



*Nebraska History* posts materials online for your personal use. Please remember that the contents of *Nebraska History* are copyrighted by the Nebraska State Historical Society (except for materials credited to other institutions). The NSHS retains its copyrights even to materials it posts on the web.

For permission to re-use materials or for photo ordering information, please see:

<http://www.nebraskahistory.org/magazine/permission.htm>

Nebraska State Historical Society members receive four issues of *Nebraska History* and four issues of *Nebraska History News* annually. For membership information, see:

<http://nebraskahistory.org/admin/members/index.htm>

Article Title: Wood and Water: Twin Problems of the Prairie Plains

Full Citation: Edward Everett Dale, "Wood and Water: Twin Problems of the Prairie Plains," *Nebraska History* 29 (1948): 87-104

URL of article: <http://www.nebraskahistory.org/publish/publicat/history/full-text/NH1948WoodWater.pdf>

Date: 3/09/2017

Article Summary: Pioneer settlers needed timber for fuel, buildings, and fences. They had to find water for domestic use and livestock. Because supplies of wood and water were hard to obtain on the prairie plains, settlement of that land lagged until property with more abundant natural resources had become scarce.

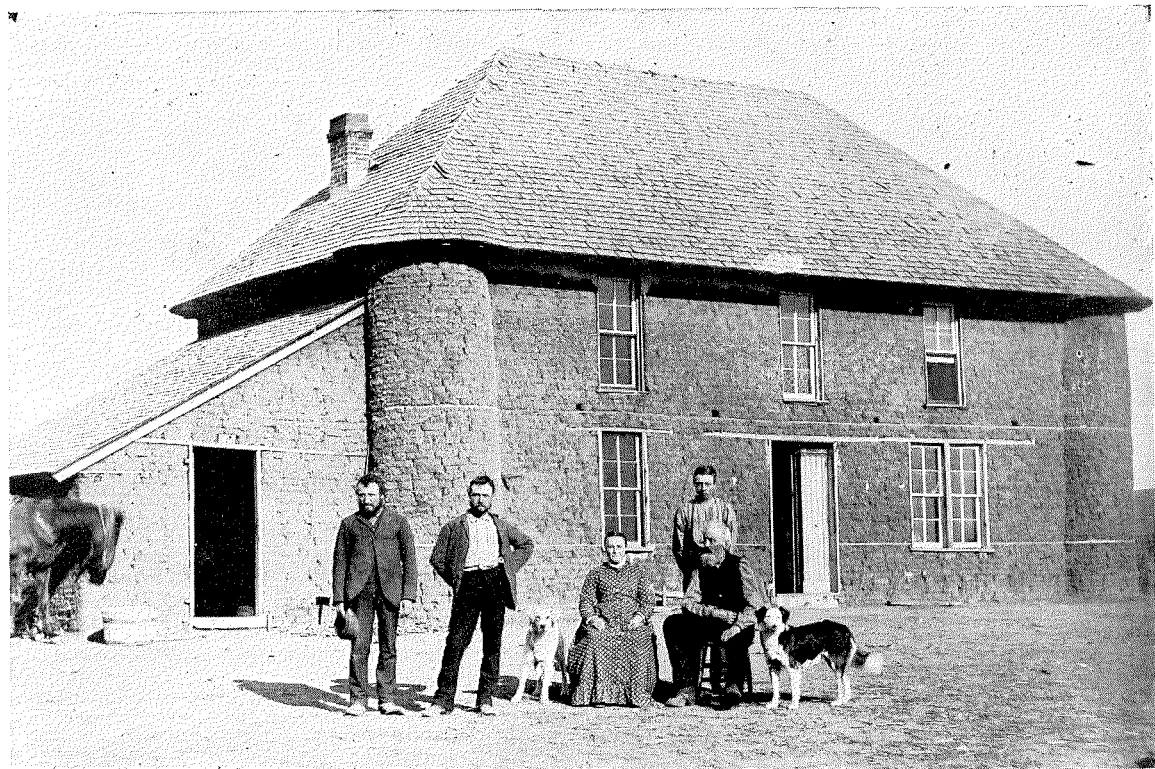
*Scroll down for complete article.*

Cataloging Information:

