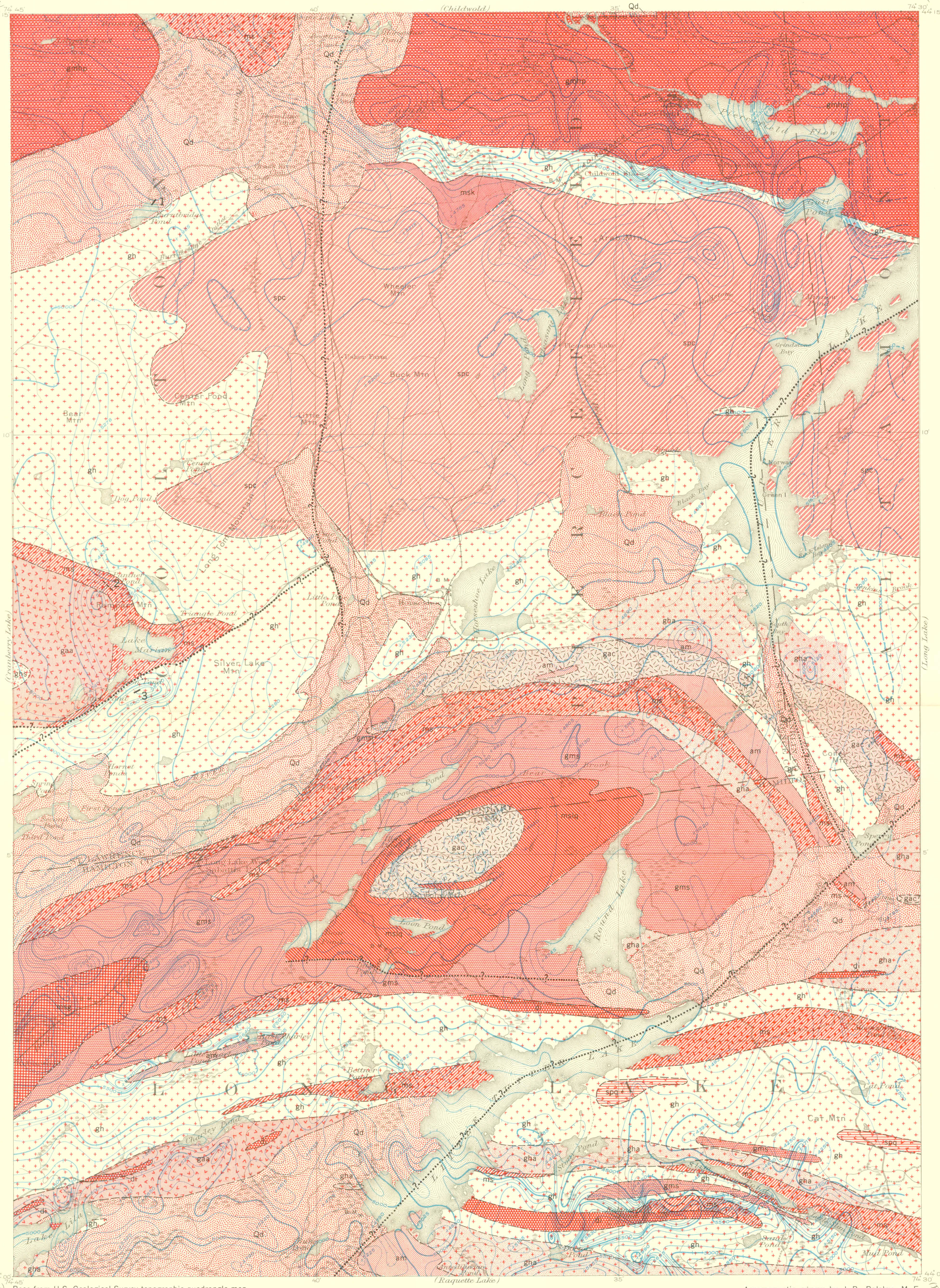


Base from U.S. Geological Survey topographic quadrangle map

Aeromagnetic survey by J. R. Balsley, M. E. Hill, and D. L. Rossman, 1945. Geology by A. F. Buddington, B. F. Leonard, and C. L. Rogers, 1943–49

EXPLANATION

QUATERNARY

Pleistocene

Qd

Glacial drift
Moraine and water-laid sands and gravels, mapped only where bedrock cannot be reasonably inferred

