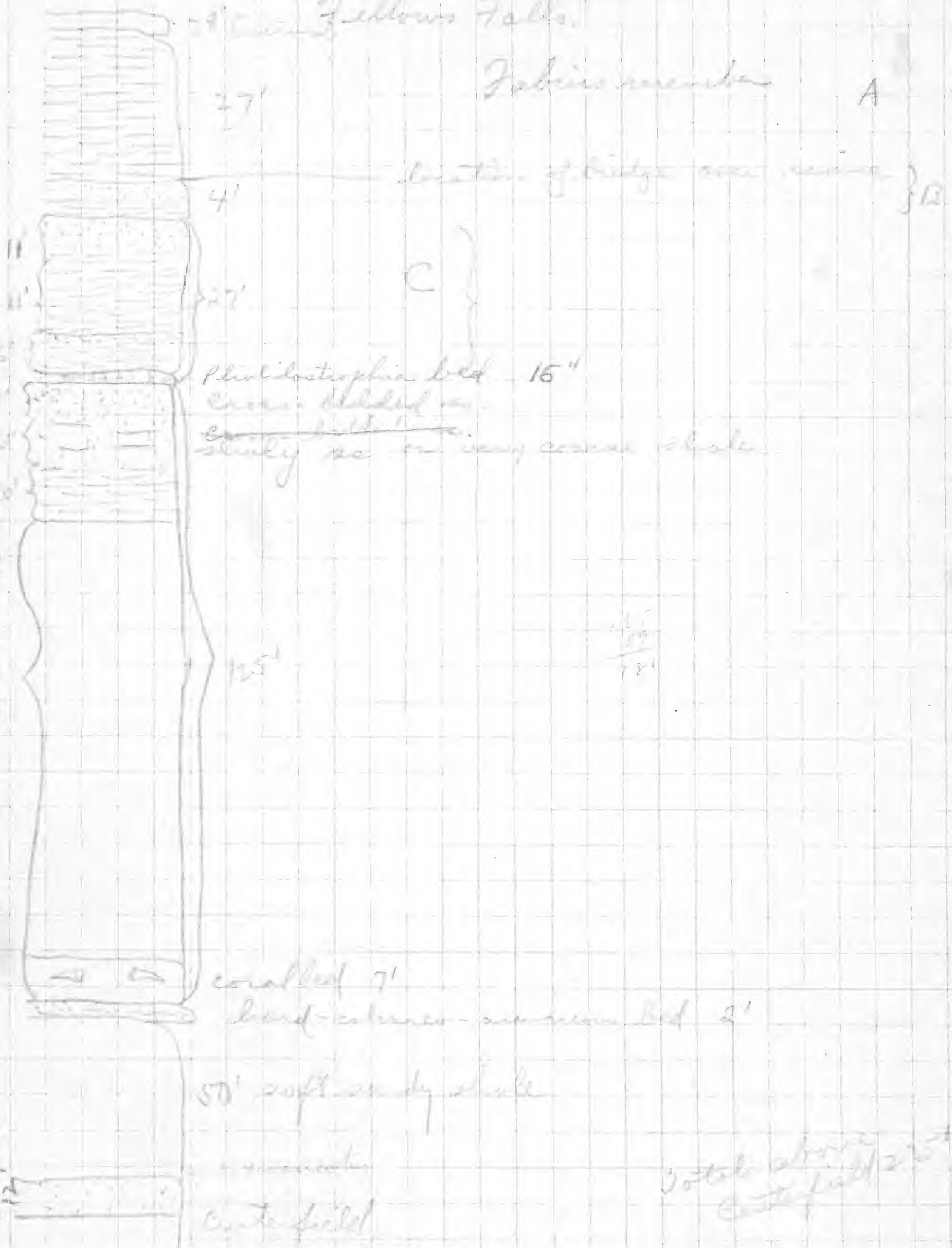
The Phyllostrophia bed was noted exactly 8 steps above the brink of the large falls that contains the coal beds at its base. In the Phyllostrophia bed were seen:

T. cuneatus	P. appendiculata
P. compressus a	L. fremontia
L. linearis	C. complanata
Gon. bam.	K. pattersoni
L. gracilis	T. [illegible]
L. geniculata	P. flabellum
C. stellistriata	T. subcongiata
K. compressus	C. bellistriata
C. cornutus	C. decussata
C. parvulus	P. fendleri

Above the Phyllostrophia bed are 27' of soft shale to the top of the bottom layer of the 4' sandy ledge. In this sandy ledge are 1' of soft sandy shale. Above this ledge are 4' of sandstone. Above this ledge is a 4' ledge over 20' of hard sandy rock, the lower 2' being a softish shale. The brink of this 4' ledge forms the base of the bridge, hence the Phyllostrophia bed is 32' below the level of the bridge. Which is at 1150' A.T.

Fossils seen in the upper 10' of A are:

M. [illegible]	[illegible]
C. cornutus	C. [illegible]
C. scitulus a	[illegible]
Par. bam.	C. [illegible]
C. [illegible]	
C. [illegible]	
T. cuneatus	
C. parvulus	
[illegible]	


Yellow Falls
A
B
C
Philadelphia bed 16"
coaled 7'
bed-coaler-seam bed 2'
50' soft shaly shale
Water above
Coal field
125'

600

On the Centerfield here there are exactly 12' of cross-bedded as at the top and at least 11' of calcareous-arenaceous with coal. No other fossils was obtained in a calcareous mass on the very brink of the falls about 7' below the as. Here must be somewhere about 20 or 25' of the lower shale. The center of Lot R seem will indicate the equal amount. It is my belief that the cross-bedded as here represents that of the University Quarry which makes the Centerfield Section. It will be difficult to find in the as. Let to fossils seen at the base of this Quarry.

Cordially yours
J. Mellichamp

P. S. Mellichamp
Dear Sir
Beneath the top the as is seen but calcareous.

113

125
150
150

290
43
332

Feb. Aug 26.

Bridge Pier at the Hackley

Top of Centerfield is at 35' 35" + 4' above the bridge

[illegible] 9.32' above road level. Pier 25' [illegible]

[illegible] Centerfield [illegible] the [illegible] blocks of [illegible] 20' [illegible] [illegible]

[illegible] at 45' above the

Centerfield is about [illegible] which is [illegible] at the top and [illegible]

fall of about 5' at the [illegible] [illegible] [illegible]

[illegible] [illegible] [illegible] [illegible]

[illegible]

Between 55' 6" and 80' 6" above the road [illegible] 45

above the [illegible] [illegible] 3' [illegible] [illegible]

[illegible]

Pal. constructa

[illegible]

Pt. 105' 10" + [illegible] the [illegible] [illegible]

[illegible] 160' above the top of

the centerfield at this place. It forms

[illegible] [illegible] [illegible] [illegible] [illegible]

falls above the [illegible]. This falls is [illegible] 20' high over ~~[illegible]~~ shaly sandstone. The 20' [illegible] and is about 18" thick.

Above the [illegible] there is a fall 28' high over about 5' of sandy stone and shale [illegible] the next falls.

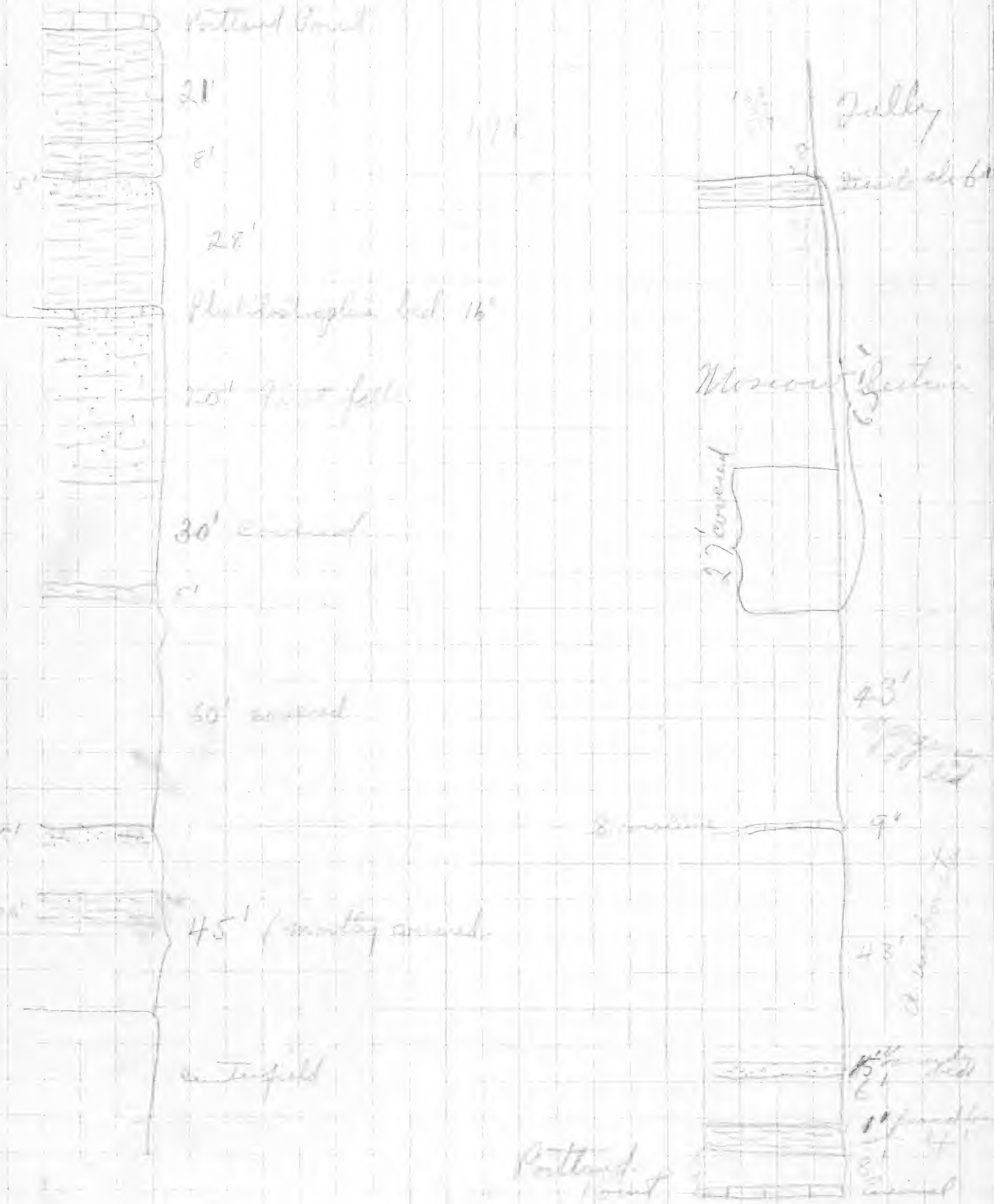
Above the 28' falls is another 8' high over a ledge of [illegible] about 2' thick. Above the 8' falls is one 21' high and at the top the Portland Point occurs. It is in 4 layers each about 6" thick. It is not as [illegible] the shell beds here as at Fellows Falls. [illegible] was collected.

Above Encrinal

Encrinal – 5'6" — [illegible]
T. carinatus   S. [illegible]
A. [illegible]   E. [illegible]
R. [illegible]
5'5" – 13'10" — [illegible]
10'10" – 13'3" — [illegible]
T. carinatus   N. [illegible]
S. pennatus   P. [illegible]
[illegible] [illegible]   M. [illegible]
C. arcuata
A. [illegible]

The Portland Point is in view here fully [illegible] but about 3' are covered and with this 3' it must be about 8' thick. The shale abounding in T. carinatus [illegible] is a sandy layer about 1' thick. This is followed by about 6' of the [illegible] then another sandy layer.

Section in 70 Rockfall Room



603

The sandy bed about 10' above the
Carinal is about 6" thick but has only
at 9" of sandy shale that are included
with it.

At Estacado the same sandy bed is a
layer of [illegible] about 9" thick and only
in [illegible] feet [illegible]

P. [illegible]	S. [illegible]	S. [illegible]
R. [illegible]	S. [illegible]	C. [illegible]
G. [illegible]	S. [illegible]	M. [illegible]
C. [illegible]	C. [illegible]	P. [illegible]

The whole 21' below the Carinal has been
[illegible] a [illegible]
65' 55" - 60' 10"

M. [illegible]
S. [illegible]
S. [illegible]

Should not locate the boundaries of
the S. [illegible] and the M. [illegible] zones
Hancock for 11' above the Cliffhouse
bed had few fossils, so the diagnostic
[illegible] zone. It would be best to [illegible] and
the 3.9" of shale to this zone
Fossils seen in M. [illegible] zone —

P. [illegible]	C. [illegible]
P. [illegible]	S. [illegible]
M. [illegible]	M. [illegible]
M. [illegible]	C. [illegible]
P. [illegible]	C. [illegible]
S. [illegible]	Scaphites sp.
S. [illegible]	P. [illegible]
S. [illegible]	S. [illegible]
R. [illegible]	M. [illegible]
S. [illegible]	S. [illegible]

Here 80' above the sandy shale of the T. radiata bed the rock is [illegible] 2 the [illegible] of the [illegible] sandy [illegible] 28 steps or 140' + 11' or 151' + 21 = 172' for thickness of [illegible]
The [illegible] [illegible] to the 2[illegible], there is 6' [illegible] [illegible] [illegible] [illegible] [illegible] rather highly [illegible] [illegible] the [illegible] fossils [illegible]

C. setigerus
[illegible] linguata
S. [illegible]tatum
N. [illegible]
Lingula sp.

M. pygmaea
N. [illegible]
L. [illegible]
V. pustulosa

Fossils seen in the falls below the Vitulina zone:—

T. [illegible]
S. [illegible]
C. [illegible]
A. [illegible]
[illegible]
O. [illegible]
[illegible]
[illegible]
T. [illegible]

L. [illegible]
L. [illegible]
Platyceras
[illegible]
Pal. constricta
N. lirata
[illegible]
C. [illegible]
[illegible]

at [illegible] 7 [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] 13' [illegible] [illegible] [illegible] the shale between this ledge & the black shale is [illegible] the lowest 3' of the 13 clearly belongs to the [illegible] zone, but the upper 7' belongs to the Vitulina zone & about 3' are transitional.

605

The partings on faces of the rocks show weathered with small appearance.

Cattefield —
At the first sight the following were seen:

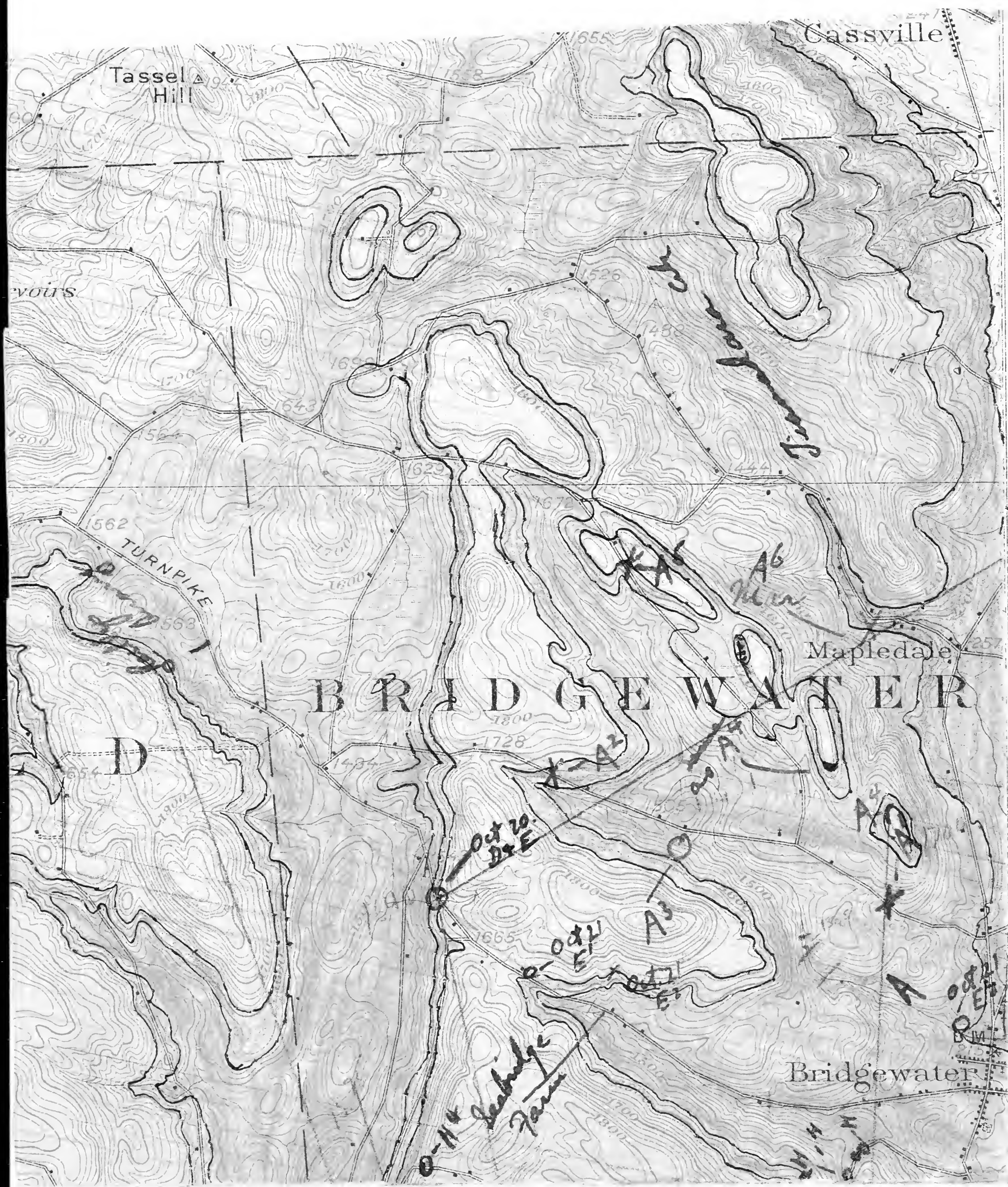
P. coniferus	N. gracilis
C. officinalis	Pellia chamaegenis
P. flabellum	C. rhenana
S. penastus	R. decorosa
M. conceptrix	R. pisiformis
B. palustris	P. [illegible]
B. [illegible]	R. [illegible]
B. fruticosa	R. [illegible]
E. letzgerus	C. [illegible]
T. [illegible]	R. pisiformis
T. [illegible]	R. [illegible]
Par. [illegible]	P. [illegible]

On the brink of the falls the rocks abound in slightly lichens. Sulphur is also present. Overhead average 33' on the thickness of these rocks. About 33' from the top of the falls L. lanna occurs in abundance.

