

Water of the Most Excellent Kind

Historic Springs in Kansas

by Rex Buchanan, Robert Sawin, and Wayne Lebsack

When author William Least Heat-Moon wrote about the Kansas Flint Hills in the 1991 nonfiction book *PrairyErth*, some of his strongest language was reserved for a discussion of Diamond Spring. This Morris County location was a well-known stop on the Santa Fe Trail's route through Kansas, and Heat-Moon found it funneled into a tank for watering livestock. "To turn the Diamond of the Plain into a stock tank," he wrote, after a visit to the modern-day site, "is the damndest thing I've yet seen here."¹ In some ways, it is a little surprising that a spring, and its current use and treatment by landowners, would inspire such heartfelt reaction. Yet Heat-Moon's

Rex Buchanan is associate director for public outreach at the Kansas Geological Survey at the University of Kansas. He earned a master's degree in history of science and a master's in journalism from the University of Wisconsin–Madison. He is co-author of *Roadside Kansas: A Traveler's Guide to its Geology and Landmarks* and editor of *Kansas Geology: An Introduction to Landscapes, Rocks, Minerals, and Fossils*, both published by the University Press of Kansas. Robert S. Sawin received his undergraduate and graduate degrees in geology from Kansas State University and is a research associate at the Kansas Geological Survey. His most recent publication on Kansas springs is entitled *Flint Hills Springs* (1999). Wayne Lebsack is an independent geologist from Lyons, Kansas, and president of Lebsack Oil Production, Inc. He has a master's degree in geological engineering from Colorado School of Mines. He is a current member and former president of the board of trustees of the Kansas Chapter of The Nature Conservancy and co-authored an article on Flint Hills springs, published in the *Transactions of the Kansas Academy of Science* in 1999.

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1. William Least Heat-Moon, *PrairyErth: A Deep Map* (Boston: Houghton Mifflin, 1991), 464.





Alcove Spring, Marshall County, a well-known stopping point on the Oregon Trail.

response is indicative of the increasing recognition of the role of the natural landscape in general, and water in particular, in understanding the history of a region. This increased recognition is particularly noteworthy in the American West, where aridity is among the region's most important defining characteristics. A generation of scholars and writers have come to appreciate the role of water in the history of western states.²

Water is, of course, a broad and complex topic, and the issues related to water can be better understood when they are divided into components, such as water quantity and water quality. Water resources also can be defined and studied by location, as they are in the case of groundwater (water found underground, in the pore space between rock particles) and surface water (water at the earth's surface in the form of lakes and streams). While these definitions help people think about and understand water, they also encourage people to think of water in terms of discrete entities, such as groundwater and surface water. Water scientists, however, have come to recognize the important connections between groundwater and surface water and have tried to begin thinking of them in terms of one entity instead of two separate ones.³ In short, for the sake of understanding water resource issues, it is useful to reduce the hydrologic features into their components but to remember that they are strongly connected. Among the most important components of the hydrologic system are springs, in part because of the information that springs provide about groundwater and the health of the hydrologic system, in part because of their role as a water resource, and in part because springs serve as a location where human history and natural history intersect.

In Kansas, where water often is a scarce and exceedingly valuable natural resource, springs are even more important. Springs have long provided crucial habitat for plants and animals. They have attracted Native peoples.

2. See Donald Worster, *Rivers of Empire: Water Aridity and the Growth of the American West* (New York: Pantheon Books, 1985); Marc Reisner, *Cadillac Desert: The American West and Its Disappearing Water* (New York: Viking Penguin, 1986); David E. Kromm and Stephen E. White, ed. *Groundwater Exploitation in the High Plains* (Lawrence: University Press of Kansas, 1992); John Opie, *Ogallala: Water for a Dry Land* (Lincoln: University of Nebraska Press, 1993); James Earl Sherow, *Watering the Valley: Development along the High Plains Arkansas River, 1870–1950* (Lawrence: University Press of Kansas, 1990); *Kansas History: A Journal of the Central Plains* 19 (Spring 1996) (special issue devoted to water issues in Kansas).

3. See Marios Sophocleous, ed., *Perspectives on Sustainable Development of Water Resources in Kansas*, Bulletin 239 (Lawrence: Kansas Geological Survey, 1998).

They supplied water along the historic trails that cross the state. In the late 1800s many Kansas springs were used as mineral water spas and baths, creating an industry that blossomed then died a few decades later. Today, springs continue to provide water to individuals and communities. While the Kansas landscape is dotted with springs of considerable historic significance, it has undergone dramatic change, especially since European settlement began in the mid-1800s. As a component of that landscape, springs also have undergone change. Yet in spite of the importance of springs in Kansas history, the scientific and historic literature devoted to the topic is scant.

This article identifies and describes a number of historic springs in the state, focusing particularly on the changes in historic springs over time. The information here includes a discussion of the quantity of water produced (which in some cases is difficult to measure or estimate) and, when appropriate, the quality of the water (where comparison is much more easily quantified).⁴ Such scientific information is basic to understanding springs, and understanding these springs and how they have changed will improve our understanding of the role of water in the state's history and its changing place in the Kansas landscape.

This article focuses only on springs of historic interest. Literally thousands of springs are scattered across the Kansas landscape, and undoubtedly many of those have been important in the state's history. However, the number of springs that have documented historic importance is relatively small and can be grouped into four categories: those clearly visited by and used by Native Americans; those that were important stopping points along many of the historic trails across the state; those that were important or well-known mineral water resorts or spas; and those that were used for water supply, gathering places for people, or some other purpose. These groupings are not mutually exclusive; some springs fit into more than one category. This article does not cover every historic spring in the state, rather it discusses those best known and most important in Kansas history.

