FIELD CONFERENCE OF
PENNSYLVANIA GEOLOGISTS

PROGRAM OF
THIRD ANNUAL MEETING

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Local Committee
George H. Ashley, Chairman
Stanley H. Cathcart
Charles K. Graeber
William O. Hickock, IV
Forrest T. Moyer
Marchant N. Shaffner
Ralph W. Stone
Bradford Willard, Secretary

Harrisburg, Pennsylvania
May 27, 28, 29

1933
FIELD CONFERENCE OF PENNSYLVANIA GEOLOGISTS

Third Annual Meeting

GENERAL INFORMATION

Host: Pennsylvania Topographic and Geologic Survey.

See final notice of meetings for local data on registration, accommodations, annual dinner, etc.

ALL TRIPS START from south entrance of SOUTH OFFICE BUILDING #1.
Have PLENTY of gasoline, oil and water for each trip.
Bring your LUNCH on Trips 3 and 5.
Display IDENTIFICATION supplied you for your car.
HIGHWAY PATROL escort will be provided for Trip 3, only.

GEOLOGIC COLUMN

Note: This column is generalized to fit all trips. Thicknesses given are approximate averages for the whole region.

RECENT AND PLEISTOCENE

River gravels and terraces. The entire area lies south of the known limits of Pleistocene glaciation.

TRIASSIC

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adams County, Trip 4</td>
<td>Arendtsville fanglomerate lentil</td>
<td>variable</td>
</tr>
<tr>
<td>Gettysburg red sh and some shs with alterations to argillite, hornstone, etc. due to diabase injections. Heidlersburg member at top has interbedded white shs and gray to black sh</td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td>New Oxford red sh and sh with local cg. at base, not seen on this trip</td>
<td>7,000</td>
<td></td>
</tr>
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Lancaster Quadrangle, Trips 1 and 1a

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gettysburg soft red sh and sh with cg's in upper part; lower part carries Elizabeth Furnace cg of red and gray shs and cg metamorphosed by intrusions of diabase</td>
<td>4,500</td>
<td></td>
</tr>
<tr>
<td>New Oxford gray to gray-yellow, arkosic shs and red sh, not seen on this trip</td>
<td>4,500</td>
<td></td>
</tr>
</tbody>
</table>

PENNSYLVANIAN (Trip 2 only)

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pottsville cg</td>
<td></td>
<td>0 - 60</td>
</tr>
</tbody>
</table>

MISSISSIPPIAN

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Feet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mauch Chunk red sh and sh</td>
<td></td>
<td>2,500</td>
</tr>
<tr>
<td>Pocono gray sh and cg</td>
<td></td>
<td>1,600</td>
</tr>
</tbody>
</table>

DEVONIAN

"Catskill" red sh and sh. For convenience, only those beds above highest marine fauna here included | 4,500 plus |
Chamung (only Cayuta recognized) greenish ss and sh and white ss, interbedded with red beds ................................................. variable

Portage

Parkhead gray to chocolate ss and sh ................................ 450
Ithaca gray, hard ss and gray sh ...................................... 750
"Glaucus-Reticularia laevis" zone at base.
"Loch Run" gray sh and ss; Naples fauna ............................... 150 plus
Geneseo black sh ............................................. 200
Tully limestone not recognized in this region.

Hamilton

Moscow dark sh .................................................. 50
Ludlowville brown sh and heavy ss .................................. 765?
Skaneateles heavy ss and some sh .................................. 735?
Rockville hard, brown, fine ss at base .................. 4 feet
Marcellus (Chittenango) black, barren sh .................. 75 - 100

Note: Middle Hamilton is mostly massive, coarse ss, Claypole's "Montebello" ss.

Onondaga chert - free black ls and greenish sh ................... 50 - 60

Oriskany

Ridgeley ss and cg ............................................... 15 - 20
Schriver bluish or white chert .................................. 5 - 10

Helderberg

New Scotland buff, limy sh and ls .................................. 30
Coeymans, light gray ls, doubtfully present ...................... ?
Keyser thin-bedded, calcareous sh and ls; Stromatoporoid reef
at top; ls breccia at base .................................. 150

SILURIAN

Tencloway ribbon ls ............................................. 60 plus
Wills Creek calcareous sh and ss ................................ 10? "
Bloomsburg red sh and ss and some green beds; local fish beds .. 500
McKenzie interbedded green and blue sh and ss and dark blue ls 100?
Rochester

Keefer gray, thin-bedded, fossiliferous ss ....................... 50?
Rose Hill olive-green sh, yellow sh and ss; and, in lower part,
        massive, red-brown iron ss ................................ 100?
Tuscarora light gray to white, quartzitic ss and pebble beds;
        darker and coarser eastward ................................. 750 variable

ORDOVICIAN-SILURIAN

Juniata red ss and some sh; many clay galls ....................... 500 variable
Oswego gray ss ............................................. ?

