

Eastern Ky
1902
Field

1902
by

1426 K&T

30

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Eastern Kentucky.

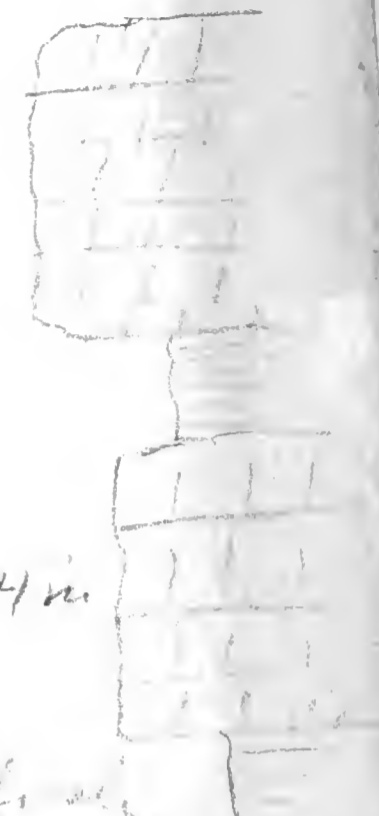
If found, send by mail to

Chas. F. Foerste

1017 Grand Ave.

Danville, Ohio.

1) at Spring N. of Mt. Lawrence
 N. of Fall Springs.
 (Plants level)
 Precipitated limestone
 Masses 3 ft 9 in



Shaly rock 1 ft 3 in.

Limestone Masses 3 ft 4 in.

Drum-like rock on the face
 teeth. The masses in masses

The rock above is in the
 level of limestone a 10 ft
 at some distance from 8 ft from face

When we bring a well NW of the house
 in the bottom of Littlefield Creek.

2) Sturtevant's Mill Between Fall Springs
 and Middleville, about 2 miles across
 the ridge from Fall Springs.
 There is a fine exposure of
 black shale - can be seen from
 a few hundred yards up the
 Hollywood

3) Easton's Hill
Block shale, with tabular
clay, with some small fossils
the shale

Massive limestone 4 feet

Partly exposed 1 foot

Massive limestone 3 ft
Fish teeth at very base of
this limestone 1/2 inch

Blue clay shale 18 1/2 ft

9 inches of white limestone
crinoid stems forming
a little part of 1 foot +



4) From Peel N. West of this house
E out side of branch on both sides, 200
feet N of road going west from Ridge
ville.

At top of section are loose boulders
with white bedded large conical beads +
large and small corals.

5 1/2 feet partly exposed

Limestone only partly exposed
and have not yet been

7 1/2 feet. Siphoniferous
large and small corals
in mass.

Lower part of section near the road

1 ft limestone

2 ft clay

7 1/2 ft limestone

Branch of ... ?



Clinton with *Hedyotis* *intermedia*
 many *Spirifer* *various* large & small,
Lysidia *subtilis* etc. At top are
 several thin layers (= 1 foot?) with
Murchisonia? + *Oriskany* *Strophomena*?
 Measure of thickness of *Oriskany* clay
 is 30 ft. but more to slope of
 the rock. It is probably at least
 45 ft thick.

Base of Devonian seen. Fish
 with layers about 8 inches, *Murchisonia*
 with a layer of
Murchisonia with 8 inches
Murchisonia bed 1/2 feet

35
 2 1/2
 15 1/2
 slope of
 2000 ft

6 J. T. Elkins along River.

- From Clinton base to top of more
 - Clintonian layers 10 ft 6 in
 - 5 1/2 ft chiefly clay some limestone
 - 2 inches layer limestone
 - 8 ft clay, soft
 - 4-6 in solid brown limestone
 - 5 ft chiefly clay
 - 2-4 inches broken limestone
 - 12 ft limestone
 - 1 ft solid brown limestone. The
 horizon of this layer unknown.
 - 1 3/4 ft unknown
 - 3 3/4 ft. Cherty Coniferous.
 - 3 ft Black shale base is a clay rock.
 Fossiliferous black shale above.
-
- Further south at lowest point of
 road the base of Clinton is clearly shown
 resting on clay shale.
 Clinton to base with large crinoid
 heads = 14 1/2 feet. The layer in
 which the heads occur disintegrates
 readily. As do also other layers
 above the middle. The lower
 6 to 8 feet are more solid.
 The layer 1/2 as in as base of *Oriskany*
 is more solid, cross bedded 6 in.
 More limestone up to 2 feet.
 6 ft blue shale mixed with small
 limestone rubble.
 6 inch limestone about 100 ft

7) W. of James St. ...
 8 1/2 solid limestone
 2 ft limestone clayey, weathering
 muddy
 3 ft limestone clayey near top
 at least. Red just above, brown l.
 8 inches heavy bed. Numerous
 cross beds. Coarse sand
 85 ft. clay with ...
 ...
 6 ft with ... in ...
 nodules in all parts,
 5 ft brown layer,

80 ft from ... to ...

8. Road going east at ... Church
 65 ft from base of ...
 base of ...
 1 ft brown (red) limestone
 occurs here as at ...
 ...
 4 ft ...
 3 ft ...

9) On road leaving pike 1/2 mi. S of
 Indian Fields.
 Clay layer soft
 22 in. limestone, coarse
 8 in. clay.
 6 in. solid limestone
 12 ft. clay.
 13 in. limestone, several layers
 22 ft. covered.
 1 1/2 ... limestone, brown, 2 1/2 ft
 2 1/2 ft ...
 15 ft from top of ...
 Do these layers ... one layer
 ...?

10. NE of ...
 The heavy cross-bedded layer is
 full of ... 8 inches
 ...
 (fossiliferous bed is 3-4 feet?)
 (higher up, thickness uncertain)
 The ...

11. E of Hotchkiss near mouth of N Fork
 Ferruginous bed: 1 1/3 feet thick
 contains 5 or 6 layers of small
 plates. About 1/2 foot above
 5 or 6 layers large

The ferruginous layers are overlaid
 by 5 or 6 feet of red sandstone; 1 foot;
 5 feet sandstone, a slaty, of blue
 soft clay with a few thin layers
 of sandstone, some frequent
 near top. Then a layer of
 by 5 or 6 feet of sandstone
 with thin clay partings. Below
 this is a layer of sandstone
 clay (1/2 foot) beneath. Below
 this is a layer of sandstone
 the whole stone is more
 sandstone. At the
 top one of these beds is but
 4 inches thick & some sandstone

12. Strathgairn, W. of Lanes
 Dip of 18° in 8 steps East on
 West side of creek.

Base of stratum well shown
 massive limestone 5 ft
 softer layers not seen 2 feet
 massive limestone 1/2 foot
 6 1/2 feet massive
 Very fine, rounded purple material
 mixed up in a sandstone
 limestone. This layer at a
 number of places contains
 layers of white bands, white part
 well shown, also we stepped
 this sandstone and limestone
 abundant
 Crystalline sandstone of a sandy
 color with small layers of
 bands, poorly shown, the part
 we stepped, one inch across.
 Also stepped across 4 1/2 inches
 thick
 Above is the clay and then
 the thin limestone seen in
 east side of creek. This is the
 position of the limestone
 part. This part is stepped also
 on West side of creek. It is
 higher in the center than the
 dip & would not in this side
 of creek would warrant

It is about 10 feet up to
 base of the limestone layers
 which are light brown & low beds
 the thickest beds are 5-6 feet thick
 from here to base of limestone
 is 11 feet. The limestone is about
 100 feet thick according to the
 thickness of the limestone should
 be 67 feet at the base of
 Clinton. According to
 section of limestone and it
 is only 37 feet at the base
 of limestone.

According to the top of
 the thin limestone is 11 feet
 below the surface according
 to section measurements
 it is only 10 feet below.

These are all that the limestone
 section shows but I do not
 know how rapid the dip is.
 A small amount of contact
 the limestone of the limestone
 all the way to the base of
 the limestone.

67
 11

3. At road 2 1/2 miles S
 E of Levee.

The bed is about 100 feet, shows a
 nodular layer in a section
 Road day 4 of 5. The limestone
 here is light brown purple
 phos. bed 1 foot to 1 1/2 feet thick.
 The base of the black shale is
 clayey and hard.
 At road 2 1/2 miles S of
 a road to the basal clay
 rock is seen to be underlain
 by a little black shale.

14) Spawville Creek.

The clay is a brown
 of 1/2 inch shale is 10 inches
 thick by 5 1/2 feet of black shale
 thin by 4 inches thick and
 thin by 1/2 foot of limestone
 beneath the limestone is the red
 sand, with the red shale
 bed 1 1/2 feet of limestone
 brownish black are very common
 in the bed of the river. The
 layer contains clay lumps
 is irregularly worn.
 The surface is 1/2 foot of
 red a few small fossils but
 occur just below.

15) West of Spencer
24 in. thick
clayey with near base of brick
slate. This is seen further up
the road.

29 ft from base of Clinton
in bed of creek. The red sandy
massive layer is two feet
above bed rock.

12 feet above the creek is layer
with large crinoid stems overlain
by sandy rocks. This crinoidal
layer is 17 feet below the base
of Clinton which corresponds
with section M.

A line west from creek at 39
ft from base of Clinton to bottom
of creek. According to section M
it is 33 ft from base of creek
to base of Clinton. Since
the spot in question is west of the
creek it is

About 3 feet of Clinton
exposed

16) E side of Brink's Creek to Coma
About 26 feet from base of Clinton
cross to west of creek to base
of the Clinton. Crinoid stems

17) A little over a mile SE of old Spencer
Blue clayey limestone, rather like a
small of the Clinton. This is same
rock is exposed between here and
Spencer road.

16) Clinton
limstone, massive, 8 or 10 ft
base less than 2 feet thick
Not measured

18) East of Slate Creek E. of Spencer.
Clinton. Massive layer at base
3 ft thick. Unknown - 14 inches
5 ft. full of clay. The lower
more full of clay. 56 feet
from base of Clinton to base
of Clinton. This is exposed
west of the Slate Creek.

19) West of State creek bridge of Spencer
Ordovician blue clay -
3 ft 10 in. more than bedded limestone
19 in. blue clay
8 in. massive layer
16 in. massive layer
3 ft blue limstone with blue clay
8 in. massive bed
20 in. thin bedded limestone

2 ft. chiefly clay, not well exposed
 10 in. thin limestone
 10 in. chiefly clay
 9 in. massive limestone
 6 in. clay
 5 in. massive limestone
 2 ft 5 in. chiefly clay
 2 in. thin layer of limestone full
 of large round pebbles
 2 in. clay
 4 in. limestone } exposed face
 a short distance from west 200 ft. bridge.
 = 19 ft of Clinton limestone in
 three massive layers

The fossiliferous layers, as
 thin fossils are abundant in thin strata
 Strophomena and other small
 Strophomena.

82 ft. thickness base of limestone
 of Corniferous zone, 20 in. thick.
 composed of 11 ft. sub-limestone
 because of not well exposed limestone
 1 1/2 ft. blueish rock below
 1 1/2 ft. full of chert, almost all chert,
 at least 5 feet thick with chert
 - with - - - - -

82
 20 4
 61 8

20) On road leading to Howards Hill
 1/2 mi. W. of Spencer.

Blue clay rock, bedded in good
 section of about 40 feet. Clay, mostly
 3 ft. basal massive Richmond Stage
 limestone. Other layers large
 rounded stones.

2 ft 6 in. limestone layers 2 in. thick
 with many pebbles about 4 in. thick
 11 in. limestone massive. Upper layer
 clay with a few small pebbles

5 ft. 6 in. chiefly clay with a few
 thin limestone layers 1 in. thick.
 The limestone is in very small part
 of this section.

6 inches covered limestone layers
 with Strophomena and other

Strophomena, planumbona
 Strophomena, planumbona
 Strophomena, planumbona
 Strophomena, planumbona

Strophomena, planumbona
 Strophomena, planumbona
 Strophomena, planumbona
 Strophomena, planumbona

1 1/2 ft. limestone. Rapana, planumbona, Vireo
 good Strophomena planumbona
 2 ft clay, top is limestone with
 Strophomena planumbona
 20 ft to base of Clinton clay.

20) On road leading to Howards Hill
 1/2 mi. W. of Spencer.

The *Strophomena* in the massive limestone a large + rather common form of *Strophomena* into *Richardsoni* type.

