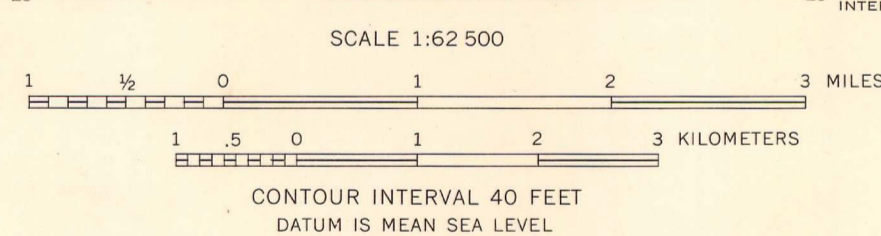


Base prepared from stereo compilation by Fairchild Aerial Surveys, Inc. for the Bureau of Reclamation. Field checked and published by the Geological Survey, 1950

Geology mapped by W. G. Pierce mainly in 1937, 1938, and 1955, with the assistance of R. P. Bryson, W. C. Warren, and K. L. Pierce. Minor additions made in 1952 and 1964

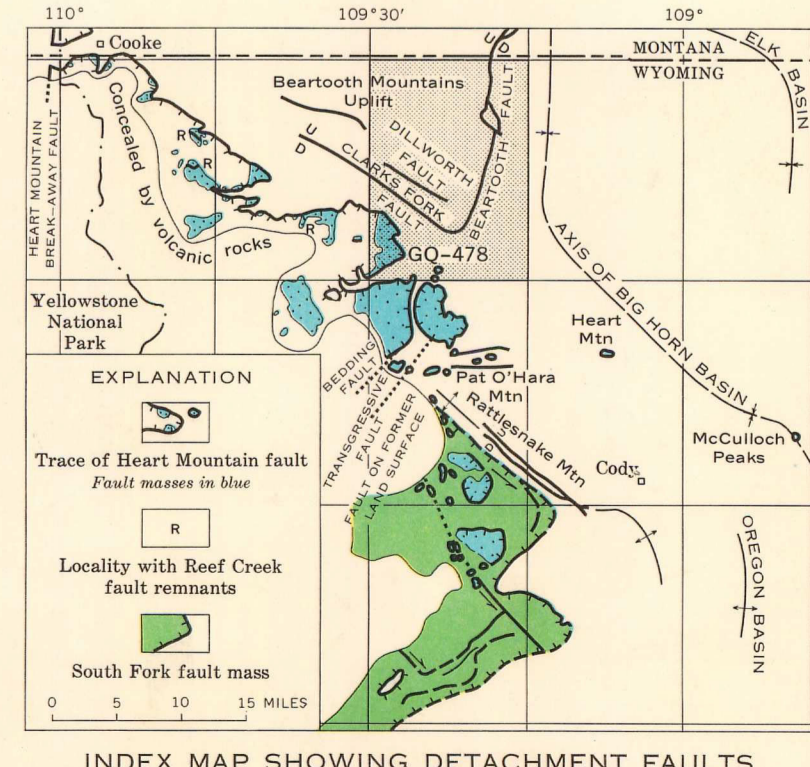


EXPLANATION

Ql Landslide material Heterogeneous aggregate of rock debris	Qal Alluvium Unconsolidated deposits of silt, sand, gravel, and cobbles along stream valley and at or near present stream level. Includes alluvial terraces and younger glacial outwash. Includes colluvium in Clarks Fork Canyon	Qc Colluvium Heterogeneous deposits of rock debris
Qp Sawtooth peat deposit	Qm Qmy Qmo Morainal deposits Glacial deposits, mostly terminal moraine, probably of late Wisconsin age Qm, undifferentiated morainal deposits, quarried where unconsolidated Qmy, younger deposits Qmo, slightly older deposits along Littlelock Creek	
Qt1 Qt2 Qt3 Terrace gravel Unconsolidated deposits of gravel, sand, cobbles, and silt. Qt1, lowest terrace and Qt3, highest terrace Qtch, Chapman terrace, approximate equivalent of Powell terrace along Shoshone River Qt1 may be approximately equivalent to Flaxville terrace and Polecat Bench. May be older than Quaternary	Qtr Pediment deposits Smooth, gently sloping erosion surfaces cut on bedrock with only a thin veneer of poorly rounded to subangular surficial material Qpu, undifferentiated pediments Qph, high pediments, probably equivalent to highest terrace (Qt3)	
Teb Early basic breccia Volcanic conglomerates and breccias composed of fragments of andesite and basalt, with a few local basic lava flows; dark-colored	Pt Tensleep Sandstone Light-gray, well-sorted, crossbedded, massive sandstone; thin beds of limestone and dolomite in lower part. Thickness, 200 to 240 feet	
Tcc Cathedral Cliffs Formation Tuff, volcanic sediments, lapilli tuff, and breccia; light-colored	PMa Amsden Formation Red shale, with some dolomitic limestone beds; some chert and hematite nodules; basal part commonly siltstone or sandstone. Thickness, 150 feet	
Tw Willwood Formation Varicolored clay, sandstone, and shale; thick conglomerate at base. Forms badlands	Mm Madison Limestone Blue-gray massive limestone, dolomitic in part; upper half somewhat thicker bedded and more massive than lower half. Thickness, 950 feet	
Kp Porphyry Gray to buff sills and dikes with feldspar phenocrysts; monzonitic in composition. Mapped only in reconnaissance	MDI Three Forks and Jefferson Formations Three Forks Formation; yellow, greenish-gray and dark-gray dolomitic siltstone, black fossiliferous shale, and silty dolomite. Age is Late Devonian and Early Mississippian. Thickness about 50 feet. Jefferson Formation; fetid brown dolomite and light-gray and tan limestone; uppermost part is mottled yellowish-orange dolomite and yellowish-gray siltstone. Age is Late Devonian. Thickness about 300 feet	
Km Meeteetse Formation Gray to white clayey sand, drab sandstone, gray and brown shale, and bentonitic clay	Db Beartooth Butte Formation Stream-channel deposit of red, calcareous siltstone, red and yellowish-gray, silty limestone and siltstone, and siltstone and limestone conglomerate and breccia. Thickness, 0 to 75 feet	
Kmv Measverde Formation Interbedded sandstone and shale in upper part; lower part massive light-buff ledge-forming sandstone with some interbedded gray shale	Ob Bighorn Dolomite Gray, massive, cliff-forming dolomite and dolomitic limestone. Thickness, 100 to 175 feet	
