

TRIP B ROAD LOG AND ROUTE DESCRIPTION

GEOMORPHOLOGY OF THE BINGHAMTON AREA

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Total miles	Miles	ROUTE DESCRIPTION
0.0	0.0	Harpur College entrance. East on Rt. 17 to east Binghamton and Rt. 7 (4.2 mi.). Susquehanna River is 830' and greatest hill elevation 4 mi. south is 1877'. Till in road south of river, outwash occurs north of river.
4.2	4.2	Court St. red light and Rt. 7 north to Rt. 369 (4.6 mi.). This is Chenango River valley, 840'.
5.7	1.5	Binghamton Brick Company. See report for Trip A.
6.6	.9	Phelps Creek and south side of Hillcrest. Cemented gravels attest to high lime content of sediments. This kame terrace with 900' level extends along east side of road 1.5 mi.
9.8	3.2	<u>STOP 1.</u> Valley train outwash plastered on bedrock of shale and siltstone to height of 140'. Strata are in contact between Upper Sonyea Group at the base and Lower West Falls Group (Rhinestreet Formation) on top.
10.3	.5	Turn left (north) on Rt. 369 and continue 4.0 mi.
11.6	1.3	Bedrock is Upper Sonyea Group. This marks site of the post-glacial Chenango River channel that was incised owing to ice and sediment blockage in old channel to the west. Northward the valley contains a wide range of outwash deposits, terrace and plain levels, and alluvial fans. The original outwash plain slopes north from 880' to more than 1,000' at Chenango Forks and has been trenched by the Chenango River and Page Brook tributaries.
14.3	2.7	Turn left (west) into Park area. Pass over Page Brook.
14.9	.6	Chenango Valley State Park entrance. Continue straight and make counter-clockwise circuit of Park.
15.6	.7	<u>STOP 2.</u> Park in parking area near pavilion. Elevation of sharp ridge is 950' which is 60' above Lily Lake on the north and Chenango Lake on the south, both are kettle hole lakes. The ridge is composed of unconsolidated materials and is probably the finest example of a crevasse filling in this part of the State. The Park contains numerous kettles and plains; however, this is not kame and kettle topography. Instead the stratified materials are largely horizontally bedded (Stop 3) indicating transport from the north that engulfed stagnant ice blocks.
17.3	1.7	Out of the Park and turn left (north) on blacktop .1 mi.
17.4	.1	<u>STOP 3.</u> Sand and gravel quarries in horizontally-bedded glacio-fluviatile materials. A characteristic of quarries in the Binghamton area is coarse material on top with finer material at the bottom which are commonly sands showing cross bedding and deltaic bedding. Continue north and notice many excellent kettles along route, some more than 60' deep.

TRIP B

- 19.7 2.3 Keep left, pass over Chenango River bridge to Chenango Forks and intersection with Rt. 12. This area is junction with Tioughnioga River. Excellent exposures of bedrock, till, and lacustrine beds occur 1.2-1.7 mi. upstream in Tioughnioga River. Here it is flowing in post-glacial gorge with bedrock walls. The pre-glacial channel is 2 mi. northeast and parallel to same direction and part of the old stream bed is occupied by Ockerman Brook. (Fig.4)
- 20.0 .3 Turn left (south) on Rt. 12 to Kattelville, 3.0 mi. Along this part of route the Chenango River flows in post-glacial channel, the older channel was east and is now filled. Stratified outwash occurs along west side of route and at high levels above the valley walls are several small 'through-valleys'. These saddles and cols are a type of wind-gap created by high-level meltwater streams when the valley was ice filled and the uplands had become ice-free.
- 22.0 2.0 Ascending a high-level saddle, 1070', one of the overflow passes.
- 23.0 1.0 Turn left at Kattelville off of Rt. 12 and continue south.
- 23.8 .8 STOP 4. The railroad marks the axis of the pre-glacial Chenango River channel. This area contains many quarries in outwash sand and gravel. A recently drilled well, April 1, 1963, produced 120 gpm from sand and gravel 98' below ground surface.
- 25.6 1.8 Chenango Bridge red light. Turn right and continue west to red light and intersection with Rt. 12, then turn left and continue on Rt. 12 to Prospect Street. Good exposures of outwash and terrace levels in main part of valley floor. On the valley walls are exposures of Binghamton till at Rappaport's and Grand Union.
- 30.3 4.7 Prospect Street. Turn right (west).
- 31.6 1.3 STOP 5. Old borrow pit on right side of road is in Olean till. Elevation 940'. See text for characteristics of valley fill across the Chenango and Susquehanna valleys. S 30°W is well field for ANSCO. Yield of wells range from 150- 1,800 gpm. ANSCO has a recharge program in which water is recycled back into the aquifers.
Continue west to the next stop by taking Prospect Street, Harry L. Drive, and just west of Calvary Cemetery.
- 34.3 2.7 STOP 6. Borrow pit on right side of road in Olean till. Used as fill in flood wall construction.
Return to Rt. 17 on south side of Susquehanna River through Oakdale, Rt. 17H and Riverside Drive, and across Johnson City-Vestal Bridge.
- 37.7 3.4 Intersection Rt. 17 and Bunn Hill Road, continue west on Rt. 17.
- 38.1 .4 Star-Victory marketing area is located in kettle hole. This is one feature in a morainic complex that extends 0.8 mi. west and was the former site of Susquehanna River prior to blockage.
- 39.0 .9 Good view of 860' level terrace, one part of a vast outwash plain that continues west past Tracy Creek.