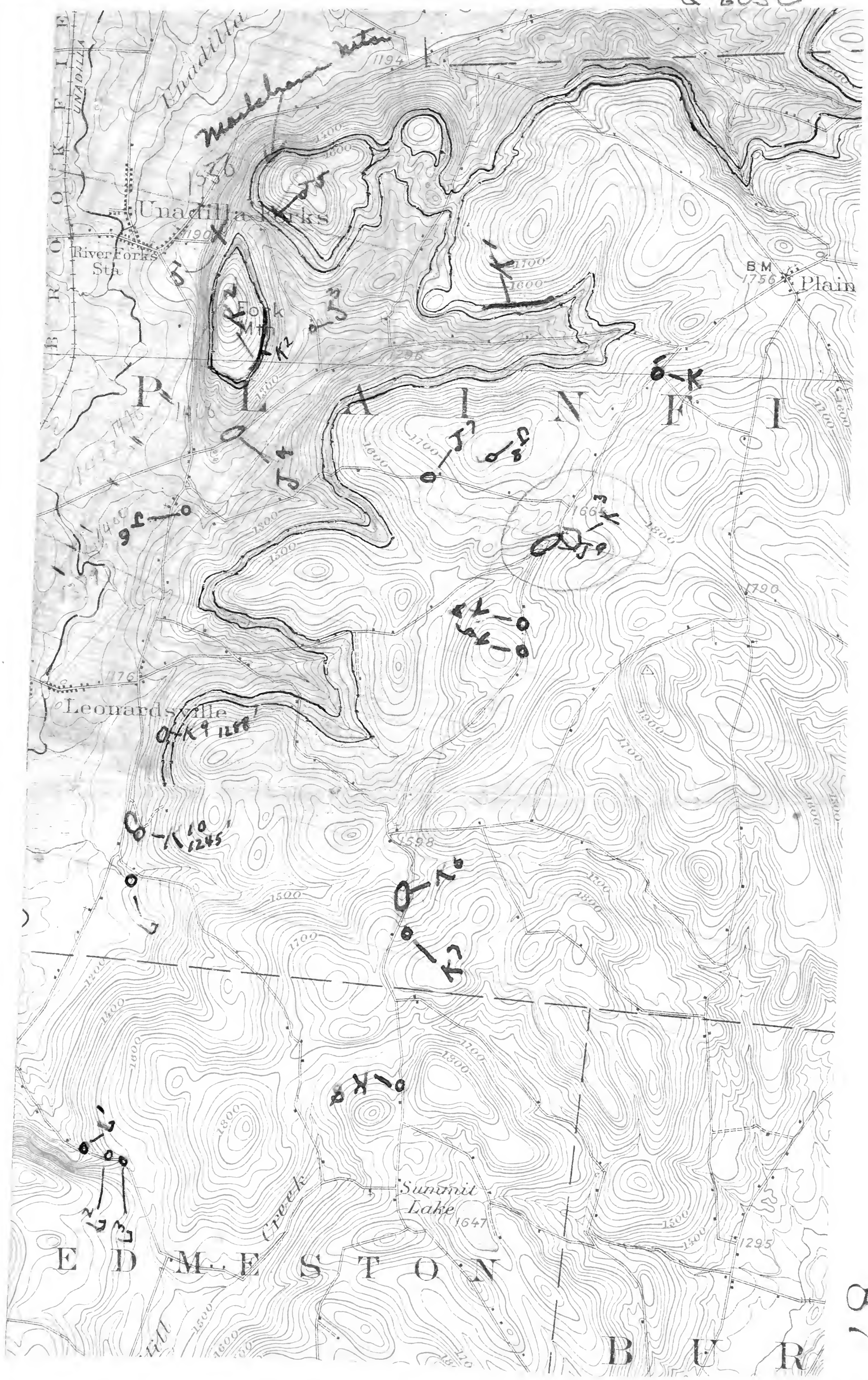
On opposite side of road Cattefield forms large ledge on hillside about 10' above road level. It is about 30' thick. Near the top is a small thickness of cross bedded ss.


ONEIDA CO
MADISON CO
Creek
1695
1773
1588
1442
1366
1387
1470
1688
1656
1546
1783
1766
1767
Beaver Hill
Button Hill
Brookfield
Leonardsville
BM
Button Falls
Beaver
F I E L D
H³
H²
G

6058

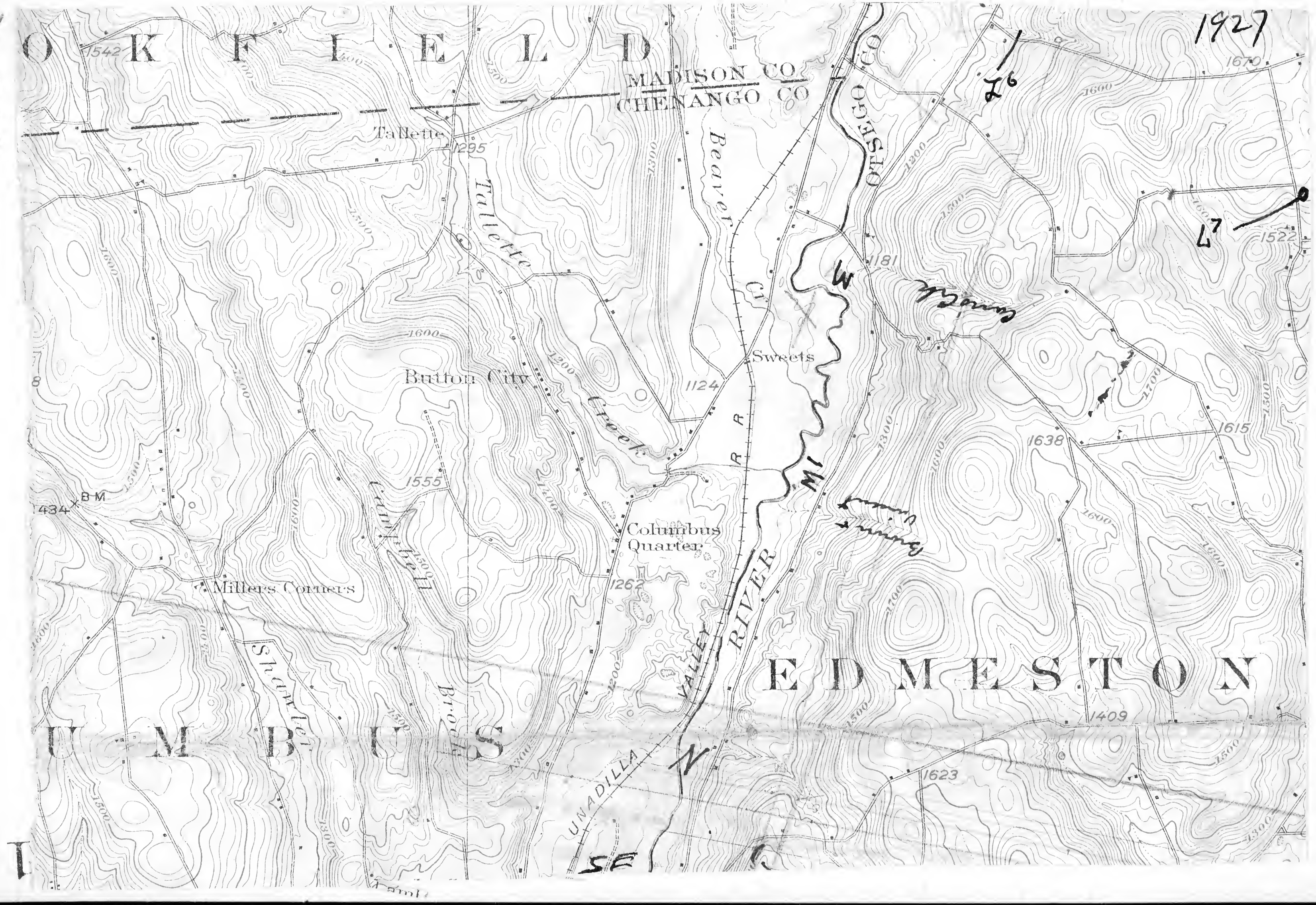

Cassville
Tassel Hill
TURNPIKE
Mapledale
BRIDGEWATER
Bridgewater
Oct 20 D&E
Oct 24 Bunker
Oct 24

75

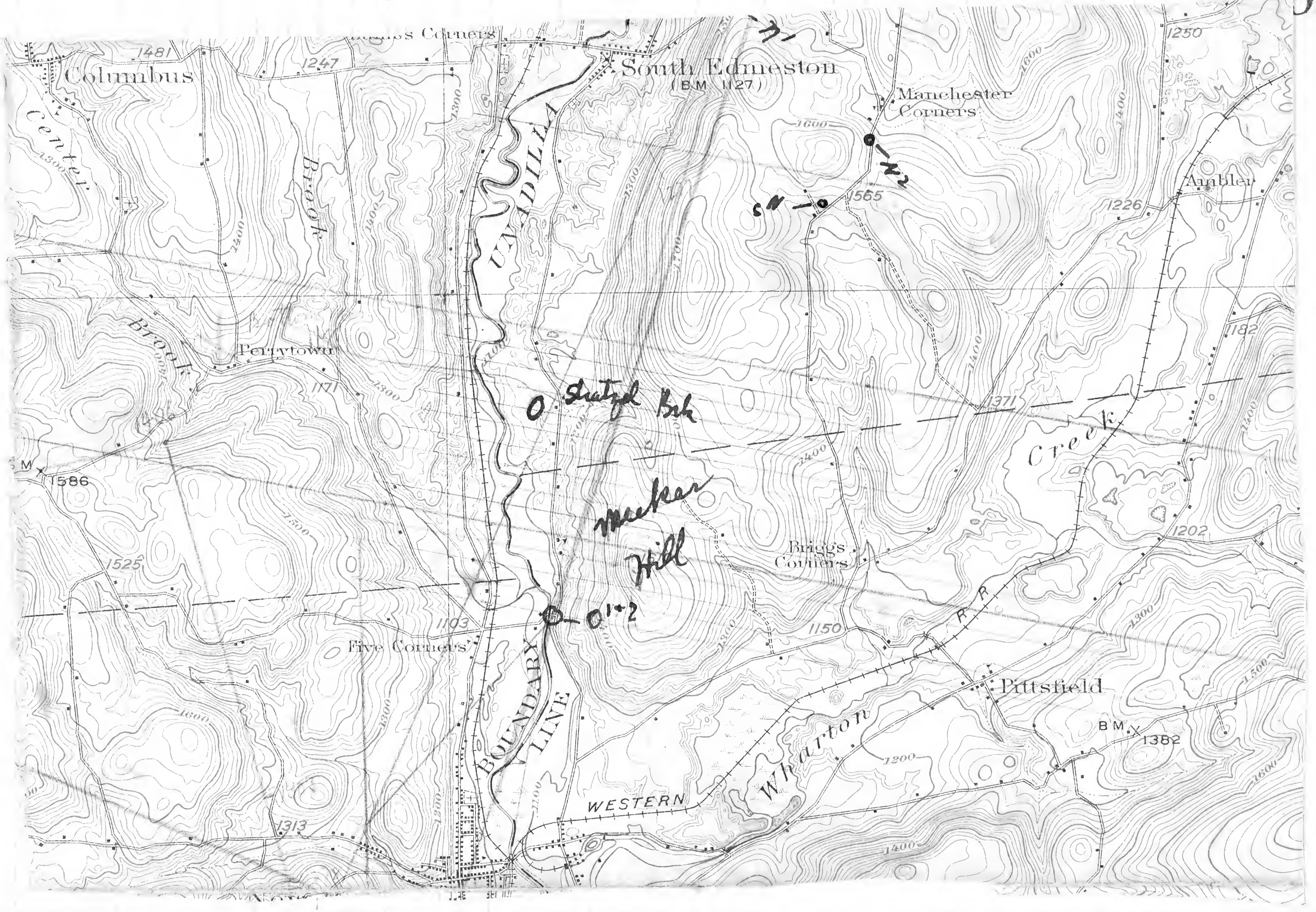

Unadilla
Unadilla Forks
River Forks Sta
Fork Mt
P L A I N F I E L D
BM 1756
Plain
Leonardsville
Summit Lake
1647
Creek
E D M E S T O N
B U R

6054

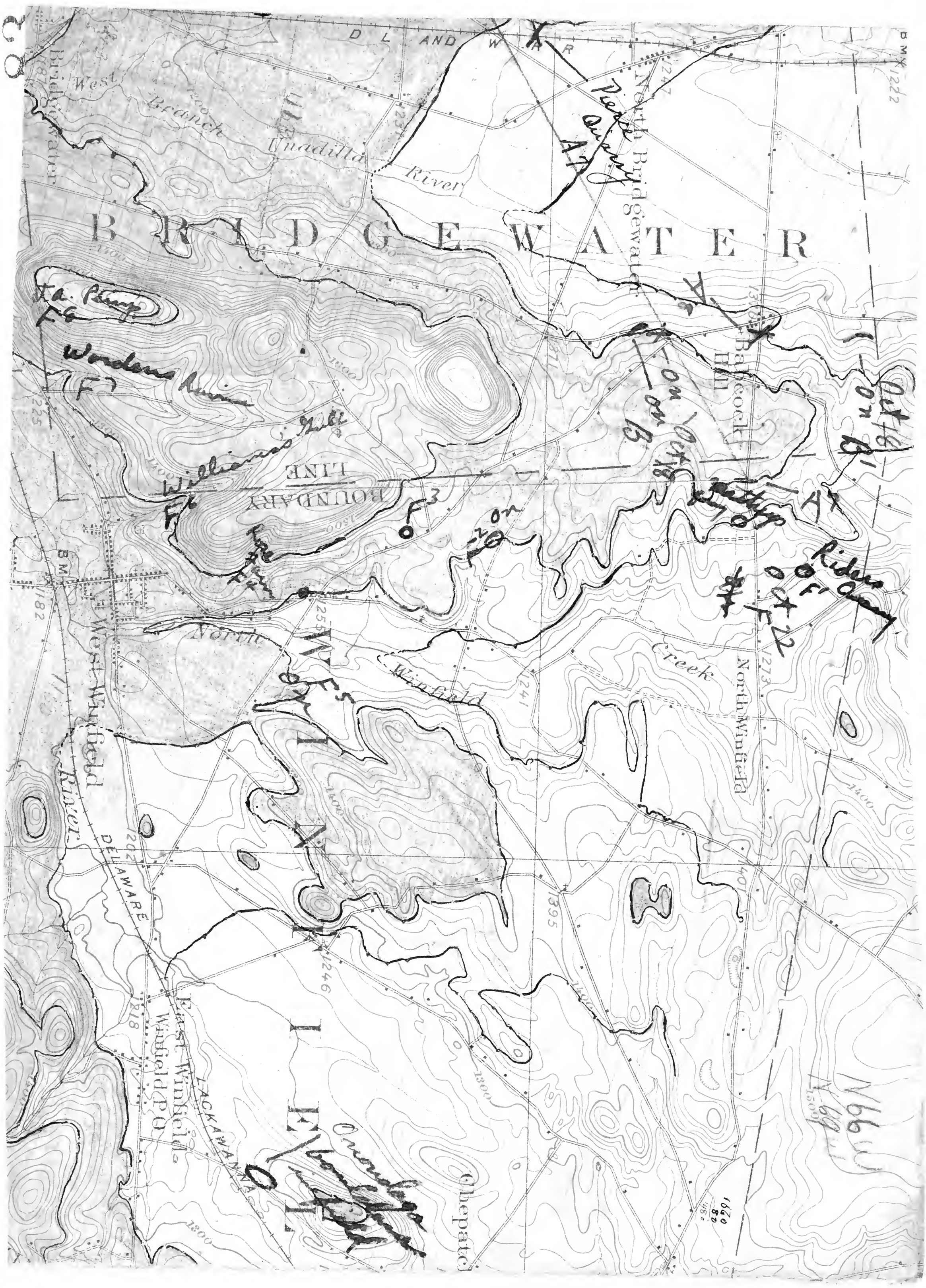
1927


O K F I E L D
MADISON CO
CHENANGO CO
OTSEGO CO
Tallette
Tallette Cr
Beaver Cr
Sweets
Button City
Creek
Columbus Quarter
Millers Corners
Shaw Hill
Brook
UNADILLA VALLEY
RIVER
E D M E S T O N
U M B E R S
1542
1295
1181
1124
1555
1262
1434
BM
1670
1522
1638
1615
1409
1623