Names: J Sterling Morton

Keywords: mesquite, Homestead Act, railroads, Indians, sod houses, "prairie coal" (buffalo or cow chips), "hayburner" (a stove equipped to use hay as fuel), "Osage orange" (bois d'arc, used in hedges), Timber Culture Act, barbed wire, Arbor Day, wells, typhoid, oil

Photographs / Images: "The Ultimate in Sod Houses"; a sod house, Custer County, 1888



THE ULTIMATE IN SOD HOUSES

## Wood and Water: Twin Problems of the Prairie Plains

*By Edward Everett Dale*

**T**HERE is a venerable story of many variations to the effect that an old gentleman from the wooded hills of Tennessee once paid a visit to his two nephews who were ranching on the plains of western Texas. The two young men met him at the nearest railroad point with a spring wagon and camping outfit and the trio set out in the early afternoon for the ranch some seventy miles distant. A little before sundown they stopped to make camp near a windmill that stood not far from the banks of a dry, sandy arroyo which meandered across the level prairie. One of the young men took a pick axe from the wagon and began digging in the dry earth nearby from which grew a few mesquite sprouts.

Soon he had unearthed an armful of large mesquite roots, brought them to the wagon and kindled a fire. In the meantime his brother had unharnessed the horses, watered them at the big circular metal stock tank beside the windmill and staked them out to graze on the thick buffalo grass. He then seized an iron pail and hung it over the end of the iron pipe leading from the windmill to the stock tank. There was not a breath of air stirring but the young man climbed the steel ladder leading to the top of the windmill tower and turned the great wheel with his hands until a stream of fresh, clear water poured from the pipe and filled the pail. Returning to the campfire, he filled the coffee pot and began to prepare supper.

The old uncle who had been sitting on the wagon tongue watching these proceedings with a jaundiced eye but considerable interest suddenly inquired: "Is there ever any water in that creek?" "Oh, yes," was the answer, "when it

rains and for a few days or weeks afterward." "What's the name of it anyhow?" continued the old man. "Jose Creek," answered the nephew, "J-o-s-e, pronounced hosay." The old man snorted indignantly: "I don't know why you boys want to stay out here. I wouldn't live in any country where you have to climb for water and dig for wood and spell hell with a J!"

While it was only in the Southwest that the Anglo-American pioneers had to struggle with the vagaries of Spanish spelling and pronunciation, it must be confessed the the early settlers of all the prairie states from the Dakotas south to western Oklahoma and Texas found that their twin problems were always the securing of an adequate supply of wood and water. Many settlers on the Southwestern Plains for a time depended largely upon mesquite roots grubbed from the hard earth to cook their food while, unless a handle had been attached to the pump rod of a windmill, it was always necessary to climb the tower and turn the wheel by hand to pump fresh water when the wind was not blowing, though it must be admitted that this was not often.

Explorers of this region as well as the "mountain men," Indian traders, Mormons en route to Utah, gold seekers headed for California, and the emigrants to Oregon have commented upon the difficulties encountered due to the arid nature of the area and the almost complete absence of timber. W. A. Ferris journeying west for the American Fur Company in 1830 complained of the shortage of fuel as had many before him.<sup>1</sup> James Akin who went with a party from Iowa to Oregon in 1853 kept a diary in which a short entry of three or four lines was made each day. Of the thirty entries made in June when they were crossing Nebraska, twenty-four refer to fuel or water or both, indicating that these two necessities held a most important place in the minds of the emigrants.<sup>2</sup>

---

<sup>1</sup>W. A. Ferris, *Life in the Rocky Mountains*, Edited by Paul C. Phillips (Denver, 1940), p. 26.

