TRIP A - FRANKFORT GULPH SILURIAN SECTION

Purpose: The trip visits exposures of the Frankfort-Oneida disconformity, the overlying Clinton group, and the Vernon shale. These are the best exposures of the Clinton group in the type area.

Acknowledgments: The itinerary was suggested, and the localities described in Marshall Kay's "Geology of the Utica Quadrangle," 1953, New York State Museum Bulletin #347.

General: The unconformity at the base of the Oneida conglomerate is a reflection of the Taconian orogeny in New England. Most of the upper Ordovician and all of the lower Silurian are missing in this time gap. The overlying formations reflect a shoreline encroaching from west to east across New York State. The peculiar environment of deposition of the Clinton iron ores is discussed in section B of this guidebook. The Vernon shale, lowest member of the Salina group, represents the mud flats of a great delta built out from the east, which was intermittently encroached upon by hyper-saline seas from the west (Fisher, 1957). The extension of seas eastward across the state during Silurian time accompanied the erosional reduction of the Taconian mountains in New England.

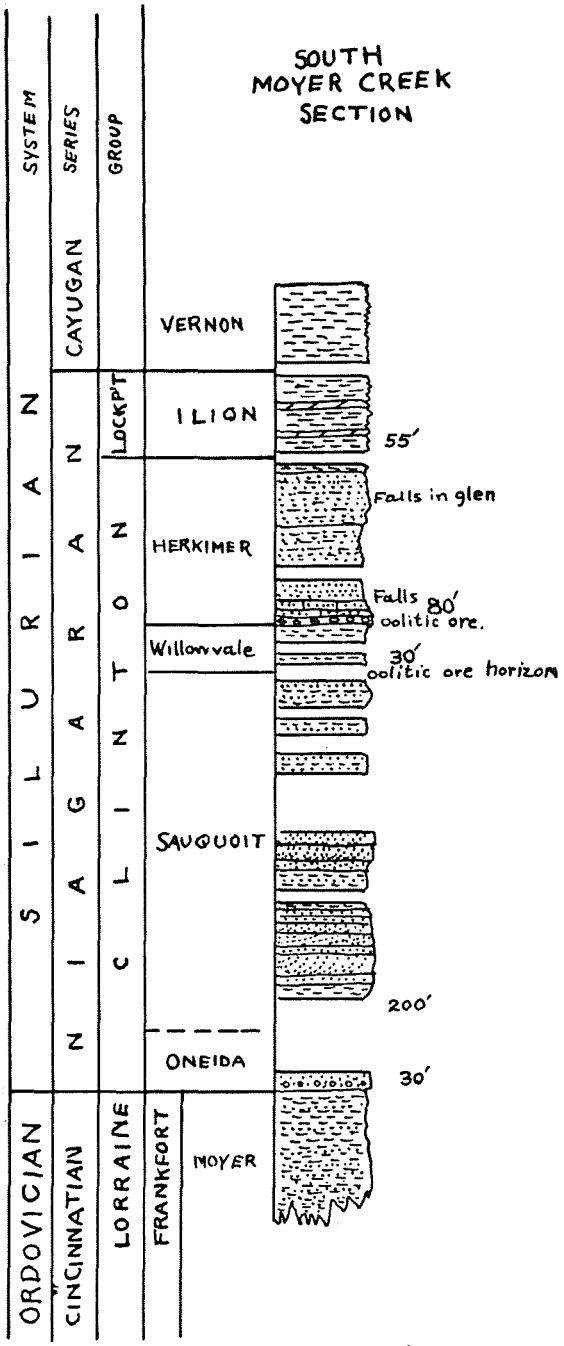
Selected References:

Dale, Nelson C., 1953, Geology and Mineral Resources of the Oriskany Quadrangle (Rome Quadrangle): N. Y. State Mus. Bull. 345.

Fisher, Donald W., 1957, Lithology, Paleoecology, and Paleontology of the Vernon Shale (Late Silurian) in the Type Area: N. Y. State Mus. Bull. 364.

_____, 1960, Correlation of the Silurian rocks in New York State: N. Y. State Mus. & Sci. Service, Geol. Sur. Map and Chart Series #1.

Kay, Marshall, 1953, Geology of the Utica Quadrangle, New York: N. Y. State Mus. Bull. 347.



After Kay, 1953, p.31

TRIP A. FRANKFORT GULPH SILURIAN SECTION

Road Log

This trip is being run in two sections. Section 1 will follow the log as shown below, and the walk will be up the valley of South Moyer Creek. Section 2 will drive to the upper end of the valley of South Moyer Creek, and walk down through the section. Buses will wait where their passengers disembarked, and take the other section's passengers back to the campus.

