Notebook 12.

Upper and Middle Mississippi Valley.

1903, 1904, 1906.

U. S. GEOLOGICAL SURVEY
TRAVERSE BOOK

9-904

12

~~List of species occurring in the beds~~
~~into which the ^{rocks of the} Trenton group in mid. Tennessee~~
~~have been divided.~~

15 ft. A. upper Blue Beds - greenish blue, impure ls., with shale; fossiliferous - Plect. arcuatus etc.

1. 22ff.

B = Upper Buff Beds. 55 ft.

1. Fine grained dol. light buff or gray, mottled;
with nuclei of chert. 7 ft. from base a layer
with carbonaceous seams contains graptolites.

B.

2. Homogeneous structure, conchoidal fract., earthy texture.

3. Similar to above but more ferruginous. Horizon
of Halysites!

4. Similar to 2 but characters more marked.
5. Similar to 1 but not cherty.

5. Similar to 1 but not cherty.

254. C

Lower Blue Bu

Thin bedded impure ls., of varying purity & coarseness. Texture, interleaved with chalybeate partings, the whole having a bluish-green ^{gray} color. Very fossiliferous.

234.

D

Thick bedded buff ls. of rather coarse texture
somewhat chaly at base. Fossils not abundant
except in chaly portions.

27. 55.

474. *impressa* L.

St. Peter.

Placed under mending

Wisconsin Lower Magnesian Fossil localities:

SW $\frac{1}{4}$, SW. $\frac{1}{4}$ Sec. 4, T5, R. 5E. on SW. slope of hill near creek.

SW. $\frac{1}{4}$ Sect. 12, and N.W. $\frac{1}{4}$ Sect. 13, T5, R4W.

Section at Sterling, Ill. Water works.

~~20 ft~~ 20 ft with thin ss + congl.
at base.

16' Dolomite upper Maquoketa
ls. and variegated shale. Purple
and green colors predominate in
shale and yellowish drab in ls.

Basin.
C.N.W.R.R.

Collected a number of fossils here
but the fauna as a whole seems
less extensive than that collected here
in 1887.

Section at Beloit, Wis. (Chamberlain)

Section at the Phalen and Jordan quarries near Dixon, Ill. May 30th 1906

2 Photos - 809 - Roll 1. No 10 of Plattwell. Co. quarried in Sandusky Portland Cement Co. quarry.

Section at Thomas quarry, 1 m north of Dixon, near west bank of Rock River

100 yds east from quarry and not over 5 ft. from bottom a layer was found filled with Trinitella. Probably not more than 5-10 ft above sponge bed

Section at Beloit, Wis. (Chamberlain)

60

Chapman bed at Crawford Ave 660'

Section at City Quarry at northeastern edge
of town of Dixon, Ill. May 31st 1906.
about 1500 ft. W of Crawford Ave.

Shown in photograph no 140.

6

Sketch of localities
 at a distance of
 by
 Chas. E. Jackson

Sutton on Sandusky Portland Cement Co. lands
 May 31, 1906 on River road, east side
 Dixon, Ill. of Rock River.

Yellow and gray
 Concretionary
 upward

Drift
 about 10 ft. ls. less pure than beneath sponge bed. Fossils fairly abundant
 and of same general type as below. Deposition very abundant.

Sponge bed. Brown shale & thin seams of ls. very fine, 1"-5".
 Partly pure ls. of Platteville type. Will compare with the
 large ones in lower part 3-4" diam. 1/4 in. depth.

6' more or less above but contains more fossils. A few
 Crinoids occur. Both of them as single beds in fresh cut.

5-6' Thin bedded, bedded with fossils. Most of the typical Platteville
 fossils come from this bed. Crinoids & Euryclonaria.

About 4 ft. It is added to bed just above making it 10 ft.

4 Crinoids & Euryclonaria

1-2' Heavy bed. (slightly mag.) subgranular ls. fossils fairly in 2 seams separated
 by shale.

6-6" ls. dark to dark, pure, highly fossil. Melobesia chiefly, also brachiopods & other fossils.

16" Subgranular pure ls. highly fossiliferous.

9' More massive, the upper 2 ft. does, & well stronger, the remainder light gray &
 apparently slightly magnesian. Fossils very scarce.

3' Shale, rather magnesian ls. less fossil, than above.

13' Lower dolomite of Platteville. Fossils scarce.

Run of exposure.

57 ft. to sponge bed.

At V may = No IV of Mineral Point and (p. 35)
 No IV " " " " " "
 " X " " VII " " "

No. 1000

Generalized section of Plattville and Galena limestones at Dixon, Ill. June 1st 1906.

S. Savannah, Ill June 2nd 1906

N

Burroughs Park

South end of Bearoughs Bluff, northern ^{end} edge of Sawmuck.

- I. yellow, sandy mudstone, no fossils, Shows evidence of winnowing - erosion, but evidently is the initial deposit of Silurian overlap. Base and contact with Magnesian not exposed.
- II. Consists mainly of brownish, cellular dolomite, with small to large balled clayey masses and fossils. Apparently a conglomerate. In lower half ^{round} crinoid columns or plates are extremely abundant - most of them appear rolled. With them rolled pieces of *M. quadrata*. Upper two feet full of fossils, among them crowded *Orth. sociale*?, *Halysites* of small Silurian type, *Strophomena*, *Gastrophylloids*, *Lindstromia*, *Athyrids*, *marginatids* and other fossils. Somewhat like fauna in 22 ft bed at Miles quarry.
- Would appear that this is an early Silurian deposit with fauna coming in at once with submergence. The latter increasing and causing bringing in of mud caused it to die. The *Orth. foss.* then would be fossils.
- III. Muddy dolomite, in places one to six inches thick. Has a few fossils. Small *Strophomena*, *At. sulcata*, ? *Protarea*, *Dalmanella* suggesting *elegantula* but striae too coarse, *Glaucopora*, *Nemertopora*, *Phacelops*, *Orthis planicosta*? *Holopora* suggests Clinton or earlier Silurian.
- IV. More clayey dolomite and mudstone, without fossils.
- V. Earthy dolomite with considerable chert - An occasional small celled *Favosites* only fossil seen.

Structure shown in face of Burroughs' Bluff.

Diff. most from B. to D rapid falling
100 ft. less than $\frac{1}{2}$ mile.

about 1 mile

Note that the Silurian section in
Serra has more beds than *Crinoidis* bed than
here, where it is found only 50-60 ft above base.

Aug 17.

Out to
H. B. P. May 18.

1711

Brown cell. 6. bed II
 Medicine found
 United Clinician's
 Bryozoa at 7 months
 20-30 ft. deep 100 ft.
 3 March 1914. Found by
 J. H. Y. at Malaga

Strong East - west fault.

displacement

original fault.

appears to have been soft when originally
fractured, turned a red
moulded & weathered.

about 70 ft low. Correct alt., about 600'.

Chas. Miller.

