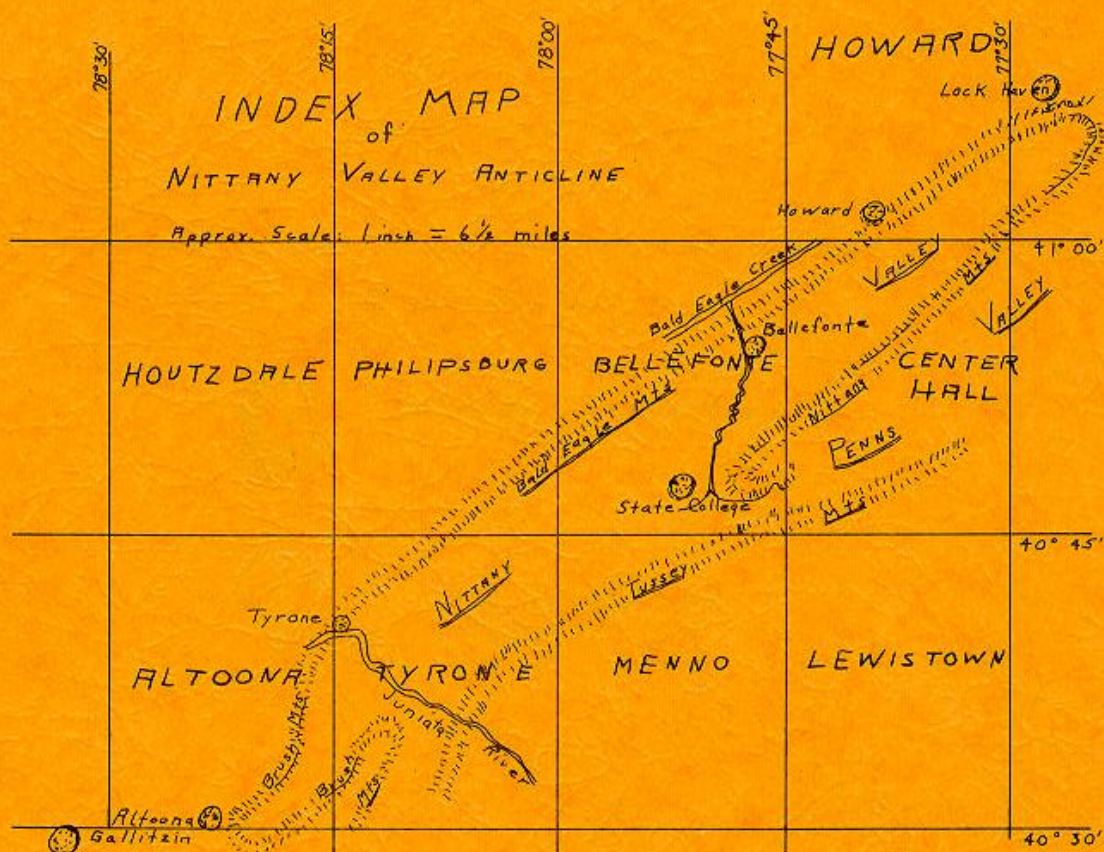


FIELD CONFERENCE OF PENNSYLVANIA GEOLOGISTS

COMMEMORATIVE GUIDEBOOK TO THE FIRST FIELD CONFERENCE

May 29, 30, and 31, 1931

STATE COLLEGE, PENNSYLVANIA



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Part 5. A short history and synopsis of The First Field Conference of Pennsylvania Geologists.

INTRODUCTION

This volume commemorates the First Field Conference of Pennsylvania Geologists. In the first part we have reproduced from original copy an announcement letter, the original program, and later program announcements and changes. No copy of the trip and hotel reservation forms are extant, nor do we have the auto route folder mentioned in the announcement letter. In Part Two we have also reproduced from original copy (with one exception) the materials provided to each conferee. The one exception is the diagram accompanying Charles Butts' description of geologic sections which was redrafted because our original was so poor as to be nearly unreadable in part. Only one correction was made to this illustration; Butts' original diagram has "Trough Cr" ls as "Troveg Cr" ls. The folded cross section was also photocopied from an original copy.

In Part Three we include photos of the four trip leaders, Bonine, Butts, Stone and Swartz, and G. A. Ashley, discussion leader. In addition, we include photos of the 1931 trip participants along the Horseshoe Curve and in the quarries near Bellefonte. These photos were rescued from Pennsylvania Geological Survey files flooded during Hurricane Agnes in 1972. We also believe that the photo of the group along the stream is that of all of the participants of the First Field Conference. This is because the group numbers 45, the number stated by B. Willard in his journal to have attended. In addition, all five of the leaders are in the photograph.

Part Four is a reprint of the dedication to C. A. Bonine written by Larry Whitcomb, and a reproduction of the journal notes of Brad Willard. These are included because they give personal experiences of the first trip.

Part Five is a short history of the Field Conference which is largely told through the synopsis of each of the conferences.

We trust that you will treasure this commemoration of the 50 years of Field Conferences.

PART 1

Announcing the Trip

THE PENNSYLVANIA STATE COLLEGE
SCHOOL OF MINERAL INDUSTRIES
STATE COLLEGE, PENNSYLVANIA

DEPARTMENT OF GEOLOGY AND MINERALOGY

April 28, 1931

Mr. Charles R. Fettke
Carnegie Institute of
Technology
Pittsburgh, Pennsylvania

Dear Mr. Fettke:

Enclosed herewith are field trip and hotel reservation blank, program and auto route folder for the field conference of Pennsylvania geologists. Please return the reservation blank to me at your earliest convenience, as the hotel will probably be crowded over the Decoration Day week-end.

At the registration table you will receive mimeographed copies of stratigraphic descriptions and columnar structure sections of the formations to be seen on the several trips.

The enclosed index map shows the topographic quadrangles covered by the trips. Copies of the Bellefonte, Tyrone and (Lock Haven, for those taking trip No. 2) will be on hand and will be sold at cost. Anyone desiring copies of the other quadrangles should procure them from the U. S. Geological Survey, Interior Building, Washington, D. C.

Publications which may be consulted before leaving for the conference are as follows:

"Geologic Section of Blair and Huntingdon Counties, Central Pennsylvania" by Charles Butts, Am. Jour. of Sci., Vol. XLVI, Sept. 1918.

Ebensburg folio, U. S. G. S., No. 133.

Barnesboro-Patton folio, U. S. G. S., No. 129.

Looking forward to a profitable meeting, I am,

Very truly yours,

C. A. Bonine

C. A. BONINE
Head, Department of Geology and Mineralogy

PROGRAM

Field Conference of Pennsylvania Geologists
May 29, 30, 31, 1931 - State College, Penna.

Friday:

May 29:- 9:00 A.M. to 1:00 P.M.

Registration - Lobby Nittany
Lion Inn, Campus.

Trip I 1:30 to 5:30 P.M.

Inspection of limestone mine of
the American Lime and Stone Co.,
Bellefonte; bentonite beds,
geologic structure and Ordovi-
cian stratigraphy in the vicin-
ity of Bellefonte, Pa., Leaders
--C. A. Bonine and Charles Butts

Trip II

1:00 to 6:00 P.M.

The Silurian and Lower Devonian
section of the Bald Eagle
Valley from Bellefonte to Lock
Haven, Pa., including the out-
crop of the Oriskany horizon.
Leader - F. M. Swartz.

8:00 to 11:00 P.M.

Smoker - Sandwich Shop, base-
ment, Main Building. "Welcome"
by President Hetzel. Discussion
leader - Dr. Geo. H. Ashley,
Penna. State Geologist.

Saturday

May 30:- Trip III 8 to 12:00 A.M.

Stratigraphy of the Allegheny
Front from Altoona to Gallitzen
Leader - Charles Butts.

12:00 to 1:00 P.M.

Lunch in field.

1:00 to 5:00 P.M.

Tyrone thrust fault structure
section. Leader - Chas. Butts.

8:00 to 11:00 P.M.

Inspection of Mineral Indus-
tries Building, followed by
discussion in room 119.
Leader - to be announced later.

Sunday:

May 31:- Trip IV

Trips to caves of central Pa.
Leader - Mr. Ralph Stone, Asst.
Penna., State Geologist.

Announcement

The dinner Friday night will be at 7:30 P.M. in the Sandwich Shop, basement of Main Building. Tickets should be purchased at time of registration. The Smoker will follow the dinner in the Lonnge of the main floor.

The Allegheny front trip will probably take the entire day. Therefore, the trip to the Tyrone thrust fault has been cancelled. However, those desiring to see this fault may do so by driving back to State College by way of Birmingham, Water Street and Spruce Creek. The fault zone is well exposed along the State Highway opposite the bridge at Birmingham and the plane of the fault can be observed, from the highway, in the railroad cut east of the station.

No provision has been made for the Saturday noon lunch, each person should bring lunch for himself as there will be no opportunity to purchase anything during the trip.

Those desiring to visit some of the caves of Central Pennsylvania on Sunday should make arrangements with Mr. Ralph Stone, Assistant State Geologist.

All field trips will start from the Nittany Lion Inn at the appointed time.

Please wear your badge so we may get better acquainted.

CHANGE OF PROGRAM

In order to work in the inspection of the Birmingham (Tyrone) thrust fault, Saturday afternoon, it will be necessary to leave State College at 6:30 A.M., and drive to the Pennsylvania Railroad Station at Altoona in time to catch the 8:10 A.M. train to Gallitzin, Pa. We will then walk down the Allegheny front to Altoona, getting lunch there and then proceed to Birmingham (route 220 to Tyrone and from there route 322 to Birmingham, Penna.)

PART 2

First Field Conference Guide Materials

STRATIGRAPHY OF THE BELLEFONTE QUADRANGLE

Although the rocks of the Bellefonte quadrangle are entirely sedimentary in origin and all except the Recent alluvial clays and sands along the present streams are of Palaeozoic age there are a large number of formations. These consist of limestones, dolomites, shales, sandstones and conglomerates. In general the formations can be separated from one another by their lithological characters but in a few cases such, for example, as the division between the Black River and Chazy, the Marcellus and Hamilton, the Portage and Chemung, the differences are based chiefly upon the fossil content rather than on the appearance of the rocks.

The formations of the quadrangle may be tabulated as in the following classification and every student should be familiar with this outline.