0.0 Leave Hamilton College on College Hill Road going east to Clinton.

1.5 Go straight through Clinton, out Kellogg St. toward the east.

3.1 Y junction. Bear left on Kellogg St., following sign to Chadwicks.

4.7 Cross Rte. 12, continuing east.

5.4 Abandoned quarry to right (S) of road, in Bertie water-lime. This is Crow Hill.

5.9 Snowden Hill Road enters diagonally from right (S).

6.0 Bear left on continuation of Snowden Hill Road.

7.3 Downhill into Sauquoit Valley. Mohawk Valley in distance to left (N).

7.7 Turn right on to Oxford Road.

7.8 Take first right on to Tibbits Road.

8.0 Turn right on Kellogg Road in Washington Mills.

8.1 Cross railroad tracks.

8.4 Cross Oneida Street; traffic light.

9.6 Full stop sign at intersection. Turn right on Higby Road.

10.2 Continue past cemetery on right.

10.6 Continue across Sessions Road.

12.25 Continue across Graffenburg Road. Cemetery on left near corner.

13.4 Turn right on Minden Turnpike, Road 104. This is Stewart Corners.

14.5 Y junction. Bear left on Road 185. Frankfort Hill cemetery in "Y."

15.2 Gravel pit on left (N) has coarse gravel foreset beds. It is a delta that was deposited in Lake Herkimer. Elevation of top is 1280'.

15.7 T junction at hamlet of Gulph. Turn left, down the valley.

17.6 Very sharp curve just beyond bridge over Moyer Creek. Park buses on right beyond curve and disembark. KEEP WELL OVER TO OUTSIDE OF CURVE. EXAMINE THE FRANKFORT-ONEIDA CONTACT, AND MOVE ON SO OTHERS MAY DO SO.

STOP 1. (the only stop on this trip) South Moyer Creek section.

This is one of the representative sections described by Kay (1953) as being the best, almost continuous exposure of the Silurian in the Utica quadrangle, and the following description is partly abstracted from his (p. 28-32).

At the bend of the road at the junction of Moyer and South Moyer Creeks, the road cut exposes the Sauquoit sandstone over the Oneida conglomerate, which in turn lies unconformably on the Frankfort shale (Moyer member). The Oneida is a massive quartz-pebble conglomerate which in the lower part contains many fragments of the underlying Frankfort. The basal 4-6 inches is impregnated with pyrite. The Oneida-Sauquoit contact is not accessible here, and is not sharply defined. It is inferred to be just below the strongly cross-bedded sandstone about 20 feet above the base of the Oneida.

About two hundred feet up the road, descend the bank on a trail, cross Moyer Creek, and proceed up the valley of South Moyer Creek.

Several hundred yards upstream the creek flows in a narrow channel cut in clayey till.

Upstream from the channel-cut till is the first Sauquoit sandstone, pebbly, dark greenish-gray heavy ledges. About fifty yards farther are the ripple-marked, coarsely (3') cross-bedded ledges figured by Kay (1953, p. 34). Worm trails

in the sandstone strikingly resemble recent trails on bottom sand, often found here.

Farther upstream, 100' above the Sauquoit base, is a 20-foot zone of hematitic sandstone with red and greenish-gray clay galls and prominent cross-bedding (Grossman, in Kay, 1953, p. 68).

Still in the Sauquoit are beds of green shale interbedded with fine-grained sandstone. Interference ripples show well on several beds. These beds are somewhat fossiliferous.

Farther upstream on a 12-18-inch fine conglomerate bed are giant current ripples (WL about 30"), and above that a sandstone bed with prominent smaller current ripples. Current modified interference ripples appear on ledges about fifty yards farther upstream.

In the upper Sauquoit are heavy ledges of hematitic sandstone.