<sup>2</sup>E. E. Dale, Editor, *The Journal of James Akin, Jr.* (Norman, Oklahoma, 1919), pp. 11-15.

To these early explorers and travelers, however, the vast prairie plains formed only a barrier to be crossed as quickly as possible to reach some predetermined destination beyond. The thought of establishing permanent homes there had never entered their heads. In fact, it was not until much later that any considerable number of people began to believe that these wide prairies would ever support a great population of agricultural settlers. For the American people who had pushed relentlessly westward ever since the early years of the seventeenth century, hesitated, for approximately a generation at the edge of the dry, treeless plains reluctant to attempt to cope with a land so unlike any which they had known in the past. It is true that there were fairly extensive prairies in portions of Ohio, Illinois, and many other states east of the Mississippi.<sup>3</sup> These, however, were comparatively small. Timber for fuel and building purposes was usually available within a few miles. Moreover, the rainfall was sufficient to mature crops virtually every year and numerous streams, springs, and ponds, together with wells, which in most cases were comparatively shallow, insured a bountiful supply of water.

This western land was very different. The level prairies stretched away for scores of miles unbroken by a single tree. Streams were few and far between and many of them were only broad strips of sand for a large part of the year even though heavy rains occasionally turned them into raging, muddy torrents. Springs were even fewer than streams and in large areas non-existent while whether or not pure water could be had by digging or drilling wells was a question that in many cases seemed likely to demand a negative answer.

It was not a reluctance to face hardships or the fear of hostile Indians which caused would-be settlers to pause at the edge of these western prairies, largely, until after

---

<sup>3</sup>Illinois was said to be seventy per cent prairie. E. M. Poggs, *The Prairie Provinces of Illinois* (Urbana, 1934), p. 70.

the close of the war between the states. The American pioneers had never shrunk from the hardships of frontier life in the past and the early settlers of the eastern portion of the Mississippi Valley had been confronted by forest Indians quite as warlike and dangerous as were the plains tribes west of that stream. Primarily it was the lack of timber for fuel, buildings, and fences, and of water for domestic use and livestock which halted the pioneer settlers at the edge of the prairie plains for so long a period.

Eventually, however, the increasing scarcity of agricultural land which could be purchased at what was considered a reasonable price and the eager desire for homes caused some of the more hardy souls to venture out into a land where most of what they had learned of pioneering in the past was of no value and where new methods must be devised to solve new problems.

Certainly, from 1866 to 1900 there was an enormous outpouring of settlers to the Prairie West. Obviously, this movement was greatly accelerated by the Homestead Act of 1862<sup>4</sup> but there were other factors that were almost as important. These were the westward advance of railroads promoted by huge grants of land from the Federal government, which the railway companies offered for sale at comparatively low prices. Still others were the taming of the Plains Indians and their concentration upon reservations, the influx of immigrants from Europe, and increased travel back and forth across the region due to the settlement of the Pacific Coast and the development of mining operations in the Rocky Mountains.

Along the eastern edge of the prairies there were in some places a few groves or islands of timber and a considerable fringe of trees along the streams but as the settlers advanced westward into a land which ever grew higher, dryer, and more nearly level, the dual problem of securing wood and water became increasingly acute. Most of the lands east of the Mississippi and of the first tier of

---

<sup>4</sup>*U. S. Stats. at Large*, 12, pp. 392-393.

states west of it were wooded and the people who first occupied them were faced with the immediate task of clearing fields for cultivation. To these settlers the forest had seemed largely an unmixed evil. It appeared to them only an impediment to progress. With enormous energy they set to work to fell or girdle the trees in order to provide a clearing for the growing of crops. The first logs cut were utilized for building a home, barn, and outbuilding, or split into rails for fencing the fields. The surplus ones were burned after being rolled into great heaps with the assistance of kindly neighbors who gladly came to participate in these "log rollings" at which a jug of corn whiskey often stimulated the efforts of the participants.