6059

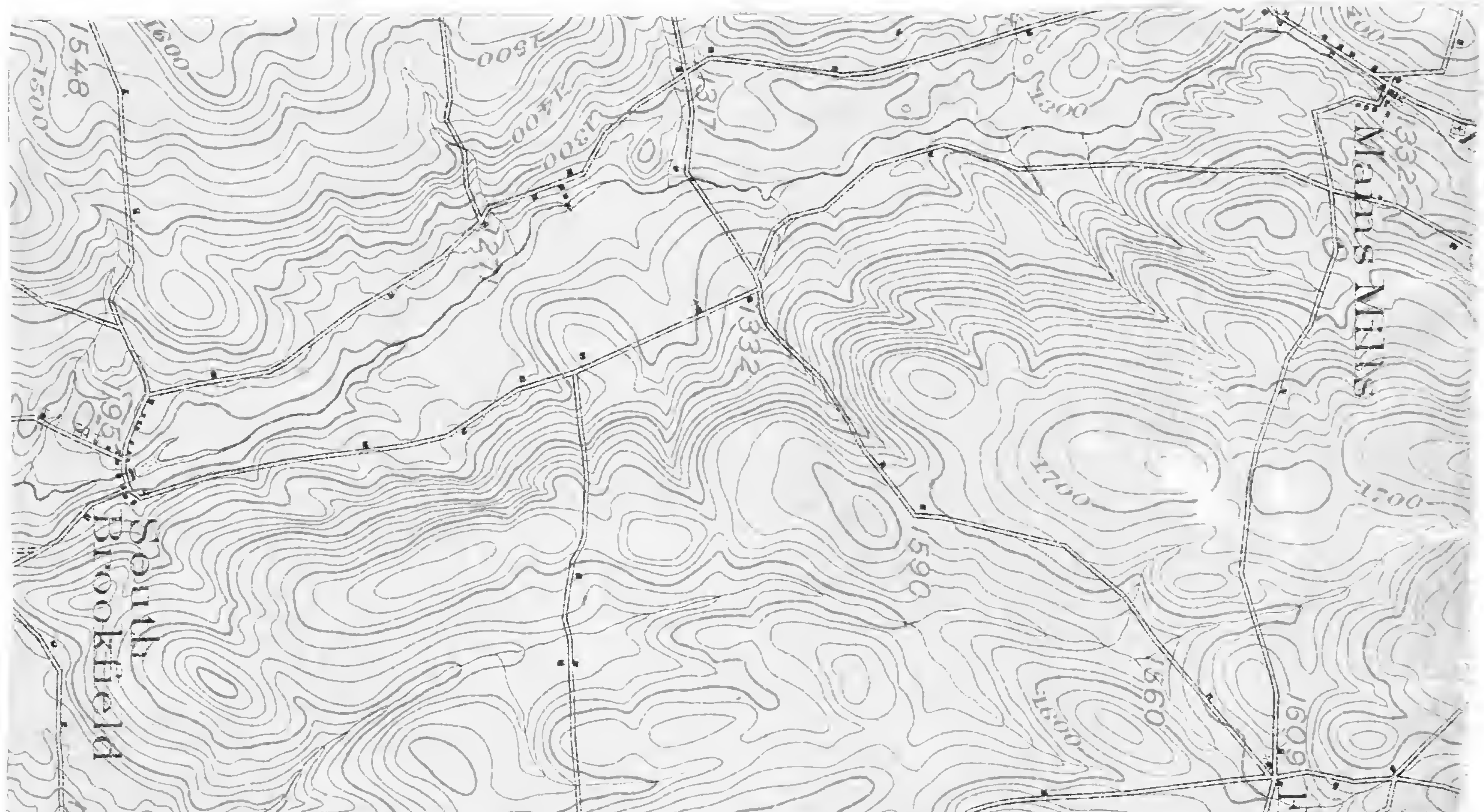

Columbus
Briggs Corners
South Edmeston
(B.M. 1127)
Manchester Corners
Center
Brook
UNADILLA
Pettytown
Brook
Ambler
Creek
Briggs Corners
Five Corners
BOUNDARY LINE
WESTERN
Wharton
R.R.
Pittsfield
B.M.
1481
1247
1250
1600
1400
1565
1226
1182
1371
1586
1525
1202
1103
1150
1382
1313
1300
1200
1500
1100
N-1
N-2
O-1-2
Stratford Brk
Meeker Hill

605e



WEST WINFIELD
BRIDGEWATER
BOUNDARY LINE
West Winfield
East Winfield
Winfield P.O.
Chepatchet
North Winfield
Winfield Creek
Babcock Hill
North Bridgewater
Bridgewater
DELAWARE
LACKAWANNA
Delaware River
Unadilla River
West Branch
D L AND W R R
N66W
Oct 18 on B
on Oct 18 on B
A

605-7


South Brookfield
Mains Mills
Five Corners
West Edmeston
EDMESTON
Unadilla River
MADISON CO
OTSEGO CO
UNADILLA VALLEY R.R.
Palmers Ravine
L5
L4
P2
1548
1332
1590
1560
1609
1193
1500
1400
1300
1700

606/1927 A 19 606

Unadilla Valley section

Oct 16.

A¹ — Creek just N of Bridgewater — first [illegible] — blue gray shales on both sides of creek. Dark gray in bottom [illegible] about [illegible] [illegible] gritty [illegible] the [illegible] small [illegible]. The exposures at [illegible] are [illegible] [illegible] pointed.

[illegible] 150 paces [illegible] along the [illegible] highway [illegible] of the church. The first 210 [illegible] by 150 [illegible] occupied by the shales [illegible] from the [illegible] of the [illegible] for about 5–10 [illegible] about 200 paces [illegible] of the highway [illegible]. These shales had a white streak.

A² — About 200 yds west of Mr. W. Parkinson's house which hill [illegible] small exposures of gritty shales that [illegible]. These [illegible] [illegible]

A³ — 1650' A.T. about 8' [illegible] gray shales. They may belong at the base of the [illegible] [illegible]. Some of the layers [illegible] by [illegible].

Oct 16

A3 — about 1/2 mile east of [illegible] highway intersection and opposite the house on hill. First west of highway coming north. There is a [illegible] [illegible] of soft gray shale that weathers a purple or brown. Not an erosion-resistant one like the [illegible]. The exposure is [illegible] feet for just near the [illegible] and no [illegible] [illegible] The exposure of the gray shale [illegible] the north bank channel of a creek that goes up the hill [illegible] of the highway. The [illegible] of the [illegible] [illegible] the top [illegible] [illegible]

10 — 5'5" — This interval is of soft white shale. The only fossil seen was a [illegible] (a pygmant)

5'5" — 10'0" — About 6" below the top of the interval is a hole, there is a 7" band of hard shaly [illegible]. Other light blue [illegible] [illegible] are [illegible] [illegible] are [illegible] [illegible] [illegible] [illegible] a shaly [illegible]. Below this [illegible] [illegible] are [illegible] [illegible] [illegible] small [illegible] fragments.

A. umbonata — L. [illegible] (large)

10'10" — 15'5" — same shale.

15'5" — 20'25" — " The shales become [illegible] to the western [illegible] [illegible] and more [illegible] that split & finally [illegible] small fragments. [illegible] that [illegible] [illegible] the

1621 A.T.

Energy requirements of

50-71

of

Lutra

of

lutra

second half 1540'

the slopes mostly appear to be a coarse earth, the small fragments are commonly angular

20'20" — 25'25" — same
25'25 — 30'30" — limestones
30'30" — 35'35" — top half of limestone — bottom same shale as above with a red quartz, often a tarnish. Here are found:
R. nucleomata — C. rotiguum
L. lama — Singular sp.

35'35" — 40'40" — same shale mottled to a dull maroon red — sometimes with a distinct tarnish. Here, where some of the shales are wet, it seems to be a brilliant yellow, but here, as nothing seems looking like this phase the shale is a dull yellow on the surface. This suggests that the red is a yellow and is baked red & tarnished. There is a possibility that the red is mottled purple from iron first, then is baked to a yellow. The lower yellows are surf. The latter colors are supported by a more gritty substratum but most of the rock is so fine & silky that colors are not right. The best shales are commonly red.
Spirifer lineatus
Cinfrocelia sp. — L. lama
Orthiambolina sp

40'40" — 45'45" — same

45'45" — 50'50" — Pinnatulus,
50'50" — 55'55" — same Gnathodus abundant
55'55" — 75'75" — limestone — L. Nucleog
Lower at 1540.

Oct. 16

A4 — ledges of hard sandy shale, about 15' vertically & exposed around the hillside, to top of cliff at 1200 A.T. Fossils abundant in the shale. The rock breaks up easily into flattish angular slabs. The fossils show the ~~X~~ usual irregular fracture. Fossils rare.

I have only [illegible] & [illegible] & [illegible] are [illegible] Spirifer sp.

P. lirata is [illegible] that in the upper ledge of this rock [illegible] the south side of the mount.

A5 — [illegible]

A6 — Nautilus [illegible] fractures [illegible] Brown streak.

A7 Crinoidal — [illegible] on RR just north of McPhillamy Cr — upper [illegible] shales, [illegible] Schizodus, [illegible] Crinoids, [illegible] Bryozoa, etc. Chonetes, etc.

Abs. Silent Force

A8 — Crinoidal [illegible] about 350 ± yds from Bakock Hill P.O. [illegible] and on north side of [illegible] abandoned quarry. Fluity [illegible] Report about 1390 - 1350' A.T.

610

A' — Onondaga & Marcellus —
Appearances in road bed & gully
should exist of Hopbrook A.T. at
an elevation of about 1450' A.T.
The Onondaga ledges appear on
opposite side of the road
[illegible]

108' west
up the road from the road which on
the map is dotted gives the same
location for the top of the Onondaga
The Onondaga is exposed in patches
for fully 70' down the hill at this
locality

The best Marcellus exposure,
which was at Mapledale at about
1315' A.T. was of black fissile shales
and probably belonged to the upper
Marcellus. Pierce's quarry must be
near the top of the Onondaga

The shales seen in A must be
the Cardiff, those at A' may be Cardiff
or Skaneateles. The shales & sandy shales
above a cannot yet place in the
sequence.

The top ledges of Onondaga at A'
contained many individuals of
Pentamerella.

611 B 611

Oct 18 Winfield Quad.

B- 370 paces from house (first
line of 2nd house) at
Bulgarter and Highway 7
Bulgarter to Rolling Hill. a
outcrop of limestone which
must be seen the top of the
following hill. Hill E.
Rhombifera c Pentamerella sp.
Orthoceras c Cheirotes
Dalmanites Encrinurus
Phacops Brachyprion
Strophomena Leptaena, some Stylo-
lites colored red, Leptaena and Stylo-
lites there in fill of road cut. Dip
of the Oriskany here is about
N 60° W A.T. - 1520' A.T. On top of the rise
just above it at the head of the road
flat platy chips of chert seem on
the dump of the old road.

Just south of the crest coming
down on the other side of Onondaga
at 1390' A.T. the Oriskany must be in place.

B'- The top of the 5 ft of limestone
back of the house, on the top of the hill
1 mile E of Cone Corners are, at about
1390' - 1410' A.T., Rhombifera c Leptaena
This is probably Helderberg.

612 C 612

Oct. 19

C.
Quarry — Jon Reilly

Location — 619 paces E of first house on river and 15 steps + 1 foot south of house of west end of quarry. Elev. at 1100' A.T. — top — 1155' A.T. Bottom of quarry at 1051' A.T.
Lge — 100 feet long — 55' high

Rock — at bottom is fairly soft arenaceous shale. Not very hard but irregular, blocky, angular frags. The exact color is hard to determine as the rock is too wet. In the first 10' of layers are large and excellently preserved forms. A fossil fern was found. Fossil plants are noted here. About 15' from the top was found a large spirifer. These do not become prevalent till near the top of the quarry. Lepidema is associated with the L. lama. The L. lama are restricted to a single horizon in a bedding plane and are scattered over the bedding plane in great numbers.

Between 4 + 5 steps the rock becomes harder, more blocky and splits into larger blocks, yet bedding becomes more evident.

The last Fenestrelloids was seen 31' above the base of the quarry at the west end.

613

The transition to the upper sandy ss. occurs at about 31' above the base of the quarry at the west end and 23-25' at the East end. The quarry floor slopes west rather gradually, but assumes for this description, the east end is 5½ higher than the west end.

The upper half or more consists of sandy shale and are between 20 or 30' thick, about 5 or 10' of the top is covered. In the upper beds:

D. trigueta	N. superstes
D. undergrata	D. divergens
D. biota	Lucina
D. granulosus	N. concentrica

I believe the transition from the Cardiff to the Skaneateles occurs in the middle of the quarry. In the Skaneateles Stream, a mile or so from Lidyard's Corners in Lidyard's dingle out the base of the first 20' or 30' of the quarry on the west end.

N. concinna, P. pleiadina and Conchidium are found at this point. They may be in the rocks higher up as I only saw more of the rocks and as I belong more to the Marcellus.

The remarkable feature of this quarry was the great abundance of large Nautiloids, either N. magister or N. Chapinianum. The former is reported from Lakeville in N.Y. St. Mus. Rept. 46, 1893.

Oct 20. D+E.

D+E Roadside gully and bank on the Cherry Valley 2 3/4 miles west of Bridgeville about 30' of heavily rocks the bank with large slabs were seen along the north side of the road. Specimens were obtained with difficulty to find them. Large boulders were north bounded, M. Brightside Crossing connection some claim that they were [illegible] of the specimens of nature large size [illegible] a little less than 1 ft. [illegible] [illegible] (38) in the [illegible] That seem at Pine Woods. In the gully to the north of the road [illegible] Podagrus Fourth Point [illegible] [illegible].

615

Oct 21. (Oct. 20. D + E)

E. — section 3 miles W of Bungendore — [illegible] 16' the rock [illegible] The first the next 22' [illegible] [illegible] Bungendore. The only fossil [illegible] The [illegible] Bettington 43 and 48 [illegible] The dog's dingo's are barking and [illegible] coming at [illegible] These beasts with dingo mongrels [illegible]

616

[illegible]

1640' — 1650' 12" — [illegible]

1650' 10" — 1655' 15" — [illegible]

1655' 5" — 1660' 20" — [illegible]

1660' 20" — 1665' 25" — [illegible]

1665' 25" — 1670' 30" — [illegible]

1670' 30" — 1680' 40" — [illegible]

1680' 40" — 1695' 45" — much [illegible]
[illegible]

Loc. sp. H. [illegible]

1685'45" — 1695'55" — same — top is a jutting band sandy stone abounding in small Ambocoelias

---

1695'55" — 1700'60" — same but with some poorly preserved fossils. These [illegible] the point where Camarotoechia [illegible] very abundant have every appearance of the beds below the bridge at Lake Moraine.

1700'60" — 1705'65" — same sandy rocks with A. umbonata e.g. a large & small, [illegible] (small), M. pygmaea

---

1705'65" — 1710'70" — rocks disappear in the [illegible] small [illegible] [illegible] on the [illegible] cliff [illegible] found slaty & flaky with large [illegible] & [illegible] like those at Lake Moraine

This section differs from the Pecksport sh at Hamilton in being thinner & having more abundant fossils. I did not note the horizon with S. macropter & large Spirifers just below where the beds begin to become sandy.

Ravine
3 miles
W. of
Bridgewater

1695' 55"

1690' 40"

~~1685' 45"~~

1680' 40"

1675' 35"

1670' 30"

1665' 25"

1660' 20"

1655' 15"

1650' 10"

10' Covered

1640'

Massive
Sandy
Shale

48

27'

soft

sandy
sha-

1710' 70"

1705' 65"

1700' 60"

1695' 55"

49

$\begin{array}{r} 3'' \\ \times 16 \\ 48 \\ \hline 372 \end{array}$

$\begin{array}{r} 10 \\ 17 \times 6 \\ 1689 \\ \hline 37 \\ 49 \\ \hline 76 \end{array}$

$\begin{array}{r} 1685 \\ 4 \\ \hline 1689 \end{array}$

$\begin{array}{r} 18 \\ 68 \\ 18 \\ \hline 86 \end{array}$

618

619

Oct 21 E²

Section on the Seabridge farm.