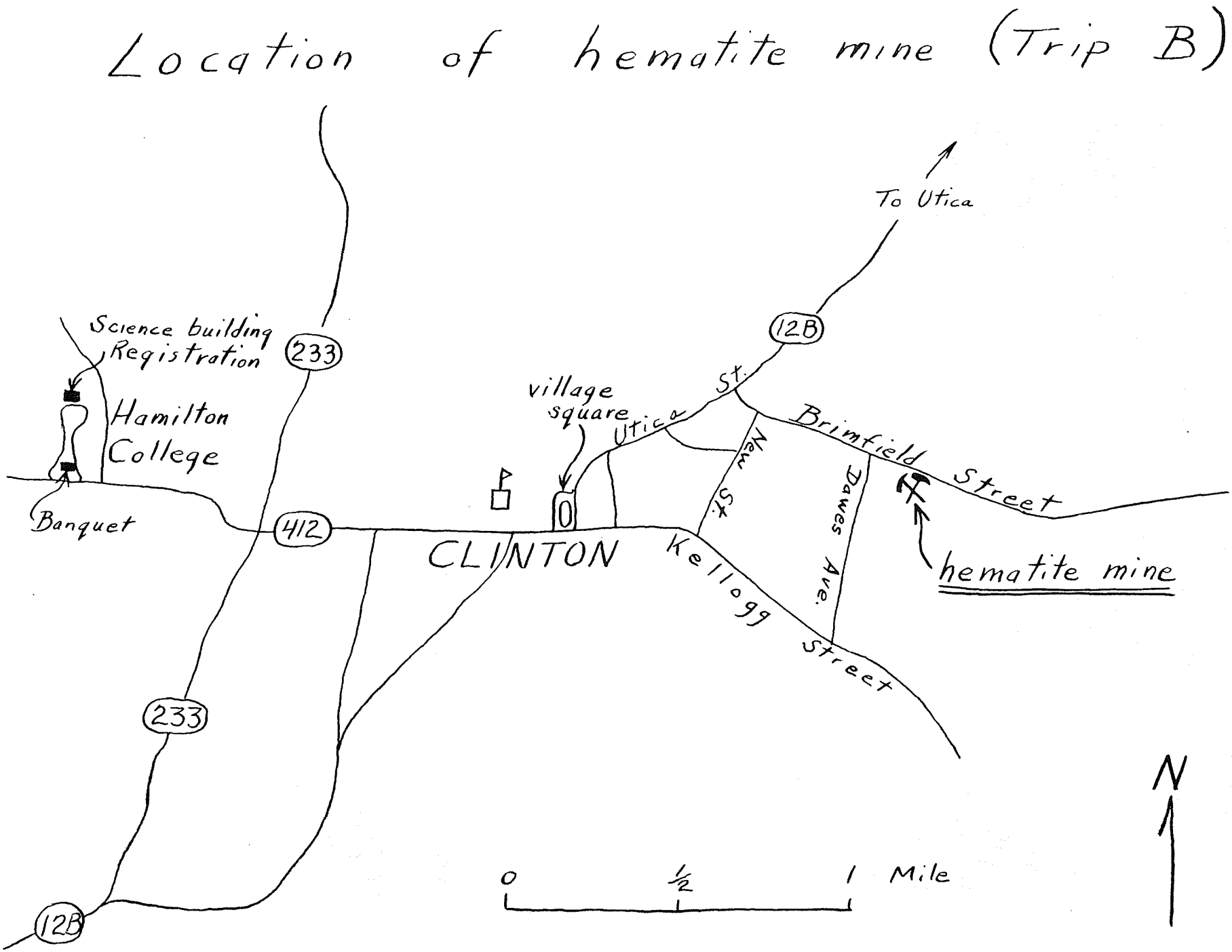
Above this the contact with the overlying Willowvale, and its basal oolitic hematite bed, is covered. The Willowvale is green, thin-bedded shale with some interbeds of fine-grained sandstone and siltstone, 30 feet thick.

The base of the overlying Herkimer is marked by a prominent 1-2-foot bed of strongly cross-bedded, sandy, oolitic hematite, which in other localities is as much as 3 feet thick (Kay, 1953, p. 35, fig. 25). The Herkimer is 80 feet thick, of interbedded rusty-weathering, pyritiferous, sandy dolomite and dolomitic sandstone, and gray shale. Several cascades are formed by resistant beds in the Herkimer.

The top of the Herkimer is distinct, though the contact with the overlying Ilion shale (Fisher, 1960) is covered. Within a few feet of cover there is a change from the dolomitic sandstone of the Herkimer, below, to dark gray, fissile shale with 2-4-inch dolomite beds. The Ilion (Lockport?) is shown in fig. 24, p. 35 of Kay. It is 55 feet thick here.

The overlying Vernon has at its base 5 feet or more of green shale which is noticeable lowest in the stream channel. Above the basal green shale zone, which contains a few dolomite concretionary beds, is the typical red, crumbly, practically unbedded mudstone. The Vernon continues to the top of the exposed section in South Moyer Creek.

Board the waiting buses and return to the Hamilton Campus.


Location of hematite mine (Trip B)
To Utica
12B
Science building
Registration
233
Hamilton
College
village
square
Utica St.
Brimfield Street
New St.
Dawes Ave.
Banquet
412
CLINTON
Kellogg Street
hematite mine
233
12B
0
1/2
1 Mile
N