ORDOVICIAN

Martinsburg buff to brown-weathering, dark ss and sh with thin
        ls beds .................................................. 3,000
Chambersburg ls ............................................. 200
Stones River ls ............................................. 600
Beekmantown high and low magnesian ls ...................... 2,000

CAMBRIAN

Conococheague high and low magnesian ls ....................... 2,000
Temotown dolomite ........................................ 1,000
Antietam ss .................................................. 800
Harpers schist incl. Mt. Alto qz 20 - 80 ft. thick .... 3,000
Weaverton ss ................................................ 750

ALGONKIAN

Lowden soft purplish cg and sericitic sh ............... 550
Matabasalt (Greenstone) ................................... 1,000
Apargyllite .................................................. 1,000

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DETAILED ITINERARIES

Saturday afternoon, May 27; choice of 1 trip.

TRIP 1 Cornwall Mines. In charge: W. O. Hickock IV and C. K. Gruber. This trip allows a visit of about 3½ hours to the mine where diabase, hornfels and ore will be seen. Specimens may be gathered of diabase, weathered diabase sand, diabase pegmatite, magnetite, magnetite pseudomorphic after hematite, specular hematite (?), chalcopyrite, malachite cuttings on iron ore, actinolite felt, serpentine and pyrite. The trip from Harrisburg to the mine crosses Martinsburg sh and Cambro-Ordovician ls's.

TRIP 1a Cornwall Mines and Triassic. In charge: W. O. Hickock IV. This trip is identical to Trip 1 except that the time at the mine is shortened, the party leaving at 4:00 to visit near by Triassic diabase intrusions where the contact action of the igneous rocks upon Triassic and Cambrian sediments will be seen. A visit is also made to the Hummelstown breccia quarries.

Detailed Itineraries of Trips 1 and 1a

Miles

C.0 Start, 12:30 from south entrance South Office Building #1, headed east. Right at end of drive into Commonwealth Avenue.

0.1 Left into State St. over Memorial Bridge to Penbrook; follow Route 22. In cemetery north of east end bridge, river gravel is part of Susquehanna River terrace correlated with Somerville plane.

2.4 Proceed straight through past intersection with Route 643.

2.7 Right into Route 543. Martinsburg sh in road cuts.

4.7 Left into Route 5 (and 422). Follow same to Cornwall. Ls. valley.

10.0 Hills of Martinsburg sh. Southeast across valley are hills formed of Triassic diabase dikes and sills.

10.9 Enter Hummelstown.

12.1 Leave Hummelstown, right fork, Route 5. Road follows broad Lebanon valley, the south half underlain by ls and forming a valley within a valley, its floor 130 ft. lower than northern half underlain by Martinsburg sh. Note sh scarp north of HERSHEY. Line of hills to south closely marks boundary of Triassic sediments.

