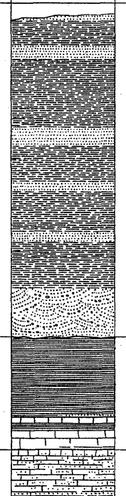
COLUMNAR SECTION

GENERALIZED SECTION OF ROCKS EXPOSED IN THE EUREKA SPRINGS AND HARRISON QUADRANGLES, ARK.

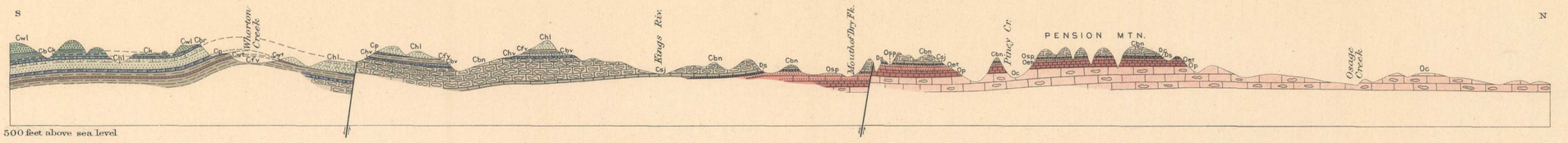
SCALE: 1 INCH=200 FEET.

System.	Series.	Formation.	Symbol.	Columnar Section.	Thickness in Feet.	Character of Rocks.	Character of Topography and Soils.
CARBONIFEROUS	PENNSYLVANIAN	Winslow formation.	Cwl		500+	Black clay shale containing sandy plates and interbedded flaggy sandstone.	Hilly upland with numerous rock outcrops; partly cultivated. Rocky and sandy red clay soil, suitable for fruit culture and grazing.
		UNCONFORMITY				Massive gray cross-bedded sandstone with white quartz pebbles.	Practically continuous bluff.
		Bloyd shale.	Cb		0–176	Black clay shale.	Uncultivated steep slopes. Poor soil, clayey, suitable for grazing.
		Kessler limestone member.	(Ck)		(0–10)	Brown and gray limestone, in part conglomeratic.	
		Brentwood limestone member.	(Cbr)		(0–30)	Compact gray fossiliferous limestone.	
		Hale formation.	Chl		80–300	Black clay shale containing sandy plates and some sandstones; brown cross-bedded calcareous sandstones; and sandy ferruginous limestone at top.	Well-rounded hills and slopes in Eureka Springs quadrangle; steep slopes in Harrison quadrangle; partly cultivated. Rich sandy soil suitable for general farming, grazing, and fruit growing.
		UNCONFORMITY					
	MISSISSIPPIAN	Pitkin limestone.	Cp		0–100	Massive gray fossiliferous limestone.	Benches and escarpments.
		UNCONFORMITY ?					
		Wedington sandstone member.	(Cwt)		(0–70)	Black clay shale.	Steep slopes.
					(0–45)	Fine-grained gray laminated sandstone, in part calcareous.	Benches and low escarpments, which show many outcrops.
		Fayetteville shale.	Cfv		10–400	Black carbonaceous fissile clay shale containing limestone and clay-ironstone concretions.	Gentle slopes cut by numerous ravines. Rocky, clayey wet soil, partly cultivated but mainly suitable for grazing.
		Batesville sandstone.	Cbv		0–100	Gray to brown calcareous even-bedded sandstone.	Benches and broad level areas. Sandy fertile soil, suitable for general farming and fruit growing.
		Hindsville limestone member.	(Chv)		(0–50)	Gray fossiliferous oolitic limestone and thin sandstone beds; chert-pebble conglomerate at base.	Rocky slopes suitable for grazing.
		UNCONFORMITY					
		Boone limestone.	Cbn		250–400	Gray fossiliferous crystalline limestone containing considerable gray fossiliferous chert.	Broad even-surfaced upland, hilly adjacent to streams; partly cultivated. Soil in upland is thin and suitable for fruit growing; in stream flats is rich and suitable for general farming. Hilly areas are rocky and suitable for grazing, fruit growing, and light farming.
		St. Joe limestone member.	(Csj)		(10–60)	Gray to pinkish crystalline fossiliferous coarse-textured limestone.	Escarpments and steep slopes.
		UNCONFORMITY					
DEVONIAN	UPPER DEVONIAN	Chattanooga shale.	Dc		0–50	Black fissile clay shale.	Gentle slopes.
		Sylamore sandstone member.	(Ds)		(0–10)	White to brown sandstone, in part pebbly and phosphatic.	Low escarpment; numerous rock exposures.
		UNCONFORMITY					
	MIDDLE DEV.	Clifty limestone.	Dcy		0–2+	Gray compact sandy limestone.	Many outcrops on slopes.
		UNCONFORMITY					
	UPPER ORDOVICIAN	Cason shale.	Ocf		0–21	Platy gray calcareous shale.	Single exposure in bluff on Little Buffalo Fork.
		UNCONFORMITY					
		Fernvale limestone.	Of		0–4+	Gray crystalline fossiliferous limestone.	Rock ledges at water's edge of Little Buffalo Fork.
		UNCONFORMITY					
		Jasper limestone.	Oj		0–60	Compact bluish-gray limestone and saccharoidal sandstone.	Slopes with numerous rock outcrops.
		? UNCONFORMITY					
		Joachim limestone.	Ojm		0–95	Dark-drab compact sandy magnesian limestone, calcareous sandstone, and a little white friable sandstone.	Steep slopes in which rock ledges are practically continuous. Scanty soil.
		St. Peter sandstone.	Osp		0–150	Massive, cross-bedded, and laminated saccharoidal sandstone.	Bluffs and steep slopes.
		UNCONFORMITY					
		Everton limestone.	Oet		0–115	Compact dove-colored limestone interbedded with friable white sandstone.	Steep slopes and bluffs.
		Kings River sandstone member.			(0–40)	White friable sandstone in massive beds.	Continuous bluffs.
		Sneeds limestone lentil.			(0–50)	Massive dark-colored sandy magnesian limestone.	Steep slopes containing rock ledges.
		UNCONFORMITY					
		Powell limestone.	Op		0–200	Light-gray to greenish-gray magnesian limestone with limestone conglomerate locally at base.	Even slopes and narrow valleys containing rock outcrops. Scanty rocky soil.
		UNCONFORMITY					
ORDOVICIAN	LOWER ORDOVICIAN	Cotter dolomite.	Oc		500+	Gray dolomite containing some chert and interbedded with a little saccharoidal sandstone and green shale.	Broad hilly areas and steep slopes showing numerous rock outcrops; partly cultivated. Rocky clay soil suitable for grazing and general farming.