Quarry at SE extremity

Savannah, Ga. (Just east of
R.R. yards.)

74

about 20 ft. chest thick, then 30-40' no rock (dry)

grayish, sandy, fine gr., mudstone like
bedding, but sandy and full of earthy
chert nodules, a small size. Forest, fine
but more abundant than in bed beneath.
For dist. see below.

L. clematis *nitida* bed
and this followed below by
Isolates bed - all within 50 ft
of 26 ft bed. All matrix soft
shales & mudstones.

II

Massive, fresh, laminar, weathered, calcareous
sandstone. Probably siliceous, argil. & possibly
also magnesian. Fossils extremely rare?
Preserved two specimens of *Diplograptus*
(?procti) one of *Dictyonina* and a long
Ceratocaris? impressions. Full of spores.
(*Bythotrephes parvifolius*) Cf. D.

about 100 ft I
cutting

(By the way)

I study greatly and
with pleasure in the
university. Every one has
quite a few friends.

Styptilasma cf. divaricans or radicans; ? Anapheagasma mirabile, ? Anaphegasma
of subcylindrical, Ptilodictya (small) ~~Ptilodictya~~; Nematopora, Helio-
cylindrinella, ^{small} Ceramopora, Lingula near obtusa, Ptilodops, Leptana
near rugosa, ? Plectambonites whitfieldi, Dalmanella small test, Strophomena
like bilobata but with coarse striae, Bryozoa marginalis, Zygospira pedata,
Small Holopora, Tricentulus **oswagensis**, Calymene and small Proetus.

Bed II clearly is ^{younger than} ~~still~~ Magnobeta. Probably = Cataract or at least ^{up. medium.}
Bed III is ^{now} regarded as ^{deposited by} ~~latest~~ Cataract ~~Magnobeta~~ rather than
Silurian, and as older than bed II of p. 17. (Burrup's
bluff, N of Savannah); or it may be, perhaps in part only,
equivalent to that bed. According to present interpretation
beds II and III of this section and another formerly
over it containing Rhomb. quadrata (= strong msh.) were
all removed from ^{or not deposited on} Burrup's Bluff which seems to
correspond to locus of ancient axis - see sketch
Burrup's Bluff

Savannah

Ваня и Situation

~~Strong mtd~~
~~22' bed~~
~~16 bed~~
~~H. dentata~~

More of a
Syncline here.

Structure shown in face of Burroughs' Bluff.

74 21 13 10 7 4 1

Waukegan - Along RR. $1\frac{2}{3}$ miles SE of town.

June 4, 1906.

2 Burroughs' Bluff (Burroughs' Bluff)

Long ledge { 10' +	?	Fossils, mainly - very few, <i>St. conica</i>
Platystrophia { 4'		<i>St. conica</i> , <i>Pygostrophia</i> , <i>Small Plat.</i> , & <i>Dab.</i> <i>O. truncatus</i>
Camellia sh. {		<i>Stalps</i> & <i>Co.</i> <i>pl.</i> & <i>fr.</i> and <i>Neurolepta</i> bed fossil
about 15'		Thin bedded argil. ls. few foss. being quarried for road metal = <i>Clitambantus</i> bed
* about 12'		Thin bedded, argil. ls. with a layer or two at top of dolomite, Fossils, none
Shales & coaly, 18'	x	Prasopora - <i>Stictopora</i> <i>intermedia</i> 203.9'
argil. ls.		All parts with <i>Dab.</i> & <i>Platystrophia</i> & <i>Dio. pect.</i> } <i>Phylloporina</i> bed
4'-6'		Also <i>H. marginatus</i> } No <i>Stictopora</i> bed
12'		Impure earthy ls. few fossils. <i>Strep. pygmaea</i> } Lower <i>Platystrophia</i> & <i>Hemaphysalis</i> bed
		Heavy beds, carbonaceous } Lower <i>Platystrophia</i> & <i>Hemaphysalis</i> bed
		Shale (carbonaceous sh.) } Lower <i>Platystrophia</i> & <i>Hemaphysalis</i> bed

This section is remarkable in the absence of the *Stictopora* bed and the greater part ^{or all} of the upper thin bedded, argil. ls. of *Platystrophia*.

22 June 5, 1906

I-3

Citation: 203 P

I-12

Section here 2 m. N. of Madison to creek 1 m. N. of Madison. Section dips south 50 feet. The 50 ft. of beds is about 100 ft. 1931 to 1950. Section made in June, 1906. (See map for station.)

For generalized section of the Bar. Probably 25-40 ft. high.

Bar. Probably 25-40 ft. high.

I-7

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25

2

2100

20

1030' - 980'

962

760

93

15

895

1991

15

5

about 10'

200

350

5.5

Yellow River

20

-79

11

Barometric readings - hence ^{at least 54 ft. to base of} ~~altitudes~~ ^{of peaks - to} ~~ascertained~~ ^{Calvin}
by 3011' ^{great assistance to maps}
of Allamakee Co.
Published by Calvin
(River level. 750')
Top St. Peter 880 } as given on
w. Treatise. 1030 } map

25

I-16. 2 m. N of Postville, Iowa.

1100 No exposure

1075 chert of Middle Magnesian, with *Crin.*
 1070 probably derived from chert dolomite.
 1060 top of clay as observed
 Shale II
 Trilobite bed { 987 Thin plates of reticulated chert
 975 Trilobite bed
 slight dip in direction of section.

This section of Magnesian agrees fairly well with
 Clermont section. Interval from Galena to base
 of cherty middle Mag. estimated at about 80 ft. of which about 60 ft
 is shale.

The cherty middle Magnesian of this section
 and vicinity was mapped by Caloun as Galena.

I-17. Clermont, Iowa.

I-18. Generalized section

The Hyatt section exp 32

Osterlock, on Turkey River Branch, has good exposure
 of Plattville ls. in cut on west side of village.

Fusispira bed extends down river from Clermont
 to below Eldader, Iowa.

It is a noteworthy fact that rocks in vicinity of
 Clermont dip in nearly all cases with direction
 of drainage.

It appears that the Clermont - Turkey River
 area corresponds to ancient basin with northern
 affiliation for Tortonian and Dixon connection
 for Plattville. (Verify this for forks of river
 near Mass. River. Does not hold for Galena which is Mass.
 as in Dubuque section.)

Revised June 19, 1906.

Section of drill hole in bluff over Turkey River
 Station.

Dubuque to Darlington & thence to Mineral Point. June 20th 1901.

30

Dubuque 620' bridge.
Galena outcrops in cuts & bluffs frequent & scales marked. Here or just east first outcrops of Magnesian.

A good way to look into lower Magnesian would be to go east from Dubuque, stop at Lanes siding, a few miles east of Scales Mound, and walk east to Apple River, a town of some size. Cuts appear in good shape and appear, as it appeared from car window, both sides of Galena-Magnesian contact.