The wide tabulate massive layers for about 6 ft. is consolidated clay and corresponding of the wide bar layer.

The 32 feet of the massive less just beneath the equivalent of the nodular layer as nearly unfossiliferous almost entirely clay.

The *Strophomena* layers in the road to West Street is probably being in the *Strophomena* set.

Left the road at the intersection in same bed with the fossils 12 feet above base of *Richardsoni* as has determined.

Friday night	West Street
Thursday	St. James Fields
Wednesday	W. in Chester

Saturday D. at the ...
 Sunday ...
 Monday ...
 Tuesday ...
 Friday to ...

21) 1/2 mi. SW. of Harward's Mill.
 @ creek level

11 feet not exposed,
 1/2 ft. fine grained limestone with clay joints.

7 ft. clay with few fossils,
 7 1/2 ft. clay rubble with spherical + lenticular layers, some petiole fossils.

25 1/2 ft. to base of *Richardsoni*, = 32 ft. when bed exposed to the *Strophomena* bed does not occur.

22) 1/2 mi. SW of Harward's Mill.

0. Rather unfossiliferous sandy shaly brown rock weathering to sandy clay.

23 feet clay limestone weathering so as to become very sandy, many fossils, the top of them rather large with several *Strophomena* near the base!!! *Strophomena*

6 1/2 feet limestone, clayey with few fossils.

40 ft. clayey fossils with few fossils except the petiole at base of the base of *Richardsoni*.

Working all over for dip, the
 Richardson bed =
 50 feet about
 ? Mt Auburn = 24 feet about
 Sandy clay = 14 feet
 ? Mt Auburn = 50 feet with
 plenty of typical Richardson layers,
 base of layers beds not exposed
 cut total and estimate you recorded
 in some part of 100 ft bed some
 distance above the base,

2 mt. east of county line on
 road to S. 7th
 On road on ...
 Brown Clinton ... 3 ft 7 in
 6 in blue clay
 (The base of ... sheet)
 12 ft ...
 11 in blue clay
 3 ft irregularly bedded ...
 with ...
 7 in ...
 3 ft ...
 No more ... layer with ...
 ...
 ... 5 ft ...

at 93 ft above base of Clinton 19
 the ... out = Per.

24. A ... distance east
 9 ft ... limestone, from
 base of ... ending at
 top with ... layer 1 ft thick
 3 ft ... clay
 Strongly wave ... layer
 varying ... from
 6 to 15 inches
 12 in ...
 2 in ... full of large
 ...
 1 1/2 ft ...
 ...
 Went ... vary in top
 5 1/2 ft of clay white
 5 1/2 ft of thin ...
 3 ft of ... weathering
 to rubble
 Plenty of white clay = 60 ft to
 top of cherty Devonian of which
 2 ft are exposed.

9-3
 11
 75

25) E of Lewisville.
Massive limestone sheet 4 ft 9 in
clayey shaly limestone weathering
to clay 5 in.

Thin beds of limestone together
equal - 8 inches.

The base of the Richmond is
70 feet farther from the road,
Its coal thickness is 22 feet,
Dip regular, it appears like this.

Two specimens of *Strophomena*
planumbona found
near the lower part of the

81) sandy clay, 11 feet below
the base of the Richmond,
In this limestone just beneath
found *Strophomena* and good *Strep-*
tolemaea. *Strophomena* are seen.

The upper part of this lime-
stone section contains
several species of great corals,

82) *Obolochonta*, 24 in thick,
The limestone section continues
beneath and 11 feet lower than

the 2 1/2 ft section occurs the
94 1/2" limestone layer. This is 94 1/2 ft
beneath the contact. It is 23
feet thick = 23 1/2 ft below what
was first called the Richmond

83) 8 ft clayey stuff rubble near base
No fossils.

28 feet clayey lime weathering to
rubble upper half with plenty of fossils
and a few *Spirifer bifurcatus* not
large enough for leaves.

28 7/8 + 23 1/2 = 59 1/2 feet and no
Orthis types, typical & common.
A short distance beneath but
how far not known now than
Spirifer beds full of bryozoans
some *Spirifer bifurcatus* not large
& *Leptaena* *incantidaris*.

26) East of West branch of Mill Creek.
Osgood clay at least 60 feet thick
The many layers partially joint
beneath at each level but not
seen.

Fish teeth layers about 3 in thick
no fossils seen.

Cherty coniferous about 5 ft.
Brownish layer with *Trinacria*
type of *Trinacria* = 2 1/2 ft
Black shales.

27) E. side of Blue Bank Creek
1 1/2 ft brown limestone full of *Orthis*
coelia umbonata. Underlain by
15 in. reddish limestone *Strophomena*
underlain by 1 ft cherty lime
stone.

28) At Rose Run, Williams Co.
 Bottom 6 in. sand & gravel full of pebbles & small heads
 4 in. blue clay + 5 in. brown limestone
 3 ft. ferruginous limestone
 1 ft. bluish stone increasing wavy
 layers
 7 1/2 ft. soft dark clay
 5 ft. thin (2-3 in.) layers of lime-
 stone with 4-6 in. layers of clay
 between. The exposure is in
 place 8 in. thick. So thin
 Top: the rock is rather light?

29) Roman Co. NW of Moses Ferry.
 Devonian limestone 13 in. of a
 grey color with spots of scattered
 chert in upper surface, being
 also exposed. On further examination
 thin thin Spizogonites appears
 to occur, but the species of the
 Pilsbich stage - (the specimens)
 is entirely absent.

On the base of the bed, north-
 ward a similar one appears. The
 lower surface is red, ferruginous,
 has a bit of a rough appearance and
 may have had pebbles in it, but
 this is uncertain. The fact that this
 thin bed is on top of a layer of
 hard limestone and is a thin bed.

30) Road to Fannin Co.
 Wavy, curved layers. Trend of
 waves N.W. Northward up the
 hill in a road. The section
 is 100 ft. high - part of road

31) apparently the layers overlying the
 wavy beds are layers.

32) The wavy limestone layers in Roman Co.
 Trend N.W. Thin limestone
 layers, part of the section
 missing. The layers are visible
 at Rose Run, Williams Co. part
 5 ft. thick.

33) At Rose Run, Fannin Co. Two miles
 from Fannin Co.
 6 in. greenish clay, with some
 nodules.
 1/2 ft. clay
 1/2 foot bed of limestone
 1 ft. 4 in. clay
 8 in. thin limestone
 10 in. thin limestone
 1 1/2 ft. blue clay,
 1 ft. limestone with large
 nodules not visible.

16 in. ferruginous limestone, red
are,

4 in. light brown limestone,

2 ft. thin bedded limestone &
clay. The clay part is
disintegrating.

Van Alburg.

At east end of town the Waverly
has nothing but black shale is seen.
It contains fine, rounded sand-
stone layers rather in abundance
and differs in this respect from the
fine soft clays of the Centerville
in the vicinity. The flags used for
sheds proving all evidently Waverly
flags and are full of *Spirifer* plants
like those found in Fleming coun-
ty and they probably extend nearly
referred to the base of the Black
Shale.

Just below east end house on the
river bank there is fine rounded
rock which may be the ferruginous
rock in some localities seen at
the base of the Black Shale. It is
at least 6 feet thick. It was not
exposed with a single ledge. If
in fault crosses the river here,
the way to come to it is
rather a fine that well.

One mile west of town where the
river crosses a little stream the
Black Shale is exposed from the
Creek level of land.

East side of Quicks Run
Black shale strip 2 mi. up from Rome.

- A. 17 ft thin bedded shale with many small pebbles, a lot of chert.
- B. Outlying it is more or less irregularly bedded 14 feet
- C. Over this the limestone is more sandy in appearance 30 feet to top of exposure.

In A + B. several small heads and stems of plants are very small and some are very small.

There is a spring below the level of the road at bridge.

West of Quicks Run the location has been lost and the Black shale may be determined.

About 1 1/2 mi. up river from Rome 24 feet of the massive shale is exposed. At the top of this is a lot of chert and some pebbles. It is overlain by the Black shale which is the lower part of what was once part of the massive shale.

At angle of hill S. of Sta. 27
On west side of road.

Black shale at base of hill 30 feet high. Sandy limestone 75 ft measured, top of which is 100 ft base not seen.

Just E. of road from Concord, Ky. 2 1/2 mi. N. of Sta. 27 = Black shale type. Some small fossils. *Leptæna* *calycata* - the little *Leptæna* *calycata* is found in loose pieces over *Leptæna* *calycata*. This is the first exposure of *Leptæna* *calycata* seen along the RR going W from Vanceburg.

- Sat. night. Owensboro
- Sunday m. Salt Lake
- Monday m. Flemington
- Tuesday m. Mandeville
- Wednesday m. Mayersville
- Thursday m. Flemington
- Friday m. Concord
- Saturday m. Mayersville
- Sunday m. Mayersville

34 Along RR 1 mi. N of Hillsboro,
3 ft. Belfast bed.

5 ft 6 in solid massive chert with
10 in. clay soft

6 in. limestone

3 ft. poorly exposed, probably chiefly
blue clay with a little limestone.

2 ft 2 in. chiefly light brown or
bluish limestone, fine grained.

4 in. blue clay soft

6 in. solid limestone

4 ft 2 in. almost entirely clay,
with limestone at 1 1/2 & 3 ft
levels thin.

6 in. Wave marked layers

1 ft. blue clay

4 in. Wave marked layers the lower
part of the zone is covered the
ridges remaining as lenses
flat on bottom.

1 ft 7 in. blue clay

6 in. limestone with some green

2 in. at wave marked in
places at least some bedded.

15 in. strongly wave marked sand

2 in. light red purple limestone

2 in. limestone with red spots

and the light brown limestone

to light brown limestone

clay }
4 in. clay
4 in. light brown limestone
thin.

9 in. clay

2 in. limestone light brown

8 in. clay

2 in. thin limestone layers

3 ft. clay

1 in. limestone, lenses

10 in. clay blue

6 in. several limestone layers.

1 1/2 ft. clay

4 in. limestone

4 in. clay

1 ft. 7 in. limestone. A part is
slightly ferruginous

4 in. clay

8 in. limestone

Lepidoceras ruber *didalis*

Dalmanella elegantula

Pachydictya

Camarotoechia small

Brachydictya fine

Callinectes 5 narrow plates in place

The strongly wave marked layers
contain the large *didalis* heads.

35) Road to Farmville
Bk clay + sandy clay below.
White clay at base 11 feet.
Belfast bed nearly a foot.
Clinton massive 5 ft 8 in.
cherty.

36) Along creek west of Farmville.
Clinton base re.

37) S. of Grants house on road to
Plummer's Mill.
80 ft of white clay above
creek level. No limestone at base.
thick total based mud. thickness.
35 ft steep slope not exposed.
Black shale, large exposure.

38) Above road corner (Smith) 1 mile
east of Plummer's Landing on
Stocketon Creek Road. Called the
Big sandy Pond.
Black shale. No evidence
of limestone beneath.

39) SE end of house SE of
school.
Osgood blue clay.
3 ft. crinoid. massive limestone.
S. of this is Silurian.
5 1/2 ft poorly exposed green clay.
limit at top. Below is Black shale.

40) A short distance (1/2 mi) S of Ramsey's
Chapel.
Osgood blue clay.
Silurian on Dev. rock. 6 ft 6 in
Greenish shale 5 1/2 ft.
Black shale large section.

41) West of W. A. Germain's house
at spring. 1/4 mi. S of Fox Sp.
Osgood clay shale.
1 ft 8 in solid limestone.
4 ft 3 in. rock in cavernous limestone
at base.

42. 3/4 mi. S of Fox Spring.
9 ft of Silurian Dev. limestone.
H F Germain Walsbyford by
took me over bridge.

Fossils in Middle Richmond, Concord, Ky.

- [*Strophomena* ...
- [*Hebertella insculpta*
- [*Palaeospira* ...
- [*Leptaena* ...
- [*Pistia* ...
- [*Columnaria* ...
- [*Strophomena* ...
- [*Hebertella* ...
- [*Strophomena* ...
- [*Platystrophia* ...

Will E. H. Curran

- 27 3 in
- 16 ft. *Dalmanella fusca*
- 2 1/2 ft. *Strophomena rusticum*
- 5 ft. *Strophomena rusticum?*
- 1 ft. *Strophomena rusticum?*
- 5 1/2 ft. *Strophomena rusticum*
- 58 ft.

