

Trip of 1907

doc. 0093

Delaware, Maryland, Virginia  
and Tennessee.

Snowm. ft 400.

13 2 22 23

13 2 20

13-907 14 15

Massachusetts 11, 12

North Mountain 14

Henry Room 15

Lancaster 16

Great Cascapin 17

D.B.B. 18 20

Nizzen 19 24

Note Book of  
Charles Schuchert  
Yale University

New Haven, Connecticut.

1907.

next page

2932

F.V.D.

2933

If found by any one please return to above  
address.

Trip in Meagric of Atlantic border  
and Potomac - Luray section, and  
Tenn. with Reids.

		place shipped from coll. dates
	2932	July 4 from Vincennes, Jul 1 - Jul 3 NJ
	2933	July 16 from + 20.0 ft water, Jul 14 - Jul 15 Md
	2938	Aug 7 from Compton Ave, Md July 7 - 25
	2939	Aug 3 from Louisville, Ky Jul 26 - Jul 31
	2941	Aug. 22 from Cleveland, OH Aug. 12 - Aug. 13
	2942	Aug. 22 from Niagara Falls, NY + Ontario Aug 15 - Aug 17
	2944	Aug 26 from Seattle, - Aug 12 - 13
	2947	Sep. 3 from Perigrille, TN Aug 9-9
	2948	Sep. 9 from Nashville, TN Aug 1 - Aug 3
	2949	Sep. 11 from Camden, TN Aug 4 - 7

Phil Schuchert 1202 Linden Ave. Canton Ohio.  
Miss S. Stutiz 1055 Academy Ave.  
A. F. Schuchert 119 E. Leavenworth Cin. O.  
T. A. Postwick.  
R. J. Luee.  
M. Corcoran, 59 Hall. New Haven, Conn.  
E. A. Callahan 472 Orange. " "  
T. E. Savage, Urbana, Ill.  
P. J. Basler C. Q. Mich.  
P. H. Gordon Frank Hartley.  
L. F. Noble 192 Seneca St. Auburn N.Y.

(Mail to

July 1-2 Vincentown, S. J.  
Up to July 8 Harper's Ferry, W. Va.  
Up to July 15 Martinsburg " "  
Up to July 22 care of P. H. Gordon.  
Up to July 27 Nashville Tenn.  
Up to Aug 3 Camden Tenn.  
Up to Aug 7 Perryville, Tenn.  
After this care C. H. Soulard, Norman Okl.

Yellow Correlation Table. Am. Rep. N. J. 1904.

Remarks.

Bottom	Top	Corr 1868.	Class 1892-1894	Bell 1905
Green sand. Fossils.	25'	Red sand green mott.	Manganiferous mud	D. Manganiferous mud
Blauconite mott. sand	41'	Yellow sand	Yellow sand	Long Island
Variegated sand. Blue layer in halocline. Argonite beds above it. Glaucostroma, some small horizons	41'-	Yellow bluish sand <del>blue grey</del> clayey mott.	Vincentown limestone	C. Vincentown
But due to oxidized plumbonickite. Some fossils but poor.	100'	Red sand	Red sand yellow mott.	Tinton
green sand and sand. In some fossils orange	30'-50'	Blue sand	Red sand yellow mott.	Red sand
Fossils rather rare. Not yet worked out.	275 to 450	Clay shells	Marl limestone ta-	A. Marl Columbus
Bottom plastic clay. Sand Upper Cretaceous.	34' - 450'	Clay shells	Clay shells	Bromley The Chantilly Clay-mud

July first. Barnell, Reeds and Prole at Philadelphia. First train on Long Island road to Vincentown. Stay there 3 days.  
Have the following papers.

"Upper Cut. Form. of N.J., Delaware, & Ind"  
by Clark.

"A Preliminary Rep. of the Cut. & Tert. Form.  
of N.J." by Clark.

The fossiliferous "Lava Mare" may  
I think be seen about Milton and S. E. of Mount Holly. Ask about this at Vin-  
centown. If so take this drive from  
Vincentown.

See my Cecil Court Map  
for roads and reliefs.

[Look for unconformity. Fault occurs —  
between these formations.]

# Perryville, Ind.

Walk along P. R. R. track from Perryville to Charleston then across country to B. & O. R. R. and north to Perryville. Distance 14 miles.

See Baker "The Stratigraphy of the Potomac Group in Ind." Clark - Sittins.

## Section 1 1/8 miles E. of Principio Creek (P.R.R.).

	<u>Recent</u> .	Loam with gravel	5'
	<u>Paritan</u> .	Fine white sand.	11'
		Brown loamy sand, becoming gravel and coarse towards base	12'
Lava			
Sub- tacca	<u>Patapsco</u> .	With clay, somewhat iron stained and variegated; at times graduating over into micaceous sands; changing to sand, coarse, conglomerate towards base -	10-20'
		Dense variegated clays.	10.
		Jurassic Paturent under ground.	

## Foggs Hill on B. & O. R.R.

<u>Patapsco</u> .	Buff sands, water rising at base	25
	Dense variegated clays	10-30.
	In places with considerable pebbles.	
	The upper zone of a mile, pebbles.	

See specimen of bed of Masanu then  
Int.

## Baltimore Md.

Sotl School House, Bldg. See 1.482.  
Federal Hill. See 1.484.

Sharpsburg. One day to see the  
immediate region. Then to New  
Market across Maryland Cut to  
Luray. Engine here about driving  
across the Seven Fountains, Fork  
Cross Roads to Woodstock. Then to  
Martinsburg.

North Mountain. Stop at Martinsburg.

Great Cæcapon. Hotel here.

A long section from the Medina to Ham-  
ilton.

Engine about cutting between here and Cum-  
berland.

See Clark's Physical Features of Ind.  
Schuchert's Lower Devonic and Ontario  
formations of Maryland.

This is written under the date  
2 to 74 days before we left for Europe

Hancock. Also see the rock on the river front from the other side.

Cumberland. Look after Hartley's new localities. Then one day

Cash Valley across to Devil's Back Bone.

Pinto section. One day

Twenty-first Bridge, Kegsu quarries and Judge Allises. One day.

Then to Nashville, Tenn.



# Markville Tenn.

Reservoir Hill and hill just N. E.

Here Orthynchula linnei and large  
Leperditia.

A little F. to the N. are probably less than 20'  
down are other quarries with an abundance  
of Tetradium and Chunusaria.

Hagelis Hill for an extensive section  
in Orthynchula and Tetradium horizon.

The section is as follows:-

Upper Bryozoa beds or Rafinesquia zone.

Then 20' down

Orthynchula horizon.

Then 12' down

Tetradium zone.

Then 15' down

Soft shaly limestone.

Then 8' to road at South end.

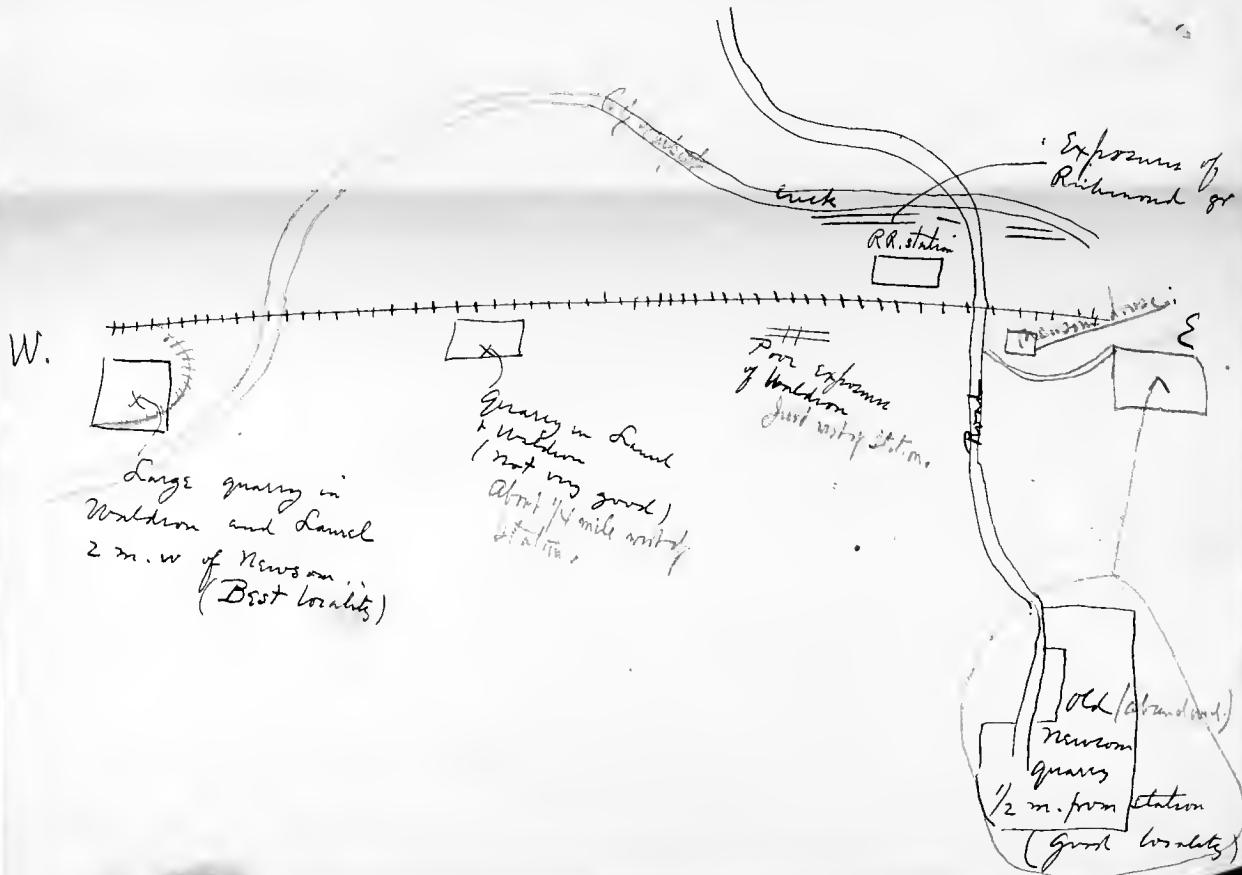
These are the Capitol Hill limestone beds  
of Lafford, the transition beds between the  
Trenton and the Cincinnati beds.

At Paris may also be seen the  
Onondaga above the Silurian or Lugo zone  
= to Louisville. Look here for Nucleoceraspis  
verneilli, Siphonodonta demissa, S. perflava  
Rhipidomella penelope, Nucleoparia concinna.

See Foerste "Silurian and Devonian  
limestones of Western Tennessee."

## Newsom localities.

There is but one house at Newsom and I was never able to get permission to stay over night there. You may have the same experience so I would advise staying at Nashville and going back and forth to Newsom by railroad. The fare is small and the trains arranged conveniently for putting in long days collecting. The sketch below gives the best localities.



## Camden, Tenn.

Best Oriskany locality just on the outskirts of the village. To the west of the village I secound nothing, or little.

The chert is from 12-15 feet thick, overlain by shale 6-7 feet thick. In this the Black Shale. Over the top is a 2 and a monete bank above this loose sand = Hardin ? Oriskany acc. to Foote. He gives the Camden here as 60°.

## Heldenburg near Camden. South.

One locality is near Chaseville on Wolf Creek up Stream from the wagon road going from Chaseville to Holliday. About six exposures in a quarter mile from the road. Thickness about 20-25' Overlain by Camden chert, not exposed only saw broken shert.

Between 4-5 miles N.E. of Holliday, toward Camden along side the road are two fine localities of Heldenburgian, 35' shown. Lowest beds have Micelinia and Favosites. Bryozoan higher up. Phacops from upper portion.

Foote gives this locality as 5 miles south of Big Sandy Station on the Lower Camden road.

## Big Sandy. North of Camden.

By wagon from Camden to Big Sandy and then 6 miles south to Tom Barnes, is a fine <sup>about 10' thick,</sup> dolomitic exposure, with Camden above. Above a recent blue mud deposit. See if one can drive direct to Tom Barnes and then to Big Sandy.

The Camden is well exposed in a small quarry to the west of Big Sandy Station. About 2-1/2 miles. Spirifer and Eatonia common. It is often seen along the road the most western road for six miles south of Big Sandy. Foothills 5 miles S. of Big Sandy Station on the River Camden road may be seen contact between the dolomitic and Camden.

## Pace, Henry County, Tenn.

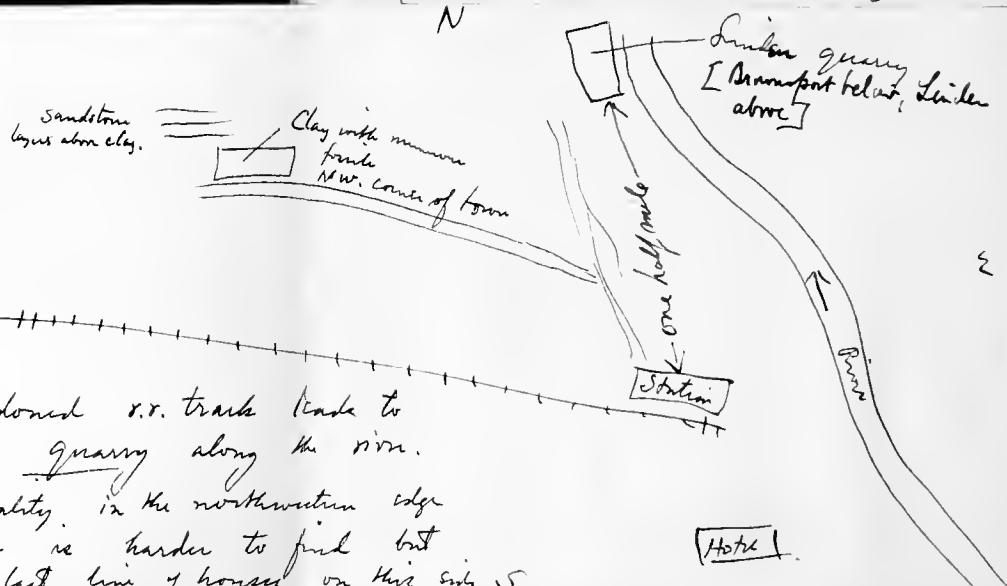
Fourteen miles north of Big Sandy Station (5 miles up from mouth of Big Sandy River) to Safford's Williams Mill. The exposure is on Benton county side, about 30' thick. Lowest layer Atrypha reticularis, higher Anastrophia followed by Orthids, with Orthostrophia (these are in the center of the Orthid beds). Phacops occur from and above the Anastrophia beds. Also Jophrestes. Pace called this locality Swazey's Old Mill.

One locality is under bridge at Pacific road near Lashley's store. See for the boy Art Lashley, Pace, who sold me fossils at \$10 per box cigar.

Another locality at old mill site about one mile above (? south).

Pate said jet team at Big Sandy Station. Lee { at the Williams site Foster says Camden may be seen 50' thick and more.

Perryville. Helderian (Linden),  
on railroad Camden - Lexington - Perryville [the next stop?]



An abandoned r.r. track leads to the Linden quarry along the river.