- 39.2 .2 Binghamton-lithology till in borrow pit on left side of road (Stop 9).
- 39.4 .2 Deltaic outwash on south in area of Federal Electronics.
- 39.9 .5 Bedrock, claystone and shale. Lower West Falls Group (Rhinstreet Formation). Used for bricks and fill.
- 41.5 1.6 Chocomut Creek. Flood walls built by Army Corps of Engineers as part of flood-control project in the Triple Cities area. This area is site of Town of Vestal well field. Wells did not encounter bedrock at 170' and yield 70,000 gallons per day per foot of drawdown. West of this area at Castle Gardens are large quarries in sand and gravel outwash.
- 42.5 1.0 Unconsolidated glacial materials on left side of road (Stop 8).
- 43.5 1.0 Turn left to Ross Corners and Tracy Creek Road. Stop sign .1 mi on Owego Road, but continue straight (south) on Tracy Creek Road.
- 44.4 .9 STOP 7. Bedrock walls of Tracy Creek. (Rhinstreet Formation) This is post-glacial gorge and typical of the many drainage diversions in the Binghamton area. It is common for these derangements to occur near the junction with major streams. This is similar to the Tioughnioga junction diversion. The pre-glacial Tracy Creek channel is east and became choked with morainic debris. The stream, unable to locate its clogged former channel with disappearance of the ice, incised a new channel as a superimposed stream, even though in bedrock.
- 44.9 .5 Bus stop only to show the west side of Tracy Creek. Olean till occurs in stream cut but varve clays are at the top of the sequence. This exposure completes the history of this local area for the morainic dam impounded waters flowing north and formed a lake, the outlet of which overflowed and started incisement of the bedrock gorge. The lake may have been in existence more than 200 years. Olean-Binghamton transitional facies also occurs.
- 45.0 .1 Turn sharp left on Ross Hill Road. Outcrops of Olean till occur on the right side of road. This area is site of pre-glacial Tracy Creek.
- 46.1 1.1 Owego Road and turn right (east).
- 46.5 .4 Rt. 17 turn right (east).
- 46.8 .3 STOP 8. Triple Cities Construction Co. equipment area and borrow pit. The glacial deposits are lacustrine sands, silts, and clays at 840' with Binghamton till on top. The till has the appearance of being in part ice-rafted.
Continue east on Rt. 17.
- 50.3 3.5 STOP 9. Large borrow pit near African Road. This material was used in construction of flood walls for the containment of the Susquehanna River. This is typical Binghamton till. The oxidized and leached upper 12' are characteristically brown and below is gray unleached till with high limestone content. The pebbles have bi-modal roundness parameters indicating a dual source, one of local derivation, and the other of longer transport that initially were river-worn. The small butte-like remnant is composed of glacial-lacustrine beds at 850'. Recent excavation (April 6, 1963) reveal the locality from African Road to Federal Electronics to be a complexly developed till-lacustrine-deltaic-ice contact area capped by alluvial fan materials.

TRIP B

- 50.5 .2 Turn left at African Road and in .2 mi. turn right on Vestal Road. This is outwash terrace with quarries occurring .6 mi. on left side of Vestal Road.
- 51.6 1.1 Turn left at Y in road into Barney Dickenson Company quarry area. STOP 9. The materials originated as valley train outwash in the Susquehanna valley glacial sluiceway. The coarse materials are horizontally-bedded and underlain by sands that are commonly cross-bedded. Cemented conglomerates in the southeast part of the quarry show the results of the high limestone content in the lithology. In materials larger than gravel size the limestone is more than 25% and the igneous-metamorphic crystallines are more than 15%. Heavy mineral composition of the sands show more than 40% magnetite, 18% garnet, 10% ilmenite, and also containing kyanite, zircon, tourmaline, hematite, rutile, and hornblende. A mastadon tusk was found in the higher outwash gravels immediately south of the washing-sieving equipment in 1953. It is reported that the skull, jawbone, and teeth of a "horse-like animal" were found in 1956 in the same horizon 700 feet east of the mastadon location. These materials presently reside at Yale University, waiting for final identification.

1962 Annual Report of Barney & Dickenson, Inc.
(sent to U. S. Dept. of Interior, Bureau of Mines)

<u>Type of Material</u>	<u>Quantity (Tons)</u>	<u>Value</u>
1. Sand	54,222	\$86,756.64
2. Gravel		
a. Building	63,477	95,215.50
b. Paving	75,405	143,269.50
c. Fill	24,267	19,413.60
Total	217,371	\$344,655.24

Sharp left on Vestal Road to Bunn Hill Road, and return to Harpur College. Along the road is morainic area but large hill on the left, Roundtop, is bedrock.

- 54.6 3.0 Harpur College entrance.