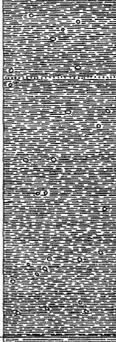


# COLUMNAR SECTION

GENERALIZED SECTION FOR THE BALD MOUNTAIN AND DAYTON QUADRANGLES.  
SCALE: 1 INCH=1000 FEET.

SYSTEM	SERIES	FORMATION NAME.	SYMBOL.	COLUMNAR SECTION.	THICKNESS IN FEET.	CHARACTER OF ROCKS.	CHARACTER OF TOPOGRAPHY AND SOILS.
C R E T A C E O U S	U P P E R	De Smet formation.	Kds		4000+	Gray to buff sandstones, mostly massive, and shale, partly carbonaceous, with numerous beds of lignite, in some areas more than 20 feet thick. Over wide areas the lignite near the surface has burned and converted the associated shale into clinker beds. Most of the clinker is red and resembles slag.	Low hills and ridges and wide valleys. The clinker beds often give rise to flat-topped buttes of moderate prominence. Sandy and loamy soil of moderate fertility, covered by sod.
		Kingsbury conglomerate.	Kk		0-1500	Conglomerate, composed largely of pebbles and boulders of Madison, Bighorn, and Deadwood limestone and Deadwood limestone conglomerate with intercalated sand and clay. Thick in east-central portion of Dayton quadrangle and thins out to north.	Ridges of considerable prominence. Partly covered by sod.
		Piney formation.	Kpy		2500	Sandstones and carbonaceous shale with hard sandstone concretions. Sandstones vary from buff to dark gray and brown.	Slopes and ridges of moderate elevation. Sandy soil covered by sod.
		Parkman sandstone.	Kpm		850	Fine-grained, soft, massive, buff sandstone, with darker, hard concretions.	Low ridges. Thin, sandy soil.
		Pierre shale.	Kp		1500-3500	Gray shale with fossiliferous concretions and a few local sandstone layers.	Low hills and slopes. Clay soil, usually covered by sod.
		(Mowry shale member.) Colorado formation.	(Kcm) Kc		1050-1700	Gray shale. Dark-gray shale with lens-shaped concretions containing <i>Prionocyclus</i> and other ammonites. Fine-grained, slabby, gray sandstone and hard shale with many fish scales. Weathers light gray. Black and gray shales with oval iron-carbonate concretions and local bodies of sandstone. Dark, fissile shale, thin sandstones, and small spherical concretions.	Shale slopes, partly eroded into "badlands." Steep, narrow ridges, nearly bare of soil. Shale slopes and low buttes, often bare and partly eroded into "badlands."
		Cloverly formation.	Kcv		30-300	Massive, coarse, gray sandstone, in part conglomeratic; variegated clay.	Low hogback ridges, wooded buttes, and cliffs. Scanty soil.
		Morrison formation.	Km		100-300	Massive green to maroon shale with thin beds of gray to buff sandstone.	Slopes and low hills. Scanty barren soil.
		Sundance formation.	Jsd		250-350	Green shale and soft greenish gray sandstone with hard layers, often highly fossiliferous.	Low ridges and slopes with prominent ledges. Scanty but fertile soil.
		TRIASSIC ?	PERMIAN	Chugwater formation.	Tc		750-1200
Tensleep sandstone.	Ct				30-150	Massive, cross-bedded white to buff sandstone.	Cliffs, buttes, rocky slopes, and canyon walls. Very sandy soil.
CARBONIFEROUS	PENNSYLVANIAN	Amsden formation.	Ca		150-350	White limestone, cherty above; red sandy shale at base.	Rocky slopes, canyon walls, and rounded ridges. Soil sandy.
		Madison limestone.	Cm		1000	Massive light-colored limestone; weathers into pinnacles and caverns.  Gray limestone, mostly hard and massive but in part slabby.	Castellated canyon walls and rocky slopes. Thin, rich soil. High rocky ridges and precipitous canyon walls. Soils thin but rich.
		Bighorn limestone.	Ob		300	White limestone, in part shaly, with corals of Richmond age. Massive, buff limestone of Trenton age, lying on white sandstone.	Canyon walls and rocky buttes. Little soil.
CAMBRIAN	ACADIAN	Deadwood formation.	cd		900	Greenish shales and sandstones.  Brown sandstone, mostly coarse.	Clay soils, usually covered by sod, but treeless. Low cliffs and rocky surfaces. Scanty sandy soil.
		Granite.	gr			Red and gray granite, intersected by dikes, mostly diabase.	Rocky ridges and slopes with little soil.