27.5 Cornwall village. Follow Route 5 across R. R.
Miles
28.5 Sharp left (hairpin) leaving Route 5.
28.6 Right up hill.
29.4 Circle about black shed; follow back on same road.
29.8 Stop, $\frac{1}{2}$ hour, Ar. 1:30. Observe: (1) Outcrop of hornfels, contact metamorphosed sh at top of Conococheague formation, (2) Deeply weathered diabase in R.R. cut, (3) Top of hill; panorama, geology of region, copper carbonate minerals. Return to cars. Lv. 2:00.
30.2 Down grade.
30.3 Left into Route 5.
30.6 Stop, 2 hrs. 35 mins. for Trip 1; 1 hr. 30 mins. for Trip 1a Ar. 2:10. Visit to Open Pit. NOTE: Those who wish to stay at mine (Trip 1) and collect more specimens may do so, returning to Harrisburg via Route 5. Lv. Cornwall not later than 4:45 in order to be back in time for annual dinner. The others (Trip 1a) proceed as follows, leaving Cornwall at 3:40.
30.6 Leave Open Pit and proceed west on Route 5.
30.9 Left, leaving Route 5.
31.4 Through underpass, then left.
32.0 Right.
33.1 Straight at 1st intersection, then left into Route 853.
33.6 Diabase boulder field.
34.0 Gray, contact-metamorphosed Triassic sediments.
34.4 Normal, red Triassic sediments.
36.7 Right.
38.4 Right.
38.5 Colebrook Station.
38.8 Stop (need not leave cars). Lcwy, flat-bottomed valley underlain by Gettysburg sh and even-topped ridge to south underlain by hornfels and contact-chilled diabase.
39.0 Right into Route 241. Crossing a diabase intrusion, observe: red rocks, gray rocks, diabase, hornfels, ls.
39.5 Bright red soil and rock fragments (Gettysburg).
39.9 Stop. Contact metamorphosed ss and cg.
40.5 Diabase boulder fields.
41.3 Hornfels; contact metamorphosed Conococheague formation.
41.8 Unmetamorphosed ls.
Miles
42.2 Step. Cryptozoön reef poorly exposed left of road.
43.0 Left into Route 5; follow same to Hummelstown.
55.1 Left at Hummelstown Square.
55.9 Passing Indian Echo cave at right.
56.8 Left into side road.
57.4 Stop, ½ hour, ar. 4:50. Park. Walk through woods to Walton Brownstone Quarry which contains massive, chocolate-brown as dipping northeast, used formerly for building stone. Spalls used for pink sand-lime brick. Operated 1800-1927. Return to cars; leave parking place at 5:20; retrace route to Hummelstown.
58.0 Right into highway.
58.9 Passing Indian Echo Cave on left.
59.7 Left into Route 5; follow same to Harrisburg. Ar. 5:45.

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TRIP 2, Third Mountain. In charge; G. H. Ashley. The tip of Third Mountain is the westernmost extension of the Southern Anthracite field. Here an overturned syncline of highly jointed Pottsville conglomerate may be seen. The relations of the Pottsville to the Mauch Chunk are seen and also the character of these formations. The trip also affords opportunities to observe the physiography of the Susquehanna Valley.

Detailed Itinerary of Trip 2

Miles
0.0 Start, 12:35 (immediately after Trips 1 and 1a leave) from south entrance of South Office Building #1, headed east. Left at end of driveway; follow trolley track north on Commonwealth Ave. passing to rear of State Capitol.
0.2 Left into North Street, follow Route 22 to Dauphin, 8.6 miles.
0.6 Right at end of North Street into Front Street (STOP STREET) proceed north along river front.
8.6 Dauphin Village. Right fork up hill at Fire House. Proceed north past brick school (9.5mis.) and park cars at Shaffner homestead. Climb Third Mountain behind farm house. Ar. 1:15, lv. 4:00. Return to Harrisburg via Route 22 in time for annual dinner.

ANNUAL DINNER: Hotel Harrisburger (opposite Capitol) at 6:30, Saturday, May 27. Price $1.00, payable at the hotel. Business meeting and discussion of local geology will follow the dinner.

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Sunday, all day, May 28; no choice of trips.

TRIP 3, Susquehanna-Juniata Valleys. In charge: B. Willard. This trip is primarily arranged to observe: (1) the stratigraphy and paleontology of the region, (2) Appalachian structures, (3) the local physiography. Over 25 formations and subdivisions are to be seen including Ordovician, Silurian, Devonian, Mississippian, Pennsylvanian, Triassic diabase and Recent.

Detailed Itinerary of Trip 3

Miles

0.0 Start, 8:30, south entrance South Office Building 1/4, headed east. Left at end of driveway, follow trolley track north on Commonwealth Avenue, passing to rear of State Capitol.

0.2 Left into North St., following Route 22 to Newport, 29.2 miles.

0.6 Right at end of North St. into Front St. (STOP STREET). Proceed north along river front, crossing river gravels, etc.

5.0 View of Susquehanna Water Gap in First (Blue) Mt. On slope east of gap are patches of Tuscarora (Arthrophyllum beds) gray as half way to top. Not Lower Silurian gray ss, but Middle Silurian red ss forms crest. The red-gray contact occurs at bench near crest west of river. Across river Little Mt. is scarred by quarry at west end Stone Arch Bridge. Horizontal line at quarry top is fault between up-thrust Oriskany and underlying Hamilton. Uppermost Silurian and Lower Devonian are presumed to be faulted out between First and Little mountains.