Small gully from the hill behind to form pond across the Clay Valley Road 1500' — 1530' 30' — hites

1530' 30" — 1540' 40" — 40 ft. the gully has cut out and crumbled into small fragments. These lower

Rhumbroutia

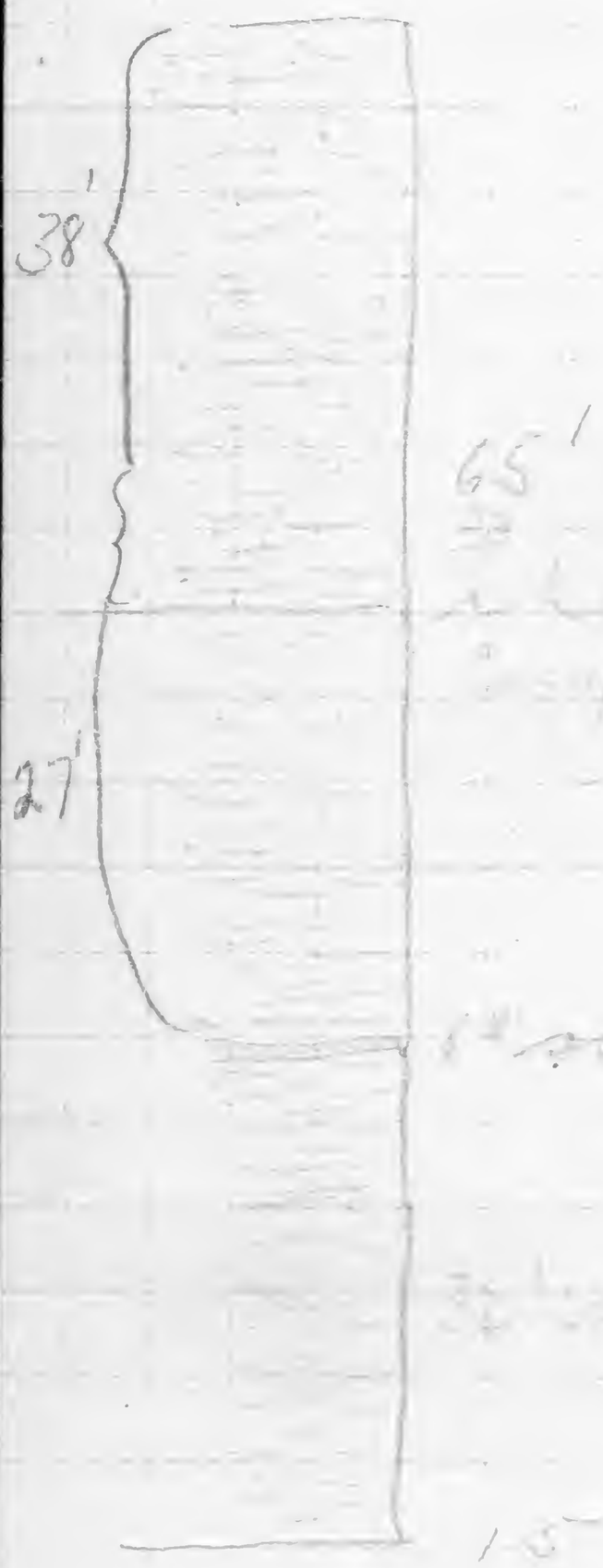
small terebratula. Above a little more gently inclined up to 1550' 50" where there was a 6" ledge of hard rock. Notice that this bed of rock is the same that seen at Oct 16 A. Certainly the shelly rocks are the same as the Rhumbroutia ledge. Very abundant above the 50 bed

Red outcrops above the 50 bed to 1550' where are found hard sandy holes like those at Oct 20 (D+E). Shells about 10' are missing in 2 megafauna were seen between 52 + 56' below the top of the highest rocks. Have disappeared from the stream bed we started from and large megafauna belonging to the cliff. Shell contact seen at 52 and at about 1575'

A.T.

Oct. 21 E'

Small exposure of the sandstones — no fossils noted. The outcrop must be near the top of the Pine Woods horizon.


38'
27'
65'

Oct 21 E³

Ravine at Bridgewater

31 handlevel steps from bridge to outcrop A. 1232 paces [illegible] to large exposure in Bridgewater from Oct 19 A.

[illegible] paces from bridge, 9 [illegible] of shales that [illegible] to the [illegible] streak is white, blue gray when fresh, weathers to an olive color. Very slightly gritty, large septaria [illegible] [illegible] the large ~~[illegible]~~ about 300 yds from highway bridge; the septaria weather to a light brown.

F. Chonetes cc [illegible] sp r
[illegible] sp rc Athyris sp rr
Crinoid stems

364 paces from bridge to large exposure. At 205 paces upstream of the bridge the shales have a ~~[illegible]~~ brown streak

The total amt. of Cardiff exposed here is about

Rock is exposed up to about 1410' A.T. in the stream bed. The transition from shales with a brown streak to those with a white streak occupies 5-10' in the interval between the quarry and the stream level. The rock in the stream below the quarry has a brown streak, that in the lowest part of quarry a white streak. The Marcellus Cardiff line must come at about 1220-1225' A.T. Shales with a white streak are exposed in patches for 1946 paces upstream. The hand-level indicates these shales up to 1410' A.T. About 100 yds upstr

1410

1510
364
1272
3146
2
6292
788
3)7080 (2360

from the quarry in the bed of the Esopus six or 7 large septaria were noted, several had been broken but those that were entire were fully 5' in diameter, they were oval in section and greatly depressed. The lo. of the concretions weathers to a light tan. A goniatite was found in one of the septaria.

The bank of shale or quarry 360 paces upstream from the bridge is 48' high and shows a section of shales which split into thin flakes but not so thin as the Marcellus. Much of the shale breaks into rather thick pieces which are tough & do not split easily. The color of the weathering is an olive. L. limitaris? is the most abundant fossil.

From the top of the Marcellus to the top of the hard (Pine Woods) layer is 420'. Therefore, either the Cardiff is very thick here or else the Skaneateles-Cardiff line comes in, somewhere in the shales, perhaps where the Cumbocrelian run out, but this would add only about 60 or 70' to the Skaneateles.

The Pine Woods hard layer forms a terrace or platform in many of the hills in which it occurs

Oct 22.

Matters Quarry

F — Quarry in Ouachita — about 10 acres
ruined — 10-20' vertical, 10 feet horizontal
shale & white marble flat —

Calcite — Dolomite
& Dimetrodon — & extinct

F' Rules quarry

20-25 ft. — Hellbiggo — lowest stone
called "Bleach Stone" Covaynaus or Nemlius.

F² — potter of corn in field.

F³ — on north bank of stream — about
a slope of 15' around it slope of land
at about 75' [illegible] — Tom — land [illegible]
after bed rock — above there was [illegible]
[illegible] — [illegible]
and [illegible] — [illegible]
about 10' east of the [illegible]
[illegible] shale [illegible] that [illegible]
[illegible]

[illegible] to [illegible]
[illegible]

F⁴— At source of the gully was found a small exposure of about 1½' of arenaceous shales that have

1. [illegible]   [illegible]
[illegible]   C. [illegible]
[illegible]   [illegible]

Between 45 + 52' below the top of F⁴ are 4' of shales with
[illegible]   [illegible]
2 [illegible]   [illegible]
[illegible]

60-65' below top of [illegible]
3 [illegible] of [illegible]

---

4 2' of same 70' below top.

Between 17 + 18 steps below top are
5 seen 2' of [illegible] sandy shales splitting in flat slabs, [illegible] [illegible]

---

6 Between 2[illegible] + 27 [illegible] 4' of [illegible] [illegible] [illegible] [illegible] steps — [illegible]

---

44 steps below top [illegible] streams [illegible] [illegible] the [illegible] [illegible] [illegible] streak [illegible] [illegible] pieces The streak is more white than brown. [illegible] weather, to a very light brown

---

62 steps to top which is at 1616' A.T. [illegible] Cardiff ~~contact~~ determined between 1367' and 1378' A.T.

1~~6~~516
1370
246

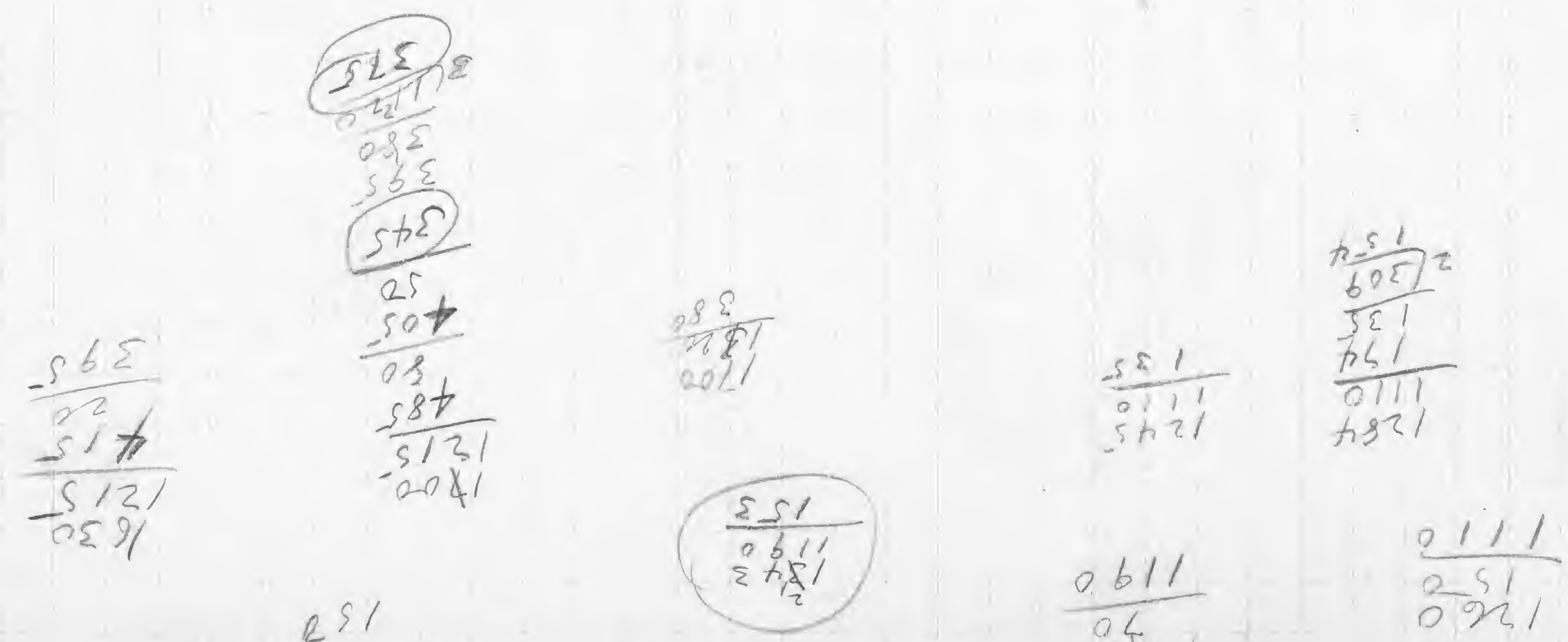
1274

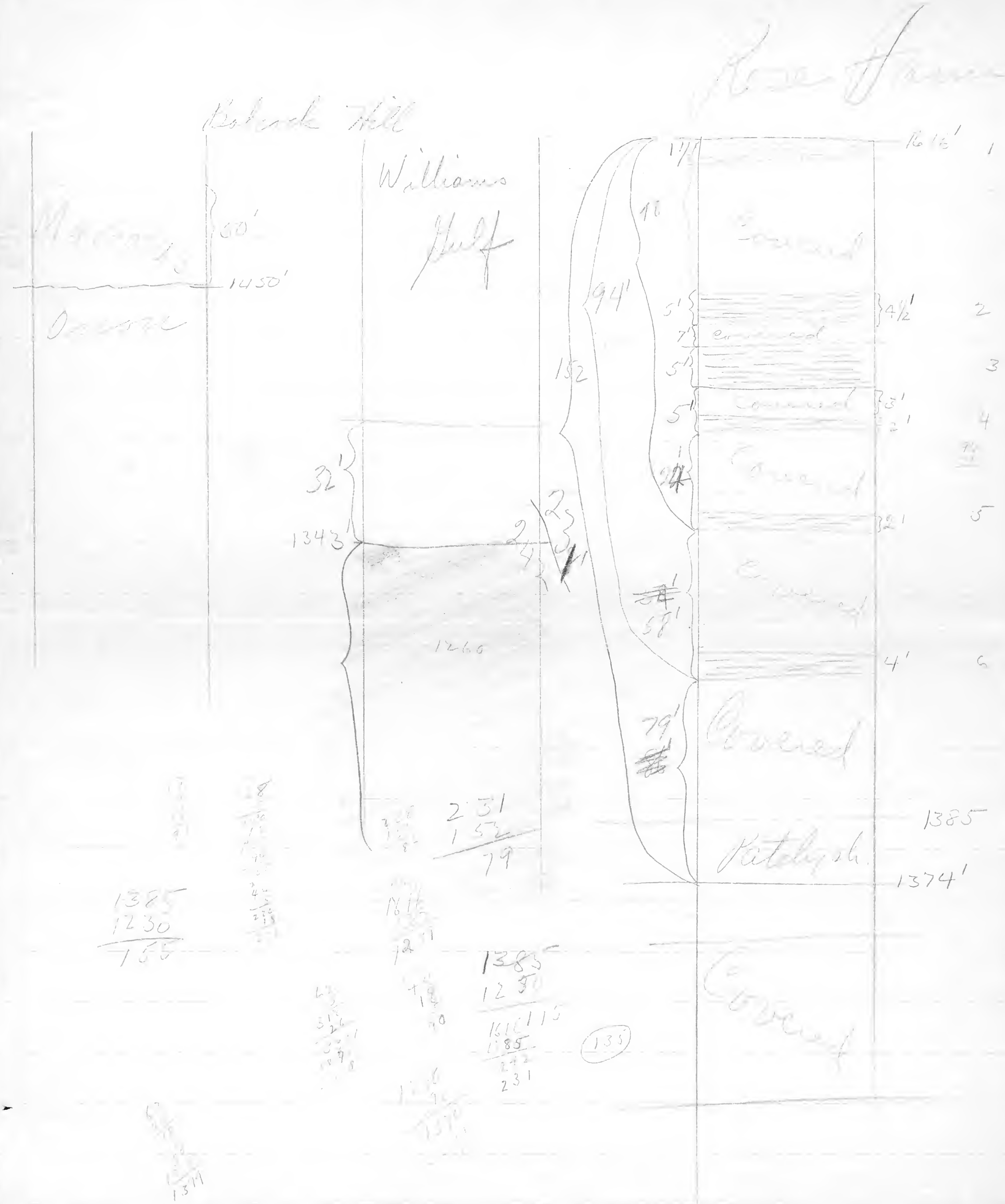
F5 — 1238' A.T. — patch of [illegible] at 4 corners about 1¼ miles N of West Winfield shales [illegible] with L. [illegible], [illegible] and Productella — may be a large boulder but may be in place. [illegible] [illegible]

F6 — [illegible] [illegible] 1?3', [illegible] [illegible] at ~~1323~~ 1343' A.T. [illegible] [illegible] [illegible] [illegible] — a large [illegible] [illegible] near the [illegible]. Williams's gulf.

F7 Clara A Ward's gulf — [illegible] 1274 [illegible] [illegible] [illegible] [illegible] [illegible]

F8 — J. A. [illegible] property — a cut of Cardiff [illegible] ~~[illegible]~~, [illegible] road — in a gully [illegible] hill which has recently formed a long sequence of shales can be seen, [illegible] [illegible] [illegible] [illegible] [illegible] the 1500' [illegible] [illegible] [illegible] of the [illegible] [illegible] from a splitting into flat slabs to a lumpy fragmentation in these shales, which are also [illegible] [illegible] [illegible] [illegible] and L. [illegible] [illegible] [illegible]. All of these shales have a [illegible] red [illegible].




Bolock Hill
Williams
Half
60'
1450'
1343'
32'
1260
94'
152
16
5'
7'
5'
5'
24'
58'
79'
4½'
3'
2'
32'
4'
1385
1374'
1385
1230
155
1385
1230
155
231
152
79

Nordin

1284

29

1245

629

626

6 2/6

Oct 23.