The scheme of classification used here is similar to that used in Chamberlain and Salisbury's text but differs from it in that here the Pennsylvania and Mississippian are indicated as series in the Carboniferous system rather than as independent systems. This order is followed because it is the one in general use by the United States Geological Survey. The letters in parentheses, which are appended to the names of formations, correspond to the letters on the structure section in this manual. The figures indicate the thickness of the formations where they have been measured in the quadrangle. In the case of the Warrior limestone and the Gatesburg formation the measurements were taken north of Scotia. The other formations were measured in the vicinity of Bellefonte and Milesburg and north of the latter place.

Note---The name Chazy is subject to change.

Quaternary (Qal.) Alluvium, sand, gravel and clay.

Carbon- iferous	Pennsylvanian series: Pottsville, (Ppo); Conglomerate and sandstone	
	Mississippian series:	Mauch Chunk (Mmc); (20) Green and yellow shale and sandstone
		Pocono (Mb & Mp); (1,025) Gray, brown, green and red sandstone and conglomerate.
		Catskill (Dc) (1200-1600); Red chocolate, and green shale and sandstone.
		Chemung (Dch) (2383); Gray, purple, brown and drab shale and sandstone with thin beds of conglomerate.

Devonian	Portage group	Brallier shale (Dp) (1658); Black, brown and drab shales and fine-grained sandstones.
		Harrell shale (Dpa) (300); Fissile, very thin-bedded carbon- iferous, black and drab shale
		Hamilton (Dha) (610); Brown, black, and purple shale with impure limestone near the top.
		Marcellus (Dm) (100); Brown and black shale. Ridgely sandstone
		Oriskany group (Do) (200); Shriver chert and sandstone
Silurian		Helderberg (Dh) (150) ; Keyser and New Scotland limestones.
		Cayugan series (Sca) (698); McKenzie limestone, Wills Creek shale and Tonoloway limestone.
		Clinton (Sc) (890 =); Brown and green, soft shales and limestones and oolitic iron ore.
		Tuscarora (St) (495); White, gray and purple sand- stones and quartzites.
		Juniata (Oj) (490-700); Red shales and sandstones.
		Oswego (Oo) (838); Brown and gray sandstone and conglomerate.
		Reedsville (Or) (825); Black, brown and drab, slaty shales and sandstones.
		Trenton (Ot) (791); Highly fossiliferous thin- bedded limestone and black to brown shale.
		Black River Group (Obr) (182); This group includes the Rodman and Lowville limestones, which are usual- ly pure, blue to gray, rocks. The Lowville con- tains the important quarry rock.
		Chazy (Carlim and Pamela, Ppc) (260); Blush lime- stone.
Ordovician		
Canadian	Beekman- town	Bellefonte (Ob) (1911); Dolo- mite with a thin bed of sandstone
		Axemann (Oa) (480); Pure fossil- iferous limestone with dolomitic limestone and reddish conglomer- ate.
		Nittany (On) (1206); Coarse light to dark dolomite with much

	chert in lower portions.
	Stonehenge (Os) (633); Limestone "edgewise" conglomerate, limestone conglomerate and calcareous shales.
Ozarkian	Mines Dolomite (Cm) (150); Cherty Dolomite and siliceous oolite.
	Gatesburg (Cg) (800); Interbedded dolomite and sandstone.
Cambrian	Warrior (Cw) (688); Limestone, oolitic limestone and beds of shale.

There is thus represented in this quadrangle almost a complete section of Palaeozoic sediments. Many of these are fossiliferous and some carry an abundance of fossils. Those which may be said to be highly fossiliferous are the Stonehenge, Axemann, Black River, Trenton, Helderberg Oriskany, Hamilton and Chemung. The Warrior, Chazy, Reedsville, Clinton, Marcellus and lower Portage carry a good many fossils, while the Gatesburg, Nittany, Bellefonte, Tuscarora and upper Portage contain very few fossils and in most places none at all. The Oswego, Juniata, Catskill, Pocono, Mauch Chunk and Pottsville seem to be devoid of animal fossils, but a few plant remains are found in the three latter formations.

In the Warrior limestone the fossils are mostly trilobites and cryptozoons, and in the Ore Hill formation cryptozoons, the structures of which are often preserved in chert, which has replaced the limestone. In the Stonehenge the remains consist of brachiopods, gastropods, trilobites and a few graptolites, the latter in the shales near the base. The fossils are abundant in the upper and lower beds of this formation. The Nittany contains a few gastropods and the Axemann fossils are found in the Bellefonte dolomite are of gastropods. In the Chazy brachiopods are the chief fossils while in the Black River group corals, crinoids, brachiopods and gastropods are abundant.

The Trenton is the most highly fossiliferous formation of all those in the quadrangle. It contains abundant brachiopods, trilobites, bryozoans, and gastropods as well as some corals. The Reedsville carries a few trilobites and in places many brachiopods, crinoids and gastropods. The Tuscarora shows traces of a fossil called *Arthropycus allegheniensis*, which has been regarded by some as a plant but by many others as the burrows of a marine worm.

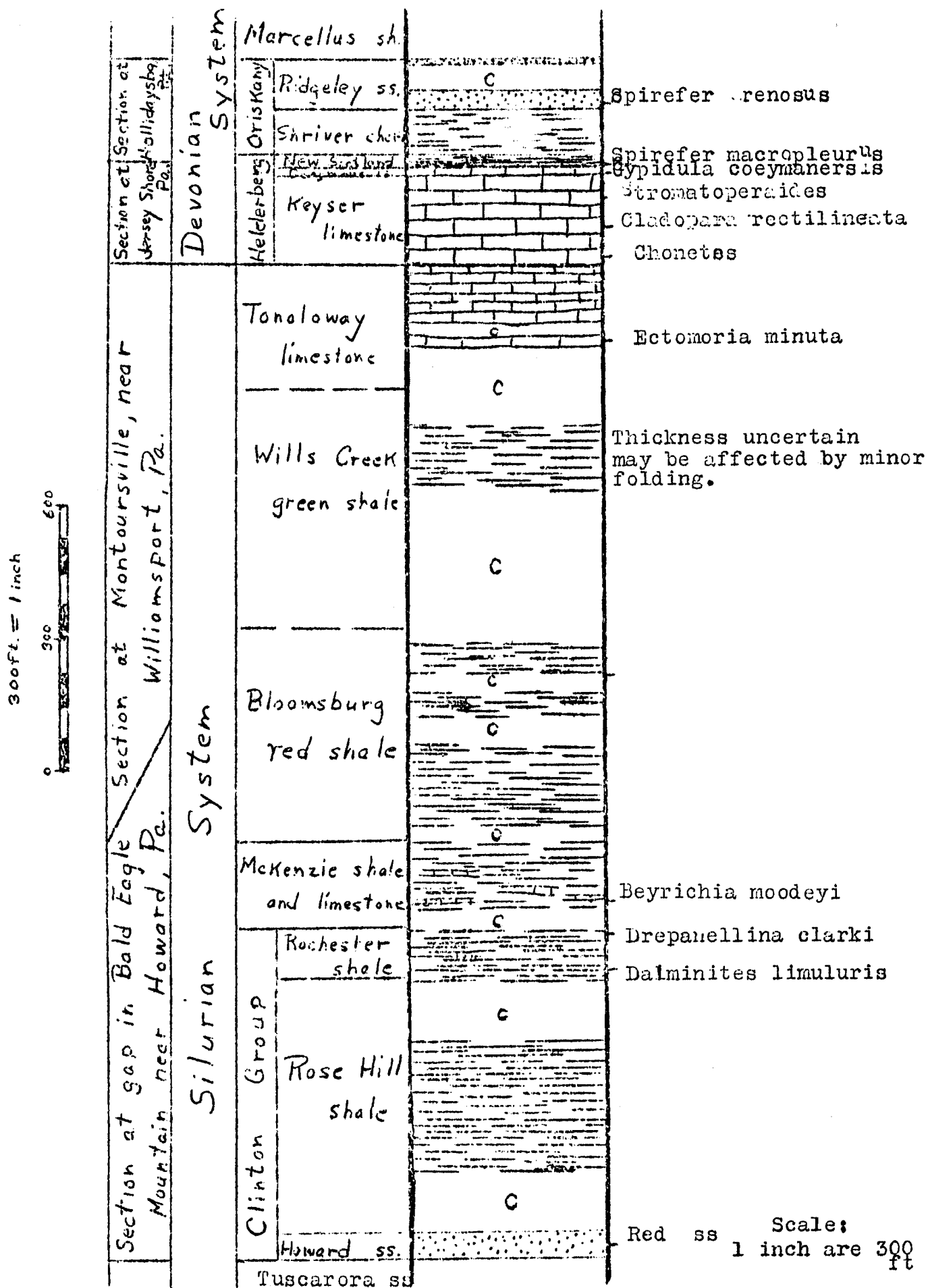
The other formations carry the ordinary groups of fossils.

The Helderberg shows the chain coral, *Halysites catenulatus*, and the coral resembling a honeycomb, called *Favosites*,

while the Oriskany carried a brachiopod called *Hipparionyx proximus*. The casts of this fossil strongly resemble the track of a horse's hoof and at Milesburg it looks almost as if a small colt had been walking on the Oriskany sandstone. Besides this fossil the brachiopods *Spirifer arenosus* and *Rensselaeria ovoides* are found in abundance. In the limestone beds of the Hamilton the "cup" corals are abundant and the upper Chemung shales yield an enormous number of brachiopods/

From the "Outline of Practicum Work in General Geology"
of the Department of Geology, Pennsylvania State College.

