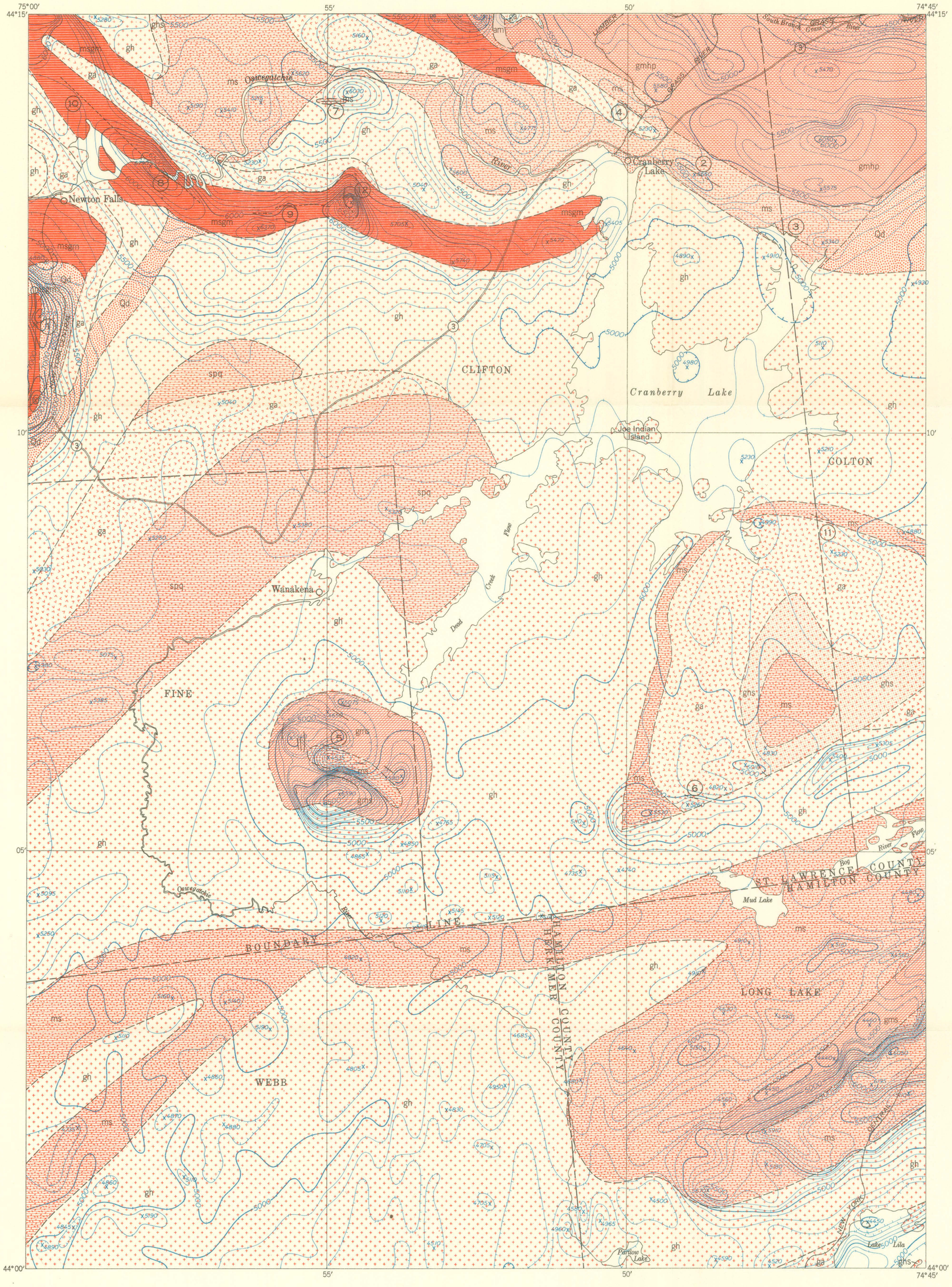
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
W. E. WRATHER, DIRECTOR

GEOPHYSICAL INVESTIGATIONS
MAP GP 118



EXPLANATION

Qd — Pleistocene drift; moraine and water-laid sands and gravels, mapped only where bedrock cannot be reasonably inferred.

gmhp / gms — Microcline granite gneiss, hornblendic with local amphibolite layers and locally pyroxenic facies that include small relics of pyroxene skarn, gmhp. Microcline granite gneiss, sillimanitic, biotitic, and in part garnetiferous facies, locally with layers of biotite quartz plagioclase gneiss, gms.

ga — Alaskite granite, ga.

gh / ghs — Hornblende granite, gh; hornblende granite with a few local layers of metasedimentary rock, ghs.

spq — Pyroxene-hornblende quartz syenite and pyroxene-hornblende granite gneiss, spq.

Tupper complex (of Buddington) and other quartz syenites, monzonites (equigranular charnockitic facies)

am — Amphibolite; in part with associated granitic sheet and veinings, am.

ms / msgm — Metasedimentary rocks of the Grenville series and related migmatites with associated sheets of granite. Pyroxenic, hornblendic, and biotitic feldspar-quartz gneisses, quartzite and feldspar-quartz granulite, amphibolite, skarn and marble, and garnetiferous migmatites, ms; metasedimentary rocks and migmatite gneiss, commonly with sheets of microcline granite gneiss in part sillimanitic locally with sheets of alaskite and amphibolite, msgm.

Contact
Dashed where approximately located.

Mine

Dip-needle readings

+40° or higher

+10° to +40°

Magnetic contours with flight traverse; dashed contours indicate incomplete or doubtful data; hachured contour encloses area of lower magnetic intensity; 'x' and number denote location and value of measured maximum or minimum intensity within closed contour.

