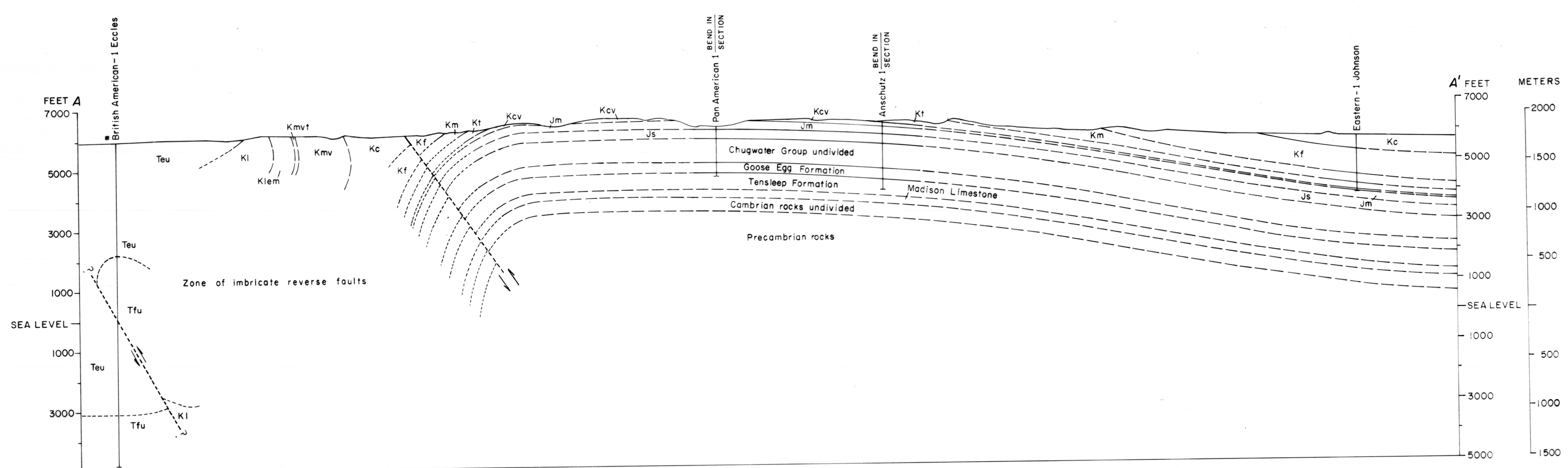
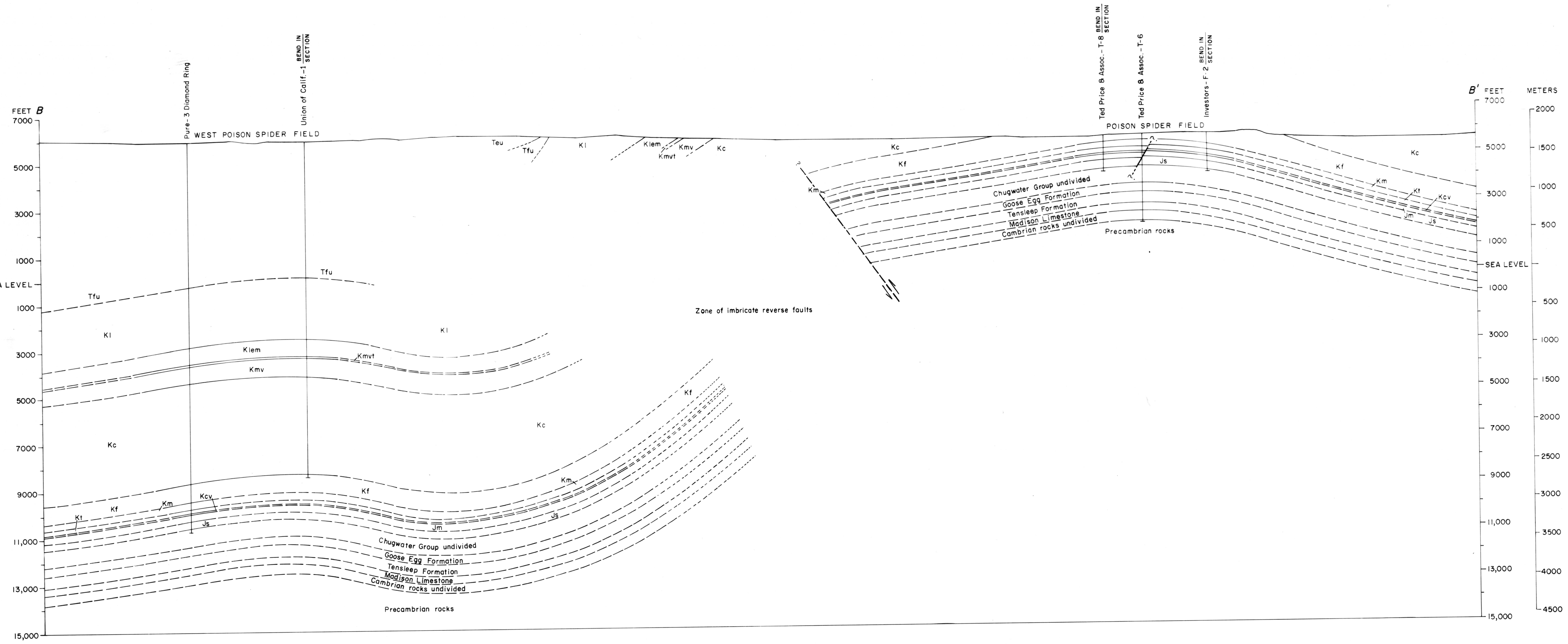
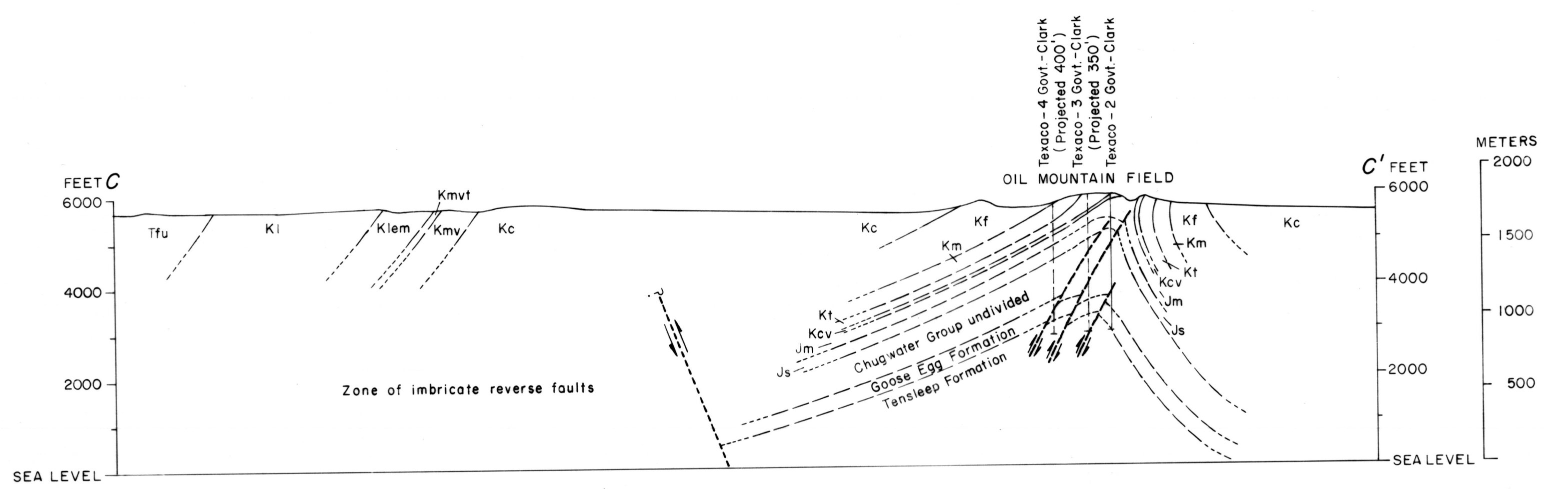
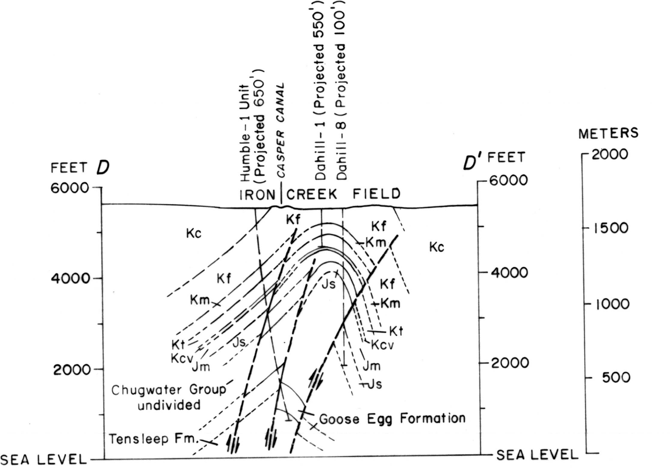
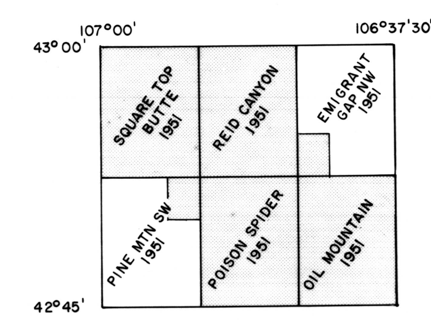


* Structural interpretation modified from Keefer, W.R., 1970, U.S. Geol. Survey Prof. Paper 495- , p. A40, fig. 24









INDEX SHOWING TOPOGRAPHIC QUADRANGLES AND OUTLINE OF MAPPED AREA

GENERALIZED COLUMNAR SECTION

SYSTEM	SERIES	FORMATION AND/OR MEMBER Thickness in feet (meters)	LITHOLOGY	DESCRIPTION	LOCATION OF MEASURED SECTION
TERTIARY	Eocene	Lower Eocene rocks undivided (not measured in detail)		EOCENE UNITS, UNDIVIDED (Teu)--Continental sandstone, shale, and siltstone units, poorly consolidated to consolidated	
TERTIARY	Paleocene	Fort Union Formation (not measured in detail) 2150± (655± m)		FORT UNION FORMATION (Tfu)--Interbedded light- to dark-gray shale, brown to dusky-red sandstone, grayish-red to tan conglomerate, and silty carbonaceous shale units. Lower contact gradational; picked as base of lowest, dusky-red ferruginous sandstone	
CRETACEOUS	Upper	Lance Formation 2400-3000(731-914 m)		LANCE FORMATION (Kl)--Interbedded sandstone and shale units, mostly fine- to medium-grained. Fossil floral and faunal remains in localized areas. Some beds contain abundant ferromagnesian minerals. Sandstone units generally friable and porous, fine- to medium-grained, sub-angular to subround; locally calcareous, hard, and crossbedded. Lower part of unit contains thin beds of carbonaceous shale and coal	Secs. 5,7 and 8 T. 32 N., R. 82 W Section ①