Kc Cody Shale Upper part buff sandy shale and thinly laminated buff sandstone; lower part massive thin-bedded marine shale. Thickness about 1800 feet	Cgs Grove Creek and Snowy Range Formations Grove Creek Formation; gray, buff, and orange limestone and dolomite, green shale, and gray-green limestone pebble conglomerate. Thickness about 30 feet. Snowy Range Formation; gray-green shale and greenish flat-pebble conglomerate. Thickness about 300 feet	
Kf Frontier Formation Thick lenticular gray sandstone, gray, brown, and carbonaceous shale, and bentonite. Thickness about 150 feet	Cp Pilgrim Limestone Massive, light-gray, mottled, oolitic limestone; forms a prominent ledge. Thickness, 100 to 125 feet	
Kmr Mowry Shale Gray and brown shale, in part siliceous with numerous bentonite beds and abundant fish scales. Thickness about 150 feet	Cv Gros Ventre Formation Green, micaceous shale, thin-bedded, gray limestone, and limestone-pebble conglomerate. A 50-foot ledge-forming unit of thin-bedded, nodular limestone and interbedded green shale 300 feet above base is probably equivalent to the Meagher Limestone (Middle Cambrian) in Montana. Thickness, 625 to 700 feet	
Kt Thermopolis Shale Soft black shale with numerous bentonite beds; Muddy Sandstone Member about 200 feet above base. Thickness about 550 feet	Cf Flathead Sandstone Hard, ledge-forming, quartzitic sandstone, becoming spherulitic and brown speckled in upper part. Thickness, 100 feet	
Kjcm Cloverly and Morrison Formations Cloverly Formation, of Early Cretaceous age, is light-gray sandstone, gray and variegated shale, and lenticular chert conglomerate. "Rusty beds" at top Morrison Formation, of Late Jurassic age, is shaly variegated claystone and gray silty sandstone. Combined thickness of Cloverly and Morrison Formations about 550 feet	pCg Granitic rocks Chiefly granite gneiss and granite	
Jsg Sundance and Gypsum Spring Formations Sundance Formation, of Late Jurassic age, consists of green and gray shale, greenish-gray, glauconitic, limy sandstone and thin beds of fossiliferous limestone Gypsum Spring Formation, of Middle Jurassic age, consists of red and gray shale, fossiliferous limestone and gypsum. Combined thickness of Sundance and Gypsum Spring Formations, 425 to 500 feet		
Tc Chugwater Formation Red siltstone, red shale and fine-grained, red sandstone; gypsiferous. Thickness, 600 to 700 feet		
Tpdp Dinwoody and Park City Formations Dinwoody Formation, of Early Triassic age, is tan, gray, and red siltstone, gypsum, and dolomite. Thickness 35 to 50 feet Park City Formation, of Permian age, is siliceous limestone and dolomite, nodular chert and tan and gray shale. Formerly called Phosphoria Formation in this area. Thickness, 40 to 110 feet		

Note: The Gallatin Formation of previous usage is herein raised to group rank where it is subdivided into formations.

- Contact
- Dashed where approximately located; dotted where inferred or concealed
- Fault
- Dashed where approximately located; dotted where inferred or concealed. U, upthrown side; D, downthrown side
- Reverse fault
- Dashed where approximately located; dotted where inferred or concealed; R, upthrown side
- Heart Mountain detachment fault
- Dashed where approximately located; sawtooth on upper plate
- Shear zone
- Subsummit pediment surface
- Weathered erosion surface of Tertiary (?) age in the Beartooth Mountains
- Strike and dip of beds
- Horizontal beds
- Strike and dip of overturned beds



INDEX MAP SHOWING DETACHMENT FAULTS
Movement was to southeast

GEOLOGIC MAP OF THE DEEP LAKE QUADRANGLE, PARK COUNTY, WYOMING

By
William G. Pierce
1965