In times the clearing became a symbol of economic and, to some extent, cultural progress. To widen the clearing in order to provide more tillable land for growing crops to feed his family and to sell in order to get money for clothing and other necessities became the settler's chief task. After the trees had been felled, the stumps must be pulled or grubbed out, or in some cases burned or blasted out with gunpowder. To the average pioneer in the densely wooded regions life must have seemed an almost endless conflict with the forest. Moreover, the forest was no passive enemy. It fought back with a stubborn persistence that at times made its complete subjugation seem well nigh impossible. Even after all stumps had been removed from the cleared land, there were many roots left in the soil from which sprouts grew with astonishing rapidity and vigor. These must be dug up or cut down with a mattock or grubbing hoe and they often seemed to have more than the nine lives usually credited to a cat.

The forest trees which bordered the clearing not only shaded and drew sustenance from a wide strip of soil but also sent out long roots which when broken by the plow sent up shoots which if not promptly destroyed seriously threatened again to "let in the jungle."

One who migrated from the wooded regions to the wide prairies at first viewed his new homestead with pride and

admiration. Here he need no longer wrestle with the tasks of clearing land, grubbing out stumps, and cutting sprouts. Furrows entirely across his land could be plowed without encountering a root or stone. He soon discovered, however, that he had fled from ills which he had formerly borne only to encounter others that he had hitherto "known not of." For the first time the American pioneer began to realize the value of those forests which in the past he had striven so hard to destroy. His entire pattern of life was changed and much of that change was due to the great scarcity of the two commodities which in the past he had accepted as a matter of course because they were so abundant—timber and water.

His first task was to provide housing for himself and family. In the old homeland the pioneer settler had found it necessary only to hew and notch logs and lay them up to form the walls of a comfortable log house which was covered with rough shingles split with an axe and smoothed down a bit with the axe or a plane. In a prairie region he must utilize for constructing a home such material as was available and this was in most cases sod or earth. Moreover, to decrease the height of the walls it was sometimes advisable to build it partly underground. Even a sod house or dugout required some timber for its construction, however, since it was necessary to provide a ridge pole, corner posts, and stringers along either side to support the roof made of narrow poles covered with hay on which were placed sods or a thick layer of closely packed earth.

The settler accordingly erected a small tent from his wagon cover as a temporary shelter and then set out in search of the required timbers to frame the new home. This often required a journey of ten to thirty miles to reach a stream bordered with a thin line of cottonwood, elm and hackberry trees or some ravine or canyon in the bottom of which there usually grew at least a little timber. Such ravines were usually in a hilly region where there was little land suitable for cultivation. In consequence these lands were not occupied by homesteaders until all of the level,



fertile prairies had been settled and so remained for some years a part of the public domain. Eventually Congress enacted a law permitting settlers to take timber from unoccupied government lands "for domestic use." This, however, was largely a meaningless gesture since the pioneer settler had never hesitated to take timber anywhere he could find it except from the land of another settler. This might be the public domain, state or territorial school lands, railroad land, some ranchman's range, or an Indian reservation.<sup>5</sup> Cutting and removing timber from Indian lands was contrary to law and deputy United States Marshals sometimes derived a considerable revenue from arresting "wood haulers" on the great reservations of Oklahoma, South Dakota, and some other western states, since they received not only a fee for making the arrest but mileage for the distance traveled in taking the luckless timber cutter to the nearest United States Court.<sup>6</sup> The lands of the Cherokee Outlet in northern Oklahoma before they were opened to settlement in 1893 had been largely denuded of timber for many miles south of the border of Kansas by the pioneer settlers of that state as were those of the Kiowa-Comanche reservation by settlers of Greer County, Texas. The Indians, seeing that the activities of the wood cutters could not be stopped, sometimes patrolled the border of their reservations and collected twenty-five to fifty cents a load for wood taken from their lands. In the middle 1890's the author paid fifty cents for a load of wood to an old Comanche Indian who had displayed an official looking paper which he apparently thought was his authorization from the Department of the Interior to demand such payment. The document, however, was only a circular letter

---

<sup>5</sup>Julie Stelle Bellows, *Indian Pioneer Papers*, VII, 112. These papers in 116 volumes of typed sheets consist of statements made by early settlers of the West now living in Oklahoma. Of the two sets made, one is in the Frank Phillips Library of the University of Oklahoma and the other in the collections of the Oklahoma Historical Society.

