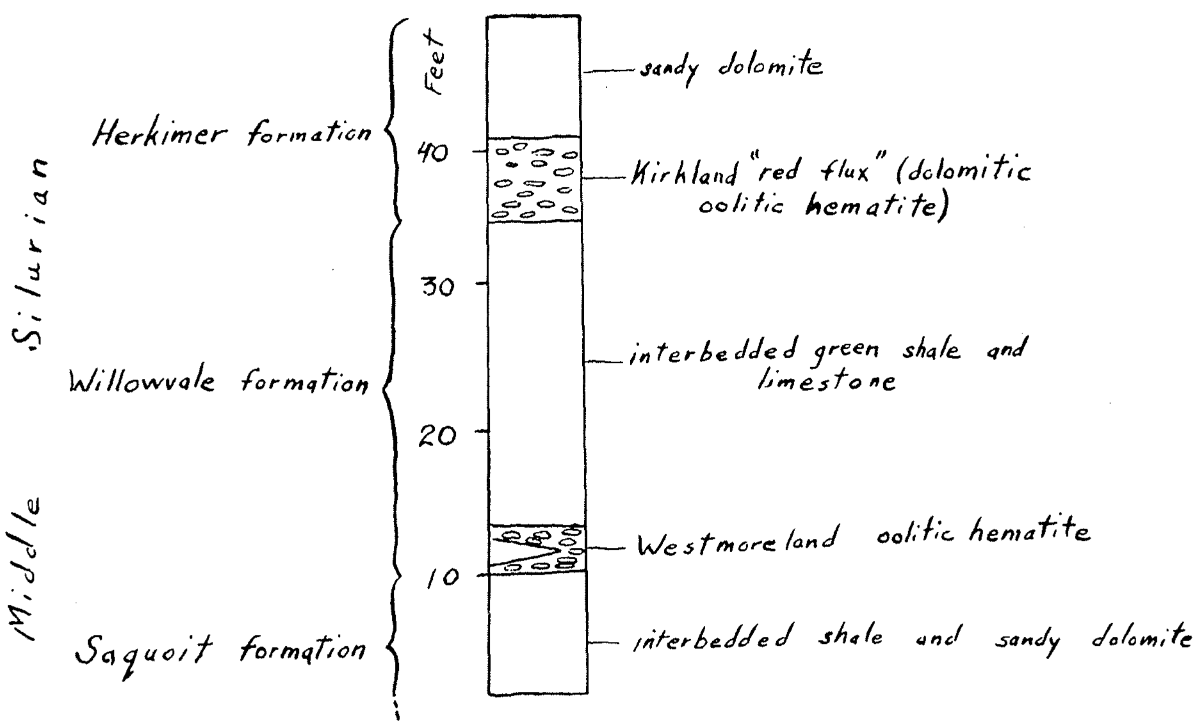
Trip B. Clinton Metallic Paint Company Mine, Brimfield Street, Clinton, N.Y. Proceed to mine by your own transportation. Small groups will be taken underground at regular intervals between 1:30 P.M. and 4:15 P.M.

Owner: Mr. Bruce M. Bare
Mine Foreman: Mr. Robert Barry
In charge of Mine Trip: Mr. Alvin J. Snyder

EVERYONE VISITING THIS MINE MUST SIGN A WAIVER AND GIVE IT TO MR. SNYDER BEFORE GOING UNDERGROUND. PLEASE SHOW DUE RESPECT FOR ALL PROPERTY AT THIS TIME.

The mining of oolitic hematite at Clinton, N.Y. dates back to 1797. Up until the first World War ore was used as a source of iron and the smelting was done locally at Franklin Springs and Kirkland. The Clinton Metallic Paint Company sank its Brimfield Street shaft in 1928. The mining is a modified longwall operation; the ore is hand sorted at the working face and again at the mine head. At the company's plant in Franklin Springs the ore is crushed to pass 325 mesh, bagged, and sold as a paint pigment, coloring agent for cements, and as a casting powder.

There are two principal beds of oolitic hematite in the Clinton Group (see details below and general stratigraphic position in the Table of Silurian Formations, Trip A)



After Alling, 1947, p. 999

The Westmoreland ore is the bed mined at Brimfield Street. Alling (1947) shows that the Westmoreland ore at Clinton, N.Y. consists of a lower one-foot layer of oolitic hematite separated by two feet of "siliceous" rock from an overlying two-foot layer of oolitic hematite. At the Brimfield Street mine this intervening "siliceous rock" or shale parting is generally absent so that the Westmoreland ore bed is about 30 to 36 inches thick and quite homogeneous. The Kirkland "red flux", a low grade dolomitic hematite bed, occurs 18 feet stratigraphically above the Westmoreland ore bed but the former cannot be seen in the encased shaft of the mine.