G — side hill exposure south side of hill, the outcrop spread just below the road in patches aggregating about 25 feet in length of sandy shale with about a 2 ft bed of flags at the top. The rock is much broken and is in fragments (see sep.) Most in abundance is Leptaena. There are also exposed at the roadside about 150 yds left the road going up the hill at about 1330' A.T. Here are also thinly grooved. Exposed surface was obscured here

G' — About 2½ miles E of Smithfield on the Smithfield - Leonardsville road are some sandy shales exposed up to 70' above the highway. The fossils were about 30' up and were sandy shales with

P flabellum
H deltoidea
Leptaena sp.
Spirifer

H trigonalis
Cordatotrochus sp.
Zoomorpha sp.

Higher up, for about 25 - 30' above highway were seen

Pflabellum
Monticulopora
Platycrinus sp.

Q. m. Prouti
S. permatus
Palmatotrochus sp.
Leptaena sp.

G² 1580' A.T.
Ammonoids which:
C. spinifer ides
P. perplana
P. patulus
Arbogasta sp.
Cystolite sp
M. macrostoma
Myc. hunttonia
P. sp
Cyst. trans.
L. wordbrooke

C. recurva
Nyassa
R. vanuxemi
C. indenta
L. permatus
R. constricta
P. flabellum
M. concentrica
Ben. lunu
L. acuptera

G³ about 15' above G² - ammonoids with
Cornulectina sp
Nyassa
N. oblongatus
Leptaena sp.

N. cothilformis
L. permatus

The entire zone is glacially grooved & striated

G⁴ — The entire shelf-land - all of the ledges along the south slope of the hill, on the south side of the Bonfield road to Lennonville. There are a series of ledges, the uppermost ledge is at 1690' A.T. but is only about 3' thick, the lowest ledge is at 1650' A.T. There are ledges intermediate between. The rock is a sandy shale for bottom ledge is 10-12' thick found - bottom ledge —
N. oblongatus
Leptaena sp.

Oct. 23.

628

628

Intermediate ledge —

C. spinifrondes — S. andrachnes
H. argute — S. permutata
P. lilata — Cymodoceae
H. conostica — C. rotundata

Uppermost ledge —

P. flabellum c — C. serrulata
S. andrachnes — Bryopsis sp.
S. permutata c — C. spinifrondes
R. vaginans — C. rotundata
S. permutata — Jania
P. flabellum — R. farinosa
Lithophyllum — P. lilata
Cyst. Blum. stems — H. conostica
C. serrulata — S. gracilis
C. spinifrons

Along the creek and on the slope of the hill at the creek were found —

Lithothamnion sp.
Bryopsis sp.

All of the above were found between the high and low water mark. Of the above the Lithothamnion, Bryopsis, C. serrulata, C. spinifrons, P. flabellum, S. andrachnes, S. permutata, and R. farinosa are only found in a narrow belt at a few feet of the sea in only places which dry at low water.

The top of the uppermost ledge was noted 15' below the top of the hill and at approximately 13'5" A.T.

There was a second ledge noted 7' below the top of the hill. Here were found S. permutata and P. lilata and Bryopsis angulata, C. rotundata.

629

Oct 23. cont'd

The second ledge from the top has about 20' left on it, it rises up as 2' lower of it, below the top. [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

The ledges of rock here on this side hill form terraces, but there appears to be no marked uniformity of regional elevation in the terraces except in the top case of the uppermost terrace.

The slab along the road bed has fossils. The prevailing forms being Cumantedia and Rhynchonella of aspecta.

The slabs in the middle of the hill have Cumantedia and a small species.

The upper slab, for about the upper 40 or 50 feet of the hill has a more varied fauna. Here Spiroarbis, Pelecypoda, Gastropoda, and Brachiopoda are rather common. Other forms noted were Lunaster? [illegible] and a shell that looked like a Mytilacea. These upper beds have some resemblance to the Red Beds fauna

630

which is supposed to be the remains of a large lighter like those at Red Bluff but of which there are two in the engraving.

The last section comes just about the place where the dotted line was placed on the map.

Parson reports 6 pistons in these beds but of course could locate a number of cistern lines and noted that the blackish values of these had a strong resemblance to Vitulina

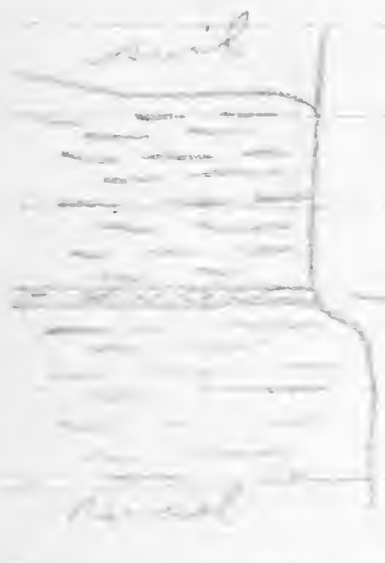
631

October 24.

H — 1331' — Big fault road south of Lindsay's. Fault side of valley — 25' of soft yellow slate in a bank on the south side of the road — They are soft, crumble to small flat fragments, not as friable as the Mancelline, not easily weathered to brown color in section, white streaks, curved joint faces, precisely similar to a pebble, and also weak with a curved or fan-shaped joint. Fossils rare — a few bryozoans are the only forms noted. These shales must belong to the Cardiff division.

H' — 22' higher up the road (1353' A.T.) in the bottom of another cut, which is 30' high, in the south side of the road — The lower 11' feet of shale breaks into pieces five feet square and even the top 11' of the fissile [illegible] 11' Orbiculoidea [illegible] foot or so of shale highest that may be limestone. Occasionally we find in these shales and at occasional exposures of Spirifer. Here 11' [illegible] the shales higher up [illegible] than those above.

At 11' there is a foot of weathered concretions [illegible] about 15". Many of the concretions are very small. Some matter to small irregular bumps, other of a smooth nodular form pretty large. Other concretions have a smooth or [illegible] surface like the surface of [illegible]. There are small concretions above the



gone but they are so much more scattered. The shale above the coal for about 12' is slightly more gritty than that below and weathers into irregular lumps in contrast to the smooth flat slips characteristic of the lower shales. Fossils in this upper sh. are large L. lamellosa, L. permetra, and a single O. affinis. The upper no shells. The shale for the coal and the coal and the shale change very fast may mark the end of Cardiff conditions and the original of the Shamrock. Here is certainly a marked diff. in the fauna of H & H'. Should already have collected H to see if it had shown anything but this upper shale was gritty like the Shamrock shales. This comes between 1552 & 1563' A.T.

H.2 — 1400' — Patches of sh along the bottom with Spirorbis, Nuculoid form, L. lamellosa, C. rectilineus, the crack half along the nodulated shale at about 1420' A.T. all very fragmentary. H.2 H.3 fine

H.3 — nearly a hole, but of a crack that must belong to Rum Woods. Very fine large Spirifer.

633

H^4 — aemacons shale on hilltop just before descending down the hillside to the Brookfield valley:—

✓ M. myctloides Ons,
✓ S. solenoides
✓ M. angata ne
✓ N. bellistriata c
✓ C. congregata
✓ H. delfi
✓ Dam. Hamiltoniae
M. macrotomum
✓ O. elongatus ne
✓ O. triquetter ne
✓ Pal. constricta n
✓ Orbiculoidea sp. n
✓ R. uniformata ne
Cytoleites sp.
✓ B. alveata
✓ Lingula sp.

10' – 15' in patches on top of hill.

H^5 — sandstones with large Spirifer maybe Pine Woods Ledge — top at 1575' A.T. 15' in patches

H^6 — aemacons shale behind house with:—

P. flabellum c
S. sandalinus ne
S. perplanus n
Cyrtolites
S. macroptera
S. bisulcata
R. grandis
Cyclonema sp.
Orbiculoidea sp. ne
M. myctloides
M. concentrica n
P. lirata ne
Equanostoclia
P. marginata
H. delfi
C. elongata

H^7 75' above H^5 — sandstones, slabs of Ledge, and very sparsely shales. Cyclonema and Coelonostoclia were the only forms noted. These shales have the appearance of those of the New Lyme Ledge H^6 in some of the layers. The sandstones in the middle of the section ~~1575' A.T.~~ 1710' AT. of the section the valley in the [illegible]

634

just beyond (E) of its intersection of T accounts for the flat hilltops from Fromelle to the east and westward, the other flat tops of hills. Also for the ridge across the side of this hill, and having the appearance of being subjection folds.

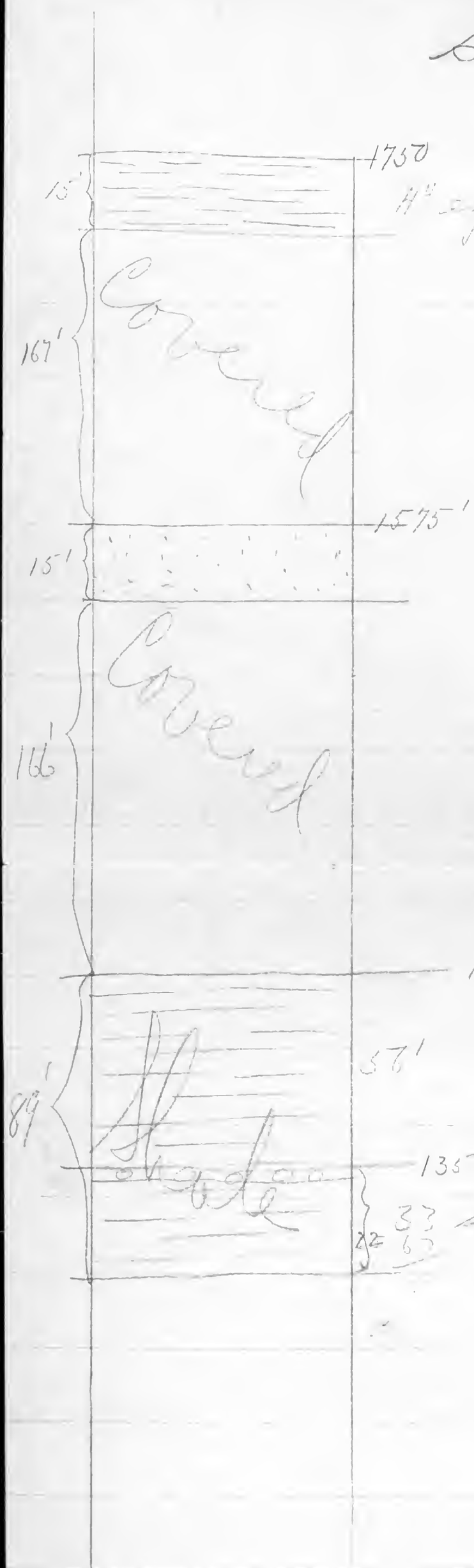
No 8 — small exposure in stream 1/- about 6' vertical in 3 exposures with intervals of no exposure between. The rock is blue grey blocky shale containing many fossils. Those of the bone cobbles are small and irregular in shape & often contain many fossils. Those of portions of the second exposure are larger and more evenly spherical — some are grouped in a dumb-bell fashion. All to contain fossil. One had a drusy cavity of calcite crystals. Calcite showing in some portions to be crystalline form! —

C. coronatus sc
O. umbonata c
S. perneatus c
A. cora (?) c

Z. laevis (large) c
C. vicinus ?
C. astigens

1840
1875
1885 L 80
1888

Sections along 1st. Road E-W
S. of Bridgewater



615
50
32450

1750
− 33
1717
15
1702
167
1535
15

1783
15
1768
167
1601
15
1586
1420
166

33
57
166
15
167
15
452
1331
1783
33
1750
1
1416
1331
89

1331
25
1356

35
20
45

1420
1331
89

1420
1353
67

1420
1363
59

635

636

Oct. 25

[illegible]

[illegible] scattered

for a [illegible]

[illegible]

10' [illegible]

[illegible] a small

[illegible]

[illegible]

=240m

1' — about 35 steps upstream exposures are found in the [illegible]. The first rock is 2' of lumpy sandy shale weathered and breaking into irregular masses. This has

S. [illegible] Athyris sp.
L. [illegible] [illegible] sp. (small)
Lg. [illegible] sp. [illegible]
P. flabellum [illegible]
C. granulifer

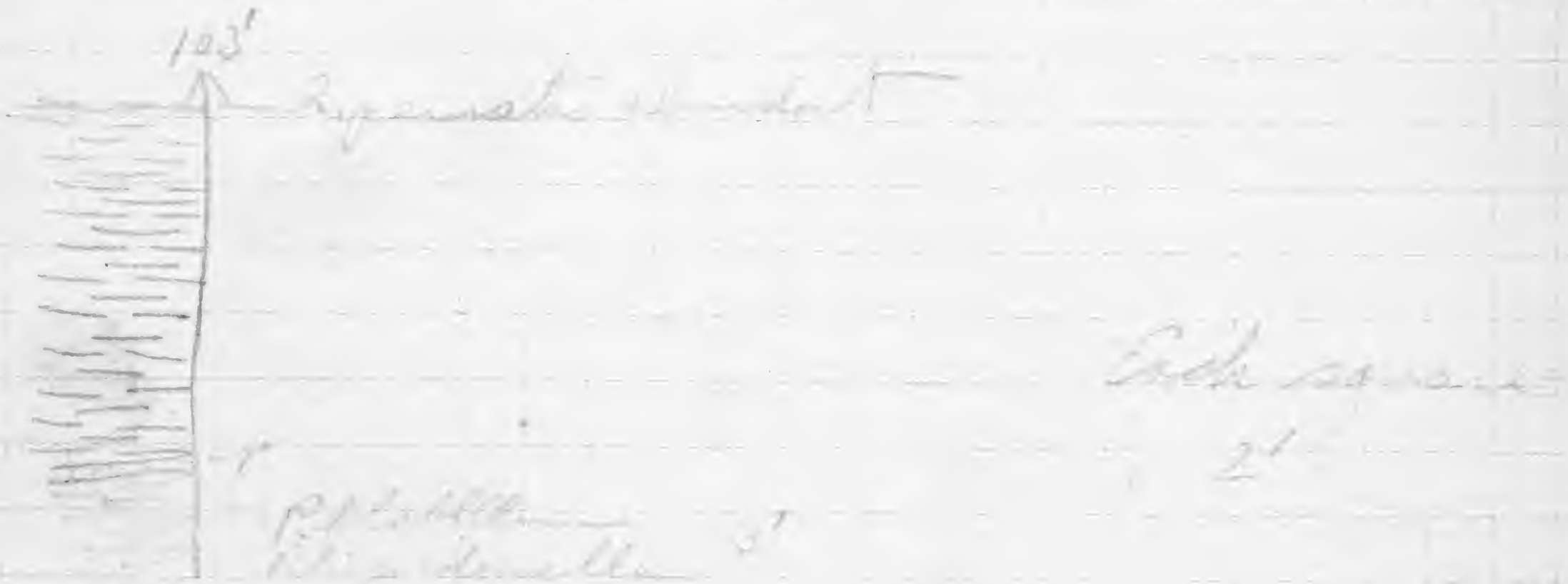
This is followed by 9" of sandy shale which is very [illegible] and is responsible for a 4' falls here. This also has [illegible], L. [illegible] and Chonetes granulifer but [illegible] are rare. [illegible] is the most abundant.

In the next 5' interval the shale is sandy with many [illegible], [illegible] have a [illegible] granulifer [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]. Fossils here are

✓ C. granulifer ✓ C. [illegible]?
✓ C. [illegible] P. radiata
✓ C. [illegible] Pal. [illegible]
✓ [illegible] Pamulea sp.
✓ C. lepida

Between 5' & 10'10" above the 1st s.s. were found

a fish spine [illegible] a foot
M. [illegible] [illegible] [illegible]
✓ L. [illegible] [illegible] about 2' [illegible]
✓ C. [illegible] 10'10" above the 1st
[illegible] layer.
[illegible]
✓ A. umbonata


103'
2'

638

15' 16' — 12 B' above land layer
of permeable rocks with small
[illegible] of [illegible]
M. permeabilis
[illegible] and [illegible]
[illegible]

8 steps above land layer is a
small patch of closely jointed white
by the [illegible] of [illegible]
of Laws c.c. [illegible]
[illegible]
[illegible] to [illegible]
because of [illegible] [illegible]
2' vertical.

8-9 — [illegible] soft [illegible]
[illegible] bands 30 and 40'
[illegible] the stream [illegible] following [illegible]
[illegible]
[illegible] — [illegible] great [illegible]
[illegible] size, M. [illegible]
[illegible]
[illegible] [illegible]
[illegible] [illegible] the [illegible]
[illegible]

At about 14 steps there are [illegible]
[illegible] [illegible] with [illegible] [illegible]
S. [illegible] [illegible] [illegible]
[illegible] [illegible] C. [illegible] C. McGregor

Between 15 & 16 — 3' of [illegible] sh
[illegible]
C. [illegible]
[illegible]
S. permeabilis

C. [illegible]
M. [illegible]

639

[illegible]

[illegible]

On the top of [illegible]

and [illegible]

The best of this shale [illegible] 15' steps below the top. The lack of fossils may be due to the unfavorable character of the [illegible]. The shale seems to be [illegible] down progress [illegible]. Under the [illegible] it [illegible] [illegible]. It is blue gray [illegible].