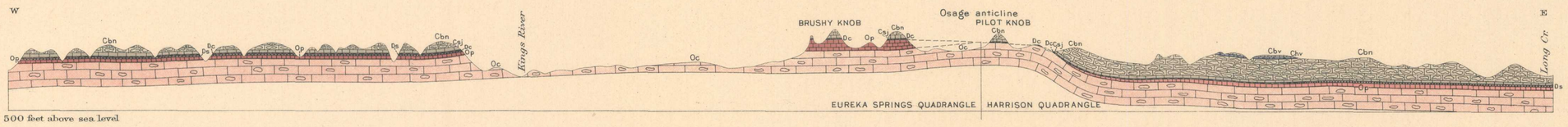
U.S. GEOLOGICAL SURVEY
GEORGE OTIS SMITH, DIRECTOR

STRUCTURE SECTIONS

ARKANSAS-MISSOURI
EUREKA SPRINGS AND
HARRISON QUADRANGLES



SECTION A-A



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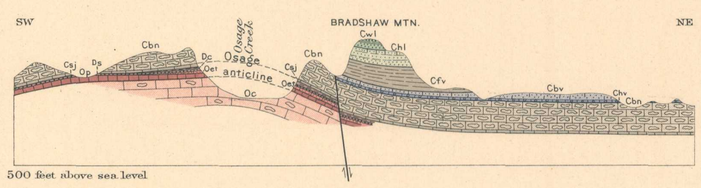

