































5.



7.





9.





20.



23.



24.



25.



21.



28.





Jess -

Some Photos of

Ulrich, Messler,

Mc Knight & Mc Queen -

given to me by Lloyd

Herbert.

Maybe get Coop &/or

Herbert to identify em

1 or 2 could go to

AAPG for their

"Holo-scenes"

Photographs Taken on Field Trip with Ulrich, Miser, McKnight,  
Mesler. April 22 - May 8, 1937.


1. Comparatively massive limestones of the Kimmswick formation in contact with shaley limestones of the Decorah formation. Koch Valley locality, NE-SW-SW 6-41N-6E., Jefferson County, Mo.
2. Same as Photograph #1.
3. Section on North Main Street, just north of Broadway, Cape Girardeau, Mo.
  - a. Fernvale
  - b. Vanuxemia bed
  - c. Echino sphaerites bed
  - d. Trenton-Black River contact
  - e. Receptaculites zone of the Kimmswick
  - f. Crystalline phase of the Kimmswick
4. Same as Photograph #3.
5. Basal Dutchtown locality. SE-SW-NE 24-32N-11E.
6. Irregular contact between Joachim and Dutchtown formations. SW-NW-SE 24-32N-11E., near Millersville, Cape Girardeau County. Top of Dutchtown here marked by algae.
7. E. O. Ulrich, near Millersville, Cape Girardeau County. April 22, 1937
8. E. O. Ulrich, Cape Girardeau, Mo. April 23, 1937.
9. Lunch, north of Cave City, Ark. April 24, 1937
10. Same as Photograph #9.
11. More lunch, north of Cushman, Ark. April 25, 1937.
12. Northern Arkansas, April, 1937
13. North of Cushman, Ark. April, 1937.
14. E. O. Ulrich, Violet Hill, Ark. April 26, 1937.
15. Hugh Miser, near Hunt Place, Ark. April 27, 1937.
16. Same as Photograph #15.

17. Marble Falls, south of Harrison, Ark. St. Peter sandstone. April 30, 1937.
18. E. O. Ulrich, near Marble Falls, Ark. April 30, 1937.
19. E. O. Ulrich, near Marble Falls, south of Harrison, Ark. April 30, 1937.
20. Same as Photograph #19.
21. The "brain-trusters" in deep study. Miser and Mesler near Marble Falls, south of Harrison, Ark. April 30, 1937.
22. Everton dolomite
23. Same as Photograph #22.
24. Bridge over Buffalo River on Ark. Highway #7.
25. E. O. Ulrich, at crossing of Buffalo River, Ark. Highway #7, north of Jasper, Ark. April 30, 1937.
26. Same as Photograph #25.
27. Shaley and nodular Sylamore sandstone in contact with Jasper limestone, north of Jasper, Ark. on Ark. Highway #7. Basal bed of St. Joe member can be seen resting on Sylamore.
28. Same as Photograph #27.
29. Sylamore sandstone overlain by basal limestone of St. Joe member, and underlain by Fernvale limestone. Just north of Jasper, Ark., and west of Big Springs.
30. E. O. Ulrich and H. A. Buehler near Gainesville, Mo. May 7, 1937.
31. Contact of Black River and Stones River (?) on Mo. Highway #30, SE-SW-NE 18-42N-4E., St. Louis County, Mo. Base of Black River (Plattin) marked by oolitic and pebbly limestone. Top of Stones River consists of earthy, magnesian limestone yielding ostracods.
32. Group at locality described in Photographic #31. From left to right, E. O. Ulrich, Kenneth Aid, Norman Hinchey, John Grohskopf, H. S. McQueen, Earl McCracken, Mary Hundhausen, Peter Cei. May 8, 1937.