15-16 steps [illegible] of [illegible] shale that crumbles to finer fragments than that above and containing rather large numbers of L. lima. The [illegible] reported from above may be L. lima [illegible] crushed.

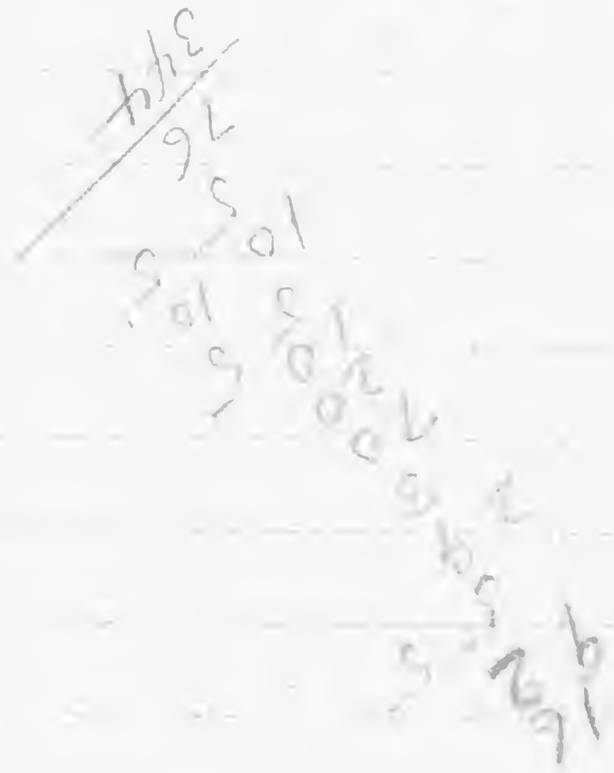
12-19 — [illegible] shale — crumbly & [illegible] — L. lima, large, [illegible], Orbiculoidea sp., C. setigerus, Lingula sp.

At 21 steps is a gully, with about 20' of crumbly sh. In pulling a block of [illegible] down it split into small irregular masses (concretionary) I saw no fossils that I could identify.

Between 40 and 41 there are 2' of yellow [illegible] appearing sh. with [illegible] L. [illegible] no other fossils were observed. This [illegible] [illegible] a [illegible].

From the [illegible] of this [illegible] to the [illegible] steps [illegible] is exposed, a [illegible] from the [illegible] to [illegible], are the following:—

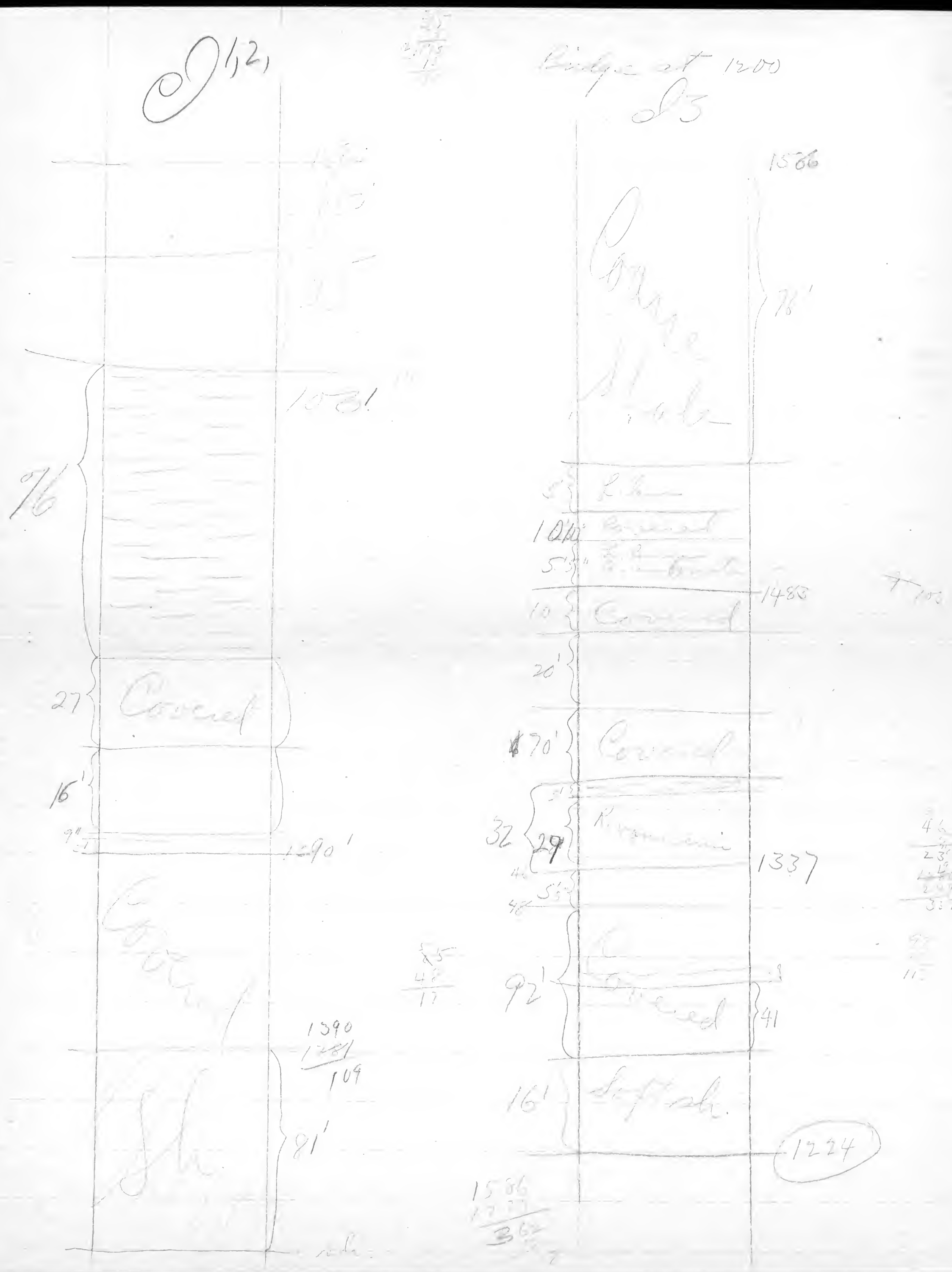
R. [illegible] c — C. [illegible]
[illegible] — L. lima
C. [illegible]



641

Fossils seen between 47 + 48

Between


1,2,
Bridge at 1200
1566
1081
27
Covered
16'
1390'
1390
1081
109
81'
1486
10
Covered
20'
70'
Covered
32
29
1337
92'
41
16'
1224
1586
1224
362

642

643

Oct 26.

Marlboro Mtn. (Rowley)

J.
At 1325' A.T. Shattered gritty rattle roofs
sandy shales may be seen which
continue up to 1336' A.T. The rock is sandy
shale with faint Taonurus markings.
Ptilograpsus spiniferoides and a portion of C. anceps
are the only fossils noted.

J'
At 1377' come about 7' of fossiferous shale
exposed in the road bed. These are rather
coarse and have small concretions
and a few Taonurus. Fossils are
quite abundant:-
In the lower 3' were seen:-

L. lamna c	S. permatus rr.
R. vanuxemi c	C. coronatus r
A. umbonata rr	L. perplana vrr.
C. setigerus	

In the next 4' in addition to those above
listed were seen:-

Cyclonema sp. vrr	P. lista vrr
+ Q. spiniferoides r	M. concentrica vrr

J2

Between 1428 and 1433' A.T come about 10' of
soft dark blue shales that are slightly gritty.
These shales crumble into small fragments
like the Peckasport shales. Only a few
fossils were seen.

N. oblongatus	C. situlus
L. lamna r	O. ottiveensis sp

The ottiveensis was a long, slender
which is constricted toward the aperture.
It may be O. constricta.
The rock below the fine Woods layer must
consist of a series of shales alternating

644

sandy and less sandy — all have some grit, even the Cardiff.

These shales extend on the south bank along the road up to 1460' A.T. In them were found:—

C. situlus a
L. lama c
P. lineata rr
N. obliquatus r
a large snail vr.
S. permatum

These shales may belong to the Peckisport horizon. Concretions are numerous, but they have been leached of their lime and fall easily to an orange brown powder contained in a black shell. These shales extend to the crown of the hill where a Bactrite was seen.

J^5

On the side hill to the east of the roadway and opposite the house just beyond the bend over the top, 125' above the level of the road at the house is a ridge of about 20' of rock 5' of sandy shales are seen below. Then about 5' of ss, the upper 1' of which is rich in thin shells but the lower 4' into thick irregular lumps of large size. It is a very indurate ss below. The massive ss. is grey brown in color. On the ss some n' of arenaceous abounding in Dawsons.

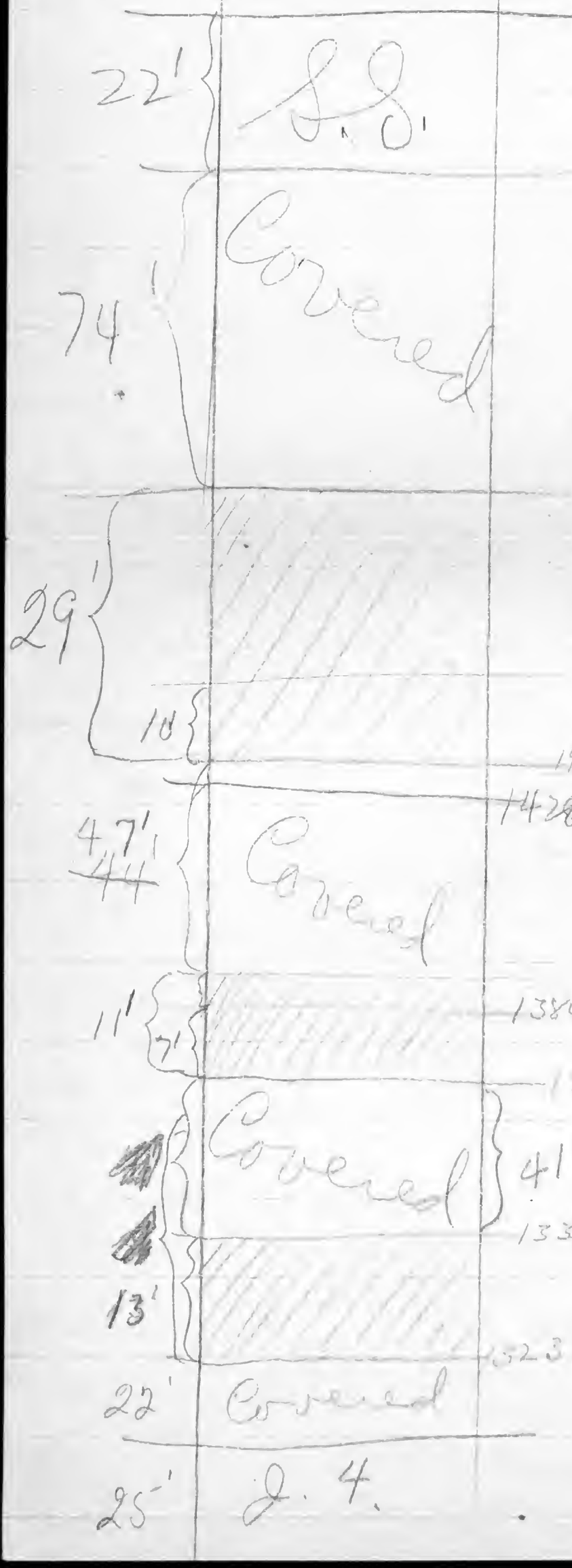
The top of the outcrop is at 1556' In places over 25' of rock were exposed.

— 12' sandy sh.
— 5' ss
— 137' sandy sh.

In upper layer only a few lamellibranchs were seen. No. fossils in the ss.

In the lower sandy sh. Conocoryphe + a doubtful P. lineata + L. lama. + L. megaera

Marlboro Mtn.



1558
23
1531
1310
221

3.80
1536
1420
136
1

1420
125
1558
1460
96
22
74'

17.5

1309

1319

1319 A.T.

1319

1451

1428

1384

1377

1336

1323

1310
18
1328

1546
1323
223

645

646

J 3 — rusted, sandy shales with R. vanuxemi & permatus, 1310' A.T.

J 4 — about 25' of rock on the roadside rather gritty, crumbly shales with:—

R. vanuxemi	L. lunata
C. numerosus	C. scitulus
Athyris sp.	C. vicinus ?
R. umbonata	

J 6 — 5' + of crumbly shales with:—

L. permatus	N. oblongatus
Aspidotes sp.	N. bellistriata
Athyris sp.	

J 7 — 12' of lumpy, sandy shale and some ss. interbedded:—

P. patulus rc	P. fragilis vr
P. carinatus c	Avicularopecten sp. small
Camarotoechia c	M. subalata
H. deliangi rc	Bellerophon sp. vr
P. flabellum r	N. oblongatus r
T. subemarginata vr	N. trigeteri r
T. exigua	S. andacutus
Productella sp.	

J 8 — thin shaly ss — with abundant fucoidal markings — fossils scarce —
Leptaena sp.
Avicularopecten sp.

These exposures may only be big blocks out of place. The exposures of J 7 appear a little lower part of the New Lyme large but these (J 7) exposures did not aid in ascertaining the truth.

J 9 —

1560 – 1570'10" — hard sandy blue gray shales with P. liata, D. alveata, S. pedunculata, C. scitulus. The rock is quite hard and probably somewhat limey.

1570'10" – 1575'15" — liatas

1575'15" – 1580'20" — hard arenaceous shale with Camarotœchia, Leptæna, etc. This forms a 4' crevasse.

1580'20" – 1585'25" — hard calcareous arenaceous shale abounding in C. congeta, S. andrusi and A. rectum (large). Also Aulopora sp.

1585'25" – 1590'30" — liatas except that the bottom is floored by shaly calcareous arenaceous rock with C. congeta and S. andrusi.

1590'30" – 1600'40" — liatas 11'

1600'40" – 1605'45" — arenaceous shales with

✓P. flabellum,
✓P. inexpina
✓S. planoides sp.
✓P. liata
✓D. alveata
✓Par. hamiltoniae
C. bootlei

1605'45" – 1610'50" —

✓P. inexpina
✓P. liata
✓Camarotœchia sp.
✓A. rectum

1610'50" – 1615'55" — falls just below road — shaley shale —

✓O. parvula
✓Aviculopecten
✓P. cornutata
✓Pinnatopora sp.

648

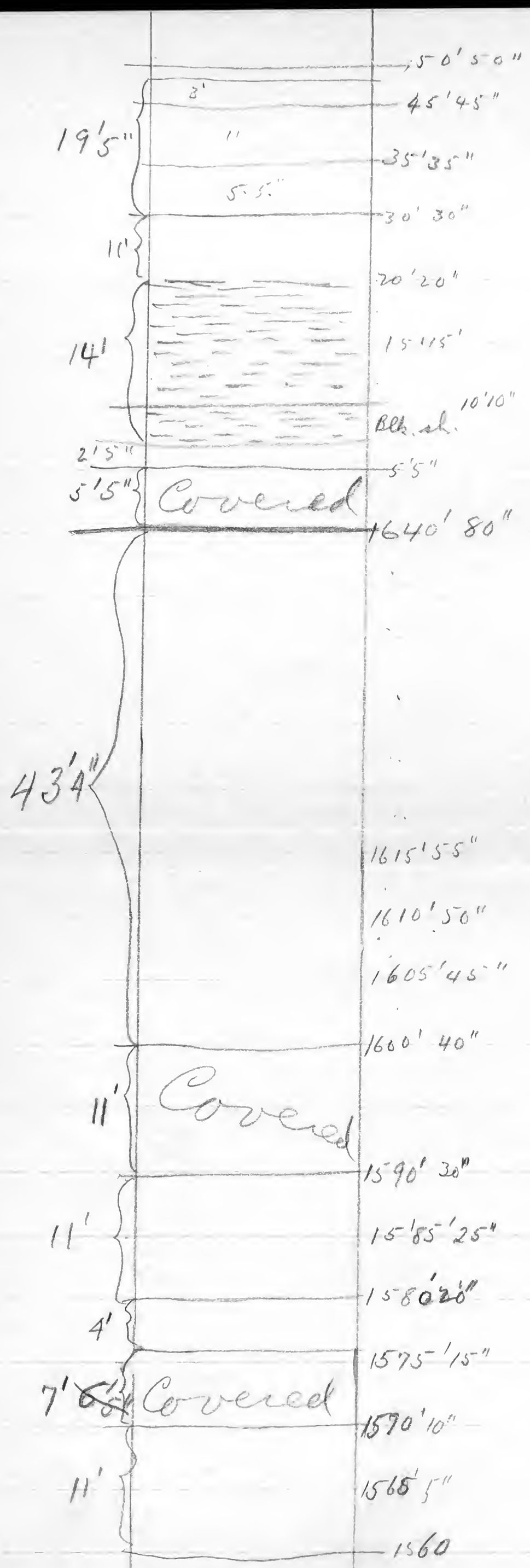
1615' 55" — 1640' 80" — 25' of sandy rock with some ss.