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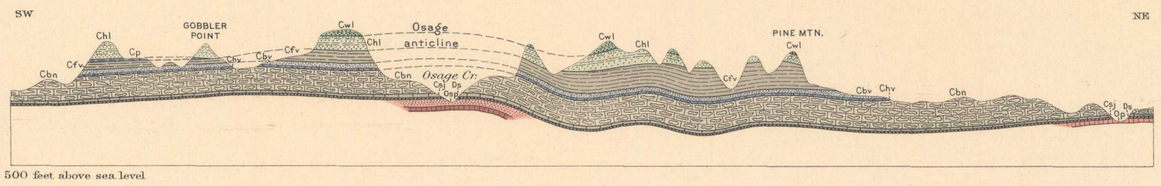

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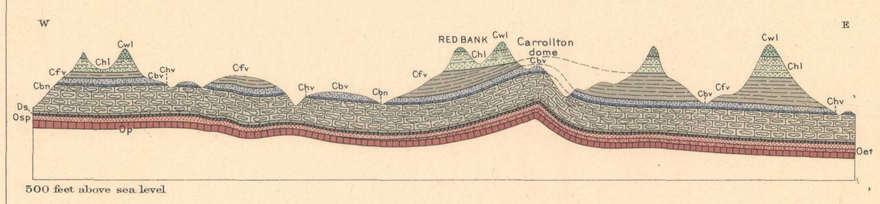

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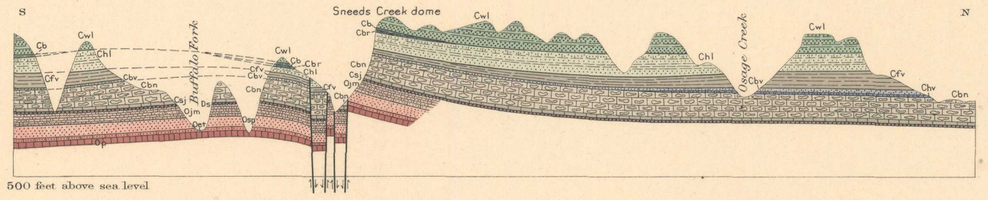

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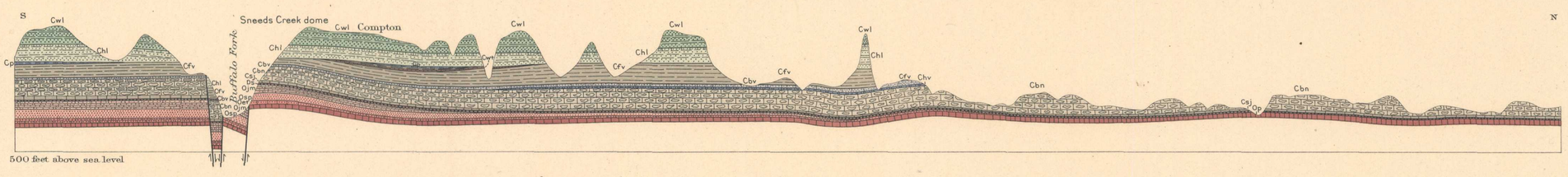

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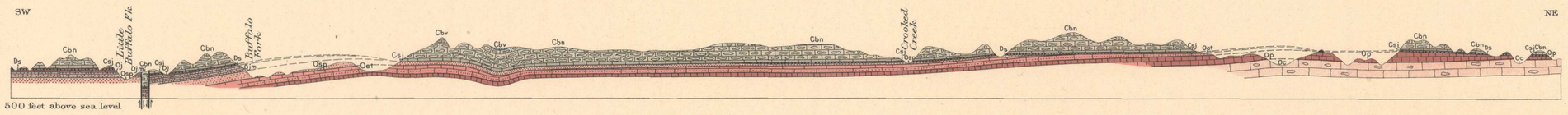


SECTION H-H

LEGEND

Pennsylvanian series

Cwl — Winslow formation (black platy shale and thin-bedded and massive sandstones)

UNCONFORMITY

Morrow group

Cb — Bloyd shale with Brentwood, Cbr, and Kessler, Ck, limestone members (black clay shale with thin fossiliferous gray limestone beds)

Chl — Hale formation (black platy clay shale and brown calcareous sandstone with limestone lenses)

UNCONFORMITY

Mississippian series

Cp — Pitkin limestone (massive gray fossiliferous limestone)