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FIG. 1.—LOWER PALEOZOIC ROCKS ON GRANITE, EAST SLOPE OF BIGHORN MOUNTAINS. LOOKING SOUTH UP WOLF CREEK.  
Granite ledges in center and to right. Deadwood formation (3), overlying the granite, is capped by characteristic cliffs of Bighorn limestone (2), and this by Madison limestone (1).

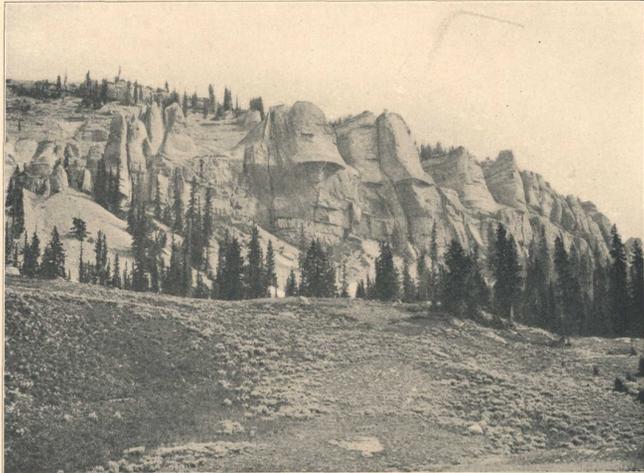


FIG. 2.—CLIFFS OF BIGHORN LIMESTONE ON NORTH SIDE OF TONGUE RIVER, EAST OF LITTLE BALD MOUNTAIN.  
Shows unusual castellated form of weathering.



FIG. 3.—FLAT-PEBBLE LIMESTONE CONGLOMERATE FROM NEAR THE TOP OF THE DEADWOOD FORMATION.

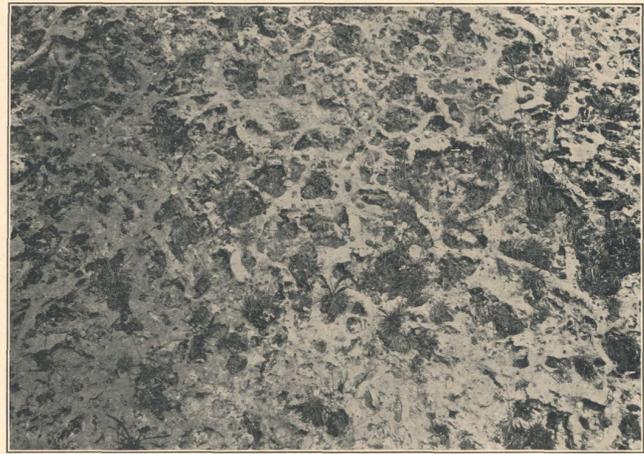


FIG. 4.—CHARACTERISTIC WEATHERED SURFACE OF BIGHORN LIMESTONE.  
The reticulated ridges are silica, the limestone between having been leached out. The area represented in the plate is about 4 by 5 feet.

