



Point of Rocks in Morton County
Photo courtesy of John Charlton

GEOLOGY

of the Santa Fe Trail through Kansas (following US Highway 56)



Wagon wheel ruts marker at Black Jack

Westward Ho! is the cry of the wagon master as we leave Westport Landing (now part of Kansas City, Missouri) on our trek west to Santa Fe. Summers on the trail will be unbearably hot under the blazing sun and the winters will be freezing cold with possible blizzard conditions. The 800-mile trail is arduous and dangerous, but the rewards of a successful journey are worth the risk. Our trip across Kansas will not be as difficult today with all the modern amenities as we trace the way West where fortunately the trail is well marked, not by wagon ruts and debris of previous travelers, but by the Kansas Highway Department, Daughters of the American Revolution, Boy Scouts, State Historical Society, and local clubs and private citizens.

The trail starts on the floodplain of the Missouri River as we disembark the river boat at Westport and ascend up the bluffs to higher ground and proceed south to meet the overland trail from Independence.

Once we are away from the influence of the river, the land flattens out to rolling hills and the going is easier. Our first decision is whether to take the Olathe cutoff, which will save some miles and time, or continue on about 10 miles south to the main trail; either way we stay on high ground.

We start in Kansas on present-day US Highway 56 which parallels the trail across most of Kansas. This part of the trail is close to Interstate 35/US 56 and we proceed south and southwest exiting on old US 56 and make our way toward Gardner. From the Overland Park area to west of Edgerton we are crossing the poorly exposed Pennsylvanian-age Lansing Group of alternating limestones and clastics which are prolific oil producers farther west in central Kansas where these units occur in the subsurface. In the central and western part of Kansas you will see many pumpjacks in the numerous oil fields along the trail. Just west of Gardner is the junction of the main Santa Fe/Oregon Trail and the Olathe cutoff and not far past Gardner the trails split. The Oregon Trail goes north toward Eudora through Lawrence and on into Nebraska, but we are committed to Santa Fe. Not



Santa Fe Trail roadside marker

far past of this junction is the historic Lanesfield schoolhouse where the trail crossed just in front of the school. Six miles west of Edgerton at Black Jack we can see wagon wheel ruts, which have been preserved in a natural prairie grass reserve. West of Baldwin we begin crossing a series of low

West of Dodge are more wagon ruts noted by a roadside monument. At Ingalls, the trailmaster had to make a decision of whether to go overland (the dry) route southwest to the Cimarron River or continue following the Ark to Fort Bent and then south along the mountain front to Santa Fe via the mountain (wet) route. If the weather permitted, the overland route was preferred because it was shorter and quicker. Along this 'dry' shortcut or cutoff were known waterholes at Wagon Bed Springs (Lower Spring) and Middle Spring where the travelers could get freshwater. On the high ground of the cutoff you can 'see forever.' Along the way you will see many 'christmas trees' which mark wells in the large Hugoton Gas Field and where much of the area now is part of the Cimarron Grasslands. The Trail then follows the Cimarron River Valley by the Point-of-Rocks, another landmark along the way, into Oklahoma and on to Santa Fe. We hope you have enjoyed your adventure across Kansas and the historic Santa Fe Trail and wish you good traveling and come back to Kansas soon!



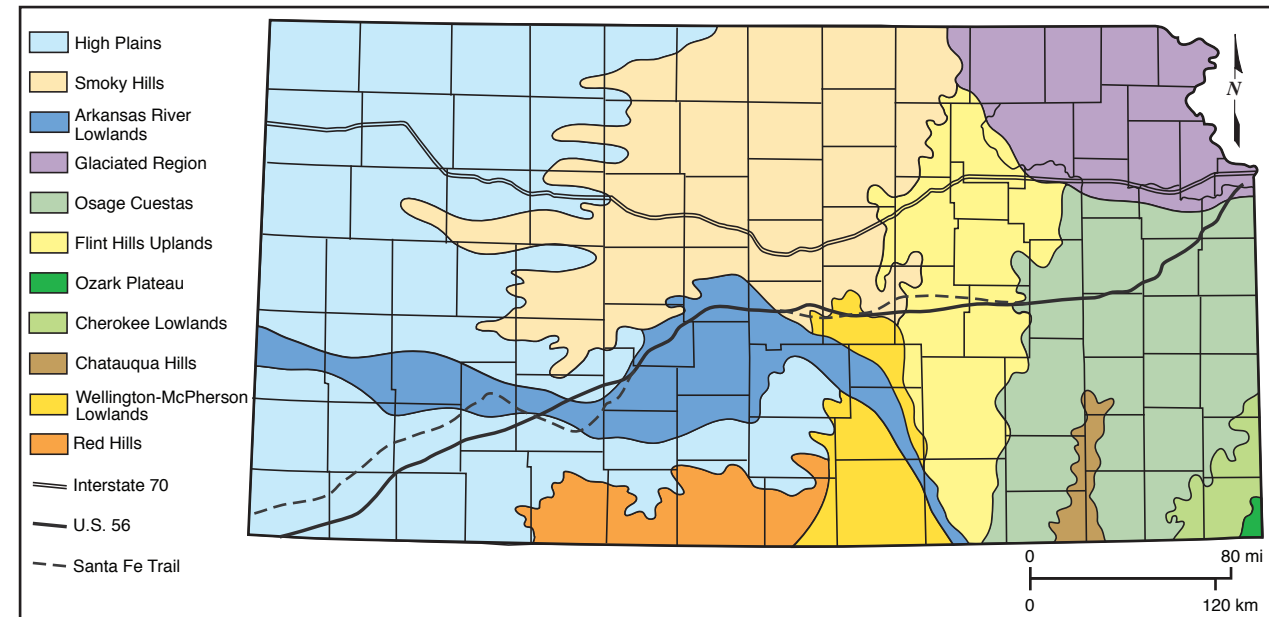
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Text and Photographs by Dan Merriam University of Kansas