		Upper marine tongue of the Lewis Shale 171 (52.1 m) Meeteetse Formation 400(122 m) Lower marine tongue of the Lewis Shale 305(92.9 m)		LEWIS SHALE and MEETEETSE FORMATION, UNDIVIDED (Klem)--Interbedded shale and sandstone. Shale predominates and ranges from light- to dark-gray. Bedding massive to blocky. Local carbonaceous and coaly zones, with a zone containing *Gryphea* near the base. Sandstone units are brown or gray, very soft and friable. Entire unit very poorly exposed	Sec. 8 T. 32 N., R. 82 W Section ②
		Mesaverde Formation 575-925(175-282 m): Teapot Sandstone Mbr. 50-125(15.2-38.0 m) Mesaverde Formation Undivided 525-800(160-244 m)		MESAVERDE FORMATION Teapot Sandstone Member (Kmvt)--At top of formation. White to light-gray, very fine grained to fine-grained, friable, well sorted, porous. Sand grains sub-angular to subround. Shows excellent delta and torrential crossbedding. Weathers to a grayish-white ridge and weathered surfaces show iron-cemented, cup-shaped, hollow concretions. Unit dips steeply and forms prominent northwest-trending hogback across entire area Mesaverde Formation, Undivided (Kmv)--Interbedded sandstone and shale. Sandstone units are grayish-white to tan, fine- to medium-grained, well sorted, friable, porous, locally crossbedded. Sand grains are sub-angular to subround, cement is generally calcareous. Weathering is frequently slabby or blocky. Shale units are soft and silty. Colors range from dove- to dark-gray or light- to dark-brown. Carbonaceous material common. Parkman Sandstone Member and Fales Member are identified in oil and gas wells in the area (see Table 1)	Sec. 5 T. 32 N., R. 82 W. Section ③