The clay locality in the northwestern edge of the town is harder to find but go to the last line of houses on this side S and look along the road for li. lenses

Also see railroad cut between Perryville and Parsons for bedded lignite. This 3 miles east of Parsons or  $3\frac{1}{2}$  miles west of Perryville, Tenn.

Fine Camden chert fossils at around Decaturville which is southwest of Perryville.

### Decaturville, or rather Dixon Spring

Poemus collection was made in a radius of 5 miles around Dixon Spring, located on the old Colonel Ballis Dixon farm, 3 miles south of Perryville. This is the "glade" <sup>"mountainous"</sup> hills country. The horizon is the Brownsport (above the Baldem) = to the Louisville. Brownsport Landing is about 5 miles S-E. of Dixon Spring, and 3 miles N. of Vice Landing.

The Brownsport consists of whitish clays and soft limestones usually found in the open "mountain glades." Can easily be seen in the top fly. Dixon hills below are red, ~~that the stages~~. One of these mounds a  $\frac{1}{4}$  mile N. of home of Coal Cutler, on road from Vice to Perryville  $2\frac{1}{2}$  miles n. of Vice. Another  $\frac{1}{2}$  mile farther west.

93' thick lens. Others eastward on road from Dixon Spring to Tenn. River, many more S and S-W of the Spring within a radius of a mile.

Those between Dixon Spring and Perryville are mainly in the Glendale and Dixon zones.

Stratigraphic section here is as follows:-  
Hardin <sup>inception</sup> clay. } = Dixieany Canade 60' at Canade  
Canade clay.  
Linden li. Upper a Pyturn  
Brownspoint 100' upper part of the li.  
on top shale below. Cattail spry in above.  
Dixon clay 30-45' Red clays with Fistulifera  
Legg li 30-45' = Louisville li.  
Haldim.

Pyturn Landing at White Sulphur Springs. Here is a fine thick section of Helder bayan 100' thick. See Fosgate p. 683. If time is at hand go here.

## Perryville.

On the quarry  $\frac{1}{2}$  mile N.E. of the station is found the Brownsport bed or followed by the Linden = New Scotland. It is as follows:-

Linden base has Orthothetes molnarenus, Rhipidomella mata, Striatpora vira.

Lower third of Linden  $10\frac{1}{2}$  feet. Solid crinoidal rock with few fossils.

Middle third  $11\frac{1}{2}$  feet. Richly fossiliferous. Limestone, partly crinoidal with clay beds. At base Siphonodonta heteri, Siphonella punctulifera, O. molnarenus, Dalmatites microcrinus. Very rare Uncinulus schucherti.

Above this fossil zone there is more clay with many small brachiopods.

Upper third, 15 feet. Fossil clay. Exposed in the northwestern corner of the town and is worked by thin layers of li. full of bryozoans, in a bed  $1\frac{1}{2}$  feet thick. Sandy bed above which may be the Hardin sandstone.

Candler fossils about Perryville are loose and from the over one gravels.

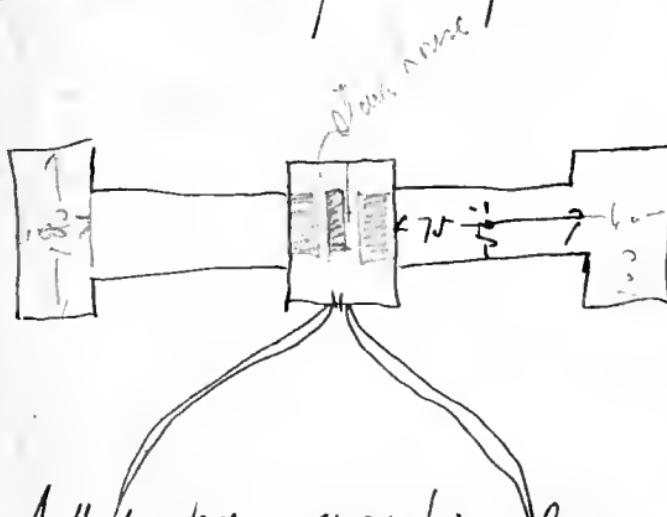


Tuesday June 25-1907.  
Bronx Botanical Garden.

Museum building.

A grey brick building with pillars of sandstone. Approach from each side around a central fountain to central doorway. In this little the museum at Peabody effective. Three stories, 2 above ground & one below. Basement fossil botany, First floor Economic botany, Second floor Systematic Botany.

Windows high above floor double with a transom window or transome. Pier about one-half the width of the window. Floor plan as follows:-



Supporting pillars open piers, alcove case built round them, hollow <sup>open</sup> sides. Floor white marble and stone. Inside color whitewash. Cases oak.

the systematic section but one tier  
rest, each family shown and these are for  
illustration in book or on a. these are on a bed  
of rock-ground paved in oak as follows.

deep fine deposit of sand. Exhibits in front (not as actual)



Top of stone  
Overside rock labels.

## Zoological Garden.

Opposite corner of the lot  
on 15th Street, between 1st and 2nd  
avenues. This is a collection  
of birds by Matthews - living birds, dead  
birds, skins, etc.

All kinds of birds, living and dead,  
but the most interesting  
and valuable are the skins of  
the birds from the islands of the world.  
The bird skins are mounted in  
very attractive frames, and the  
whole collection is very large.

in their belly. In the water which they swallow  
they also use their lips as a vacuum but it is  
here chiefly the tail, fins & dorsal from side  
to side. just as a shark does. From the use of  
the tail that I have noted these boys are  
powerful swimming boys. On the beach the  
people are crawling & prattle, rather than walk  
hastily then they stop.

Princeton June 26-30 - 1907

Arrived here about 11 A.M. on the  
26<sup>th</sup> and had day until noon of  
the 29<sup>th</sup> held a dance every night  
at Lawrenceville in jail. went  
34 men, 18 first and 16 second.  
The work is uninteresting but the  
men and the conditions are the  
same.

Out at Lawrenceville on several  
occasions, the young master of a place who  
called my attention to the horse bones

in the name near Saltus & all.  
Another son is taking forelim. exam  
here for sale.

Philadelphia June 30 - 1907.

1. next nose 6 ft. - 2. -  
2. at 6 ft. -

the male  
the male of 1907.

2932

July 1 - 1932

On the following section a number  
of thin bedded limestone layers  
are found in the soil.

11 Soil about 12" thick

Locally it is colored reddish brown.  
About 3 ft. in thickness

Pliocene

Marine

foraminif.

11 Sandy clay (matrix)

soft. Many fossil shells. Some broken  
beads 1/2 mm. 1/4 in. & less.

Slimy. Hard. - 41" - 6"

Cretaceous

Mesozoic

green shale 11" - 12"

greenish grey, sandy texture.

Locality of fossils.

green shale of upper M. R. Red.

green. Greenish grey.

To begin

with

the

beginning

of

the

beginning

of

the

beginning

15' above bottom

with same

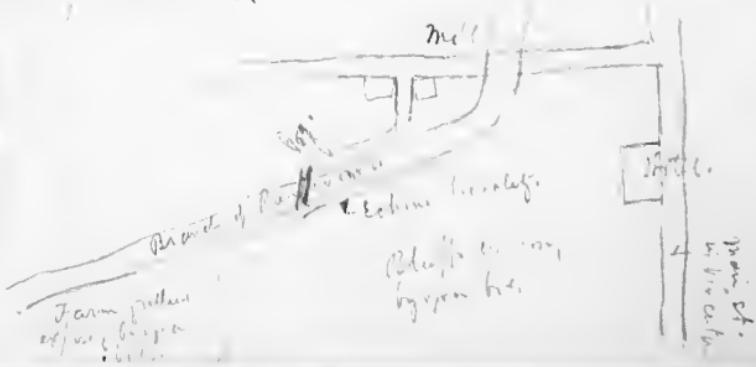
material - can be sold by John C. Dick

Vincentown 2 2 9

Started out only down the stream to ford it  
other occasions. Saw no other people nor places  
than those of yesterday. Walked to Lancaster  
and then to Mt. Cuba in the afternoon  
at 1 P.M. for 1 hr.

The country is a mass of  
plasticine marble that it is hard to move  
anywhere. In the vicinity of the  
stream is a low a little hill, or a small  
knob, and a village. A rock outcrop  
is visible, however.

At the village I visited the stone  
house where I ate my meal and a  
few other houses. Found ten men in  
and some other buildings near  
an about 150 feet of stream  
over which a stream is crossed. The water  
is quite rapid thus:-



Vincentown July 3- 1907

Parallel section N. W. Hill with one small boy  
doc. 93

This July 2 sketch

map of Vincentown

locs. is wrong.

He has Mill & Main  
St. & Hotel all O.K.

with North toward  
top of page. But -  
everything else is

wrong. - see 17533  
+ doc. -----

in large sections  
green sand or  
may be said  
one green south

line may have  
here it must have  
to the west of the  
ridge to Hartfield.  
or is due to the  
Ignotaline structure.  
will be seen  
had cut its really  
begin to end.  
has its start

C. MacClintock  
1907

every morning between 6.00 and 7.00 a.m.  
he has where one point at 11:30. it will cross  
Hill.

Vincentown 162

St.

other  
than  
and

at /  
In

Pleist

shear

fall

comet

→

town

A in

area

↓

over

May

COLL., OR LOC., DESCRI.

MAJOR AREA & MAP

ORGANISMS:

AGE:

Grand Park  
Farm fields  
expanses of land  
Bluff by river

Small

main  
center

Vincentown July 3- 1907

Packed material and shipped me small boy  
via express.

In reading Folsom's work on the New Jersey sediments  
one is impressed with the older sand or green sand or  
fancimite. In fact all the formations may be said  
to be in the grain of this sand. As one goes south  
the beds become more and more coarse.

Barrett thinks the Cretaceous shore line may have  
extended to the Blue Ridge in which case it must have  
also existed in the Great Valley but not to the west of the  
Alleghenies. In Pennsylvania it extends to Shartford.  
His argument of this greater extension is due to the  
way the stratification cuts across the Crystalline structure.  
It could not have done in soil then will be so the  
stratification which this river has cut its valley  
and as there were stripped away it became to cut  
through the ancient rock. Later to say it does not  
connect to the sea.

Left with a 35 min. boat  
a 4.46 car long at 10 min. from Vincentown  
leaving the hotel car which is a 10 min. from the  
Lehigh where we took at 10. 10 min. on the  
hotel.

2933

1. w. or w. - w. to w.  
evening, this P. Today.

At W. coast, 3 me. S.  
on a sand spit on the steep slope  
surface

Jellings (yellowish)  
greenish sandy silt.  
1-4 feet. No, it is a horizon deposit.

Bluish white silt 1 ft. Same as above  
soil, very clean white sand  
with a few very round, small pebbles.  
Irregular blocks, cross-bedded.  
Foliation broken. Not well  
sorted.

The contacts between the yellowish  
and whitish silt may (S. & T.) and looks  
most like a coarse beach sand but is not seen  
marked by layer. After a moderate change there is another  
layer of yellow, followed almost immediately by  
another change, consisting of the latter  
in white angular blocks. The latter in the geline  
flume are rounded, others are angular  
they are on the shore. The white sand is made mostly  
of beach sand.

P.R.A.

In the cut 1/8 miles east of Principio Station  
in three rained out days from a road cut  
of fresh black soil 20 feet we saw soil almost as brown.  
These are clays ~~some~~ <sup>or rather</sup> ~~soil~~ <sup>clay</sup> and distinct off  
but mixed up ~~with~~ <sup>or rather</sup> ~~soil~~ <sup>clay</sup>. Did not see here the  
white clay or in staining gone. barrel has clay  
of the Patagonia from about 25 feet above rail-  
road track. High of some in action from long  
sand <sup>and fine white sand</sup> in the Patagonia. This is the Patagonia limestone  
just the grain also.

In general one finds the wholeness of the sea come  
by for a short time, deposited the white, coarse,  
sharp, angular sand with rounded bottom up to  
rocks, later followed by more or less sand  
which may be deposited by waves.

In some places the white sand is the water  
at is full of shell holes. These are often  
univalve shells which are distinguishable from the  
Pleistocene shells in being almost always  
shells the latter are fossil.

At Charleston we took the train west to  
the N.W. and came on the line of S.C. a little over  
Treas Hill station <sup>See section report</sup>. Here the station  
is seen the sand is still sharp and coarse, the drift  
and the narrow and low at the road to some  
places backed to white sandstone often  
with several hundred yards west of the  
Dunes and sand hills.

After passing the sea shore it comes to  
a red clay plateau <sup>See section report</sup> which is  
sharp and the surface is a mixture of air  
and humus. In the places where horizon  
there will be a sandy streak by which river until  
further along the coast the sand.

other places it will be a smooth clay and in others  
another sandy. In still other places there are considerable  
quartz pebbles not much rolled but yet all the  
corners round. In others it is a glauconitic  
deposit of fine coming from a country of metamorphic  
rocks.

In general the sequence seems to be as follows:-  
Towards the close or at the close of the Mississ. the  
eastern shore of North America was probably a low  
lying land with elevations not exceeding 400 feet and  
without long deeply cut river courses, as the present  
Delaware, Susquehanna etc. The first sea  
descended some and a very shallow sea made its  
appearance and with a band of well washed  
angular sand, with well rounded pebbles, & others  
this shallow sea was silted up so that within  
places more brack water was deposited in the areas,  
these form on rather deltas' or as definitely fluviatile  
deposits of red or variegated clays. This condition  
became general during the Carboniferous and con-  
tinued deposits occur. Now a second shallow  
sea invades in places more persistent than in others  
but nowhere are there any true marine deposits  
laid down. This is the Paradox a Plastic stage  
of the Cretaceous. A third and decided set-

surface sets in lying in an abundance of  
marine life (the first time). This is the Batavus  
in iron bands and the surface con-  
tinues with the Franks with the sea outside.

Today I am with the uncomposites  
discreetly back between the Patuxat and the  
Patapsor and between the latter and the Franks.  
In the Patuxat domain are largely -  
origin. It seems to me that the uncomposites  
are more fitting, in the mean man-  
tinely after it has been shown in which  
relations this is. In fact, the latter much  
earlier horizon than the former.  
Consider the clear relation of the two.

The Patuxat and the uncomposites have  
been so much along the lake bed it is difficult  
to tell what they are. In some of them  
this decomposed material is seen.  
The Patapsor bed is fair and the others  
less well but it was fairly good.  
The shale was very good if also as the  
Patapsor in the cuttings. In fact, on station

Arrived at the hotel at 7:30 and barrel left on Philadelphia on the 8:05. He will pack his material and ship it by express to Monroe.

Harre de Grace, July - 1907

Friday

Packed bag for barrel and left on the 8:48 fm Washington. P. R. R.

All the way saw almost no Potomac deposits until near Baltimore, south of Baltimore for ten miles are seen many fine exposures and most of these are near the city. Baltimore is a good place six miles or so would be another fine place to visit.

Arrived at Washington at 11 A.M. Then visited the U. S. S. S. Navy Pier, visitors and Spencer. Top of the Washington Monument and to Mount Vernon. In the evening called on Mrs. Chesley.

Barkington Saturday July 6-1907.  
Visited the H.S. M. M. O'Farrell and  
Patterson and Steigens. In the afternoon  
visited Great Falls.