5.6 Tuscarora ledge (basal) crosses river.

6.0 Rockville. Stop, 1 hr. 10 mins., ar. 8:45. Park cars right of highway; walk east on 1st street north of Stone Arch Bridge; turn right east of old canal; proceed south to switch tower and thence along track to cut in basal Silurian og. overlain by gray Tuscarora (Chawangunk) ss and pebble beds. Next comes Rose Hill red, iron ss. Traces of Juniata occur in woods east. Martinsburg concealed here. Walk north to road east into valley between First and Little mountains. South of road, behind houses, Bloomsburg red sh exposed; Marcellus black sh (Chittenango) in abandoned quarry north of road where is also basal Skaneateles with Rockville ss member. Continue north on secondary road to 2d quarry in heavy Montebello ss (Skaneateles); thence to 3d quarry (in operation). Montebello ss again. Skaneateles-Ludlowville contact tentatively placed at pebbly beds with corals. Taurus and other fossils common. Upper Hamilton concealed. Return to cars and continue north on Route 22, leaving parking place at 9:55.

6.5 Cross Fishing Creek occupying Upper Devonian shales and flowing near base of "Catskill".

7.3 Hecks Station (Heckton Mills). Across R.R. abandoned quarry in "Catskill" red and green ss, etc. with many plant fragments.

7.5 "Catskill"-Pocono "passage" beds in R.R. cuts.

7.6 Pocono in R.R. cuts near large, roadside spring. Across river these beds form Second Mountain as overturned, south limb of Cove Mountain syncline.

8.4 Cross Stony Creek. Mauch Chunk outcrops along banks.
Dauphin Village. Right fork up hill at Fire House, crossing Mauch Chunk of South limb, Cove Mt. syncline.

9.5 Brick school. Stop, 15 mins., ar. 10:05. Crest of Third Mt. is western extremity of Southern Anthracite Field and is an overturned syncline of Pottsville og. Mauch Chunk red ss, sh and og exposed near school. Observe also penepanes, entrenched Clark Creek, Cove Mt. Return to cars; leave at 10:20; retrace route to Dauphin Village.

10.3 Dauphin. Hairpin right at foot of hill (STOP STREET). North on Route 22 crossing Mauch Chunk and axis of Cove Mt. syncline.

14.2 Speceevile. Foot of Red Hill; at left, abandoned brick yard used river clays; at right, calcareous nodules in Mauch Chunk.

15.0 Underpass. Pocono in road cuts and along R.R.

15.6 Across river Pocono exposed in face of Peters (Cove) Mt. South of Dauphin Village, "Catskill"-Pocono "passage" beds form Pine Ridge, cut off from north slope of Cove Mt. by Sherman's Creek. East of river, "passage" beds form prominent shoulder along north slope of Peters Mt.

16.7 Clarks Ferry Bridge. Left; cross Susquehanna R. near confluence with Juniata.

17.1 Toll House (10%). Bear right on Route 22 across Duncan "Island" and up east bank of Juniata; across river distorted "Catskill" in R.R. cuts.

18.8 Amity Hall. Bear left at fork on Route 22. "Catskill" in road cuts. Green channel deposits (thick) carry plant fragments. In lower portion, thin, green shales carry lower Chemung faunules, the only marine Chemung recognized in this section since the red beds pass down into Portage (Parkhead) strata (Enfield not recognized here as such).

20.0 SLOW. Triassic diabase dike, weathering rusty, cuts "Catskill" at right of road north of gully. Contact alteration zones show.

20.7 Cuts right of road; chocolate Parkhead beds grade up into reds.

20.9 High cliff. Stop, 1 hr., ar. 10:45. Cross road, park in wide space opposite cliff. To south along road Parkhead as observed. Cliff is Ithaca as with typical fauna. Walk north about 1,000 ft. to storm roller zone in lower Ithaca (Sherburne not recognized here as such). Observe at north side first gully, "Cladocorus-Reticularia laevis" zone marking basal Ithaca as in Maryland. North of zone observe crumpled beds. These and next lower are "Losh Run" (of Cleaves) with sparse Naples fauna in lower, shaler part. Below "Losh Run" is Genesee black sh. No Tully recognized. At south bank of next gully (at burned cottage) Genesee in contact with top of fossiliferous Moscow (Hamilton) dark sh. Return to cars, leave parking space at 11:45; proceed north.

21.5 Crossing Hamilton as and sh. (The Montebello in this region is less massive than at Rockville, changing northward into sh. Here, the ss forms Half Falls Mt. and the next crest south, a block thrust up along the south side of Perry County fault.)