The altitude of these Magnesian cuts (i.e. the contact) as shown by barometer to be between 950' and 1000'. Warren, which must be situated on upper Galena is shown as 985'. As the Galena is scarcely over 250 ft. thick it would appear that its surface rises from Dubuque to Apple River at least 100 ft. The amount may be determined with fair accuracy from Lancaster sheet, and C.R.R. books.

(for continuation of days work see p. 38)

Iowa Silurian Section

Devonian

Bertram

Anamosa

L2 Claire

Cross bedded

Delaware 2,000 ft. or more	upper quarry	20'-70'
	Cerionites bed	10'-25'
	Pentamerus oblongus	50'-75'
	Syringopora tenella	60'-70'
	Chert beds	45'
	Lower quarry	
	Basal beds	15-25'

(see Manchester for Delaware of appropriate.)

Visit localities in following counties:

Dubuque
Delaware
Jones
Linn

Iowa Silurian

Wykoff - June 14, 1901. (1) Progress run $1\frac{3}{4}$ m. W. of Wykoff

W E 1150 in town of Wykoff

1078 top of ...

1000 ...

Large produced by falling in of roof of underground water courses.

Notes above Train, Wykoff east to Lancaster

$1\frac{1}{2}$ m. E. of Fountain Top St. Peter 1010' dipping east.

1100' Isinours - top of (Dashed Skatque) 900

800' " " " New Richness about 800' yellow ss.

R.R. bank Lancaster, 700'

NW 1/4

Tried to see Mohawkian here but found none. The Platteville cannot be within 4 miles west, and not much nearer than tops of hills about Isinours. Should have stopped at Isinours & walked back along R.R. to Fountain.

W. A. Koff

Wyckoff - June 14, 1905 (P. M. run 1 1/2 m. W. of Wyckoff)

W E 1150 in town of Wyckoff
 Sink from top of hill
 Spring from top of hill
 1078 ft. top of hill
 1260 ft. top of hill

Group produced by falling in of roof of underground water courses.
 Notes about train, Wyckoff east to Lanesboro
 1 1/2 m. E. of Foundation Top St. Peter 1010' dipping east.
 1 1/2 m. W. Lanesboro - top of Onondaga Shale 900
 1 1/2 m. W. " " " New Richmond about 800' yellow ss.
 R.R. track Lanesboro, 700

Lanesboro, June 14, P. M.

Tried to see Mohawk here but found none. The Platteville cannot be within 4 miles west, and not much nearer than tops of hills about Lanesboro. Should have stopped at Lanesboro & walked back along R.R. to Foundation.

42

13' 11" 4' Spt shale, brown below, with a one ft. layer of yellow, sandy dol. 2085 - 2086
 7' 10' 3' 11" Phosphatic 2085 - 2086
 10' Irregularly bedded, separated by shaly zones, yellowish dol. beds fine than above. No fossils in upper half but some third the shaly zones are full of crinoid balling. 2086
 23' 1" VI 8' 1/2' Crinoid shale, only slightly mag. zone. to. 2086
 1" - 2" 36" Bluish, moderately mag. do. in layers 1-2 ft. Rather highly fossil. Crinoid buttons, Dol. Massim. frag. etc.
 4' Full of fossils - yellowish dol. 855
 25' Grayish yellow, to bluish, granular or micaceous shale. fossils, but small, except a *Sinuites* and a *Cyrtoceras*. Mouths of crinoid buttons rather common.
 60' Yellow sh., rather dense, mag., but not dol. No fossils.
 15' 3" not seen *av. v. v. v.* in 1930 when some collection was made. 466
 35' 45' - 53 ft. of *Furcata* bed. *Ischiodius* etc. 466
 7' *Furcata* bed about 700' (or 695) 297

Reservé

Proven ^{not exposed} ^{Flaming wall - north about 750' - St. Paul}
 Fossils can only in banks of river ^{To 650' deep (200' in the bluff}
 700' ^{to Receptance's log} ^{above 500'} **2970**

22

The whole section here is comparable with Dubuque section.

Mineral Point, Wis June 21st 1906

33

- IX - shaly, massive, fine. Loph. v. chief
 VII - more or less shaly, massive, fine. Loph. v. chief
 sponge bed VII - 3' - More earthy & less mag. ls. Contains Dorian sponges and other
 VI - 4" - of this horizon.
 18" - Shaly, mag. ls. with clayey pebbles. No good fossils.
 V - 16' or 17' - Thin, wavy-bedded somewhat cobbly green gr. ls.
 IV - 4' 6" - Coarse, heavy bedded buff dol. Very few fossils.
 III - 7' 6" - Finer gr. and laminated blue dol. with 4 or 5 highly foss.
 II - 6' - seems to correspond to bed II of Darlington section and
 I - 1' 6" - thin bedded, similar to above, but more probably also to upper part of I.
 S. Peter - 25' + - S. Peter - pure yellowish and brown, somewhat hard
 enough to be used for building stone.

Photographs Roll IV, nos. 10 & 11 panoramic views of beds
 III to IX. No 12 View of S. Peter and beds
 I & II (near distant) from RR. track.

Chattanooga, Wis - Chas. & H.W. Clapp
 Outcrop of cherty Galesburg on beach with house
 & surrounding valley.

(Compare with Dixon section p. 13)

V = Dixon G + H
 VI + VII = " Sp. 12, 13
 VIII = " Bed 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100
 VII + IX = " No 10

34

Section at Dolanville (Calvin + Bann)

Section at Dolanville (Calvin + Bann)
Jom. 10, Vol 10, p. 125-14

- Base: Macauley shales
of (unconformity) - sh. with phosphatic pebbles.
- XV 30' The heavy Galena ls., earthy, non crys; layers 10-12 inches
at base, decreasing to less than 3 in. at top. Top or upper part
very - *Lingula icornuta*, *Lingula dentata*, *Conularia*, *Tricameraria*
- XIV 30' Well dolomitized Galena in layers 1-2 1/2 ft thick; with
upper beds near middle frequently disintegrating to form lenses.
Base part of this bed shows at top of Eagle point
- XIII 10' Two or 3 heavy beds full of *Receptaculites*
- XII 70' Heavy bedded typical Galena hard, crystalline
relatively free from chert; beds 3-6' thick.
- XI 3' Bed with calcite, often in large crystals
- X 4' Bed containing large quantities of chert.
- IX 18' Typical Galena ls., hard compact, cryst. completely
dolomitized with small amounts of chert.
- VIII 12' Massive beds full of chert
- VII 6' Ordinary Galena, crystall. dol.
- VI 4' Lower *Receptaculites* - bed varying in exposure -
small pebbles of calcite or some chert
- V 3' Heavy ledge - level of top of lower Peter
- IV 10' Dolomite varying in aspect according to weathering
at Eagle Pt. - beds of yellow 10-18 in. apart
- III 20' Massive cryst. dol., bedding almost obliterated
- II 10' Incomplete dolomitized beds with shaly partings at
intervals of 6, 8 or 10 inches.
- I 2' Basal ledge of Galena - base weathering into
dark brown or reddish ferruginous clay (a red rock)
- See p. 50. Green shale with Dal. subargentea, D. dent., etc. - all these
at Specht Ferry.
- 11' Galena - imperfectly dol. ls. with shaly partings - fossils in middle part.
- 208 5' Thin ls. with shale - on road entirely shaly & full of fossils Dal. teste. etc.
- 25' Rather coarse bluish ls., layers 3"-6"
- 208 12' Green shales with foss. plates of ls. *O. subargentea* & *O. tricameraria*
- 5' Thin bedded, bluish ls. weathering brownish in color.
- 5' Bluish ls. in layers up to 15 in.
- 208 20' Brittle fine grained ls., full of fossils. Dark blue above zone.
- 8' Lower buff beds -
- 45' To river - not exposed. (Lower beds and top of St. Peter shown
3/4 m. below ferry in r.r. cut.)