Cfv — Fayetteville shale with Wedington sandstone member, Cwt (black fissile shale with limestone concretions and fine-grained gray sandstone near top)

Cbv — Batesville sandstone with Hindsville limestone member, Chv (gray to brown, in part calcareous, even-bedded sandstone with gray oolitic fossiliferous limestone at base)

UNCONFORMITY

Cbn — Boone limestone with St. Joe limestone member, Csj (fossiliferous gray chert and crystalline limestone with gray to pink coarsely crystalline limestone at base)

UNCONFORMITY

CARBONIFEROUS

DEVONIAN

Dc — Chattanooga shale with Sylamore sandstone member, Ds (black fissile clay shale and white to rusty sandstone, in part pebbly and phosphatic)

UNCONFORMITY

Does not occur on sections — Clifty limestone (gray compact sandy limestone)

UNCONFORMITY

ORDOVICIAN

Do not occur on sections — Cason shale and Fernvale limestone (gray platy calcareous shale and gray crystalline fossiliferous limestone, near Jasper only)

UNCONFORMITY

Oj — Jasper limestone (bluish-gray compact limestone)

UNCONFORMITY ?

Ojm — Joachim limestone (dark-drab compact sandy magnesian limestone)

Osp — St. Peter sandstone (massive saccharoidal sandstone)

UNCONFORMITY

Oet — Everton limestone (dove-colored compact limestone and friable white sandstone)

UNCONFORMITY

Op — Powell limestone (greenish-gray to light-gray magnesian limestone)

UNCONFORMITY

Oc — Cotter dolomite (gray dolomite, containing banded nodular chert and thin beds of saccharoidal sandstone)

Faults

Horizontal scale

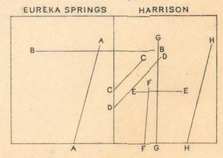
1 ½ 0 1 2 3 4 5 Miles

Vertical scale: 1 inch = approximately 1500 feet.

Edition of Oct. 1914.

Geology by A. H. Purdue, assisted by H. D. Miser, R. D. Mesler and Storer Leverett.
Surveyed in 1903 to 1910.

Position of sections



ILLUSTRATIONS

PLATE I.—TOPOGRAPHY OF BOSTON MOUNTAINS. VIEW LOOKING SOUTHWEST FROM NORTH BLUFF OF BUFFALO FORK OF WHITE RIVER, 1¾ MILES EAST OF MOUTH OF SNEEDS CREEK.

St. Peter sandstone caps bluffs in right foreground. Pennsylvanian formations cap summits of the high hills in center and left distance, and Mississippian formations are exposed on their upper slopes. Photograph by W. N. Gladson.

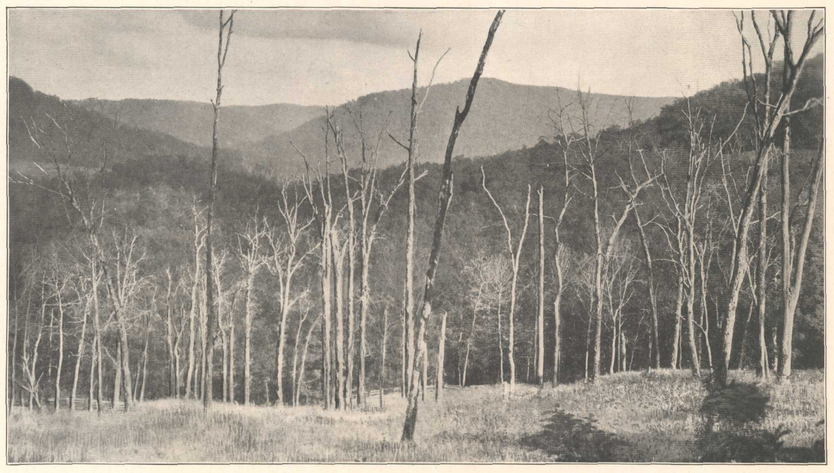


PLATE II.—TOPOGRAPHY OF BOSTON MOUNTAINS. VIEW LOOKING SOUTHEAST UP VALLEY OF LITTLE BUFFALO FORK OF WHITE RIVER FROM A POINT NEAR JASPER.