Composite section of the Silurian and Lower Devonian of the
Bald Eagle Valley, based on detailed sections as measured by
F.M. Swartz



DESCRIPTIONS OF GEOLOGIC SECTIONS
OF
BLAIR AND HUNTINGDON COUNTIES, PENNSYLVANIA
BY
CHARLES BUTTS

Description of Geologic Sections of Blair and Huntingdon Counties
Pennsylvania

by
Charles Butts

<u>Formation</u>	<u>Description</u>
Allegheny formation	Shale and sandstone, with workable coal beds 200 ft.
Pottsville formation	Mainly sandstone, clay, and shale, with coal locally in middle. 130-280 ft.
Mauch Chunk shale	Mainly lumpy, red shale or mudrock, with 80 feet of thick-bedded sandstone at bottom to west. A little thin sandstone and limestone to east. Mostly of Chester age. Siliceous crossbedded limestone to west (Loyalhanna limestone); gray and red, partly argillaceous limestone to east. (Trough Creek limestone of I.G. White) Warsaw age?. 180-1000 ft.
Pocono formation	Thick-bedded, gray sandstone; Burgoon mem- ber, at top; shale, red shale, and sandstone below. Conglomerate at bottom to east. Thickest to east, in Broad Top Mountain. Most red shale to west on Allegheny front. Osage age. 1130-1400 ft.
Catskill formation	Lumpy, red shale or mudrock, thick-bedded, micaceous red sandstone. 80 per cent red. Gray and greenish shale and gray sandstone with marine fossils, 20 per cent. Spirifer dis- junctus, Camarotoechia contracta, Gremmysia elliptica, Pteronites rostratus, and others. 2000-2500 ft.
Chemung formation	Mostly shale with thin sandstone layers. Some thicker sandstone and conglomerate members. Upper 1,000 feet largely purplish or chocolate colored to west on Allegheny front, and the same with red shale layers in the upper 500 feet on Raystown Branch of Juniata River on the east. Lower 2,000 feet gray and greenish. Chemung fossils common to abun from bottom to top. Spirifer disjunctus at very bottom on Allegheny front. 2400-3300 feet.
Brallier formation	Fine-grained, siliceous shale in thick, even layers revealing their fissility on weathering. Largely wavy or dimpled laminae, some even and


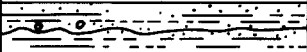
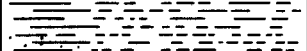

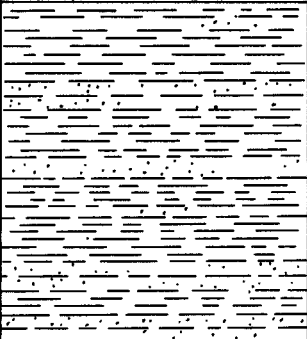
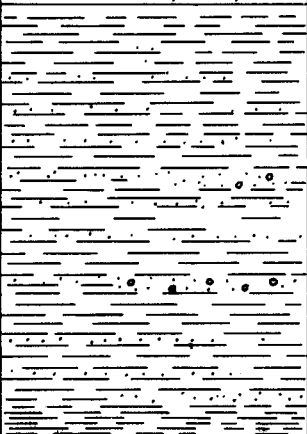
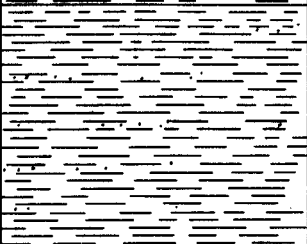

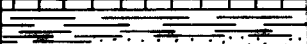
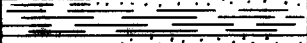
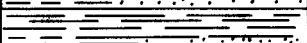
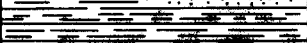

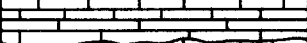
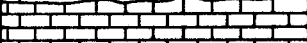
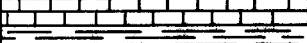

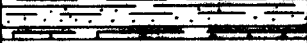
	slaty. A few thin fine-grained sandstone layers. Fossils small and very scarce. <i>Buchiola retrostriata</i> , <i>Probeloceras lutheri</i> , <i>Bactrites aciculus</i> , <i>Phragmostoma natator</i> . Upper Portage. 1350-1800 ft.
Harrell shale	Dove and black fissile (paper) shale. Black at bottom to west (Burket member). Black and dove interbedded to east. <i>Buchiola retrostriata</i> , <i>Paracardium doris</i> , <i>Pterochaeni fragilis</i> , <i>Styliola fissurella</i> , <i>Probeloceras lutheri</i> . Lower Portage. 250 ft.
Hamilton formation	Hackly shale at top, weathers green; impure limestone layers in top 10 to 20 feet. Dark shale with thin even sandstone layers in middle to west, three thick sandstone members to east. Lower one-third dark olive shale grading into Marcellus shale below. <i>Chonetes aurora</i> in 1 foot limestone at very top (Tully?, Upper Devonian). Common Hamilton fossils abundant in hackly shale in upper one-third. Fossils scarce below. 800-1200 feet.
Marcellus shale	Black fissil shale with <i>Leiorhynchus limitaris</i> and <i>Styliola fissurella</i> . 150 ft.
Onondaga formation	Dark shale with limestone layers. <i>Odontopleura aegeria</i> , <i>Anoplotheca ocutiplicata</i> and other fossils. 50 ft.
Ridgely sandstone	Coarse thick-bedded sandstone. Common Oriskany fossils plenty. Upper Oriskany. 100 ft.
Shriver limestone	Thin-bedded siliceous limestone. <i>Dalmanites stemmatus?</i> , <i>Craterellina robusta</i> , <i>Actinopteria textilis</i> , <i>Chonetes hudsonica</i> , and many other Oriskany fossils. Lower Oriskany. 200 ft.
Helderberg limestone	Thick-bedded gray limestones (Keyser, Coeymans, New Scotland). <i>Gypidula prognostica</i> , <i>Gypidula coeymanensis</i> , <i>Spirifer macropleura</i> . 150 ft.
Tonoloway limestone	Thin-bedded limestone. Fossils few, <i>Leperditia alta?</i> . 450 ft.
Wills Creek shale	Dove, calcareous, fissile shale, a little limestone. Fossils are very scarce. <i>Leperditia alta?</i> . Bloomsburg red member, shale, red and green, impure limestone and red sandstone- bottom 50 to 150 feet. 600 ft.
McKenzie limestone	Limestone and shale; fairly fossiliferous. <i>Kloedenella</i> abundant. 275 ft.

Clinton formation	Mainly greenish shale weathering purplish. Some sandstone. Thin but workable iron ore beds. Rather fossiliferous. <i>Anoplothea hemispherica</i> , <i>Beyrichia</i> and many other ostracods. 800 ft.
Tuscarora quartzite	Thick-bedded white quartzite. <i>Arthropycus alleghenyensis</i> , (<i>harlani</i>), in upper part. Extensively used for silica brick. Called ganister. 400 ft.
Juniata formation	Red lumpy shale or mudrock, red and greenish gray sandstone. Some finely cross laminated. No fossils. 850 ft.
Oswego sandstone	Medium thick-bedded gray sandstone. Some finely cross laminated. No fossils. Bald Eagle sandstone of Grabau. Oneida conglomerate of Pennsylvania Second Geological Survey. 800 ft.
Reedsville shale	Thick, dark, rusty weathering, sandstone at top with <i>Orthorhynchula linneyi</i> , <i>Byssonichia radiata</i> and others. Maysville age. Persistent to Tennessee. Shale with thin limestone layers in upper half. Fissil (shoe peg) shale in lower half. <i>Calymene senaria</i> , <i>Dalmanella multisecta</i> , <i>Rafinesquina</i> . Black shale at bottom with graptolites. Eden age. 1000 ft.
Trenton limestone	Thin-bedded black limestone weathering with a gray film on surface. Sparsely fossiliferous <i>Cryptolithus tessellatus</i> = <i>Trinucleus concentricus</i> , <i>Plectambonites sericea</i> . 320 ft.
Rodman limestone	Dark crystalline limestone weathering with a rough granulated surface; very characteristic and persistent. Fossiliferous. <i>Echinospaerites</i> zone at top. Upper Black River. 30 ft.
Lowville limestone	Dark, thick-bedded, pure limestone, glassy to fine-grained. Extensively quarried for flux. <i>Streptelasma profundum</i> , <i>Tetradium cellulolum</i> , <i>Beatrechia gracilis</i> , <i>Lichenaria typa</i> ?. Lower Black River. 180 ft.
Carlim limestone	Dark, fine-grained limestone, extensively quarried for flux. Fossils scarce except in Lemont argillaceous limestone member. <i>Leperditia fabulites</i> , <i>Isochilina amiana</i> , <i>Leptaena incrassata</i> in bottom. <i>Tetradium syringoporoides</i> throughout; Lemont member impure, not quarried. <i>Hebertella vulgaris</i> <i>Rafinesquina champlainensis</i> , <i>Protorhynca ridleyana</i> ?, <i>Maclurites magna</i> . 180 ft.
Bellefonte dolomite	Thick-bedded dolomite yielding much dense chert. Fossils scarce. 1000 ft.
Axeman limestone	Thin-bedded blue limestone with dolomite layers. Fossils. <i>Liospira strigata</i> , <i>Hormontoma artemesia</i> ,

Hormotoma linearis, *Dalmanella wemplei*? *Bolbocephalus secleyi*, 100 ft.

- Nittany dolomite Thick-bedded, cherty dolomite. Fossils, but not abundant. *Lecanospira* (*Ophileta*) *compacta*, *Eccyliopterus planibasalis*, *Eccyliopterus planidorsalis*, *Syntrophia lateralis*, *Cryptozoon stecli*. 1000 ft.
- Larke dolomite Thick-bedded, coarse, steely blue dolomite. *Helicotoma uniangulata*, *Linguella*? 250 ft.
- Mines dolomite Cherty dolomite, oolitic, yields much oolite and platy scoriaceous chert. *Cryptozoon*, 2 species, common. 250 ft.
- Gatesburg formation Thick-bedded, steely blue, coarsely crystalline, dolomite with many interbedded quartzite layers up to 10 feet thick. Surface deeply covered with sand and strewn with quartzite boulders. Considerable silicified oolite. Ore Hill limestone member, thin-bedded, blue limestone; several species of trilobites nearest relatives of which are in the Hoyt limestone of New York. Stacy dolomite member coarse, thick-bedded, steely blue, but without quartzite. 1750 ft.
- Warrior limestone Thick and thin-bedded, blue limestone with thin siliceous shaly layers or partings. A few thin quartzite layers and an occasional bed of limestone full of large well-rounded quartz grains. Some oolite. *Cryptozoon* common. Several species of trilobites. *Millardia avitas*. 250 ft.
- Pleasant Hill limestone Thick-bedded limestone at top, fossils. *Acrocephalites aoris*. Argillaceous thin-bedded limestone at bottom weathering to shale. 600 ft.
- Waynesboro formation Sandstone, conglomerate, and red and greenish shale. 250 ft.

