



EXPLANATION

Cs
Sandstone
Massive buff to reddish medium-grained, somewhat loosely cemented quartz sandstone; locally with conglomeratic phases; found only on test pit dumps

pCd
Diabase
Massive, dark-gray-green medium-grained rock with pronounced diabolic texture; reddish brown on weathered surface; rock is intensely magnetized and causes negative magnetic anomalies; forms dikes in Hemlock formation

pCh
Trachyte
Buff to light-pink fine-grained weakly to strongly foliated rock; locally rich in carbonate; forms at least one thin sill and another sill or dike in Rossville dolomite; exact age not known

pCg
Fine-grained gneiss
Dark-green generally well-foliated rock; slaty in places; outcrop commonly in form of near-vertical slabs or thin tabular masses projecting from ground; forms dikes mainly in Marjesson Creek gneiss; exact age not known

pCm
Metagabbro and metalabane
Green to dark-green medium- to coarse-grained rock; commonly somewhat speckled green and white rock with aphanitic to diabolic texture. In places encloses patches of fine-grained gneiss of the Hemlock formation, pCh; amphibole and granophyric metagabbro, pCg; and pyroxenitic metagabbro and metagabbro, pCg; present in upper part of west Kiernan sill; in several places metagabbro is rich in carbonate, pCg; exact age not known. Some outcrops or stippled parts of outcrops are identified by letter symbols

pCp
Quartz porphyry
Gray and mottled pink and gray, fine- to medium-grained, strongly foliated quartz-arsenic rock; blue spot, arsenic quartz phenocrysts and pods and biotite common; forms dikes or sills in Marjesson Creek gneiss; exact age not known. Shown only in outcrop

bs
Michigan gneiss
From information outside of quadrangle, known to be mainly gray to black slates and gneisses with some basic metasedimentary rocks; only exposures in quadrangle is of basic metasedimentary schist, bs

pCfr
Fence River formation
Not exposed in quadrangle; six miles north of quadrangle unit is mainly dark-gray, fine-grained, thin-bedded rock containing much quartz, magnetite, mica, and epidote; lower part is fine-grained bluish-black magnetite-bearing quartzite; upper part is massive garnet-granulite schist

pCh
Hemlock formation
Mainly metabasalt in the southwestern part of the quadrangle and basic schist rich in biotite, hornblende, and epidote in the northeastern part of the quadrangle; also includes basic metaclastic and meta-sedimentary, ss, in the form of massive, actinolite, and slaty gneisses; amphibolitic gneiss, gray, gray, buff, or pink, fine-grained metagabbro, m, with medium-grained equigranular quartz "eyes"; foliated rock, f, of possible nonvolcanic composition; and sillitoid or pillow flow rock, si. Thin-bedded gray fine-grained slate, si, and greenish-gray fine- to medium-grained gneiss, g, are minor members of the formation. Some outcrops or stippled parts of outcrops are identified by letter symbols

pCk
Goodrich quartzite
Mostly dense, massive, red to dark-red-brown, fine- to medium-grained, ferruginous quartzite, predominantly quartzite but commonly shaly; locally contains chert grains or shaly fragments of an oolitic iron-formation, Neapesset(?) strongly magnetite in most places; nonmagnetic phase generally deeply oxidized and contains much earthy iron oxide

pCl
Rossville dolomite
Mainly buff-colored to pale pink, fine- to medium-grained dolomite commonly with elastic quartz; weathers to typical yellow brown. This layer and minor members composed of fine- to medium-grained silt-sandstone and dolomitic quartzite, q; pinkish medium- to coarse-grained gneiss; gray, buff, or pink, fine-grained quartz-arsenic schist and schist and schist-arsenic schist, si; slaty, fine- to medium-grained gneiss, g; and white to reddish brecciated cherty and quartzose probable silicified dolomite, si. Some outcrops or stippled parts of outcrops are identified by letter symbols

pCmc
Marjesson Creek gneiss
Mainly granitic rocks generally foliated and metaic. Granitic rocks are typically pink to gray, medium to coarse grained equigranular or inequigranular, commonly with large tabular, more or less well-sorted crystals of microcline and albite. Granitic rocks range from gneiss to tonalite with quartz monzonite and granodiorite predominating. Two narrow zones of magnetized granitic rock, m, present at southern and of outcrop areas; includes considerable gray to gray-green banded gneiss, g, generally forming only small parts of outcrops that consist largely of granitic rocks; bands of gneiss are from less than 1 inch to about 1 foot in thickness, well defined and generally to poorly defined, lensed, and of limited extent. Gneiss granitic rock grades into nonfoliated and pyroxenitic phases in places; gneiss mainly granodioritic to tonalitic with biotite-rich zones. Amphibolitic, a, and metasedimentary schists, bs, are minor members; locally small amounts of migmatite, m, present between banded gneiss and granitic rocks. Some outcrops or stippled parts of outcrops are identified by letter symbols

pCm
Magnetic green schist
Not exposed in quadrangle; in drill core and exposures south of quadrangle unit is mainly green and red (oxidized), fine-grained, chloritic and arsenitic schist. Schist strongly foliated; foliation generally finely oxidized; contains magnetite and marcasite

--- Approximate contact
- - - - - Inferred contact
--- Queries indicate more doubtful position of contact

○ Limit of outcrop area
- - - - - Inferred fault

STRUCTURE SYMBOLS NOT WITHIN OUTCROP LIMITS REFER TO NEAREST OUTCROP

↗ Plunge of fold axes
↘ Strike and dip of beds or possible overturned beds
↖ Strike of vertical beds
↗ Strike and dip of beds and plunge of lineation
↘ Top direction shown by ellipsoidal structures in gneiss
↖ Strike and dip of foliation
↗ Strike of vertical foliation
↘ Strike and dip of foliation and plunge of lineation
↖ Plunge of lineation
↗ Strike and dip of joints
↘ Strike of vertical joints

● Test pit
○ Vertical drill hole
○ Inclined drill hole

● Under 100 gammas
● 100 to 500 gammas
● Over 500 gammas
○ Crests of aeromagnetic anomalies

--- Magnetic crest lines from ground magnetometer data, see plate 2

↑ TRUE NORTH
↑ MAGNETIC NORTH

APPROXIMATE MEAN DECLINATION 1945