✓P. lirata
H. delessei
✓S. andouinianus
✓Camarotoechia sp.

✓A. erectum
✓Myurella sp.
✓C. terminostriata

Remarks on the day:— On the top of Markham Mtn. are apparently the rocks that are transition from the Pecksport horizon to the New Scotland layer. The lower portion of the New Scotland layer, I believe, was seen in J? at least abundance of P. patulus and H. delessei are significant. The calcareous stone so well exposed along the Eaton Roadway with the large numbers of Spirifers and Camarotoechias occurs at about 1570' A.T. in the stream bed.

1640
-7
1647
1560
87


50' 50"
8'
45' 45"
19' 5"
"
35' 35"
5' 5"
30' 30"
11'
20' 20"
14'
15' 15'
10' 10"
Blk. sh.
2' 5"
5' 5"
5' 5"
Covered
1640' 80"
43' 4"
1615' 55"
1610' 50"
1605' 45"
1600' 40"
11'
Covered
1590' 30"
11'
1585' 25"
1580' 20"
4'
1575' 15"
7' 6"
Covered
1570' 10"
11'
1565' 5"
1560

40
3

33
7
4

649

Oct. 27

K — ledges & expressions in the road and on the side hill between 1680 and 1620'
The rock is a sandy shale.

K' — ledges, as topographic map, at about 1520 - 1530' A.T. they belong to the ledges seen at J5.
K² — same on Fork Mtn.

Fossils seen at K are:—

S. pyxidata	S. bisulcata
S. audacella	P. flabellum
S. spiga	C. terminata
Pol. bimaginata	T. cancellata
O. parvula	Cornotechia sp.
A. erectum	Nucula sp.
M. gibbosa	Crinoid stems
H. deleyi	

I believe that this horizon clearly belongs to the New Lyons.

J9 — visited by Chorley who measured the height from bridge to bridge 87'
Nearly the whole 90' long exposure may be exposed here. From the top of the last small fall 5' falls to the road. There is a hiatus of 5'5". Following the stream south from J9 the following sections are seen:—

J9
K³ — From road to end of 1st hand level step — hiatus
5'5" — 16'10" — 3' of shale exposed in the banks of the brook, dark crumbly shale, quite argillaceous, breaks into curved slabs, nearly black in color. Fossils:—

L. lamellata	T. subemarginata
M. exposura	Pterinopecten

651

Leiopteria sp.
Orinculopecten sp.

C. setigerus
M. concentrica r
N. bellistriata

10'10" — 15'15" — same
15'15" — 20'20" — at the top of this interval there is about 2½' of very fossiliferous shale which is rough, harder and sandier than that below. Fossils here are:

F. lowa c c
N. oblongatus c
N. triquetra rc
S. andacuhus ? r
G. biculeata rr

M. pygmaea c
Leiopteria 2 sp.
M. subalata rr
N. corbuliformis
Spyroceras sp.

20'20" — 25'25" — hiatus
25'25" — 30'30" — hiatus

30'30" — 35'35" — The rock in this interval is very much harder than any seen below. Sandy shales with pecimens of ss are present. The only fossils seen were a Leiopteria and Stelleroc that look like a nautomeis.

35'35" — 40'40" — same shaley sands with N. bellistriata

40'40" — 45'45" — same

45'45" — 50'50" — same for 1' — 2' hiatus

50'50" — 55'55" — hiatus. The last rock seen here at about 53' above the road.

K4 — about 20' of sandy, limpy shale with as at the top. Fossils! —

I. rotalia	P. patulus
P. flabellum	B. lada ?
H. dekayi	Camarotoechia sp.
A. eustum	I. carinatus
M. subalata	Productella sp.
Pal. constricta	

K5 — at top of hill — a small patch of arenaceous shales probably in the Mur Glyse layer. No fossils well found

K6 0-5'5" Sandy shales with —

✓ S. pennatus	✓ Productella sp.
✓ Cyst. hum	✓ Camarotoechia sp.
✓ P. flabellum	✓ C. terministria
✓ S. audacular	✓ C. numerata
✓ C. congregata	✓ H. dekayi
✓ S. chemungensis	✓ P. liata
✓ Sphenotus sp.	✓ M. angusta
✓ Pal. emarginata	✓ C. conjugata
✓ I. equicostata	✓ A. boyoli
✓ S. pelopleura	✓ C. nitelinta
✓ V. pustulosa	

5'5" — 10'10" — same — but above covers both intervals

10'10" — 15'15" — same with S. pennatus, C. vitulina. At top of 10'10" above a 30'4" layer of blue clay as which has the same fauna. This interval is mostly sandy shales.

In biologic under Mucrospirifer

653

15'15" — 20'20" — shales softer and apparently with a different fauna :—

M. pygmaeus — Ostreuloidea sp.
N. oblongatus — Cornulana nubilata
N. trigonter — A. umbonata
L. laevis

At the top of this interval were thin ss. slabs with L. laevis and Leioptaena sp.

20'20" — 30'30" — very coarse shales that break into thin plates. There are some thin ss layers interbedded.

30'30" — 40'40" — limestones

40'40" — 75'75" — blue grey shales break into flat slabs and becoming harder and sandier at the top. The softer shales contained :—

S. anchaenius
S. subcuneatus

The harder shales at the top have abundance of Camarotoechia & S. anchaenius

75'75" — 80'80" — limestones to road.

K7 — small quarry in thin slabby ss interbedded with ——— arenaceous shales — The only fossils observed were :—

Camarotoechia sp. ✓ — Cyrt. trans.
L. laevis ✓ — L. rogusi ✓
P. flabellum — Cyclotites sp.

The checked ones are probably from in place, all were seen in loose slabs.

K⁸ — very thin as with O. cuneata & parvula

K⁹ — 97½' above highway is the top of a single ridge ranging from 5-15' in height. The rock is a coarse sandy shale. About 10' above the ridge is another exposure of similar rock. The top of the ridge is at 1288' A.T. About 10' or 15' above the top of the lower ledge a horizon is seen. Fossils in the lower ledge as judged from the debris from the ledge are:—

P. lirata — R. emaciata
Cyrtotrachia sp. — L. lama
S. andalusites — L. rogersi

In the lower ledge there was an 8" layer of shelly sandy about 10' from the top.

K¹⁰ — at K¹⁰ the top of the ridge is 60' along the roadway or at 1248' A.T. Below the hard sandy ledge along the road are soft arenaceous shales with large L. lama. The 8" sandy band was again seen in the ridge and this makes me believe that the ledge is continuous from the Leonardville road to the next road south across the valley.

The rocks at K I believe belong to the New Lyme horizon.

K⁶ — presents a new problem with the occurrence of U. pulaskiana along with P. flabellum, R. bogdi and other fossils. These must be above the New Lyme horizon and probably fall somewhere between it and the U. Quarry horizon. At any rate the

655

weeks continuing thus present a more formal programme to me. It might be an altered Eton bargain or an invasion of new forms in the New Zealand bush. It may be a modified Fitzland bargain.

K3 — The bed of this lager resting on the sections 6, 7 and similar to Stony Creek at Hamilton. The sequence of fine to coarse alluvial materials here differs the lower bed permeable appears than at Hamilton. About 53 of which were seen and this with the 19 of 20 from the Morrinsville area would indicate that Stony Creek is thickening to the east.

The Nerf Spore bearing debris is not exactly like that in the Morrinsville quadrangle as it seems have spores band with fewer of rainforest. The cord beds and Podocarpus & Rimu pia zones were not exposed. In the Spring-Cambridge Zones at the bottom considerable Sphagnum matter was still present.


6
75' 75"
38'
40' 40"
11'
Covered
30' 30"
11'
20' 20"
16'
5' 5"
0'

656

Oct 28.

L— 11' falls in stream — top at about 1205' A.T. [illegible] [illegible] [illegible] [illegible] — [illegible] [illegible] [illegible] [illegible] in thick slabs — fossils rare — [illegible] [illegible] stream [illegible] [illegible] — Up [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] the ridge at K9 [illegible] and is probably the Pine Woods band.

L' — 9 [illegible] [illegible] with that [illegible] rather thick irregular [illegible] — Fossils:—

- ✓ [illegible] c
- ✓ [illegible] ? rc
- ✓ [illegible]
- ✓ Spt. [illegible] rc
- ✓ [illegible] rc
- ✓ [illegible] r
- ✓ [illegible] r
- ✓ [illegible]
- ✓ N. [illegible]
- ✓ S. [illegible]
- ✓ Conocardium sp.
- ✓ [illegible] sp.
- ✓ [illegible]
- ✓ [illegible] cc
- ✓ [illegible]
- ✓ [illegible] sp.
- S. [illegible]
- ✓ S. truncata
- ✓ Grammysia hamiltonensis
- ✓ Pal. constricta

This is a [illegible] [illegible] [illegible] at about 1355' A.T. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] the two [illegible] [illegible] about 54'. the top of L' [illegible] at about 1260' A.T.

15' above L' [illegible] [illegible] [illegible] with [illegible] and L. [illegible] [illegible] [illegible] [illegible] [illegible] [illegible] the top of [illegible] [illegible]

S. [illegible] (large size) cc

[illegible] c

[illegible]

[illegible]

[illegible]

L2 — 75' above L1 along the road and for 120 paces along road above L1 the outcrops of a fine grey shale that splits into flat slabs and contains few fossils. The only species recorded by Scott, Nelson from this horizon are D. convolutus, D. spinifer, D. hallsi, the last of which is a very rare form. The upper part of this exposure has yielded Leptaena sp., Camerella sp., Crinoid plate, Pal. reticulata, Pal. sp., Atrypa, Rhynchonella sp. and Leptaena sp. The thickness of 30' on the Rock of K.

L1 — about 1470' A.T. Other fossils are D. convolutus, D. hallsi, C. dichotoma, C. minimus, Leptaena sp., Crinoid plate, Pal. reticulata, Pal. sp., Atrypa, Rhynchonella sp. and Leptaena sp. The thickness of 30' on the Rock of K.

L4 — about 1125' A.T. About 5' of very shaly flags and 2' of hard with very slabby shaly partings. Fossils are very abundant in the first 2' of shaly flags. Below the top 3' of shaly flags, D. convolutus, D. spinifer, D. hallsi, Leptaena sp., Camerella sp., Crinoid plate, Pal. reticulata, Pal. sp., Atrypa, Rhynchonella sp. and Leptaena sp. The thickness of 30' on the Rock of K.

L2 — about 1500' A.T. About 5' of very shaly flags and 2' of hard with very slabby shaly partings. Fossils are very abundant in the first 2' of shaly flags. Below the top 3' of shaly flags, D. convolutus, D. spinifer, D. hallsi, Leptaena sp., Camerella sp., Crinoid plate, Pal. reticulata, Pal. sp., Atrypa, Rhynchonella sp. and Leptaena sp. The thickness of 30' on the Rock of K.

L1 — about 1500' A.T. Other fossils are D. convolutus, D. hallsi, C. dichotoma, C. minimus, Leptaena sp., Crinoid plate, Pal. reticulata, Pal. sp., Atrypa, Rhynchonella sp. and Leptaena sp. The thickness of 30' on the Rock of K.

L4 — about 1125' A.T. About 5' of very shaly flags and 2' of hard with very slabby shaly partings. Fossils are very abundant in the first 2' of shaly flags. Below the top 3' of shaly flags, D. convolutus, D. spinifer, D. hallsi, Leptaena sp., Camerella sp., Crinoid plate, Pal. reticulata, Pal. sp., Atrypa, Rhynchonella sp. and Leptaena sp. The thickness of 30' on the Rock of K.

Above that were found:—

Leptaena sp.
Pal. reticulata
D. convolutus
D. spinifer
D. hallsi
C. minimus
Eight-lobed
C. dichotoma

659

L 5 — about 1 3/4 of a mile S of West Edmonton on west side of valley — small exposures on side hill for 15 & 20' above road along surface, they were the shales in ditch:—

L. magna n	Athyris sp. c
C. prolifica n	C. Hoskii
S. pentatoma c	P. flabellum n
H. corniculum n	H. angusta c
Hybodus sp.	S. andalusia
N. nummularia	T. cainnata n

A little down and about 50 yds to the south of the higher outcrops were found:

Lophophyllum sp.	Lamnigera sp.
P. flabellum	Cornulites sp.

L 6 — Same (1st one on the Berlin Road) a mile south of Lindy — hard limestone beginning at 1240' N.T.B. Dressed block 1240' — 1255' 1" — hard, — hard one foot of shale

1255' 1" — 1290' 50" — the big outcrop of about 38' consists of fibrous gray shales that break readily into small pieces in the interval 1255' 1" — 1260' 10" a few fossils and a specimen were found. As one goes up thru the section to about 1275' 3" the shales become with their flat parting and blue-gray color. They are somewhat like the Fernie shales but rather darker and less sandy. Between 1275' 3" and 1280' 10" first in the shales are bits of limpy a small Aetoplura was found with the Pecten Lithofax and Pleurotomaria

660

At about 12 52' 40" — the slides begin to become coarser and lumpy and large pieces like those below. Between 12 48' 40" and 12 50' 51" the slides are quite lumpy and are found to be the following forams have been identified

Globigerina sp.	Pol. constricta
G. bulloides	Spiroplecta sp.
Lenticulina sp.	Astrorhiza sp.
T. obliquinata	Astrorhiza contorta
Nodosaria sp. (one only)	C. nitida
T. bellidorsata	

All L 6 packages with red label belong here

12 50' 51" — 12 55' 3" — average slide of forams and alternating — for upper 3/4 inch 2' belong to the preceding interval

Specimen of Globigerina found in the slide just below the 1st red label

12 55' 55" — 13 10' 70" — all that are this slide are packing into matter which looks like Globigerina is the prevailing form

13 10' 71" — 13 15' 75" — average specimen slides are so that here packing into layers with the thin layers of slides. The top of this interval has a foot and the half of slides are altered.

R. Emmons
Signature — J. Bellows

661

1315' 75" — 1325' 85" — [illegible]

1325' 85" — 1335' 95" — [illegible]

1335' 95" — [illegible]

1340' 100" — 1345' 105" — [illegible]

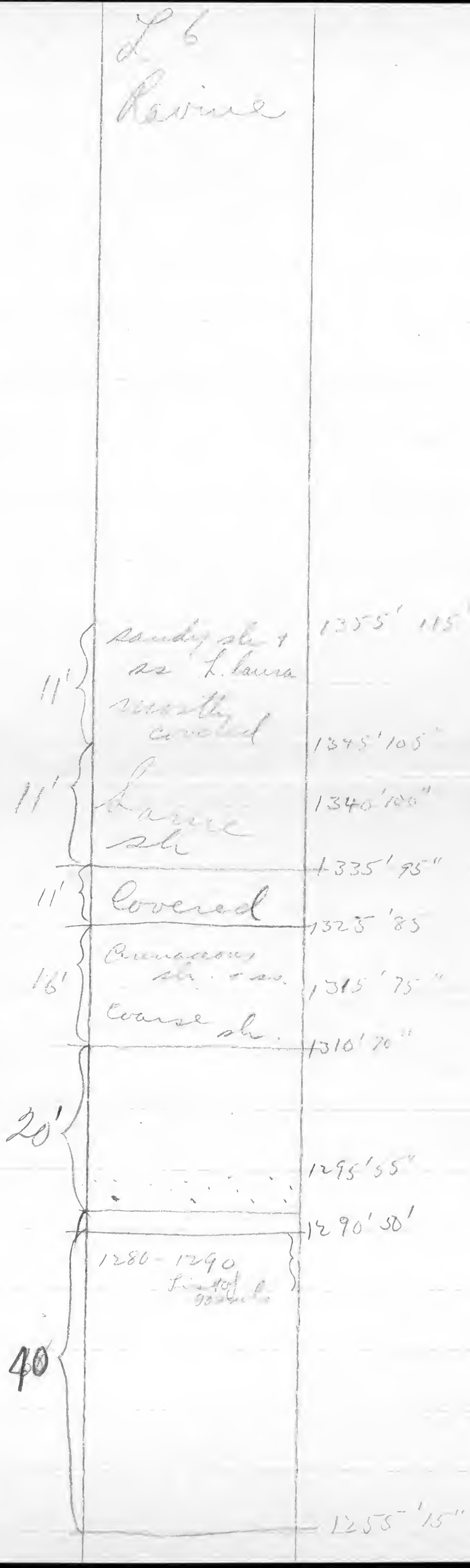
1345' 105" — 1355' 115" — [illegible]

Hand-level does not check topography w/ stream-[illegible]

662

L7 – 9' Blue grey shales that weather to a light ash grey with – [illegible] Concretionary [illegible] up [illegible] M. concretions [illegible] concretions [illegible] These may be the Cardiff horizon

No 6
Ravine



5'4'
1236
108

76
33
109'

1310
1300
10

663

Oct. 21

M — Carr - Creek

1185 - [illegible] [illegible]

1195'10" — 120[illegible] — The first 5'5" of this interval consists of [illegible] sandstone with some [illegible] but no fossils could be obtained from them.