From the American Journal of Science, Vol. XLVI, September, 1918

		FORMATIONS	COLUMNAR SECTION	Thickness in feet.	Minor Divisions
PENNA		Allegheny Formation		200	Homewood sand- stone Mercer shale Connoquen- essing ss
		Pottsville Formation		130-280	
		Mauch Chunk shale		180 1000	
MISS		Pocono formation		Loyalhanna- 1130- 1400	Trough Cr"ls Burgoon sandstone
DEVONIAN	UPPER	Catskill formation		2000- 2500	
		Chemung formation		2400- 3300	Saxton conglomerate Allegrippis sandstone
		PORTAGE		1350 1800	Pine Ridge sandstone
	MIDDLE	Brallier shale		250	Burket black shale
		Harrell shale		Tully limestone	
		Hamilton formation		800	
		Marcellus shale		1200	
		Onondaga form		150	
		Ridgely		50	
SILURIAN	CAYUGAN	ORISKANY Shriver Is.		100	
		Halderberg Is.		200	
				150	
		Tonoloway limestone		450	
		Wills Creek shale		600	Bloomsburg red member
		McKenzie limestone		275	

		FORMATIONS	COLUMNAR SECTION	Thickness in feet.	Minor Divisions
MISSISSIPPIAN	REDFINIA	Allegheny formation		200	Hamewood sandstone
		Pottsville formation		130-230	stone Mercer
		Mauch Chunk shale		180 1000	shale Connoquene passing ss
		Pocono formation		1130-1400	Burgess sandstone
DEVONIAN	UPPER	Catskill formation		2000-2500	
		Chemung formation		2400-3300	Saxton conglomerate Allegrippis sandstone
		Portage Brallier shale		1350 1800	Pine Ridge sandstone
	MIDDLE	Farrell shale		250	Burket black shale
		Hamilton formation		800	Tully limestone
		Marcellus shale		1200	
SILURIAN	LOWER	Oriskany Ridgeley		150 100	
		Shriver ls.		200	
	CAYUGAN	Goldberg ls.		150	
		Tonoloway limestone		450	
		Willie Brook shale		100	100's strong red member
		Chenoweth limestone		150	

PART 3

**The Leaders and Scenes of the
First Field Conference**

FIELD TRIP LEADERS



C. A. Bonine



C. A. Butts



F. M. Swartz

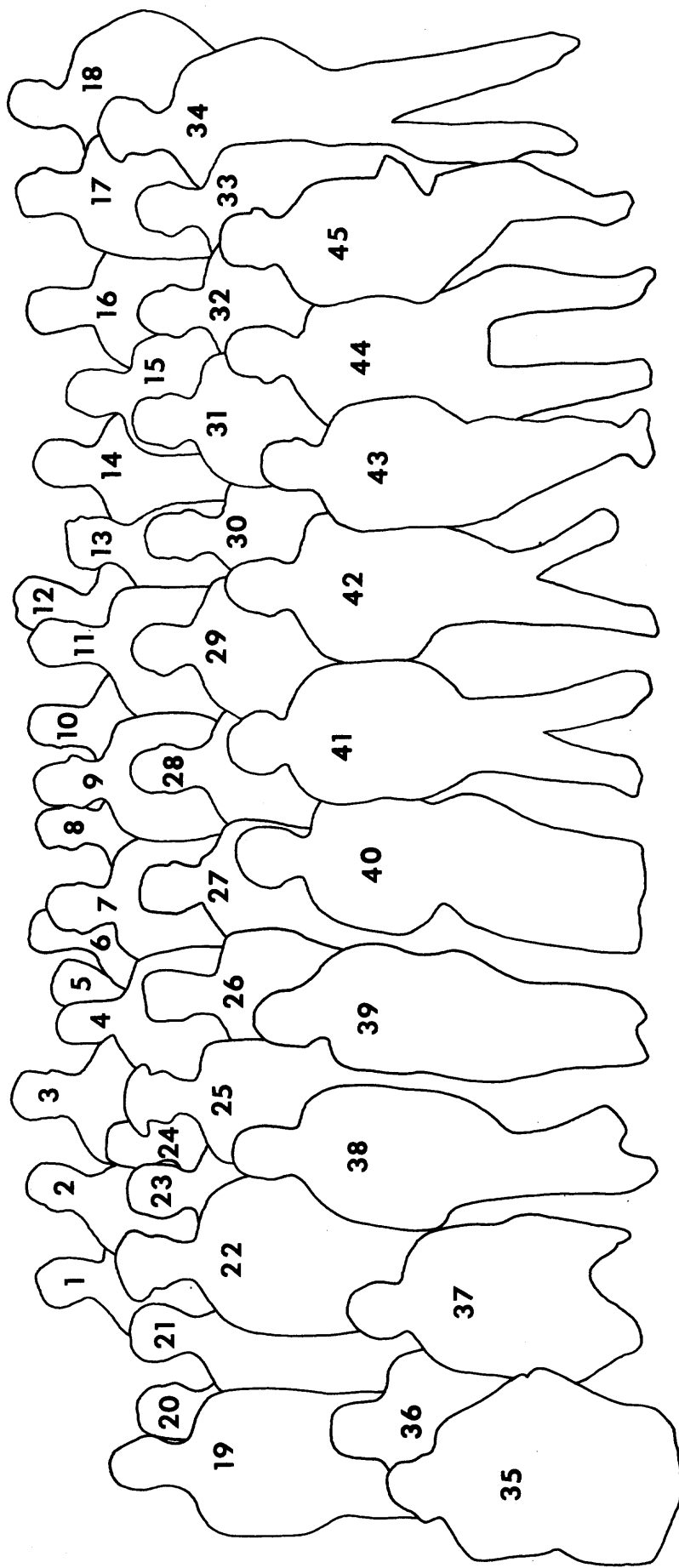


G. A. Ashley



R. M. Stone

Photographs of Bonine and Swartz, courtesy of Pennsylvania State University Library; of Butts, courtesy of the U.S. Geological Survey.



- 1.
- 2.
- 3.
4. C.A. Bonine
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- 16.
- 17.
- 18.
19. H.M. Fridley
- 20.
- 21.
- 22.
- 23.
- 24.
25. C.R. Fettke
26. F. Swartz
- 27.
28. L. Whitcomb
- 29.
- 30.

31. R. Stone
- 32.
33. R.E. Sherrill
34. R.C. Tucker
- 35.
- 36.
37. P.H. Price
- 38.
- 39.
- 40.
41. G. Ashley
42. B. Willard
43. M. Shaffner
- 44.
45. S. Cathcart



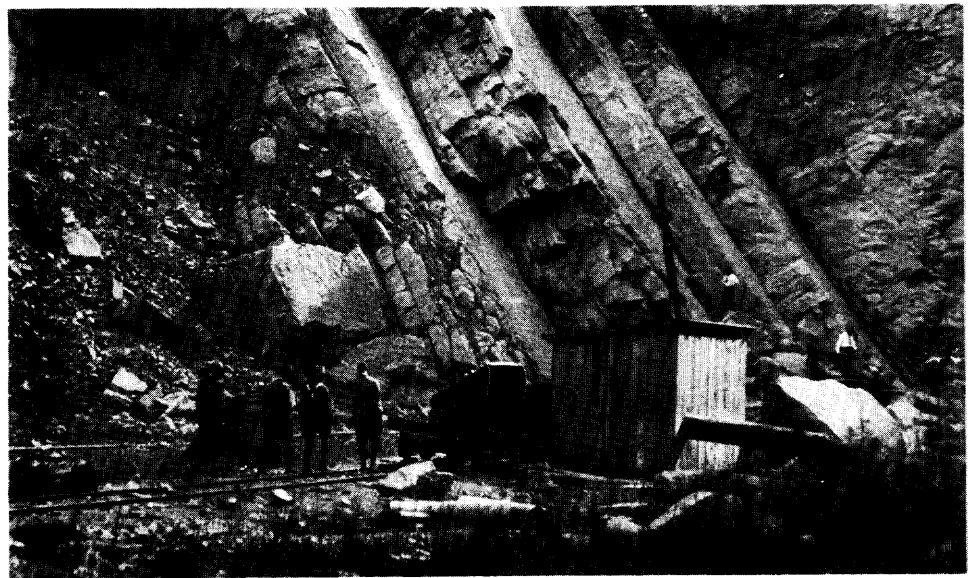
THE CONFEREES

FIELD TRIP SCENES



American Lime and Stone Co.

quarries near Bellefonte



American Lime and Stone Co.

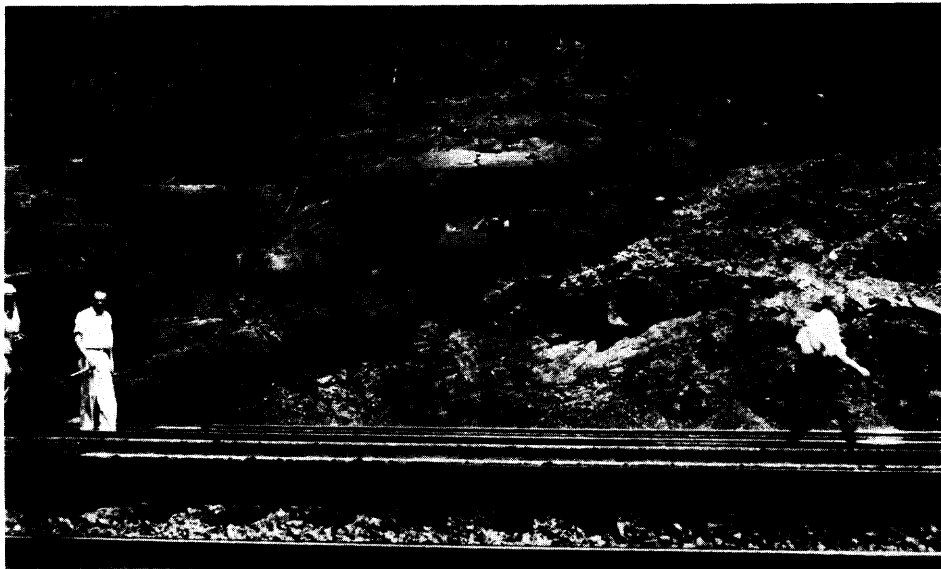
quarries near Bellefonte



Charles Butts

FIELD TRIP SCENES

Descending Horseshoe Curve



Descending Horseshoe Curve

At the outcrop



PART 4

Dedication to C. A. Bonine

and

Bradford Willard's Journal

CHESLEIGH ARTHUR BONINE
E.M., Lehigh University, 1912
Professor Emeritus
Pennsylvania State University

by
Lawrence Whitcomb

The Department of Geology, Lehigh University, is proud to dedicate this guidebook to the 1961 meetings of the Field Conference of Pennsylvania Geologists to a Lehigh alumnus.

