

COLUMNAR SECTION

GENERALIZED SECTION FOR THE CLOUD PEAK AND FORT MCKINNEY 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		4000-5000	Coal measures, consisting of sandstones, mostly buff and massive, and shale, mostly carbonaceous, with numerous beds of lignite. Over wide areas the lignite near the surface has been burned and the heat has converted the associated shale into "clinker beds" resembling slag.	Rolling plains with low ridges and numerous buttes capped by "clinker beds." Soils mostly sandy and sodded.
		Kingsbury conglomerate.	Kk		0-2500	Conglomerate composed of pebbles and boulders, largely of Madison, Bighorn, and Deadwood limestone and Deadwood limestone-conglomerate separated by layers of sandstone and shale. Varies in thickness from a few feet to several thousand feet in the northern part of the area.	Ridges of considerable prominence. Partly sodded.
		Piney formation.	Kpy		1500-3500	Sandstones, varying from buff to dark gray and brown, and carbonaceous shales.	Slopes and ridges of moderate elevation. Sandy soils, mostly sodded.
		Parkman sandstone.	Kpm		400+	Fine-grained buff sandstone, mostly soft and massive, with darker, hard, sandy concretions. Shale intercalations at various horizons.	Low ridges. Thin, sandy soil.
		Pierre shale.	Kp		2000-2500	Gray shale with concretions and local sandstone layers.	Low hills and slopes. Clay soil, usually sodded.
		(Mowry member.) Colorado formation.	(K _m) Kc		1200-1500	Gray shale with lenticular concretions containing <i>Prionocyclus</i> . Fine-grained, slabby, gray sandstone and hard shale with many fish scales. Black and gray shales with oval iron-carbonate concretions and local bodies of sandstone. Dark-gray shale, with thin brown sandstones and small spherical concretions.	Shale slope, partly eroded into "badlands." Ridges of moderate prominence, usually bare. Slopes and low ridges, often bare and partly eroded into "badlands."
		Cloverly formation.	Kcv		60-100	Massive, coarse-grained, buff to gray sandstone overlain by gray, buff, and maroon clay.	Low hogback ridges and small buttes. Wooded and scant sandy soil.
		Morrison formation.	Km		150-250	Massive pale greenish-gray to maroon shale with thin gray sandstone.	Slopes and low hills. Scanty soil.
		Sundance formation.	Jsd		300-450	Green shales with hard fossiliferous layers at or near top. Soft, greenish-gray sandstone and sandy shale with hard fossiliferous layer at or near bottom.	Low ridges and slopes with prominent ledges. Scanty but fertile soil.
		TRIASSIC ?		UNCONFORMITY			
Chugwater formation.	Rc				800-1400	Soft red sandstone, in part massive, with shale partings. Red shale with two thin limestones and gypsum deposits.	Slopes, buttes, and canyons at foot of the mountains. Scanty, sterile soil.
CARBONIFEROUS	PENNSYLVANIAN	Tensleep sandstone.	Ct		100-350	Massive, cross-bedded white to buff sandstone, mostly hard.	Rocky ledges on lower slopes of the limestone front ridge.
		Amsden formation.	Ca		200-250	Limestone, cherty and sandy in upper portion. Red shale and red to brown sandstone.	Middle, outer slope of the limestone front ridge. Scanty soil.
		Madison limestone.	Cm		600-900	Massive light-colored limestone, weathering into pinnacles and caverns. Gray limestone, mostly hard, in part massive.	Higher, outer slopes of the limestone front ridge and canyon walls. Soil thin but rich. Summit of the limestone front ridge, and high canyon walls. Mostly bare rocky surfaces.
		UNCONFORMITY				White limestone and shaly limestone. Corals numerous near base. Very massive, hard, buff limestone. Surface weathers rough. Thin white sandstone.	High cliffs on inner face of the limestone front ridge, and canyon walls. Scanty soil.
ORDOVICIAN		Bighorn limestone.	Ob		300	White limestone and shaly limestone. Corals numerous near base. Very massive, hard, buff limestone. Surface weathers rough. Thin white sandstone.	High cliffs on inner face of the limestone front ridge, and canyon walls. Scanty soil.
		UNCONFORMITY				Gray slabby limestone with flat-pebble limestone conglomerate. Green shales with layers of sandstone and sandy shale. Shales and sandstone, mostly glauconitic.	Long slopes and saddles behind the limestone front ridge. Clay soil, usually sodded but treeless.
CAMBRIAN	ACADIAN	Deadwood formation.	Cd		900-1150	Green shales with layers of sandstone and sandy shale. Shales and sandstone, mostly glauconitic. Brown sandstone, largely coarse.	Long slopes and saddles behind the limestone front ridge. Clay soil, usually sodded but treeless. Low cliffs and rocky surfaces. Scanty soil.
		Granite.	gr			Granite, mostly gray, intersected by diabase and other dikes.	High ridges and mountain summits. Scanty soil.
PRE-CAMBRIAN		Granite.	gr			Granite, mostly gray, intersected by diabase and other dikes.	High ridges and mountain summits. Scanty soil.