Galena - chert
See my outline p 56

Auburn eastward to New Hope, Mo. H
O
June 22nd 1906.

Generalized section between Elsberry and
Auburn, Mo.

June 25 1872. Winfield, Mo.

at Winfield, SW of fault.

- about 500'
- 1' ~~Loess~~ ~~to 100 ft.~~
 - 2' Shaly comp. in part stained red.
 - 3' ~~Loess~~ ~~to 100 ft.~~ Fine example - pebbles compact ls. like St. Louis.
 - 7' ~~Loess~~ ~~to 100 ft.~~
 - 15" peculiar green rock.
 - arena. light ls. in calc. ss.
 - Fine gr. oolitic ls.

West Point

Cape Girardeau

(See Batters cut in West. Hill book 16 p. 222.)

Loess 10-15 ft.

Normal Platten ~~Stratigraphic~~ ls. ^{Lowville}
Barytic limestone of Hayes.

about 50'

- 1. ss. clay to mud below but full of small *Clonostoma* etc.
- 2. fine lamination, shaly, argill. toward top, compact above, spots of much lower ss.
- 3. 2 ft. mag. ls. like mud hole in slot but with argill. spots & much lower ss.
- 6' shaly layer 1 ft.
- 10' Dark mag. ls. ^{Carthage} laminated, fine & coarser gr. the latter prevails.
- 7' 3 ft mottled ^{no Stones River nor Lebanon}
- 1' mottled ^{Early mag. ls. light}
- 5' more or less laminated, dark above, blue gray below, mag. ls. ^(Bassett's section makes the junction much thinner - only 18 ft.)
- 7' mottled
- 3-4' even as mottled layer above.

450' river level

(Cape Girardeau) valley - 300 yds. south - The old Cape appears at P.
ss. dipping rather strongly (8-10 degrees) eastward. Some
400' ss. are exposed along river in bluff but down 1/2 mile from
gravel at top of the ss. is about the same altitude (250)
as bottom of valley. Hence it is thought that nearly all of
the *Joachim* is exposed in ss. of

West Point to Monterey (edge of bottom)

Illinois River
June 26 1872

Stones R. 50-60 ft

Beck R. about 28 - not run.

Kennett - not less than 50 ft. probably 60+ - seen in occasional outcrops and elsewhere recognized by light red soil.

Bates town 600 ft.

Monterey, Ill. bluffs west of Illinois River

P.R. cut $1\frac{1}{2}$ miles N. 10° W of Sandy North, showing upper part of Jefferson sh. ls. with conglomerate in bedding.

Maple Grove Co.
Minnesota ca. 1901

A = "Cotton rock"
B = Cotton rock slightly brecciated. Breccia in heavy interbedded bands.
C. Similar to D but bedded; somewhat brecciated and contains large shell concretions or masses. The latter sometimes appearing bedded.
D. Conglomerate, containing shales, with rock and shell fragments - sometimes by light gray magnesian ls. similar to quartz part of C.

ABc

Generalized section in vicinity of
Ft. Atkinson, Iowa. 1904 + 1906.

For local section
on p. 59.

The Clinton section bed must be beneath this section.
The upper or Patterson Spring Magnesian, is not present in this section.

Photo. Roll

* Compare upper Richmond dolomite between Clinton + Postville.

** This horizon (c+d) is comparable to Wilmington + Formosa

Plectambonites of small size very abundant often occurring in the fossils

07
00

This interval was some 6 m. east of Drewish on road to Hunkan. It was not well exposed but evidently attains a thickness here of 5 or 6 ft. Numerous fossils occurred underlying Rhynchonella & St. Legerella beds among them Rhy. annulata, Rhy. filosa, St. Legerella, Zonitiformis, Dalmanella - monacanthus etc. At the base thin lying layers occur filled with thin Dalmanella in flattened examples.

Dal spec. min. 18.

Fusulina bed

Ther. David Phillips Esq.

Thickness estimated

50

See^o N. 55.

Devonian,
supposed to be
equivalent to
Edgar Valley
form.

5-3' Honey combed dolo. ls. full of Dev. foss.
Harder than Dev. beds beneath.
about 32' mostly soft, earthy dolo. ls. growing
more argillaceous downward.
a few inches at base full of small quartz grains.

(12) 6' soft green clay shale.

2'-4' thin bedded dolo. with very little chert.

magnesian ls., in layers 1'-3' thick, growing
part blue in quarry. Fossils rather abundant
in weathered face of quarry. R. capax, Plector.
Plect. ser. var., Stroph. several spines,
Camerouras, several undet. bryozoa,
Dalmanella Hrb. insculpta etc.

2045

Sec. II shown in quarry
on site of old fort.

on Calmar road. Fine exposure in
quarry and bluff of stream. The top of the
section here may include basal layer in sec II, or
it may be still ^{higher} beneath it.

slightly cherty & tilted. Fossils same as in sec. II.

Foss. c. . . . 6' Not exposed - surface stream

(F) 25' 30' with loose blocks similar to above but character of slope indicates more shaly beds or very little chert.

(E) { 5' Horizon of abundant chert. white.
2' Only slightly magnesian ls. full of fossils remains.

Foss. b { (d) 16' Mostly soft shale, including thin layers containing fossils. Fossils good at base. + Rhynchonellid-like corals with capax and other fossils normal to this horizon.
6' Non dolomitic, light-gray ls. with fossils same as in shale above. Thin bedded.

209 R (C) { 12'
6' Magnesian Dolomite ls. fossils few but some of Richmond types. Strongly bedded.

Foss. a (b)
(c) 5' Sandstone ls. with blue shaly seam at top that is full of Porolithus & Calymene fragments. With these are cystoid plates & columns Dalmanella, O. pruvoti, Orthoceras. The beaded crinoid column occurs here (as in most of the beds - Dionidea, Ceramurus above) but is rare.

(all over)

Geology,
W. W. Washburn
St. Paul, 11'
Photo-Roll 3, no 7

Sections at St. Paul & Minneapolis (see reverse)

(see over)

Brick Works
South St. Paul

Full of small fossils (Bygonites)
also larger ones. Other fossils
not very common except in
certain seams which are
crowded with them.