In the spring of 1931, C. A. Bonine, who was then Professor of Geology at the Pennsylvania State College, sent out a number of letters to geologists of his acquaintance in Pennsylvania, to geology departments, both academic and commercial, and to a few geologists from the adjacent states. He stated that he had recently read a paper listing the number of geologists in the various states and at that time realized how few of those in Pennsylvania he knew. Feeling that this might be true of many others, he invited all of us to come to State College for the Memorial Day week-end. The plans called for some field trips, but the major objective was that we might become better acquainted with the other geologists located in or working in Pennsylvania.

On Friday, May 29, we arrived for the start of a memorable week-end, (no one who on Saturday walked the Horseshoe Curve in temperatures over ninety will ever forget it) to find a program with the title "Field Conference of Pennsylvania Geologists". That evening at a Smoker, it was decided that Bonine had

started something that must be continued. B. L. Miller of Lehigh and Freeman Ward of Lafayette invited the group to visit the Lehigh Valley in 1932 and George H. Ashley stated that the Pennsylvania Geological Survey would be the host at Harrisburg in 1933. A sound start was assured and the name which Bonine had placed on his first program became the accepted designation of the group.

Now thirty years later, it is appropriate for us at Lehigh to recognize Chesleigh Arthur Bonine, E.M., Lehigh, 1912, as founder of the Field Conference of Pennsylvania Geologists.

FIRST CONFERENCE OF PENNSYLVANIA GEOLOGISTS

State College, 1931

Friday, May 29, 1931

"Stan" [Cathcart] and I in a Ford and the rest [presumably Ashley, Stone, Graeber, Moyer and Schaffner] in a big car to State College for a meeting of the geologists of Pennsylvania. About 40 or 45 present. In p.m. on a trip to see Silurian and Devonian near Howard under Prof. F. M. Swartz. Not a very good section. Dinner at "Old Main" in evening. Very warm, but the hotel, the new "Nittany Lion", excellent.

Saturday, May 30, 1931

Memorial Day. Up about 5 and all of us to Altoona. Thence by train to Gallitzin. From there we hiked back to Altoona around the famous "Horseshoe Curve". Had as a leader Mr. Charles Butts of the U.S.G.S., so famous in Devonian stratigraphy, particularly this section. Very glad to see it under his guidance, for he is an old man and failing.

In evening inspected the fine, new Mineral Industries Building at the college.

Sunday, May 31, 1931

Returned to Harrisburg.

PART 5

**A Short History and a synopsis
of the Field Conferences**

A SHORT HISTORY OF THE FIELD CONFERENCE OF PENNSYLVANIA GEOLOGISTS

The History of the Field Conference of Pennsylvania Geologists is told through the roadlogs, stop descriptions, receptions, and informal talks that became the pattern of each of the fifty trips. This pattern was established in 1931 by C. A. Bonine, graduate of Lehigh University and Professor of Geology at The State College of Pennsylvania, who was the organizer and originator of the Field Conference. Bonine's desire to "become better acquainted with the other geologists located or working in Pennsylvania" became a major objective of the Conference. This objective has been well met at the 50 meetings of the Conference, as it has guided geologists to share their knowledge and to look at new interpretations of geological phenomena throughout our Commonwealth.

The success of the Conference is the result, for the most part, of the willing volunteer efforts of geologists of the colleges and universities of Pennsylvania and our nearby states, the Pennsylvania Geological Survey and nearby State Geological Surveys, the U. S. Geological Survey, and geologists from our industrial mineral and fossil fuel companies as well as many other individual geologists. From the beginning, these geologists have prepared detailed road logs and carefully written stop descriptions published as the guidebook for each trip, and have provided able instruction at each stop to explain Pennsylvania's complex geology in the most current interpretation.

Meetings have been held each year since 1931, with the exception of 1942 to 1945 which was due to limitation on travel during World War II, and 1957 when 18 months elapsed between the October 1956 meeting in New Jersey and the Spring 1958 meeting in Maryland's South Mountain.

At the second meeting, hosted by Lehigh University, bylaws were adopted which included the appointment of a permanent Secretary-Treasurer "who must be a member of the Pennsylvania Geological Survey" so as to provide continuity of scheduling, and maintaining records and finances. These bylaws continued in force until 1978 when the Conference incorporated as a Pennsylvania domestic non-profit corporation. The new corporate bylaws created an Executive Committee composed of a Chairman, a Secretary-Treasurer, and the Local Committee Chairman; the first two officers must be members of the Pennsylvania Geological Survey, again to provide continuity.

Dr. Bradford Willard was the first officer and continued as Secretary-Treasurer until 1935. Dr. Lawrence Whitcomb was the Conference officer in 1936 for the sixth annual meeting, conducted by Lehigh University geologists. The sixth conference is significant as the only combined conference held with the New York State Geological Association, and the only Conference held which dealt with anthracite area geology. Dr. Arthur B. Cleaves assumed the permanent office during 1937 and 1938 and was then replaced by longtime Pennsylvania Geological Survey member, Marchant N. Shaffner, who remained in this office for nearly two decades. He was followed by Alan Geyer and then Donald Hoskins, who has been Secretary-Treasurer since 1967. Upon incorporation in 1978, Arthur Socolow was elected Chairman at the annual meeting of the Conference.

Field trips during the first 25 years of the Conference were largely by individual auto, usually with State Police escorts. Minutes of the fifth meeting in Philadelphia state "Despite the size of the party [86] and the necessity of moving a motorcade of 25-30 cars through the thickly settled Philadelphia district, the trip was handled without difficulty, thanks to a trained escort of the Pennsylvania State Highway Patrol." Private cars were used until the middle 1950's when buses were chosen for some of the individual trips in 1954, 1955, and 1959. Since the meeting of 1963, buses have been used in preference to individual cars because of logistical problems as Conference attendance grew. With the one exception in 1967 when one of the buses was struck while parked, no serious accidents have occurred.

Until 1956, the conferences were held in late May and early June, usually over the Memorial Day weekend. In 1956 the meeting was held in late September. The next two meetings in 1958 and 1959 were held in May. Following those years, the Conference has met consistently in the Fall in order to avoid difficulties of scheduling around college graduation days. Since 1963 the Conference has usually met on the Thursday, Friday, and Saturday of the first weekend in October.

Attendance on the trips started with 45 in 1931, gradually growing to 99 by 1936 and then fluctuating in the low to middle 100's until 1967 when a record 183 attended. This figure was exceeded in 1981 when, for three years in succession, over 200 attended with the record being 278 in 1983.

Subjects of the Conferences have usually centered around the research interests of the host organizations. Areas visited on more than one occasion have been Centre County, the Philadelphia and Pittsburgh areas, the Harrisburg-York-Gettysburg area, Lancaster County, the Allentown-Bethlehem-Easton area, and along our major highways and rivers where outcrops are more prevalent. Areas that have not often been visited are the northern tier of counties and southwestern Pennsylvania, with several counties never having been traversed. The record of the Conferences shows that revisits to areas of former trips are productive, as the dynamics of geology require the application of new interpretations to old and familiar outcrops.

Of the 50 trips conducted by the Conference, most have been conducted solely by the host organization. Credit for these goes to the Pennsylvania Geological Survey (9), The Pennsylvania State University and its predecessor, State College (5), Lehigh University (3), Bryn Mawr College (2), Franklin and Marshall College (2), the New Jersey Geological Survey (2), the U. S. Geological Survey (2), Bucknell University (1), Johns Hopkins University (1), Lafayette College (1), the Maryland Geological Survey (1), the Pittsburgh Geological Society (1), the Virginia Geological Survey (1), the West Virginia Geological Survey (1). The remaining 18 conferences were co-hosted, or field trip support was provided, by many of the aforementioned organizations, plus The Academy of Natural Sciences of Philadelphia, the Carnegie Institute of Technology, the Carnegie Museum of Pittsburgh, Delaware County Christian School, East Tennessee State College, Edinboro State College, George Washington University, Hobart and William Smith Colleges, LaSalle College, Mansfield State College, The National Science Foundation, the New Jersey Division of Water Resources, Ohio Wesleyan College, Princeton University, Rider College, Rutgers University, Slippery Rock State College, SUNY College at Fredonia, the University of North Carolina, the University of Pennsylvania, and Villanova University.

Logistical, and occasionally financial, support of the Conference has been given cheerfully by industry from the early years. Conference records show that the Gulf Research and Development Corporation of Pittsburgh hosted the first complimentary smoker at the fourth annual conference held in 1935 in Pittsburgh. Support to the Conference over these many years has been provided by A. B. Crichton, Aero Service Corporation, Alpha Portland Cement, Atlantic Refining Company, Benders Quarry Company, Bendix Field Engineering Corporation, Bethlehem Steel Company, Brockway Glass, Calcite Quarry Company, Chevron Resources Company, Dunn Geoscience Corporation, Dupont Corporation, Eshenaur's Quarry Company, GAF Corporation, J. T. Galey, Geo-Technical Services, Inc., Carlyle Gray & Associates, Harrisburg Area Geological Society, Hotel Easton, Hudson Coal Company, Ingersoll-Rand Company, International Exploration Company, Kendall Oil Refinery, Lehigh Navigation Coal Company, SMC Martin, Inc., H. E. Millard Lime and Stone, New Jersey Zinc Company, Pennsylvania Bluestone Association, Pennsylvania Oil Producers Association, Peoples Natural Gas Company, Petroleum Reclamation Company, Philadelphia Clay Company, Philadelphia and Reading Coal Company, Pittsburgh Geological Society, Quaker State Refining Company, Reading Railroad, Rebor Sand and Coal Company, Showalter's Quarry Company, South Penn Oil Company, Sun Oil Company, Tethys Geotechnical Consultants, Thomasville Lime and Stone Company, United Natural Gas, Wellsboro Chamber of Commerce, Wolf's Head Oil Company, and R. E. Wright Associates.

**SYNOPSIS OF FIFTY YEARS
OF THE FIELD TRIPS OF THE
FIELD CONFERENCE OF PENNSYLVANIA GEOLOGISTS**

Geology of areas of the Bellefonte, Tyrone and Lock Haven Quadrangles. First Annual Field Conference of Pennsylvania Geologists, 1931.