N. H. DARTON,
Geologist.



FIG. 7.—LOW GAP IN BIGHORN DIVIDE AT HEAD OF SOUTH FORK OF SOUTH PINEY CREEK. CIRQUE NO. 54 ON MAP. LOOKING WEST.
The col is due to glacial cirques on opposite sides of the range, which have worked back until they have nearly removed the divide between them. Glacial débris has dammed up the lake in foreground.



FIG. 9.—GLACIER AT FOOT OF CLOUD PEAK, CIRQUE NO. 53 ON MAP. LOOKING SOUTHWEST.
Lake due to morainic dam in foreground; 1200-foot cliff at head of cirque.



FIG. 10.—LAKE IN GLACIATED GRANITE GORGE DUE TO DAM OF GLACIAL DRIFT, 2 MILES NORTHEAST OF WEST TENSLEEP LAKE.
Bowlder dam in foreground. Altitude, 9600 feet.



FIG. 12.—TOP OF BIGHORN MOUNTAINS AT HEAD OF CIRQUE NO. 7 ON MAP.
Shows the general smooth character of the mountain top and the abruptness of the glacial gorges.



FIG. 13.—TYPICAL GLACIAL CIRQUE, NO. 7 ON MAP, AT HEAD OF SOUTH FORK OF WEST TENSLEEP CREEK. LOOKING SOUTHEAST.
Glacial lake at base of 1500-foot cliff



FIG. 14.—HEAD OF GREAT NORTH-FACING CIRQUE, NO. 7 ON MAP, 4 MILES EAST OF WEST TENSLEEP LAKE.
Shows abrupt ending of the valley in a 1500-foot cliff.



FIG. 8.—U-SHAPED GLACIATED VALLEY OF UPPER PART OF SOUTH FORK OF SOUTH PINEY CREEK. LOOKING WEST.
Cloud Peak on right, with low col to left. Smooth, bare granite walls and floor typical of glacial valleys.



FIG. 11.—HIGHEST SUMMITS OF BIGHORN MOUNTAINS. LOOKING NORTHEAST FROM NEAR HEAD OF NORTH PRONG OF MIDDLE FORK OF PAINTROCK CREEK.
Cloud Peak to right, Blacktooth to left, with cirque No. 17 between. Large black diabase dike at the left margin of view. Lake in rock basin at the right.



FIG. 15.—LAKES INCLOSED BY MORAINES OF PAINTROCK GLACIER.
Shows irregular surface of moraine, covered with boulders. Black Butte in the distance.

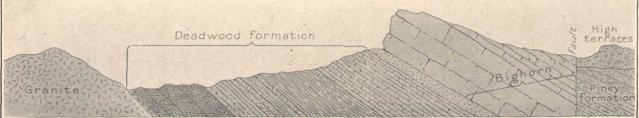
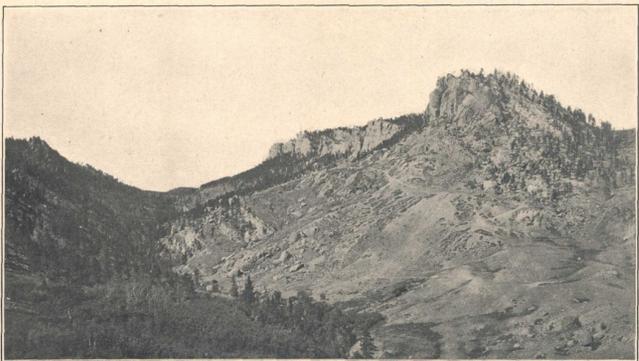