In the next 5'5" which includes about [illegible] of the small cascade there is a small [illegible] point in the shales and this afforded a collecting. Spirifer sp and [illegible] with [illegible] flabellum are the prevailing [illegible]. [illegible] at the top of the interval [illegible] collecting [illegible] and these were found:

Leptaena (several sp.)

[illegible] flabellum c

[illegible]

A. [illegible]?

[illegible]

[illegible]

[illegible]

[illegible] sp.

Pal. constricta

[illegible]

[illegible]

[illegible]

1205'20" — 1210'30" — same.

1210'30" — 1215'35" — slabby sandstones containing [illegible] c and [illegible]. The Spirifer referred to [illegible] is rather small with numerous plications and a flattish fold bearing a septum. It is quite abundant.

1215'35" — 1220'40" — this interval includes 45' cascade [illegible] shales, so [illegible] hard sandy shales that break into rather thick irregular pieces. The only fossil [illegible] was a Camarotoechia in a loose slab.

1220'40" — 1235'55" — Grey shales that break in flattish ~~flakes~~ [illegible] outcrop [illegible] surface. At the bottom of the interval [illegible] and 2 [illegible] [illegible] [illegible] [illegible] was seen.

1235'55" — 1240'60" — same for 2½' which brings in the top of the falls, which is about 20' high as measured from the top of the 5' cascade below it. The top of the falls has some rather hard [illegible] sandstones. The upper 5' is a [illegible]

1240'60" — 1245'65" — hiatus.

1245'65" — 1250'70" — hiatus
1250'70" — 1255'75" — mostly platy ss.
1255'75" — 1270'90" — sandy shale which is very coarse but does not have the platy [illegible] of the ss. These comprise 10' of the interval together with sandstones. The top of these are 5 or 5' of coarse [illegible] grey sandstone that breaks into thick & thin plates. These ss are crossbedded. When exposed in the stream bed these in places give the appearance of having a strong dip. In the [illegible] [illegible] [illegible] ~~the~~ [illegible] plates [illegible] [illegible] [illegible] in another series of plates [illegible] [illegible] [illegible] [illegible] [illegible] ~~1270'90" — 1275'95"~~ [illegible] flattish [illegible] of clay.

1270'90" — 1275'95" — [illegible] [illegible] platy ss in the stream bank were found [illegible] abundance of [illegible] of large size. Also [illegible] [illegible] — probably [illegible] [illegible] [illegible] [illegible] [illegible] [illegible]

666

1295' 95 — 1335' 135' — shale

1335' 135' — 1345' 145 — shly coarse hungy
— some hot grits — lines with P
rodie intel bleq and bottom fossils are
not abundant but in the dark gray shale
were seen:

M. triquetra sp.
M. oblongatus sp.
Leiopathia sp. sp.
O. laminata Ho
P. fragilis sp.?
✓ C. stalus
T. submarginata

E. rogersi ?
✓ A. [illegible] sp.
Camarotoechia 2 sp. c
O. parvula sp.
Pal. [illegible]
C. [illegible] ? Conr
S. andacilus ?

1345' 165' — 1350' — 170' — same with platy
on top.

1350' 170 — 1360' 80 — mostly covered for 7'
then are found sandy shales with
S. andacilus ? } [illegible] O. laminata sp.
Schuchertella sp. } [illegible] A. [illegible] sp.
Camarotoechia sp. c } [illegible] P. flabellum sp.
The bed 5' X' and 7' 2" containing the
fossils are so — that one cannot decide
to judge from the [illegible] arrangement
of the plates in the [illegible] bed

1360' 180' — 1365' 185' — platy sh.
1365' 185' — 1370' 190' — so that broadsides
thick irregular crinoid fragments —
S. [illegible]
S. andacilus ?
P. flabellum
All fossils rare.

T. laminata
Camarotoechia

1370' 190" — 1375' 195" — is rather coarse bedding in places with [illegible] bottom. One large ledge shows a curved pocket of large [illegible]. These curved plates may be due appearance of cross-bedding. In other parts of this interval the layers are flat.

1375' 195" — 1380' 200" — 5' of same as previous interval. After this are [illegible] exposed in the stream bed but on the bank high up are more exposures immediately above 1380' 195" — These exposures are about 25' above 1380' 195" — and consist of about 12' of shaly sandstones with the following fossils:—

[illegible]
Spirifer [illegible]? or
Camarotoechia congregata?

After this ledge is mainly of shaly sandstone there are some shaly [illegible] many fossils but these are [illegible]. Some of the thin layers [illegible] almost entirely composed of fossils.

Carr Creek

1335
1
1348
1283
65

Carr Creek

1335' 155"

65' Covered

1275' 90"

L. large sandy rock

1270' 90"

27' Sot Ah.

1255' 75"

1250' 70"

14' Covered.

1245' 65"

1240' 60"

~~1235~~ 1242
1223
19

Sandy rock

1235' 55"

19' Sandy Shale

Carr de mer sandy rock

Sandy rock

1220' 40"

1215' 35"

1210' 30"

1205' 20"

1195' 10"

12' Platy do

25' Covered

1250
1
~~1341~~
1264
27

0'

1875' 195"

~~22'6"~~

30 ~~14'~~

~~24'~~

1283
1196

do.

1370' 190"

do

1365' 185"

do.

1360' 180"

7' Northgrove

1350' 170

16' Large Cordate

1345' 165"

1335' 155"

668

669

Oct 29

M' — Ravine on property of Boyd Brown & Roland Vincent

1170' — 1205'0" [illegible]

1205'30" — 1215'45" — 10 or 12' falls of good [illegible] in the falls.

1215'45" — 1220'0" — [illegible]

[illegible]

✓ M. [illegible]
✓ Cameraria [illegible]
✓ Spondylochiton
✓ L. [illegible]

[illegible]

1220'0" — 1225'0" — [illegible]

[illegible]

✓ M. [illegible]
✓ Cameraria
✓ M. trigonella
✓ Spondylochiton
✓ L. [illegible]

[illegible]

1225'0" — 1250'0" —

✓ M. [illegible]
✓ J. [illegible]
✓ Cameraria
✓ M. [illegible]
✓ J. [illegible]
✓ Paranka sp.
✓ B. [illegible]
✓ [illegible]
M. [illegible]

✓ Spondylochiton
B. [illegible]
Pal. [illegible]
✓ Ethgra [illegible]
C. [illegible]
S. [illegible]
✓ C. [illegible]
B. [illegible]
[illegible]
[illegible]

670

The shale for this 25' are predominately black but the work is quite disturbed what may appear to be a different shale layer may prove to be a large mass of broken shale. On a large shale may there is a slot 2" large perforated slots, 1/8" wide. At least half of the top of the shale layer is broken off. Also the top of the shale layer is covered by talus by Colby

---

1250'25" — 1260'92" — mostly shale with a few layers of shale — found the other half of the 20 foot section of Pelletheum one

✓ G. caminatus cc
G. engensis
Schuchertella chenangensis
I believe this layer is the same as that at 1350 in Cass Ravine

✓ G. rugosus
✓ S. anchorensis ?
✓ S. perplexus
✓ S. subelongatus ok
✓ C. corrugatus
S. buckhorniensis sp.

1260'92" — 1265'95" — mostly shale

✓ G. caminatus
Cyrtodonta sp.
G. rugosus
✓ S. perplexus ?
✓ S. anchorensis ?
P. flabellum
✓ S. subelongatus ok
✓ C. corrugatus
S. buckhorniensis sp.

1265'95" — 1270'100" — same

1270'100" — 1280'110" —
Shaley and some [illegible] with several species of most [illegible] fossils [illegible]

In the shale layers they are quite common. The planes cross bedding is evident in the ss.

C. coronatus c — A. [illegible]

Camarotoechia sp. — Leiopteria sp.

S. audaculus

These ss have somewhat the appearance of the U. [illegible] ss. but do not hold the requisite fauna.

1280' 110" — 1285' 115" — about 4' more of slabby ss. shown in the bed of the stream. The planes th here and below they are strongly rippled.

On the 4' of ss comes about 4' of shale with [illegible] concretions of very large size. Leiopteria sp.

S. audaculus ? Camarotoechia sp.

Fragments of a shell that looks like P. [illegible]

1285' 115" — 1290' 120" — [illegible]

1290' 120" — 1295' 125" (5') — a ledge of 10' of blue gray shale, [illegible] below [illegible] grades upward into thin sandy slabs. On planes thin layers of shells are evident, & the fossils which were seen —

✓ O. undulata — ✓ S. audaculus?

✓ [illegible] subangulata — ✓ T. carinatus

✓ C. tenuistriata — ✓ Pal. constricta

1295' 125" — 1300' 130" — same with

✓ Palaeoneilo perplana a.v. — ✓ Pal. constricta

✓ P. flabella — r — L. ligea

✓ C. tenuistriata c — S. audaculus c

Grammysia sp. — ✓ T. exigua

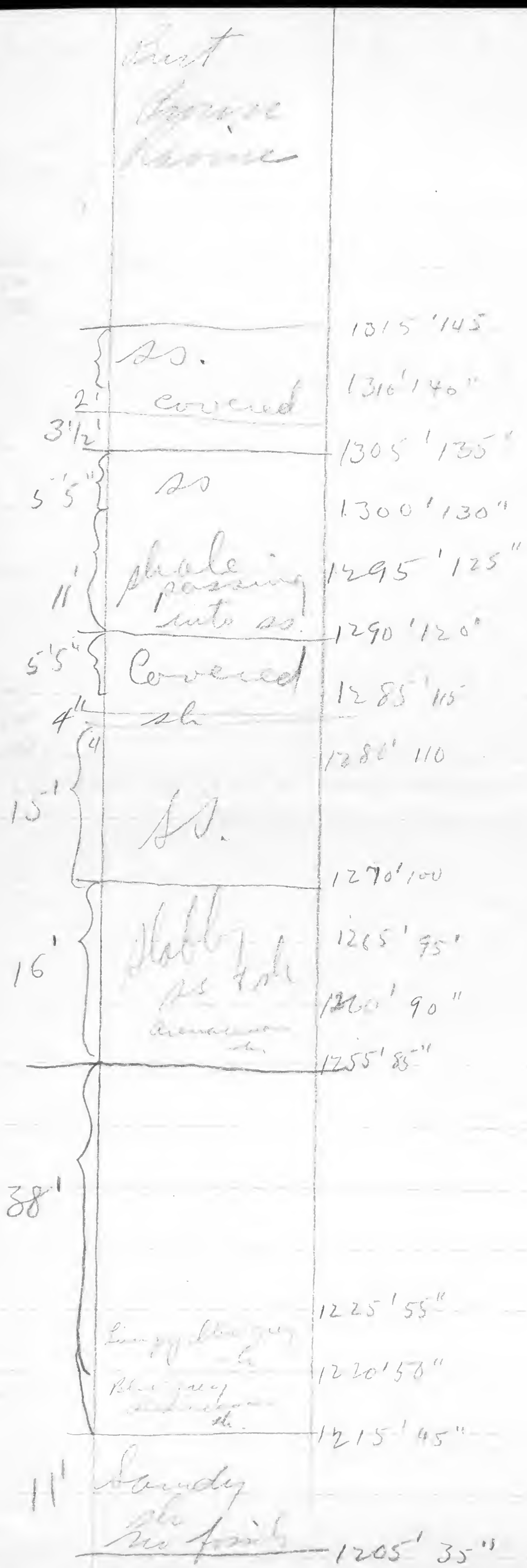
✓ T. carinatus c (large) — ✓ C. coronatus

672

Cymatochara sp. O. umbilicata?
P. [illegible] P. cuneata
P. [illegible]? P. [illegible] P. marginata
P. alveata S. elliptica N. trigonata
1200' 20" — 1305' 135" — cross-bedded sands in the stream bed, but all seem non-fossil in them.

1305' 135" — 1310' 140" — rather hopeless grey shales with O. parvula, H. [illegible], P. [illegible] and large Cymatochara like those at Circell. Spirorbis 3 p.l. has come in. Lower than the fine to coarse sequence. I. cuneata, N. obliquata

1310' 140" — 1315' 22" — shelly blue sh. the shells are above sea apparently passing into sm. O. sandbergi


1315' 145
2'
3½'
1310' 140"
1305' 135"
5'5"
1300' 130"
11'
1295' 125"
1290' 120"
5'5"
1285' 115
4"
1280' 110
15'
1270' 100
16'
1265' 95'
1260' 90"
1255' 85"
38'
1225' 55"
1220' 50"
1215' 45"
11'
1205' 35"

673

Nov. 2,

W. J. Palmer's Ravine

Q —

1235' A.T.

M. subulata

C. salicina

1235' — 1278' —

1278' — 1282

1283' — 1285' 10" — Q. alba

1285' 1298' 25"

at top, 9" of soft rock + 4.5' of

1298' 25" — 1305' 30" — limestone

1305' 30" — 1308' 5" — limestone

21½' of soft rock

Amelanchier to a dark red brown.

M. bellistrata

Cornus stolonifera

A. confusata

M. angusta

M. obliquatus

Cyrtotis sp.

675

1305'04" — 1312'40" — this in lieu of
two adj. — 3' of the left side of the
3' of the [illegible]

1312'40" — 1315'45" — [illegible]
one half foot at [illegible]
the [illegible]

1315'45" — 1318'05" — [illegible]
[illegible]

[illegible]

[illegible]

1323'50" — 1328'35" — [illegible] 5' [illegible]
3' of [illegible]

[illegible]

1328'35" — [illegible] Rite

1358' 75" — 1363' 50" — at the top of first
2' of sandy shale in the east bank of
the stream. These may be [illegible]
from the [illegible] in place. Fauna

✓P. flabellum
P. pennatus
✓M. triquetra
✓ [illegible] ?
✓ [illegible]

✓ [illegible]
✓Athyris sp
[illegible]
✓B. [illegible]
✓ [illegible]

1363' 50" — 1373' 50" — similar variety
[illegible] —

✓ [illegible] c
✓ P. flabellum
✓ P. pennatus
✓ M. triquetra

C. [illegible]
C. [illegible]
✓ [illegible]
✓A. sp [illegible]

1373' 50" — 1383' 105" — This zone includes
the first 2' of the falls.

✓M. [illegible] c
[illegible]
✓P. pennatus
✓Cham. [illegible]

S. [illegible]
✓ [illegible] sp
✓Rhipidomella sp

1383' 105" — 1393' 110" — portion of falls at top
[illegible] —

✓ [illegible] sp c
✓ P. flabellum c

✓P. pennatus

1393' 110" — 1405' 125" — at top of first
1420' A.T. a fall 35' high. [illegible]
at the top of the falls [illegible]

M. conventica
[illegible]
C. [illegible]
P. pennatus
P. flabellum

C. umbonata
C. [illegible]
C. [illegible]
Wood
[illegible]

677

[illegible] Comments
[illegible] (log)

~~1420'~~ He reached the top of the falls is of a coarse [illegible] kind in which fossils are difficult to extract. A shell in the rock of the top [illegible] strongly [illegible]
[illegible]

1420' – 1425'15" – [illegible] flow [illegible]
[illegible]

1425'15" – 1425'15" – [illegible]

1425'15" – 1440'20" – [illegible]
[illegible] – [illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]
[illegible]

1440'20" – 1450'30" – [illegible]
a fall of [illegible] feet [illegible]
[illegible] at the
top of the falls the rock is a
[illegible]

The following
[illegible]
[illegible]
[illegible]
[illegible]

Comments
[illegible]
[illegible]
[illegible]
[illegible]

678

1952'30" — 1460'40" — [illegible]

1460'40" — 1465'45" — [illegible]

[illegible]

[illegible] 90 [illegible]

Colored.

Colored 72

Negroes

Negroes

P. Franklin

P. Franklin

Negroes

Negroes

Negroes

1455'45" — 1480'60" — [illegible]

[illegible]

[illegible]

[illegible]

1480'60" — 1495'75" — [illegible]

[illegible] 75' and

[illegible] 40' or 50'

thick.

Burdicks Brook is Carr's Brook — by Mr. de Long

Ogwell – Petrology of S. Eta

1373' 95"

Sandy sh.

2'

1363' 85"

1358' 80"

47'

Covered

1466' 45"

Sandy sh

1461' 40"

10' 10"

Covered

1455' 30"

Calc Ore.

16'

1441' 20"

Arenaceous sh.

1436' 15"

10' 10"

Covered

1426' 5"

Calc ore nodules

1421'

1408' 30"

1373' 115"

Sandy sh

1383' 105'

1373' 95"

1328' 50"

3'

Covered

1323' 45"

3'

Sandy sh.

5' 5"

1318' 40"

5'

Covered

1313' 35'

2'

2' sh.

55'

55

6'

soft sh

1308' 30"

Covered

1303' 25'

8' 5"

Covered

1298' 20"

1¼'

1293' 15"

10'

1288' 10"

5'

Arenaceous sh

1283' 5"

48' 5"

Covered

4'

1235'

679