21.9 Valley in downfolded Genesee and upper Hamilton shs.
22.1 Montebello ss ledge in river.

22.2 Montebello ss talus slope on mt. to east where this member forms the crest south of Perry County fault.

22.6 Lime Kiln. Stop, 45 min., ar. 11:55. Park right of road. Ascend secondary road to quarry exposing Marcellus (Chittenango) black sh overlying Onondaga black ls but separated therefrom by thin ss at contact. All beds practically barren. Return to road; walk north about 150 yds. Upper Oriskany (Ridgeley) probably ss in cut. Enter gully north thereof. Along north side and at cave Holderberg (New Scotland) ls shows, faulted against lower Oriskany (Shriver) chert of south wall. Return to cars and drive north passing northern limb. Half Falls Mt. anticline with Oriskany ss at roadside. Leave parking place at 12:40.

23.4 Cross Board Run. Upper Hamilton dark sh in stream bed carries Deep Run faunal facies (upper Ludlowville).

23.8 Genesee black sh in small, roadside quarry, eas.

24.7 Portage beds exposed in road cuts.

25.7 Reentering "Catskill" terrain.

27.1 JUNIATA VALLEY PARK, left. Stop, HALF HOUR FOR LUNCH. Ar. 12:55; lv. 1:25.

27.8 Continue north on Route 22; Trimmers Rock across river is Ithaca ss. Leaving "Catskill" terrain.

29.0 Portage beds in road cuts; then reenter "Catskill" terrain.

29.2 Newport bridgehead (free bridge). Left across river to Newport. Route 5 to New Bloomfield, Duncannon and Harrisburg.

29.8 Left on Route 5.

29.9 Right along Little Buffalo Creek valley.

30.0 Road metal quarry across creek is in Ithaca ss.

30.9 Genesee black sh, left in cuts and forms valley; to north, Ithaca ss ridge; to south, Hamilton (Montebello) ss ridge.

31.6 Miniature water gap through Montebello ss.

33.1 Northern skyline is even-crested Tuscarora Mt. "Holderberg" ls in road cuts.

33.4 Abandoned ls. quarries. Stop, 40 mins., ar. 1:45. Park right of road; walk north 100 yds; observing Holderberg (Koyser and New Scotland(?)). Return to road, walk west about 150 ft. to observe Tonoloway ribbon ls in road cuts. Leave 2:25.

34.4 Bear left on dirt road.

34.5 Stop, 10 mins., ar. 2:35. Cuts east of road in Bloomsburg red sh with ostracoderm fragments. Continue south at 2:45 on dirt road.
Miles

34.6 Right; back to Route 5 (STOP STREET). Valley follows anticline bringing up Bloomsburg red beds; Oriskany in small ridge south of road; higher ridge is Hamilton.

35.1 Entering Now Bloomfield; left on lst macadam street to R.R.

35.4 Cross R.R. and stop, ½ hr., ar. 2:55. Sand pit in Oriskany (Ridgeley). Onondaga overlies Oriskany as green sh, then la Marcellus black sh caps Onondaga. Middle Hamilton with Rockville ss in lower portion overlies Marcellus southeast along R.R. Return to cars; leave parking place at 3:25; continue south on dirt road.

35.5 Left into Route 5 (STOP STREET).

35.7 Barnotts Mill. 250 yds. east along dirt road across R.R. is cut bank in upper Hamilton (Moscow) where nearly 100 species of fossils have been collected.

37.1 Dicks Ridge at left is up-faulted Montebello (Hamilton) ss south of Perry County fault. Mahanoy Ridge to north also is Montebello. Fault follows valley occupied by R.R.

38.4 Bear left at swimming pool up grade on Route 5. End of Cove Mt. (Pocono ss) to south.

40.3 Curve east; Genesee black sh in cut bank.

40.7 Cut banks left in highly fossiliferous upper Hamilton (Moscow) sh.

42.0 Passing over Portage into red beds.

42.9 "Catskill" in cut banks.

43.3 Top of hill, curve left. Among trees and in cuts left of road, Kings Mill white ss carries lower Chemung (Cayuta) faunule several hundred foot above lowest red beds.

44.9 Down grade into Duncannon; view of Susquehanna Valley ahead.

45.7 Foot of hill at Duncannon. Do not cross R.R. Sharp right at STOP STREET. Continue south on Route 5.

46.5 Cross Shermans Cr. Along north bank, right, dip-slope exposure of "Catskill" red beds.

47.3 Hairpin right into abandoned section of highway.

47.5 Abandoned quarry in Mauch Chunk. Stop ½ hr., ar. 3:45. Walk north on highway to cut showing ss, eg, sh, coal, Patton (?) red sh, plant remains in Pocono. Return to cars and retrace course to Route 5, leaving quarry at 4:15.

