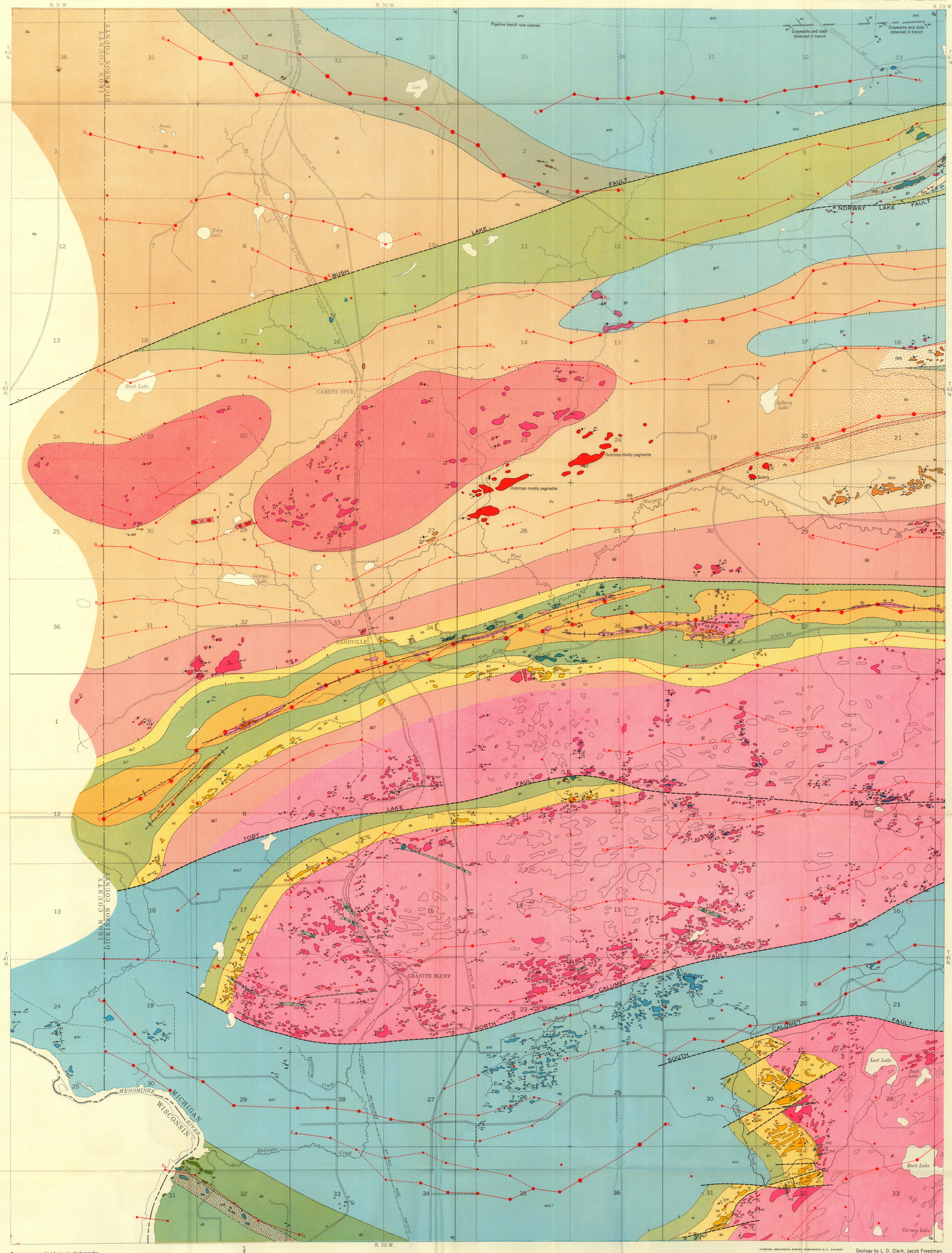


EXPLANATION

Complete explanation for plate 2.
Outcrop areas shown by darker shade

CAMBRIAN AND ORDOVICIAN

- OCss — Sandstone and dolomite. *Shown only on cross sections*

PRECAMBRIAN

Upper Precambrian — Keweenawan

- db — Diabase. *Scattered thin dikes*
- gr, p, di — Granite, gr; pegmatite, p; diorite, di. *Mostly narrow irregular dikes and sills. Much generalized, many small bodies not shown; gr and p shown only in outcrop*
- mdi — Metadiabase and metagabbro. *Massive dark rocks; amphibolite in most parts of the area. Dikes and sills*

Middle Precambrian — Baraga group

- ab — Badwater greenstone. *Massive greenstone, dark-gray to dark-green, fine-grained*
- ami — Michigamme slate. *In southern part of area, mostly massive dark-gray graywacke with interbedded slate or schist, locally staurolitic and garnetiferous. In northern part of area, exposed rock is soft, red to greenish feldspathic graywacke and slate*
- ah — Hemlock formation. *Very poorly exposed. Available information indicates unit is chiefly of gray to red rhyolitic tuff, in places a sericite schist. Present only in northwest part of area*

Middle Precambrian — Animikie series — Menominee group

- av — Vulcan iron-formation. *Thin-bedded rock. Quartz-rich layers alternate with iron-rich layers composed of magnetite, martite, specularite, and grunerite. Hard, massive, strongly magnetic*
- af — Felch formation. *Mostly a mica schist with thin quartzite layers. In places includes a distinctive garnet-grunerite-magnetite-biotite rock. Commonly magnetic. Locally includes some metagabbro not mapped separately*
- ar — Randville dolomite. *Mostly massive light-colored dolomite, coarsely crystalline with abundant tremolite in the Felch and Calumet areas, fine grained elsewhere. Locally shows algal structures. Some interbedded slate and graywacke in northern part of area*