FIGURE 1

|             | FORMATION NAME         | LITHOLOGY                                | THICKNESS   |
|-------------|------------------------|--|-------------|
| Richmond    | Fernvale Limestone     | [Lithology diagram: 8 horizontal layers] | 8'          |
|             | Uncon                  | [Lithology diagram: 1 wavy line]         |             |
| Trenton     | Vanuxemia Bed          | [Lithology diagram: 2 horizontal layers] | 24-30'      |
|             | Slight irregular Break | [Lithology diagram: 1 wavy line]         |             |
| Black River | Echinosphaerites Bed   | [Lithology diagram: 2 horizontal layers] | 5 1/2 to 6' |
|             | Receptaculites         | [Lithology diagram: 1 wavy line]         |             |
| Black River | Kimmswick              | [Lithology diagram: 2 horizontal layers] | 4 1/2'      |
|             |                        | [Lithology diagram: 1 wavy line]         |             |

FIGURE 2

Lowville - Black River  
 Lebanon  
 Ridley - Lenoir = (About Middle of Ohio)  
 Pierce  Mosheim (Appalachian Valley, only)  
 Murphysboro

Stop at Junction U. S. 61 and State 74, southwest of Cape Girardeau; at Adams Filling Station, northeast corner of junction in outcrops extending diagonally from 61 to 74, and at latter particularly, are rather thin 6-inch beds of blue, fine-grained limestone, interbedded with gray, somewhat earthy limestone, the former particularly weathering with vugs or rather small cavities. Light gray to brown nodular chert is common. Fossils, brachiopods, large ostracods are common. A striking feature is the presence of a single tube *Tetradium* which, with the other fossils, is known to be characteristic of the Ridley formation of Central Tennessee. Here, then, is the first known occurrence of the Stones River (Middle) in Missouri, and adds to the knowledge of what constitutes (in Missouri) the thick section of rocks to which the name Plattin has always been given. The occurrence of the Ridley here is of importance in that it represents the first known section where beds ranging in age from Buffalo River, thru Stones River to Black River are known to occur.

Further Dutchtown localities, according to Ulrich, are: 1st railroad cut west of Zelle Station; railroad cut 6 to 7 miles west of Ste. Genevieve.

Returned to Cape Girardeau in the evening.

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April 23 -

Cape Girardeau to Batesville, Arkansas. From Cape Girardeau to abandoned Healy Quarry (north quarry of Marquette district). Faulting is present but Stones River-Black River contact is probably present in central part of west face. Must check this later.

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April 24 -

One and one-half miles south of Cave City, Arkansas, on Batesville road (Arkansas No. 11), in center 29-15N-5W., Independence County, Arkansas, are outcrops of dense, light to dark-colored limestone, overlying St. Peter sand. The exposures represent lower 10 feet of limestone.

Light colored limestone carries ostracods, but darker (*Bathyrurus*), more finely crystalline dolomite yielded ostracods (*Tubs-Tetradium?*), brachiopods, trilobites, gastropods. This mapped as Plattin by Miser in Bull. 724. Some argillaceous, magnesian limestone. Contact with sand marked by green, gray, sandy shale - 24" followed by magnesian, yellow, earthy dolomite. Ulrich says "compare with Dutchtown". Fossils are same as those found in reworked material at top of St. Peter in Minnesota, i.e., the material beneath the Glenwood.

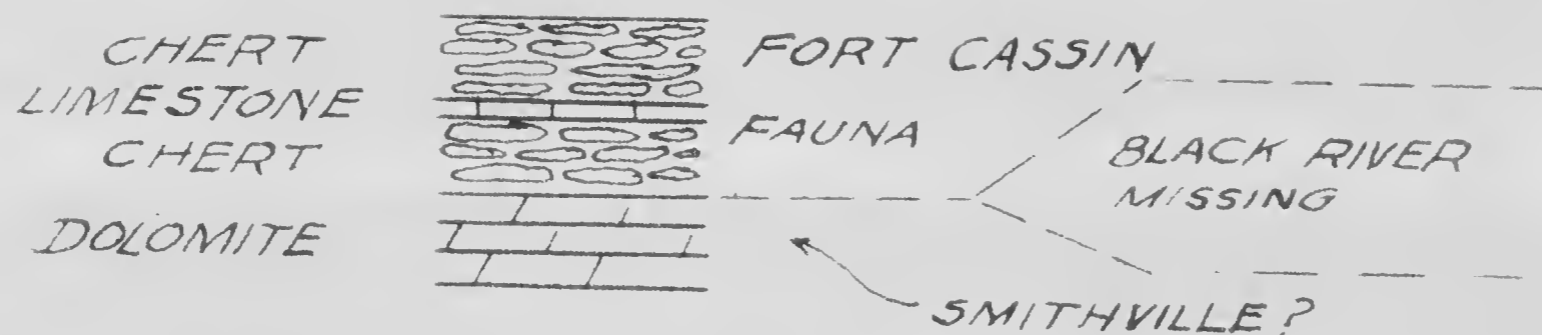
Same as preceding locality - up hill a quarter to a sixteenth of a mile at contact with underlying St. Peter sand, top of which is very ferruginous. The succeeding material consists of 5' of red sand and grayish-green clay shale. (Collected samples for washing for conodonts.) The reworked sand and shale are followed by sandy, earthy magnesian limestones or