73 S. Smith Ave. & Winona St.

600' base of St. Louis
17' 17' may
10' 15" lower buff
4' green sh. from top of St. P.

- 30' drift
- 12' yellow shale - limy - weathered. Base with fossiliferous
- 8'6" 2-3' with plates of earthy ls. passing into yellow above
- 3-4' more argill. ls. than shale, the basal layer light color & crumbly
- 14' Green shale and ls., some especially the basal layer, dolomitic. Top layer mostly
- 10-15' Green shale with 1-3 in. plates of light green ls.
- 20' Large green shale with extremely fossiliferous ls. seams at intervals of 1-3 ft.
- 14' almost solid shale - hard principally by brick makers.
- 555' 511' 6' Vanuxemi bed.

Photos - Roll 3 - no 2 Anthony Hall across river from brick works
345- Panoramic view of east end of shale deposits.
State House on right.
St. Louis bridge
no 6. Narrow view of upper half of brick works cutting, regardless of
top of Trench bed.
no 7. Suburban ls. on opposite side of river.
no 8. St. Paul on west bluff from Washburn bridge

81 John 55.
 Shale
 green and blue 6" at top irregularly bedded somewhat.
 12' 4" 10' 4" 6' 2"
 The normal bedding is made of 1" to 2" irregularly bedded, and only 6" to 10" in thickness. The shale is very fine grained, and is very soft, and breaking up into small pieces. The bedding is very irregular, and the shale is very soft, and breaking up into small pieces. The bedding is very irregular, and the shale is very soft, and breaking up into small pieces.

12' 4" 10' 4" 6' 2"
 The normal bedding is made of 1" to 2" irregularly bedded, and only 6" to 10" in thickness. The shale is very fine grained, and is very soft, and breaking up into small pieces. The bedding is very irregular, and the shale is very soft, and breaking up into small pieces. The bedding is very irregular, and the shale is very soft, and breaking up into small pieces.

Section along Grand Ave., St. Anthony Hill, St. Paul, Minn.

Typical *Phylloporina* bed under cover.

See section as Brick works - West St. Paul.

Rhynchonella bed.

Erosion channel (or old cave) in quarries
at Darlington, W. Va. Oct. 1904

Darlington

See remarks
of this page

Revised June 20th 1906.
+ Photographed.

Shale with Plant fossils
Comp. on N. wall

Very fine of
brachiopods
character
and high

64.3

N.

Sketch of Dartington, Wis.
Erosion channels in
basal galena & top of Plattville
& Beloit ls.

Oct. 1904

Cavities, ^{with fossils} were filled at time of
pipe clay deposit. One hundred feet to north
the pipe clay layer is wholly lost in middle of single layer
formed by ^{some of} layers of shale above & beneath it at same
The shale above at Liberman dips out to the southward
Indeed the part of shaly water marl in most of the
lower galena leads toward the cavities.

Between Green Bay and Little Sturgeon Bay.

near Green Bay - Whiting's Bluff is underlain by about 65 ft. of lime.
~~the~~ So are in general the strata in the vicinity of Green Bay.
 To within some 7 miles of mouth of Little Sturgeon Bay where 15 ft. only
 is left. some unconformable beds beneath bay. For the Green - 30-40 ft
 beneath top li. is shaly.

Chart 7 of Portland, Me.

Clifton, Me.

South of Clifton, on the east side of Lake Umbagog, over 175' of fine spread above lake. Near level of lake a dark, shaly brown shale with fragments of Lingula. Upper portion mostly concealed.

from
(inside) Pond

Iron Ridge, Wis.

Cin. shales outcrop beneath the Iron mines at this point. Numerous fossils. Natural exposures very few. Shales weather out & overlying Niagara tumbles over them. Might try it also at Mayville mine.

Sep 11, 1903.

On Rushing south to make a few pounds in Illinois & about St. Louis before starting for Texas, stopped at Iron Ridge.

There is no mine at village but the first comes in about 1 1/2 m. n. of village. This is called the Iron Mt., and is part of an escarpment running n.e.s. Some escarp. has Mayville mine 3/4 m. farther north. The Iron Mt. mine has not been recently worked for iron, but the limestone above was much quarried for flux & shipped to Milwaukee etc. The ore is only about 6 ft thick here. The Richmond underlying it is not shown in quarries and I feared I could find to get any fossils from it. However, found a small natural exposure at southern end of mine where road climbs ridge. Here secured about 15 lbs. of fossils, mostly shales.

P.M. drove up to Mayville mine where I found a fine exposure of the ore and immediately beneath it green sandstone shales probably of a period older than Richmond. The ore here is 12-15 ft. thick, with an iron base but irregular top, the latter being black, dense & ore richer, and probably represents effects of surface conditions prior to deposit of underlying limestone. This "Clinton" ore is certainly was much lower in embayments. Am inclined to regard this bed as latest Richmond rather than Clinton.

Took three photographs (comparing nos. 7 & 8) no 8 being a nearer view showing irregularity at top.

Shales - Mayville bed Mayville limestone Mayville ore bank.
 ? Latest Richmond 12' to 15' "Clinton" ore Clinton shale

Oshkosh - Wis.

2 m. S.W. of Osh. are quarries with abundant fossils in
upper portion.

Galena - Trunkton
 N. i. s. s. R. p. t. vol. 2.
Big Swamico River at Troutville exposure fossiliferous section
 good enough to visit.

(over)

Mesaueh No.

(see over)

Belue Island m. S.E.

of the Plateau granites, with study layers very fossiliferous.
 To county line, bearing ground aspect of upper bluff beds.

Sep. 10 - '93

Rebut Fellen's quarry on S.E. side of Mesaueh, exposed about 10 ft. of rock
 in a very gentle slope. The rock is distinctive in thin layers and local
 top surface abundant but poor fossils. These consist of a diverse, small
Brachyopora or *Rhynchonella*, numerous *Dal.* trit., *Din.*, *Protomella*, many, some *Thrypan*
Rhyssalus, aculeatus of fine lined *St. Rose* variety, and other fossils including
 horizon of *Phylloporina* - *Fucoid* but in *Mesaueh*, replacement layers not
 some chert.
 (= upper blue beds of Belue section)
 (= basal *Galena* of *Belue* section & *Belue* section)

city granites just west of Fellen's.

This is practically the same as Fellen's, took some photos of layers.

(Belue)

Potomac with fossils occur against *Periphyllite* beds in a
concretion 5.5. - at Berlin, W.V.

The *Baraboo* locality with *Saccogyrus* "occurs in the S. flank of the
 north quartzite range, near the town of *Baraboo*, *Wisconsin*.
 20' ft. with *Medusa*? 5.5. beneath. *Conodonts* the locality is
 7 miles west, in *sec. 25* (municipal) T12, R. 7 E.
Baraboo, on slope of hill. *Chamberlain* says fossils occur at
Chicago quarry, east of *Baraboo*.

