State of Illinois
Department of Registration and Education
STATE GEOLOGICAL SURVEY DIVISION
Morris M. Leighton, Chief

EARTH SCIENCE FIELD TRIP
GUIDE LEAFLET
GALESBURG AREA

KNOX COUNTY

GALESBURG AND MONMOUTH QUADRANGLES

Leader
Gilbert O. Raasch

Urbana, Illinois
May 7, 1949

GUIDE LEAFLET 49-B

ITINERARY

0.0 (0.0) Caravan assembles headed north on Cherry Street, south of South St.
0.0 (0.0) Turn right (E) on South Street.
0.1 (0.1) Stop Sign. Continue ahead (E).
0.2 (0.1) Bear right, through underpass.
0.3 (0.1) Bear left at forks.
1.0 (0.7) Turn left (N) on Locust Street and Stop for Highway No. 150. Continue ahead (N) across Route 150.
1.2 (0.2) Stop. Turn right (E) on Main Street.
2.6 (1.4) Danger. - underpass and sharp turns.
2.3 (0.7) Stop. Turn right (S).
3.7 (0.4) Danger. Cross R. R. and turn left (E) into Purington Brick Company plant and pit.
4.4 (0.7) STOP NO. 1. At far end of pit.

Pennsylvanian, Purington Shale overlain by and cut by channel sands (Mt. Pleasant Sandstone). Shale-sandstone contact is boundary between Liverpool and Summum cyclothems, respectively.

Maximum exposed thickness of shale here is close to 40 feet with upper 11 feet more highly silty and buff-brown rather than blue-gray.

Sandstone is present in level contact in west wall, but cuts deeply into shale along east wall.

Bedrock is overlain by an irregular but limited thickness of Illinois gumbo-till. At point where measured in south wall, this is succeeded by 18 inches of Sangamon loess, light brown with many root impressions; next occurs 15 inches of Sangamon soil chocolate brown with carbonized vegetable remains; and finally 5 feet of Peorian loess with many rootlets, grading to 1 foot of Recent soil.

4.4 (0.0) Reverse route.
5.1 (0.7) Turn right (N), cross railroad, and turn right (E).
5.6 (0.5) STOP NO. 2. Spillway gully below artificial pond. Plant fossils in sandy shale.
5.6 (0.0) Continue ahead (E).
6.9 (1.5) Turn right (S).
7.5 (0.6) Danger. R.R. crossing.
9.3 (1.8) Buildings including observatory, formerly belonged to Knoxville Branch of Knox College. Continue ahead (S) in Knoxville.
9.5 (0.2) Danger R. R. Crossing.
9.6 (0.1) STOP. Highway No. 150. Continue ahead, across highway.
10.1 (0.5) Forks. Go left (S).
10.5 (0.4) Stop. Continue ahead (S) on blacktop highway.
11.8 (1.3) STOP NO. 3. On rising grade south of Haw Creek.

Liverpool Cyclothem.
At base of exposure is 10 feet of shale, black, highly fissile at base, passing upward into dark gray, sub fissile shale (Oak Grove Shale). Near top of shale is a 3-inch rusty band (leached argillaceous limestone) full of brachiopods. Above this is a band of leached sideritic concretions.

Summum Cyclothem.
Forty feet of rather soft, thin-bedded, argillaceous Pleasantview Sandstone overlies Oak Grove Shale. The sandstone has thickened at the expense of the Purington Shale which is here thus eliminated.

11.8 (0.0) Continue ahead (S).

12.1 (0.3) STOP NO. 4. In shallow swale which reaches Pennsylvanian bedrock. North of swale, recent scraping by highway maintenance operations exposes Illinoian till grading upward into gumbo-till. South of swale in road banks, a succession of Illinoian gumbo-till, Sangamon soil, Peorian loess, and recent soil is exposed.
12.1 (0.0) Continue ahead (S).
12.5 (0.4) Turn right (W).
14.7 (2.2) Turn left (S).
15.5 (0.8) Forks. Go right (W).
16.5 (1.0) Intersection. Turn right (N).
16.7 (0.2) STOP NO. 5. At south end of Lake Bracken. Walk west 1/8 mile to spillway. Spillway below dam exposes following:

Summum Cyclothem		
1.	Pleasantview sandstone, basal.	8½ feet
Liverpool Cyclothem		
2.	Purington shale, sandy, greenish gray.	7½ feet
3.	Oak Grove shale, dark gray to black with limestone bands and concretions.	2 feet. 9 inches.
4.	Hard black slaty shale.	2 feet
5.	Francis Creek Shale	7 feet
6.	No. 2 Coal in stream bed.	

16.7 (0.0) Continue ahead along Lake Bracken.
17.6 (0.9) Turn left (W) on Country Club drive.
18.0 (0.4) Forks; keep right.
18.2 (0.2) Leave Country Club grounds and continue ahead (W).
18.8 (0.6) STOP NO. 6. On edge of lake. Cut to north exposes Illinoian till, with profiles above reduced by erosion. At east end of cut, beneath the till, is exposure of Tertiary Gravel, made of highly polished and highly refractory material such as quartz and chert. Gravel deposit continues north along west side of lake; farther to the north Pennsylvanian bedrock surface rises and gravel is absent.