47.7 Right into Route 5 (STOP STREET).

48.1 Crossing Mauch Chunk of Cove Mt. syncline. Calcareous nodules in cuts right along old road.
Miles
32.5 Crossing Second Mt.; overturned (south dipping) Pocono. Across river the three members of Pocono exposed; upper and lower massive ss’s, middle shalier ss.

53.8 Marysville; sharp right. DANGEROUS CORNER!

53.9 Marysville; Hairpin left. VERY DANGEROUS CORNER!!

54.0 Marysville. S-turns into underpass. DANGER!!!

54.1 Marysville. End of underpass; sharp right. Danger!

55.0 Passing end of Little Mt. of Hamilton ss.

55.6 Passing First Mt., basal Silurian in river and on R.R. Juniata shows along R.R. beneath Tuscarora but not observable from road. This section to be visited on Trip 5.

57.3 Cross overhead bridge; continue south on Martinsburg sh.

57.7 Stop, 20 mins., ar. 4:40. Cross road and park; walk south along abandoned trolley grade. Ls rise in anticline. Ls broccia and shaly ls, etc. to be seen. Leave 5:10.

58.0 Road cuts expose red Martinsburg sh.

59.0 Abandoned channel, east; now occupied by R.R. yards.

59.4 West Fairview. Sharp right into side street at filling station. At end of street (1 block), left; follow trolley track back to Route 5 (STOP ST.)

59.5 Emerged meanders of Conodoguinet Creek west and south.

59.9 Sharp right, following trolley track south.

60.2 Cross Conodoguinet Creek.

62.2 Loft, toll bridge; free to those displaying F. C. P. G. cards.

63.0 END OF TOLL BRIDGE; Ar. 5:30. PARTY DISBANDS.
Monday, all day, May 29; choice of 1 trip.

**TRIP 4, South Mountain.** In charge: R. W. Stone and W. O. Hickok IV. This trip will make a tour of Cumberland and Adams counties visiting localities illustrating igneous and sedimentary Triassic rocks and many phases of pro-Cambrian lavas and the older Palaeozoics. The trip will include inspections of a high grade fire tile plant, roofing granules plant and greenstone quarry where rhyolite (ornamental stone) and native copper may be collected.

**Detailed Itinerary of Trip 4**

**Miles**

0.0  Start, 8:00, south entrance South Office Building #1, headed east. Right at end of drive into Commonwealth Ave.

0.1  Right into Walnut St. Proceed east to Front St.

0.4  Left into Front Street. Proceed south to Market Street bridge.

0.5  Right onto Market St. Bridge. Free to those displaying F.C.P.G. cards.

1.3  Left at west end Market St. Bridge. Follow Route 11. See Figure 1.

2.2  On right, escarpment marks contact between sh and ls.

4.8  On right, meander of Conodoguinet Cr.

6.6-7.5  Harrisburg peneplaine.

9.0  Lambs and Sterretts gaps on right.

9.2  Hogstown (straight through).

11.1  On right sh and ls scarp.

12.0  New Kingston.

13.1  Note long line of trees crossing road. Marks diabase dike 30 mins. long. See Figure 2.

13.5  Stop; 5 mins. Diabase dike. Figure 2.

15.1  Middlesex. Right.

15.4  Marl outcrop. Stop, 10 mins., ar. 8:40, lv. 8:50. Figure 3.

15.5  Right into Route 11.

18.3  Carlisle. Follow Route 11.

29.3  Dickinson. Left.

31.8  Quartzite float.
Miles
33.3 Top of mt. Stop, 5 mins., ar.
35.7 Stop, 5 mins., ar. 9:40, Slabby
ryholite. Lv. 9:45.
35.9 Pine Grove Furnace. Stop, ar. 9:50.
Cross qzt. and apophyllite. Pass
new dam site of Chambersburg
Water Co. Lv. 10:00.
49.7 Caledonia Park. Stop, Lv. 10:45,
right into Route 30. Figure 4.
49.8 Left off Route 30.
54.1 Left on macadam road.
54.7 Right through South Mt. Sanatorium
grounds; note rhyolite founda-
tions and gate posts. Figure 4.
55.7 Left.
56.6 Weaverton cg. and coarser ss.
Stop 10 mins.
59.0 Right on cinder road. Figure 5.
59.2 Right; old iron ore pits in woods
on right. Figure 5.
59.3 Left; dormitory built of Mt. Alto
quartzite.
59.6 Right onto highway.
60.4 Left onto Route 997 (concrete).
61.6 On right, crude oil pumping sta.
67.3 WAYNESECORD SQUARE. STOP FOR LUNCH.
Ar. 12:00, Lv. 12:30, proceeding
east on Route 16.
67.6 On left anticline in Conococheague
1s.
73.7 Monterey (straight through).
74.2 Charmian (straight through).
75.1 Sharp left, up hill on left, Funk-
hauser Roofing Granules plant.
Fig. 6.
75.7 Gladhill. Cross R.R. and take left
on woods road. Figure 6.
76.2 Miles. Stop, 1 hr., ar. 12:55. Visit either greenstone quarry or roofing granules plant. Figure 6. Lv. 1:55.