4. In this article, references to water quality are based on geochemical analyses performed at the Kansas Geological Survey. Samples were analyzed for only a few water characteristics that generally are indicative of water quality. The measurements did not include bacteriological analysis that would indicate whether the water was safe for drinking purposes.



Big Spring at Lake Scott in Scott County. The spring is at the base of the bluff of the Ogallala Formation.



A petroglyph carved into Dakota Formation sandstone near a Rice County spring.

along the plane where permeable rock comes into contact with less permeable rock. In addition to contact springs, other types of springs occur in the state, including pool springs, fracture springs, and others. However, most of the springs in Kansas are contact springs, as are most of the springs discussed in this article.

The first category of springs under consideration here are those associated with Native Americans, who almost certainly visited and used many of the springs across the state, although in most cases they left little evidence of their visits. Several springs used by Native Americans, and an excellent example of contact springs, occur in the Ladder Creek valley of Scott County in far western Kansas. Here groundwater moves through the Ogallala Formation, a rock layer that

includes substantial amounts of sand and gravel. This is the same formation that provides water for irrigation across much of the High Plains in western Kansas. Water moving through the Ogallala encounters less permeable shales and limestones in the Niobrara Chalk formation, then flows into Ladder Creek (also known locally as Beaver Creek), just above the lake at Scott County State Park. Nearby is El Quartejejo, established by Taoran Indians who moved out of New Mexico and away from the Spanish in the late 1600s. This small pueblo, the only known pueblo in Kansas, is probably here because of the springs that the Natives used to irrigate crops.⁶

Springs of any sort are relatively rare on the arid landscape of western Kansas. Several historic springs have now dried up with the lowering of the water table in the Ogallala Formation, primarily be-

6. S. W. Williston and H. T. Martin, "Some Pueblo Ruins in Scott County, Kansas," *Kansas Historical Collections*, 1897-1900 6 (1900): 124-30.

cause of irrigation. However, Big Spring, one of the largest springs in the Ladder Creek valley, continues to flow at about 350 gallons per minute, a rate roughly comparable to estimates made in the 1950s, making it among the most productive springs in the western third of Kansas.⁷ In addition to their historic importance, the springs in the Ladder Creek valley also are important ecologically, providing habitat for a species of riffle beetle that is only found in this location.⁸

In the Smoky Hills of central Kansas, several springs are associated with Native Americans. The most prominent outcropping rock here is sandstone of the Dakota Formation, deposited during Cretaceous times, about eighty million years ago. In Rice and Ellsworth Counties, springs are found at three locations where Native petroglyphs have been scratched on the soft red sandstones of the Dakota Formation. The springs themselves flow from the base of bluffs of Dakota sandstone, probably at the contact between a layer of sandstone and an underlying layer of clay or shale in the Dakota. These are not hugely prolific springs—in each case, flow rates are generally less than five gallons per minute—but they are reliable and water quality is generally good. While two springs have been altered during historic times, with the construction of a spring house at one spot and the insertion of a metal pipe to conduct water at the other location, both of these springs retain much of their historic nature. A third spring is the Palmer Cave location in Ellsworth County. The cave itself, a relatively short opening through a bluff of sandstone, was probably created by the action of a small spring, which may have washed away the sand and created the cave opening. The spring continues to flow at the base of the sandstone bluff. The sandstone here is heavily inscribed with Native petroglyphs and modern carvings. Unfortunately, a large reclining figure that was depicted in one glyph was destroyed in 1995 when the sandstone face of the bluff spalled off.⁹

7. Walter H. Schoewe, "The Geography of Kansas, Hydrogeography," in Kansas Academy of Science, *Transactions* 56 (1953), 146. Except where otherwise noted, current flow rates were observed by the authors. Because of the nature of spring openings, it is often very difficult to exactly measure the amount of water springs produce.

8. Leonard C. Ferrington Jr., Rathi G. Kavanaugh, Franz J. Schmidt, and Jeffrey L. Kavanaugh, *Habitat Separation Among Chironomidae (Diptera) in Big Springs*, Journal of the Kansas Entomological Society, Special Publication No. 1, April 1995: 152–65.

9. Brian O'Neill, *Kansas Rock Art* (Topeka: Kansas State Historical Society, 1981); Martin Stein, "Erosion Claims Ellsworth County Petroglyphs," *Kansas Preservation* 19 (September–October 1997): 10–11.

Probably the best-known spring in Kansas history, and the one particularly associated with Native Americans, is Waconda Spring (also known as Great Spirit Spring). This spring, on the banks of the Solomon River in Mitchell County, created a large cone of travertine, a mineral deposited by the water flowing from the spring opening. Waconda Spring is generally associated with Native activities. Archeologist Waldo Wedel reported that it was a sacred place to Pawnees, and it has yielded such artifacts as beads, weapons, and moccasins.¹⁰ In 1884 construction began on a mineral water spa and hotel at the spring, and generally continued in operation until the spring was submerged under the waters of Glen Elder Reservoir (now called Waconda Lake) in the 1960s.

Many springs are located along historic trails across the state, springs that make up our second category and for which there is a written record. These trails generally are associated with European emigration across the state, such as the Oregon Trail, or commerce with Mexico, such as the Santa Fe Trail. Before they were used during European settlement, however, these trails were traveled by Native Americans in their movement across the landscape. People and animals often follow the path of least resistance, staying along ridge tops and avoiding the ups and downs of valleys and draws. Similarly, in some areas trails provided a path from one water source to the next, following rivers, for example, or moving from one spring to another. In short, many of the state's pioneering trails have been used for centuries, simply because they represent the easiest method of moving across the landscape or because they provide access to resources such as water.