Road logs were not included with this guidebook but five trips were conducted. 1. American Lime and Stone Company at Bellefonte.

2. Silurian and Lower Devonian rocks of the Bald Eagle Valley from Bellefonte to Lock Haven. 3. Stratigraphy of the Allegheny Front from Gallitzen to Altoona. 4. Tyrone [Birmingham] thrust fault structures.

Conference Host: Pennsylvania State College

Conference Headquarters: State College, PA

Leaders: Chesleigh Bonine, Charles Butts, Ralph Stone, Frank Swartz

Date: May 29-31, 1931

Around and Near the "Forks of the Delaware," and Various and Sundry "Gaps." Second Annual Field Conference of Pennsylvania Geologists, 1932.

Six field trips with road logs are in the guidebook. Two one-half day trips examined Triassic rocks and the slate and cement district. The main excursion traversed the Lehigh and Delaware gaps followed by three one-half day trips in the Saucon Valley, Pleistocene drifts, and the Spitzenberg.

Conference Hosts: Lehigh University and Lafayette College

Conference Headquarters: Easton, PA

Leaders: B. L. Miller, L. Whitcomb, H. A. Itter, F. Ward,
B. Willard, F. Swartz

Date: May 28-30, 1932

Geology of Central Pennsylvania. Third Annual Field Conference of Pennsylvania Geologists, 1933.

This conference included six field trips in central Pennsylvania.

1. Cornwall Mines. 1a. Cornwall Mines and Triassic. 2. Third Mountain. 3. Susquehanna-Juniata Valleys. 4. South Mountain. 5. Western Perry County.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Harrisburg, PA

Leaders: G. Ashley, C. Graeber, W. Hickok, B. Willard, R. Stone

Date: May 27-29, 1933

Geology of Western Pennsylvania. Fourth Annual Field Conference of Pennsylvania Geologists, 1934.

Areas near Pittsburgh were explored during this conference. Trips conducted were: 1a. Wildwood underground coal mine; 1b. Herron Hill Reservoir and Allegheny River Boulevard; 1c. the Carnegie Museum.

2. Beaver Valley area. 3. Uniontown and Ohio pyle area.

Conference Hosts: University of Pittsburgh, Carnegie Institute, and Gulf Corporation

Conference Headquarters: Pittsburgh, PA

Leaders: C. Fettke, H. Leighton, R. E. Sherrill, W. A. Copeland

Date: May 25-27, 1934

Philadelphia Area of Southeastern Pennsylvania. Fifth Annual Field Conference of Pennsylvania Geologists, 1935.

Five field trips were taken during this conference. They included:
1. Physiographic trip southwest of Philadelphia. 2. Mineralogic and petrologic localities north of Philadelphia. 3. Crystalline rocks of the Piedmont north and west of Philadelphia. 4. Lower Paleozoic Formations and their relations to the Pre-Cambrian rocks. 5. Coastal Plain excursion in New Jersey.

Conference Hosts: Academy of Natural Sciences, Bryn Mawr College, Lehigh University, University of Pennsylvania, and Atlantic Refining Co.

Conference Headquarters: Philadelphia, PA

Leaders: L. Dryden, S. Gordon, E. Watson, B. L. Miller, F. Ehrenfeld, P. Storm, H. Kummel

Date: May 31-June 2, 1935

Geological Inspection of Anthracite Region. Sixth Annual Field Conference of Pennsylvania Geologists, 1936.

Conference members examined the geology of the anthracite region as well as the mining methods used and the problems encountered while mining coal as well as mine fires. Road logs are indicated for trips in the northern, middle and southern anthracite fields. This conference was conducted in association with the New York State Geological Association.

Conference Host: Lehigh University

Conference Headquarters: Scranton, PA

Leaders: B. L. Miller, D. M. Fraser, L. Whitcomb

Date: May 22-24, 1936

Bradford District Trip. Seventh Annual Field Conference of Pennsylvania Geologists, 1937.

The stratigraphy of the oil fields of the Bradford District is discussed. Two field trips traversing McKean and Warren Counties are included. A trip was also conducted to Presque Isle to study Pleistocene and shoreline features.

Conference Hosts: Pennsylvania State College, Pennsylvania Geological Survey, and Oil Producer's Association

Conference Headquarters: Bradford, PA

Leaders: C. Fettke, K. Caster, H. Leighton

Date: May 29-30, 1937

Virginia Trip. Eighth Annual Field Conference of Pennsylvania Geologists, 1938.

This field trip traversed northern Virginia, and parts of West Virginia, and Maryland examining Paleozoic rocks and included a trip on the Skyline Drive. The guidebook was published as Virginia Geological Survey Guide Leaflet No. 1.

Conference Host: Virginia Geological Survey

Conference Headquarters: Cumberland, MD

Leaders: F. M. Swartz, C. Butts, G. Stose, A. Bevan

Date: May 28-30-1938

West Virginia Trip. Ninth Annual Field Conference of Pennsylvania Geologists, 1939.

This field trip went from Morgantown to Berkeley Springs, WV examining the major outcrops along the route. A geologic column is included.

Conference Host: West Virginia Geological Survey
Conference Headquarters: Morgantown, WV
Leader: E. T. Heck
Date: May 28-30, 1939

The Geology of New Jersey. Tenth Annual Field Conference of Pennsylvania Geologists, 1940.

Four field trips were conducted. 1. Geology of the Culvers Gap to Newfoundland area. 2. Geology of the Franklin district. 3. Physiography, glaciation and soils. 4. Cretaceous and tertiary stratigraphy of the Coastal Plain.

Conference Hosts: New Jersey Geological Survey, Rutgers University, and Princeton University

Conference Headquarters: Newton, NJ

Leaders: M. E. Johnson, H. Woodward, A. F. Buddington, H. H. Hess, E. Sampson, E. Dorf, A. O. Hayes, H. Johnson, B. Willard

Date: May 30-June 1, 1940

Allegheny Front Trip: Blue Knob-East Freedom-Hollidaysburg-Williamsburg Area, Pennsylvania. Eleventh Annual Field Conference of Pennsylvania Geologists, 1941.

The field trip examined Cambrian-Pennsylvanian rocks along the Allegheny Front.

Conference Hosts: Pennsylvania Geological Survey

Conference Headquarters: Johnstown, PA

Leaders: F. M. Swartz, G. Ashley, M. Shaffner, A. B. Crichton

Date: May 30-June 1, 1941

————— WORLD WAR II —————

interrupted scheduling the conference during 1942-1945

From the Cambrian to the Silurian near State College and Tyrone. Twelfth Annual Field Conference of Pennsylvania Geologists, 1946.

The trip outlined was concerned with lower Paleozoic rocks of the Appalachian Valley and Ridge Province and the Allegheny Plateau. Upper Devonian to Pennsylvanian rocks along the Horse Shoe Curve near Altoona were also included.

Conference Host: Pennsylvania State College

Conference Headquarters: State College, PA

Leaders: P. D. Krynine, G. M. Kay, F. M. Swartz

Date: May 30-June 2, 1946

Thirteenth Annual Field Conference of Pennsylvania Geologists, 1947.

Northampton and Lehigh Counties were explored during this field conference. Field trips outlined included: 1. Nazareth Cement Plant. 2. Saucon Valley Zinc Mines and Triassic intrusives. 3. The Valley of the Lehigh. 4. West from Bethlehem. 5. Triassic fanglomerates of Delaware Valley.

Conference Host: Lehigh University

Conference Headquarters: Bethlehem, PA

Leaders: B. Willard, L. Whitcomb, T. E. Stephenson, R. H. Gault, F. Betz

Date: May 30-June 1, 1947

Fourteenth Annual Field Conference of Pennsylvania Geologists, 1948.

South-central Pennsylvania was the site of this field conference. Four field trips are outlined in this guidebook. 1. South Mountain. 2. Pennsylvania Turnpike. 3. Cornwall Mine. 4. Susquehanna-Juniata River.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Harrisburg, PA

Leaders: R. M. Foose, R. C. Stephenson, F. M. Swartz,
A. B. Cleaves, D. M. Fraser, G. L. Adair, B. Willard

Date: May 28-30, 1948

Fifteenth Annual Field Conference of Pennsylvania Geologists, 1949.

This conference, centered in Lancaster County, included three field trips. 1. Old metal mines and Mine Ridge Anticline. 2. "Martic Overthrust" area. 3. Appalachian drainage and Pleistocene terraces.

Conference Host: Franklin and Marshall College

Conference Headquarters: Lancaster, PA

Leaders: E. Cloos, R. Chapman, G. Biemesderfer, J. Moss, J. Freedman,
R. M. Foose, E. Sampson, H. Meyerhoff

Date: May 27-29, 1949

Sixteenth Annual Field Conference of Pennsylvania Geologists, 1950.

Three field trips, spanning Allegheny County, are included. 1. Visit to Jones and Laughlin Steel Company, Aliquippa Plant. 2. Glacial Foreland, Northwest Pennsylvania. 3. Chestnut Ridge Anticline.

Conference Hosts: Pittsburgh Geological Society, University of Pittsburgh, Carnegie Museum, and Carnegie Institute of Technology

Conference Headquarters: Pittsburgh, PA

Leaders: A. I. Ingham, W. S. Lytle, F. Preston, C. E. Prouty,
R. E. Sherill, W. M. Fieldler, P. R. Stewart, R. E. Boyles

Date: May 26-28, 1950

Guidebook Illustrating the Geology of the Philadelphia Area. Seventeenth Annual Field Conference of Pennsylvania Geologists, 1951.

The geology of the Chester Valley was explored, giving participants a general overview of the mineralogy and geology of the area.

Conference Host: Bryn Mawr College

Conference Headquarters: Bryn Mawr, PA

Leaders: M. E. Johnson, L. Dryden, E. Watson, D. Wyckoff,
A. W. Postel, H. E. McKinstry

Date: June 1-3, 1951

Sussex County, New Jersey. Eighteenth Annual Field Conference of Pennsylvania Geologists, 1952.

Field trips were conducted. 1. Pleistocene geology. 2. Dikes of special petrologic interest. 3. Silurian and Devonian stratigraphy. 4. Cambro-Ordovician and Pre-Cambrian rocks. 5. Silurian-Devonian of Nearpass quarries.