<sup>6</sup>Thomas Arthur Banks, *Indian Pioneer Papers*, V, 124; and Allie Wilson, *Ibid.*, XCIX, 96.

signed by the Secretary of the Interior warning white persons not to purchase wood from Indians since the latter were not permitted to sell timber from their lands!

Regardless of their source enough timbers were eventually secured to frame the proposed dwelling and the homesteader set to work to construct it. If the soil happened to be firm in texture and thickly interlaced with the roots of a thick coat of grass, a sod house wholly above ground might be built. In areas of sandy soil, however, it was necessary to construct a dugout or half-dugout though its walls were usually built sufficiently high above the level of the ground to allow the insertion of from two to four half windows. For window frames, a little lumber was required, though in a pinch they might be made from three or four wooden boxes or packing crates. No boards were required for a floor since it was in most cases only the hard beaten earth while the roof was also of earth or sod. From this plants often sprouted and the newcomer from the East was sometimes astonished to see a house on the roof of which were growing weeds or sunflowers.<sup>7</sup>

After the house had been completed and the family moved in and the furniture arranged, there still remained the task of providing shelter for the livestock. This usually took the form of a hay-covered shed but this also required some timber and in addition, enough poles must be secured to build a small enclosure about it, variously called a lot, pen, or corral. All of this construction necessitated several more trips to the all too distant source of timber.

In the meantime the problem of fuel for cooking the food and heating the home was an acute one. The majority of people who migrated to the prairie plains did so in the early autumn in order to erect buildings before the coming of cold weather and to break the sod and prepare the ground for planting in the spring. Consequently fuel for heating was not required at first but by the time a home and outbuildings had been constructed the "eager and

---

<sup>7</sup>William J. Newscome, *Indian-Pioneer Papers*, LXVI, 460.

nipping air" warned the settler that winter was fast approaching and provision must be made to keep the family warm once its icy winds began to sweep the prairies.

Also, from the first, fuel was required for cooking and in most cases was not easy to obtain. In preparing the timbers for framing the new home some scraps of wood were inevitably left and these were carefully saved to be burned in the cook stove. These were too few to last long, however, and it became necessary to utilize the only fuel which the prairies afforded. This was "prairie coal" as buffalo chips or cow chips were commonly called. These had been largely used for campfires on the westward journey once the edge of the treeless plains had been reached and were equally dependable for burning in the cook stove or fire place of the sod house or dugout. They made a hot, though somewhat smoky fire that was reasonably adequate for cooking the meals and keeping a room fairly warm in mild winter weather. Cow chips formed the principal fuel of many settlers during the first two or three years of life on a prairie claim.<sup>8</sup> During the early years of the settlement of Nebraska, Kansas, and western Oklahoma a common sight was a homesteader slowly driving a team hitched to a farm wagon across the prairies while his wife and children walking beside it, picked up cow chips and tossed them into the wagon box until it was filled to overflowing despite the fact that it was equipped with "sideboards." Once back home the family unloaded the wagon, stacking the "prairie coal" in a neat rick beneath a hay-covered shed where it would remain dry for wet cow chips persistently refused to burn. Moreover, even when perfectly dry it was almost imperative to have some wood to mix with them so additional trips to the school section, unoccupied lands of the public domain, or Indian reservations where some timber might be found were necessary.<sup>9</sup>

---

<sup>8</sup>Allie Wilson, *op. cit.*, and Vera Best, *Indian-Pioneer Papers*, VII, 467.

