

COLUMNAR SECTION

GENERALIZED SECTION FOR THE SUNDANCE QUADRANGLE.							
SCALE: 1 INCH = 500 FEET.							
SYSTEM	SUBSYSTEM	FORMATION NAME.	SYMBOL.	COLUMNAR SECTION.	THICKNESS IN FEET.	CHARACTER OF ROCKS.	CHARACTER OF TOPOGRAPHY AND SOILS.
CRETACEOUS	TERTIARY	Sand, gravel, and conglomerate.	Tw		25-150	Sand, gravel, and bowlders.	Plateaus with fertile soils, usually forested.
		UNCONFORMITY					
	UPPER CRETACEOUS	Carlile formation.	Kcr		350	Gray shale with thin beds of sandstone.	Bare shale slopes.
		Greenhorn limestone.	Kg		40	Thin-bedded, hard, gray, impure limestone with <i>Inoceramus labiatus</i> .	Bare, rocky ridge.
		Graneros shale.	Kgs		(500)	Dark-gray shale.	Shale slopes and valleys. Thin, sterile soil except where covered by alluvium.
					1000	Hard, sandy shale; weathers light gray.	Rocky ridge with pines.
					(200) (300)	Dark shale with thin sandstone near top; contains hard, oval concretions.	Shale ridges and slopes. Thin, barren soil.
		Dakota sandstone.	Kd		40-100	Reddish-brown sandstone, mostly massive.	Rocky ridges and sloping plateaus with cliffs. Sandy soil.
		Fuson formation.	Kf		10-40	Gray to red shale and sandstone.	Steep slopes below cliffs of Dakota sandstone.
		LOWER CRETACEOUS	Lakota sandstone.	Klk		150-300	Massive, coarse, cross-bedded, gray to buff sandstone with local beds of coal and conglomerate near base.
	Morrison shale.		Km		125-150	Compact shale of gray, buff, pale-green, and maroon tints, with thin beds of gray sandstone.	Steep slopes below cliffs of Lakota sandstone.
	UNCONFORMITY ?						
JURASSIC	Sundance formation.	Jsd		325	Thin layer of buff sandstone. Green shale with thin fossiliferous layers. Sandstone and sandy shale of dull-reddish color. Buff sandstone on dark shales.	Valleys and rolling slopes, generally with fertile soils.	
	UNCONFORMITY						
TRIASSIC ?	Spearfish formation.	Fs		500+	Red, sandy shale with beds of gypsum.	Wide valleys. Sterile soils except where covered by alluvium.	
	UNCONFORMITY						
CARBONIFEROUS	PERMIAN ?	Minnekahta limestone.	Cmk		40	Thin-bedded, gray limestone.	Wide, sloping plateaus margined by cliffs and ridges. Fertile soil.
		Opeche formation.	Co		60-80	Red, sandy shale and red sandstone.	Steep slopes beneath cliffs of Minnekahta limestone.
	PENNSYLVANIAN ?	Minnelusa sandstone.	Cml		500+	Massive, white, hard sandstone.	Rocky and sandy slopes and rolling mountain summits. Sandy soils, mostly covered by forest.
						Limy sandstone, buff, gray, yellow, brown, and red.	
		Pahasapa limestone.	Cp		600	Massive, light-gray limestone.	Plateau, mountain slopes, and canyon walls. Soils rich and mostly forested.
					Englewood limestone.	Ce	
ORDOVICIAN	UNCONFORMITY						
	Whitewood limestone.	Ow		80	Massive, hard limestone, mottled pinkish.	Cliffs.	
CAMBRIAN	Deadwood formation.	Cd		100-300	Shales, limestone, and breccia. Sandstone and quartzite.	Rocky ridges and slopes.	
	ALGONKIAN ?	UNCONFORMITY					
Schist and granite.		As Ag			Schist, with granite, amphibolite, and other dikes.	Rocky slopes.	

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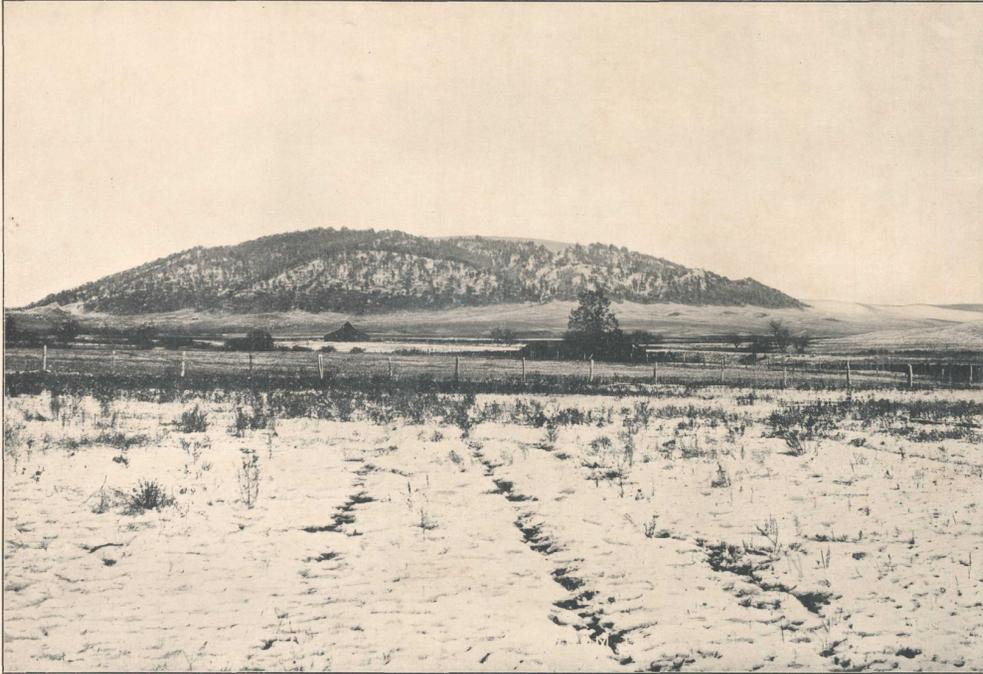


FIG. 4.—GREEN MOUNTAIN FROM THE NORTH.