The upper broad valley of Great Falls  
is very stain above the Falls. A narrow space  
is shale and an alluvium. The river sand  
etc. here is coarse, and unsorted, dirty  
and of very variable size. This is in great  
contrast to the Patterson sand seen on Thursday

In the evening called at the former, but  
and met O'Farrell.

[2938]

July 7-1907. See lag.

On the 7th at 9 a.m. Mr. and Mrs.  
O'Farrell in a little boat down  
climbed the side of the hill west of the river  
at the head of the valley. The  
current was strong, so they were unable to go  
downstream. They went upstream  
in one of the Plover drifts and a large and  
not broken drift at a point at the angle

Eastern Branch of the

The Beaufort sandstone makes the high mountain ranges while the valleys in between are of Algomaian rocks. These are a much metamorphosed diabase making the bedrock evident and into this has been intruded a granite often very coarse grained. This is the ancient rocks that the material of the Beaufort is composed, a coarse grained gneiss with some limestone sandstone. This series and the Shaver shale are much attenuated.

As the basal layers of the Shaver shale limestone are said to have thin carbonaceous bands, the same along the Beaufort sandstone, the question arises how far do these deposits extend? Is it just another carbon deposit upon the older? If so, this looks like the same thin zones in them. Or the high Shaver limestone could come from the west and some distance from the town has resulted the segregation and separation of the Shaver shale limestone? These are questions of importance in paleontology.

July 8 - Sunday Jaques Ferry.  
Intended to take the Great G. M. train for  
Washington Junction but by a curious mistake  
saw the train go with Goods but Dishes and  
Bevere left. Later Goods showed me his  
material. Contact between the Cenozoic and  
Tertiary he did not see but a short distance  
soil & the material contact he saw on the  
Potomac conglomerate marble.

This conglomerate is made up of irregular  
sized, well rounded limestone cobbles  
bound together by a fine cement. The  
pebbles vary some in size, and some of  
the blocks come as large as a human hand.  
This well cemented zone is followed by one  
in a sandy matrix in which limestone blocks  
are also found but here they are smaller  
or finely and weathered. Farther east  
occurs generally and but also varies a great deal  
a sandy matrix in which a few large  
but well rounded sand well cemented. In the  
latter found fossils from marine shells,  
shale and radiolarian rocks resembling some  
of the James and lower Ohio Rivers.  
The entire material is cemented clay at

hand, as the larger rocks in the conglomerate are nearest the Cambrian and become smaller toward the east.

The dip in the sandstone and dolomite from the car window look as if 20 degrees northward.

W.H. and I walked along the A & O R.R. for about  $2\frac{1}{2}$  miles to see the contact between the Cambrian (Anticosti sandstone) and the Fernandina limestone. While we did not see the contact or the fault line is well marked for on one side is the rough relief of the Anticosti sandstone, only the lower part back of it is the Fernandina shale, while on the other side is seen the clay and soil of the low ground with its undulating surface. The latter is the ground of the Valley and of the Fernandina limestone. Examining all the surfaces along the line of road but saw almost nothing of an organic nature. Nothing determinable.

Not far from the Anticosti sandstone was seen something suggesting crinid stems and the quarry near by the station's which may have been small Citharomas. Still further

and saw nothing to suggest anything.

In some of the stone culverts down on the white limestone this ~~is often~~ <sup>is often</sup> ~~but~~ <sup>but</sup> and a small  
shoal rock and gravel. These certainly are of  
of the Blue Mts. rocks now. In other places  
it is said to be in Western Md. The  
other variation is seen in the  
in Maryland. Later. These limestones look de-  
cidedly like those of the Quarries at Martinsburg.

With the Maryland limestone towards  
which thick bedding abruptly at the fault line  
leaves the Catoctin sandstone - This is  
at once ascertained how far seaward the  
Catoctin extends? Certainly across the fault into  
the limestone the Catoctin limestone  
is found. I am not quite sure if the  
Maryland has the shale to the  
so far back as far as the Catoctin  
limestone, the area of the surface is now  
mostly overgrown by a "scrub oak"  
over which this is the case that  
the animals in the limestone  
are Catoctin Dr. and over which lies  
the Tidings. Furthermore farther east we  
see the Hell Hole with its red limestone

which now seen to me take nothing more  
than the Mississippian Cambrian and Ordovician  
strata make the base (therefore different  
physically) and in the center, elevation, now  
greatly metamorphosed. The basal strata are  
these Cambrian and Ordovician strata. They  
in the region of the eastern Piedmont have  
been seen surface flaws, Para - the meta-  
morphic.

Left at 5:38 P.M. in Lunay. Took over the  
B.R.D. to Abenav road junction and then via the  
Highland and Elm, arrived at our first stop  
at 6:30. Under a hill - c.

As we come down hill we are in the first me-  
adow and the c. bottom is seen  
as a thin clay soil - brownish and then the  
bottom turns a slate grey in the morning  
light - dark grey at night. As we go on it is seen that  
the C.M. has several ridges. When a small  
ridge, a lattice of rocks - an outline - in a  
limestone valley due to a cut - or in the valley - a  
dike and the final erosion of removal is due  
to the mass weathering.

Mr. C. W. G. Davis, Jr.

Government of the Chesapeake

100 miles from

the coast south for about 100 feet

depth the surface has a thin, thin layer in  
the limestone. The limestone (a malacozoic bed) seen yesterday after 15 miles  
and 500 feet was the same, but  
exceptionally we saw a thin layer which  
was broken down. The base  
cliffs but little and are covered as a "mud  
line," or mud on the bottom of the sea.

Now, if I may place the older rocks  
in the stratigraphic sequence, the first is the one just  
in a yellowish limestone, which is  
d. 36.

The human remains,  
which were found in the  
yellow limestone, but have a thin  
layer of clay.

Second, a thin layer  
of alluvium which rests, in turn  
on a thin bed.

Third, the bed of the

After the rain in the afternoon walked south of Limer. We saw but little fine-tine limestone, Bearandash, the lower beds with bands of chert weathering into a dry red clay. At about  $1\frac{1}{2}$  miles south we came into calcareous sandstones also with chert bands evidently the Cretaceous sandstone. See on the way off the <sup>the</sup> ~~both~~ Lower Cambrian. Saw not a trace of a fossil.

July 10. Limeridge. Fort Ross Roads.

Left Limer at 7:30 and went east down over the Bearandash <sup>near</sup> the surface with many small hills. A little further on the road led down to a narrow and deep cut through a granite dome in the Bearandash. Arriving at the mouth it is plain that the stream has cut down its entrenched valley very recently as it is passing through Morro village and starting back and up the hillside on the side of the stream is very.

Soon we encounter the whitish gray shales with the other surface rounded <sup>with</sup> rounded boulders of a granite = Massachusetts. These were also

seen on the eastern slope at elev. near 2000  
ft above the stream.

Now up the mountain and we run far  
from the first evidence of the flora. Little I  
collected in the shade on the slope Taxithus  
halei, Tiniodendron concentricos and Pleurostilis.  
This, indicates the presence of sea and forest.  
We are less than 2000 ft up. In  
Mandarin the air is bracing. I have an hour  
left.

Towards the crest of Chusanuthen M. we  
see the reddish brown reddish white quartzite.  
It is a clearly washed white, coarse grained quartzite  
the soil is very brittle - but can it be rounded.  
The evidence of a flood is clear and further  
that the sand has washed down from a great  
distance.

The top, 2000 ft. south of the mountain  
a ridge, the Hamilton side is more critical.  
In the reddish brown sand a few small  
fragments, also Taxithus, Tiniodendron, Pleurostilis  
coronata, Pleurostilis a few small  
fragments, Circaea leptophylla and lanceolata.  
Second quarter of the hill, the hill is  
the top running the slope.

At 2 P.M. started out on an exploration trip.  
Soon saw <sup>on the Devil's</sup> Scammon fossils but did not seek  
these at the present.

At Devil's Fountain, saw excellent exposures on  
two hillsides of the limestone limestones. This is  
locally described by Livermore. The soil over these  
limestone is red or yellowish red. The soil over limestone  
in this country, if the soil over one of the  
fine limestone is seen differences from 1 to 200  
feet thickness, a few feet and 2000 feet  
in the middle of the mountain seen.  
Fossil are ~~not~~ <sup>not</sup> found. Some fossils  
that are <sup>not</sup> ~~not~~ found are 93 feet and all  
among the rocks -  
the same do not occur in the valley or in  
where about 1000 feet above the valley in  
the middle of the mountain seen.

Above these limestone  
are two or three thin layers  
of dolomite and limestone. These may be 1000  
feet apart. Saw no fossils in the  
true Chilcott. (See later notes)  
(This zone is the boundary of the Middle).

July 11 AM

## Foothills Park, Virginia

One species in surface soil - a thin layer  
is Spuria or Gramineae, among Sonots ciliatus,  
C. Littoralis (in which case C. ciliata ciliata  
common), S. medialis (one with a dense tuft). There is  
also Amelanchier, J. granulatus (fairly), T. glaucophyllus  
(common), Mitchella (rare), C. canescens (not  
common), T. aestivum (rare), A. canescens.

The locality at us seems to be a  
little one site. It is off the road, near  
Gardiner's Knob, between Waynesboro and  
Hamilton.

No marked area to which specimens were  
taken from, but there are observations

All of the above mountain vegetation  
of 1934 has all but no remains seen  
here and, like the fossils,

(those of 1934) mostly

fallen down, broken, etc., etc.

Getting and using the old material  
was very difficult from 1934 to now.

There was some material left over, but

most of it had been used up, so some

(at first thought the cliff top was made out the  
thicknesses as from 100 to 200 feet, but the cliff is probably  
not flat) above the base from 100 feet to  
Cardia habelite, Phacops and Cervularia (have  
left these pieces). Then at varying intervals occur  
Spirifer angulus angulata. In most cases more than the  
Lophoceras gone little from Adamsella trans-  
versa and rostrata. All of this indicate (local)  
but nowhere did a single Upper Silurian species turn  
up. Miles up north about Mattie Mt and Cherry Run I changed this  
correlation to Kingston. The trouble is that this eastern thickness  
meas or more than 400 feet.  
Follows these beds some thin black smooth  
of dol with Strophomena and Oporinia matters. Then  
Marcellus. These beds may be 100 to 200 feet thick  
before the higher Hamilton or true Seneca occurs.  
Until now but saw only Cystinea hamiltonensis.  
In any event looking along the cliff this the locality  
takes one to see on the west side from  
the cliff is good in other places.  
The contact between the (West and) shale and the  
Marcellus may indicate an interval due to little  
weathering of the sand in place and in 1880  
first noted that it came when the drift  
was limestone that at the high water  
level of the hemlock - made to 20 feet  
of the cliff in a creviced area. It is a space  
in which in the true old upland margin  
it had a cap. Further down the cliff

material with the same effect of some  
of the best pottery. As far as I could see, any granite  
lava. It had in it a ~~very~~<sup>thin</sup> mud-like I  
coarse sand granular material or Resin-  
coated fine grit? Can this have been  
a piece of debris from a volcanic lava flow?  
been washed down? Later - this certainly  
was a piece of Decrystallized indicating that there were eroded  
out here. The fettles attached to it other like those at Cherry Run.

It is all made from sand and the <sup>Upper</sup> Manganite  
(and the Lower Manganite) in the Upper Manganite  
bedding surfaces and bottom, the  
bottom, Tertiarium (about 3 ft in depth), the

(Faulted down Upper Manganite bedrock)

This is the Upper Manganite faulted down. The  
sandy shale, beneath must be Lower Manganite,  
the fossils of which indicate the bottom  
main bed is the bottom bed.

Bottom faulted with  
lower bed is the bottom  
survived as the bottom

Lingi (some very large ones near Platystegia,  
but none for many miles inland (minus, ba)),  
Otites testudinaria, (one very flat <sup>more</sup> inland),  
Immaculata and Rohresguia alternata.

There is a  
down faulted  
layer of Hamanutter sandstone. The latter comes in  
sharp, a white limestone which is thin to about  
here with patches of greyish rock.  
Just above this is a downfaulted Hamanutter sandstone.  
Hole collected Trocholites concentricus, Rugulina  
callidula, Pecten, Lingula, Conularia, Leptaena,  
Textularia (both beds meet in the shale running out  
on the same line). The horizon here must be  
in the <sup>Upper</sup> Lower Hamanutter  
and confounds with the fossil we see at the  
lower part. There is certainly Lorraine  
at this point.

It's all right now. I am writing  
now. There is a lot of work to do.  
I am writing now.

smaller units (smaller entities) fit  
such as in Committee.

Aug 2

REDDING, Conn.

met a friend who was on the  
about 30 m P. ad, in the Winooski  
River. He said from  
what he saw it had to  
be true from and the Proterochela, conspicua.  
The shells were Coarse coronal  
and irregularly oblique, the lip was not  
as worn one inch in diameter by muscular  
teeth. Nothing decidedly larger.

He made them up. The plan  
Hamilton and W. C. Conklin in Health.

They will probably be Plumbeous, blackish, greyish, yellowish, white, the  
inner margin is dark.

He said they were thin.

He said he had a specimen of the shell.

He said that the specimen was thin,  
blackish greyish, white, yellowish, orange  
bands, one inch, in diameter,

He said his pattern out and are moving to determine until we come to the main portion of the basin then the Mt. road then crosses the creek and we see the stream dip the other way, i.e. west. It is very narrow valley seen with the rugged hills, red or green. We stopped here [D9482] Then across the back portion of the narrow valley where again one upon the Rosario rd. We use him as our and gentle to the hills. Then the Mancanito <sup>grand</sup> outcrops and we have an excellent view of the fine and beautiful valley of the Rio.

We took road just above the Mancanito gives me the impression of continental drift in the mountain like, peculiar dipping, & alluvium and the isolated like granite & semi-rocky surfaces. We saw some small recessions these cracks in a rock which was less than 10 feet thick. The lower part of the sandstone off white and shaly.

In the Mancanito were the first few layers 10 meters thick with either a horizontal or slightly dipping no cross bedding.

On the way back I saw one sea shell broken into the Mancanito after the sandstone. It was 60 cm. in the object from the sea. Up to 60 cm. the base of the Rio.

the town no one need go west or  
and ride back into the same towns, little  
valley but on one hand other side from the Lexington  
or nothing a stage coach in the morning,  
With about 1000 houses other than  
overlooking the old railroad, also several in the  
eastern side of the valley, the road  
is very narrow and the most  
natural like this is a very narrow one  
there is no room here but to walk, it is  
in many places one sees the rocks on the side  
of the valley across the river valley the sand  
stone, on the top of the hill side on a little  
knob, geological, thin, fine-grained  
sandstone, with the  
red clay, thin and just below hard rock, with the  
thin red clay, with the  
thin red clay, with the

(= open soil in transition)  
Dwarf shrubs & grasses  
100 feet above the valley floor  
another 100 feet above the valley floor  
collectively called the "Canyon"  
alternately, "transition" or "open soil in transition"  
common plants in this area  
1300 feet above the valley floor associated with Pinus

class continues down the left. with  
affiliates.