<sup>9</sup>Newsome, *op. cit.*, states that settlers in the Panhandle of Oklahoma hauled firewood thirty to forty miles.

As more settlers came in the supply of "prairie coal" eventually became pretty well exhausted and if trees could be found only at a great distance the problem of fuel became increasingly acute. Corn cobs, corn stalks, and sunflower stalks were all utilized as fuel, for cooking the food, and in some cases wisps of twisted hay provided enough fire to boil coffee and fry bacon and hot cakes. One stanza of the old song, "The Little Old Sod Shanty on My Claim," refers to this as follows:

And when I left my eastern home  
So happy and so gay  
To try to win my wealth and fame  
I little thought that I'd come down  
To burning twisted hay  
In the little old sod shanty on my claim.

In some parts of Nebraska, Kansas, western Oklahoma, and other prairie states a stove was sometimes fitted out as a "hayburner." The equipment consisted of several metal cylinders half the length of the fire box and open at one end. Inside each was a coiled wire spring attached to the closed end while the walls of the cylinder near the open end were pierced with a number of large holes. The spring was pushed down by packing the cylinders tightly with hay and two were placed in the fire box of the stove with the open ends together and the hay lighted at one of these holes. As it was consumed, the springs pressed a fresh supply into the fire and when it had all been burned, the cylinders were replaced with fresh ones. Another type of "hay-burner" had a large drum filled with hay above the fire box of the stove and this was fed into the fire by a coiled spring. In either type a hot fire could be produced but almost constant attention was required to keep it burning.<sup>10</sup>

---

<sup>10</sup>*Ibid.*, pp. 461-462.

When more bountiful crops were produced, some people in the remote prairie regions of the North burned corn at times when the cold was intense and corn prices low while those of the southern plains occasionally used cottonseed for fuel.<sup>11</sup> The feeling was common, however, that it was immoral to burn commodities so much needed for food by hungry persons and animals throughout the world. In consequence, it is doubtful if any considerable quantity of corn and cottonseed was used for fuel except in case of a grave emergency.<sup>12</sup>

Scarcity of wood for construction and fuel were only two aspects of the problem faced by the prairie settler because of lack of timber. A third and very serious question was the age-old one of enclosures. Once he had chosen and settled a tract of land, he was faced with the problem of restraining his own domestic animals and as soon as fields had been plowed and crops planted, some means must be devised of protecting them from his livestock and that of his neighbors as well as from cattle of the ranchman who still lingered in the region even after the coming of many homesteaders.

In the wooded area the pioneer had no such problem. Once a field had been cleared the branches were trimmed from the tree trunks with an axe and used to construct a "brush fence" about the clearing which served reasonably well until such time as enough rails could be split to replace it with the more stable and permanent "worm fence" properly "staked and ridged." Lacking any suitable material for fencing, the prairie homesteader must adapt himself to his environment in this as in so many other things. If he had only a team of horses and a milk cow, the animals could be picketed out with long ropes and the stake pins moved every day to insure fresh pasturage. The rope

---

<sup>11</sup>George C. Neeley, *Indian-Pioneer Papers*, LXVI, 212-213; also G. R. Bellenger, *Ibid.*, VII, 76.

<sup>12</sup>The author's father has told of occasionally burning corn in northeastern Nebraska in severe weather and Dean E. D. Meacham of the University of Oklahoma states that corn was sometimes used for fuel in his father's home in Western Oklahoma.

soon became as much of a necessity to the prairie pioneer as the axe had been to his ancestors of the forest regions. In the summer a mother would sometimes tie one end of a rope about the waist of the two or three year old toddler and stake the youngster out on the prairie where he could play unharmed while she did her washing and other household tasks.