Truett on *Magnum* ls.

Green Lake county. N. 2. 1/4 sec. 18 in *town*. 3 *Mapleford*, where road crosses
 a small stream, where *Truett* in contact with *Mag.* (lower) and *Union* and *St. Albans*

At *Pipes* similar conditions are shown. Just west
 of the *Cerro* bridge, in lower part of city, a rock hill
 (likely *Union*) of *mag.* with or without *St. Albans* intervening between
 it & *Truett*.

Plattsville, W.V. Oct. 21 + 22 - 1904.

The type section of the *Plattsville* formation will be
 sent me by Dr. H. S. Grouse. It is well exposed
 and readily divisible into a number of beds. The lowest
 (or bedding rock - dolomite -) bed is not shown, nor is the
 lower part of the thin bedded division next above it. In
 Grouse's section the upper half of this bed is designated
 bed 1. It should be and will hereafter be spoken of as
 bed 2.

The beds designated as the *glass rock* and those above it,
 are the significant ones in this section. The gl. rock
 appears to be thicker than usual and includes
 several dark shale seams containing algae described
 by Whitfield. Secured a *Bot.* Above this
 is a recognizable *strophomena* bed the diagnostic
 5 *frondiform* occurring with *H. exigua* & *minimata*.
 In the upper shale bed. In the upper part of the
 bed there are one or two thin layers containing black
 pebbles - many of these pebbles are clearly casts of
 gastropods and they all seem to be phosphatic.

The lower layers are crowded with *Dol. perrini* *minimata*.
 The bed above this is a fine grained, wavy-bedded
 ls., full of *Rafinesquina alternata*? and many other
 forms. These others include trilobites like *Bathyrus*
springer and *incarnatus* *medusina*? that strongly
 suggest *Strophomena* *lanceolata* but probably of later age.

Next some slightly magnesian beds full of
Dol. distans *minimata* and *D. perrini* and
 very finely streaked - *Pentamerites* abundant.

Finally there are some 6 ft. of thin, subarg. ls.
 strata - probably slightly magnesian, showing fossils
 in fresh joints - among these large *Dol. perrini* and

Gastrea The next beds are dolomite and contain
 a few feet above these *Platystrophia* which is believed
 to characterize the lower *Gastrea*.

As the *Capitula* (small, many little broken ones)
 section differs - important *Platystrophia*.

the glass rock is evidently much thinner and the peritid layers at base of Strophomena horizon are much less developed (scarcely recognizable). The shales of this bed however are more prominent being over 3 ft. thick. They contain at least two thin beds with black pebbles & agglutinated specimens of *S. ponderosa* & *H. exigua*. Then come 18 in. "oil rock" followed by thin bedded dolomite ls. with including thin seams of oil rock. This last bed contains fossils some of which were taken for further study - among them a *Vannermenia* like mita and annulated *Orthis* $\frac{3}{4}$ in. dia. This may be the top of the Plattville or possibly all down to the oil rock as before. The latter would be prepared if the fossils permit.

On the opposite side of the valley (at the Drydale property) the oil rock is thinner and terminated above by a foot or more of rusty layers containing abundant *Phacelobolus* and small *Phylloporina* bed brachiopods. This 2 ft. bed is additional to section at Capital Hill. Above it - comes similar Galena to that at Capital Hill.

Shells in section 1200
Lower
NW 1/4 of Dunnington.
10-12' 1' 1" Range, coarse & dol.
1120' 6' argill. dol. with chert nodules.
Ost. 21, 1905
St. Louis slope

Oct 20, 1905 (15 mi. S.W. of)
Very bad weather cold & raw wind
Generalized section between Plattville & Poline
Best shown on tributaries of McAdams Branch.

10' 10" Thin, sparry mag. grading upward into dol.
10' 10" Dal. ls. & D. peckville O. trilineata & O. ponderosa
12' exposed Fine gr. ls. full of *R. alternata* & 2 sp. *Strophomena* & many other fossils
a Strophomena bed with D. minorifolia & numerous *Stroph.* specimens
14' 3" Glass rock, R. minutissima & ? *R. exigua*
60' 4" Shale. Highly fossil. Thin bedded
Dolo.
St. O.
sec.

Loc. NW 1/2
The fine grained ls. directly over the Strophomena bed is the most interesting one for fossils. Besides brachiopods it contains many molluscs, *St. astatiformis* being particularly abundant. *Obolus* also tolerable. *Cer. flumens* and *Isotelus*. Saw tail of one that is new. It seems to be a *Radiolites* with shell marked plane on lateral lobes of pygidium but axis smooth. Pygid. diam was about 3 in. wide.

This bed contains irregular seams of oil rock. Surely it may consist entirely of oil rock. It is regarded as the horizon of the true oil rock. In some places however on definite veins it probably consists almost entirely of oil rock and in such cases the Strophomena bed may be missing thus allowing the oil rock to rest directly on the Plattville. This may occur also at loc. 10 of without exposure of ore, but in such cases the bed consists almost entirely of ls. the oil rock being the very thin layers.

(all over)

97

Oct 21, 1905.

Examined section below dressing at Plover, Minn.
Found lower magnesian ls., ~~extensive~~ ^{extensive} in quarry.
Top of ~~Shakopee~~ ^{Shakopee} ~~shale~~ ^{shale},
with interbedded green shale & sandstone.
From top of L. mag. to green shale at base
of Plattville 38-40 ft., this evidently being
thickness of St. P. here.
The quarry is in low Plattville, the top of
quarry showing 2-8 ft. of thin bedded Plattville.
The latter is fossiliferous but unusual. Took a few
pieces of rock with Plover thin and shale
containing other fossils.

At bluff along Grand River, 1 1/2 m. S. of Plover
with top of ~~Lancaster~~ ^{Lancaster} ~~again low~~ ^{again low} mag. ~~shale~~ ^{shale}
thin Plattville & finally lowest Gallina was at
top 6' ^{Raf. mag. shale}
12" ^{fine gr. ls.}
mag. ls.

A small quarry opened at top of
bluff throwing rock of Raf. beds to
road 100 ft. beneath. Shale fossils
in this rock, the mag. containing a
large trilobite and in Raf. the
usual forms in abundance. Took
a slab of latter containing a spec.
of trilob. like *Thalops*.

(Lancaster-Bulletin)
after crossing stream A.
found other quarries
in local Gallina. Rocks
are full of fossils. Took
one piece with large head
of *Cerasurus*.

gone at 1-2
the bed L. mag. with fine
gr. ~~ls.~~ ^{ls.} at top, Cryptin
1-2 ft. dia. next beneath and
some chert, white, quartz, green
bedded seems as gray dol.
at base. Took photographs
of contact.