		Cody Shale, main body 4600±(1402± m)		CODY SHALE (Kc)--Shale in varying shades and tints of gray; silty, calcareous, concretionary, and fossiliferous. Weathers blocky to splintery. Very minor sandstone, silty and thin-bedded; salt and pepper appearance, grains mostly subround	Sec. 33 T. 32 N., R. 82 W. Section ④
		Frontier Formation 771-956(235-291 m)		FRONTIER FORMATION (Kf)--Interbedded sandstone and shale; sandstone units are various shades of brown, generally thin-bedded, well sorted, and fine-grained. Locally asphalt-stained or grayish-white due to leaching by oil. Minor constituents include chert pebbles and ferromagnesian minerals. Ridge- and ledge-forming, locally crossbedded, concretionary, and calcareous. Shale units are gray, dark-gray to black, soft, blocky, calcareous, silty; contain thin bentonite and carbonaceous beds; minor concretionary limestone and siltstone	Secs. 27 and 28 T. 32 N., R. 82 W. Sections ⑤ ⑥
	Lower	Mowry Shale 232-293(70.7-89.9 m)		MOWRY SHALE (Km)--Shale, dark-gray to black, soft, fissile. Grades into hard siliceous, ridge-forming unit. Minor constituents are bentonite and chert. Contains abundant fish scales, weathers to characteristic silvery-gray	Sec. 28-T. 32 N., R. 82 W. Section ⑦
		Thermopolis Shale 152-222(46.3-67.6 m)		THERMOPOLIS SHALE (Kt)--Shale, dark-gray to black, soft, thin-bedded, fissile, non-calcareous. Sandstone, brownish-green, very fine grained, thin-bedded, abundant ferromagnesian minerals and animal burrows	Sec. 28-T. 32 N., R. 82 W. Section ⑧
		Cloverly Formation 78-105(23.8-32.0 m)		CLOVERLY FORMATION (Kcv)--Sandstone and massive basal conglomerate. Sandstone is grayish-white, weathers rusty-brown, fine-grained to very coarse grained, crossbedded, locally conglomeratic. Primarily quartz sand cemented with silica, locally cemented with iron. Forms prominent ledge with conspicuous bedding planes. Oxidized iron forms reddish color-bands along bedding planes upon weathering	Sec. 35 T. 32 N., R. 82 W. Section ⑨