The prospect of herding the cows and staking out the work animals indefinitely was an appalling one, however, and many homesteaders planted hedges of bois d'arc commonly called "Osage orange" about their fields. Since it would be at least two or three years before these had grown sufficiently to protect crops, the settlers of most communities promptly voted a "herd law" requiring all persons owning livestock to restrain their animals and to pay for any damage resulting from their failure to do so. Ranchmen grazing their herds on the public domain complained bitterly but usually without effect.

In addition to planting hedges about their fields, most settlers also set out young trees, or cottonwood slips, near their homes. Congress tardily recognizing the need of the prairie farmers for more trees enacted the timber culture act granting an additional hundred and sixty acres of land to any homesteader who would plant forty acres of trees and care for them ten years.<sup>13</sup> Nebraska, due to the efforts of J. Sterling Morton, made provisions for "Arbor Day" specifying a certain day each year on which its citizens were urged to plant trees.<sup>14</sup>

Moreover, "necessity is the mother of invention" and the great need of the prairie settlers for more adequate means of fencing their lands eventually brought about the invention and manufacture of barbed wire. J. F. Glidden of DeKalb, Illinois, before 1875 had perfected a barbed

---

<sup>13</sup>*U. S. Stats. at Large*, 17, pp. 605-606. The bill was introduced by Senator Phineas W. Hitchcock of Nebraska. (Fred A. Shannon, *The Farmer's Last Frontier*, pp. 58-59.) The act was amended and liberalized the following year. 18 *Stats.*, 21-22.

<sup>14</sup>James C. Olson, *J. Sterling Morton* (Lincoln, 1942), pp. 163-164.

wire which became the pattern for most types and by 1885 the new type of fencing was widely used throughout the West.<sup>15</sup> For some years there was much prejudice against this type of fence, however, and even after it had become generally accepted, many poor homesteaders lacked the money to purchase wire. In addition, posts to which it must be nailed had to be secured and this added to the settlers' problem of finding more timber. Eventually, however, barbed wire fences replaced the hedges but often not until the trees of the latter had grown large enough to make posts. Even today one can see many hedge fences, or the remains of them, in Kansas, Nebraska, and some other western states.

Apart from the practical need of timber for improving the homestead and for fuel, the complete absence of trees must have had a profound psychological, or spiritual, effect upon the prairie settler. He missed the fine old oaks and elms of his ancestral home quite as much as he missed his old friends and perhaps more than he missed his own and his wife's relatives! When the summer sun beat down relentlessly on the brown prairie, the pioneer women especially must have longed for the shade of the great trees that grew about the old homestead. The monotony of the landscape where one "could look farther and see less" than in any other region they had ever known must at times have proved most depressing. On no other basis can be explained the feverish energy with which so many of these people planted trees and the solicitous care with which they cared for them. On the first Arbor Day over a million trees were planted in Nebraska.<sup>16</sup> One who reads the impassioned plea for tree planting made by J. Sterling Morton in his article in the *Omaha Herald* for April 17, 1872, must feel that this subject was almost a religion to the great founder of Arbor Day.<sup>17</sup> This can be

---

<sup>15</sup>Earl W. Hayter, "Barbed Wire Fencing—A Prairie Invention," *Agricultural History*, XIII (October, 1939), 189-207.

<sup>16</sup>Olson, *op. cit.*, p. 166.

<sup>17</sup>Quoted in Olson, *op. cit.*, p. 166.

better understood by viewing a picture of his birthplace—an attractive little home surrounded by trees, or when one remembers that his youth was spent among the wooded hills of Michigan.<sup>18</sup> It was only the second generation of prairie pioneers, born and bred on the level plains who loved them intensely and felt themselves shut in and stifled when they visited the wooded areas from which their parents had migrated. Many of the first generation endured the prairies but zealously sought to break the monotony of the landscape by planting trees.