18.8 (0.0) Continue ahead (W).
20.3 (1.5) Danger. R.R. Crossing.
20.8 (0.5) Stop. State Highway No. 41. Turn right (N) on Route 41.
22.8 (2.0) Danger. R. R. crossing at Tie Plant.
25.3 (2.5) Highway forks right. Continue ahead (N) on blacktop road.
25.9 (0.6) Stop. Turn left (W) on State Highway No. 164.
36.6 (10.7) Turn right (W) at Washington School.
38.0 (1.4) Turn left (S).
38.7 (0.7) Turn right (W) onto winding road through woods.
39.5 (0.8) Cross bridge and bear left up hill to Monmouth City Park.
40.0 (0.5) LUNCH STOP in Monmouth City Park.
40.0 (0.0) Turn right (N) at west exit from park.
40.5 (0.5) Turn right (E).
40.9 (0.4) Turn left (N).
41.6 (0.7) STOP NO. 7. Walk west along hedge row to creek.

A low terrace to south has about 3½ feet of polished Tertiary Gravel lying on Pennsylvanian clay and overlain by Illinoian till. On west side of creek, bedrock surface rises above level of gravel deposit.

Note: If conditions permit, a visit may be made to a locality 0.5 mile northeast of parking stop. Here Pennsylvanian strata lie unconformably on Mississippian, Burlington Limestone. The Pennsylvanian strata comprise the basal conglomerate, the Rock Island No. 1 coal, two higher (Delong) coals, and associated beds.

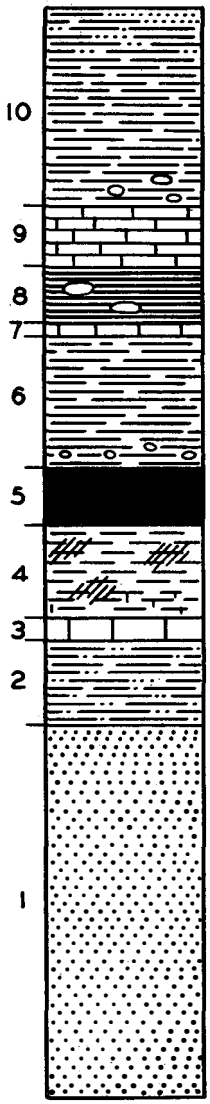
41.6 (0.0) Continue ahead (N).
42.4 (0.8) Turn left (W).
42.8 (0.4) Turn left (S) short of overpass.
44.4 (1.6) Turn right (W).
44.9 (0.5) Danger. R.R. Crossing. Continue ahead (W).
45.3 (0.4) Danger. Cross U. S. Highway No. 67.
46.6 1.3 Turn right (N).
46.8 0.2 Shallow exposure of Pennsylvanian beds in creek bank to right.
48.6 1.8 Cross Cedar Creek and ascend hill; old quarry in Burlington Limestone on right.
48.8 0.2 Turn left (N) at top of hill.
49.0 0.2 Turn left on road to quarry.
49.2 0.2 STOP NO. 8. In Monmouth Stone Company quarry. Quarry operating on two levels comprising about 30 feet of Mississippian, Burlington Limestone. Layers vary from brown, coarse, highly cherty dolomite to coarsely crinoidal, highly fossiliferous limestone. Stylolites conspicuous. The crinoidal limestone is readily weathered and dissolved; pockets of maroon brown geist clay residue are common between rock and glacial drift.

A thin but persistent zone of Illinoian till overlies bedrock; till at top is oxidized to a deep hematite-red. Color grades down through buff to gray. Calcareous concretions occur below the oxidized zone and are a result of downward movement of carbonates as a result of leaching of upper part of till.

The till and gumbo-till are overlain by ashy gray loess, with no division between Sangamon and Peorian apparent. Near the loess and recent soil contact, Indian flint chips commonly occur.

49.2 (0.0) Reverse route.
49.5 (0.3) Turn left (N) on public road.
50.8 1.3 Turn left (W).
52.4 1.6 STOP NO. **9.** Walk west across bridge to outcrop. Exposure of Burlington Dolomite, weathered, porous, buffy, limonite streaked; on Hannibal Shale, green, subfissile, clayey. A spring line is present at contact between porous dolomite and relatively impermeable shale. At Burlington-Hannibal contact is a one-inch band of glauconitic clay, mottled with black (melnikovite?); clay contains much pyrite and a few large, rounded sand grains. Similar glauconitic clays in Cambrian of Wisconsin are evidence of long sedimentational "still-stand" under conditions of marine submergence.

BON VOYAGE!



10. Shale, gray, sandy at top; contains marine fossils and ironstone concretions especially in lower part.

9. Limestone; contains marine fossils.

8. Shale, black, hard, laminated; contains large spheroidal concretions ("Niggerheads") and marine fossils.

7. Limestone; contains marine fossils.

6. Shale, gray; pyritic nodules and ironstone concretions common at base; plant fossils locally common at base; marine fossils rare.