Physiographic map of Kansas (courtesy of the Kansas Geological Survey)

The cuestas are formed by gently westward dipping resistant thin limestones which are separated by thicker and softer mostly shale units of younger and younger units as we go west.

We continue along US 56 to Overbrook and Scranton. To the north of Overbrook are abandoned coal strip mines now largely overgrown with vegetation. In the vicinity of Scranton we can see a few mine tips of material from the abandoned underground coal mines. The coal was mined until the 1950s, but nothing was there when the wagon trains passed the area at the rate of 20 miles per day on very good days; wagons were pulled by teams of mules or horses or oxen. We continue on US 56, which is just south of the trail, until the highway crosses it just east of Council Grove. It is here near Allen and Bushong that we leave the Osage Cuestas and enter the younger and thicker chert-rich Permian limestones of the Flint Hills. In the highway roadcuts you can see the thin, whitish chert (=flint) beds interbedded with the limestone. These hard limestone beds form benches giving the country a stairstep profile, famous for the short and long bluestem grasses that form the vast rangeland for today's cattle and where the buffalo and deer use to play. Council Grove was the 'jumping off' place for Santa Fe. Mail was left here for wagon trains passing in the opposite direction to deliver back 'home;' it was here that some decided the trip was too demanding and turned back.

Council Grove is a historic town. Take time to see the sights here and savor the flavor of the 'olden days.' The country flattens out as we go on west down the back side of the Flint Hills and the trail heads for Diamond Springs and Lost Springs, famous Santa Fe Trail watering holes, but we will stay on US 56. The trail continues across the rather subdued country to Tampa and Durham on soft Permian shales. A few miles east of Canton just after crossing some Lower Cretaceous sediments, the trail crosses US 56 again and then down onto the flat, featureless McPherson Lowland, a complex of river and lake sediments of Pleistocene and Recent age starting at the

KANSAS GEOLOGICAL TIMETABLE
(NOT SCALED FOR GEOLOGIC TIME OR THICKNESS OF DEPOSITS)

ERAS	PERIODS	EPOCHS	EST. LENGTH (YEARS)*	DESCRIPTION
CENOZOIC	QUATERNARY	HOLOCENE	10,000+	Mostly glacial debris in the northeastern part of the state left by retreating glaciers
		PLEISTOCENE	1,790,000	
	TERTIARY	PLIOCENE	3,500,000	
		MIOCENE	18,500,000	
MESOZOIC	CRETACEOUS	OLIGOCENE	9,800,000	Western Kansas is covered by these sediments many derived from the Rocky Mountains to the west.
		EOCENE	21,100,000	
	JURASSIC	PALEOCENE	10,200,000	
		TRIASIC	42,500,000	
		JURASSIC	63,700,000	
PALEOZOIC	PERMIAN		41,800,000	Thick marine limestones, cherts and shales, covering the western one-half of the state.
			33,000,000	
	PENNSYLVANIAN		33,000,000	Repeated layers of limestone, shale, and sandstone indicating the rise and fall of sea level.
			31,000,000	
	MISSISSIPPIAN		31,000,000	Alternating layers of limestone, shale and sandstone; outcrop in extreme southeastern Kansas.
			63,000,000	
	DEVONIAN		63,000,000	Seas covered Kansas again.
		26,000,000		
SILURIAN		26,000,000	Land was uplifted and eroded.	
		52,000,000		
ORDOVICIAN		52,000,000	Seas covered Kansas for part of the time.	
		50,000,000		
CAMBRIAN		50,000,000	First rocks with fossils deposited in an old sea.	
		4,055,000,000		
PRECAMBRIAN			4,055,000,000	Oldest rocks on Earth mostly igneous and metamorphic.