Sharp upper and lower bedding plane contacts are typical of the Westmoreland ore. Current ripple marks having a wave length of more than one foot are seen along the upper contact of the oolitic hamatite at several places in the mine. Oolitic hematite beds in the south branch of Moyer Creek (See Trip A) exhibit well developed crossbedding. Dale (1953) notes the presence of ripple marks and channel fillings in the overlying fossiliferous Willowvale formation, and both he and Alling conclude that the oolitic hematite beds are integral members of a shallow water marine depositional sequence.

The oolitic hematite consists principally of small ellipsoidal concretions or oolites from one to four millimeters in maximum dimension. Each oolite (Alling, 1947) consists of "onion skin" layers of fine grained hematite and chamosite (iron-rich chlorite) surrounding a nucleus of well-rounded quartz, calcite, or hematite. The oolitic ore is dominantly a dull (Tuscan) red with some irregular thin lenses and seams of bright red microcrystalline earthy hematite. Interstitial to the oolites is silica (largely quartz, minor chert), dolomite, calcite, glauconite, pyrite, and francolite apatite). Newland and Hartnagel (1908, p. 62) give the following average chemical analysis for oolitic hematite from the mines at Clinton, N.Y.

SiO_2	12.63
Al_2O_3	5.45
Fe_2O_3	63.0
MnO	.15
CaO	6.2
MgO	2.77
S	.23
P_2O_5	1.5
CO_2	6.15
H_2O	2.77

Crinoid columnals and tests of brachiopods, cephalopods, bryozoa, and gastropods, all replaced by hematite, are quite common in the ore. Alling (1947) proposes a diagnetic replacement origin for the ore and summarizes the evidence as follows: 1) they (the ores) are of the bedded type in the strictest sense; 2) they are thin, long lenses, which pinch out and come in again; 3) they are very extensive (oolitic hematite beds of this age occur as far west as Wisconsin and as far south as Alabama); 4) they are associated with sediments of shallow-water origin; 5) they are integral members of a stratified series; 6) they are not the result of replacement long after the deposition and lithification of the rocks, otherwise the ores would be "pockety", and the iron would stain the adjacent rocks; 7) many stages of replacement including replacement of fossil fragments by hematite can be seen in thin section; 8) groundwater played no essential part in the formation of the ore. Alling believes that solutions carrying iron, silica, and alumina were introduced into moderately turbulent, yet clear shallow seas and there precipitated by reaction with carbonates, the marine salts, and possibly by bacteria and oxidation. The oolites may represent precipitation of hematite and chamosite (iron-rich chlorite) from a colloidal state during a period of some agitation of the water.

