



### DESCRIPTION OF MAP UNITS

	SWAMP DEPOSITS (HOLOCENE)--Clay, silt, and fine sand, dark-gray and brown; rich in vegetal debris.
Q <sub>og</sub>	OUTWASH GRAVEL (HOLOCENE AND PLEISTOCENE)--Gravel deposited along flood plains of major streams; composed chiefly of quartzite rock fragments; contains some concentrations of placer gold.
Q <sub>1</sub>	ALLUVIAL FAN DEPOSITS (HOLOCENE AND PLEISTOCENE)--Rudely stratified gravel, sand, silt, and clay spread outward from mouths of ravines; shows linear sorting along distributaries; finer grained debris is progressively more abundant toward downstream margins of fans.
Q <sub>1s</sub>	LANDSLIDE DEBRIS (HOLOCENE AND PLEISTOCENE)--Chaotically mixed boulders and finer grained rock debris emplaced by mass movement.
Q <sub>1sy</sub>	Younger slide debris (Holocene)--In places still actively moving.
Q <sub>1so</sub>	Older slide debris (Holocene and Pleistocene)--Generally stabilized and overgrown with vegetation.
Q <sub>c</sub>	COLLUVIUM (HOLOCENE AND PLEISTOCENE)--Slope wash of silt- to boulder-sized fragments derived from underlying and adjacent formations.
Q <sub>sb</sub>	SLUMP BLOCKS (HOLOCENE AND PLEISTOCENE)--Coherent masses of bedrock that have moved downslope.
Q <sub>lg</sub>	LANDSLIDE AND GLACIAL DEBRIS (HOLOCENE AND PLEISTOCENE)--Landslide and glacial debris so completely intermixed that they cannot be mapped separately.
Q <sub>h<sub>rm</sub></sub>	MORAINAL DEBRIS OF BURNED RIDGE GLACIATION (PLEISTOCENE)--Till believed to be contemporaneous with the Burned Ridge moraine that was deposited across the floor of Jackson Hole 10 miles (16 km) to the southeast.
Q <sub>g<sup>2</sup></sub>	GLACIAL DEBRIS OF SECOND MAJOR GLACIATION (PLEISTOCENE)--Very old formless glacial deposits; preserved only at higher elevations or under younger glacial debris.
Q <sub>g</sub>	UNDIFFERENTIATED GLACIAL DEBRIS (PLEISTOCENE)--Morainal debris deposited by ice that moved from the west, north, and northeast.
T <sub>c</sub>	COLTER FORMATION (MIOCENE)--Sandstone, light-gray, tuffaceous, soft, poorly cemented; massive to irregularly bedded. Only the lower 1,000 feet (305 m) present in quadrangle.
T <sub>eb</sub>	BASALT, MAFIC AND ASSOCIATED VOLCANICLASTIC ROCKS (ELOCENE)--Red and green mafic intrusive and extrusive igneous rocks, grading laterally in places to crudely stratified volcaniclastic rocks. Thickness uncertain. Has a K-Ar age of 48.5 m.y. A green tuff overlying the basalt 2 miles (3 km) west of the quadrangle boundary has a K-Ar age of 45.9 m.y. Some of it may be present within the quadrangle.
T <sub>kp</sub>	PINYON CONGLOMERATE (PALEOCENE AND UPPER CRETACEOUS)--Boulder conglomerate, rusty-brown, composed of highly rounded fragments of quartzite in rusty coarse-grained sandstone matrix; sporadic boulders as much as 18 inches (46 cm) in diameter. Tiny gold flakes common in conglomerates. Basal contact along east margin of quadrangle difficult to pick. Thickness at least 1,000 feet (305 m).

KH HAREBEL FORMATION (UPPER CRETACEOUS)--Conglomerate, sandstone, siltstone, and claystone. Lower part is chiefly sandstone, siltstone, and claystone. Quartzite pebble and cobble conglomerates are progressively more abundant higher in section. Sandstone is brown, gray, and dull green, silty, hard, thin bedded, tuffaceous in part, rich in magnetite. Claystone is gray, dark green, mustard yellow, and black, silty, tuffaceous, marine or brackish water in part.

Khh Boldt Member--Consists of thin upper part of formation consisting of 2,000 feet (610 m) or more of gold-bearing quartzite conglomerate with a few sandstone and claystone beds.

Total thickness of formation is more than 5,000 feet (1,524 m)

Kme MEETEETSE FORMATION (UPPER CRETACEOUS)--Sandstone, chalky-white to rusty-brown, interbedded with white and yellow tuff and bentonite, plastic carbonaceous black shale, and thin quartzite pebble conglomerates containing small sparse gold flakes; largely or entirely nonmarine. Thickness 500 feet (152 m) or more.

Kmv MESAVERDE FORMATION (UPPER CRETACEOUS)--Sandstone, gray to rusty-brown, massive to thin-bedded, and dark-gray carbonaceous shale and siltstone; sparse thin coal beds; largely nonmarine. Thickness 800 feet (245 m) or more.

Contact  
 Member contact  
 Mappable bed of quartzite roundstone conglomerate—  
 Generally less than 100 feet (30 m) thick;  
 zones of conglomerate several hundred feet  
 thick are shown (In selected places only) as  
 clusters of circles. In other places, as,  
 for example, most of the Bobcat Member of  
 the Harebell Formation, the thickness and  
 extent of conglomerate makes any such por-  
 trayal cartographically confusing  
 Normal fault—Dotted where concealed or inferred.  
 Bar and ball on downthrown side  
 Anticline  
 Syncline  
 Strike and dip of beds  
 Inclined  
 Vertical  
 Overturned  
 Horizontal  
 Generalized dip without strike  
 Location of measured and sampled section—Dotted  
 where offset, covered, or not detailed  
 Outer margin of terrace in outwash gravel. T-1  
 is oldest and is at approximate level of major  
 streams. T-2 is about 10 feet (3 m) above  
 T-1; T-3 is 15-50 feet (4.6-15.2 m) above T-1;  
 T-4 is 20-50 feet (6.1-15.2 m) above T-3; T-5  
 is about 190 feet (58 m) above T-3 (T-4 not  
 distinguishable along this part of Pilgrim  
 Creek)  
 Field station where attitudes were taken, samples  
 collected for chemical analysis or fossils  
 collected—L66-42 *Mytilus* is site of *Mytilus*,  
 fossil collection described by Kauffman (1973)  
 Gold placer ditch dug in the 1880's and 1890's  
 Active gold placer operation  
 Seep of flammable gas

<sup>1</sup>Kauffman, E. G., 1973, A brackish water biota from the Upper Cretaceous Harebell Formation of northwestern Wyoming: Jour. Paleont., v. 47, no. 3, p. 436-446.

Geology by J. D. Love, 1948-49, 1966-73;  
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1948-49; 1966-68; R. K. Hose, 1948-49.

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

GEOLOGIC MAP OF WHETSTONE MOUNTAIN QUADRANGLE, TETON COUNTY, WYOMING

By  
J. D. Love  
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