dolomites, with fragments of Lingulas. Samples of all material collected for comparison with Missouri material.

General dip is south. There is a gradual gradation from the sandy, earthy magnesian limestones upward to a finely crystalline, harder dolomite, and into the dense, blue, hard or light gray limestone. The entire section is not over 20'  $\frac{1}{2}$ .

Drove to Evening Shade, and south of that town exposures of earthy dolomite were studied (I did not attend). Oolitic chert float was found on top.

Drove north through Evening Shade to crossing of Strawberry River; thick, massive chert occurs overlying finely crystalline dolomite. Former suggested Fort Cassin type to E. O. Ulrich, and Cotter-Smithville. Continued north about one mile to top of hill and Ulrich found fossils (Smithville) in chert. See Figure 2.



Returned south. On top of hill just south of Strawberry River argillaceous dolomite occurred in contact with limestone. Smithville-Everton contact (?). Limestone occurred filling small hole or irregular depression in Smithville (?). Weathered surface of Everton limestone yielded silicified gastropods (Cyclora).

Returned to Batesville in evening.

April 25 - Windy, dusty.

North from Batesville through Cushman to 2 miles north of Cushman. Section as follows, SE 32 and SW 35-15N-7W., Independence County, on east side of Arkansas No. 69. The section was made by R. D. Miser. See Figures 3 and 4.

April 25 -

Windy, very dusty. Drove north from Batesville to a point, 2 miles of Cushman, in the SE $\frac{1}{4}$ , sec. 32 and the SW $\frac{1}{4}$ , sec. 33, T. 15 N., R. 7 W., Independence County. The section shown in figure 4 was measured by H. D. Miser. Figure 3 shows the location of the section.