The Oregon Trail crosses a relatively small portion of Kansas, but at least three well-known springs are located along its route. Big Springs was in western Douglas County, near the Douglas County/Shawnee County line. The town of Big Springs is today at this location. However, ac-

10. Ada Swineford and John C. Frye, "Notes on Waconda or Great Spirit Spring, Mitchell County, Kansas," in Kansas Academy of Science, *Transactions* 58 (1955): 265–70. See also Waldo R. Wedel, *Central Plains Prehistory: Holocene Environments and Culture Change in the Republican River Basin* (Lincoln: University of Nebraska Press, 1986), 188; G. E. Patrick, "The Great Spirit Spring," in Kansas Academy of Science, *Transactions* 7 (1881): 22–26.

ording to local reports, the springs were largely covered over in the 1950s during the construction of Interstate-70. Small amounts of water still flow from springs along the north edge of the roadbed.

Probably less well known is another important spring on the Oregon Trail, Scott Spring, near the Pottawatomie County town of Westmoreland. Today the flow from this spring is captured in a vertical pipe; the water flows through a pipe to a tank for watering livestock, and the excess drains into a nearby creek. The spring produces ten gallons per minute and the water quality is good. A nearby park and signage describe the spring and its role along the Oregon Trail.

Another spring along the Oregon Trail has fared well. Alcove Spring is north of Blue Rapids in Marshall County. Beginning in the 1840s this was an especially well-known stopping point on the Oregon Trail, a place that travelers encountered just before crossing the Big Blue River. Perhaps the best-known visitors at Alcove Spring were the Donner Party, who were delayed there in 1846 as they waited for the Big Blue to subside. One of the members of the party, Sarah Keyes, died there and was buried nearby. George L. Curry wrote the following account of the spring at that time:

Camp up the spring branch on the right hand fork is a most beautiful spring and a fall of water of 12 feet Mr. Bryant of our party has named it the 'Alcove Spring' the water is of the most excellent kind the spring is surrounded with Ash Cotton wood & Cedar trees it is an excellent place to camp . . . I this day cut the name of the spring in the rock on Table at the top of the falls.¹¹

Alcove Spring still flows today, at about ten gallons per minute, from near the base of a rock that still bears the faint carvings of the spring's name. Nearby is a small, intermittent waterfall.¹² The spring previously was on privately

owned land but today is owned by the Alcove Spring Historical Trust and is open to visitors. Although the exact location of Sarah Keyes's grave has been lost, a marker commemorates her. Trail ruts also are visible here. While many springs across Kansas have been altered by human activities, Alcove Spring retains much of its original character.

Considerably more miles of the Santa Fe Trail crossed Kansas than of the Oregon Trail, and many historic springs in the state are associated with the Santa Fe Trail. In Douglas County, just south of Lawrence, is Willow Springs, which served as a stopping point.¹³ A series of small seeps occur where water moves out of a hillside into the West Branch of Tauy Creek. The total flow here, however, is relatively low. Trail ruts are found in the pasture east of these seeps. West of these seeps is another location where a rock-and-concrete cistern has been constructed to capture groundwater. Undoubtedly this spot also was used for water along the trail and still continues to flow, the runoff from the cistern going into a pond below.

Council Grove, in Morris County, was considered an important stopping point on the Santa Fe Trail, a place to obtain provisions and supplies before heading west. Big John Spring, located just east of present Council Grove, was named for "Big John" Walker, a member of the Sac tribe and a guide in the early days of the trail. Big John Creek and nearby Little John Creek (which should probably more accurately be called Little Big John Creek) also are named for him. Widening the roadbed on U.S. Highway 56, however, covered Big John Spring and only a small amount of water continues to seep from near the south edge of the roadway.¹⁴

West of Council Grove is one of the most famous springs on the trail, Diamond Spring, a spring that probably has been used for centuries. In 1825, in a survey of the trail, George Sibley wrote about naming Diamond Spring:

The Diamond of the Plain. This treasure was, in fact, discovered first by "Old Ben Jones," a hunter of our first party, on the 11th August, 1825. It is thus noted in my "Pencil Sketches," at the time. "This Spring gushes out from the head of a hollow in the

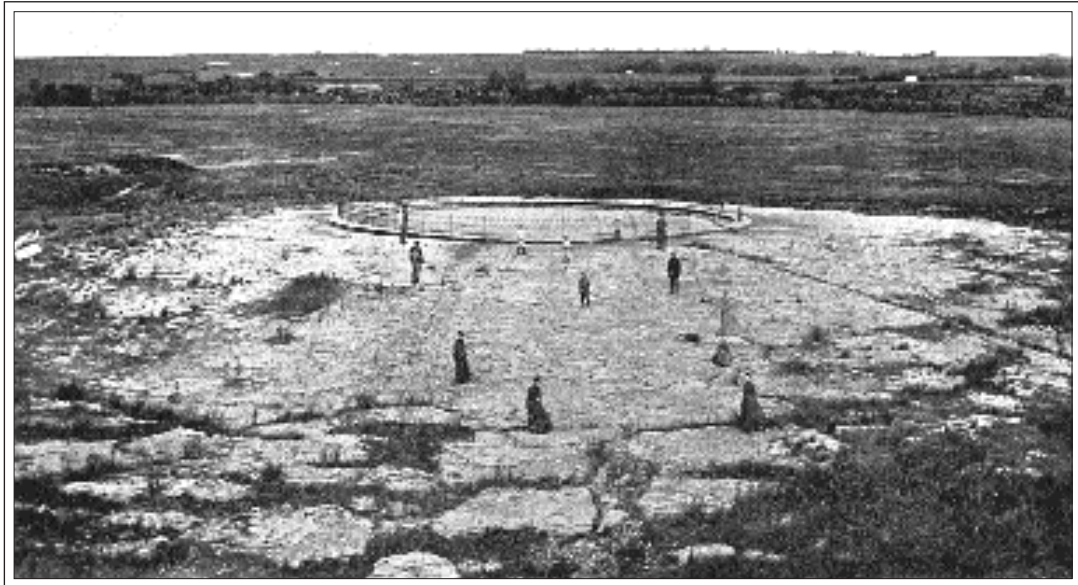
11. *St. Louis Reveille*, May 19, 1846, quote in *Overland in 1846: Diaries and Letters of the California–Oregon Trail*, 2 vols., ed. Dale Morgan (Lincoln: University of Nebraska Press, 1993), 1:545. See also William E. Smith, "The Grave of Sarah Keyes on the Oregon Trail," *Kansas Historical Quarterly* 5 (May 1936): 208–12.