Middle Precambrian — Animikie series — Chocolay group

- as — Sturgeon quartzite. *Massive vitreous quartzite, with abundant crossbedding and ripple mark. Lowermost and uppermost parts finer grained, schistose*
- afc — Fern Creek formation. *Thin unit; mostly conglomerate; present only in southern part of map area. Contains tillite in southern Dickinson County*

Lower Precambrian

- gt — Granite and granite gneiss. *Massive, gray or pink, well-foliated, locally porphyritic. Some dark gneiss and abundant inclusions and masses of amphibolite, a; amphibolite most abundant in east part of the central crystalline block. Probably includes some granite of much younger age*
- gg — Banded gray gneiss. *Well-foliated grayish granitic rock with layers of amphibolite, some as much as 100 feet thick*
- rg — Porphyritic red granite. *Massive, coarse, pink to red granite with large microcline augen. Age uncertain; may be older than Dickinson group*
- hg — Hardwood gneiss. *Complex of metamorphosed volcanic, sedimentary, and basic igneous rocks. Age uncertain; may be essentially part of the Dickinson group*

Lower Precambrian — Dickinson group

- dsm — Six-Mile Lake amphibolite. *Massive fine- to medium-grained, dark-colored hornblende-plagioclase rock*
- dsk — Solberg schist. *Mainly dark hornblendic and biotitic schists. Includes Skunk Creek member, dsk, which is iron-rich and strongly magnetic*
- du — Dickinson group, undifferentiated
- deb — East Branch arkose. *Mostly massive light-colored arkose, commonly showing cross-bedding, with thick beds of conglomerate, also metavolcanic flows and tuffs*

Lower Precambrian

- gn — Granite gneiss. *In part, red augen gneiss; in part, pink, fine grained to medium grained. Marked cataclastic structure throughout*

Outcrop or outcrop area

Probable outcrop area, from aerial photographs

Contact, approximately located

Inferred contact. *Queried where doubtful*

Fault, approximately located

Probable fault

Anticline. *Dashed where approximately located, queried where inferred*

Syncline. *Dashed where approximately located, queried where inferred*

Plunge of minor anticline

Plunge of minor syncline

Strike and dip of axial plane of minor fold, and plunge of axis

Strike of minor fold with vertical axial plane, and plunge of axis

Plunge of closely spaced minor folds

Strike and dip of beds. *Symbol used for overturned beds as well as for those in normal position*

Strike of vertical beds

Horizontal beds

Strike and dip of beds and plunge of lineation

Top direction shown by crossbedding

Top direction shown by graded bedding

Top direction shown by ripple marks

Top direction shown by algal structures in dolomite

Top direction shown by pillow structures in greenstone

Strike and dip of cleavage

Strike and dip of foliation

Strike of vertical foliation

Bearing and plunge of lineation

Horizontal lineation

Strike and dip of foliation and plunge of lineation

Strike of vertical foliation and plunge of lineation

Strike and dip of joints

Strike of vertical joints

Mine

Quarry or open pit

Trench

Test pit

Diamond-drill hole

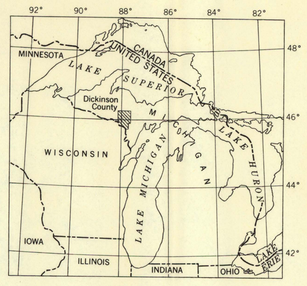
CRESTS OF AEROMAGNETIC ANOMALIES

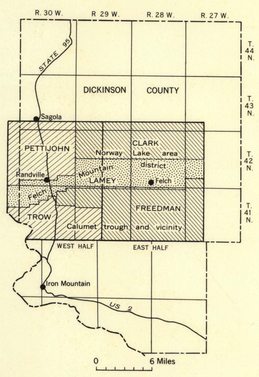
Over 1000 gammas

500–1000 gammas

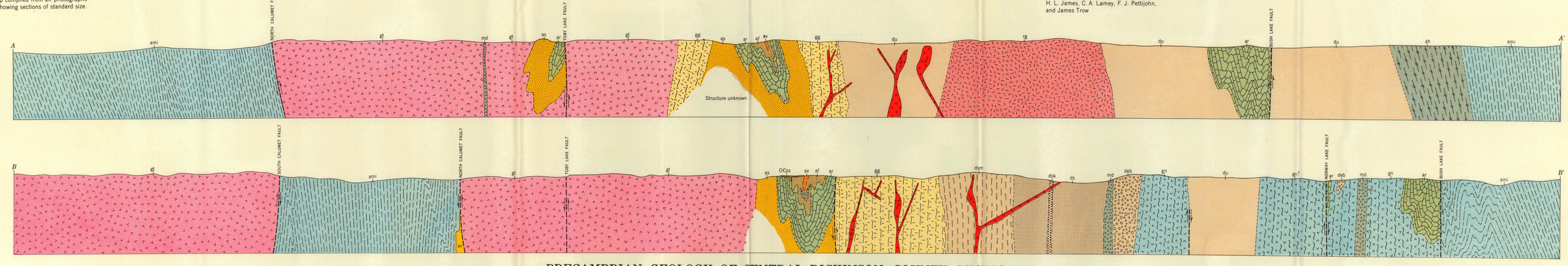
Under 500 gammas

Anomaly discussed in text. *Crests connected by solid line where correlation probable and by dashed line where uncertain. Crest positions may be in error by as much as ¼ mile*





TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 1960



PRECAMBRIAN GEOLOGY OF CENTRAL DICKINSON COUNTY, MICHIGAN

Scale 1:24 000

1 ½ 0 1 Mile