FIGURE 3

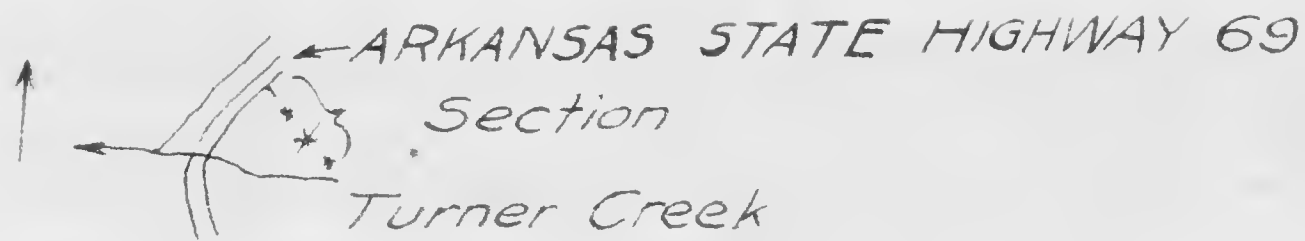
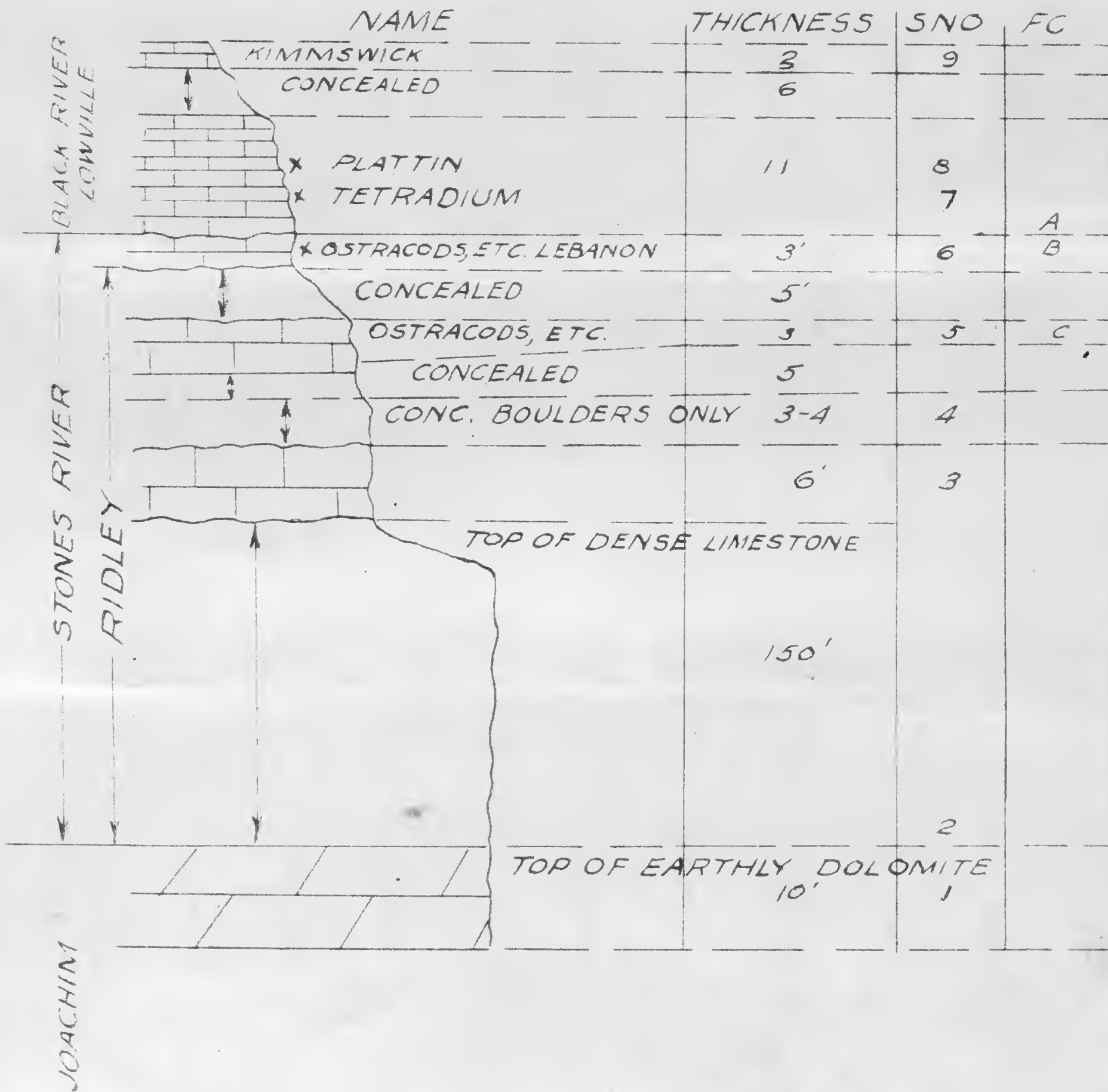


FIGURE 4



Kimmswick: Light gray, fossiliferous limestone - 2'  
Covered..... - 6'

Plattin - A - Collection fossils, thin-bedded, massive, fine-grained, nearly compact, light to dark gray limestone, 11 feet.

Collection B - Stones River (?) 3 feet limestone like that below. Concealed, 5 feet.

Collection C - Stones River 8 feet - thin-bedded, dark gray, fine-grained limestone, much calcite. Light, thin-bedded limestone in upper part of exposures.

Collection D - Dense, thin-layered limestone 3 to 4 feet above D. Fossils. Mosler collected here.

Collection D1 - Stones River - 6 feet exposure of dark gray, massive and thin-bedded limestone, fine-grained, nearly compact. Less brittle than limestone below. Also breaks with less perfect conchoidal fracture, much calcite in rock.