12. At least one account from the 1950s reported that Alcove Spring was dry, but that account may have mistaken the waterfall for the spring. See "A Survey of Historic Sites and Structures in Kansas," *Kansas Historical Quarterly* 23 (Summer 1957): 154.

13. Dennis Domer, "Water in Willow Springs Township," *Kansas History: A Journal of the Central Plains* 19 (Spring 1996): 64–80, provides a detailed discussion of Willow Spring.

14. Don Cress, conversation with author, April 14, 1997.

prairie, and runs off boldly among clean stones into Otter Creek, a short distance—it is very clean, perfectly accessible, and furnishes the greatest abundance of most excellent, clear, cold water—enough to supply an army. There is a fountain, inferior to this, in the Arabian Desert, known as the ‘Diamond of the Desert.’ This magnificent Spring may, with at least equal propriety, be called the Diamond of the Plain. We found it a most excellent camping place. . . . The fountain is now generally known as ‘The Diamond Spring.’”¹⁵

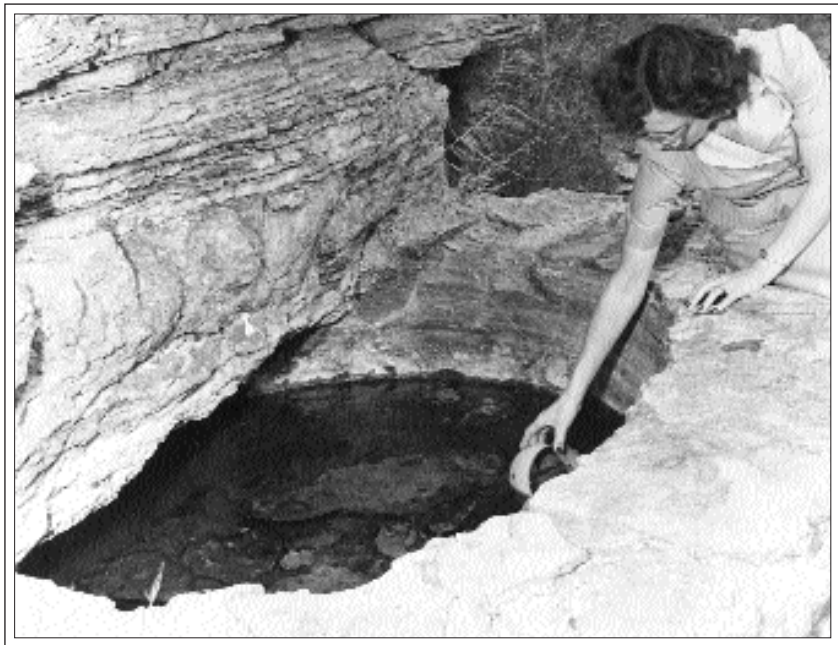


Waconda Spring, or Great Spirit Spring, probably the best known of Kansas springs, is on the banks of the Solomon River in Mitchell County. The above photo of the popular spring is from E.H.S. Bailey’s 1902 volume on Kansas mineral waters. Below is the Waconda Spring “drinking fountain,” late 1940s.

For years thereafter, travelers stopped at this location.

In 1844 James Josiah Webb wrote, we “passed Diamond spring, where we partook of mint juleps and passed a vote of thanks to the public benefactors who some years before had transported and set out some mint roots at the spring which by this time had increased to a bountiful supply for all trains passing.”¹⁶ Diamond Spring had a long and eventful history, serving as a major campground and stage station.

Today Diamond Spring is on a private ranch by the same name. Much of the flow from the spring has been captured and piped into a concrete tank for watering livestock. The spring itself still flows at substantial rates, probably around four hundred gallons per minute, roughly the same amount that its flow was estimated at a half-century ago. This is the location that upset William Least Heat-Moon, who de-