Loc. N. 5

Oct. 2, 1905

28

Loc N.W.6. Sandstone chert fossils found lower
on south of Barab creek, 5 mi. W. of Lancaster
Wis. origin of chert very close

Loc N.W.7. = Top ls. of Plattville - SS
near top of hill, about 2 S. of
Stitzel, NW. 1/4 sect. 21.

Loc N.W.8. Sample of thin ss. and associated
cherty congl.

Sect 13-14, 1 m. SW. of Anneton,
Wis. SE
St. Paul S. of sharp
NW syncline

Oct. 23, 1905 From Fennimore about 12
mi. W. to Barab, Wis.

4 miles of the distance was ridge. The road
at no point descending to base of Galena. Galena
or two of the rocks probably descended to within 10-20
ft. of top of Plattville. Highest points rise to
between 50-60 ft. above Plattville, most of them
being formed by chert bed, the highest going
perhaps 20 ft. above this.
The descending ridge into head of Crooked Creek
NW 1/4 part top of Shetek at 1025 (section) with about
90 ft of 1st P. below, then about 50 ft of
(could not see) NW 1/4 of section 21.

(see over)

80

8

Speckle (brown)

Merle bed to E. of ... had not been reached so far as when visited ... Oct 18/05.

(see correspond to section arranged for folio text) see Folio 145 for fossils.

15. Thin bedded compact li grading up into cherty mg beds
14. Alternation of shaly li weathering to clay, thin li
13. Hard compact crystalline beds, weathering thin & lighter colored
12. Thin layers of shaly li separated by 6" li
11. Wavy bedded, glassy li, like with oil sh partings. One horizon bed, sandulaid by a few inches of shale at base
10. Thin, wavy bedded, glassy li like bed in oil sh partings. *Strophomena spiniger*
9. Shale
argil li
Shale w 2 thin li bands
li li
Shale
li band
Shale partings
li band
Bluish-green shale
li
Greenish & brown sh
li
Carbonaceous sh (on top of red li)

Strophomena intricata
Dalmanella simplex
Abundant subangular
= *Strophomena*

8. More beds ranging 10" to 42" thick. (thinner when weathered)

cont p. 81

7. Bluish, rather even bed, weathering to 11-12 layers along edge of lower part. Some fossils
6. Thin glassy li like beds, 1 1/2"-4" thick. Chocolate brown to bluish, compact & fine contain fine shaly calcite. Fossilifer (Exp. 6)
5. Shale
4. Top of brownish mg li beds exp.
3. Shale of brown li
2. Brownish li no beds 12 to 15" a few fossils
1. Thin or limestone (pocket horizon of sh at top of ss)

SS. St P - Top exp in detail

Generalized section of rocks beneath
Platteville in Wisconsin

First suggestion of new system
between Ordovician & Cambrian.
About 1906 S.W.

7 Blinigh, rather even bed, weathering to
4-6 layers along edge of lower part.
3 or 4 layers

6 Thin, glassy, like bed, 1/2-4" thick
Chert, brown to black, compact & fine
at base of bed

At Decatur

Palmer - in vol 16

(description of breeding or eggs
nests)

His cousin - Cincinnati
notes from Wis. Sur. vol. 2. p. 317.

Robert's Quarry on the south side of Peewaukee Lake. Wisconsin

F

(Lion & Alexander River described inside)

Sept. 1-4. 1903.

Wilmington, Del.

85

Around here this morning at 10.45. Before noon looked
over ground a little & began collecting after dinner.

Exposures along river perhaps as good as ever, but
they do not afford fossils in the best condition. The ^{depth}
from excavations for the old canal which were so good years
ago are now almost entirely overgrown. In the three days

of my stay searched entire length (2 miles) of canal bank, the
happiest and proving rather the best. Spent afternoon

(3rd) pumiced with the loess by searching in lower
end of island, securing material in perhaps better position
of surface than at any other spot.

There is scarcely more than 10 ft of rocks all told
exposed. The river falls 27 ft. in the length of the canal
but the rocks, though showing local murres, dip in the
whole westward with the floor of the stream. They consist

of more or less nodular, argillaceous blue or gray ls.
of the Trenton or Seneca shale, not to

Structure along Sacandaga River (Flat Rock)

(description of locality on opposite page -
reverse)

(See on Sacandaga River described inside)

Sept. 1-4. 1903.

Wilmington, Del.

85

Around here this morning at 10.45. Before noon looked

over ground a little - began collecting after dinner.

Exposures along river perhaps as good as ever, but

they do not afford fossils in the best condition. The

from excavations for the old canal which were so good years

ago are now almost entirely overgrown. In the three days

of my stay searched entire length (2 miles) canal bank, the

layers and proving rather the best. Yesterday afternoon

(3rd) panned with the boys by searching exposures on lower

end of island, securing material in perhaps better position

of surface than at any other spot.

There is scarcely more than 10 ft of rocks all told

exposed. The river fills 27 ft. in the length of the canal

but the rocks, though showing local irregularities, dip in the

whole westward with the floor of the stream. They consist

of more or less nodular, argillaceous blue or gray ls.

8-10 ft. of ls. or sand shale which

is not so good as the

18
prove especially fossiliferous. Some of the layers are filled with casts of pelecypoda (many of one or two species of Cyrtodontidae) in very unsatisfactory condition. Saw also fragments of a Glyptodroma like the Richmond form of *G. demissa*.

Filled one large box with specimens, many of them doubtless too poor to keep, but it is the last chance at this locality and, besides, I had to fill the box.

Glacial strata (n. 25 E about) are well shown under drift on S. bank of river between the two bridges (for 100 yds below upper one). Took a picture under unfavorable circumstances, also took other views along river.

Sep. 4 Leave this morn for Chicago where I shall remain till morning.

It is perhaps important to note that deep wells at Wilmington strike a faint imitation of "blebbish" water at a depth of 700-725 ft. It is artesian. Westward from W. this water horizon is struck at shallower depths, one well showing about 400 ft. another 200 and a third only about 100 ft. The last my informant says is about 15 miles west.

(In full, Mr. [unclear])

Group - Eden & Maypockle
 general description & remarks on name & history
 Formation - Fulford - Kenton etc.
 General character and thickness
 Subdivisions - members.
 Descriptions of
 Detailed sections.

Rained Saturday night, part of Sunday, and again heavily last night. Will it rain today?

Drove to German-American Cement Co. quarries, east of town. A splendid exposure of about 20 ft of limestone & shale.

Bed 4 is best for cement purposes but all parts except no 1 are used, no 3 being mixed with 2 + 5 which contain over 90% lime. No. 4 in the 80's.

Fossils occur in all beds. Trilobites in no 1, Small producti, Saminella + Reticularia in no 2, Nos. 3 + 4 with same fossils as no 2, but much finer & also has many doubtfully organic fused or spongy masses & branches. No 5 has larger producti - fenestrate, intracommis etc.

Took a few lbs of specimens. Top of this quarry 500-550 ft above town coal seam - there seems to be.

O.M. spent in visiting Hydraulic cement plants at Black Bull.

