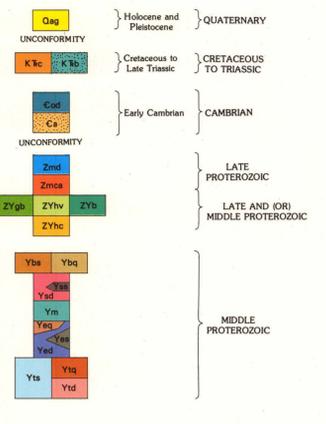


CORRELATION OF MAP UNITS



DESCRIPTION OF MAP UNITS

Qag GLACIAL DEPOSITS AND ALLUVIUM (HOLOCENE AND PLEISTOCENE)—Glacial deposits consist of ground moraine, an end moraine (?) at north end of Klein Meadows, and lake deposits (?) beneath Klein Meadows. Alluvium consists of stream gravels and terraces, the latter chiefly along North Fork Deer Creek in southeast corner of quadrangle and along Huckleberry Creek; also, includes swamp deposits along Cedar Creek and North Fork Deer Creek north of Cedar Creek.

Kbc CATACLASTIC (CRETACEOUS TO LATE TRIASSIC)—Secs. 22 and 27, T. 31 N., R. 39 E. Lenticular quartzite fragments as much as 30 cm long with fine- to medium-grained, pale-yellow matrix of epidote and tremolite. Coarse cataclastic grades eastward into fine-grained, dark-gray cataclastic quartzite. Unit is at least a few hundred meters thick in upper plate of Lane Mountain thrust.

Kfb FAULT BRECCIA (CRETACEOUS TO LATE TRIASSIC)—Brecciated rocks which include elongate slivers of slate and the Edna Dolomite with barite and quartz veins occurring locally in latter unit.

Cod OLD DOMINION LIMESTONE OF WEAVER (1920) (EARLY CAMBRIAN)—Very fine grained, light- to medium-blue-gray limestone with beds as much as 2 cm thick. Some rock is silty and breaks along shaly beds. Silty lenses as much as 2 cm long. About 1,500 m of limestone present in quadrangle. Section in adjacent Hunters quadrangle (Campbell and Raup, 1964) is about 2,300 m thick. An Early Cambrian age assigned based on occurrence of brachiopod *Katrogena cingulata* Billings in carbonate rocks above the Addy Quartzite (Bennett, 1941, p. 9).

Ca ADDY QUARTZITE (EARLY CAMBRIAN)—Typically fine- to medium-grained white quartzite stained brown from iron oxides. Bedding ranges from 1 mm to 2 m. Some rock is quartz-pebble conglomerate with pebbles to 2 cm. In the southeast corner of the quadrangle, quartzite is orange, thick-bedded and friable to well cemented. The formation, named by Weaver (1920, p. 61-63), is about 1,100 m thick in study area. Age is Early Cambrian based on trilobites at two localities near Addy (Khalich, 1951; Miller and Clark, 1975, p. 29).

WINDERMERE GROUP (LATE AND MIDDLE PROTEROZOIC)—Consists of:

Zmd MONK FORMATION (LATE PROTEROZOIC)—Divided into:
Dolomite—Thick-bedded to massive, gray to black, and 30 m thick. Stratigraphically highest member of the formation in the quadrangle. Named by Daly (1912, p. 147-150).
Conglomerate and slate—Conglomerate strata 30 m thick overlying about 60 m of slate.

Zmca HUCKLEBERRY FORMATION (LATE AND (OR) MIDDLE PROTEROZOIC)—Consists of:
Volcanic rocks member—Massive greenstone with cleavage well-developed locally. Apparent thickness calculated from outcrop width ranges from 750 to 1,100 m in quadrangle. Whole-rock potassium argon ages range from 734 to 929 Ma (Miller and others, 1973; Dalrymple, 1979).
Gabbro—Medium-grained, originally consisting chiefly of labradorite, clinopyroxene and ilmenite, and containing a trace of quartz. Clinopyroxene is deuterically altered to hornblende with brown or green pleochroism, or to colorless hornblende. Rock now much altered to sericite, epidote, clays, biotite, sphene, leucosene, tremolite, and chlorite. Mapped dikes are in northwest corner of quadrangle.

Zybv Metabasic dikes—Lithologically similar to greenstone of unit ZYbv; dikes have well-developed cleavage or are altered to chloritic phyllite locally. Gabbro and metabasalt dikes are interpreted as feeder dikes of the volcanic rocks member.

