



EXPLANATION

- Geologic contacts
Dashed where inferred
- Inferred fault
D marks downthrown side, U marks up-
thrown side. Relative movement
shown by arrows
- Anticline
Showing inferred position of crest
and direction of plunge. Over-
turned anticlines not separately
distinguished
- Syncline
Showing inferred position of trough and
direction of plunge. Overturned syn-
clines not separately distinguished
- Plunge of closely spaced minor folds
- Plunge of lamination
- Strike and dip of beds
Overturned beds not separately distin-
guished
- Strike and dip of beds and plunge of
lamination
- Generalized strike of curved or contor-
ted 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
- Test pit

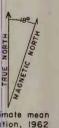
- 59
Siliceous gossan
Shown on map only near old shaft at 13900N - 19600E,
but patches common elsewhere near fault zones.
Large crystals of clear quartz (up to 6 inches)
found in soil near areas of gossan
- IGNEOUS ROCKS
(Relative ages not known)
- po
Porphyry
Highly altered dikes of intermediate composition. Two
general types noted: (1) light colored in shades
of yellow with prominent feldspar phenocrysts; (2)
gray, with small but abundant feldspar pheno-
crysts. Shown only in outcrops
- di
Diabase
Dark gray to black, fine-grained
- 60
Granodiorite
Massive, gray to buff, fine- to medium-grained, with
local bodies of massive quartz pegmatite
- METAIgneous ROCKS
- 61
Aplite gneiss
Fine-grained foliated pink to gray quartz-feldspar
rock with minor muscovite
- METASedimentary ROCKS
(Thicknesses are approximate)
- 62
Amphibolite
Dark, fine- to medium-grained, well foliated. More
than 200 ft. thick
- 63
Quartzite and schist
Upper 10 feet of unit is massive vitreous quartzite;
lower part coarse biotite schist. 30-50 ft. thick
- 64
Upper iron-formation
Thin-banded magnetite-quartz-pyroxene-garnet rock,
similar in all respects to the lower iron-
formation. 20-30 ft. thick
- 65
Amphibolite
Dark, fine- to medium-grained, well foliated. 10-50
ft. thick
- 66
Quartzite and gneiss
Uppermost several feet is massive, vitreous quartzite;
remainder of exposed rock is a well-layered biotite-
garnet gneiss. 50-100 ft. thick
- 67
Amphibolite
Dark, massive, fine- to medium-grained hornblende-
plagioclase rock. Commonly well foliated; locally
linear structure is dominant. 300-500 ft. thick
- 68
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
- 69
Quartz-sand schist
Distinctive crumpled schist with thin (1/8 - 1/4 in.)
closely spaced layers of quartz separated by dark
mica. 25-50 ft. thick
- 70
Lower iron-formation
Fine- to medium-grained, heavy, tough rock composed of
magnetite, quartz, garnet, pyroxene, and amphibole,
distinctly 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
- 71
Folded 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
- 72
Quartzite
Massive to well-bedded macrocline-quartzite,
commonly stained reddish. 100-300 ft. thick
- 73
Amphibolite
Dark, fine- to medium-grained, generally well foliated.
100-500 ft. thick
- 74
Green quartzite
Exposures in southwest part of area are of well-bedded
white to reddish quartzite, with some layers contain-
ing scattered flakes of green chrom mica. Exposures
at crest of Copper Mountain and in quarry workings
are of very massive, coarse grained quartzite with
scattered patches of green chrom 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.



Geology and topography by H. L. James and K. L. Wier
1961

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