An aeromagnetic survey of approximately 6,100 square miles in the Adirondack Mountains of New York was made during May and June 1945 and August, September, and October 1946 by the U. S. Geological Survey. The survey was undertaken primarily to guide a program of exploration for magnetite that was undertaken at that time by the U. S. Geological Survey, the U. S. Bureau of Mines, and the New York State Science Service. The data were subsequently compiled as magnetic maps to aid the long-range geologic studies in this region by the Geological Survey. The geology shown on the map is somewhat generalized from the more complex reality.

The measurements were made by a continuously recording AN/ASQ-3A airborne magnetometer installed in a Beechcraft AT-11 airplane. North-south traverse lines were flown approximately 1,000 feet above the ground at quarter-mile intervals. Aerial photographs were used for pilot guidance, and the flight path of the aircraft was recorded by intermittent photographs. The distance from plane to ground was measured with a radio altimeter.

Interpretation of the magnetic maps requires a great deal of caution, tempered with experience. It must be emphasized that not all the peaks and ridges appearing on the aeromagnetic maps indicate buried ore deposits. Most of the highs are produced by minor amounts of disseminated magnetite occurring as an accessory mineral throughout large volumes of the country rock. The quantity of disseminated accessory magnetite is often rather uniform for a given rock type, but it varies considerably from one rock type to another. The presence of disseminated accessory hematite, together with unexpected permanent magnetization effects, further complicates the picture. These features account for most of the anomalies. In addition, certain belts of rock carry disseminated iron oxides in amounts greater than those usually termed "accessory" but significantly less than those required to produce magnetite bodies of commercial interest. Such rock belts yield substantial magnetic anomalies. A comprehensive report on the correlation of the magnetic and geologic data is being prepared.

The U. S. Geological Survey has made a ground reconnaissance by dip needle of all the prominent aeromagnetic anomalies that are considered most likely to indicate ore deposits. This work has been supplemented in places by the U. S. Bureau of Mines and the New York State Science Service. Some of the results of the work by the Geological Survey have been published in preliminary form by Buddington and Leonard (1945), by Hawkes and Balsley (1946), and by Leonard (1952). Shaub (1949) has presented dip-needle maps for some of the major aeromagnetic anomalies produced by widespread disseminations of iron oxides.

With very few exceptions, the most promising anomalies have already been tested by diamond drilling. This phase of the work, together with pertinent dip-needle work done on certain undrilled anomalies, has been summarized by Reed and Cohen (1947).

REFERENCES

Buddington, A. F., and Leonard, B. F., 1945, Geology and magnetite deposits of the Dead Creek area, Cranberry Lake quadrangle, N. Y.: U. S. Geol. Survey Prelim. Rept., 9 p.

Hawkes, H. E., and Balsley, J. R., 1946, Magnetic exploration for iron ore in northern New York: U. S. Geol. Survey Strategic Minerals Inv., Prelim. Rept. 3-194, 9 p.

Leonard, B. F., 1952, Magnetite deposits and magnetic anomalies of the Brandy Brook and Silver Ponds belts, St. Lawrence County, N. Y.: U. S. Geological Survey Mineral Inv., Field Studies Map MF6.

Reed, D. F., and Cohen, C. J., 1947, Star Lake magnetite deposits, St. Lawrence County, N. Y. (November 1945 to November 1946): U. S. Bur. Mines Rept. Inv. 4131, 34 p.

Shaub, B.M., 1949, Magnetic anomalies of the Russell, N. Y., quadrangle (Prelim. Rept.): New York State Science Service, Rept. Inv. 2, 9 p.

LIST OF MINES AND PROSPECTS SHOWN ON CRANBERRY LAKE QUADRANGLE[1]

No.	Name	Rectangle[2]
1.	Benson mines	NW
2.	Brandy Brook Northwest	NE
3.	Brandy Brook Southeast	NE
4.	Brody Tract (Silver Pond)	N and NE
5.	Dead Creek	W and C
6.	Grass Pond	E
7.	Hardwood Mill (Ross)	NW and N
8.	Jarvis Bridge	NW
9.	Jarvis Bridge Extension	NW
10.	Spruce Mountain Southeast	NW
11.	Sucker Brook	E
12.	Trembley Mountain	N

[1]List includes most magnetic anomalies systematically surveyed by dip needle by private interests or government agencies. See the appropriate topographic quadrangle maps for location of settlements and topographic features.

[2]NE, etc., northeast rectangle or ninth; N, etc., north-central rectangle; C, central rectangle.

NOTE: Aeromagnetic data are obtained and compiled along a continuous line, whereas ground magnetic surveys are made at separate points. Errors within the normal limits of any magnetic measurement may cause slight discrepancies between flight lines in an aeromagnetic map, which would be more obvious than similar discrepancies between points in a ground magnetic map. For this reason as much care should be exercised in evaluating magnetic features indicated by elongations along a single aeromagnetic traverse as in interpreting an anomaly indicated by a single ground station.

Base from U.S. Geological Survey
GEOPHYSICAL INVESTIGATIONS
MAP GP 118

TOTAL INTENSITY AEROMAGNETIC AND GEOLOGIC MAP OF CRANBERRY LAKE QUADRANGLE, NEW YORK

RELATIVE TO ARBITRARY DATUM

Scale 1:62500

1 ½ 0 1 2 3 4 Miles

Contour interval 100 gammas
Flown 1000 feet above surface
1954

M R-4952

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D C.
For sale by the U. S. Geological Survey, price 60 cents

Aeromagnetic survey by J. R. Balsley, M. E. Hill, H. E. Hawkes, 1945
Geology by A. F. Buddington and B. F. Leonard