JURASSIC	Upper	Morrison Formation 210-236(64.0-71.9 m)		MORRISON FORMATION (Jm)--Claystone, variegated green, gray, and maroon, soft calcareous, silty. Locally contains thin, soft, siltstone beds, limestone in nodular lenses, and thick, soft, friable, crossbedded sandstone lenses. Grains very fine and well sorted. Lower part of unit is shale, green to gray, soft, silty, calcareous to non-calcareous	Sec. 34,-T. 34 N., R. 84 W. Section ⑩
		Sundance Formation 305-340 (92.9-104 m)		EXPOSED SUBSURFACE SUNDANCE FORMATION (Js)--Interbedded sandstone, shale, and minor limestone. Base not exposed. Limited exposures of basal unit indicate drab- to dove-gray, glauconitic, calcareous, blocky-weathering shale. Sandstone units are gray to dark-gray, fine-grained, well sorted, crossbedded and ripple-marked, locally calcareous and glauconitic, containing oolites and brachiopods. Weathers greenish-gray into small blocky fragments with a few thin ledges. Shale units are gray to dark-gray, soft, calcareous, glauconitic friable. Limestone is fine- to medium-bedded, very fossiliferous; belemnites abundant on surface. Weathers into irregular blocks	Sec. 2 T. 32 N., R. 82 W. Section ⑪ Base not exposed
		UNCONFORMITY			
TRIASSIC	Upper	Chugwater Group 800-830(244-253 m): Jelm Formation 113 (34.4 m)		CHUGWATER GROUP JELM FORMATION--Sandstone, brown and pale-orange, interbedded with red shale; medium- to coarse-grained	