Conference Host: New Jersey Geological Survey

Conference Headquarters: Newton, NJ

Leaders: P. MacClintock, C. Milton, H. Herpes, M. Johnson

Date: May 30-June 1, 1952

Nineteenth Annual Field Conference of Pennsylvania Geologists, 1953.

This conference, held in Northampton County, summarized the geology of the area through its four field trips. 1. North from Easton to slate and cement areas. 2. Mineral collecting trip to serpentine quarries north of Easton. 3. North from Easton to Panther Valley anthracite region.

4. South from Easton to Riegelsville.

Conference Host: Lafayette College

Conference Headquarters: Easton, PA

Leaders: J. L. Dyson, A. Montgomery, C. Cabeen, R. F. Gantnier,
D. McLaughlin, B. Willard, C. Warmkessel, J. Bertrand

Date: May 29-31, 1953

Twentieth Annual Field Conference of Pennsylvania Geologists, 1954.

The field trips taken at this conference were almost entirely in Lebanon County. The routes were in the Great Valley section of the Ridge and Valley province. Trips included: 1. Cornwall iron deposits. 2. Cambro-Ordovician limestones of Lebanon County. 3. Martinsburg Formation and associated eruptive rocks of the Jonestown area.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Hershey, PA

Leaders: C. Gray, J. R. Moseley, D. B. McLaughlin, C. E. Prouty

Date: May 28-30, 1954

Twenty-first Annual Field Conference of Pennsylvania Geologists, 1955.

This field conference provided participants with a general review of the geology of parts of central Pennsylvania. They were: 1. Stratigraphy of Ordovician limestones and dolomites of Nittany Valley from Bellefonte to Pleasant Gap. 2. Stratigraphy and structure of Ridge and Valley area from University Park to Tyrone, Mt. Union, and Lewistown. 3. Stratigraphy and structure of Pennsylvania sediments of the Plateau area near Philipsburg and Clearfield.

Conference Host: Pennsylvania State University

Conference Headquarters: University Park, PA

Leaders: F. M. Swartz, M. Roncs, A. D. Donaldson, J. P. Hea,
P. D. Krynine, R. P. Nickelsen, and E. G. Williams

Date: May 27-29, 1955

Twenty-second Annual Field Conference of Pennsylvania Geologists, 1956.

This guidebook summarized the geology of the major physiographic provinces and Coastal Plain sediments near Trenton, New Jersey, and included a stop at Limeport, Bucks County, Pennsylvania.

Conference Host: New Jersey Geological Survey

Conference Headquarters: Trenton, NJ

Leaders: M. E. Johnson, F. J. Markewicz, K. Widmer, B. Willard

Date: September 28-29, 1956

—— No conference scheduled in 1957 ——

Structural Geology of South Mountain and Appalachians in Maryland. Twenty-third Annual Field Conference of Pennsylvania Geologists, 1958.

This guidebook was published as the Johns Hopkins University Studies in Geology No. 17 and is available from University Microfilms, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

The South Mountain anticlinorium and the Appalachians to the west are examined. The route does not extend into Pennsylvania.

Conference Host: Johns Hopkins University
Conference Headquarters: Hagerstown, MD
Leaders: E. Cloos and T. D. Murphy
Date: May 10-11, 1958

Twenty-fourth Annual Field Conference of Pennsylvania Geologists, 1959.

The field conference celebrated the centennial of the Drake well and included trips throughout northwestern Pennsylvania. 1. The glacial geology of Crawford and Erie Counties. 2. Bedrock and oil geology of northwestern Pennsylvania and the great Oilorodo. 3. Erosion channel in Penn Dixie limestone mine.

A history of the Drake well and a visit to the museum are included in this guidebook.

Conference Host: Pennsylvania Geological Survey
Conference Headquarters: Titusville, PA
Leaders: V. C. Shepps and W. S. Lytle
Date: May 15-17, 1959

Some Tectonics and Structural Problems of the Appalachian Piedmont along the Susquehanna River. Twenty-fifth Annual Field Conference of Pennsylvania Geologists, 1960.

This trip examined the intensely deformed, metamorphosed and intruded inner Piedmont, Triassic fanglomerates, nappe structures and Ordovician volcanics.

Conference Host: Franklin and Marshall College
Conference Headquarters: Lancaster, PA
Leaders: O. P. Bricker, C. A. Hopson, M. E. Kauffman, D. M. Lapham, D. B. McLaughlin and D. U. Wise
Date: October 22-23, 1960

Structure and Stratigraphy of the Reading Hills and Lehigh Valley in Northampton and Lehigh Counties, Pennsylvania. Twenty-sixth Annual Field Conference of Pennsylvania Geologists, 1961.

The field trip was designed to examine and compare the structural features of the rocks of the Reading Hills and those of the Lehigh Valley in Northampton and Lehigh Counties, Pennsylvania and adjacent parts of New Jersey and to examine the relationship between early Paleozoic tectonism and sedimentation.

Conference Host: Lehigh University
Conference Headquarters: Bethlehem, PA
Leaders: A. Drake, W. C. Sherwood, J. Ames, and J. D. Ryan
Date: October 20-21, 1961

Stratigraphy, Structure, and Economic Geology of Southern Somerset County and Adjacent Parts of Bedford and Fayette Counties, Pennsylvania. Twenty-seventh Annual Field Conference of Pennsylvania Geologists, 1962.

The general geology of Devonian and Carboniferous rocks in the Appalachian Plateau of Pennsylvania are examined.

Conference Hosts: University of Pittsburgh and Pennsylvania Geological Survey
Conference Headquarters: Somerset, PA
Leaders: N. K. Flint, A. S. Cate, G. Klein, W. Leeper, S. Philbrick
Date: October 19-20, 1962

Stratigraphy and Structure of Upper and Middle Devonian Rocks in Northeastern Pennsylvania. Twenty-eighth Annual Field Conference of Pennsylvania Geologists, 1963.

The field guide describes, evaluates, and interprets the stratigraphic and structural framework of Catskill and related strata in northeast Pennsylvania. A two day field trip, including eleven stops, begins and ends in Stroudsburg.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Stroudsburg, PA

Leaders: J. D. Glaeser, L. A. Frakes, W. R. Wagner,
J. F. Wietrzykowski

Date: October 11-12, 1963

Cyclic Sedimentation in the Carboniferous of Western Pennsylvania. Twenty-ninth Annual Field Conference of Pennsylvania Geologists, 1964.

This field trip is concerned with the existence, character, and genesis of cyclothems in the Carboniferous rocks of western Pennsylvania. It provides conceptional and physical frameworks within which some important aspects of Carboniferous sedimentation and stratigraphy can be observed.

Conference Host: Pennsylvania State University

Conference Headquarters: Clearfield, PA

Leaders: E. G. Williams, J. C. Ferm, A. L. Guber, R. E. Bergenback

Date: October, 10-11, 1964

Stratigraphy of the Pennsylvanian and Permian Rocks of Washington, Mercer, and Lawrence Counties, Pennsylvania. Thirtieth Annual Field Conference of Pennsylvania Geologists, 1965.

The guide includes two field trips: 1. Stratigraphy of Upper Pennsylvanian and Lower Permian rocks, Washington County. 2. Stratigraphy of the Pottsville and Allegheny groups of Mercer and Lawrence Counties.

Conference Hosts: U.S. Geological Survey and Pennsylvania Geological Survey

Conference Headquarters: Pittsburgh, PA

Leaders: B. H. Kent, J. B. Roen, S. P. Schweinfurth, and
L. D. Carswell

Date: October 8-9, 1965

Comparative Tectonics and Stratigraphy of the Cumberland and Lebanon Valleys. Thirty-first Annual Field Conference of Pennsylvania Geologists, 1966.

The Cumberland and Lebanon Valley stratigraphic sequences are examined at various locations. The structural and stratigraphic discontinuities between them is demonstrated.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Harrisburg, PA

Leaders: D. B. MacLachlan and S. I. Root

Date: October 7-8, 1966

Geology in the Region of the Delaware to Lehigh Water Gaps. Thirty-second Annual Field Conference of Pennsylvania Geologists, 1967.

The interrelationship of the stratigraphy, structure, geomorphology, glacial geology, and economic geology of the Middle Ordovician through part of the Middle Devonian strata and overlying surficial deposits in

the area between the Delaware and Lehigh Rivers in eastern Pennsylvania is demonstrated by this guide. A two day field trip log is included.

Conference Hosts: U.S. Geological Survey and Pennsylvania Geological Survey

Conference Headquarters: Stroudsburg, PA

Leaders: J. B. Epstein and A. G. Epstein

Data: September 29-30, 1967

The Geology of Mineral Deposits in South-Central Pennsylvania. Thirty-third Annual Field Conference of Pennsylvania Geologists, 1968.

The guide for a two day field trip begins and ends in Harrisburg. It contains detailed discussions of mineral deposits of the region.

Each deposit is discussed separately. Stops were made at the GAF greenstone quarry, Hanover quarry, Thomasville stone quarry, Bender's quarry, Mt. Holly white clay deposits, Millard quarry, and Eschelmann's quarry.

Conference Host: Pennsylvania Geologic Survey

Conference Headquarters: Harrisburg, PA

Leaders: E. Cloos, J. Freedman, G. Hole, K. Hoover, J. Hosterman, A. Nelson, S. Sims, and D. Wise

Date: October 4-5, 1968

The Pocono Formation in Northeastern Pennsylvania. Thirty-fourth Annual Field Conference of Pennsylvania Geologists, 1969.

A detailed description of the Mississippian Pocono Formation is given. The trip, 240 miles long with nine stops, begins and ends in Hazleton.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Hazleton, PA

Leader: W. D. Sevon

Date: October 3-4, 1969

New Interpretations of Eastern Piedmont Geology of Maryland. Thirty-fifth Annual Field Conference of Pennsylvania Geologists, 1970.

The area visited by this field conference is the northeastern Piedmont of Maryland mainly Baltimore, Cecil, and Harford Counties. The trip does not extend into Pennsylvania.

Conference Host: Maryland Geologic Survey

Conference Headquarters: Baltimore, MD

Leaders: W. P. Crowley, M. W. Higgins, T. Bastian, S. Olsen

Date: October 2-3, 1970

Upper Devonian Sedimentation in Susquehanna County and Hydrology, Glacial Geology and Environmental Geology of the Wyoming-Lackawanna Valley. Thirty-sixth Annual Field Conference of Pennsylvania Geologists, 1971.

