

# EXPLANATION

Qal	Alluvium	QUATERNARY
Qg	Glaciofluvial deposits and glacial till-undivided	
Qld	Lake deposits Chiefly silt and sand	
Tb	Olivine basalt Occurs chiefly as a flow, partly vesicular	TERTIARY (?)
	Lamprophyre dike Greenish-gray to black rock. Generally short and narrow.	
Tt	Tiger formation Semiconsolidated debris. Confined to one small deposit in northwest part of mapped area near Hanley prospect	TERTIARY
SD	Rocks of Silurian and Devonian ages-undivided Chiefly black argillite and some limestone. Contains beds, generally thin, of conglomerate, sandstone, quartzite, sandy limestone, and sandy dolomite. Local and widely separated beds are fossiliferous. Monograptus indicates Silurian age for part of unit; elsewhere other fossils indicate Devonian age, especially in exposures on Limestone Hill.	SILURIAN AND DEVONIAN
Ol, Old, Olg	Ledbetter slate Chiefly black carbonaceous argillite and slate. Contains common black limestone and limy argillite strata; local beds and lenses are black quartzite (Olg) and gray dolomite (Old). Graptolites common locally.	ORDOVICIAN
Emg, Emb	Metalline limestone Upper unit (Emg) is gray, very fine-grained massive limestone, locally shaly beds and partings in uppermost portion. Metamorphosed to layered marble near Russian Creek. Lower unit (Emb) is chiefly thin-to-medium bedded, dark gray to gray limestone and limy shale. Fossils rare, locally abundant on Quarry Hill. Upper and lower units everywhere separated, and locally cut by dolomite-see separate description of altered units.	CAMBRIAN
Emp	Maitlen phyllite Chiefly greenish-gray phyllite; some quartzite and limestone.	
Eg	Gypsy quartzite Chiefly quartzite; some conglomerate and phyllite.	
Em	Monk formation Chiefly phyllite; some dolomite, quartzitic limestone, and conglomerate.	CAMBRIAN(?)

## ALTERED ROCKS OF THE METALLINE FORMATION

Ems	Silicified dolomite Medium to strongly, and irregularly, silicified (jasperoid) dolomite and/or limestone. Rock medium to dark gray, commonly irregularly brecciated, and consists of variable quantities of crystalline (recrystallized) dolomite, coarse calcite, some limestone and locally sphalerite and/or galena. Locally grades irregularly into non-silicified dolomite and limestone. Many small bodies not shown on map.
Emd	Dolomite Chiefly light to medium gray, crystalline (recrystallized), dolomite. Contains some beds, lenses and pods of black dolomite, and black dolomite with conspicuous spots and streaks of white dolomite that generally occur sparingly in a thick zone stratigraphically midway in the main dolomite body. Dolomite grains range greatly in size, at many places within short distances. Coarse-grained rock, obliteration of bedding planes, and local sulfides characterize upper stratigraphic positions. Grades into limestone and silicified dolomite.

40	Contact, showing dip Dashed where approximately located
	Indefinite contact
?	Hypothetical contact Inaccessible cliffs
70	Fault, showing dip Dashed where approximately located
90	Vertical fault
?	Hypothetical fault
	Concealed fault On all faults U is upthrown side and D is downthrown side.
30	Anticline Showing trace of axial plane and bearing and plunge of axis. Dashed where approximately located.
	Concealed anticline
30	Syncline Showing trace of axial plane and bearing and plunge of axis. Dashed where approximately located.
	Concealed syncline
	Overtaken anticline
40	Plunge of minor anticline
30	Plunge of minor syncline
	Horizontal minor fold axes
40	Strike and dip of beds
80	Strike and dip of overturned beds
90	Strike of vertical beds
	Horizontal beds
40	Strike and dip of layers and lenses in marble Layering believed result of differentiation by shear.
60	Strike and dip of dominant cleavage in phyllite
	Strike of vertical cleavage in phyllite

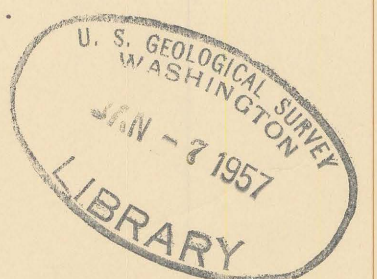
75	Strike and dip of slaty cleavage
90	Strike of vertical slaty cleavage
	Vertical shaft
	Inclined shaft
	Portal of adit
X	Small prospect pit, open cut, or bulldozed area
	Small quarry or gold placer diggings
	Large open pit, quarry, or glory hole

To accompany

## GEOLOGIC MAP OF THE METALLINE MINING DISTRICT, PEND OREILLE COUNTY, WASHINGTON

by  
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This report is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.



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