153
11
144

Lowest exp. at RR bridge E of Concord.
11 1/2 ft. below 0 *Uru. Caseyi* + *Stroph. rusticum*
6 ft below 0 str. rust zone 1 ft (33)
5 ft below 0 Sh. rust zone small. No Dalman.

Strophomena in lowest str.
0 creek *Strophomena rusticum*
2 1/2 ft. lowest *Dalmanella* rust zone
3 ft 10 in. *Dalmanella* not *fusca* abundant
13 ft 5 in. base of limestone layer
lowest *Platystrophia* ...
Strophomena ...
Dalmanella not *fusca* occurs at
various levels up to this point &
above

18 ft 9 in. *Strophomena* ...
Dalmanella not *fusca* common
up to this level. At this level
the limestones are separated
by more clay become more
clayey than above & contain
few fossils.

- 21 ft 3 in clayey limestone with abundant
Strophomena ...
- 27 ft 7 in. clayey clay. few fossils.
- 28 ft heavy limestone with *Strophomena*
rusticum but this was found
low down.
- 33 ft 6 in *Strophomena* ... in the
clay.
- 39 ft *Hebertella insculpta* large.
- 47 ft *Hebertella insculpta*, lowest
exposure along RR bridge
just above *Pistia* ...
cut across *Strophomena* ...

49 ft 2 in. No fossils Hebertella (isotolpa)
60 ft. Fossils in second stage
preceding found in 11 feet
below this level.

153 ft. to base of massive cherty
Clinton. (in measure)

46 ft. from Clinton to junction of
large above Clinton & the
lower limestone.

190 ft. top of ridge with plenty of
massive brown rock
with small pieces of
beneath.

53 feet at top of red limestone
partly shaly with out
at one in being extent of
out some fossils
for fossils from limestone
factory but seems to indicate
into the above.

Pelecypoda 8 in high loose
found above lowest limestone
about 5 ft above Hebertella
limestone zone.

Columnar fossils 5 1/2 in. across
5 ft above Hebertella limestone
zone & great below said limestone
as described above.

Waynsville. About 2 1/2 miles S of
town along C+O R.R.

Strophomena planv-convera-
section = 104 ft. above level of
R.R. track where first seen, 1 mile
from town, at track level 2 1/2 miles
from town.

7 in limestone covered by fossiliferous
below = Bryozoa, - thin banded
above.

3 ft 8 in. Shaly clay with 1 or
2 of one inch banded clay rock
at top.

10 in. limestone hard compact
chiefly of Dalmanella multisepta.
Waved on top. red Dalmanella.

10 in shaly clay.

6 in hard limestone fossiliferous

5 ft 3 in shaly clay.

5 in. Two thin bands of thin bedded
limestone.

2 ft. Shaly clay

6 in. Hard limestone Dalmanella
from Dalmanella multisepta in top.
This fossil occurs in all the
levels.

5 ft 10 in. Shaly shaly clay.

8 in solid fossil. l.

5 in shaly clay

6 in solid fossil. l. Dalmanella

8 in. shaly clay.
 2 in. limestone
 2 ft 10 in. clay shale
 4 in. foss. limestone
 4 in. clay shale
 2 in. foss. limestone
 8 in. clay shale
 4 in. thin bedded limestone, clay
 3 in. clay shale
 5 ft. l. full of Stroph. planus.
 8 in. shaly clay shale with
 1/2 in. band of l. with Stroph.
 planus & S. in middle.
 4 in. limestone with planus - com.
 5 in. clay shale
 2 in. limestone
 3 in. clay shale
 1 in. limestone
 7 in. clay shale
 4 in. l. fossiliferous
 6 in. clay shale
 4 in. l.
 3 in. shaly clay
 5 in. fossil. l.
 5 in. clay
 3 in. fossil. l.
 6 in. clay
 1 in. shaly limestone

1 ft 9 in. shaly clay
 8 in. fossil. l.
 4 in. clay
 4 in. thin bedded l.
 3 in. fossil. l.
 2 in. clay
 1 ft 7 in. limestone with Stroph.
 planus & S. in middle. ^{total 15 ft 8 in}
 1 ft blue clay
 1 ft 4 in. fossil. l.

Students Collection,
Concord, Ky.

Dimorphis subquadrata. 10 feet above
Hebertella insculpta zone, and
in loose material brought down
from above, along R.R. C.

Rhynchotrema capax. Begins where
Dalmanella becomes common
along Sycamore creek, R. be-
comes common in *Dimorphis*
subquadrata zone C

Hebertella insculpta rather C in
several layers in a (horizon) zone
1 foot thick at level of R.R. track C.

Protarea vetusta. Several well pre-
served specimens in *Dimorphis*
subquadrata zone.

Plectambonites sericea. Very
abundant in *Dimorphis subqua-*
drata zone.

Strophomena sinuata. Common
at a measured level above *Dal-*
manella zone. Sparingly in
Dimorphis subquadrata zone.

39

Waynesville ^{bed} Lower half, Concord, Ky.

Prasopora hospitalis.

Ceramophorella granulosa.

Bythopora mckei

Nicholsonella tenera

Batostoma varians

Callopora subquadrata

Monotrypella quadrata

Amplexopora fenestrata

Pirenopora decipiens

Arthur M. Miller. July 29, 1901.
Estill Springs. Splendid ex-
posures of whole series from
Clinton to Black shale in
immediate vicinity of Springs,
and extending up Station
Carp Creek to south of
Kentucky River.

Hand level section on road
leading up White Oak Creek
from the forks of the road at
the branch. (See Beattyville
Topographic Sheet, U.S.G.S.)
655 feet above tide to 780 feet.
A little farther down stream
a few layers containing
Cincinnati bilix(?) are
considered upper Cincinnati.
= 1 mile North of Irvine & then up creek.

Black shale

18 ft. massive cherty congl. lined

58 ft. Whitish shale with celestite
crystals, Ozark. With thin
limestone plates at 32, 25
and 22 feet above base, ac-
cording to drawing. Exact
elevation must not be taken
too exactly from this since it
was on a scale of 1 inch for
= feet. Bryozoa layers
occur 8 to 10 feet above base.

3 feet Layer with prominent
radiate structures - or wavy
like, 1 foot thick, above 2 ft
layer, persistent, of reddish
limestone.

24 feet of whitish shale, Ozark.
with thin reddish limestone
containing 10 alypsites + Favos-
ites, 22 feet above base. Red-
dish limestone interbedded
with whitish shale occurs
in lower 8 feet.

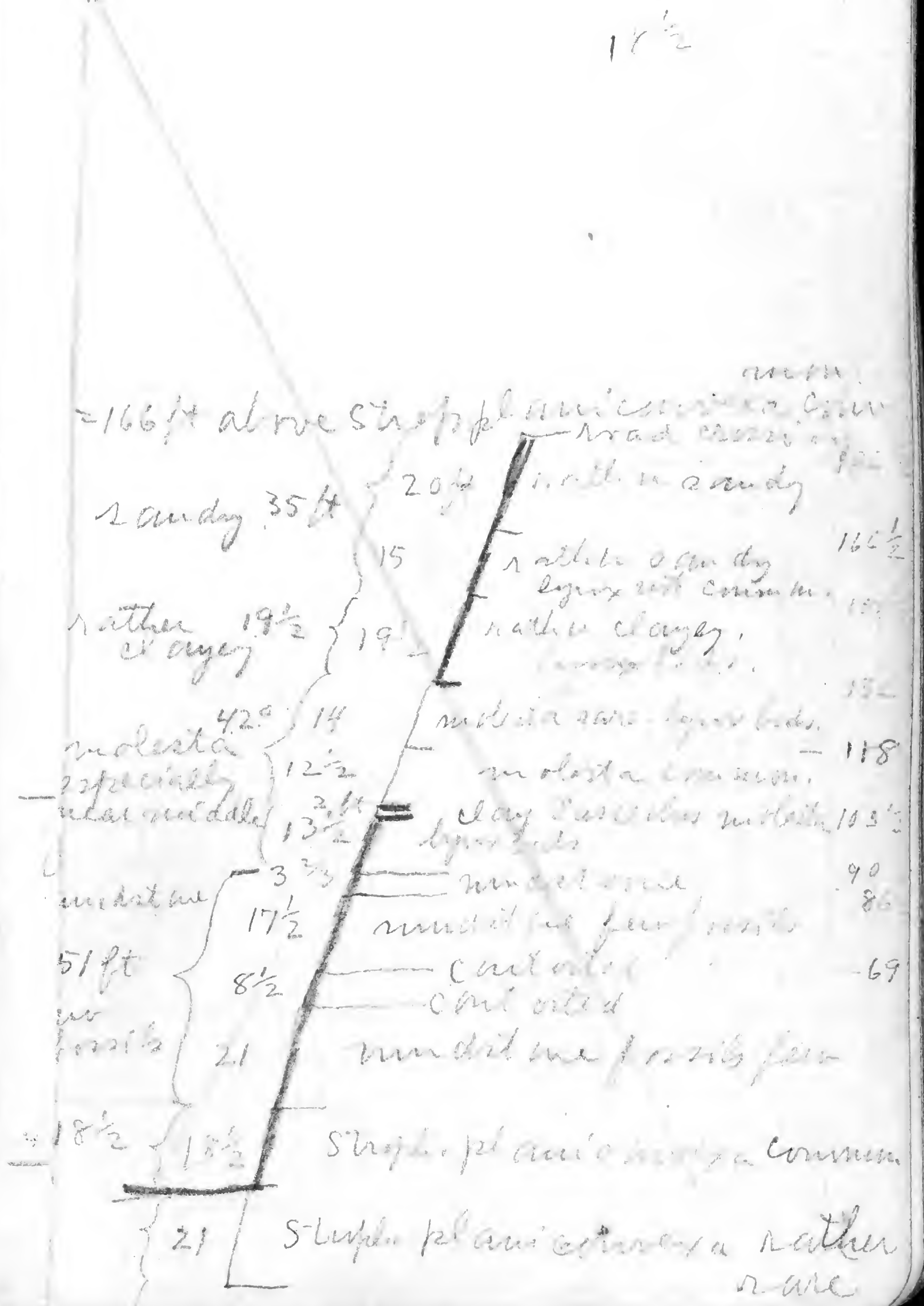
22 ft. Covered.

? Reddish magnesian lime-
stone with crinoid buttons
= Clinton.

North Pine on Queen + Crescent
in Whitley Cr.

Black shale,
approx. 100° White + Niagara shale
30° Clinton iron ore,
100° shales. Clinton light
Blue limestone