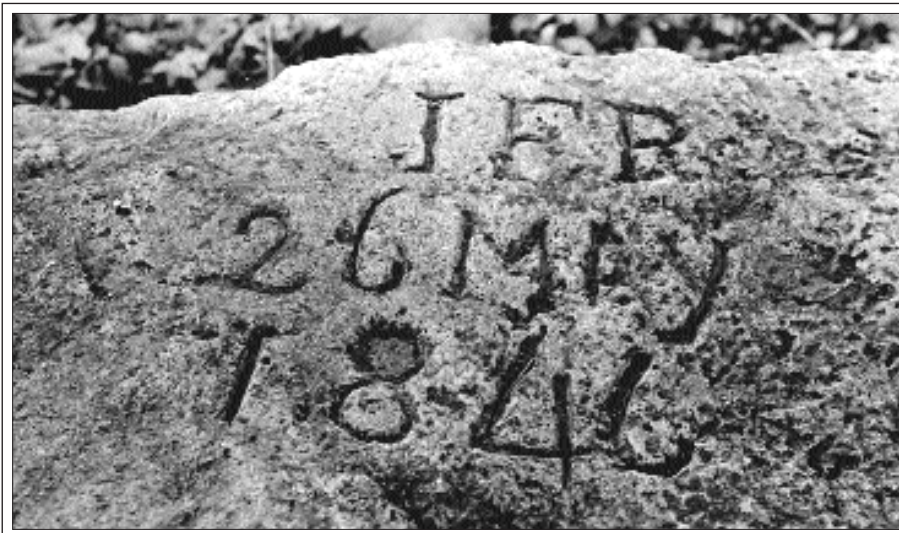


15. See *Western Journal* 5 (October 1850): 180–81.

16. James Josiah Webb, *Adventures in the Santa Fe Trade 1844, 1847*, ed. Ralph P. Bieber (Lincoln: University of Nebraska Press, 1995), 47.



Photos taken in 1927 of Alcove Spring, Marshall County, and of nearby rocks with engraved names of travelers on the Oregon Trail. Probably the most famous travelers to stop at Alcove Spring were the ill-fated Donner party in 1846.



scribed the location as follows: "A concrete stock tank sits there, only a little larger and deeper than a coffin, and water wells up at its center and drains into a brook crammed with more watercress than I've ever seen before."¹⁷

About a day's trail travel to the west of Diamond Spring is Lost Spring, a few miles west of the present town of Lost Springs. Lost Spring flows from the banks of a tributary of Cress Creek at a rate substantially below that of Diamond Spring. Lost Spring received its name for obvious reasons: it sometimes disappeared or was difficult to find. An early report said, "Continuing by the Santa Fe route, sixteen miles beyond the Diamond rivulet is Lost Spring, which receives its name from the curious fact that it has several times disappeared, and broken out near by."¹⁸ This phenomenon is not unusual; many springs are seasonal and stop flowing during dry times.

About one hundred years later, the spring apparently continued that same behavior. A newspaper report concluded that

The famous old Lost Spring is dry. One day last week, water ceased to pour from the historic water hole on the old Santa Fe Trail, an occurrence that has gone practically unnoticed by those who know this prairie fountain has been carrying-on in this mysterious way since the dawn of recorded history . . . one day a gushing spring, the next a sunken dry hole. . . . George E. Merilatt of Lost Springs, Marion county farmer and stockman, explained the spring has been dry many times before and that old settlers say it is a periodical spring, flowing abundantly for years,

17. Heat-Moon, *PrairyErth*, 464.

18. Max Greene, *The Kansas Region: Forest, Prairie, Desert, Mountain, Vale, and River* (New York: Fowler and Wells, 1856): 117–18.

then drying up for a long period of time. The strange behavior of the spring, its failing to flow then bursting forth, is one of several reasons the place is called the Lost Spring.¹⁹

Today Lost Spring seems to flow fairly consistently and the water quality is good. Flow rates are difficult to estimate because several of the springs discharge at the water level of the stream. The spring is now fenced off and a sign erected to explain its historic importance.

Compared with springs in eastern Kansas, springs in far western Kansas are rare. Wagon Bed Spring, south of Ulysses in Grant County, was an important location simply because of the lack of water along the trail on the High Plains. Wagon Bed Spring also was known as Lower Spring, one of three springs in succession in western Kansas (Middle Spring, in Morton County, is discussed later in this article. Upper Spring is in the Oklahoma Panhandle). Wagon Bed Spring, in particular, was important because it was at one end of a relatively dry stretch of the trail. Headed to Santa Fe, some travelers followed the Arkansas River much of the way, a route that promised reliable water supplies. Other travelers cut southwest at the Cimarron Crossing, a route that is referred to as the Cimarron Cutoff, the Dry Route, or La Jornada (Spanish for “the journey”). About the first fifty miles of that cutoff are relatively dry, so Wagon Bed Spring was an important source of water. Wagon Bed Spring may have been the subject of this 1858 description of water at the end of the dry route:

two or three hours’ travel the next morning brought us to some beautiful springs. The earth was frozen around them, but the springs were open, and never had water seemed to us so delicious or precious.²⁰

Wagon Bed Spring was near the banks of the Cimarron River, which, even in historic times, did not always run with water. However, at this location, digging produced water, and eventually a wagon bed was set here to keep the soil from collapsing in on the spring. It was the site of at least one historic event when Jedediah Smith became lost on the Plains near here in 1831 and was killed by Co-

manche Indians. Today the spring is dry; an approximate location is marked by a sign and fenced off. The spring was undoubtedly somewhat unreliable in historic times, but with lessening streamflows in the Cimarron River and the lowering of groundwater levels because of irrigation, the spring does not flow today.

Southwest of Wagon Bed Spring, Middle Spring continues to flow, although just barely. This spring is in the Cimarron National Grasslands of Morton County. Nearby are extensive wagon ruts from the trail and Point of Rocks, an outcrop of the Ogallala Formation that was a noted landmark on the trail. Middle Spring produces water, although at such rates that it should more properly be classified as a seep. The area is heavily vegetated with willows, cottonwoods, duckweed, and other plants, but a hiking trail makes the area accessible to visitors.