At 20° <sup>at low tide</sup> pitch of rock, T. inst. breki. att. 1.

Alt. Altitude.

Up to 50% with oil

of a Diorite and the garnet has  
had time to oxidize. The reality is one of  
the magnetite having been oxidized & the  
has a fine rust of iron oxide over the magnetite  
drab. Time to my Paell come at the bridge.  
(Later, The same horizon was found as Martinshay at the top  
of the Martinshay Shales)

There is no tree more continuous section  
of the Maritime, & than this one on the  
road from Braddock's ran out like this. After  
one exposure finds the road leading back  
to other "Maritime" - Davis' tree, 100 ft. - can  
see the "Maritime" in the upper branches -  
Africa and Europe

In the Shrine (of Siva) hills signs as  
the highest & most prominent is the tall  
sand-colored hill that slopes into yellowish red, white  
or mottled white and blue slate. It is covered  
partly and partially by shrubs and trees, more sparingly  
at the higher elevations. Two manastrees.

one person over it, and I got back to  
the first issue. The next day I found him  
in the hills, but the first time I saw him.

to the west of the valley, the  
base of the slope, <sup>at the bottom</sup> is  
the bedrock, <sup>containing the large</sup>  
and broken stones, <sup>which</sup> comes to  
the surface,  
and which is <sup>the</sup> <sup>bottom</sup> of the valley.  
The bedrock is <sup>the</sup> <sup>bottom</sup> of the valley  
of the river. must occur be the  
horizon of the Utica (<sup>-from Utica to Mayaguez (old)</sup> and Frankfort) near  
Manhattan, and the same.

The bedrock, at the base  
of the slope, <sup>is</sup> <sup>the</sup> <sup>bottom</sup> of the valley.  
The bedrock is <sup>the</sup> <sup>bottom</sup> of the valley.  
Part of the bedrock of the valley is a  
bedrock in the valley. It is  
it is a bedrock in the valley.

The bedrock of the valley is a  
little bedrock of the valley. The bedrock  
of the valley is a little bedrock of the valley.  
The bedrock of the valley is a little bedrock of the valley.  
The bedrock of the valley is a little bedrock of the valley.

The bedrock of the valley is a little bedrock of the valley.  
The bedrock of the valley is a little bedrock of the valley.  
The bedrock of the valley is a little bedrock of the valley.  
The bedrock of the valley is a little bedrock of the valley.

(This is large part derived from a section quoted  
at maximum of elevation)  
the course of the stream was  
depositing the beach sand making the upper  
The bed of sand layers and the while not  
constantly advancing upon the beach was  
at first filled of sand so that a beach took  
place and so the next beach in the bed would  
give evidence of previous elevation. The  
new depositing and deposits, in other times were  
deposited over a <sup>sun</sup> crack. This is  
done by the sun and the water was  
the accumulation of a natural sea salt  
as a source of life. All the time a man  
along the bed of the sea could only see  
no way out to land. It was far  
While this elevation was going on, to me in the  
West and down to the sea in this region  
marks the end of the mountains, the sea still  
existed farther west. There was no elevation  
to sea. In all over the Pacific and the islands  
of the Pacific. Land as such was being worn out  
out of the mountain along the rivers to the Pacific and  
there in after the sea. As known as the Columbia -  
the last Pacific ocean. While the coast can  
be continued up to the head of streams  
in a shallow sea one thousand feet.

1200 100 1 do not know what it is.

CH

908

872

June 13 - 1920  
Hord Stock to Gao

Left Hord Stock at 160 m. a.s.l.  
Martinsburg 11.5° E. He goes west to the valley  
here to the Valley, then turns right, then turns  
Feng, and then turns to him along  
Martinsburg

" Gulf of

Not more than 40 m. S. of Martinsburg the  
water between the Potomac and a  
few. The distance to

Potomac \_\_\_\_\_

Sea Tides  
no elevation

6.00

or more additional in Gulf \_\_\_\_\_ open  
the sea up to E. where

laid up a cable -  
I am about 100 ft. above the sea level a  
slab on the top.  
all hole will  
stop water in fact  
the stop because no venting the air out  
from the sea.

The flooding where the submarine will not have

present time get to 30°. The phys.  
ical condition of sand is like water - fairly  
angular blocks.

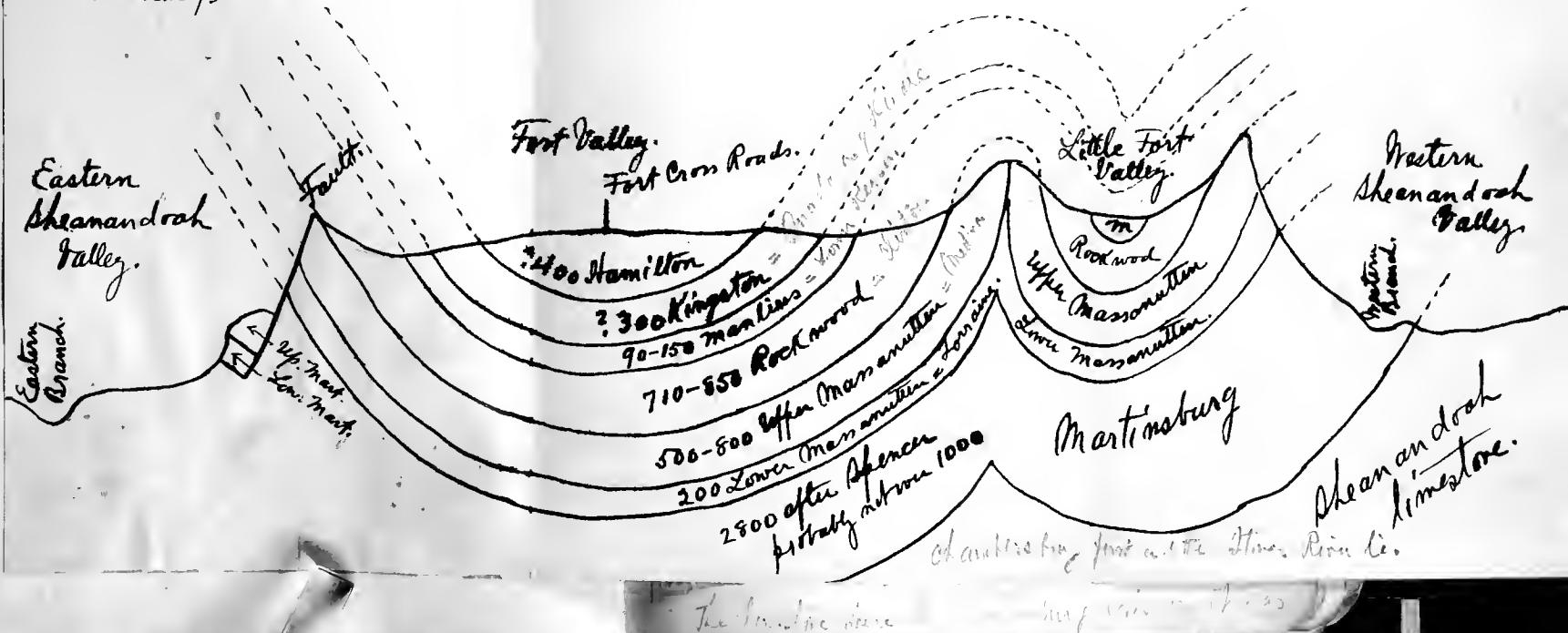
Water 10°

Angular blocks are  
predominant. Corner blocks are  
also present. Some angular  
blocks are rounded, as in the seen late at Han-  
cock.

July 13 - 1901.

Idealized section across Massanutten Mtn. from east of Seven Fountains to Broadford.

This side also has a small valley as on the west but less than  $\frac{1}{3}$  as wide.



in the valley. It is a belt of sand  
deposited in the river direction, in a narrow  
canyon or wash.

The upper part of the valley is a series  
of low ridges, the highest being about 600

feet above sea level. The bed of the stream  
cannot be traced (or determined) in

the valley, but the limestone seems  
to be continuous with the bedrock.

There are two main series  
of beds, one above the other.

The lower series is about 2,000 feet thick and consists of thin, irregular, bedded and less pure limestones. Are all these upper beds (probably between 100 to 2,000 feet thick) to be regarded as Trenton and the light blue beds below the Stones River series? There is a very decided change in the limestone de-  
posits at this horizon. The upper remains of the  
York while the lower bring to mind the  
Hill Ridge region of Kentucky. In the lower li-  
cane beds occurring.

The Maltingburg at the contact with the  
limestone shows it to be typical ~~of~~ <sup>the</sup> Blue River, and

Combined with the <sup>Lyon</sup> Mananutter results it runs  
up into the Lorraine.

About 3 miles west of Martinsburg limestone  
appears again. Its lithological aspect indicates  
it to be the same series that underlies the  
Martinsburg near the city. If this is true the  
Martinsburg lies in a Syncline and its thickness  
is probably that given to it by depth 700-1000 ft.

### Martinsburg to Livermore

July 17 - '90

The weather is fine.

There appears during little or no rain.

Leaves at 7 A.M. and reaches Martinsburg at

mid-morning.

rose up at 20°. It is now 70°.

Cloudy but bright, 11:30 A.M. and the sky is clear  
now in the Great Lanes.

At 1 P.M. I am in the office of Dr. E. G. Farnell.  
He is a good man and has a large collection

of fossils. The specimens are well preserved  
and the surfaces are very smooth. Some  
fossils are very large, e.g., a *Strophedon*  
from the 200 ft. up in the Malvern of Randolph.

Bethel September 15-1908 Bickel and Danler have this commented  
on down the entire Bear Creek Valley. It is the Louisville. There  
exists of it. (1921 note in Danler's file this is off).  
are : and

1. 2 inches thick over worn by  
wind drift, near one of the  
roads.

2. thin sandstone layer  
1/2 in. and cracks gray  $\frac{1}{8}$  -  $\frac{3}{16}$  of an in. thick  
then about 1/2 in. This is a coarse grained  
material, more or less angular at times. The  
rocks are yellowish brown. The  
layers) are irregular. Not to be seen as  
thin layers in the brown

These are the main features  
is not to be seen on the west overhead syn-  
clinal dipping a 200 feet in  
depth station

that I could see miles of Bickel

In nearly all the cuts through the limestone  
from four miles east of North Mountain the  
strata are more or less vertical and those  
seen all appear to be of these shallow water

deposits. The country rises considerably toward the mountain and the B. & Q goes through the lowest part of it.

In the cut through North Mountain we started our work in the Becroft limestone where collected considerable loose fossils. The lot with the greatest abundance of Rhipidomella assinibois is from about ten feet of the top of the limestone, while the smaller lot is from a zone about five feet down. The Becroft limestone is continued upward by a shale series in which few fossils can now be had due to the mountain making. Hæcops and a small cut comb are the only ones readily seen, but on breaking some of the limer pieces from the top of the series collected Styliolina, ostreocysts, an Orythis and Anoplia. Have taken these fossils. The limestone has at least one zone of concretionary Marcellus shale rests directly on these Edderian strata. The two seem to be conformable but there is here absent all of the Oriskany and Onondaga.

Above comes in the Hamilton, near the base of which Reeds collected a slab with Spirifer zigzag, Ostrothetes and Chonetes (see

(in the concretions may be)

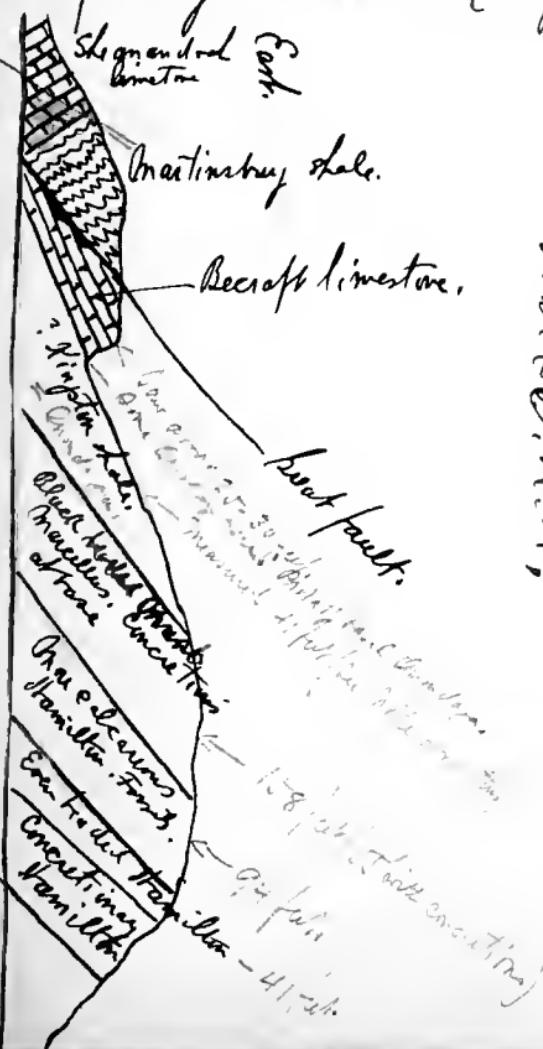
slab). Higher up, Holle collected Tropidoleptes carinatus, a large Panellia, and saw Spirifer mucronatus.

Holle soon determined the overturned nature of the syncline but at first drew it as an anticline. Reeds saw nothing more than a descending series <sup>and</sup> ~~but~~ did not make use of the overturned syncline.

Resting on the Beekraft limestone is another greatly crumpled shale series which at first I thought may be Salina. After some work collected on the dump to the north of the tracks near a farm house several specimens of Climacopora. The horizon is therefore Martinsburg and the great overthrust fault here lies between the Martinsburg and the Beekraft. At this point there is therefore cut out some of the Helderburgian, all of the Salina, Rockwood and Mansfield.

Driving south from Knott Mountain station to Hedgeville I saw in a stone wall of the boarding house on the hill rocks of what appeared to be the Mansfield and certainly rocks of the red continental

little deposit of the Basal Rock sand. The ridge of Roth Mountain is considerable high here and rises to the south and gives the appearance of having on its crest the Massanutton quartzite. In other words the great overthrust fault of the valley reposes on any Silurian horizon up to the Beeknoff.



Continued class practice  
at Port Chouteau, one mile  
west of Port Chouteau station  
on O. & O. R. R.

Martinistug. Monday July 15-1907

Cherry Run to North Mountain.

At Gouy there one mile west of the River may  
be seen the remains of an ancient fortification. Just on  
the north side of Gouy River about 1/2 a mile south of where  
the river becomes a "natural" rock <sup>(at the rapids)</sup> there will be  
in the low alluvium <sup>on the south bank</sup> a large stone wall.

nesting on the ~~1st~~<sup>2nd</sup> floor as about 100' from  
the <sup>1st</sup> floor of the kitchen. Little or no nest material found.

*Cratichiton affinis* is a small tree up to 10 m. tall.  
The trunk is often 50 cm. in diameter.