		Alcova Limestone 15-20(4.6-6.1 m)		ALCOVA LIMESTONE--Limestone, pink to light-red	
	? Lower	Red Peak Formation 620-650(189-198 m)		RED PEAK FORMATION--Sandstone, pale-orange to light-gray, very fine grained to medium-grained; and siltstone, brown to red	
PERMIAN	Middle	Goose Egg Formation 354-400(108-122 m)		GOOSE EGG FORMATION--Siltstone and claystone, reddish-brown, interbedded with white gypsum and gray to yellowish-brown limestone	
CARBONIFEROUS: PENNSYLVANIAN	Lower, Middle, and Upper	Tensleep Sandstone 350-540(107-165 m)		TENSLEEP FORMATION--Sandstone, gray to orange, very fine grained to medium-grained; and limestone, gray to pink	
CARBONIFEROUS: MISSISSIPPIAN	Upper	Amsden Formation 150-250 (45.7-76.2 m)		AMSDEN FORMATION--Claystone, brown to dark-red	
		UNCONFORMITY			
	Lower and Upper	Madison Limestone 272-312 (83.9-95.1 m)		MADISON LIMESTONE--Limestone, gray to pink, dolomitic in the lower part	
		UNCONFORMITY			
CAMBRIAN	Upper	Gallatin( ) and Gros Ventre Fms 137(41.7 m)		GALLATIN(?) and GROS VENTRE FORMATIONS, UNDIVIDED--Sandstone, white to red, calcareous, abundant glauconite	
	Middle	Flathead Sandstone 323(98.4 m)		FLATHEAD SANDSTONE--Sandstone, light-gray to white, fine- to medium-grained, slightly quartzitic, with minor red claystone. The lower part of the unit is light-gray to brown sandstone, medium-grained to very coarse grained	
		UNCONFORMITY			
PRECAMBRIAN		Granite		GRANITE	

OPEN-FILE REPORT
This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or stratigraphic nomenclature.

BEDROCK GEOLOGIC MAP OF THE PINE MOUNTAIN-OIL MOUNTAIN AREA, NATRONA COUNTY, WYOMING

By
Eugene G. Cserna, Gloria J. Kerns, and William J. Laraway

1983