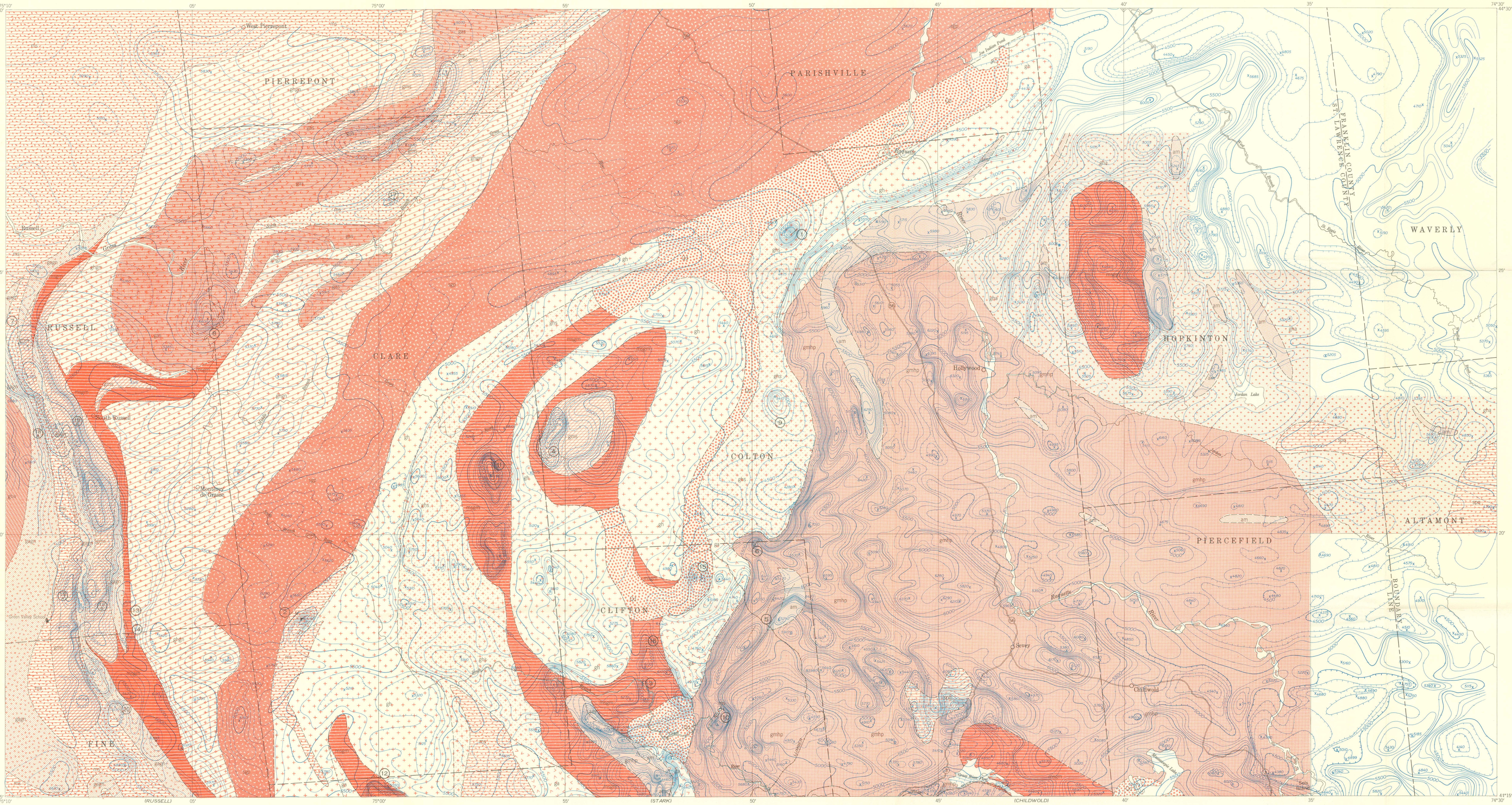

EXPLANATION

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.

gagn / gas — Alaskite granite gneiss, gagn; alaskite granite gneiss with associated metasediments and local sillimanitic microcline granite gneiss sheets, gas.

ga — Alaskite granite.

ghgn — Hornblende granite gneiss.

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.

Diana complex (of Buddington) and another complex (porphyritic to granoblastic facies with phacoidal structure)

sgp — Hornblende granite gneiss, mostly with phacoidal structure; locally coarse, even-grained.

Tupper complex (of Buddington) and other quartz syenitic complexes (equigranular charnochitic facies)

spg — Pyroxene-hornblende quartz syenite and pyroxene-hornblende granite gneiss.

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

gba — Gabbro and metagabbro gneiss.

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.

Shaft

Open cut at operating mine

Dip-needle readings

+40° or higher

+10° to +40°

−10° to −40°
Shown only at Granshue negative anomaly.

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. East-west 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.

The negative anomalies of South Russell (18A and B), Green Valley School (19A and B), and Granshue (4) are all underlain by rock whose magnetic properties are due exclusively to their content of several percent of disseminated accessory titaniferous hematite with a little exsolved microintergrowth of ilmenite. This is the only oxide present in the rock, and it has permanent "reverse" magnetization. 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

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MINES AND PROSPECTS SHOWN ON STARK AND RUSSELL QUADRANGLES[1]

No.	Name	Quadrangle	Rectangle [2]
1.	Brunner Hill	Stark	NE
2.	Clifton mine	Russell	SE
3.	Deerlick Rapids	Stark	SC
4.	Granshue	Stark	WC
5.	Hardwood Island-Little Mountain	Stark	S and SE
6.	Hollywood Club	Stark	SE
7.	Hughesville School (Walker Tract)	Russell	C
8.	Lampsons Falls	Russell	EC
9.	Long Pond	Stark	WC
10.	Outafit	Stark	SC
11.	Parish	Stark	WC
12.	Spruce Mountain Northwest	Russell, Stark	S
13.	Van Ornum (Sweet Pond) pits	Russell	SC
14.	Van Ornum (Sweet Pond) main anomaly	Russell	SC
15.	Wilson Mountain	Stark	SC
16.	Wolf Hole	Stark	SC
17.	White Place	Stark	NW
18A & B	South Russell	Russell	C
19A & B	Green Valley School	Russell	SC
20.	Irish Hill School	Russell	SC

[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.

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C. M R-5938
For sale by the U. S. Geological Survey, price .75 cents

TOTAL INTENSITY AEROMAGNETIC AND GEOLOGIC MAP OF STARK, CHILDWOLD, AND PART OF RUSSELL QUADRANGLES, NEW YORK

RELATIVE TO ARBITRARY DATUM

Scale 1:62 500

1 ½ 0 1 2 3 4 Miles

Contour interval 100 gammas
Flown 1000 feet above surface
1955

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

Base from U. S. Geological Survey