While the Santa Fe and Oregon trails are the best-known trails that cut across the state, a variety of lesser-known trails existed in Kansas. One of those, the California Trail, ran northwest from Fort Scott, through southeastern Franklin County, and included a stop at California Spring north of the small town of Lane, in Franklin County. Here the trail forded Pottawatomie Creek, a place known as Dutch Henry’s crossing. California Spring continues to flow at a trickle from near the concrete base of the bridge over Pottawatomie Creek. California Spring probably was affected by construction related to the bridge.²¹

A generally forgotten chapter of Kansas history was written when mineral water springs and spas were popular forms of entertainment, recreation, and medical treatment. People regularly flocked to these locations to swim in, soak in, and drink the waters. Such cures were popular throughout the nation in the late 1800s; the phrase “down to the last resort” refers to people visiting a number of spas in a given location, searching in vain for one that would cure their particular ailment.²² These Kansas mineral-water springs are exhaustively documented in a classic 1902 publication by the Kansas Geological Survey (known at the time as the University Geological Survey). *Special Report on Mineral Waters* was written by E.

19. “Historic ‘Lost Spring’ is Lost Again,” *Topeka State Journal*, August 25, 1956.

20. “Narrative by Hezekiah Brake, 1858,” in *On the Santa Fe Trail*, ed. Marc Simmons (Lawrence: University Press of Kansas, 1986), 48.

21. “Area Loses Track of Historic Landmarks,” *Osawatomie Graphic-News*, September 30, 1971.

22. Francis H. Chapelle, *The Hidden Sea: Ground Water, Springs, and Wells* (Tucson, Ariz.: Geoscience Press, 1997), 91.

H. S. Bailey, an early staff member of the Geological Survey who also served on the chemistry faculty at the University of Kansas and today is commemorated with Bailey Hall on the campus.²³ Bailey's book is a detailed discussion of the mineral-water springs and spas in the state, including chemical analyses for nearly all of the locations that Bailey visited and photographs of many of the springs. Given the difficult and time consuming nature of travel at the time, Bailey's work is even more impressive.

Many of the springs that Bailey visited no longer exist (or else conditions have changed so dramatically that the springs cannot be located). However, two of the best-known mineral water springs continue to produce water and continue to operate as resorts. These are Sycamore Springs and Sun Springs in Brown County in northeastern Kansas, both substantial resorts in their day. Sycamore Springs boasted a large hotel, and, like many of these springs, produced water that was bottled and shipped to customers. In a 1902 pamphlet, E.V. Kauffman, the proprietor of Sycamore Springs, wrote that the waters there had cured him of rheumatism, and in 1895 he took over operation of the hotel and baths. According to Kauffman, the spring water was the

greatest Blood Purifier and Stomach Renovator known. A sure remedy for Bladder and Kidney Diseases. It gives the skin a healthy appearance; cures Catarrh, Neuralgia, Stomach and Bowel Complaints, and is one of the best Natural Remedies known for Constipation, Indigestion and Rheumatism.

Directions

Always drink a glassful, hot, just before meals. For Constipation, drink from one to two pints just after getting up; then follow with a glassful, hot, just before eating. Never let the water boil. Keep in a cool place, tightly corked. At any time when thirsty drink plenty of it cold (about 54 its natural temperature), but not ice cold.

Remember, the way to derive the greatest benefit from the use of the water is to come and take a course of treatment at the Springs. Our rates are low, treatment safe, and to the sufferer brings relief. These wa-

ters are fast gaining prominence, and are highly recommended everywhere by physicians for the cure of Kidney Trouble and Rheumatism.²⁴

Sun Springs was developed in 1898 and included a hotel and bathhouse for giving hot and cold baths. Today water in both of these springs is fairly highly mineralized (and, as Bailey's 1902 analyses show, has been for some time), although not so significantly that it is unpleasant to drink. At Sun Springs the water is still used to, among other things, fill a swimming pool.

Evidence of resorts at some locations, however, is more rare. Chautauqua Springs is in the town of Chautauqua in Chautauqua County along the southern border of Kansas. A springhouse and a hotel were constructed in the town, neither of which are now standing. However, the spring still flows at about 2.5 gallons per minute from the remains of the bathhouse near the east edge of town.

Chingawassa Springs, originally known as Carter's Springs, is north of Marion in Marion County. This is a series of springs that drain from a stream bank directly into Clear Creek. In the 1880s a railroad spur was built from the town of Marion to the springs and a hotel was erected. In his publication, Bailey reported that the total flow of the springs was fifteen hundred gallons per minute and that at "several of these springs may be seen a white deposits of sulfur, and in others the odor of hydrogen sulfide is quite apparent."²⁵ The resort did not last long, however, and eventually the hotel and other building materials associated with the railroad were dismantled.²⁶ Measurements in 1983 showed that the springs at this location produced more than six hundred gallons of water per minute. Analysis also concluded that this water was fairly high in total dissolved solids, indicating that it is mineralized.²⁷

Springs still flow at some former resort locations, although they are no longer necessarily utilized. However, the waters at Geuda Springs in Cowley County no longer flow, and much of the evidence of the former resort here is

23. E. H. S. Bailey, *Special Report on Mineral Waters*, University Geological Survey of Kansas, vol. 7 (Topeka: State Printer, 1902). For a discussion of Bailey, see Carolyn Bailey Berneking, "Pure Food and Water for Kansans: E. H. S. Bailey, the State Food Laboratory, and the State Board of Health During the Progressive Era," *Kansas History: A Journal of the Central Plains* 20 (Spring 1997): 38-49.

24. *Sycamore Mineral Springs* (Sabetha, Kans.: 1902).

25. Bailey, *Special Report on Mineral Waters*, 177.

26. Sondra Van Meter, *Marion County, Kansas: Past and Present* (Hillsboro, Kans.: Marion County Historical Society, 1972): 9.