77.7 Bingham Copper Mine. Stop, 20 mins.; ar. 2:10, lv. 2:30. Figure 7.

78.9 Very old rhyolite bridge; abandoned R.R. grade.

79.9 Abandoned greenstone plant, left.

80.6 Left; follow hard road to Fairfield.

83.3 Fairfield. Left into Route 116.

85.1 Cross roads; straight.

88.1 Marsh Run. Very old stone bridge.

91.2 Gettysburg Square. Left around circle. Lv. Gettysburg 3:00. ToAspers

91.6 Straight onto Route 34.

94.3 Up hill onto more resistant Holdersburg member of Gettysburg formation.

95.1 Cross R.R.

95.6 Stop, 5 mins.; ar. 3:15. Glauberite crystal cavities. Lv. 3:20. Fig. 8.

98.2 Biglersville (straight through).

102.3 Floradale.

103.3 Stop, 15 mins. ar. 3:40. Lava flow in Triassic. Lv. 3:50.

103.8 Right off Route 34.

104.4 Aspers. Stop, 30 mins., ar. 4:00. Inspect tile plant. Lv. 4:30. Fig. 9.

105.2 Right on Route 34.

107.9 Idaville.

114.5 Left.

115.3 Mt. Holly; follow Route 34.

117.6 Right.

121.5 Boiling Springs. If time permits will go to old iron mine where manganiferous clay now obtained for black tile manufacture. Figure 10.
Miles
121.5 Right.
121.8 Left across stream and R. R.
121.9 Right.
122.1 Left.
122.8 Right.
123.5 Clay pits. Stop, 10 mins., ar. 4:50, le 5:00. Figure 10.
125.5 Boiling Springs. Right. If time does not permit, this stop continue straight ahead at 121.5.
127.2 (123.2) Left. Figures in parentheses indicate mileage if stop at 125.5 is omitted.
131.3 (127.9) Right into Route 641. Follow same and then 16 to Harrisburg.
138.0 (134.0). Harrisburg. Trip disbands.

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TRIP 5, Western Perry County. In charge: B. Willard. The party will visit the west side of Susquehanna Gap, Sterretts and Doubling gaps and the Silurian-Devonian section near Landisburg. Gaps show the Ordovician-Silurian relations, the three sections successively different with the Juniata and then the Oswego formations wedging in between the Martinsburg and Tuscarora. The Silurian sections near Landisburg complete the picture of Perry County stratigraphy.

Detailed Itinerary of Trip 5

Miles
0.0 Start, 8:30, south entrance South Office Building #1, headed east. Right into Commonwealth Ave. at end of driveway.
0.1 Right into Walnut St. and proceed west to Front St.
0.4 Left into Front St.
0.5 Right onto Market Street Bridge. Show identification card, F. C. P. C.
1.3 Right at end of bridge, proceeding north on Route 5.
3.5 Left in West Fairview.
3.7 Right fork at end of bridge across R. R.
8.3 Stop, 45 mins., ar. 9:00. Park north of Stone Arch Bridge. Climb R.R. bank west of road and proceed south to rock cuts on R.R. Beds correspond to those seen across river on Trip 3. Note absence of coarse cg. Juniata red beds here exposed for about 75 ft. Overlying are Tuscarora gray ss and
Miles 0.5. Talus partly conceals Tuscarora and overlying Rochester (Rose Hill) ss, but evidence is present of red, ferruginous ss. Bloomsburg red sh shows behind small house at point opposite where cars are parked. Return to cars and retrace route to bridge to Harrisburg. Leave parking place 9:45.

15.3 Right at bridgehead on Route 11 (Carlisle Pike), Chambersburg ls along trolley track; proceed west through Camp Hill. See Trip 4, Figure 1.

18.6-19.0 At right, view of Conneguinet Cr. entrenched meanders.

23.9-25.7 Scarp half mile north marks shale-limestone contact.