A dome probably due to a laccolith. Slopes are of Minnekahta limestone; the center is of Minnelusa sandstone. To the right are ridges of gypsum.



FIG. 5.—COLUMNAR PORPHYRY ON INYANKARA MOUNTAIN.

View of the central knob, looking northwest.

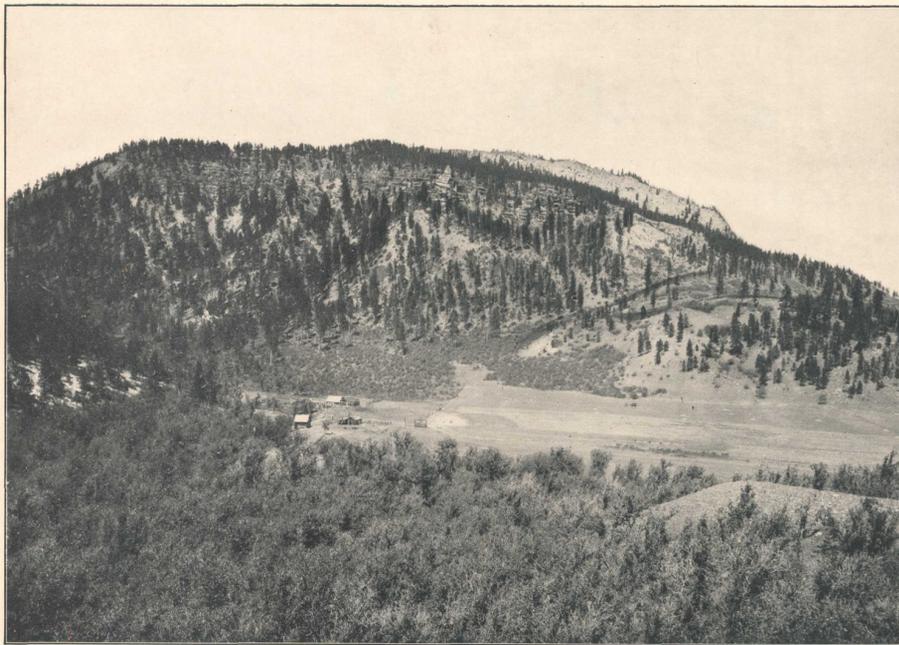


FIG. 6.—SHEEP MOUNTAIN FROM THE SOUTH.

An uplifted block of Deadwood formation overlain by Whitewood and Pahasapa limestones. Fault is at foot of cliff, beyond houses, and to the right curves around mountain. Spearfish red beds in foreground, Deadwood sandstone cliffs in middle-ground, and Pahasapa limestone to right in distance.

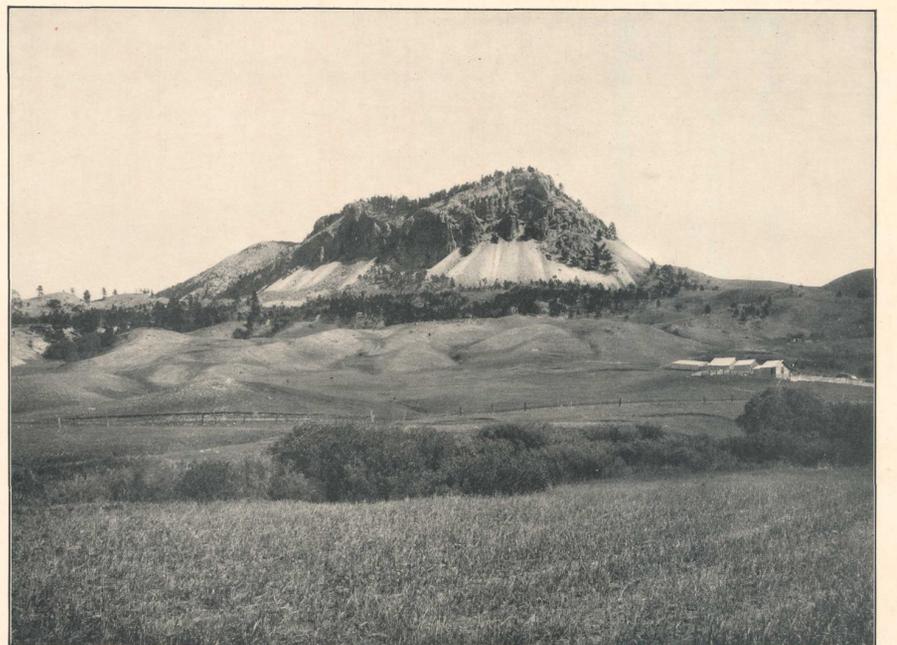


FIG. 7.—SUNDANCE MOUNTAIN.

The remnant of a laccolith lying on a platform of Sundance formation. Shows columnar to massive porphyry and characteristic talus. Spearfish red beds in foreground. Looking southwest from a point 1 mile east of Sundance.



FIG. 8.—RED BUTTE, SOUTHEAST OF SWEETWATER MOUNTAIN.

Spearfish red beds capped by a 30-foot bed of gypsum.



FIG. 9.—CHARACTERISTIC FOSSILS (A) OF NIOBRARA FORMATION AND (B) OF GREENHORN LIMESTONE.

A, *Ostrea congesta*; B, *Inoceramus labiatus*.