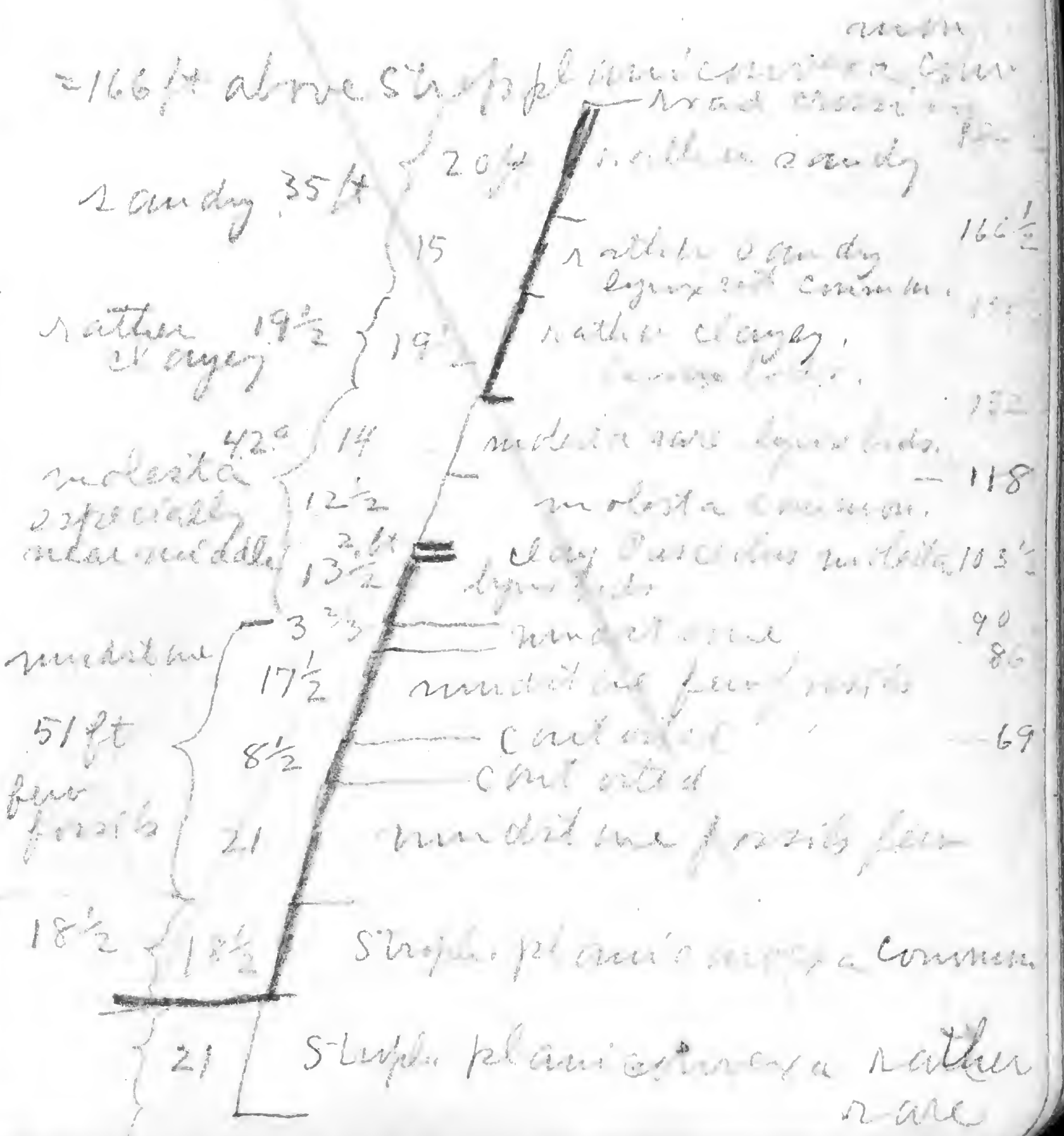
Red Clinton iron ore in SW of
Cumberland Co near Maurice
Co. line



North Pine on Queen's Crescent
in Whitley Cr.

Black shale, c
approx. 100° White Mississippian shales, d
30° Clinton iron ore,
100° shales. Clinton,
Blue limestone, 10.

Red Clinton iron ore in SW of
Cumberland Co near Mow
Co. line



Salt Lake

Vancouver

- 3 Blaine ship store
- 7 Valley PO, 3 stores
- path of creeks

SE look above valley

+3 Haden's store

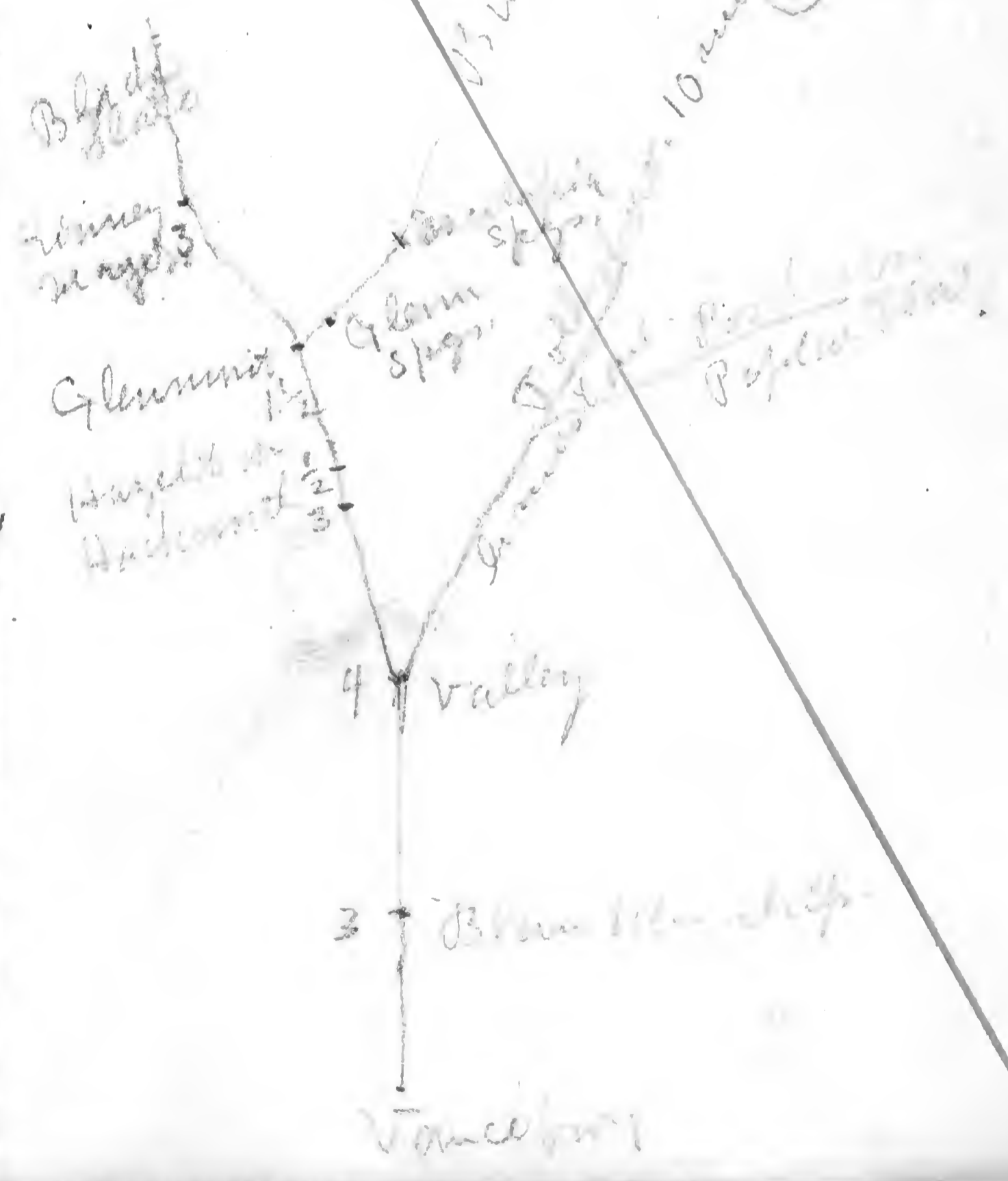
+3 1/2 Hazelton PO

+5 Glenmount path

+5 1/4 Glen Springs

+6 1/4 Escalapa's Springs
Kinney, store

Route to
Haden's



S 14 W 65
 S 4 W 35
 S 24 W 60
 S 74 W 76
 N 72 W 75
 N 37 W 40
 N 17 W 34
 Black slate W. creek R.
 N 15 W 50
 L 11 W 20
 N 75 W 31
 S 20 W 30
 S 48 W 100
 S 28 W 10
 S 2 W 30
 S 95 W 10
 S 45 W 50
 S 72 W 70
 S 78 W 50
 S 85 W 20
 S 20 W 50
 S 6 W 6
 S 10 W 4
 S 40 W 40
 S 40 W 50
 S 48 E 45
 S 54 E 60
 S 70 E 27
 S 30 E 47
 S 40 E 39
 S 48 E 45
 S 54 E 20
 S 8 E 15
 S 20 E 24
 S 15 W 13
 S 10 W 37
 N 86 W 33
 N 8 W 15
 N 86 W 31
 N 8 W 15
 N 32 W 27
 N 60 W 30
 S 80 W 50
 S 80 W 50
 Waverly? C
 Waverly? D

S 85 W 27 Jess Hamilton
 S 85 W 175 road a lane R
 S 85 W 35
 N 85 W 60 Waverly
 N 85 W 15 Road to Creeks R
 creek L W 25 Fine valley R
 S 78 W 23 Wood cut
 S 78 W 85
 S 88 W 35
 S 38 W 3 Wood cut
 S 38 W 30 Road R School SW
 S 38 W 50 Fine valley
 S 45 W 190 Switch R
 Road L S 54 W 60 to fork of road Valley
 S 54 W 20 Valley
 S 70 W
 Valley S 10 E 32
 S 10 E 24
 Road L S 10 E 20 small bridge, main road
 to Glenmont
 Left road, from road
 S 54 E 60
 S 70 E 27
 S 30 E 47
 S 40 E 39
 S 48 E 45
 S 54 E 20
 S 8 E 15
 S 20 E 24
 S 15 W 13
 S 10 W 37
 white clay
 toward B...
 Little Carrington
 B... in bed of...
 B... in bed of...

Monday
 2001
 S 55 W 13
 S 15 W 40
 S 22 W 50 light blue shales
 S 65 W 40
 S 35 W 36
 S 40 W 28
 S 10 W 25 free stone
 S 5 W 18 small one
 S 10 E 33
 S 15 top of ridge
 S 12 same on R
 S 32 E 10 B same Harris
 { 5 mi to Kimmey P. see
 { 2 mi to Valley

A. Church on Church W. of Clark
 long thin yellowish shale in 1 inch
 13 ft of Lower Helderberg ^{width} 2 1/2 feet
 on H. P. Gose, Jr. farm
 9 ft poorly exposed same thin bed.

B. Miller's Cabrot.
 11 ft of Lower Helderberg exposed
 North of house at a spring
 C. 30 ft. Further north
 is black slate above
 level of lower Helderberg.

C. W. of B. 1/2 mile
 This massive low Helderberg
 is underlain by a yellowish
 sandy clay poorly stratified
 forming a bed of clay soil.

D. E. of Jess W. corner.
 Coarse limestone, 27 ft ex-
 posed, brown, tinged with red.
 This is above with broken
 rock but no black slate. This
 is far above level of B. Can
 this be above B. shale?
 Further study, climb long up
 hill N. shows this is heavily

Exp. Goph. Vermilion

50 ft. no exposures.
50 ft. slate, blackish in places ^{cherty} _{purpleish}.
71 ft. clay + thin layers of slate,
16 ft. rock, well stratified above,
crinoidal at base, sandy looking
towards base. Well stratified
at all levels + sandy looking
everywhere.

88 ft. clay, white + purpleish
opposite W A McEldorney
at Valley, just to be Esford
directly below rock exposure.
Lead to the lowest layer in
Goph. Vermilion section.
Obt. a specimen. It may
be that this section is
in ground and that there is
a fault here. The black
slate section is altogether
too small and I cannot
get a clear section here.
The highest one seen at
Wm Church is certainly
about.

- Valley S 54 W 20
- McEldorney S 70 W 6
- S 70 W 34
- family grave S 85 W 50 Esford clay big section
- N 78 W 93 fine Esford section
- N 70 W 62 Alfred Huffman
- N 80 W 92 Fine Esford section
- N 70 W 90 Esford
- N 58 W 59 Esford
- N 70 W 39 Esford
- N 55 W 40 stream road on R
- N 65 W 98 Esford on R
- N 46 W 10 Esford
- N 46 W 34 school Gilbert
- N 46 W 17 church
- N 46 W 70 fine Esford + low field
north on 100 ft. Esford
- N 46 W 30
- N 50 W 71 wood cut road, Esford
- N 65 W 35 main valley
- 2 1/2 mi. to Creek's Run
7 mi. to Ohio N 68 W 46 road on 50 ft.
- N 80 W 10
- S 60 W 18
- S 50 W 34 WED Dugan
- S 80 W 23 Esford field
- S 56 W 17 W.M. Dugan
- S 58 W 10 Road to Esford
- S 58 W 6
- Esford S 45 W 18
- Esford S 5 W 25
- S 10 E 13
- S 30 W 13

Alfred Buffum

Up hill back of house.

Black slate said to be further up hill.

18 ft. sandy, pink well stratified, ft very crumpled rock fossils.
110 ft. Clay, red at top bottom of valley.

This would be a good place to get some from Lower bed along with the one. The Astro seen at McEl-downey, you can see that they occur in thin sheets (or may be) bedded in the bed in layers of clay in upper part, at least within 30 ft of top.

The ...
Linnæus ...
single ...

Section N. of Dugway house

11 ft. similar to below.
16 1/2 ft. brown sandy, dark, rock mass.
160 ft. Clay, red at top, have not seen.