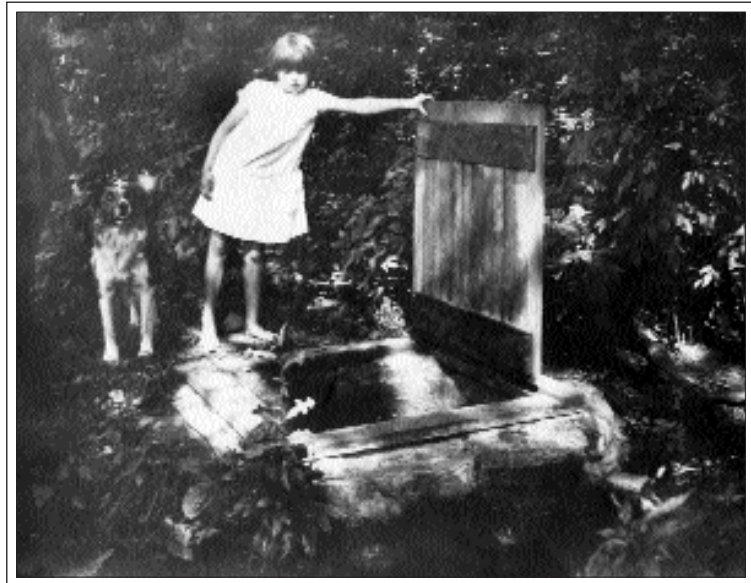
27. The source of the 1983 measurement was H. G. O'Connor and P. K. Chaffee, *Geohydrology Field Trip, Marion County, Kansas, November 18-19, 1983*, Kansas Geological Survey, Open-file Report 83-25.

gone. A series of at least seven springs flowed, and in 1886 the Geuda Springs Town and Water Company developed the property, building a bathhouse and hotel. A dam was built over one of the outlets and a lake was formed behind it. Mineralized water from the spring was bottled and sold. This resort also eventually failed, although in the 1940s attempts were made to clean out the springs and bring them back into production for bottling.²⁸

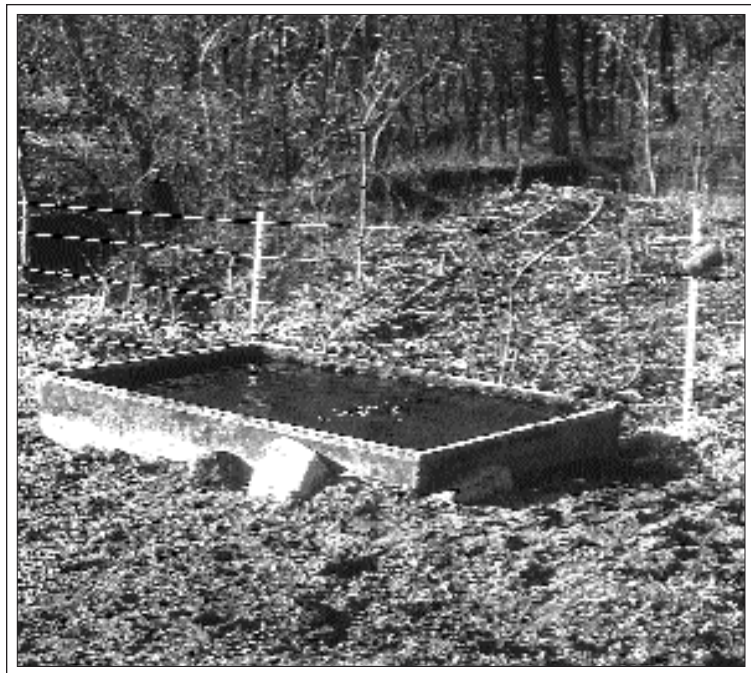
Some springs in our fourth category continue to be used for water supply. One of the most prolific springs in Kansas is Crystal Spring, north of the town of Florence in Marion County. Crystal Spring has been used for water supply for many years and continues to supply water for the town (the town's water tower advertises its product as 99.96 percent pure and is probably fairly accurate). The excess water runs into a creek and eventually into the Cottonwood River. Total production for the spring was measured in 1984 at about four thousand gallons per minute.²⁹

Rock Springs is well known because of its location at the 4-H camp of the same name in Dickinson County. The spring exits at the base of a bluff of a rock layer known as the Florence Limestone. Today the spring has been walled in with concrete and a rock face. Water pours down a concrete-lined chute and into a tributary of Lyon Creek. Schoewe reported that the spring produced about one thousand gallons of water per minute in 1953, and the spring was measured in 1998 at about the same rate.³⁰

Conway Springs is located in a town of the same name in Sumner County. The springs here originally were developed by Hiram Cranmer; a springhouse and pond were built around the springs. In the early 1900s a well was drilled nearby and the water was bottled and sold.³¹ Today a brick and concrete spring pavilion stand at the site of the springs in a park in Conway



Both are photos of Diamond Spring, west of Council Grove in Morris County, one of the most famous springs on the Santa Fe Trail. (Above) As the springs appeared in ca. 1920, and (below) as it is today with the water being captured and used for watering livestock.



28. See "Geuda Springs May Again Attain Fame," *Wichita Morning Eagle*, December 14, 1947; "With Geuda Springs Dry, Town's Health Center Fame is Memory," *Oxford Register*, July 11, 1968; Forrest Hintz, "Healing Water Can't Revive Geuda Spring," *Wichita Eagle-Beacon*, June 15, 1981; Bailey, *Special Report on Mineral Waters*, 141–43.

29. O'Connor and Chaffee, *Geohydrology Field Trip*.

30. Schoewe, "The Geography of Kansas, Hydrogeography."

31. R. H. Cline, "Hiram Cranmer Finds Springs," *Conway Springs Star*, August 5, 1976.

Springs. The spring itself still produces small amounts of water.

