



EXPLANATION

- (Geologic Units)**
- Geologic contacts:**
Shaded where inferred
- U**
Inferred fault
D marks downthrown side, U marks upthrown side. Relative movement shown by arrows
- Anticline**
Showing inferred position of crest and direction of plunge. Overtaken anticlines not separately distinguished
- Syncline**
Showing inferred position of trough and direction of plunge. Overtaken synclines not separately distinguished
- Plunge of closely spaced minor folds
- Plunge of lamination
- Strike and dips of beds
Overtaken beds not separately distinguished
- Strike and dip of beds and plunge of lamination
- Generalized strike of curved or contorted beds and dip
- Strike and dip of foliation
- Strike and dip of foliation and plunge of lamination
- Outcrop or area of outcrop
- Trench or cut
- X
Test pit
- (Magnetic data)**
- Magnetometer station
Vertical magnetic intensity measured with a Jander magnetometer. Underlining indicates magnetic value not used in drawing contours
- Isomagnetic contours
Value in gamma of vertical intensity adjusted to an arbitrary zero base. (-1,000; -500; 0; 500; 1,000; 1,500; 2,000; 3,000; 4,000; 5,000; 6,000; 8,000; 10,000; 15,000; 20,000; and 25,000 gamma contours shown)
- Closed contour around magnetic depression
- IGNEOUS ROCKS**
(Relative ages not known)
- Porphyry
Highly altered dikes intermediate composition. Two general types noted: (1) light colored in shades of yellow with prominent feldspar phenocrysts; (2) gray, with small but abundant feldspar phenocrysts. Shown only in outcrops
- Dikes
Dark gray to black, fine-grained
- Granodiorite
Massive, gray to buff, fine- to medium-grained, with local bodies of massive quartz pegmatite
- METASEDIMENTARY ROCKS**
(Thicknesses are approximate)
- Amphibolite
Dark, fine- to medium-grained, well foliated. More than 200 ft. thick
- Quartzite and schist
Upper 10 feet of unit is massive vitreous quartzite; lower part coarse biotite schist. 30-50 ft. thick
- Upper iron-formation
Thin-bedded magnetite-quartz-pyroxene-garnet rock, similar in all respects to the lower iron-formation. 20-30 ft. thick
- Amphibolite
Dark, fine- to medium-grained, well foliated. 10-50 ft. thick
- Quartzite and gneiss
Uppermost several feet is massive, vitreous quartzite; remainder of exposed rock is a well-layered biotite-garnet gneiss. 30-100 ft. thick
- Amphibolite
Dark, massive, fine- to medium-grained hornblende-plagioclase rock. Commonly well foliated; locally linear structure is dominant. 300-500 ft. thick
- Quartzite and schist
Most of exposed part of unit is massive white quartzite in which bedding is not readily visible; covered areas probably in large part are underlain by schist, but exposures are scarce. 100-200 ft. thick
- Quartz-sand schist
Distinctive unfoliated schist with thin (1/8 - 1/4 in.) closely spaced layers of quartz separated by dark mica. 25-50 ft. thick
- Lower iron-formation
Fine- to medium-grained, heavy, tough rock composed of magnetite, quartz, garnet, pyroxene, and amphibole, distinctively layered but layers are not sharply defined. In most trenches, rock is weathered to a crumbly aggregate in which ribs of hard rock may be preserved. Uppermost and lowermost 25 feet of unit contains more silicates, with ribs of magnetite-rich rock. 30(?) - 100 ft. thick
- Foliated schist
Coarse garnetiferous mica schist with contorted layers and pods of quartz feldspar, and garnet. Locally with thin layers of pyroxene gneiss. 20-50 ft. thick
- Quartzite
Massive to well-bedded muscovite-microcline quartzite, commonly stained reddish. 100-300 ft. thick
- Amphibolite
Dark, fine- to medium-grained, generally well foliated. 100-500 ft. thick
- Green quartzite
Exposures in southeast part of area are of well-bedded white to reddish quartzite, with some layers containing scattered flakes of green chromite mica. Exposures at crest of Copper Mountain and in quarry workings are of very massive, coarse-grained quartzite with scattered patches of green chromite mica, extensively stained with malachite. More than 100 ft. thick

QUATERNARY (?)
CRETACEOUS (?)
PRECAMBRIAN

U. S. Geological Survey
OPEN FILE MAP
This map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

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Magnetics by K.L. Wier, 1961

MAGNETIC AND GEOLOGIC MAP OF IRON DEPOSITS NEAR COPPER MOUNTAIN, MADISON COUNTY, MONTANA