- SSE 20 r
- S 18 W 65 beyond same extracted
- S 5 W 70
- S 50 W 50
- S 75 W 120. Gsg. Barley Harrison
- Road S 75 W 7
- at creek end of road
- in the road dipping E
- In this 2nd bed, ...
- Here the beds are thin, W 44 long.
- N 5 W 46
- S 5 W 24 bridge, ...
- S 58 W 15. Mt. ... store, 2 1/2 mi to ...
- Ribolt S 55 W 7 cross roads
- Gsg. McEl. S 55 W 125 long.
- M. & Church S 75 W 41
- Parrish S 87 W 49
- cl. S 45 W 17
- cl. S 55 W 24
- Helm S 55 W 29 bridge, cabin
- ... S 70 W 48
- cl. S 18 W 35
- S 38 W 65
- S 26 W 25
- S 48 W 38 family ...
- S 46 W 50
- S 87 W 136
- N 82 W 35
- S 88 W 120
- S 82 W 45 church
- B. ... S 75 W 66

W.H. Lawrence et al.
Coring to depth 150 ft & particu-
larly in the

- 106 ft greyish clay. Much thin
bedded layers in the clay
at various levels.
- 3 ft brownish limestone
- 3 ft white clay
- 1 1/2 ft limestone
- 8 inches clay
- 6 inches l. strong wave marked
- 4 ft clay with a little thin lime-
stone 1 inch thick, several
layers. Bryozoa in thin
thin beds as well as in C.
- 8 inches limestone

very abundant fossils

3 more rods to top about 50
feet of clay
Reddish SE dipping near
mercury too thick
at top

6 ft 9 in top of fossils in a layer
4 ft clay

- C 6 in wavy layers
- 5 ft wavy clay
- 17 ft clay with beds 1/2 ft about
4 in white
- 4 in unknown
- very cherty limestone
crust

- C *Phylloporina expansa*
- Platystrophia Dartzmanni*
- Leptaena subtridialis*
- Phinopora frondosa*
- Cyathophylloids calyculata*
- Plectambonites* with 2 + with
many plications on side
- Campanula* in a small
Trematoceras elegantulum
A few collected ones of
Trypanites could be
made here.

100 yds West of Mt Church
100 yds east of Pine Cooper
limestone

34 ft to top of more fine grained
7 1/2 ft cherty limestone seen
5 1/2 ft red cherty
clay

Road West No. 12
 Perkins No. 15 Folisboro,
 Between Cabin Creek and
 this place the road appears
 to have been on the level
 with the top of the
 shale of the bedrock l.
 red sandstone
 or at least shale
 proper

- N 58 W 46 R road Church NW
- N 72 W 40
- N 82 W 30
- Old bridge S 86 W 50
- Road 2. S 86 W 37
- S 72 W 65
- N 75 W 29 Road R
- N 75 W 60
- N 65 W 14
- School 2 N 82 W 80
- N 82 W 60
- S 88 W 22
- S 88 W 17
- S 75 W 36
- N 66 W 20
- Jess Kirkland N 66 W 100
- N 66 W 14
- S 85 W 49
- N 85 W 4

Lewis Co.

61

1/2 mi. E of ... along road
 base of Cherty Clinton. Midway Ruth Cole,
 17 ft clay, 2 mi of purple
 4 1/2 ft thin sandy l. in much more
 sandy clay, byzans abundant
 17 1/2 ft clay few fossils. Upper half of
 section which is with shaly
 clay rock.
 9 1/2 ft sandy clay byzans abundant

 47 ft limestone layers common, with
 Strophomena at top
 Strophomena at top
 Hebertella insculpta at top 95 ft
 Below Esc. or Worrick
 At old schoolhouse Brown Run
 190 ft Clinton down to
 layers with
 Leptaena ...
 Strophomena ...
 This means 95 feet below
 Hebertella insculpta layers
 and 40 feet below Stroph.
 Concordensis and
 35 ft below lowest Strophomena
 at Concord. Strophomena
 this ...
 about this zone.
 N of William Rice's house.

The contorted beds of the mound
 above the creek above the scarp.
 Adams' mound, some distance
 up well at the creek. 1 mi
 and 1/2 miles west of the Lewis
 Co line on the Clinton road
 road. The first creek leads
 up to Redwood. The second
 creek is followed by the stream
 with pebbles.

The contorted layer shows up
 well also on east side of
 RR bridge east of Springdale
 a considerable distance
 above the railroad.

Portsmouth

Plots 6, 7, 8. Mainly clay
 for paving bricks. Pebbles
 Cr. 3 mi E of Portsmouth
 center.

Visited Adams for bricks
 Pebbles paving brick

3 mi E of Portsmouth

- 432 20 ft blue grey SS. weathering friable
 - 412 22 ft poorly exposed
 - 390 7 1/2 ft middle of 16 inch coal part
 - 383 5 ft No 2 clay (softer than No 1)
 white clay.
 - 378 Base of No 2 clay. This is soft
 - 374 ft top of massive iron - 330
 - 330 Rather solid freestone for 5 ft,
 { but rather cherty
 308 } More freestone sets in. Below part
 exposed.
 - 275 Top continuous freestone layer
 - 160 Base of freestone layers
 - 50 top of paving brick clay
 - 0 base of paving brick clay
- Pebbles source of clay

From RR bridge to Springdale
SSW to top of hill on
south side of pike.

33 1/2
25 1/2
33

108 1/2 ft path at edge of woods up
to *Hebertella maculosa* layer.
was peccated with
Leptaena subtridala.
Plectambonites layer
occurs above, in abun-
dance.

118 ft from upper path at
edge of woods to road
at base of woods.
Total from *Hebertella*
maculosa down 226 1/2 ft

25 ft from road to road
the at which we found
angles. Total = 25 1/2 ft down

48 1/2 ft down to RR to top
Total = 300 ft

17 1/2 ft down to pike
317 1/2 ft down.
(Total from road to top of
hill = 287 1/2 ft)

13 ft down to top of red roof
of station building
Total of 330 1/2 ft

at RR bridge str. *Planorbis*
convexa with characteristic
lynx fauna extends
up to top of bridge. This is
15 ft below top of ledge at
cliff.

57 ft above top of building at
bridge is base of *lynx* beds,
38 1/2 ft above top of building at
bridge is top of upper
concreted layer.

66 ft above top of building at
bridge is thick *lynx* beds with
under a thin bed 13 feet
higher up.

55 ft top of chert to lowest good
limestone.
Top concreted bed is 36 1/2 ft
above top of building.
Between 52 and 61 1/2 ft above
building there is a small
massive limestone bed
few feet. Both beds

Copied 1916

6 1/2 and 6 5/8 ft above building
fruits become common but
lynx not very common. Above
66 ft above building lynx is
common. At 80 ft above
building *mentatum* is com-
mon.

Height of building is 15 ft.
Top of RR bridge is 5 1/2 ft above
base of building.

16 ft from top of station
to top of bridge.

24 ft from top of bridge to
top of bridge.

73 1/2 ft from top of station to wal-
nut at angle of wire fence,

Longitude = 277 1/2

69 1/2

208

48

at least 256 to base of *Str. pd. common*

138 ft from base of lynx to *Rhy.
mentatum* bed.

Copied 1916

Hebertella insculpta at 33 1/2 ft above
base of RR bridge E of
Springdale Ry.
(*Strophomena emundevilliana*) 277 1/2

(*Lepidoceras* *laevigatum* & *Rh. dentatum*) (237 1/2)

cross path at top of woods 224

33 1/2
17 1/2

235

17 1/2

108

108

108

108

108

108

108

108

108

108

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108

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108

108

108

108

108

108

108

108

108

108

108

108

108

108

108

road at foot of woods 108

lynx common 97 1/2

lowest good limestone 88

walnut angle wire fence 81

top of upper cut site 69 1/2

common
but not lynx
local common

94 1/2 - 95 1/2

30 (21)

massive limestone
at base common

89 - 94 1/2

69 1/2

45 1/2 (29 1/2)

Top of house 33 at bridge

top of bridge 24' above base of house

top of house 18 1/2 at bridge

top of station 7 1/2

bridge

Top of house to top of station = 25 1/2 ft

Copied 1916

22 ft lower continued down to wave marks

4 ft more sandstone without strata
base of ...
... to ...

SW of Summit Copied 1966

Helictella ...
road runs from N 65 E to S
slightly down hill at oak tree
with *Leptaena* ...
to top of *H. ...*

- 12 1/2 ft, thin lit clay, many fossils
- 12 ft rubble stone, fossils rather common
Dalmanella jugosa
- 4 ft rubble
- 1 ft lined one with *Dal. jugosa* +
Stroph. planumbona
- 4 ft Down to *Dalmanella jugosa*, lot clay
- 3 ft limestone + clay
Stroph. ...
- 2 ft ... *Stroph. ...*
- 8 1/2 ft chiefly ... and
clay. *Helictella ...*
common. *Leptaena ...*
d. operosa + *broaden.* 45 ft down
- 5 1/2 ft chiefly clay rubble limestone
full of *Helictella ...* and
P. ... resembles
top of Warren bed in ...
but much more fossiliferous.
Helictella is quite ...
Leptaena ...
- 11 ft chiefly rubble clay + few *Helictella*
+ *P. ...* in upper half
Helictella ...

2 ft down to top of old layer tree
stump at angle of road,
5 1/2' chiefly clay with some ls
with few Helictina sinuata,
Gyrodonta, and others, = rubble clay
rock. 69 1/2' down

6 ft. chiefly rough limestone weath-
ering shaly.

9 ft. mostly exposed, several good
limestone layers. 84 1/2'

2 1/2' down to top of dense blue
clay limestone with 3 large
specimens of Lyx.

11 ft dense clay limestone, blue,
rather soft. Gyrodonta com-
mon in some of the lower
layers. 97'
dense limestone above
the Lyx beds at village
section, above mouth of Red
River on the Kentucky side.

Top of earliest strata of Lyx clay
limestone full of Lyx

14 ft Lyx beds,

rough brown surface
Rhycolites or dendroid forms.

11 ft limestone, shaly, some
quite massive. Lyx, base not
seen.

This must be the shaly
unconformable beds of the
Harvard mill section.

(Helictina sinuata appears
again east of at and near
house is in east of R.G. Har-
man.

Helictina sinuata occurs also
just east of where dirt road from
Sunset to Dingo runs, just to the
west.

East of village section, E of Davis
top of Lyx beds. 100'

82 1/2' rubble of one with Lyx
upper part not examined

15 ft more solid limestone, blue,
quite unfossiliferous

45' rubble above, shaly, less
fragment than above in
more exposed layers

18 ft comparatively unconsolidated
5 ft layer with Strophomena
planumbona total 95'

to east of my rooming.

Middle Richmond

- Quartzite sand on chert,
- 10 ft white clay
 - 11 ft brownish sandy clay, some small bryozoans
 - 16 1/2 ft sandy clay with much sandy clay - Middle Rich.
 - 33 ft sandy clay, most fossils in middle included in common at top of section. *Herbertella insculpta* rather common at top of section.
 - 7 1/2 ft sandy clay limestone with 15 ft top of section. *Stroph. p. p.*
 - 2 ft (6 in. l + *Stroph. p. p.* at top)
 - 12 another thin bedded limestone, *C. heads* near base
 - 5 1/2 thinning of limestone
 - 18 1/2 thick grey limestone
 - 20 large calc. in bed, *Herbertella* (also)
 - 17 ft clay, dense blue clay limestone with *Hy. p. p.* at base common limestone with *Hy. p. p.* at base

only few in upper part of Middle Richmond. Taken 10-13 ft above base. *Platystrophia* in common, also *Strophomena gracilis* at least very small diameter, *Stroph. retorta* very rare.

about 3 ft above base *Stroph. retorta* very common, *Stroph. p. p.* very preserved.

Base of Middle Richmond and Top of Lower Richmond

Diphyridia is yet good in the first bed, displaced from front of section

Middle Richmond

- Strophomena gracilis*
- Strophomena p. p.*
- Strophomena?*
- Platystrophia*
- Strophomena*
- Protarea retorta*
- Herbertella insculpta*
- Stroph. p. p.*

Found a large *Strophomena* on party common from base of section to the more calcareous limestone

8 ft section. The only *Strophomena nitidum* found in the Middle Richmond was a small one.