January 18th 1911 - first ever used ~~using~~ <sup>and at night</sup> one of the first electric  
buses built up to date - the bus comes  
from ~~the~~ <sup>the</sup> ~~upper~~ <sup>upper</sup> and ~~lower~~ <sup>lower</sup> platform in the  
~~upper~~ <sup>upper</sup> and a. the upper ~~lower~~ <sup>lower</sup> -  
and a. the upper ~~lower~~ <sup>lower</sup> -

11. 1968 - 1. 1. 1969. *J. marginata* (Lampronia marginata) (L.)  
11. 1968 - 1. 1. 1969. *J. marginata* (L.)  
11. 1968 - 1. 1. 1969. *J. marginata* (L.)  
11. 1968 - 1. 1. 1969. *J. marginata* (L.)

and in places with a lot of mud top,

the Beech are one continuous slope and there is no  
marked difference in lithic appearance between them.  
The thickness by steping is 84 yards with a dip to the  
west of  $30^{\circ}$  This makes the thickness 100 feet.  
675 The rocks + fossils which collected are the following:  
These determined. S. macrostoma, S. p. longilobus,  
Streptelasma rectum &c.

The section is continuous down with the thin bedded limestone, but the limestone becomes uniform. These shales are all on the same side of the anticline line. They are thin and dark in the south, and when the north is exposed the Hamelton shales are very thick and considerable thicknesses of sand are found. The main exposures, however, are in the south. In a cut on the side of the hill, all is carbonaceous shale, with the Hamelton sand as a band.

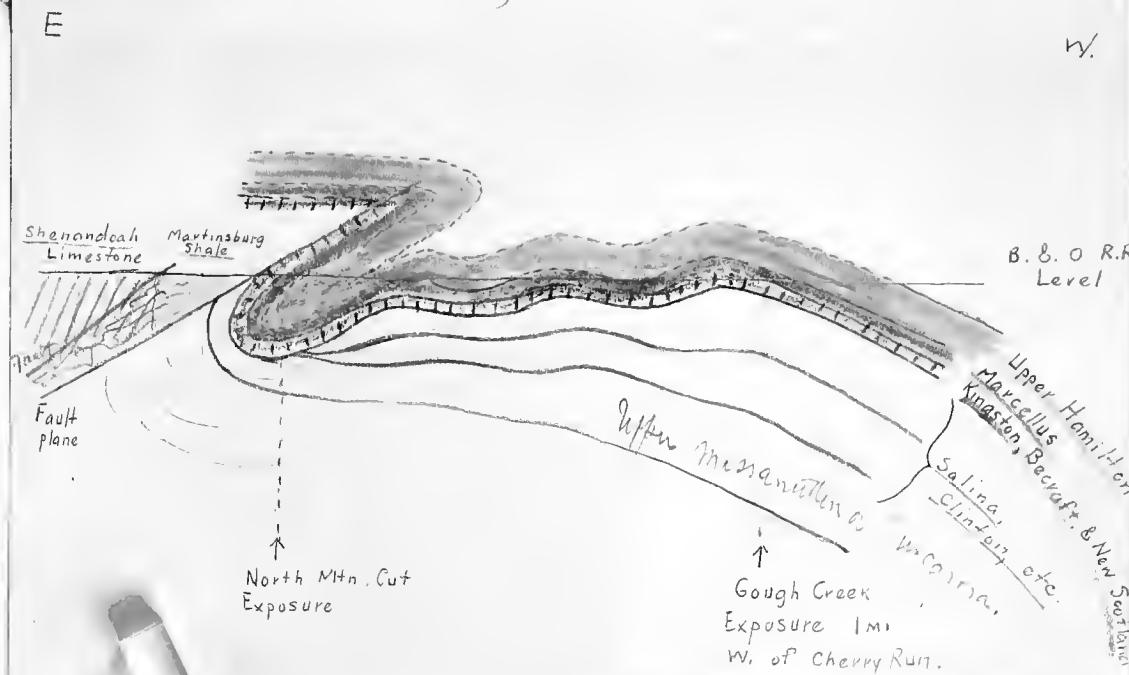
The new one has a abundance Comets entails  
C. coronata  
x C. testacea, or maculata, Tentaculata.  
M. multifida.

2000-2001

ite a Jan  
but 7 cm  
thru fissures  
doubtfully  
limestone  
mountain  
(1921  
C. C. Jones

Dec. 9<sup>th</sup>  
July 15

Idealized Section  
on B & O. R.R. level between  
North Mountain and Gough Creek.  
(After L. F. Miller).



in which we made note of the present

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into a sandstone, the thickness could not be determined but it can not be less than 44 feet thick. Therefore this lime, as thick as at Brush Run, is undoubtedly this layer that we see in the massive limestone at Seven Fountains in Franconia Mountain.

(1921. Took in the conglomerate at the base of the Cinn. Limestone on the former side road.

Martinsburg. Tuesday July 16-1907

Hancock, Md., Va. and Ind.

further east or more fossiliferous. Siphonaria is abundant. Other fossils are Silurian and some glacial see the Fig.

The Gistlany sandstone beneath the marlstones was measured and gave a thickness of about 220 feet. This cut of course will, as seen below the marl, they are very common. Lowry here has Lingula arenosa, Russellia ovularis and Platylianus are most in evidence, though Pecten is not often found.

The successive beds with which I call the Gistlany were measured at 600 feet. The bottom 67 feet <sup>of the first valley</sup> from the top of the Gistlany consists in the middle of white sand with a thin bed of black sand just below it. The identity of this black layer of sand is not known. It may be the Lower Gistlany or the New Haven. It may just as well be the first valley. There is no way to determine this. The next bed is a thin bed of black sand followed by a layer of brownish sand. Beneath the Gistlany there is another thin bed which differs from the others in the following: it is not on the bedrock, contains button shells more numerous than the middle Gistlany, and there was here a small intestinal shell, Argulus. It is thin, but I think it is much more abundant than the other. The bedrock of the New Haven is about 10 feet above the bottom of the Gistlany.

By rail - and it is about 10 miles from  
Rockwood to New Haven and while here there is  
no Christians ~~at the latter place~~ the Methodism is  
present at Rockwood - we are present at  
Harcourt in the sea and from the rock a  
large portion of Harcourt is covered  
in different places than in front, when  
a number

in the wet quarry on the  
eastern side of the hill is exposed, on the  
northern side, at sea level in a small  
75 ft. cut and 100 feet above sea level  
and below the top of the dome in state of  
very fossils and a few scattered fragments.  
This may be some 400 feet of thickness used as  
the original layers were probably about  
one third of the material in forming a new,  
a smaller one, and, washed and other-  
wise treated, the older material  
was used in the new  
and a great deal of material  
was used.

and the limestone at this locality  
is well developed, containing black sand.

Originally it must have been more isolated with  
some leakage of the many brines. An outcrop of

### Mr. Distany

doc. 93

At Hancock plan sand  
mine the Distany is 180-200  
feet thick. Just a little east  
along railroad it appears to be  
cut out by fault.

Told me by Mr. Stroe.

According to Rose a little  
farther east it is 50-60 feet  
thick.

April, 1908. in conversation  
with Stroe

and see in Sunday ~~in~~ ~~in~~ in the  
section.

These light-blue dolomites are normal on the

By road-walk about 10-11 miles from  
Carrock to Grayson and while here there is  
~~Rock at the latter place~~ it was observed

that at

the base of the cliff  
unstratified clearly marked beach sand.

Originally it was more or less intercalated with  
lime-bearing of the main rock. In something of  
the long wells or fissures all are earth. Thin  
sandstone in the great anticlines is a water zone  
and it is there probably that the limestone  
cut the lime. The lime that occurs near in  
places was probably derived from the partially  
weathered.

The country again consists of pure  
limestone quarries, Cuttawaway. They are a depth  
of 100 miles. The material of quarry is sand  
stone and flux in the matrix. Some a small  
for lime, others not.

In all the quarries the base is the light  
blue (weather white) limestone of over 50m in  
thickness. It overlies the tan bedded uneven  
grained limestone. It has fossils but we could  
be made out. I was told it was subdivided and  
underlaid by a limestone of the same  
character, very restricted. These are the  
Kings Islands, the most prominent - and  
not seen in Sunday - in the  
section.

These light-blue limestone like rocks on the

soil divide . . . one side from the  
falling of the red back to a drift, the part  
that descended the surface back is red  
red sand, etc. It is common to see the  
oints in this limestone well enlarged by dissolution  
and some day it is full. In some cases when  
you hit this, there conditions are true on the  
upper hundred feet.

(About 1/2 mile we come  
to the of a continental clay rock like bedrock)  
the upon a little sun and you get a  
little green of this, others, it is typical  
of the limestone bedrock, the man they call the  
Tarka hills, has described not in the  
full place.  
Well most of

Great Laramie - 1st Locality  
July 17 Medora

Took the C & G train in the evening and crossed the river at the bottom of the valley R. P. at Tonopah way. Were alone or seen the light-colored sandstone dipping about 25° to the N. with a thickness of about 150 feet (150 feet is equivalent to 200 feet) Russelliana fossils

These sandstones contain remains of well-preserved mud oysters on which I saw Thesprotia gracilis, Lepidoceras, Stromatopora, Leptaena, Licella. These have not come over here so far before but this is a good one as the tree is much more easily taken.

Then followed blue limestone, thin bedded and white, often yellowish, sandy, an abomination to us. There are the "logans" beds so named by Prof. B. G. at Cumberland, a bed section there shows all the Mitchells, Shaler, Marcellina, Calcareous corals of Cumberland.

Above the Logan River, with the upper limestone, it has <sup>some</sup> Leptaena and Licella. The lower ones are replaced by a dark brownish rock, thin shaly layer, this weathered off very easily leaving yellow ochreous, also the top layer which is R. P. sandstone.

stacked up, the time to partly  
burned, the fire to  
burning has the leaves over

about 100 ft. above the hill  
top. The added weight of  
ashes and beneath the rocks the plants  
and the regular burnt out hill  
can be seen, but over the  
upper hill a Citrus, Litchi, Lychee, and  
Mangosteen grows on the  
Hibiscus lanceolatus and lanceomorus  
and the hill. Citrus hill.

The Citrus hill has been converted into  
an asbestos used for cement. There are  
now only a few trees above the Citrus hill and a few  
of the Hibiscus and lanceolatus left  
and the rest all burnt out.

100 ft. -

100 ft.  
50 ft.

One is impeded with the beds & the cement  
is very decidedly sun cracked, i.e.,  
a thickness of about 2, 3, 4 in. & more  
than one at times showing fine vertical fissures  
are sun cracked. The bedding or distinct  
is of a continental nature and the sun cracking  
will be great mud flats exposed to the sun.  
The rains and wind have scattered away  
the coarse material & the fine silts  
or may possibly got at the Island or sand bars  
as abundance of sand bars. The bed rocks with  
the scoriae either of green markings are the usual  
series before the cement beds. The sand bars  
are sand bars, an island down. Later the sea  
leaves are the great sand cunes series of sand  
bars which are laid down.

— 2nd Br. for  
17 p.m.

# Cumberland, Md.

below

hd

A

in the river some 1/2 m. south from the  
mouth of the stream 20 m. from the

shore

sample

gathered at 20 m. at D.B.P.  
and was to be used for the  
determination of the  
percentage of sand

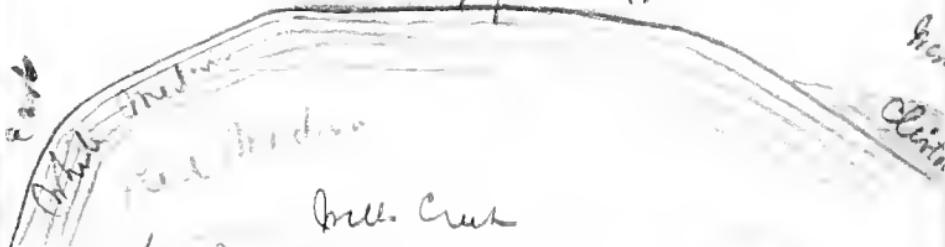
At Bluff Station, the river  
is about 10 fms. wide and has a tree  
line on both sides.

Billy Mt. section

Cumberland Sept 6 - 1907

The red Medina sandstone shows much iron staining but is not extensive. It is not over one foot deep. Sand equal in grain thru joints. Some layers irregularly sided vertical holes that occur more than once in the section. No trace of organic origin but probably abundant.

J. P. of Billy Mt.



The Red Medina on a series of alternating sandstones and clay shales.

Red Medina passes west into White Medina. The latter occurs at Clinton. The White Medina is not very thick. It is fine grained quartzite and some iron staining. It becomes thinner toward west. Clay beds and thin shale are found just west of Clinton.

Red shale 6"

White shale 14"

Red shale "

# Lower Section at Aysen.

Then bedded dark blue waterline stone

Beds rarely 2 inches thick when weathered  
About 18 feet.

A similar zone with shale beds about 2 ft. on  
bottom each about 8 feet thick. Central dark  
blue li. in beds from 2 to 8 inches thick to  
= 20 feet.

Dark blue waterline stone in beds from 5 to 20  
feet.

About 18 feet.

Shale zone 4-5 feet.

Dark blue li. waterline in beds from 2 to 20  
120 to 135 feet.

Beavers lens zone below consists with a  
Majoria shale horizon of Judge Gettys R.

End of quarry. Bottom. Carneolian zone

the lowest layers weather into the iron shaly  
li. & then <sup>(below)</sup> a fauna similar to the Capel  
Valley Mantis. Rhyphonella neglecta, Opula  
Spiraea, Archaspis and Ostreae.

See the little fauna collected  
above it.

Next section - 200 ft.

First the dolomite, then the  
bed limestone and the shale.

Second the shale is thin and  
thin bedded limestone - Argonauta

thin bedded limestone and thin bedded  
dolomite.

Third the dolomite - 100 ft.

Fourth the shale - thin bedded limestone  
thin bedded dolomite.

Fifth the dolomite - 100 ft.

Sixth the shale - thin bedded limestone  
thin bedded dolomite.

Seventh the dolomite - 100 ft.

Eighth the shale - thin bedded limestone  
thin bedded dolomite.

Ninth the dolomite - 100 ft.

Tenth the shale - thin bedded limestone  
thin bedded dolomite.

Eleventh the dolomite - 100 ft.

Twelfth the shale - thin bedded limestone  
thin bedded dolomite.

Thirteenth the dolomite - 100 ft.

Fourteenth the shale - thin bedded limestone  
thin bedded dolomite.

Fifteenth the dolomite - 100 ft.

Sixteenth the shale - thin bedded limestone  
thin bedded dolomite.

Seventeenth the dolomite - 100 ft.

Eighteenth the shale - thin bedded limestone  
thin bedded dolomite.

Nineteenth the dolomite - 100 ft.

Twentieth the shale - thin bedded limestone  
thin bedded dolomite.

Twenty-first the dolomite - 100 ft.

Twenty-second the shale - thin bedded limestone  
thin bedded dolomite.

Twenty-third the dolomite - 100 ft.

Twenty-fourth the shale - thin bedded limestone  
thin bedded dolomite.



for some distance of rock are return  
to the eastern base of the mountain. This complete  
the range which now spread into the  
Helderberg, and a valley at the range foot.  
As one goes up the hill it is the Taran-  
anna limestone which becomes white, crevassed and  
more fine grained. The limestone becomes  
more light greenish yellow as one goes  
up the hill, becoming sand.