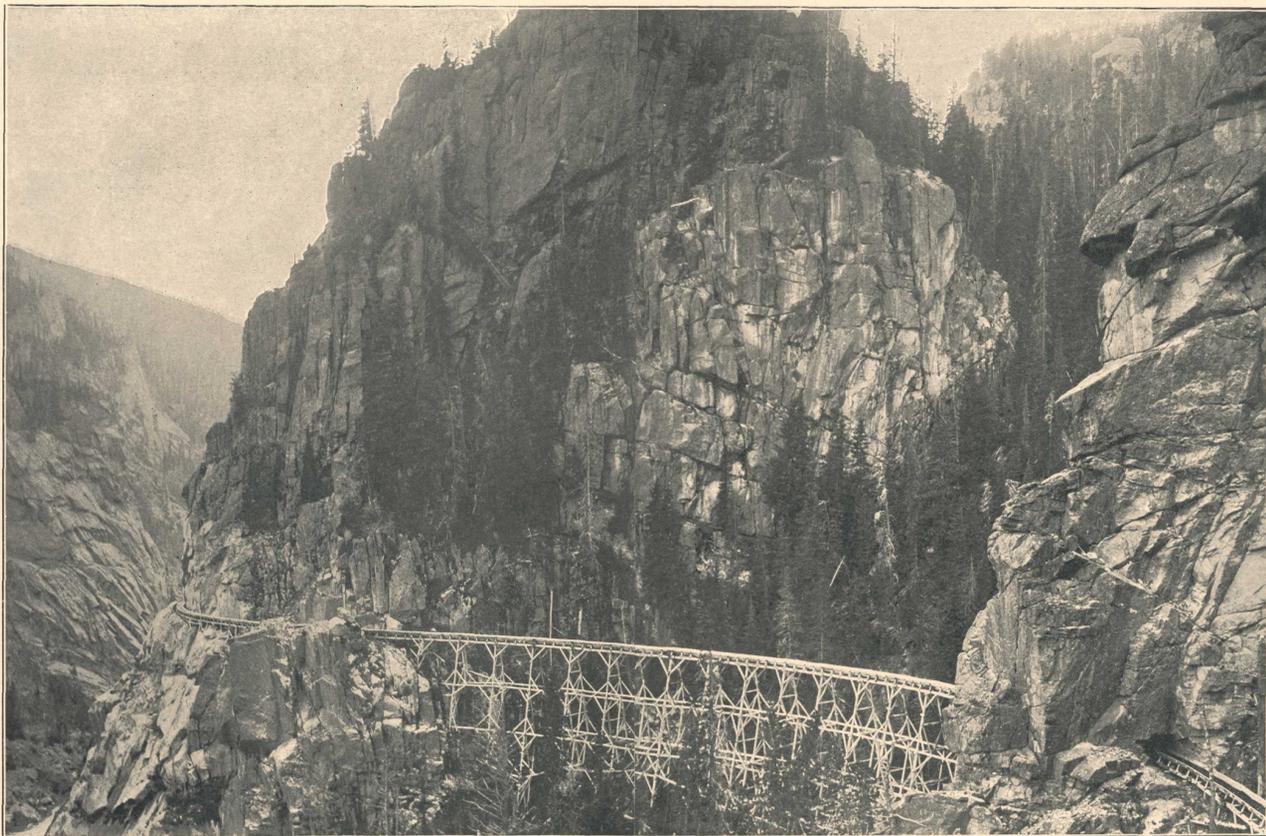


FIG. 5.—CANYON OF TONGUE RIVER CUT IN GRANITE, SOUTHWEST OF DAYTON, WYO.  
Shows extensive jointing in the gray granite and method of taking out railroad ties by flumes.



FIG. 6.—LOOKING SOUTH ALONG THE LIMESTONE FRONT RIDGE FROM NORTH SIDE OF CANYON OF LITTLE TONGUE RIVER.  
Characteristic cliffs of Bighorn limestone, underlain by Deadwood beds to the right and overlain by Madison limestone to the left. Also shows extensive area of timber killed by forest fires.



FIG. 7.—LOOKING NORTH ALONG THE LIMESTONE FRONT RIDGE OF THE BIGHORN MOUNTAINS AT HEAD OF LITTLE RAPID CREEK.  
Bighorn limestone caps the prominent ridge; Deadwood formation occupies the depression to the left, extending to the granite in the foreground. Great Plains in the distance.