18 ft bed. *Strophomena nitidum* common, *Stroph. p. p.* very common. *Stroph. neglecta* base at 26 1/2 ft. *Stroph. p. p.* of *Herbertella*.

inscribed layer, which
have come from about the
horizon excellent in
of ventral valve. *Strophomena*
in planum also occurs
here. From 23 ft below
the base of the layer above
Strophomena is the
chief fossil however.

Strophomena heads excellent.
35 feet below top of *H. inscripta*

Strophomena subconcolorata
rare, but seen as far down
as top of division where they were
81 ft below top of *H. inscripta*
bed. Whole that suggests *Stropho-*
mound and the great thickness
of the *Strophomena* is that
it is a separate bed. Collected
by zone 0-5 ft above this level
= 81-76 ft below *H. inscripta*

5 of *Rhynchonella dentatissima*
found just above lower than
they lay out over also *Leptaena*
reticulata is present in
possibly identical with the
Plan found at same level in
the 3rd zone from 2 chert
to base level of *Strophomena*
about 2 mi, 1 mi E of
Lansdowne.

The dense blue limestone con-
tains very few fossils. The
largest specimens large enough
to be undoubted by us occur
16 1/2 ft below top of massive blue
massive limestone. *Rhynchonella*
dentatissima appeared to
occur (rare) near lower part
this part of section (147 ft down)

The *Strophomena* limestone was all
1/2 ft below down.

These layers of *Strophomena* appear to
be *Strophomena* down from
15 ft above *Strophomena* level.

Section 25 S of Arvington li.
4 ft Belfort layers? Clinton above
24 1/2 ft greenish white clay.

Upper Richmond

15 ft sandy limestone occasional clay

27 ft sandy limestone common in sandy
Dymetasma capax, Septaria
D. ortho subquadrata not rare.

Middle 3 1/2 ft sandy rock and clay Din. subquadrata

Lower 1 1/2 ft sandy limestone { Plethorthis
Septaria

13 ft clay

{ Trematolites

{ Amphigenia, G. longicauda

{ Struth. common in a short
distance above and below this.

11 ft fine cherty Hebertella

5 ft red iron bed.

8 ft rubble clay with Hebertella at base

2 1/2 ft Hebertella rubble

1/2 ft Hebertella blue l. with P. longicauda

11 ft Hebertella + P. longicauda clay rubble

10 ft rubble cherty clay rubble
but fossils scarce.

1/2 ft heavy dense blue l.

5 ft sandy clay.

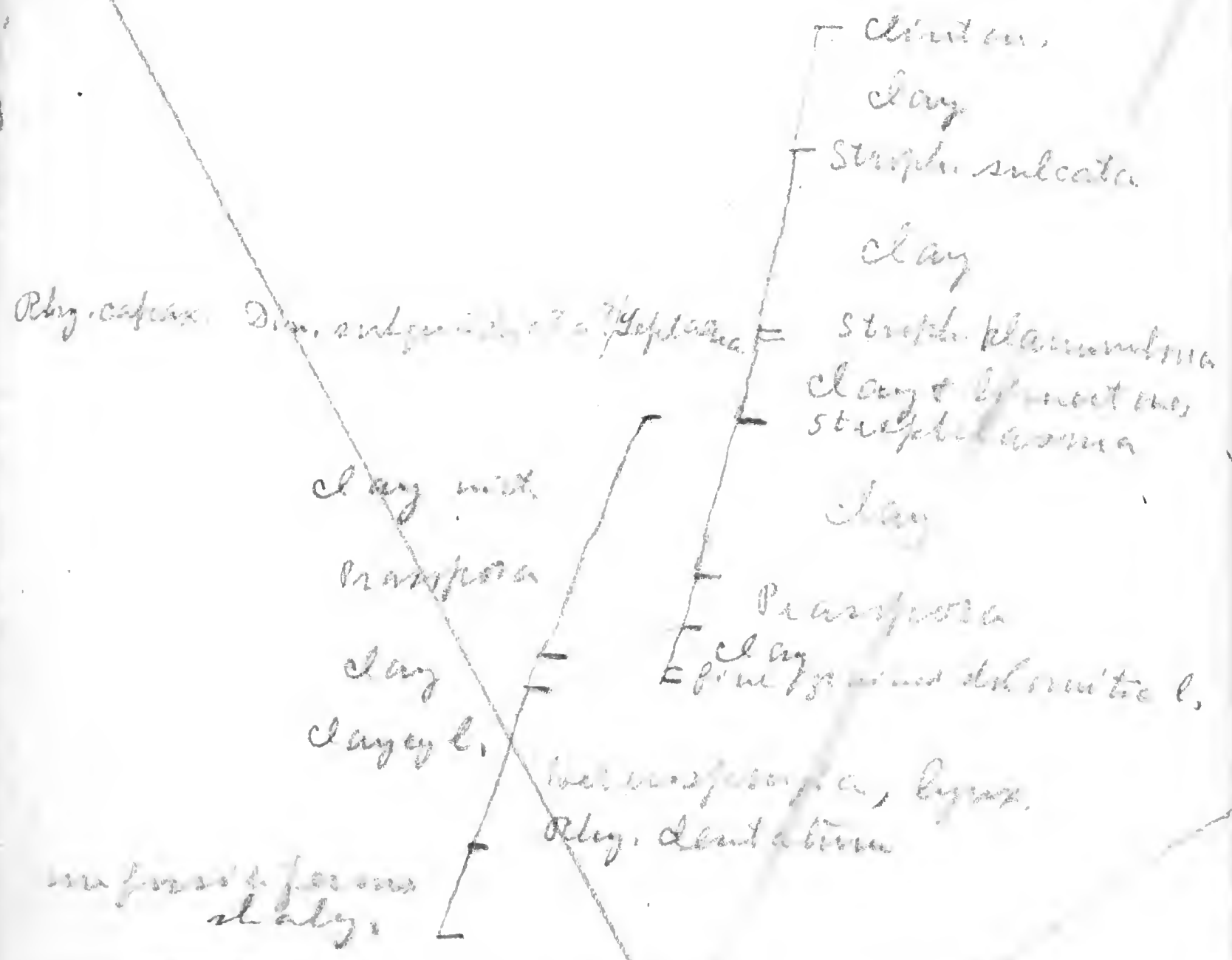
10 ft rubble

limestone thin layers 2 or 3 layers
grasses the layers just above
the clay rocks for miles, the
first gray beds in W. of ...

cherty Clinton base 50 ft below top of ...

On a former trip. Septaria
dum briddalis appears to have
been collected in the lowest
limestone of this section. The
base of this section does not
appear to agree well with
the base of the section east
of ... but the upper
and middle Richmond
& upper part of the ...
Richmond and all right.

Dec. 24.



- Record 24
- 60° White clay
 - 3° Thin l. = rubble
 - 5 1/2° Thin brown l.
 - 5 1/2° White clay
 - 1 1/2° { Strongly plectambonitic, some red purple
Wavy. One stroph. fossil
 - 2" Limestone large crinoid stems
 - 1 1/2° Clay
 - 6"-15" Strongly plectambonitic
 - 3° Chiefly clay
 - 9° 3" Limestone

- 60 ft to top of Shorty Devonian.
- 3 ft thin l. with more clay
- 6 1/2 ft thin l. interbedded with clay
- 5 1/2 ft clay
- 4 in. wavy limestone
- 4 in clay.
- 1 ft limestone, shaly, plectambonitic,
- 2 1/2 ft clay, leads,
- 9 in very wavy limestone, large crinoid
- 2 ft 3 in clay
- 1 ft 2 in. irregular limestone
- 10 in massive
- 6 in clay
- 10 ft massive Clinton

1	9
2	6
4	9
1 1/2	3
7 3/4	

1/8 - 1/4 mi E of Howards Hill

cherty limestone

15 in Belfort bed

24 ft greenish clay

27 1/2 ft sandy clay l. in sandy limestone

5 1/2 ft massive sandy limestone

Strophomena

Strophomena which?

Strophomena planumbona

Hebertella sinuata

12 1/2 ft not exposed well probably sandy clay

17 ft blue clay rock cracking

in places, well exposed

5 1/2 ft sandy clay with *Strophomena*

note very common

Strophomena is probably abundant in

6 1/2 feet sandy clay. The absence

of *Hebertella* is

accidental here and in 2 layers below

3 ft blue limestone with *Strophomena*

Strophomena

4 1/2 ft blue clay with much broken

up. *Strophomena* common

8 in blue limestone

12 ft fine rubble limestone

compacted, a lot of *Strophomena*

remains same as last

of *Strophomena*

Hebertella, *Plectambonites*

In the lower part *Lynx* is found, 18 ft. dark blue clay rock nearly unexposed

30 ft typical *Lynx* beds

24 ft brown to black. All towards

with the lower 12 ft of this

part are seen to be nearly

with out fossils (*Hebertella*

sinuata) and the remainder

contains *Lynx*

Paris N of town

River level
Plectambonites *sericea* (Howards Hill)
Dalmanella (Howards Hill)
Syngraptus
From River almost up to RR

Orthis *lanceolata*
Strophomena *planumbona*
Strophomena *planumbona*?
At RR + above

Manzanillo
 L.

9 1/2 ft clay + some
 5 in
 9 ft
 6 in
 [3 1/2 ft clay fossils collected to 31-2
 2 ft chiefly massive
 4 in
 3 1/2 ft clay
 2 1/2 ft chiefly massive l.
 3 ft clay, Str.
 4 in
 4 ft
 [12 ft

AF = 0-12 ft BF = 27-8 to 31-2
 CF = 41-1 to 50-7 DF = 50-7 to 56-1
 EF = 70-4 to 73-6 Belm. pl. = 96 to 116 FF
 GF = 116 to 134-6 HF = 185 to 199
 IF = 201-213 1/2

(83)

main pl. zone

When

 16 1/2

 37 ft to base of beds with Stroph.

 5 1/2 ft
 EF 3 ft

 3 1/2 ft
 DF 5 1/2 ft

Five exposures at 3221 Sta
to the east of Monticello, Utah

- 43) 3 1/4 ft ...
- 54) 1 1/2 ft ... fragments with ...
- 60) 6 ft middle ...
- 61) 6 1/2 ft ...
- 62) 4 ft ...
- 63) 2 1/2 ft ...
- 64) 3 1/2 ft ...
- 65) 5 1/2 ft ...
- 66) 2 ft ...
- 67) 2 ft ...
- 68) 2 ft ...

- 2 1/2 ft ...
- 23 1/2 ft ...
- 40 ft ...
- 8 ft ...

- S of ...
- M ...
- I ...
- 45 ft ...
- 3 ft ...

S of 2114 Washington
Layton

350 Top of lower section fossils
collected.

11 ft section down in Gajolce-
nata subumboidalis. fossils
collected at Gajolce-
nata (various).

= 40 ft Middle

21 ft Middle

22 ft down to middle of Streptelasma

4 mi E of Bardonia in 87
Fred.
...

6 ft
2 ft white clay with few
7 ft
clay with

6 ft
6 ft clay, sandy,
... ..

5 1/2 ft
... ..
... ..

4 ft
... ..

4 1/2 ft
... ..
at top
... ..

1 ft
... ..

... ..
... ..
... ..

2 1/2 ft
part of white rubble.

47

20 in. thin, one lb. with *Stromatolites*
 shells 25 inches below top, small
 holes white clayey stuff with
Dactylopora *lenticularis* *undulata*
 but lower, believed to be in situ
 1st clay with fossils
 7) 15 ...
 ...

4) 1st red fine clay rock and
 clay shale with
 4 ft brown with *Stromatolites*
 and *Stromatolites* *lenticularis*
 All the rest is sandy & clayey

66 ft below Coral bed
 6 ft sandy clay shale with large
 fossils
 3 ft ...
 4 1/2 ft ... clay rock hard
 with fossils
 90 ft ...
 35 ft ...
 No attempts to locate highest
 layer.

Chemistry of Pottery
 Simon & Shaw
 Scott, Greenwood & Co.
 19 Ludgate Hill, E.C.
 London. 1900.
 17 sh. 6 d.

his em't.
 glaze - vitrifiable compound
 transparent for painted
 translucent for enamel

Gold color Delft ware, 17th Cent
 frit - Litharge 75
 sand 25
 ground fine, dry,
 pulverize with silicon nitride
 heat in crucible to green glass,
 open with beads
 apply to well heated ware
 in muffle cause glaze
 to flow and let cool
 avoid vapors of burning
 vegetables.