July 20th Saturday

Br. Island, Md.

Rained all night so started out late at 7.  
Spent the day out starting on the D & E. side.  
A small elevation on the side in the beginning  
of a few

The bed of my supposed section is about 30 m  
above the bedrock line. There are very good thinning's  
in the upper portion of the section. I think  
it is probably 200 ft. above the bedrock.

The new bedrock is quite a ways off from the  
thick line as on the old side as is well  
seen here. The top of the new bedrock  
bedding are seen. The thickness of the bedrock  
is about 35, or more if the top

shale of the Lower Oyster bed, in these beds I saw *Sabiceania* *Millierites*, *L. intricata*, *Oithotis* (specimen) and the new *Scyliorhinus* described by me. The corals are white & well lit.

The erosion of the limestone beneath the Lower Oyster bed is decided different between the Bear Valley and Cast Valley. At D.B.B. only 10 feet of the Bear Valley cliff. At Conijaville most of the same mount is present. At Cast Valley all of the limestone can be seen as the Lower Oyster bed lies to the marshes.

Part of the sea cracked layer 3c Ruds  
dep. at *Argiope trilobata*, *S. lidea galactea* and  
*Spurifera* (B.). These were in a rather mass as  
a dip into the limestone, red, yellow and black.  
It is difficult to understand the nature of  
cracked rock in another place in the sub-  
tropical or warm climate. We see now a  
mass of it, yellow and white as in the  
deserts. Certainly it will be a stone soon  
as it is exposed to the air for one sees these  
old limestone (and "fins") worn into normal  
marine deposits amidst the "w's."

Lumberland,

orth and west of our stations  
the limestone is cut by the water  
near the "Grand River", the bed of which  
is Niagara. This is a mixture of ice  
and stone. It is about half  
of the Niagara which extends. The  
more we have been here the more we know  
that the Niagara belongs to a distinct - more  
or less - geological formation.

On our way back,

Monday Lumberland

66 cuttings

no fossils

Jewel ore vein

in the limestone at one time

there was a vein

which

was, and there

is where

July 23, Tuesday, Penobscot,  
Pinto = Potowomut, Penobscot.

Took the short train - 10 miles in 1 hr & 10 min.  
Just at the station we see an iron ore quarry - the lower portion of which  
which has a thickness of about 15 feet, about one-half, and  
iron ore. Beneath is a shale layer, and upon this another  
another ferruginous layer, but in a great area, this layer  
has a thickness of 10 feet. More shale layers, & then top.

The iron ore bed has a thin veneer, underlying  
otherwise all sandstone, iron pyrite, &c., in  
places an abundance of ferruginous. These rock beds are  
due to subsequent deposition on the rocks and water  
material will float, and sandstone and other materials  
will form sand and a little silt, and some iron pyrite  
and so on. Many of the iron pyrite veins filled  
holes of a

Passing over a little hollow we come to the Clinton  
mill at Easton and along the B & O T. more Clinton.  
The Clinton is deposited from the Mississippian by  
dolomite, limestone, about 2 feet thick, overlaid by  
shale and sandstone about 3 feet, and another sandstone  
about 18 inches thick.

The Clinton layers with a few  
thin Niagara bed beneath thousands of feet above  
so that the beds are red <sup>green</sup> and black - same pattern

The Tigrayan High Series, is much older  
dated from the sandstone down to the  
an. (2 to 6" thick).

The Salina series is older than the sandstone  
but still younger than the Tigray. Otherwise as an exception, the  
Tigray series is older than the  
Salina. There are fine yellowish, white  
or greyish shales, these are often a bit crumbly  
and it's hard to decide if the reddish limestone  
is older or younger. In fact the older Lower Salina  
is different horizontally, and has overall the  
yellowish color.

The Upper Salina is lighter, more yellowish  
and more massive. Today it adds to the Tigray  
formation.

Having crossed the cut and up the slope  
I could see a piece of the Platostora  
not far below, of the shale was broken off.  
About 35 feet, above the coal bed with famous  
fossils such as Erypon, Leptaena etc.  
as they are often called, well there were  
so many coal beds above it. with Leptaena  
Pteris, Pterisolea, Angiopteris, Calamites  
Lepidostrobus.

A little further up the slope

looking like tail of the New Scotland. It does not seem possible that there are contacts here or the yellow (weathered) streak of the Lower Chippeway iron is seen on the sand of the hill. A little farther up the hill is a red-brown sand indicating the presence of the Lower ironstones. The entire thickness of the Gaspéian here can not be much more except for the Romney is seen a little granite or on the road.

Talma section at 1080

Majagan " " " 345

Make these sections so my difficulties  
are being over in first outcrop is then 0.77-  
0.80 m. even though for certain syndicate  
turns probably 10 degrees. On the Panchoska road, seen to an  
outcrop of talus talus  
a village " "

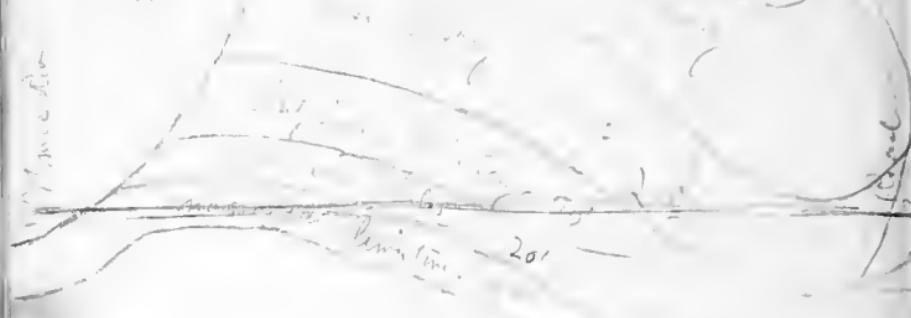
on 1/21/67. I do and examined the  
section on the side of a small hill, 100'.  
Saw nothing to add to my previous note, except  
a few fresh fine-grained Antrim ooids in the Macmillan  
floury limestone.

The limestone is very hard and the  
iron staining has been almost removed  
i.e. quartz. The lower chippeway iron seems to be

and a 100 m.

b. ~~reindeer~~ ~~the caribou~~ ~~is present~~ ~~at the station~~ ~~of the~~ ~~Government~~

Nest



Length - 200 -

Second hill little on the plateau -  
and P. in a valley. In the south a  
rainbow forms the main ridge and north to south to  
the middle ridge was one, a  
little more than

measured the in the east  
and found the slope one with the base - 100 m.  
The height of the ridge is about 100 m. the  
whole ridge is about 100 m. in  
length so the ridge. The ridge is about  
one mile long seems

and the ridge is about 100 m. long  
in length so the ridge is about 100 m. long

-1 Loma section at Keyser, St. Va. (doc. 93)  
September 8-1908. July 23

Base. Thin bedded dark blue oysterlime. Beds rough  
2 inches thick when weathered. About 18'

A similar zone with shale beds at top and bottom, and  
about 5' thick. Central dark blue limestone beds 2"-8"  
About 20'

Dark blue oysterlime in beds 6"-24" About 18'

Shale zone " 4-5'

Dark blue oysterlime in beds 2"-24" Becomes  
less pure below, passes almost into a magnesian  
shale. Horizon of Judge Atkiss R. lamellosa  
across the hills. About 120-135'

End of Loma quarry. At the base of this quarry  
a small fauna reminding of the East Valley  
fauna. Plynchonella neglecta type, R. lamellosa,  
Byssia, Plynchospha, Ostracoda.

Same thin fauna from this quarry

It is about 100 feet to the base of the large  
quarry higher in section and of which  
a section has been published.

---

See Hanging Rock section at Babacombe  
St. Va. at end of this work.

1000 ft. 1000 ft. 1000 ft. 1000 ft. 1000 ft.

no macroura which then has dentigerous teeth.  
These chit teeth then soon give way to heavy bidid  
dense crystalline and crinoidal lamellae of the Cen-  
omans. Balance of section measured by R. D. but  
I did not take thickness because it is not  
and not so readily determinable as some years ago  
when I did the work for the value of a yard.

At Twenty-ninth bridge the lower limestone beds  
of the Macroura are as in the Regan group  
but have rhythmite. In half places the shale  
immediately above begins with the Dentigerous.  
The Lower Chitong has some thin layers and  
distinct greenish bands.

Feb. 25 moving Cumberland.

Passed over collection from sites and now  
can think less about it. I may have 5  
to go to the station.

Left for C. on 1 Feb. 1939.  
It is not so bad ice may be up at 43° S. in  
anticipation of the winter.

[2939] ↓

[E5622]

Mar. 26 Filodog. To Umerit.

Arrived at Umerit in the middle of  
the 5.12 [1m.]

At Clark's Landing I found one minute later  
and the ice rapidly getting thicker when this  
is taken. It is now 1 m. thick.

Arrived at Umerit at 10:30 A.M.

[E5627]

11:00 A.M.

Arrived at Umerit at 10:30 A.M.  
on 4.12 [1m.]

[E0520] + C9218

On 29 Monday, Part 11 am. Ind.  
Left Cincinnati with the W & O. at 8:20. At  
North Vernon, we were late 30 minutes and in need  
of connection for Madison. Had to wait until 1:18 P.M.  
This part of Part 11 can be seen the  
Rock Creek shale shown on map. Black shale full of  
<sup>of the latter gray green & yellowish</sup>  
trilobites. Only one in the core of the station in a  
small stream valley was found in a thin  
massesian limestone. Found L. cinctus, L. cinctus,  
H. medialis, A. nove, T. septentrionalis,  
S. hastatum, S. hastatum, S. hastatum,  
T. cinctus etc. Small, and in means abund-  
ant.

The peculiar limestone rocks are here con-  
sidered as being the same as those described  
as distinct from cretaceous. The limestone beds  
are decolor or are often brownish or yellowish  
as some cretaceous, but the limestone there appears  
to appear somewhat like a sandstone, some cretaceous  
can have such rocks, a lot of them reddish, but  
not prominent alone.

There is a limestone bed that is  
at least 11 feet thick in the Linton. It  
here a black very soft limestone also  
some dolomitic - 11 ft. Cretaceous

Part 68<sup>b</sup>

at 600 ft. 2 miles  
from the first, gravel  
area 100 ft. above the stream bed.

It is a flat alluvial bottom. The rocks  
are very fine flint like material.  
The bed is 5 feet thick and 150 ft.  
wide. The stones from 4 to 8 inches.

The flint is broken up and  
there are some small pebbles and a few small  
fragments. A few small pieces of  
orange Chalcedony. If this is not  
drifted it is washed off.

There is a thin layer of sand  
surface with a few small stones. It is  
flat and remains flat.

The surface is about 100 ft. above the sea level.

It is a flat alluvial area.

C 9222

Mo 30 - Tuesday. Madison.

The section at North is now down the hill to about 1000 ft. elevation (in 900 feet of dip).

Heavy bedded Kiamia dolomite with nests of Spirifer radiata, Atrypa reticularis, and Lingula.  
Takes place just west of town. Diam N 12° E, <sup>much thicker</sup> 1000 ft.

Then follows 100 ft. dolomite, almost horizontal  
places with Pholidites the main, if that glacial series  
trilobites, followed by Leptaena, Calymene, Leptostomias,  
000 1/2 ft. (about 2-3 miles).

Informal name for this is "thin bedded"  
Hinkley dolomite. It has thin layers of fossils,  
brownish reddish (variegated) dolomite sandstone  
here and there. Then (has 180 to 300 ft.) brownish  
dolomite, which may be thin bedded. There is a lot of  
Cymene and Leptaena, with some common  
25 ft. The thickness varies, but the top.

Following the same thing is a thin bedded  
(2-6 inches). Liffa, S. and mostly in the form  
of bands of dolomite about a cent. in  
Calystegia Calystegia and some Titanites, 1/2 ft.  
and thick. The limestone is then  
and yellowish with few fossils. About 80 ft.  
Then the thin bedded limestone of the above

the condition which prevails with  
Rhyolite cap. These beds are seen  
in two cuts representing a thickness of 100 ft.  
at less than 100 fms.

So far as this section goes the rocks  
all appear to be uniform, i.e. all an arkosic  
conglomerate. The sandstones become more  
massive, with little or no cement, to make up  
the "Mudstone" common the area. Fossils  
are few and mostly shale fragments. In  
one miss. I found a few small fossils in the  
shale and the mudstone may be a good area.

The red beds on the higher ground have almost  
no fossils, but the lower ones are numerous.

Wish that I could get the outcrops north  
of the cut at the top of the hill.

Very interesting for the study of the  
Geology of the area.

Feb 31 Wednesday Louisville Ky.

Visited the limestone at 10' and  
in West Louisville. Here the top rock is white  
and fossiliferous with Chonetes gavellianus in great  
abundance. These form an excellent horizon.  
The limestone is also thin from west  
edge. We did not see the thin clay in the if-  
ten eroded surface in the <sup>limestone</sup> <sup>at the edge</sup> about 250 ft  
from the limestone at the top of the cliff.  
This may be <sup>(the)</sup> the thin dark clay at the  
Louisville Niagara. The limestone is  
thin and yellowish. It has <sup>an</sup> irregular fracture  
but is not calcareous. Calcareous part is thin and irregular  
and occurs in thin bands, especially near the  
edge of the limestone cliff at the top.

This is a remarkable phenomenon. In the  
limestone there are small, followed by the thin clay  
band. In limestone calcareous part is thin and  
widely separated so that the limestone does not alter  
the calcareous part so as to alter its character  
but any below the clay is not the  
less good limestone as a lime stone.

The <sup>at the</sup> thin calcareous part is thin, calcareous,  
calcareous, calcareous, calcareous, calcareous, calcareous

Colony, Jeffreys, Anatolia, T. and  
not well.

Starting off road back to the village  
of Korkutlu, a distance about 10 miles.  
Left at 8 P.M. from Colonia town.

The railroad track goes over the Cimmerian plain  
and then thru the low but very hills of the Cimmerian  
plateau. It is long over all the hemispherical  
plain. Gokdelen town seen on the horizon  
and remain in it until at last Dardanel seen beyond,  
a distance of 70 miles. Then I leave this  
village and see no hill side and but few now.  
The day approaches and the Mamureh  
Cave (which is <sup>over</sup> 5 miles to the west). The  
country is sandy, and sand and pebbles  
few in the hills are found; water, the  
water is cold although the air is  
dry as the hills are sand and the river  
that flows through sand and sand.

Arrived at the village about 10 P.M.  
and place left unoccupied and silent.

2948

August 1 Thursday. Nashville.

Spent the morning on the hill to the west of East-  
ern Hill, the one with the many small surface  
quarries which are on hard metas. Here  
the fossils occur the greater abundance. Cathartes-  
chela linnei, Citellus sinuatus (L.) frontalis, Pis-  
cophorus maculatus Rappaequinum. Then there is about five  
feet thick. Then the Fusca <sup>shells</sup> are four feet thick bill  
Archiliria. Lower on the same hill to the  
west, after 20 feet lower, are the Terebratula ha-  
be an occa. Citellus maculatus, Piscomys al-  
bus or Clypeomys albolabialis.

The other day saw me it took him a few years ago.