The first trip presents a discussion of the geology, composition, texture, and physical properties of the flagstones of northeastern Pennsylvania and of the properties of flagstone that affect their discovery, development, and use.

The second shows environmental problems resulting from the removal of the coal in the northern anthracite field and examines exposures of Pleistocene deposits.

Conference Hosts: Pennsylvania State University and U.S. Geological Survey

Conference Headquarters: Wilkes-Barre, PA
Leaders: S. A. Krajewski, E. G. Williams, J. R. Hollowell
Date: October 8-9, 1971

Stratigraphy, Sedimentology, and Structure of Silurian and Devonian Rocks Along the Allegheny Front in Bedford County, Pennsylvania, Allegheny County, Maryland, and Mineral and Grant Counties, West Virginia. Thirty-seventh Annual Field Conference of Pennsylvania Geologists, 1972.

This guidebook brings together the varied structural and stratigraphic research concerned with the Allegheny Front. It traces the geology from Pennsylvania southward across Maryland to West Virginia demonstrating the regional continuity of certain stratigraphic and structural trends.

Conference Hosts: Pennsylvania, Maryland, and West Virginia

Geological Surveys

Conference Headquarters: Bedford, PA

Leaders: J. M. Dennison, W. deWitt, K. O. Hasson, D. M. Hoskins,
J. W. Head

Date: October 6-7, 1972

Structure and Silurian-Devonian Stratigraphy of the Valley and Ridge Province, Central Pennsylvania. Thirty-eighth Annual Field Conference of Pennsylvania Geologists, 1973.

The Valley and Ridge Province of the Appalachians has been considered a classic area of relatively simple geologic structures with complete and undeformed Paleozoic stratigraphic sections. Revisions of the structural geology and stratigraphy are demonstrated in this field trip guide.

Conference Host: Pennsylvania Geological Survey

Conference Headquarters: Camp Hill, PA

Leaders: R. T. Faill, R. W. Wells, R. P. Nickelsen, D. M. Hoskins

Date: October 5-6, 1973

Geology of the Piedmont of Southeastern Pennsylvania. Thirty-ninth Annual Field Conference of Pennsylvania Geologists, 1974.

The guidebook contains a group of studies dealing with the Pennsylvania Piedmont, including an introduction to crystalline rocks, deformation and metamorphism in the Wissahickon Formation, and an examination of sinkholes.

Conference Host: Bryn Mawr College

Conference Headquarters: King of Prussia, PA

Leaders: R. V. Amenta, M. L. Crawford, W. A. Crawford,
W. B. Fergusson, W. R. Parrott, F. H. Roberts,
E. J. Trojan, M. E. Wagner

Date: October 4-5, 1974

The Late Wisconsinan Drift Border in Northern Pennsylvania. Fortieth Annual Field Conference of Pennsylvania Geologists, 1975.

The character and availability of the Late Wisconsinan drift materials, similarities and differences between the Late Wisconsinan drift and pre-Late Wisconsinan-post Sangamonian drift, the character of the Illinoian glacial drift, the character of deposits of periglacial origin, and the reasoning used in differentiating and dating these various deposits are included in this field guide.

Conference Host: Pennsylvania Geological Survey
Conference Headquarters: Bartonsville, PA
Leaders: W. D. Sevon, G. H. Crowl, and T. M. Berg
Date: October 3-4, 1975

Bedrock and Glacial Geology of Northwestern Pennsylvania in Crawford, Forest and Venango Counties. Forty-first Annual Field Conference of Pennsylvania Geologists, 1976.

The area examined by this trip is near the boundary between the glaciated and unglaciated sections of the Allegheny Plateau Province. An Illinoian till and a Middle Wisconsinan till, with their respective glaciofluvial deposits, are examined, as are exposures of Mississippian rocks.

Conference Hosts: Slippery Rock and Edinboro State Colleges,
and Pennsylvania Geological Survey
Conference Headquarters: Titusville, PA
Leaders: A. N. Ward, W. F. Chapman, M. T. Lukert, J. L. Craft
Date: October 1-2, 1976

Stratigraphy and Applied Geology of the Lower Paleozoic Carbonates in Northwestern New Jersey. Forty-second Annual Field Conference of Pennsylvania Geologists, 1977.

The intent of this field trip is to present the subdivision of the Cambro-Ordovician "Kittatinny" carbonate sequence and to cite some case histories of environmental, geohydrologic, and engineering problems. Two field trips, covering northwestern New Jersey, are outlined in the guidebook.

Conference Hosts: New Jersey Division of Water Resources, New Jersey Geological Survey, and Rider College
Conference Headquarters: Stroudsburg, PA
Leaders: F. J. Markewicz, R. Dalton, W. Spink, R. Metsger, C. Lucey
Date: October 6-8, 1977

Uranium in Carbon, Lycoming, Sullivan, and Columbia Counties, Pennsylvania. Forty-third Annual Field Conference of Pennsylvania Geologists, 1978.

Sedimentological and geochemical models were presented to account for the primary distribution of the uranium minerals and their enclosing rocks. A post-depositional model was also presented to explain the present localizations of these minerals.

Conference Host: Pennsylvania Geological Survey
Conference Headquarters: Hazleton, PA
Leaders: W. D. Sevon, A. W. Rose, R. C. Smith, and D. T. Hoff
Date: October 6-7, 1978

Devonian Shales in South-Central Pennsylvania and Maryland. Forty-fourth Annual Field Conference of Pennsylvania Geologists, 1979.

The authors describe the major purpose of this field conference as to demonstrate the outcrop stratigraphic relationships and nomenclatural changes among the Brallier Formation, Harrell and Burket Shales, Tully Limestone, and Mahantango Formation. A secondary purpose is to illustrate the facies and faunal changes within the Needmore Shale and Huntersville chert.

Conference Hosts: University of North Carolina, East Tennessee State University, and Pennsylvania Geological Survey

Conference Headquarters: Bedford, PA
Leaders: J. M. Dennison, K. O. Hasson, D. M. Hoskins, R. M. Jolley,
W. D. Sevon
Date: October 5-6, 1979

Land Use and Abuse - The Allegheny County Problem. Forty-fifth Annual Field Conference of Pennsylvania Geologists, 1980.

The field conference highlighted the geology of the Pittsburgh area. Included are the geology of the area, coal geology, oil geology, and geologic hazard problems.

Conference Host: Pittsburgh Geological Society
Conference Headquarters: Pittsburgh, PA
Leaders: W. R. Adams, R. P. Briggs, H. F. Ferguson, N. K. Flint,
W. S. Skinner
Date: October 3-4, 1980

Geology of Tioga and Bradford Counties, Pennsylvania. Forty-sixth Annual Field Conference of Pennsylvania Geologists, 1981.

The guidebook was for an area untouched by a geologic study in recent years. Included are the stratigraphy, sedimentology, glacial geology, economic geology, and ground water geology.

Conference Hosts: Pennsylvania Geological Survey and Mansfield State College
Conference Headquarters: Wellsboro, PA
Leaders: T. M. Berg, G. H. Crowl, W. E. Edmunds, P. B. Luce,
W. D. Sevon, J. P. Wilshusen, D. L. Woodrow
Date: October 2-3, 1981

Geology of the Middle Ordovician Martinsburg Formation and related rocks in Pennsylvania. Forty-seventh Annual Field Conference of Pennsylvania Geologists, 1982.

This field conference allowed participants to examine outcrops, lithologies, and structures of the Martinsburg Formation. The discussion examined the structure, stratigraphy, sedimentology, and plate tectonics of the formation. The first day of the field trip was spent west of Harrisburg in the Great Valley. The second day was spent east of Harrisburg in the allochthonous "Hamburg klippe".

Conference Hosts: George Washington University, Bryn Mawr College,
and National Science Foundation
Conference Headquarters: New Cumberland, PA
Leaders: G. C. Stephens, T. O. Wright, L. B. Platt
Date: October 1-2, 1982

Silurian Depositional History and Alleghenian Deformation in the Pennsylvania Valley and Ridge. Forty-eighth Annual Field Conference of Pennsylvania Geologists, 1983.

This field conference examined the landscape of central Pennsylvania which is dominated by linear ridges and fertile valleys. For the Lower and Middle Silurian units, a pattern in the complex paleoenvironmental patterns that is related to Appalachian Basin configuration, source area tectonics, and sea-level fluctuations, were examined. Strain features which help explain the Allegheny Orogeny are also examined.

Conference Host: Bucknell University
Conference Headquarters: Danville, PA
Leaders: R. P. Nickelsen and E. Cotter
Date: September 30 to October 1, 1983

Geology of an Accreted Terrane: The Eastern Hamburg Klippe and Surrounding Rocks, Eastern Pennsylvania. Forty-ninth Annual Field Conference of Pennsylvania Geologists, 1984.

Participants had the opportunity to see Cambro-Ordovician rocks of the eastern Hamburg klippe, nearby Ordovician rocks of the Shochary Ridge and the Martinsburg Formation, as well as Silurian and Devonian rocks in the Valley and Ridge north of Reading, PA.

Conference Host: Spitzenburg Hoch Erziehunganstalt
Conference Headquarters: Wyomissing, PA
Leaders: G. G. Lash, P. T. Lyttle, J. B. Epstein
Date: October 5-6, 1984

Central Pennsylvania Geology Revisited: Coral Reef; The Catskill Clastics; Quaternary and Tertiary Geology; Deformed Zones; Exploration and Exploitation of Coal. Fiftieth Annual Field Conference of Pennsylvania Geologists, 1985--The Golden Jubilee.

The Golden Jubilee Conference returned to topics examined at the first Field Conference emphasizing the advances made in our understanding since that time. In addition, and to emphasize the prominent role geology plays in society today, two applied topics-- Geology in the Exploration and Exploitation of Coal, and Application of Quaternary and Tertiary Geology to Environmental Problems in a Carbonate Valley in Central Pennsylvania were presented as was an opportunity to visit an undolomitized Silurian coral-Bryozoan reef.

Conference Host: Department of Geoscience, Pennsylvania State University

Conference Headquarters: State College, PA

Leaders: D. P. Gold, R. J. Cuffey, A. Davis, T. Gardner,
R. R. Parizek, H. Pohn, A. W. Rose, R. Slingerland,
B. Voight, E. G. Williams, and W. White

Date: October 3-5, 1985