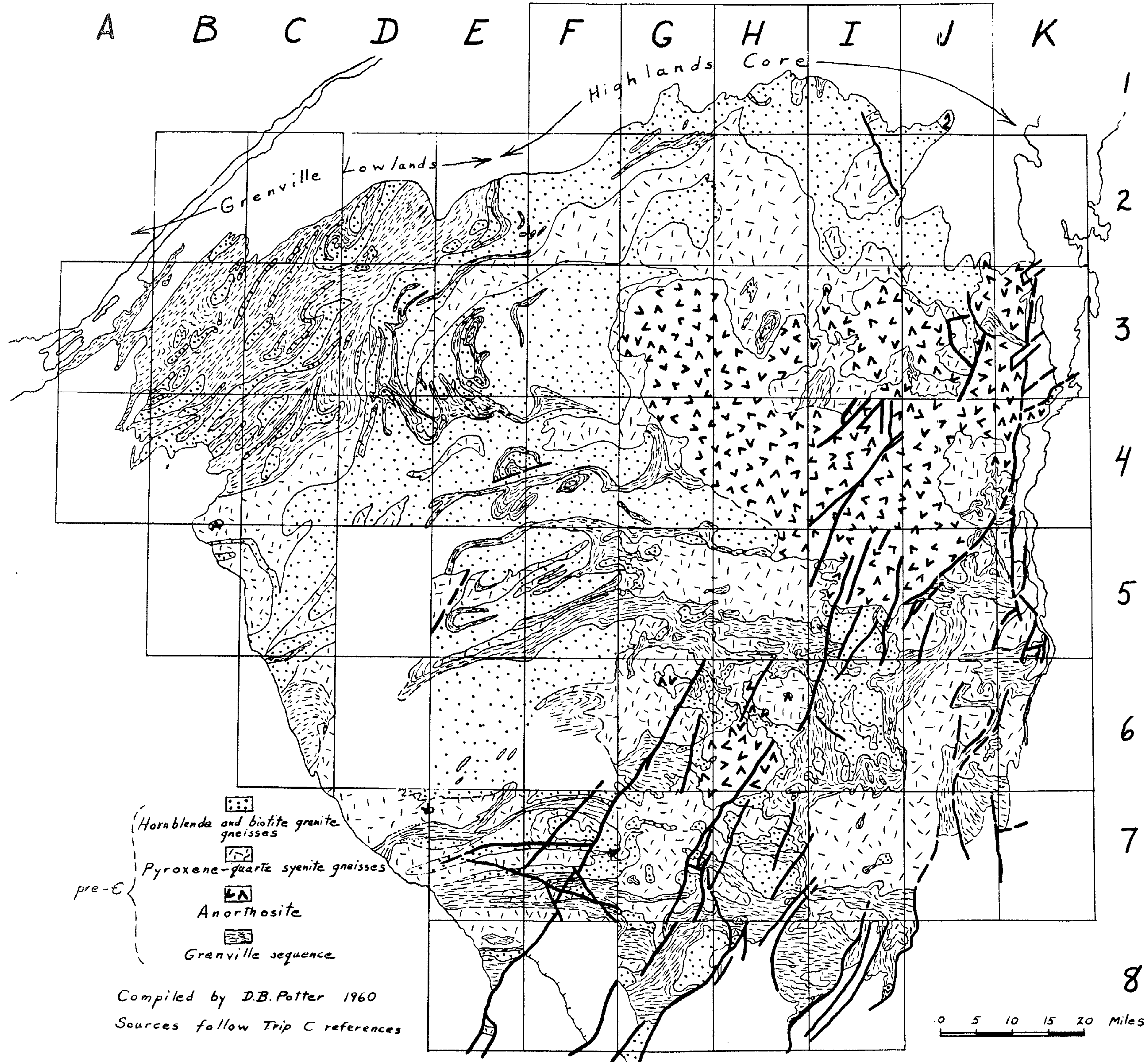
REFERENCES

Alling, Harold L., 1947, Diagenesis of the Clinton Hematite Ores of New York, Geol. Soc. Am. Bull., vol. 58, pp. 991-1018

Dale, Nelson C., 1953, Geology and Mineral Resources of the Oriskany Quadrangle, New York State Museum Bulletin No. 345.

Newland, D. H., and Hartnagel, C. A., 1908, Iron Ores of the Clinton Formation in New York State, New York State Museum Bulletin No. 123.

Figure C-1



GEOLOGIC MAP OF THE ADIRONDACK MOUNTAINS

KEY TO QUADRANGLES

A3	Alexandria Bay
A4	Theresa
B2	Brier Hill
B3	Hammond
B4	Antwerp
B5	Carthage
C2	Ogdensberg
C3	Gouverneur
C4	Lake Bonaparte
C5	Lowville
C6	Port Leyden
D2	Canton
D3	Russell
D4	Oswegatche
D5	Number Four
D6	McKeever
D7	Remsen
E2	Potsdam
E3	Stark
E4	Cranberry Lake
E5	Big Moose
E6	Old Forge
E7	Ohio
E8	Little Falls
F2	Nicholville
F3	Childwold
F4	Tupper Lake
F5	Raquette Lake
F6	West Canada Lakes
F7	Piseco Lake
F8	Lassellsville
G1	Malone
G2	Santa Clara
G3	St. Regis
G4	Long Lake
G5	Blue Mountain
G6	Indian Lake
G7	Lake Pleasant
G8	Gloversville
H1	Chateaugay
H2	Loon Lake
H3	Saranac Lake
H4	Santanoni
H5	Newcomb
H6	Thirteenth Lake
H7	Harrisburg
H8	Broadalbin
I1	Churubusco
I2	Lyon Mountain
I3	Lake Placid
I4	Mt. Marcy
I5	Schroon Lake
I6	North Creek
I7	Luzerne
I8	Saratoga
J1	Moores
J2	Danemora
J3	Ausable Forks
J4	Elizabethtown
J5	Paradox Lake
J6	Bolton
J7	Glens Falls
K3	Willsboro
K4	Port Henry
K5	Ticonderoga
K6	Whitehall
K7	Fort Ann