MILLION YEARS PAST

(modified from Kansas Geological Survey timetable)



Pawnee Rock, (Photo courtesy John Charlton, KGS)

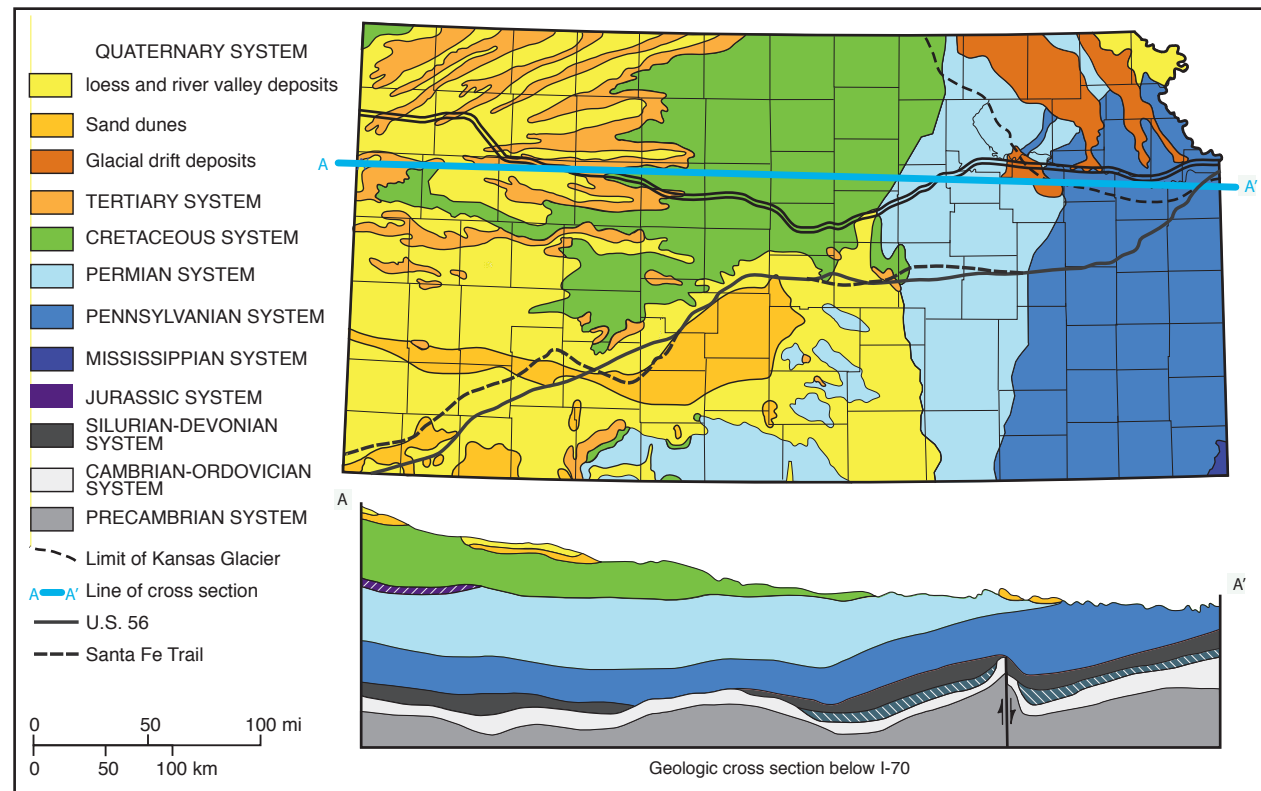
Marion/McPherson County line. Much of Wichita's water supply comes from wells in some of these aquifers known as the Equus beds. Although the trail turns south and parallels US 81 for a short distance almost to Inman and then turns west, we stay on US 56 where we pick up the trail again at Lyons.

Lyons is famous for being the farthest north that Coronado's expedition reached looking for the fabled seven cities of Cibola in the 1500s. A large cross west of town marks the place and honors Father Padilla, the accompanying priest on this Spanish expedition. The trail, which in many places follows old Indian trails or animal migration paths, is marked near the headframe of the Lyons salt mine and then continues west paralleling US 56 to Great Bend. Near Chase we cross a recent sand dune field of material blown out of the adjacent Arkansas (Ark) River Valley. The trail continues from Great Bend southwestwardly on the north side of the river passing the famous Pawnee Rock, a prominent marker of Cretaceous Dakota Sandstone, on through Larned to Kinsley. Again, depending on weather conditions, the 'dry route' in the soft-sediment river bottom could be followed, if it was dry, or the 'wet route' taken on the more firm higher ground, if wet conditions prevailed.

From Kinsley the trail follows the Ark to Dodge City, the famous frontier town of some notoriety, where we join US 56 again.



Wagon Wheel Ruts near Dodge City. (Photo courtesy William Johnson, KU)



Geologic map of Kansas (courtesy of the Kansas Geological Survey)