



CORRELATION OF MAP UNITS

Qhb	Holocene	QUATERNARY
Dunes		
Qp1	Pleistocene	
Qp2		
Qp3		
Qp4		

DESCRIPTION OF MAP UNITS

[The basalt flows shown on the map have been grouped into units of similar age. The relative ages of the units are based on interpretation of flow age relationships in the field and on aerial photographs, soil thickness, and percentage of outcrop.]

SNAKE RIVER GROUP (HOLOCENE AND PLEISTOCENE)--Basalt lava flows and subordinate aeolian deposits

- Qhb Wapi-Kings Bowl lava flows (Holocene)--Flows of gray to dark-gray olivine-rich pahoehoe basalt from Pillar Butte and numerous small vents along the Great Rift near Kings Bowl. These flows are characterized by a very rough surface and almost no soil cover. Texture varies from glassy to medium grained. Olivine generally occurs as single crystals 1-2 mm in diameter, light green in color. Plagioclase laths average 2-3 mm in length and occur as single crystals or in small clots.
- Dunes Sand (Holocene and Pleistocene)--Fine to coarse-grained, quartz-feldspathic sand; tan in color. Forms low dunes along southern edge of the map area. The sand was derived from Bonneville flood debris deposited in basins to the west of the map area. The dune field shown on this map was active during the late Pleistocene and possibly in the early Holocene. The dunes do not form a continuous cover; they obscure approximately 50 percent of the underlying basalt.
- Qp1 Unit 1 (Pleistocene)--Single flow of gray olivine-rich pahoehoe basalt. The surface of this flow is rough with more than 75 percent outcrop exposed through a thin soil cover. The texture of the basalt is distinctly glomeroporphyritic. Clots of honey-colored olivine crystals, 2 mm in diameter, and plagioclase laths 2-4 mm in length, are set in a fine-grained equigranular matrix. Two large lava ponds formed close to the vent area near the end of the eruption of this flow.
- Qp2 Unit 2 (Pleistocene)--Flows of gray to dark-gray pahoehoe basalt from Cottrell's Blowout and Horse Butte, 1 km north of the map area. The surface of these flows is covered by a variable thickness of soil exposing 25 percent to 75 percent outcrop. Texture varies from fine- to medium-grained, and dense to vesicular. Olivine occurs as 1 mm, honey-colored crystals in small clots. Plagioclase generally occurs as single 2-3 mm laths.
- Qp3 Unit 3 (Pleistocene)--Coalesced flows of gray to dark-gray, olivine-rich, pahoehoe basalt from several vents. The flows have variable thickness of soil cover, exposing 25 percent to 75 percent outcrop. Texture of the basalt varies from fine grained, dense to coarse grained, diktytaxitic. The honey-colored olivine phenocrysts, 1-2 mm in diameter, occur as single crystals or in small clots associated with plagioclase. Plagioclase laths range in length from 2 to 8 mm.
- Qp4 Unit 4 (Pleistocene)--A sequence of coalesced gray to dark-gray pahoehoe basalt. These flows have smooth, gently rolling surfaces, with less than 25 percent outcrop exposed through a thick soil cover. Texture ranges from fine-grained, dense to coarse-grained, vesicular basalt. Olivine phenocrysts are generally 1 mm or less in diameter and range in color from light green to honey to amber. Plagioclase phenocrysts range from 2 to 6 mm in length and generally occur in small clots.
- CONTACT--Dashed where approximately located. Contacts were plotted on the map from aerial photographs using a Kern PG-2 plotter. Y, younger flow; O, older flow. Y/O placed at site where contact was field checked. Dashed contact around Pillar Butte outlines area of last eruption from that vent.
- VOLCANIC VENTS--Outline of crater or cone rim. Line with crosshatching indicates area along fissure where eruption occurred.
- ROOTLESS VENT--Secondary source of lava, generally along lava tubes.
- LAVA TUBE--A tunnel-like space beneath the surface of a solidified lava flow in which lava is transferred from the vent area to the flow front. Collapse of portions of the lava tube roof after withdrawal of the lava produces depressions called skylights; shown on the map as circular features along the lava tubes. Arrow indicates direction of flow. Dashed where approximately located.
- LAVA CHANNEL--A sinuous, river-like depression that forms in a lava flow and carries lava to the flow front. Arrow indicates direction of flow.
- LAVA POND--An irregular depression on the surface of a lava flow which once contained a pond of lava.
- FISSURES--A surface of fracture or opening in the solidified basalt along which there is a distinct separation. The fissures are from a few meters to a few hundred meters long, and generally less than 2 m in width at the surface.

REFERENCES

Lapoint, Paula, J. L., 1977, Preliminary photogeologic map of the Eastern Snake River Plain, Idaho: U.S. Geological Survey Misc. Field Studies Map MF-830.

U.S. Geological Survey  
OPEN FILE REPORT

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

Base From U.S. Geological Survey,  
Pillar Butte, Pillar Butte NE,  
Pillar Butte SE, and Rattlesnake  
Butte, 1973, 1:24,000

Geology mapped by H. R. Covington, 1976

PRELIMINARY GEOLOGIC MAP OF THE PILLAR BUTTE, PILLAR BUTTE NE, PILLAR BUTTE SE,  
AND RATTLESNAKE BUTTE QUADRANGLES, BINGHAM, BLAINE, AND POWER COUNTIES, IDAHO

By  
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