41
 1900
 4

Pottery

Hand book of Practical Pottery
for Art Teachers & Students,
Chapman and Hall, London,
1903. 2 vol. 5 sh. each.

Green to yellow with, light pink India ink
Decorations.

Underglaze colors,
Camel's hair brush
fat oil of turpentine etc.

Hardening on,
Red heat to burn off the vit.

Glazing,
dip or spray on.
dry glaze in wooden tub, pour
in warm water, mix time pass
the sieve 200 mesh, pour off
mud water, keep in tub lined.

Glaze thickness of milk. Stir
often while dipping. Dry.
Remove glaze from places
where supports are to be
placed. = acid glaze.

Steam escapes, cover for
2 hrs = hard kiln for red glaze
1 hr = porcelain or enamel colors
Cool in 1 hour.

Glaze	flint 100	ground flint 265
Faint	china clay 45	silica 20
	Powder white 55	Powder white 14
	borax 78	pot me 80
	soda 20	white lead 70

Raw glaze.

White lead 160
Arsenic 32
pot me 50
flint 52

10. 2358.2 & a Barber
709. T 828, Priggs,
Harpers, 1881 May.

Miss McGoughlin.

Rockwood 1880 first kiln
Underglaze color, get as near
white porcelain as possible with-
out complete

red clay Buena Vista, O
yellow Hanging Brook, C
cream white Northborough, T
New only underglaze used.

Printing, printing on
linen tissue paper.
overglaze rubbed with soft flannel,
after firing, polished off.
underglaze = print washed off.

Majolica = color mixed with
the glaze.

Antenna retrorsa at Amherst
in banks of Straight creek

Along Straight creek in front
of Miss Kate Berry, 1/2 mi.
S. of Amherst

Leptena subvittalis in
creek bed.

Episoma Fordi Berry Leptena
rhomboidalis, just above
Stenonema pennsylvanica.

Episoma Adamsi Berry, Leptena
rhomboidalis

5 ft of Stenonema concolor
sit 30 ft above level of creek
at Amherst banks. (Lentils of 3 ft
long in creek bed)
by other straight beds.

5 ft of Leptena subvittalis
above creek. Stenonema
concolor found in 1/2 ft above
top = 25 ft above

6 ft up to top of concoloris,
12 ft up to top of bed down to
stony way bridge

7 1/2 ft

+ top of Leptena subvittalis

D. J. 1881

the largest 1/2 inch wide,
with flat flange top

7 ft about - articulated, mostly
bedded in main body.

5 1/2 ft coarse sandy (increased)
7 1/2 ft mostly clay with bedded

4 1/2 ft P. resurgens abundant

1 1/2 ft Stenonema (small)
less common than

3 ft 9 in Leptena subvittalis
- wave marked layer

Ohio River and Columbus R.R.

PM	PM	PM	AM	PM	PM	
5.30	12.55	6.50	River	9.45	4.05	8.30
6.15	1.40	7.25	Beet	9.00	3.20	7.45
6.50	2.15	8.10	Sandia	8.20	2.25	7.10

— 25 1/2
— 10 ft.
— 26

N. of Blanchet

3/4 mi N. of Blanchet. *Platystrophia* ¹⁵/₄₃
small. *Dal. multisepta*. *crassa* *gonioides*.
1 1/4 mi. N. of Blanchet $\frac{30}{42} - \frac{25}{42}$

Two mi N. of Blanchet. $\frac{0}{42}$

Three mi. N. of Blanchet. $\frac{0}{41}$
Strophomena halli?
D. multisepta.

1 mi. N. of Warsaw, Ky, Russell Co.

35 ft below track, at well location

AF = *Leptaena rhomboidalis* zone.
11 ft below the 3 ft bed forming
top of *laticosta* zone at
S. of Mt. Washington, Warren

BF = 3 ft = top of *Platy. laticosta*
bed at
S. of Mt Washington, Ky.
Base of Lower Richmond

AO = 0-5 ft below *Orthorhynchula*
beds. 1 mi. N. of Point
Lick, Ky. Middle Fairmount

BO = *Orthorhynchula* bed.
1 mi. N. of Point Lick, Ky.
Middle Fairmount

CO = Chief *Stroph. mayevillensis*
horizon 1 mi N. of Point Lick, Ky.
Base of Fairmount

AQC Crittenden Sherman Dry
Ridge, Ky. Bellevue.
Bellevue. *Molista* beds.

Upper part of Fairmount.
Molista is probably not in upper part
of Fairmount in Fairmount section
and is less common in Middle O.

AW. = *Rhynchotrema dentatum*
zone. E of Wyoming, Ky.
Warden

BW. = *Leptaena rhomboidalis*
zone. E of Rectorville,
Lewis Co. Ky. Warden

AR = 0-14 ft below *Streptelasma*
SW of Sunset Ky. = SW of
Hillsboro, Ky. ~~Warden?~~
Prasopora layer. ~~Warden?~~
mud

BR = *Prasopora leopitidis* zone
at Howard's Mill.

4 Loc. — 1/2 mi S of Rocky bar,
in bottom of stream 60 ft below
top of *Arthis boualis* & *Rhynchotrema*.
170 ft below layer
with clay nodules in crinoidal
limestone.

3a Loc. East of Rocky bar along road
up hill among loose rocks along
roadside, probably from upper
20 ft of the Trenton, associated
with *Stroph. likeplanum compressa*,
Platystrophia small, *Arthis*
boualis.

3 Loc. - Rocky Bar, Ky. 99
20 ft below top of Trenton.
W gully east of store.

1700 g. inches =

Base of Utica east of Hutton =
57 1/2 mi W of Lexington,
11 mi. S of Benson. 3/4 mi. E of
Hutton.

20 ft above base of Utica E of
Hutton.

Stroph. halli zone. W of Hutton,
= 90-100 ft above base of
Utica, not corrected,
Middle Utica

Top of Middle Utica. E of J.F.
Lea. W of Hutton. 137 ft
above base of Utica, not
corrected.

Base of Mt. Top. W of Hutton, Ky.
just above lowest *Stroph.*
mayeri zone. 1 mi. E of
Consolation, Ky.

Base of Faden cr. W of Hutton,
above soft clay bed, above
Stroph. enumer.

Falmouth

Base of Utica. 115 ft above
bridge N. of town.

10 ft below base of Utica =
a short distance below
top of Trenton limestone
105 ft above bridge, at
strong turn of road.

45-55 ft below the Utica
Falmouth Ky, = 60 to 70 ft
above bridge, just below
heavy limestone.

38-45 ft above River = above
railroad N. of bridge,
Falmouth.



Madison
Trenton

Waynesville

Seneca

Eden

- * Salem (Madison)
- White water
- Liberty
- Waynesville
- * Amherst
- Fort Antwerp
- Coryville
- Bellvue
- Seneca
- West Hill
- Eden
- Madison

Rose Run.

- 8 ft soft clay,
- 4 in. limestone
- 4-6 in. blue hydrated
- 3 ft. red shale.

- Planorbis expansa*
- Cyrtopora magnifica*
- Lia Clemens* *obscuro*?
- Lepidoceras rhomboidalis*
- Cyclonema* *sp.*
- Bellerophon* *sp.*
- All other fossils in the field

Black shale. Dev.

- 8" light brown clay rock, shaly.
- 4" more solid, worn markings.
- 10 3" light brown rock poorly exposed.
- 10 light brown rock, cherty.
- 10 Same, cherty, few fossils.
- 20 5" Same, casts of corals, cherty.
- 2" cherty, corals plenty.
- 10 1" light brown limonite, cherty, corals.
- 1" cherty, corals.
- 10 10" light brown l. cherty, corals.
- 10 8" light brown l. fossils few.
- 2" Dark blue sandy fish layer.
- (10 8" = Devonian l. section)
- (10" = maximum thickness fish layer)
- 23" clay same as part 4
- (35" clay not measured)

E of William Johnson, E of L 44

- 5 ft limestone clay.
- 7 ft blue clay, thin rock.
- 4 in light brown limestone.
- 8 in clay
- 1 ft heavy, massive limestone large in nodules
beaks in lower part.
- 5 in limestone large round beaks and good
most *Trilobella*
- 7 in clay
- 4 in limestone bed.
- 7 in clay
- 1 ft fossiliferous limestone

at Williams Johnson L44
 Base of Clinton in. Very clearly

High point station NE
 of station about 3/4 mi
 Cl. of upper part
 P. of Clinton to top of Red
 Bank

Two points of the Red Bank
 include 35 mi of Red
 Bank

Horizontal in the Red Bank
 in detail

55 ft shaly limestone
 5 ft clay under limestone
 1 ft limestone with fossils
 common at top of limestone
 layer of 10 ft or more
 shaly limestone

5 ft limestone with fossils
 common at top of limestone
 layer of 10 ft or more
 shaly limestone
 shaly limestone

Williams Johnson

2 ft clay shale, somewhat
 + mottled few
 2 ft very fine grained blue limestone
 dense, in several
 layers. No fossils
 6 ft shaly clay with fossils
 fossils of 2000 ft or more
 long
 (at least 10 ft of top of
 this shaly rock is fossiliferous)
 2 ft limestone with fossils
 layers

2 ft limestone with fossils

at bridge north of Red Bank
 limestone with fossils
 1 ft thick
 5 ft limestone with fossils
 5 ft limestone with fossils

about 1/2 mi N of Red Bank
 Strophomena willensis is
 abundant. Tom Anderson
 2 mi N of Red Bank, just N
 of bridge, Mt Hope with
 1-3 mi limestone with abundant
 Strophomena willensis

Handwritten notes, possibly a date and name.

[ata] Ed. Muller 1877

Cyphus = crassa
Wichmannia = fossicollis
Mesochorus [unclear] testudinaris
mesochorus, sign of a [unclear] cella (?)

2nd ed. p. 296

Cottus circumscriptus,
n. sp. Hand. Proc. Linn.
Cincinnati, Ohio.
Proposed instead of
Cottus eximius [unclear] 1845
Ann. Jour. Sci. and Art.
[unclear] all
specimens of [unclear] associated
with other minute [unclear]
in [unclear] street [unclear]. "

Fig 2. I am [unclear] section
[unclear] [unclear]. In this
specimen the [unclear] of the [unclear]
have been filled with [unclear]
concrete [unclear] and the [unclear]
has been [unclear] [unclear].

Wichmannia [unclear] [unclear] [unclear]
Wichmannia [unclear] [unclear]
Cottus circumscriptus [unclear]

Actinorthonidae.
Actinorthon
Catantopidae
Stylodidae

Fulcrina
Fulcrina [unclear] [unclear] var. [unclear]
[unclear]

Paratropis
Bassus [unclear] [unclear] [unclear] [unclear]

Stenomacrus
Stenomacrus
Stenomacrus
Paratropis
Syrphid
Idiosoma
Idiosoma
Stenocratus
Stenocratus
Stenocratus

L. [unclear] [unclear] p. 83,
from the [unclear]
group of [unclear].

Fig 1. (photo) *L. [unclear] [unclear]*
[unclear] [unclear] [unclear]
enlarged to [unclear] [unclear]
[unclear] group, [unclear]
[unclear] [unclear] [unclear]
[unclear] [unclear] [unclear] [unclear]

from top in 1 in. - limestone
 4 ft 1 in. Siliceous bed with *Lophoceras* 4 in.
 R 5 ft 6 in. clay with little *Lophoceras*
 limestone
Helicotoma in 1 in. - limestone
 bed with wave marked
 limestone top at top and
 several *Lophoceras* in layers
 below.
 Wave marked layer at top.