North from La S., the coal m. are first horizontal, then dip gently to south. In m. n. of town they begin to rise somewhat more rapidly and the rate increases to 1 ft. in 3 ft. At the m. n. the Calcif. Shale outcrops on E. & W. side while the St. P. s.s. crops out in middle S. of this road. Come S. on a road forming boundary between Utica & La Salle Townships, to Black Bull nearly a mile S. of where we left E. & W. road. All along St. P. & top of Cal. crops at intervals. Black Bull is on R. F. R. close to river (Illinois). The works are built at foot of a bluff about 60' high. Above this is a slope of perhaps 20 ft. more, all exposing shales. The whole exposure apparently is of shales age with *Leptæna* in upper 10 ft.

At top of both round beds there is a "cherted" layer showing evidence of disturbance during deposition & indicating chert conditions during deposition of cement rock. The latter is very thin bedded, perhaps nodular in fresh sections.

Caught in terrible rain storm on return from Black Bull. Could not make return.

(Sections of Paleozoic rocks in La Salle co. given in Ill. Geol. Surv. vol. 3, pp. 264-281.)

Delicate Coured. - - - - - 3
 Colored conical shell and a few Orbits

U. S. Grant's Plateau in the mountains
 surrounded by E. D. Smith

Stacky

Lost 60

- 1. Sandstone - - - - - 10
- 2. Unexposed - - - - - 6
- 3. Coarser, thick-bedded dolomite - - - - 14

I. Section near Pletteville.

	Feet.	Inches.
13. Sub crystalline, magnesian limestone at base, but in 2 or 3 feet grading into coarse, thick-bedded dolomite. - - - - -	20	
12. Blue to gray calcareous shale or shaly limestone. - - - - -		8
11. Thin-bedded, sub-crystalline limestone. A few specimens of <u>Orthis triconaria</u> Conrad and <u>O. perveta</u> Conrad. - - - - -	5	
10. Thin, wavy-bedded, glass rock-like limestone, becoming sub-crystalline above. Some beds are very fossiliferous. <u>Orthis triconaria</u> Conrad, <u>O. perveta</u> Conrad, and <u>O. testudinaria</u> Dalman. - - - - -	6	
9. Dark brown or chocolate-colored shale or oil rock. - - - - -		2
8. Thin, wavy-bedded glass rock-like limestone; commonly very fossiliferous; a few thin partings of oil rock. <u>Orthis triconaria</u> Conrad, <u>O. perveta</u> Conrad, <u>Strophomena</u>		

Bren.

? Top of upper Black River

2. Thin shaly layers of glass rock with oil
rock partings; weathers to clay - - - -

3

1. Blue, gray-weathering limestone with dark
partings. The upper part is separated by
blue shale into 2 beds, each 21 inches
thick. The upper of these beds has
in places the appearance of thin wavy-
bedded glass rock. Orthis deflecta
Conrad, Rafinesquina minnesotensis Ulrich,
Thaliona ovata Conrad, Leperditia fabulites
Conrad, Monotrypa magna Ulrich. - - - -

7

Total - - - - -

54

6

IV. Section at Darlington

	Feet.	Inches.
11. Coarse-grained, thick-bedded dolomite, with <u>Receptaculites owani</u> Hall - - - -	4	
10. Coarse-grained, thick-bedded dolomite -	3	
9. Coarse-grained, thick-bedded dolomite with flints. - - - - -	5	
8. Coarse-grained, thick-bedded dolomite -	2	
7. No exposure - - - - -	6	
6. Coarse-grained, thick-bedded dolomite with 3 shaly bands, 1/2 to 4 inches thick. Near base are a few <u>Orthis</u> <u>tricenaria</u> Conrad, <u>O. pectinella</u> Hall, <u>O. parveta</u> Conrad. - - - - -	27	6
5. Thin-bedded dolomite. - - - - -	4	6
4. Thin-bedded limestone with oil rock partings which are 1/4 to 2 inches in thickness. <u>Orthis tricenaria</u> Conrad, <u>O. parveta</u> Conrad - - - - -	4	

3. Fine-grained, compact, magnesian limestone, with a few flints and a few oil rock partings. The upper surface is smooth -- possibly waterworn. Q.

perveta Conrad (var. Minneapolis Winchell)

Streptelasma profundum Owen. - - - - - 15 6

2. Blue, magnesian limestone with dark wavy partings. - - - - - 19 6

1. Bluer, magnesian limestone with more prominent clay partings. Pleurotomaria subconica Hall, Streptelasma profundum Owen - - - - - 10

Total 101

In the above section No. 2, and possibly No. 1, belong to No. 3 of the generalized Platteville section, while No. 3 belongs to the upper member of that section. Nos. 4 to 11 belong to the Galena.

II. Section at the City Quarry, Mineral Point.

	Feet.	Inches.
10. Residual soil - - - - -	5	6
9. Decayed dolomite, called by the miners the "brown rock". - - - - -	4	
8. Oil rock, with some cubes of lead and some decayed limestone. - - - - -	1	6
7. Compact, brownish magnesian limestone -	1	
6. Unexposed. - - - - -	17	6
5. Thin, wavy-bedded limestone, much like glass rock. - - - - -	4	
4. Compact, magnesian limestone; brown on weathered surface, but blue on fresh surfaces; in beds 3 inches to 1 foot in thickness. - - - - -	10	6
3. Thin, wavy-bedded, hard, glass rock-like limestone. - - - - -	15	6
2. Coarser, thick-bedded dolomite. - - - -	20	6
1. Sandstone. - - - - -	3	
Total	83	

18, ev.

III. Section at Mineral Point.

	Feet.
6. Debris of limestone, containing <i>Strep-</i> <i>telasma corniculum</i> Hall and a few <i>Orthis</i> <i>perveta</i> Conrad. - - - - -	3
5. Compact, fine-grained magnesian lime- stone. - - - - -	2
4. Thin, wavy-bedded, glass rock-like lime- stone. <i>Orthis tricenaria</i> Conrad, <i>O</i> <i>deflecta</i> Conrad, <i>Rafinesquina alternata</i> Conrad, <i>Rafinesquina minnesotensis</i> Ulrich, <i>Zygospira</i> Sp. , <i>Strophomena trentonensis</i> Winchell and Schuchert, <i>Rhynchotrema</i> <i>inaequivalvis</i> Castelnau, <i>Isotelus gigas</i> DeKay, <i>Monotrypa magna</i> Ulrich - - - - -	25
3. Coarser, thick-bedded dolomite - - - - -	14
2. Unexposed, - - - - -	6
1. Sandstone - - - - -	10
Total	60

Handwritten text in a cursive script, likely a ledger or account book. The text is organized into columns and rows, with some entries appearing to be dates or numerical values. The handwriting is somewhat faded and the paper is aged.

Handwritten text in a cursive script, likely a ledger or account book. The text is organized into columns and rows, with some entries appearing to be dates or numerical values. The handwriting is somewhat faded and the paper is aged.