FIG. 17.—FRONT RANGE OF BIGHORN MOUNTAINS, AT JOHNSON CREEK, NORTHWEST OF BUFFALO, WYO.
LOOKING NORTHWEST.
Characteristic cliffs of Bighorn limestone to right, surmounting slopes of Deadwood shales, limestone, and sandstone. Wooded ridge to left is granite. Fault at extreme right.

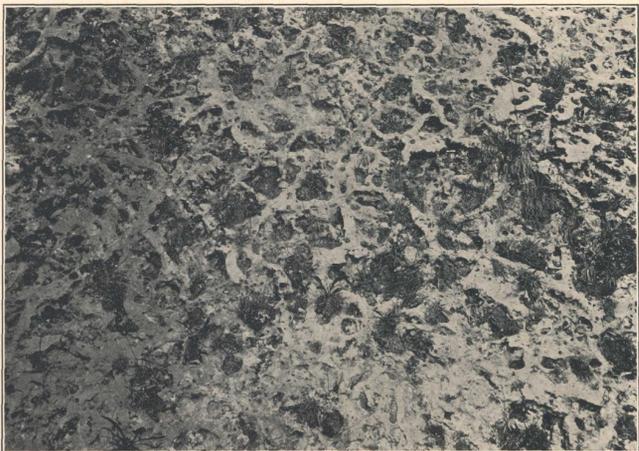


FIG. 18.—CHARACTERISTIC WEATHERED SURFACE OF BIGHORN LIMESTONE.
The projecting reticulations are due to silica, the softer limestone having been weathered out of the intervening depressions.



FIG. 20.—FLAT-PEBBLE LIMESTONE CONGLOMERATE, CHARACTERISTIC OF UPPER PORTION OF THE DEADWOOD FORMATION.



FIG. 16.—STEEP UPTURN IN THE ROCKS OF THE FRONT RANGE OF THE BIGHORN MOUNTAINS, NORTH SIDE OF NORTH FORK OF CRAZY WOMAN CREEK. LOOKING NORTH.
The thin beds in middle and at right of view are the Amsden and Tensleep formations. The massive limestone to the left and in high peak is Madison limestone.

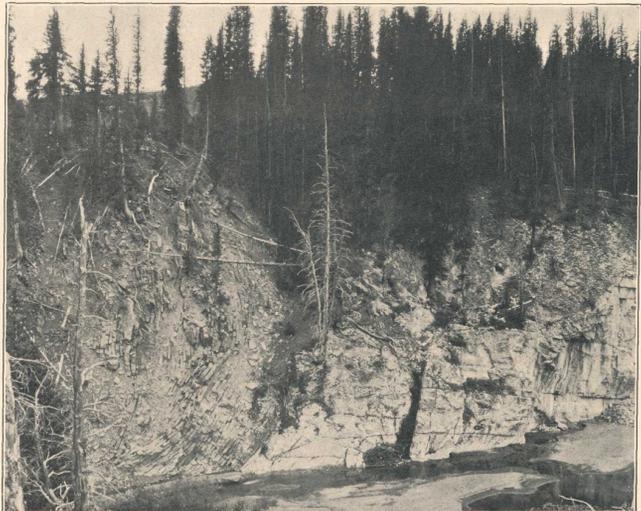


FIG. 19.—FAULT BETWEEN DEADWOOD FORMATION AND BIGHORN LIMESTONE ON TRAPPER CREEK. LOOKING SOUTH.
The Deadwood beds at the left are overturned and overthrust about 400 feet upon the Bighorn limestone at the right.



FIG. 21.—HIGH PLAIN OF LATE TERTIARY OR QUATERNARY GRAVEL AT ALTITUDE OF 8200 FEET NEAR HAZELTON, WYO. LOOKING NORTHWEST.
Bighorn Mountain divide in the background.