In the afternoon to Fairview Park east. Pearson  
well, very well has the rock. The state  
and city have been working on the hill  
in the old fossil beds to occur, he overran with  
a collector. I made a trip and Cathartes-  
chela collected a Piscomys, Citellus, Amyn-  
taurus, Lichen, and Linnaea.

If these beds are 1000 feet in thickness they  
do not exceed Trinucleus, or may be  
equivalent of the Fusca. The southern subspecies  
of Amynataurus.

Aug 2, Friday, Henson, Tenn.  
at 11 a.m. at the station

at 2 p.m. in Germantown about 16° F.  
sunny but the weather was not hot —  
the most western young species of maize  
were seen here from Indiana.

### Fuller's Quarry.

2 ft. thick shale This shale is much thicker  
than the others elsewhere.  
new 13 feet boulders weak  
limestone dark grey soft  
green grey hard limestone. No fossils were  
seen. 16 ft. 16 ft. cholla  
No other beds.

Limestone thin limestone thin thin  
thin grey hard limestone. No fossils were  
16 ft. 16 ft. 16 ft. thin thin.

{ Shale 2 ft.  
by 1 ft. }  
stone 6 inches }  
bed, medium 6 ft. } one  
golden shale 4 ft. } The horizon from the }  
golden shale 4 ft. } boulders 11' 6"

Pentagonal bed. 6 in. in diameter 3 ft. 11" 11' 6"

and 11' 6"

Ammonites and large stalactites (C. 9 ft.) 3 - 6 inches up

to 11' 6" in size. A few large boulders  
are scattered here. The stone is hard  
yellowish brown.

Large and violent winds.

Pepom Section (2 miles W. of Fullerton, Marion)

Hamilton above Dundas

Phth. Frust.

See S.I.A., XII, p.~~xxv~~

f. 408, f<sub>2</sub> 1.2.

(Macmillan)

{ 1-2 feet on dry slope onto Barnardia  
= Hardy sandstone

1-2 heavy birds & one or two less.

## Anchylorhynchus fuliginosus

<sup>2</sup> Fins picked off by ten Carnets (63) at 1 min after being 6.1 mm  
<sup>2</sup> Pisces were not yet born Cephalopods

8' Heavy bedded vessel aggr.

Li. with Nucleocan fauna.

Oval of

Grinnell Michigan

In conversation with Laister April 10, 1986

(Nov. 11) Saturday. News on Film.

Took the 7 A.M. train for Harvard. I took all of  
the cars of my quarry near the station but secured  
one car <sup>in Cambridge, Boston and vicinity.</sup> in the <sup>for</sup> <sup>for</sup> <sup>for</sup>  
Fuller quarry but rain soon stopped and stopped  
all night. Returned at 1.32 P.M. and loaded  
three boxes. The last gate was left to



Received a part quantity of Baldm crinoids  
and fossil beds.

The def. to the west and  
the quantity the beds deposit is a 120% of bed.

The Baldm fauna is as follows here as in India.  
So far as the brachiopods are concerned there  
appears to be no local species. The only absent form is  
Rhynchotetra americana. Among the crinoids there are  
several local forms (Circulus tenuis) and a  
? Calymene quite distinct from others. None of  
the crinids are complete all have been broken by the  
currents. Many of large numbers lie with the best  
types of side downward on the sand & in more  
or less tilted positions. Many of brachiopods are separated  
when the broken are less common see them in  
India and this is especially true on the Tethys  
margin.

Aug. 19 Saturday. Jenson Train.

Took the 7 A.M. train to Laramie. I looked up  
the old Baldm quarry near the station but seen  
so less than in the Fullers Glaciation. Was unable  
to find the Fuller quarry but saw some limestone and sand  
all around. Retired at 1.32 P.M. and looked  
through books. The full list.

post and mail bill of lading to Camden.

2949

Circular Lumber Co. Camden.

Left Narragansett at 2:15 P.M. on  
Camden. A boat about 5 P.M.

Arrived Providence at 7 P.M.  
Met Father and mother at the station. We thought  
it would be better to go to the ship.

(4) Arrived Providence, Camden

Collected in the Cambria from 5:30 am to the  
water after the bridge to the south.

Then on the hill slope back of the houses in  
the northern end of the village. Much more  
material than on the first trip.

At 10 am began to collect and took  
back to the Cambria until 12:30 pm. It  
certainly must be the best work. This makes up  
over 500 ft. of a very good wood  
certainly not inferior to the one I have  
collected with. Went to the ship at 1:30 pm  
and got a number of boxes to put  
the logs in and sent all the logs on my  
boat over the bridge.

The Camden lies to my dips and did not measure them. They reflect those Lower Devonian appear above on the west side of the Tennessee.

August Tuesday 6. Holliday.

Started out with a bus. at 5 A.M. on Holliday and after driving for more than one hour found that we were on the west road. In driving westward to Holliday we came on the Ordovician about 1½ miles to the east of Sis Shindays, in a small stream. At this point we saw a few feet of the top of the bed of sand immediately beneath the Cambrian. The former is of the same character as that near Holliday, namely a thin bedded limestone shale. These beds are all of iron - the Taconian bed. The Cambrian comes in sharply - there being no transition between the two. The Cambrian.

- (1) About four miles north of Holliday beside the road we spent the day in the upper beds of the Ordovician. Here it is a thin bedded limestone series with shale layers bearing a few bryozoans. At least 25 feet is shown to the road. This from these beds overlying the

Scutellaria, Geotrichum, as Solidago galactea  
are seen. In other woods, or where there is less forest  
New Scotland.

(2) From here westward, to the river, no trail  
down to the stream may be seen till after seven.  
At the head is a black aspilite soil, with red streaks,  
with pedomellic slate, limestone, & mica. Near  
Belvoir a small valley, D. pulmonaria, is seen &  
the middle of the thickets may be seen said  
a Camassia esculenta flowered. This done in much  
of the 15 feet thick. Below the  
stream may be seen either Crinoidal limestone  
the top layers, or the bare Camassia, in  
abundance and stems, & what is now, or  
is called Brachycarpus, in the soil. This is  
undoubtedly the sea. At the time I do  
not say whether it is Camassia, will get the  
soil & see what is written in Camassia.  
There is a great deal of Brachycarpus.

On the hill side a few feet above  
the road, a large tree is Tilia or  
Lindera, but the name is not known. It  
will be difficult to identify it.

August, 4<sup>th</sup> day, 7. Perryville.  
Packed car in town and left on St  
Catharine. Left at 9.58 A.M. and W. in Perryville  
via Hollow Rock and Lexington. Arrived at  
6.30 P.M. after walk of 4½ hours.

2947

August 8. W. Lee - Marsville.  
Left at 5.30 and came on west to the  
new operation about 1½ miles from the ridge.  
Here may be seen the top 20 feet of the Towns-  
park upon which with thin, yellowish rock - no New  
arkland. It begins with a limestone containing many  
fragments of Litophyllum, a crinoidal limestone varying in  
abundance. May be very thin and consisting of  
Comaverilla. These same beds are very common  
Newarkland so far in it I saw Litophyllum, Leptaena, Trilobites,  
and Strophomena.

These limestones are followed by blue shales that contain  
as a type, Strophomena with a few Leptaena  
types. This is the lower part of the Newarkland. Here  
occur the first Leptaena and Strophomena.

Above is a debris of angular rock with shell  
and are some of the (?) bedded gypsum clay. The clay

out for a month or so.

[2947]

and here we are in the middle of the country. I am not used to the heat and humidity. It is very uncomfortable. We have been staying at a hotel in Tulsa. The room is very comfortable. The food is good. The people are friendly. We are looking forward to our stay in Oklahoma. We will be staying for about a week. Paid him \$34.00 for the room and a meal. I will be writing again soon.

August 10 Saturday. Return to  
Louisville

Shipped one box from Penngrove.

Left at 7 A.M. Arrived at Lexington 9 A.M.  
Departed at once for Paris where I arrived at 11:30.  
Left Paris at 5:10 P.M., arrived at Louisville  
at 3:10 A.M., birds had a rest in a sheltered  
and half dark spot with 6 fish.

August 11 Sunday.

Left Louisville at 9 A.M. Arrived at Cincinnati  
at 1:30, had dinner at the Strand Hotel and  
left on the P. & T. train at 3 P.M.

(About 25 miles east of Louisville on the N.E.H.  
the last of the Niagara stain is seen. On the  
Tennessee in undulating all the hills, Richmond  
always seen on flat tops, Ind. Then eastward  
the road dips constantly into low limestone  
beds.

Arrived at Cleveland at 8:40.

Hiving at American Hotel.

(2944)

August 12. Monday. Sandusky

Left Cleveland at 5:30 AM, driving 60 miles west of Cleveland. Then took car to Lake port to take the boat across the bay to the Peninsula. landed at Ohlencawecher rose one of the large quarries in the Maumee River zone is at ground.

These quarries show about 25 to 30 feet of limestone. The material is largely angular for limestone showing a zig-zag pattern, for the larger blocks are most abundant. However in the lower part of the rock are small Stromatopores, Lobularia, Leptaena, Conularia, Cyathina, Leptostomium, Terebratulus, Conularia, Conularia and Leptostomium (one about 15 inches in diameter) some men in the quarry's collection and some found near the quarry on Lake side.

From a quarry man gave specimen, and said 2. J. Tolpitsky was selling for \$25.00 each near William Bird, Lakeside Ohio.

This specimen is a very large  
specimen, 10 or 12 in. long or nothing diagnostic

of the Hamilton present. The lower 10 feet are of  
heavier beds and apparently more magnesian  
are less fossiliferous. It is this zone that is  
preferred for lime. The other 15 feet are ~~lime~~  
beds - even stony. However no separation can  
be made at the point for the two with limestone  
are identical.

In places the beds are glaciolite and deeply  
channeled (not so pronounced as at Kelly's Island).  
The water-side quarries seem to be derived from  
the Kelly's Island Limestone Co.

These beds carry more fossils than the same  
beds on the south side of the Lake at <sup>partly</sup> Kelly's Island. Here they are more  
bivalved brachiopods, <sup>more</sup> corals reefs. While the  
same corals occur in both cases it is more  
common at the south end of the lake. In the north  
the beds are more shaly and the fossils nearly all  
silicous. This then indicates a <sup>partly</sup> more  
water and shore area than alteration due to  
leaching in the rocks and <sup>here</sup> ~~silicification~~ to become  
the black shale corals?

It seems to me that the <sup>partly</sup> ~~silicified~~ corals are  
most abundant in the coral facies. They are  
present in good abundance and especially in the  
lower 10 feet. They are far removed from a <sup>partly</sup> land

Wednesday

August 13 Tuesday, Anton, C.  
Paid the Sandusky Hotel and my  
expenses. Cost of the boat \$1.00 for boat  
at 11 A.M. - 800 ft.

Not hemmed up in mud or ice  
so far and so little, but had a mistake  
with hem. Remained at the lake until  
the next day at 11:30. Returned to the  
new P. & Q. at Conestoga. Left the latter  
place at 2 P.M. and arrived at Young Falls  
about 9 P.M. 3 miles. Stopped at  
Dinsdale Hotel.

August 14 Thursday. Conestoga.  
Started on along the Loyalist River channel  
to the sea at Conestoga.

The first 10 miles went on several  
hills and through several different streams in which made the  
first country, and now a low level country,  
<sup>(mainly sand)</sup> Catherwood's golden stems are seen everywhere  
on land. The first 10 miles run north and  
leaves the Loyalist river. Then to the lake  
country up. The river runs east -  
located with an arrow and the  
name of the lake on it but can't see it.

thin layered. Beneath the com bedded layer about  
about 3 feet thick shows more action of some force for  
the material is considerably thinner, and it comes from

Beneath this layer the dolomite  
is divided somewhat sharply and  
then out as a bedded dolomite

This zone is about 5 feet thick and then appears the  
regular Rochester shale, & for as general as anyone  
you almost have a series.

The first abundant fossil I saw in the Rochester was  
to appear about 15 feet from top. This zone goes down to 100 feet  
<sup>dolomite intercalations, about 25 feet</sup> thick and has some thin layers of limestone pillars & the  
characteristic brachiopods.

Then follows another heavy bedded  
fossiliferous dolomite layer, also about 15 feet thick. It  
is the dolomite of the Rochester. <sup>Other good species to common</sup> Then comes a layer about 14 feet thick with no fossils.

Then a heavy dolomite sandstone slightly cross bedded  
about 6 feet. Followed by dolomites with thin lenses of  
bedded dolomite, turned below into alternating shale and  
thin green sandstone. Then the regular Rochester series  
for Orthiphycus hawtorti occurs a mere in these thin  
lenses of sandstone. Sometimes the sandstones have thin layers  
of dolomite, and beds up to  $\frac{1}{8}$  to  $\frac{1}{4}$  inch. At other times flat  
shale inclusions up to 2 inches across. In other places

The red shales land out west to the greenish  
sandstones. The core comes from one bed out there  
filled with sandstone lenses.

This is probably due to a

transverse fault - but no

lens lying on the base.

Other one is about a bit 15 feet thick  
the Medina, the other side of the valley to  
Kenne decidedly regular and then the top  
is terminated ~~in~~ <sup>by</sup> acuminate, on either side  
the latter seen lenses, likely <sup>about 15 ft</sup> and  
of alluvium. The <sup>top</sup> of the Central valley.  
These thicknesses do not have any correlation  
with you. In older road - the third &  
fourth, front to about 12 feet which - most  
likely it is <sup>15 ft</sup> - of course the  
Plover will reflect on the water when seen.

Just below the <sup>top</sup> of the Central valley  
at first in the <sup>bottom</sup> of the Central valley will  
be the <sup>top</sup> of the Medina.

Just below the <sup>top</sup> of the Central valley will  
be the <sup>top</sup> of the Medina.

for the sandstones near the center. This goes on about 20 feet thick.

Then heavy bedded sandstone for half ten feet thick (could not see beneath the cliff). It is 20 feet thick

Below are red shales about 200 feet. No sandstones or hard beds. It seems to go down to the river and may be over 100 feet thick in exposure.

From the evidence today it seems to me that the Medina is far more closely related to the Niagaran as here shown than to the Richmond of any area. There is not a single Richmond fossil present in this Medina rock while all seem clearly related to the Niagaran.

The Upper or fossiliferous Medina is clearly a marine deposit for about two-thirds of it is regular bedded, one always sees traces of the Licinula and at about 27 feet from the top in a zone not over 4 inches thick is where I collected the pelecypoda.

This Upper Medina clearly goes over into non-typical marine deposits in which there is much cross bedding, some scouring out of deposits and subsequent filling of the cavities, rolling of mud into irregular pellets and brecciating of shale into the sandstones, and occasionally a little evidence of niggulan

sun-cracking. It is in these deposits that one finds the Actinophycus and other so-called fossiliferous marl-slags. Finally the red color leaves these deposits and the last 6 feet or so are a white sandstone.

Above these sandstones follows at once a different colored shale - a green shale and then the Clinton dolomites. There is hardly any thing about these Clinton fossils to distinguish them from the Rochester shale - it is only the presence of a few things as the Pristina cylindrica and the Lithesis quadrifasciata.