PRECAMBRIAN

gmhp | gms

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

gaa | gac

Alaskite granite; locally with associated amphibolite layers, gaa. Alaskite granite gneiss contaminated (biotitic, garnetiferous or hornblendic, locally pyroxenic) with local associated sheets of microcline granitic gneiss, gac

gh | gha | ghs

Hornblende granite, gh; hornblende granite with local layers of amphibolite, gha; hornblende granite with a few local layers of metasedimentary rock, ghs

spq | spc

Pyroxene-quartz syenite gneiss; mafic minerals include ferroaugite, ferrohypersthene, and ferrohastingsite, spq. Pyroxene syenite gneiss; mafic minerals include ferroaugite, ferrohypersthene, and ferrohastingsite; locally massive, spc

am | di

Diorite and diorite gneiss, di. Amphibolite, in part with granitic sheets and veinings, am

msk | mslq | msg | ms

Pyroxene skarn and garnet-pyroxene skarn, msk. Marble, locally with beds of quartzite, diopside granulite, and some tremolite schist and biotite gneiss, mslq. Garnet-biotite migmatitic gneiss and biotite-quartz-feldspar gneiss; interlayers of amphibolite present; marble occurs sporadically, msg. Metasedimentary rocks of the Grenville series and migmatites with associated sheets of granite. Pyroxenic, hornblendic, and biotitic feldspar - quartz gneisses; quartzite and feldspar-quartz granulite; amphibolite; skarn and marble; and granitiferous migmatites, ms

5000

Magnetic contours and flight traverse
Contours dashed where data are incomplete; contours show total intensity relative to an arbitrary datum

Magnetic contour enclosing area of lower magnetic intensity

5320

Measured maximum or minimum intensity within closed high or closed low

Contact
Approximately located

?.........?.........

Concealed probable fault

Magnetic anomaly checked by dip-needle
Solid where more than +40°; dashed where +10° to +40°

An aeromagnetic survey of approximately 6,100 square miles in the Adirondack Mountains in northern New York State 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, which was a joint effort by the U. S. Geological Survey, the U. S. Bureau of Mines, and the New York State Science Service. The aeromagnetic data were subsequently compiled as magnetic maps to aid in 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. Pleistocene drift, morainal material, and water-laid gravel and sand blanket much of the area mapped, but most are omitted from the map so that a ready comparison may be made of the aeromagnetic data and the underlying bedrock.

The magnetic measurements were made by a continuously recording AN/ASQ-3A airborne magnetometer installed in an AT-11 airplane. North-south traverse lines were flown approximately 1,000 feet above the ground at intervals of a quarter of a mile. 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 map requires a great deal of caution, tempered with experience. It must be emphasized that not all the peaks and ridges on the aeromagnetic map 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 country rock. The quantity of disseminated accessory magnetite is often rather uniform for a given rock type, but it may vary 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 contain 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.

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 New York State Science Service. Some of the results of the work by the Geological Survey have been published in preliminary form by Hawkes and Balsley (1946)

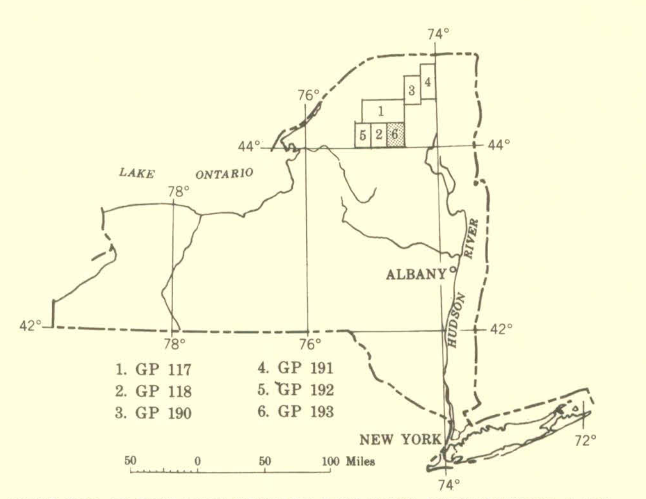
REFERENCES

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, p. 2-4.

MAGNETITE PROSPECTS OR MAGNETIC ANOMALY

1. Burnt Bridge Pond anomaly
2. Rampart Mountain
3. Iron Pond

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 that appear as elongations along a single aeromagnetic traverse as in interpreting an anomaly indicated by a single ground station.



INDEX MAP OF NEW YORK SHOWING PUBLISHED AEROMAGNETIC MAPS IN THE ADIRONDACK AREA

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.
MR 6936

AEROMAGNETIC AND GEOLOGIC MAP OF THE TUPPER LAKE QUADRANGLE ST. LAWRENCE, HAMILTON, AND FRANKLIN COUNTIES, NEW YORK

By
James R. Balsley, A. F. Buddington and others

13½°
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1959

Scale 1:62 500
1 0 1 2 3 4 Miles
Contour interval 100 and 500 gammas
1959

For sale by U. S. Geological Survey, price 50 cents