Dutchtown (?) type of fauna. Hand level thickness - 100 feet, plus 50 more or less for south dip. Gray, compact, dense, with calcite; upper 25 feet more or less concealed. Fine-grained magnesian limestones interbedded in lower part. Splits in places into thin, even slabs; brittle; rings under blows of hammer. Massive, even-bedded, dove-colored compact, lithographic limestone. Horizontal laminae in weathered surfaces of some layers. Leperditae, gastropod, etc; calcite-filled cavities of small size; calcite veins common. A 5-foot bed of dolomite, 15 feet more or less above base of this limestone. Same limestone as in Cave City section.

Joachim - 10 feet - light gray. Massive, fine-grained, granular dolomite makes dark, hackly ledges.

Level of road at base of section. Joachim dolomite exposed one mile north, estimated 100 to 125 feet thick where it is in contact with St. Peter.

#### Fossil localities, this section:

- E - 50 feet above base of dense
- F - 25 feet more or less above base of unit
- G - 25 feet above base of dense
- H - Base of unit

Drove to Melbourne, thence on Arkansas 9 west, following route of Arkansas 9. At west edge of Melbourne observed what was called Calico Rock sandstone. 3.15 miles from Melbourne found overlying limestone or dolomite, (Everton?), and chert containing cyclora and ostracods; former similar to those between Strawberry River and Evening Shade. Five miles west of Melbourne ostracods were collected from basal Joachim.



Continued west about 11 miles. See atop Kansas Geological Society Guidebook, 1933, page 55.

April 26 -

Melbourne to Violet Hill, to Guion and return to Melbourne for evening.

3.7 miles north of Melbourne on Arkansas 9. Examined outcrops of Calico Rock (?) sandstone. Took sample. Turned east on Highway 56 to Violet Hill. Chert residuum with druse, identified by E.O.U. as Upper Cotter. He said chert carried some large gastropods found on high hill northwest of Gainesville, Mo.

Three-fourths mile west of Violet Hill (Arkansas No. 56) observed contact marked by zone of pebbles; thin sandstones, a fine-grained to finely crystalline dolomite, some being slightly sandy. Dolocasts present in more crystalline dolomite on top of hill above contact blue-gray, glassy and drusy chert; containing the gastropod *Lophospira* Sp.? - and small brachiopods; collected fossils and specimens of chert.

The following section was measured on highway entering Guion Hill, Guion, Ark.

|  | Thick.            | Sample No. |
|--|-------------------|------------|
| 1. St. Peter.....  |                   | 1          |
| 2. Green, shaly sandstone.....   | 6'                | 2          |
| 3. Ferruginous cap rock.....   | 0' 6"             | 3          |
| 4. Sand or quartzitic, grading upward in upper 15" into very sandy dolomite, S4...   | 3'                | 4          |
| 5. Clay soil, red, local. No sample.....   | 0' 3"             |            |
| 6. Dolomite, dark gray, earthy, sandy. S6 from base.....   | 7'                | 6          |
| 7. Pebble zone.....  | 0' 2"             |            |
| 8. Dolomite, dark bluish-gray, slightly to very sandy, fine-grained S7 from top.....   | 12'               | 7          |
| 9. Pebble zone.....  | 0' 6"             | 8          |
| 10. Dolomite, bluish-gray, fine-grained, irregularly blotched with vugs and veinlets filled with calcite, locally very sandy, hard and breaks with splintery fracture. S9 from base, S10 from top..... | 12' $\frac{1}{2}$ | 9/10       |
| 11. Top of No. 10 uneven and covered with greenish clay shale 1/2 to . . . . . Above apparently local.   | 2"                | 11         |
| 12. Dolomite, similar to that in Bed 10. Slightly green-colored at top, which is irregular....   |                   |            |