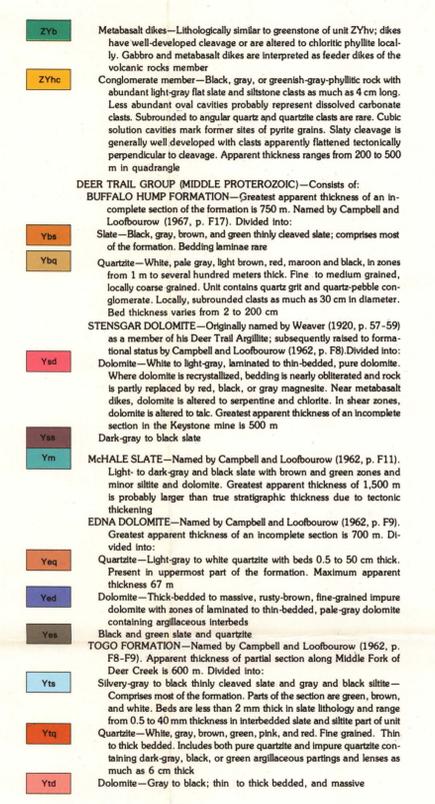
Zyhc Conglomerate member—Black, gray, or greenish-gray-phyllitic rock with abundant light-gray flat slate and siltstone clasts as much as 4 cm long. Less abundant oval cavities probably represent dissolved carbonate clasts. Subrounded to angular quartz and quartzite clasts are rare. Cubic solution cavities mark former sites of pyrite grains. Slaty cleavage is generally well developed with clasts apparently flattened tectonically perpendicular to cleavage. Apparent thickness ranges from 200 to 500 m in quadrangle.

DEER TRAIL GROUP (MIDDLE PROTEROZOIC)—Consists of:
BUFFALO HUMP FORMATION—Greatest apparent thickness of an incomplete section of the formation is 750 m. Named by Campbell and Looftbourou (1967, p. F17). Divided into:
Slate—Black, gray, brown, and green thinly cleaved slate; comprises most of the formation. Bedding laminae rare.
Quartzite—White, pale gray, light brown, red, maroon and black, in zones from 1 m to several hundred meters thick. Fine- to medium grained, locally coarse grained. Unit contains quartz grit and quartz-pebble conglomerate. Locally, subrounded clasts as much as 30 cm in diameter. Bed thickness varies from 2 to 200 cm.
STENSGAR DOLOMITE—Originally named by Weaver (1920, p. 57-59) as a member of his Deer Trail Angillite; subsequently raised to formal status by Campbell and Looftbourou (1962, p. F8) Divided into:
Dolomite—White to light-gray, laminated to thin-bedded, pure dolomite. Where dolomite is recrystallized, bedding is nearly obliterated and rock is partly replaced by red, black, or gray magnetite. Near metabasalt dikes, dolomite is altered to serpentine and chlorite. In shear zones, dolomite is altered to talc. Greatest apparent thickness of an incomplete section in the Keystone mine is 500 m.
Dark-gray to black slate.

MCHALE SLATE—Named by Campbell and Looftbourou (1962, p. F11). Light- to dark-gray and black slate with brown and green zones and minor siltite and dolomite. Greatest apparent thickness of 1,500 m is probably larger than true stratigraphic thickness due to tectonic thickening.

EDNA DOLOMITE—Named by Campbell and Looftbourou (1962, p. F9). Greatest apparent thickness of an incomplete section is 700 m. Divided into:
Quartzite—Light-gray to white quartzite with beds 0.5 to 50 cm thick. Present in uppermost part of the formation. Maximum apparent thickness 67 m.
Dolomite—Thick-bedded to massive, rusty-brown, fine-grained impure dolomite with zones of laminated to thin-bedded, pale-gray dolomite containing argillaceous interbeds.
Black and green slate and quartzite.

TOGO FORMATION—Named by Campbell and Looftbourou (1962, p. F5-F9). Apparent thickness of partial section along Middle Fork of Deer Creek is 600 m. Divided into:
Silvery-gray to black thinly cleaved slate and gray and black siltite—Comprises most of the formation. Parts of the section are green, brown, and white. Beds are less than 2 mm thick in slate lithology and range from 0.5 to 40 m thickness in interbedded slate and siltite part of unit.
Quartzite—White, gray, brown, green, pink, and red. Fine grained. Thin to thick bedded. Includes both pure quartzite and impure quartzite containing dark-gray, black, or green argillaceous partings and lenses as much as 6 cm thick.
Dolomite—Gray to black; thin to thick bedded, and massive.



CONTACT—Approximately located; dotted where concealed.

FAULTS—Approximately located; dotted where concealed. Arrows in cross section indicate relative movement.

High angle—U, upthrown side; D, downthrown side.

Thrust—Sawtooth on upper plate.

TRACES OF AXIAL ZONES OF FOLDS

Syncline

Anticline

MINOR FOLDS—Showing trend and plunge.

STRIKE AND DIP OF BEDS

Inclined—Dot indicates crossbeds or graded beds are right side up.

Vertical

Overturned

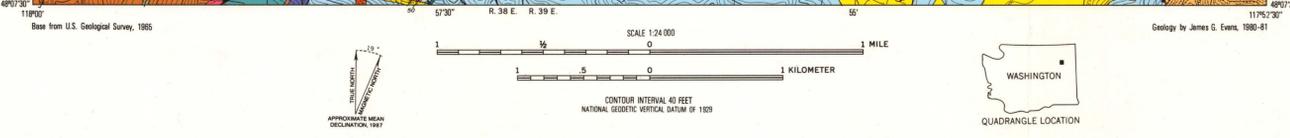
STRIKE AND DIP OF SLATY CLEAVAGE

Inclined

Vertical

STRIKE AND DIP OF FOLIATION—Shown in cataclastic.

AREA OF MINE DUMP



GEOLOGIC MAP OF THE STENSGAR MOUNTAIN QUADRANGLE, STEVENS COUNTY, WASHINGTON