25.9 New Kingston (straight through).

26.7 Iron Stone Ridge, Triassic diabase, tree-covered, running north-south half mile ahead. Dike presumably continuous with that seen on Trip 3 north of Amity Hall. See Trip 4, Figure 2.

27.5-27.6 Crossing dike; diabase boulders abundant along roadside.

31.9 Former Carlisle Indian School at left. Continue west.

32.4 Carlisle. Hairpin right at filling station; north on Route 33.

36.1 Observe Tuscarora talus on mountain face to north.

37.2 Carlisle Springs (straight through).

38.4 Slow. Monument, right, marks farthest north reached by any organized body of Confederate troops.

39.5 Stop, 15 mins., ar. 10:50. Park right of road. Observe Tuscarora-Juniata relations, lithology, etc. Tuscarora whiter, more quartzitic than gray, pebbly Shawangunk phase to east. Juniata ss contains many clay glassy.

39.7 Crest of First (Blue) Mt. Elev. 930.72 ft. Note that crest is formed by Tuscarora gray, not Rose Hill red ss.

39.8 Descending north slope. Rose Hill iron ss exposed west of road.

40.7 "Helderberg" is valley.

40.9 Little Mt., Montebello (Hamilton) ss.

41.2 Portage in cuts, right.

42.2 "Catskill" of Cove Mt. syncline.

42.7 Cross Shermans Creek.

43.0 Shermansdale (straight through).

44.3-44.8 Portage in cuts, right.

44.9 Dromgold. Genesee valley. Left into Route 233.

45.0-45.8 Water gap in massive Hamilton ss.
46.2 Miles
Marcellus valley.

16.7 Miles
Oriskany ss and chert, right.

46.8 Miles
Falling Springs. Stop, 45 mins., ar. 11:35. Park right of road. Cross brook to quarry to observe Keyser with Stromatoporoid roof. 15 mins. in quarry, HALF HOUR FOR LUNCH. Return to cars and continue north on Route 233, leaving at 12:20.

47.6 Miles
Silurian red sh valley.

31.2 Miles
Bear right entering Landisburg.

51.6 Miles
Landisburg. Right into Route 74 at center of village.

52.0 Miles
Right into secondary road up hill to ls quarry.

DETOUR AROUND SCALES AT QUARRY, PLEASE.

52.5 Miles
Dyson and Rico Quarry. Stop, 1 hr., ar. 12:40. Park cars. In quarry Keyser with Stromatoporoid roof at top overlain by shallower New Scotland ls. In narrow entrance to quarry at west side Keyser with basal breccia rests upon Tonoloway ribbon ls. Material in dump at southeast side of quarry carries New Scotland fossils. Descend hill below dump to abandoned quarry in distorted Tonoloway ls. Descend to highway; Wills Creek in road cuts. About 100 yds. south toward Landisburg, Bloomsburg red beds exposed. Return to cars; leave at 1:40; returning by same route to Landisburg.

NOTE:
ADDITIONAL MIDDLE AND UPPER SILURIAN SECTION TO BE VISITED IF TIME PERMITS AND THE PARTY SO DESIRES! Professor Frank M. Swartz has volunteered to conduct a side trip to Waggoners Mill, about 6 miles distant via Loysville. Here may be seen the easternmost exposures known in central Pennsylvania of the typical, fossiliferous Middle and Upper Silurian. From Waggoners Mill, the party will return to Landisburg and follow schedule as originally planned. TIME FOR THIS SIDE TRIP 1 HOUR AND THIRTY MINUTES.

53.4 Miles
(Add about 12 miles if Waggoners Mill trip taken). Landisburg. Right onto Route 233, to Doubling Gap. Road follows strike of Silurian red beds in synclinal flanked north and south by ridges of Tuscarora ss. The ls at quarry marks synclinal axis.

60.2 Miles
Crest of First Mt. Stop, 10 mins., ar. 2:15 (add 1 hr. 30 mins. if Waggoners Mill trip taken). Elev. about 1,520 ft. Park. Examine Tuscarora and Juniata. Continue down grade (SECOND GEAR), leaving crest at 2:25.

61.3 Miles
Stop, 30 mins., ar. 2:35. Park right. Observe small showing of gray Oswego ss in gutter west of road between lowest Juniata ss and top of Martinsburg, which carries abundant Eden fauna in sandy beds in cuts west of road at curve. Leave 3:05 and continue down hill toward Newville.

70.7 Miles
Newville. Left at center of village, returning to Harrisburg via. Plainfield and Carlisle.

99.7 Miles