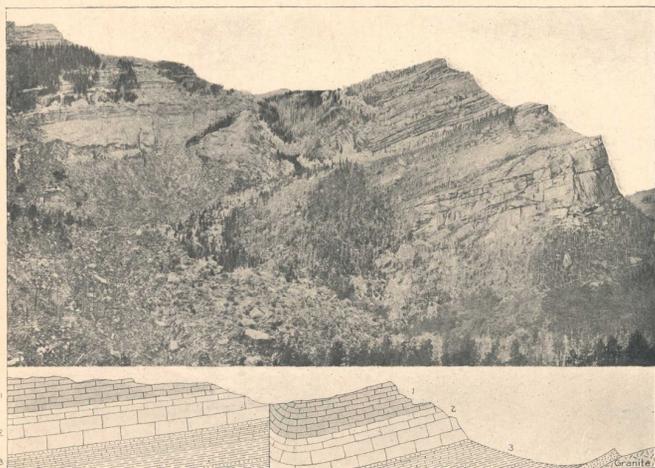


FIG. 8.—FAULT ON WOLF CREEK. LOOKING SOUTH.  
The lower cliff to the right and that at the left (2) is Bighorn limestone, and the overlying ledges (1) are Madison limestone. Lower slopes (3), Deadwood formation. The fault in the middle of the view is about 300 feet. Beds on right of fault are somewhat upturned in the displacement.

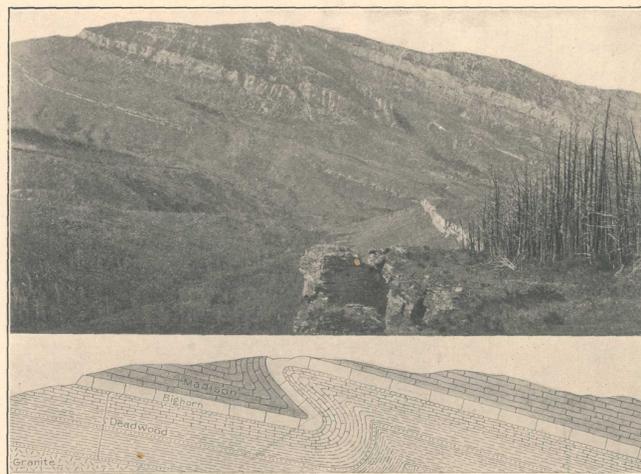


FIG. 9.—PARTIAL CROSS SECTION OF LIMESTONE FRONT RIDGE, AT WOLF CREEK. LOOKING NORTH.  
The prominent ledge of Bighorn limestone, on the left, is displaced by the sharp upward flexure near the middle of the view. Below is the Deadwood formation with a prominent medial sandstone member extending to the cliff in the foreground. In the lower slopes, to the left, is the granite.



FIG. 10.—BALD MOUNTAIN FROM THE SOUTH SIDE OF NORTH BEAVER CREEK.  
The mountain is Deadwood formation lying on a broad shelf of granite, ledges of which appear in the canyon in the foreground. The granite shelf is the uncovered peneplain on which the Cambrian sediments were deposited.

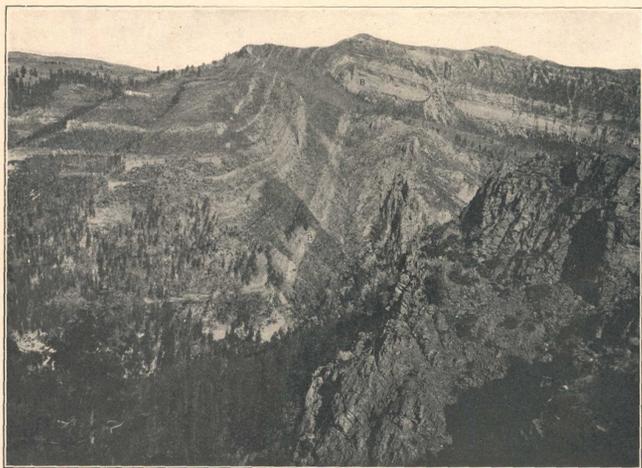


FIG. 11.—CROSS SECTION OF ANTICLINE ON LITTLE BIGHORN RIVER. LOOKING NORTH.  
The massive white ledges of Bighorn limestone (BB), rise nearly vertically in the center of picture and then, arching over the anticline, dip gently eastward. The slopes below are Deadwood formation, and beneath these appear granite ledges, which are prominent in foreground. The Bighorn limestone is overlain by Madison limestone and in the distance the overlying Amsden formation appears above.



FIG. 12.—SHARP FOLD EXPOSED IN CANYON OF NORTH BEAVER CREEK, NORTH OF CLOVERLY, WYO. LOOKING NORTH.  
Flexed beds of Bighorn and Madison limestones are exposed in the canyon, and the Madison limestone again appears in the middle distance and on the slope at the extreme left, forming a syncline. The sharp knob near the middle of the view is composed of overlying Amsden formation in the syncline.