Pennsylvanian formations cap summits of hills, and Mississippian formations are exposed on their lower slopes. Photograph by J. C. Branner.

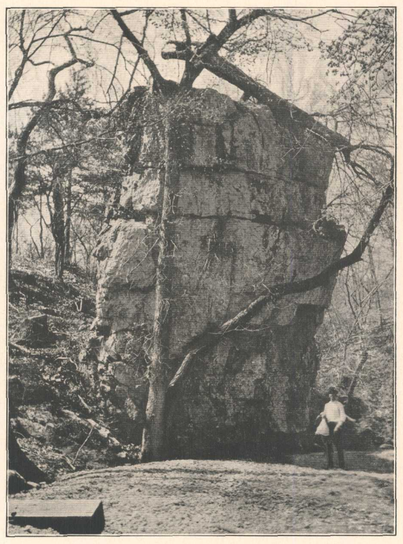


PLATE III.—SANDSTONE IN POWELL LIMESTONE NEAR MOUTH OF VENTRIS HOLLOW IN WESTERN PART OF EUREKA SPRINGS QUADRANGLE.

An isolated mass, left by erosion of inclosing limestone, which represents a deposit that filled a cave or sink hole in Powell limestone. Photograph by K. F. Mather.

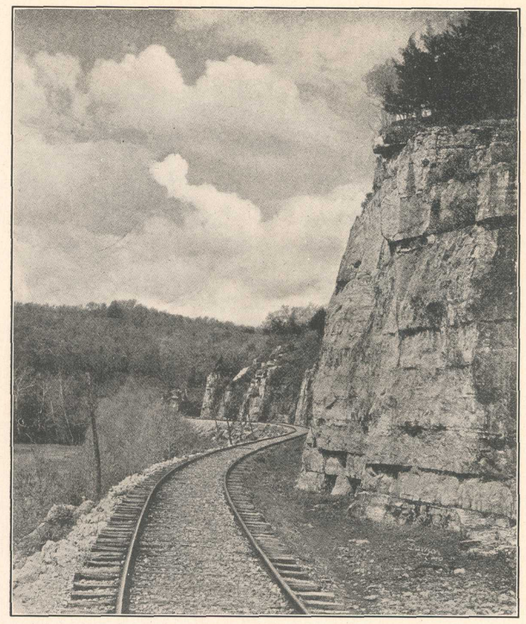


PLATE IV.—COTTER DOLOMITE IN CUT OF MISSOURI & NORTH ARKANSAS RAILROAD AT THE NARROWS, JUST EAST OF BEAVER.

Photograph by J. C. Branner.

PLATE VI.—ST. PETER SANDSTONE IN BLUFF ON WEST SIDE OF BUFFALO FORK OF WHITE RIVER, ONE-FOURTH MILE NORTH OF MOUTH OF ADDS CREEK.

View looking south. The sandstone dips gently to the left, upstream. Photograph by J. C. Branner.

PLATE VII.—THIN-BEDDED ST. JOE LIMESTONE MEMBER OF BOONE LIMESTONE IN MARKLE HOLLOW, EAST OF HARRISON QUADRANGLE.

Photograph by G. I. Adams.

PLATE V.—ST. PETER SANDSTONE CAPPING NORTH BLUFF OF BUFFALO FORK OF WHITE RIVER, 1 MILE EAST OF MOUTH OF COVE CREEK.

St. Peter sandstone, 80 feet thick, is underlain by 90 feet of Everton limestone. Photograph by W. N. Gladson.

PLATE VIII.—UNCONFORMITY WITHIN BOONE LIMESTONE IN BLUFF ONE-HALF MILE WEST OF WAR EAGLE POST OFFICE.

Unconformity possibly represents submarine erosion of earlier deposits of the Boone overlapped by later deposits of the Boone. A few feet of thin-bedded limestone of the St. Joe member at base is overlain by about 90 feet of limestone and chert which contain a Fern Glen fauna; cherty limestone above the unconformity. Photograph by E. O. Ulrich.

PLATE IX.—SOLUTION VALLEY IN BOONE LIMESTONE, TYPICAL OF THE FORMATION IN THIS AREA.

Residual masses of white chert from the formation strew the surface.