
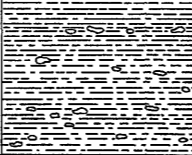



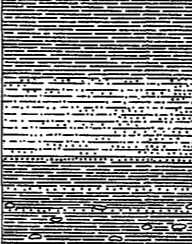




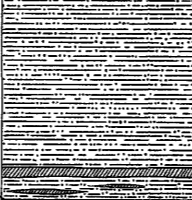
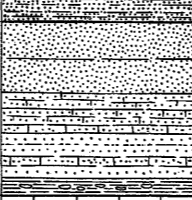
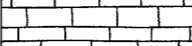
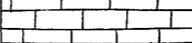
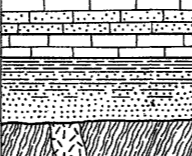
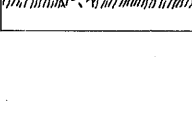





COLUMNAR SECTION

GENERALIZED SECTION FOR THE ALADDIN QUADRANGLE.							
SCALE: 1 INCH = 500 FEET.							
SYSTEM	SERIES	FORMATION NAME.	SYMBOL.	COLUMNAR SECTION.	THICKNESS IN FEET.	CHARACTER OF ROCKS.	CHARACTER OF TOPOGRAPHY AND SOILS.
TERTIARY	OLIGOCENE	Sand, gravel, and conglomerate.	Tw		200	Sand, gravel, and boulders.	Plateaus with fertile soils, usually forested.
		UNCONFORMITY					
CRETACEOUS	UPPER CRETACEOUS	Pierre shale.	Kp		450+	Dark, soft shale with numerous small concretions.	Wide valleys with thin acid soils, usually well sodded.
		Niobrara formation.	Kn		200	Soft, impure limestone and limy shale with thin limestone masses filled with <i>Ostrea congesta</i> .	Valleys with fertile soil.
		Carlile formation.	Kcr		400	Gray shale with thin beds of sandstone.	Low, rolling hills with thin, poor soil.
		Greenhorn limestone.	Kg		50	Thin-bedded, hard, gray, impure limestone with <i>Inoceramus lobatus</i> .	Low ridges and benches. Thin, sandy soil.
		Graneros shale.	Kgs		800	Gray shale with concretions near top. Hard, sandy shale, weathering light gray. Local thin layer of soft sandstone. Dark shale with concretions and occasional thin sandstone layers.	Wide valleys with rolling hills. Soil mostly thin or clayey.
	LOWER CRETACEOUS	Dakota sandstone.	Kd		60-140	Buff sandstone, mostly massive; weathers reddish brown.	Caps numerous mesas and sloping plateaus. Sandy soils.
		Fuson formation.	Kf		60-100	Shale and sandstone.	In slopes between Dakota and Lakota cliffs.
		Lakota sandstone.	Klk		80-100	Gray to buff, massive, cross-bedded sandstone.	Cliffs on sides of mesas and plateaus. Sandy soils.
		Morrison shale.	Km		60-150	Massive gray, buff, and maroon shale, thin sandstones, and concretions.	Slopes at base of Lakota cliffs. Clay soils.
		UNCONFORMITY ?					
JURASSIC	Sundance formation.	Jsd		350-400	Grayish-green shale with thin limestone layers. Reddish sandstone and sandy shale. Massive, buff, soft sandstone. Dark, grayish-green shale.	Slopes with thin but fertile soil. Buttes and benches.	
	UNCONFORMITY						
TRIASSIC ?	Spearfish formation.	Ts		550-650+	Red, sandy shale with thin beds of gypsum.	Wide valley, "Red Valley." Thin, barren soil.	
	UNCONFORMITY						
CARBONIFEROUS	PERMIAN	Minnekahta limestone.	Cmk		40	Thin-bedded, gray limestone.	Sloping plateaus margined by cliffs. Thin but rich soils.
		Opeche formation.	Co		70	Red, soft sandstone.	Steep slopes beneath cliffs of Minnekahta limestone.
	MISSISSIPPIAN	Minnelusa sandstone.	Cml		400-500	White to gray, massive sandstone. Red, limy sandstone and sandy shale. Sandstone with much lime in some beds. Red shale with concretions.	Cliffs in canyons. Steep slopes in canyons and on sides of Bear Lodge laccolith.
		Pahasapa limestone.	Cp		500-	Massive, light-colored limestone.	Mountain summits and slopes on sides of Bear Lodge laccolith.
		UNCONFORMITY					
ORD.	Whitewood limestone.	Ow		60	Sandy limestone, possibly Englewood. Massive, hard limestone, mottled pink.	Cliffs on south end of Sheep Mountain.	
ALGONKIAN ?	Deadwood formation.	Cd		50-300	Green shale. Brown sandstone.	Cliffs on south end of Sheep Mountain.	
	Schist and granite.	As Ag			Schist not exposed at the surface. Granite in small detached masses.		

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