|  | Thick.           | Sample No. |
|--|------------------|------------|
| Base irregular on No. 11<br>S12 from base<br>S15 from top  | 10' 8"           | 12/13      |
| Slight break -   |                  |            |
| 13. Dolomite, gray, mottled and irregularly banded, fine-grained at top.<br>S14 at base. S15 upper 15".....  | 5' 4"            | 14/15      |
| 14. Limestone or dolomite, gray, became bluer 1' above the base. S16 @ base. Lower 1' sandy and pebbly, becomes bluer. S17 3' above base, also irregular laminae.....  | 4'               | 16/17      |
| 15. Limestone, fine-grained, light brownish-gray, green mottling.....  | 2'               | S18        |
| Faint, irregular break, with amplitude of 2" $\frac{1}{2}$   |                  |            |
| 16. Dolomite, gray, light and dark, fine-grained, green clay mottling and locally banding, suggesting algae, breaks hackly. Fracture @ base.<br>S20 @ top.....   | 5'               | S19/20     |
| 17. Limestone or dolomite, blue, fine-grained. S21 at top.....   | 5' $\frac{1}{2}$ | 20/21      |
| 18. Clay zone S22, probably local.....   | 0' 6"            | 22         |
| 19. As in 17.....  | 5'               |            |
| 20. Limestone or dolomite, gray, fine banding, irregular and horizontal markings 6' above base S23 and 1' thick.....   | 6'               | 23         |
| 21. Limestone, pebbly and sandy, with green particles S24.....   | 1'               | 24         |
| 22. Limestone, fine-grained.....   | 2"               | 25         |
| 23. Limestone as above, pebbly.....  |                  | 26         |
| Contact Joachim and Platin-----  |                  |            |
| 24. Sandstone, dolomite, irregular surface..   | 2' $\frac{1}{2}$ | 27         |
| 25. Limestone, gray, dense, earthy S27, grading upward into purer, dense to fine-grained limestone. Thick.?  |                  | 28         |
| 26. Dense limestone, according to Miser is 185' thick. Green, shaly partings in upper portion, weathers thin and forms gentle slope and bench at top S29- 75' above base S30 at top. Grades into a darker colored limestone. S30A, green, clayey shale, which may mark top is above S30..... |                  | 29/30/30A  |
| 27. Limestone, gray, darker, less lithographic. S31 at base, S32 5' above, S33 2' above, S34 1' above....  |                  |            |

Tetradium cellulosum and columnare abundant on slope below this bed. Ulrich says the latter is abundant high in the Lowville beds from Tennessee to Canada, via New York and Pennsylvania, but this is the first time he has found them west of the Mississippi River, and that he has not found them in the upper Mississippi Valley.

It appears that the uppermost Stones River beds in the section north of Cushman are absent here.

Miser, who measured the entire section above the Lowville (Plattin)-Stones River contact, gives the following thicknesses:

Plattin..... 28'  
 Kimmswick..... 20'

The Kimmswick is overlain by the Fernvale, the total thickness of which must be 50 feet or more. It appears to be overlain by cherty limestone of the Lower Boone (Reeds Springs) although the contact was not exposed. Samples to show Fernvale lithology were collected as follows: No. 1, 10 feet from top; No. 2, 15 feet; No. 3, 20 feet; No. 4, 25 feet; No. 5, 30 feet; No. 6, 35 feet.

There is no Dutchtown present in this section insofar as typical fossils or lithology are concerned.

After lunch went down Missouri Pacific tracks below glass sand plant at Guion and collected large pelecypods from argillaceous, sandy dolomite in interval 5 feet above St. Peter. The section is as follows:

|           |                                   |                     |
|-----------|-----------------------------------|---------------------|
| Joachim   | Dolomite, argillaceous, sandy?    | Carries pelecypods. |
|           | Sandstone, dolomite.....          | 0' 6"               |
|           | Dolomite, argillaceous, sandy.... | 2'                  |
|           | Dolomite, sandy with pebbles..... | 0' 6"               |
|           | Dolomite, very sandy.....         | 2'                  |
| St. Peter | Sandstone                         |                     |

April 27 -

From Melbourne to Hunt Place and Pilot Knob, located approximately 6 miles southeast of Calico Rock; collected fauna from basal beds of Everton dolomite exposed at foot of Pilot Knob. This zone is approximately 135 feet below top of Everton. With McKnight and Miser climbed Pilot Knob. Also found fossils 57 and 75 feet below top of Everton. Joachim overlies St. Peter but apparently is not over 10 feet in thickness. Is overlain by dense, gray limestone (the map Plattin of northern Arkansas). Also collected fossils from Everton dolomite 35 feet below base of St. Peter sand on Owen Jones Mt. This was locality from which McKnight had previously collected fossils and submitted them to E. O. Ulrich. Among the forms was a Jasperoceras; Girvanellas were particularly abundant. With Mesler also collected ostracods about