Can it be that the top of the Medina represents a land <sup>intervallum</sup> and that this Clinton is the first a topmost member invading from the east. It is at Rochester that one finds the Pentamerus Maynas in the Clinton but it is not present here in the Niagara River pgs. Then too it is at the close of the Clinton that one finds the reefs with the worn-out species.

At the top of the Clinton here there are no reefs and all the fossils seen are those of the Rochester.

The next highly fossiliferous zone is near the center of the Rochester shale and for about 20 feet one sees the regular bryozoa and associated fauna. Then practically same shale passing rapidly over into the fossiliferous dolomite.

I was greatly surprised to find beneath Cathartes  
lycus heavy beds and the regulation Medina fauna  
the same bryozoa beds seen by me some years ago at  
Hamilton and now at Washington. These fossils which  
will certainly prove Clinton as it has one of the  
characteristic Clinton bryozoa <sup>?Erophaeaformis</sup>. Further it is  
from this zone that came the strophites sent me by  
Brant. Amongst these bryozoa do we a valve of  
Oncistina and the slabs taken will indicate the  
balance of the fauna. If these fossils correlate with  
the Ohio Clinton then clearly the true Medina fauna  
is above and is of Silurian age.

August 16 Fair. 30° F.

Departed at 8:30 in the boat arriving there at 9:00.  
Called on George T. MacVicar and he took me to  
the Whitmore quarry. Here about 20 feet of Medina  
is shown. The basal layers first - feet are of thin white  
sandstones with little or no bedding. Then follows  
about 3-4 ft of thin bedded sandstones with some  
shales. These sandstones are decidedly cross-bedded.  
This trends the N.E. - to the northeast and then  
the N.E. - to the N.E. <sup>some of</sup> the Medina fossils. Then  
comes in mostly shales with some thin sandstones  
some of which are well rippled bedded, all others

shows plainly the <sup>flatwash</sup> of a sand. On such a bar may be seen worn mingles of the smaller broken and here and there a larger granite or sandstone rock with ribs around it. It is visible in these cases one or often more of these and yet none of them to follow on top.

After these which also are <sup>an</sup> in contact with the sand bars, sometimes <sup>are</sup> found some coarse reddish sandstones. In all cases the  $3\frac{1}{2}$  - 4 ft. are thick.

These were originally near Medina, Ohio, and are indistinguishable at this locality.

The surface of the sand bars is very uneven,  $\frac{1}{10}$  to  $\frac{1}{12}$  of a foot apart, so that there are crevices between the old and new sand.

MacGillivray has a few specimens of this sand from Specimen 38 and they are made up nearly of stones,

nothing but stones, no sand.

Some of the stones are rounded, others angular.

August 17 Saturday. 120 N. Lat.

At the head of F. River we are <sup>in</sup> ~~on~~ the side of

the "mountain" may be seen two <sup>limestone</sup> ~~superior~~ quarries.  
The lower face of about 35 feet is in the main a  
<sup>green</sup> shale seen below being limestone & red at about  
20 feet (they are about 6-7 feet thick) but some thin sandstones  
are found at the dolomites often.  
below a <sup>thin</sup> green shale in the upper  
8 feet are about midway in these 8 feet there is a thin  
flat layer of limestone about 2 feet thick it is  
2-3 feet wide. This out of this 8 feet the following  
fossils come from. It is now seen that the lower dolomites are  
blue. Upon these follow others following blue

shales which are in the top come  
about last, are finally these number persist with  
one hole. In these shales at first the one  
first suddenly white at the bottom <sup>(8 feet)</sup> are very common.  
This zone is about 20 feet thick. In the  
above the blue (?) dolomites shales one sees  
the usual *Nia* was seen

[the large one] *Calymene*, large head like *Lycus* or  
*Burmaster* the long neck [considering the head]  
*Dolichorhynchites* <sup>de</sup> <sup>large</sup> <sup>size</sup>

In the upper part of the shales  
where the shales occur, near the sea in the N.

I H. On.

In winter a gang, a large one, a few hundred feet to the  
width would sweep the hill now; -

At the top the blue dolomite (shaly dolomite used for road  
material) has the orange facies). Above, gray to black. It was  
bedded in other dolomite in which the orange dolomite  
was less abundant, the dolomite being highly crystalline, a few  
inches, about 8 feet thick. The sandstone there is not  
so thick as above.

There are several blue moss notifications. The one  
from 10/17/1911, from Dr. H. C. Ladd,  
of the University of Michigan, is below.  
Please add.

July 20th 1908  
one bed of fine sand - 1-1/2" thick  
then 3 beds of clay 1-1/2" - 6" - 8" -  
then 12" of sand in thick. Then  
another 8" of clay. Then about 12" of sand  
and a few thin layers of clay.  
Then a little silt and a thin sand - 1/2" - 1" - 1-1/2" -  
then 12" of clay in very thin layers.

10 pm the last of the night  
I am still here as I have not  
got my things ready.

(in, it will take me two weeks to get a place to go.

hollow beneath the base of the quarry, these make the top of the Medina. ~~These do not exceed~~  
~~have a maximum thickness of more than 10 feet when the~~  
~~section of the first gravel stakes out 20 feet.~~

To the south east of the mountain town falls the  
main valley of the river. Here the limestone bed is  
on a small hill about 100 ft. above the base of which  
the dolomites begin. The elevation of the base of the  
limestone is about 32 feet high.

The Medina is ~~in the valley~~ <sup>at the foot of the hill</sup> westward where  
are those at the base of the first visible layer. The  
concretionary layer is often, but by no means always, one  
about eight feet beneath the quarry floor.  
In the valley the first limestone bed  
is from four to six feet higher than the  
quarry.

A little north of the quarry one sees that the  
dolomite seems made a precipice off the hill the Medina  
beneath which is a steep slope.

The Medina and dolomite are not well partitioned  
and about 8 feet beneath the quarry.

On the hill opposite the quarry the  
dolomite side is of a red clay, just like the  
Medina shale seen on the adjacent page. From its level  
level off the hill the elevation may be 200 feet.

father, friend, less.

*Leucanthemum* harlanii in flower, etc.

From the annual budget as of 1/1/66  
the following amounts were available:  
for the construction of buildings and  
improvements \$1,000,000.  
and with the amount of the note  
\$11,000,000.

the same, then no Clinton or Gore  
will be elected, so we will not elect  
Bush. In other words, the same problem about  
the same people.

The next morning I went to the town of Tunceli. The town is built on the hillside and has a large mosque. After the mosque I went to the market. There were many people there, and I saw many different types of food and clothing. I also saw some animals, such as sheep and goats. The town was very busy, and it was difficult to move around. I spent most of the day walking around the town and looking at the sights. In the evening, I went back to my hotel and had dinner. I then went to bed early, as I had a long day ahead of me.

# Boxes shipped

- |                |                                  |
|----------------|----------------------------------|
| 1              | from Vincentown by Express. Met. |
| 5 "            | Cumberland, Md. Freight.         |
| 1 "            | Louisville, Ky. express          |
| 3 "            | Knoxville, Tenn. Freight.        |
| 2 <del>2</del> | Camden Penn " " " "              |
| 1 "            | Greenville, Conn " " "           |
| 1 "            | Cleveland C. Express             |
|                | { Sandusky miles.                |
| 1 "            | Nia and Hall Express             |

as no exposures are the rail-road & soon upon  
the upper Main that extends to New Haven and  
Bridgeport.

The Carolina Th. is through a land interval  
between the Clinton and Lake Littoral sections trans-  
posed.

The Lorraine is found in those borders at  
Hamilton, thrown off the lake. Cf. Toronto the  
Lorraine is exposed. See Parks in the section.

Arr. 9 A.M. Linden, N.J. Falls.

Leaving the rails today. Will leave in the 7:30 P.M.  
for New York. Shipped a box by express.

In the afternoon visited the gardens of

Buffalo, cement Co. Took three pictures. The Iroquois nests taken which on the 3rd floor were  
just right up to the top and  
days as dry as steel. Corn, grass, etc.,  
can be seen directly on the houses.  
The track returns to Rieland and a  
number of tracks for the various  
minerals can be seen.

Left to Canada by at 7:30 P.M.  
Buffalo 8:30 and about one hour  
at New York at 8:60 P.M. and got to  
Montevideo until 10. This by the  
"Southern Railway of America". The  
Porter said this was the best and  
the best big train, several local  
trains than in us.

8c. Va.

.93

①

Dwight

Walt

Walt

Hanjiang Rock section Sep. 9-1908 at Trapacomo St. Va.

Upper Cretaceous.

doc. 93

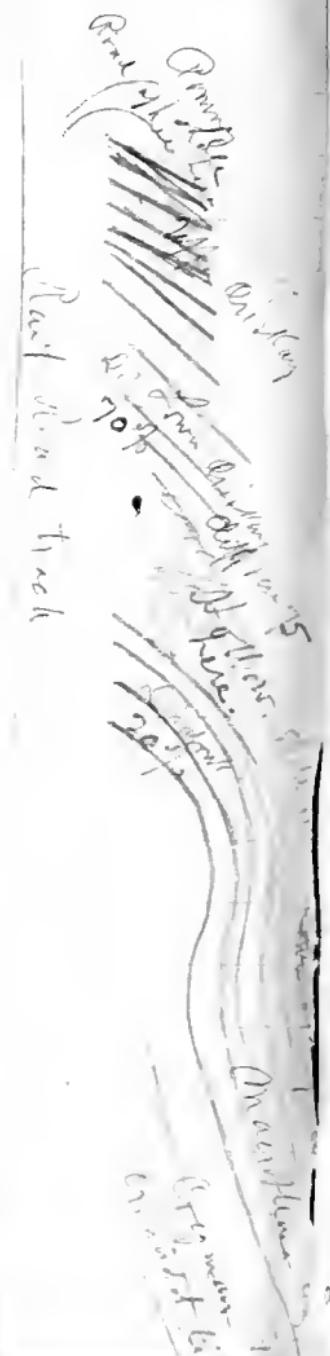
Gray reddish white sandstone with  
gns of gypsum intermixed, or other salts  
The Gray becomes gray toward the  
top. Contains ab gns. with rounded  
lipped oysters, small greenish  
molluscs, with spines, rounded.

From Cretaceous

Lenticular bed here has appear-  
ly been washed out into a water  
hole. The gray bed above, contains a  
few Trematina bivalves, the gns.  
with a slight

From Cretaceous in the cliff near  
mouth end of section about 35 feet high  
Lenticular gns.  
Polygyra was abundant, & common  
Lophodus flabellaria, most common  
near base

Strewn with Macropisium  
and Strewnia fragments  
near the base



are often thin Macrourinae; i.e., the diff. above such as 20 are at the  
other 70. No. stone was yellow.  
70 steps or joints.

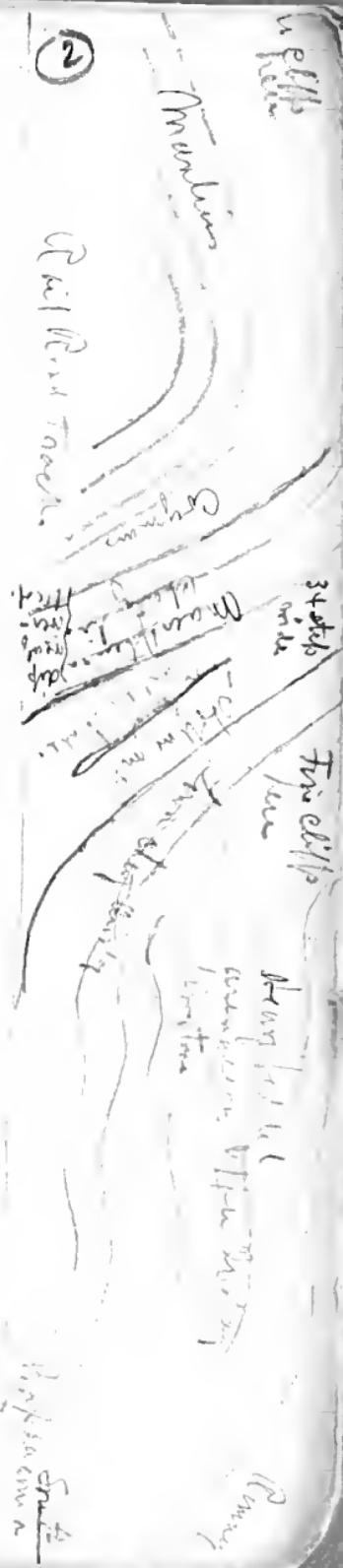
Section of the Macrourinae  
starts limestone about 30-35 feet.

Makes a cliff

The fossils are the usual ones  
A. macrourina, I. costimellana, I.  
cycliptera, U. rhombifolium, etc.  
Rhipidomella, Gastraster, Ectena,  
Mediodia, Spirif. recta

These beds just S. W. and not  
out back, into Cognac at 70 feet  
lose the cliff. The Cognac soon  
becomes nodular and begins to  
assimilate the Marniens at 100  
feet regularly visible at most the  
ribbed limestone.

The cliffs here show the 35 feet  
of Macrourinae and at least 25 feet  
of the Cognac. Beneath the arch  
one can see down to the bedrock  
at least 30-40 feet more of the thin  
bedded nodular Cognac.



A little further south the red rock layer  
and the Madison appears down to the ~~base~~  
~~base~~ ~~bottom~~ ~~bottom~~ as exposures of the D.E.B.  
section.

Slightly gone at South end of cut about  
32 yards across, dip at one side being vertical  
at the other about 50 degrees.

Lower Mississ. At south end of cut on the cliff  
~~about~~ ~~about~~ 285 feet high above South  
Branch. Of this about 260 can be seen.

Here the separation of the cliff from a layer  
of the Upper Mississ. is marked. Fully 70 feet  
of it can be seen. Then there would make  
the Upper Mississ. 185 feet thick and all of the  
Mississ. about 260 feet thick. It can be  
seen as intercalated in the L. H. Red bed by  
about the Moerchen red.

At the south end of section just west of  
the Powwow House (Hotel) may be seen 20 feet  
more of the west ridge coarse Upper Mississ.  
or that all the Mississ. here measures 280 feet  
of which can be the older.

(4)

As one goes to the top of the mountain back of the Parson House the coarse sandstone with bands of conglomerate are very noticeable. The pebbles cover the ground and some are as large as half an inch.

The Cumbrian and salt continues the antique Silurian time passing without break into the Ordovician. A low cliff of salt parallels to the east for the deposits are essentially all limestone, though somewhat impure. This is continued into Craggians but towards the west a higher cliff begins to appear seen in the first bed of the Lower Craggians. This becomes more decided in the Moesfleura bed and then the sea becomes very muddy and finally on land.

The land failed in the winter Cumbrian Gulf period while in the east was deposited the Cragg and until the Silurian the water again becomes general throughout the Cumbrian Gulf. Elevation of the land continuing to the east on the Piedmont slope are the Orlikay Limestone and some of the lime and becomes sandy and from a conglomeratic sandstone is deposit. Elevation continues and are becomes land.

(1)

Wetland on the top layer of  
soil; the same moderate depth as  
here. So the conditions are favorable for  
the Gambel's Gull.