Over time, all of Kansas's various types of springs have undergone profound change, in much the same way that the rest of the landscape has changed. The number of relatively unchanged, pristine springs is fairly small, but there are some, such as Alcove Spring and Lost Spring. In these cases (and at Scott Spring), the springs have been fenced off and signs erected describing their history and significance. But most springs have been changed. Some, such as Big John Spring, Big Springs, and California Spring, have been altered dramatically by construction. Many were developed in one fashion or another, some turned into mineral water spas (some of which remain as resorts, such as Sycamore Springs and Sun Springs; others have reverted to something that may approach their original state, such as Chingawassa Springs). Some, such as Wagon Bed Spring, have dried up, probably at least in part because of lowered water levels in western Kansas (a phenomenon that is not limited to historic springs, by the way, but probably affects a number of springs in the High Plains). Others, such as Rock Springs and Crystal Spring, have been developed for use as water supplies but still produce substantial amounts of water, probably in amounts as large as they ever have. And finally, at least one of the historic springs, Waconda Spring, was covered by the waters of Waconda Lake.

One generalization appears to hold true for nearly all of the springs in the state, not just those deemed to have historic importance. Springs in regions such as the Smoky Hills and the Flint Hills, places where much of the landscape remains in native prairie and has not been cultivated, have retained their hydrologic character to a greater extent than those in other parts of the state where human disturbances are more pronounced.³² Crystal Spring and Rock Springs in the Flint Hills, and springs from the Dakota Formation in the Smoky Hills, are relatively healthy, hydrologically speaking. In much of the rest of the state, however, springs have been changed by a variety of activities, including construction, mining, cultivation, or the lowering of the groundwater table. Clearly, then, springs reflect much about the health of the hydrologic system.

32. Robert S. Sawin, Rex C. Buchanan, and Wayne Lebsack, "Flint Hills Springs," in Kansas Academy of Science, *Transactions* 102 (December 1999): 1–31.



Lost Spring, Marion County, received its name as it sometimes seems to disappear only to "reappear" at a later time.

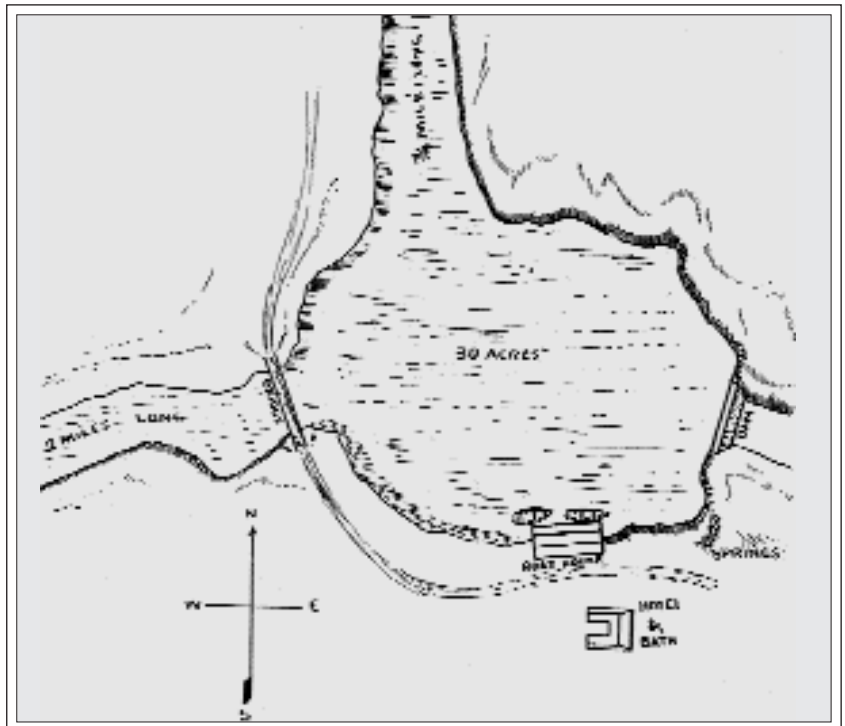
As William Least Heat-Moon has pointed out, how we treat springs also says much about Kansans as a people. Before European settlement, springs were used and even venerated by Native Americans, yet Native impact was slight and ephemeral, to the point that little evidence remains, except for a few faint carvings on the face of nearby rocks.³³ With European settlement, however, the alteration of springs became much more dramatic. New plant species, such as watercress, were introduced into spring runs. Springs were developed with pipes, bathhouses, hotels, and water tanks. Clearly these were places that were attractive but difficult to leave unchanged. By the late 1900s the number of unaltered historic springs was very small, and several were destroyed altogether.

In modern times, Kansans have approached springs in much the same way that they have approached the rest of the landscape—as something to use, something to be altered to suit our purposes, even destroyed if a more important use, like a dam or a highway, comes along. Kansans are a deeply practical people. On the Great Plains it is difficult to behave otherwise and survive. Our treatment of springs reflects that practicality. But that practicality has come with a price. We have found it difficult not to destroy or drastically change what we use.

Yet, more recent preservation activities demonstrate a nascent recognition of the important role that springs have played in the state's history. Groups and individuals are working to preserve and explain springs. Perhaps even more important, they are making these locations publicly accessible, so that people can visit and gain a hands-on appreciation of these historic spots. Through their role in human history and natural history, springs are an element of the landscape that deserves our understanding and respect. Evidence indicates that this is beginning to happen.



The hotel at Chautauqua Springs, Chautauqua County. The hotel is now gone, although the springs continue to flow.



Springs, bathhouse, and lake at Geuda Springs as seen on a map from Bailey's 1902 volume on mineral waters in Kansas. Little evidence of the springs or most of the structures remains today.

33. For a recent discussion of the interaction of Native Americans with the environment, see Shepard Krech III, *The Ecological Indian: Myth and History* (New York: Norton, 1999).