5. Coal; locally contains clay or shale partings.

4. Underclay, mostly medium to light gray except dark gray at top; upper part noncalcareous, lower part calcareous.

3. Limestone, argillaceous; occurs in nodules or discontinuous beds; usually nonfossiliferous.

2. Shale, gray, sandy.

1. Sandstone, fine-grained, micaceous, and siltstone, argillaceous; variable from massive to thin-bedded; usually with an uneven lower surface.

AN IDEALLY COMPLETE CYCLOTHEM

(Reprinted from Fig. 42, Bulletin No. 66, Geology and Mineral Resources of the Marseilles, Ottawa, and Streator Quadrangles, by H. B. Willman and J. Norman Payne)

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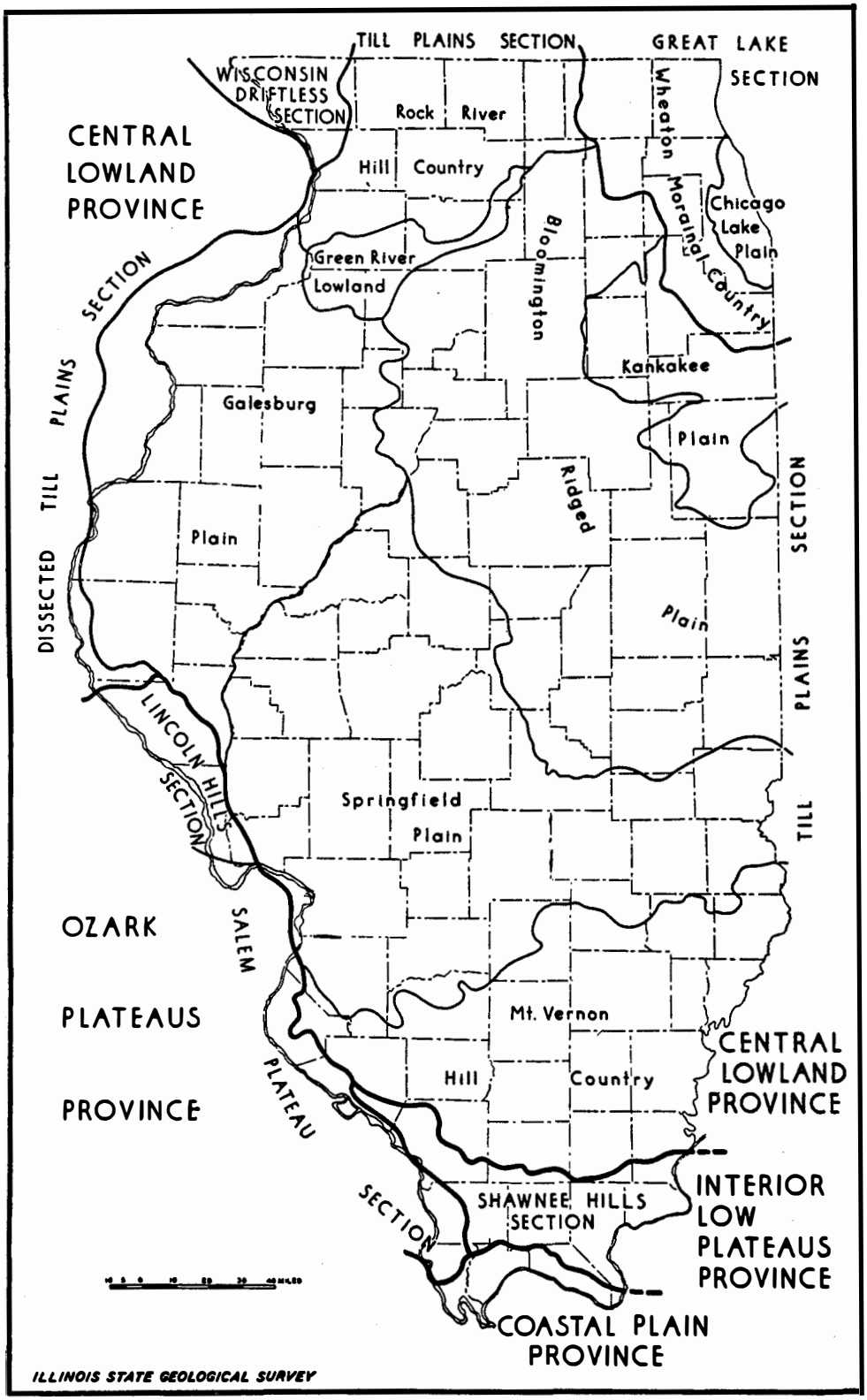

PHYSIOGRAPHIC DIVISIONS OF ILLINOIS

(Reprinted from Illinois State Geological Survey Report of Investigations 129, "Physiographic Divisions of Illinois," by M. M. Leighton, George E. Ekblaw, and Leland Horberg)

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