- Salicaria*
- Str. mutans*, *mutans* common
- neglecta*
- neglecta quadrata*
- neglecta vetusta*
- vetusta - Clavus villosus*
- vetusta*
- Lophoceras rhomboidalis*
- Rhynchotremis capax*
- dentatum*
- Streptelasma*
- Lobelia*
- Tetradium*

R. clay with few *Lophoceras* and
limaceras with *Rhynchotremis*
 2 in. clay with *Urosalpinx*

D. *neglecta* subangular
 2 ft 4 in. chiefly clay + clay l.
 8 in. *Lophoceras* in several
 layers of l.
 10 in. chiefly clay
 8 in. *Streptelasma* - sub-
 ventral common in several
 layers of l. pl.
 60 3 in. l. + clay, interbedded, plane
 l. m.
 4 in. *Helicot* in 2 in. l. at
 4 in. *Lophoceras* in 2 in. l. with
 large *Urosalpinx* fossils

(See next page)

4 in. l. with *Streptelasma* B
 10 4 in. clay
 10 in. several l. with *neglecta* and
 3 in. to top of limestone with *Streptelasma* +
 4 in. to top of layer full of *Streptelasma*
 20 7 in. to top of layer forming
 falls.
 3 to 8 layers
 5 in. *Rhynchotremis* in limestone
 5 in. clay chiefly
 5 in. solid limestone, *Streptelasma*
 2 in. *Urosalpinx*

~~Retusa Salpica in some
layers above the interbedded layers
reversal bed.~~

~~Lower layers,
top of Robert's description~~

~~Interval 12 ft.~~

~~Layer flat & thin~~

~~Interval 2 in Robert's description~~

~~Interval 2 ft 3 in~~

~~Disconformity layer below last~~

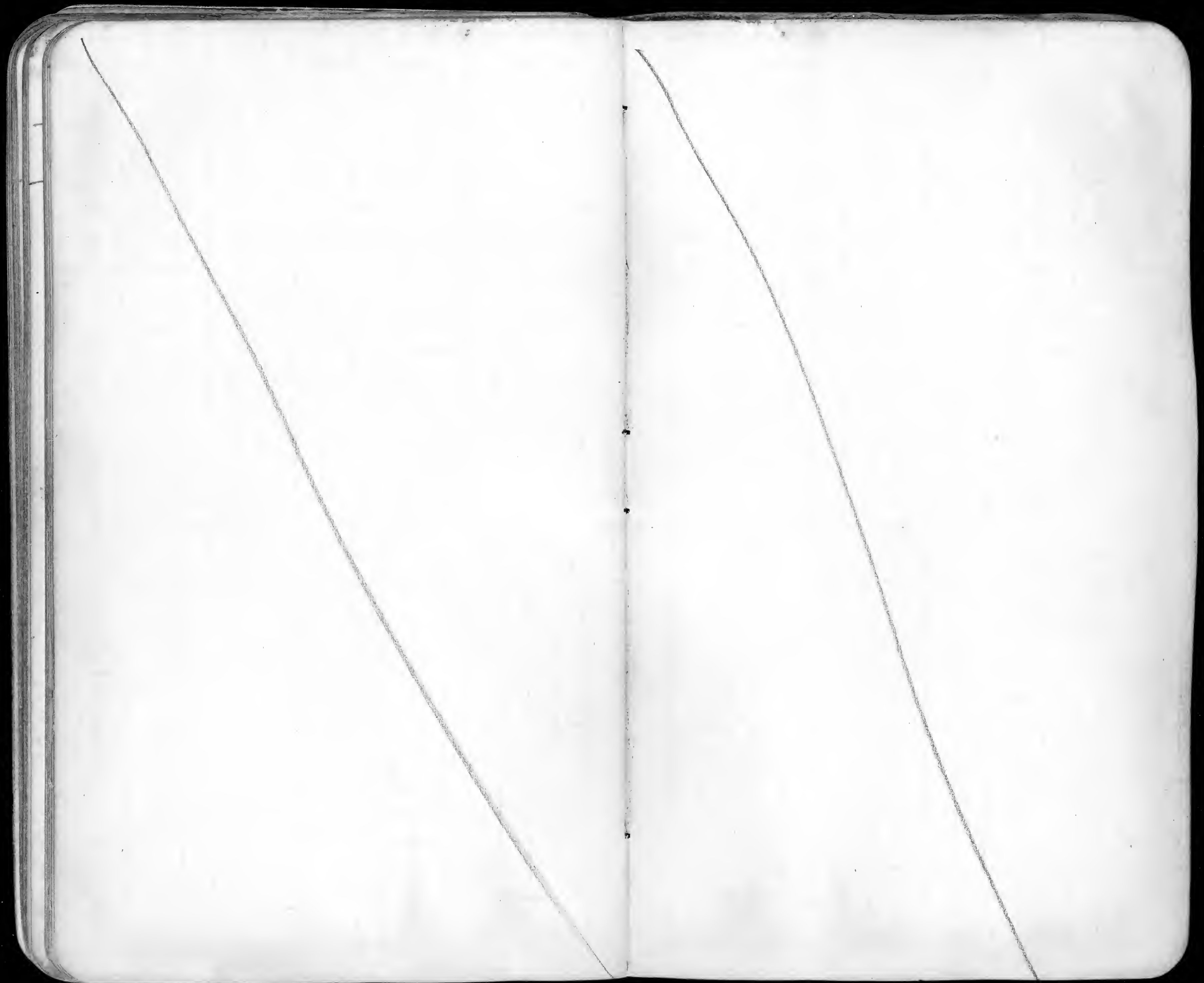
~~Interval 3 ft~~

~~to top of bed - total 1 ft~~

~~clay with 2 in ^{at top} of bed~~

B. above this

Salpica comes in in some
places within 3 ft of top
bed above the bed and
below the bed
in 3 ft below lower in-
terbedded.



Staph. curvatus deformis. Rowley,
near Big Creek P.O., Big Creek.
Calif.

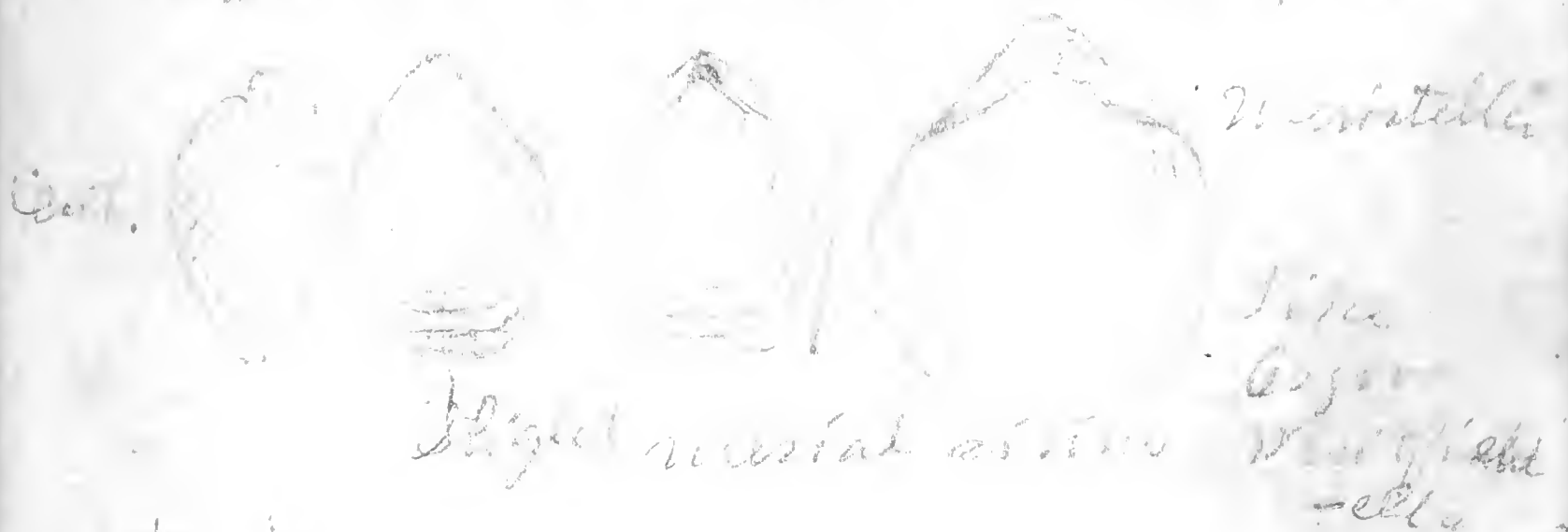
Staph. quinquepartitus. Rowley,
near Big Creek P.O.,
G. R. Greene
127 W. Market St.

Dark grey limest. Thib. Alex. Co. Ill.
 Dacrydium Danae M & W
 Compare with Dacrydium
 specimen at Genoa Ill.
 at ...?
 Tall spire



Perianth ...
 ...?
 ...
 ...

Largest ... Billingsiana
 length 63 breadth 50 diameter 34



Height ...
 ...
 ...

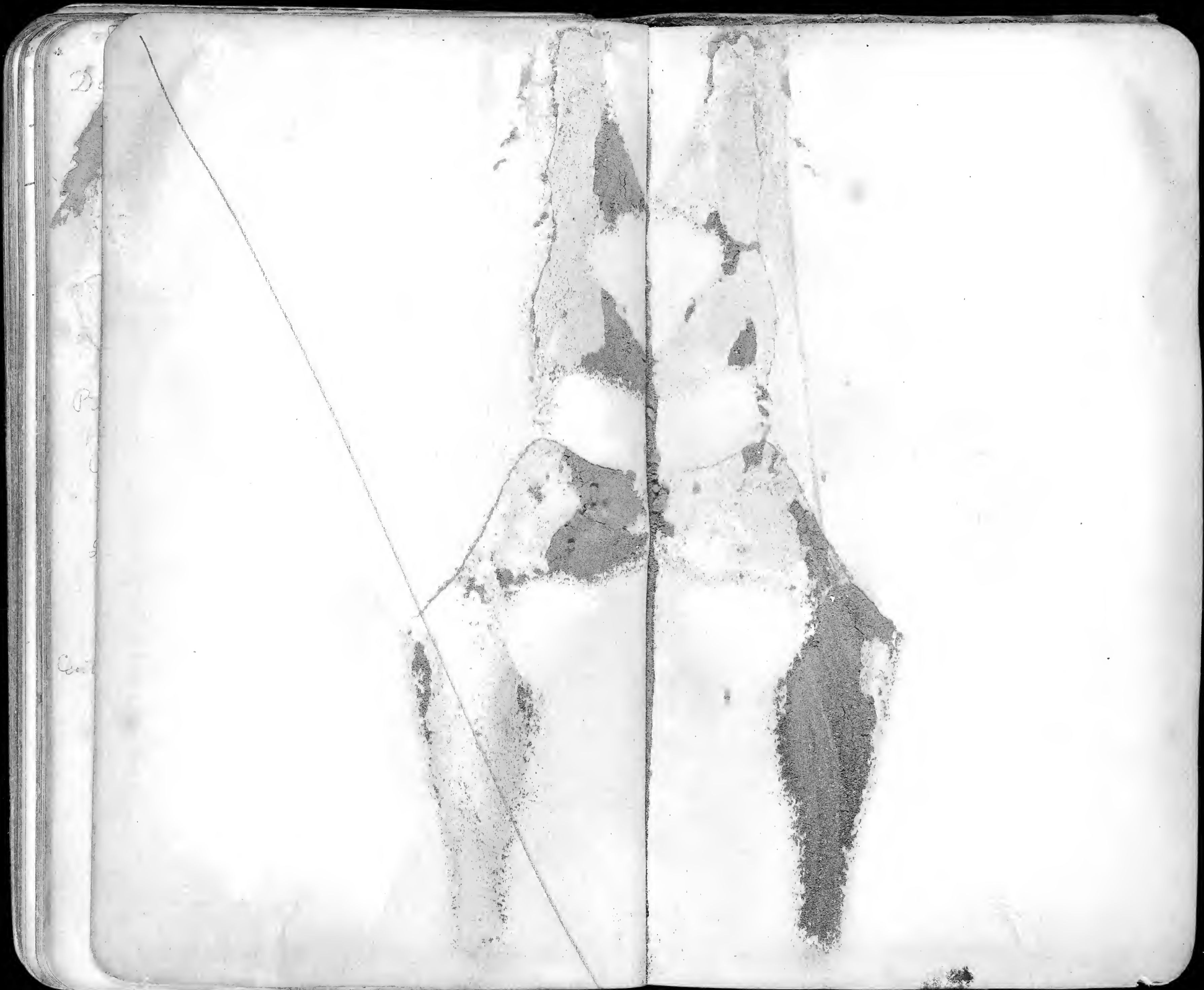
+ +
 + +

~~... 37 L
 ... 41 L
 ... 46 L
 ... 49
 ... 54~~

C. H. Graves
 Olympia
 W. Va.

none

St. George Hotel
 Winchester, W. Va.



D

P

C

Prof. Porter. Kentucky