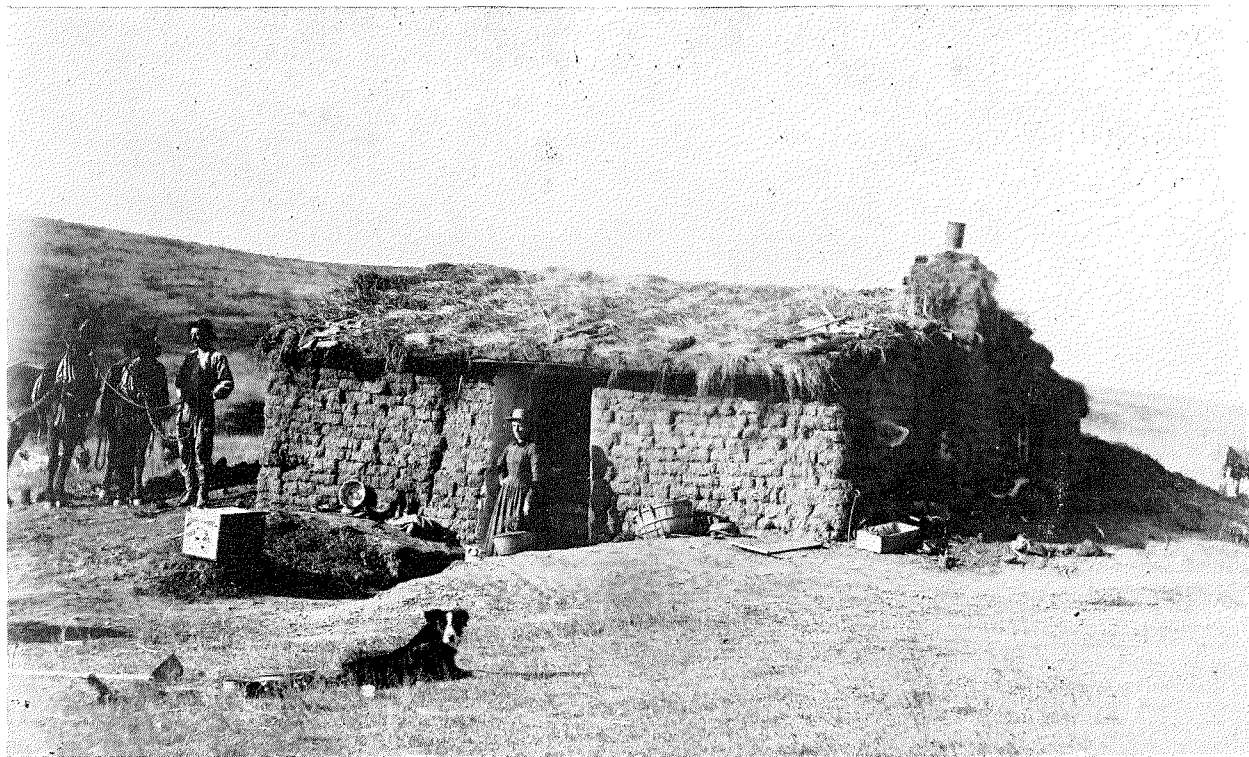
Grave as was the prairie settler's problem of securing fuel and timber for constructing buildings and enclosures, that of providing sufficient water for domestic use and livestock was equally acute. While not much fuel was required in the summer months, water must be available every day of the year. For the first few weeks of life on the homestead this almost certainly had to be hauled in barrels sometimes as much as eight to ten miles and this period of time might be extended to several months or even years.<sup>19</sup> In some favored localities an adequate supply of pure water might be had by sinking a well to the depth of from twenty to forty feet but on the high plains of western Texas and portions of western Oklahoma, Kansas, Nebraska, and some other states, it was necessary to drill a well to a depth of from three hundred to six hundred feet or even more to reach water. The cost of such a well was, of course, prohibitive for the average pioneer settler and he was forced to haul water from the nearest source of supply. The author as late as 1907 found an old gentleman in the Panhandle of Texas hauling water for household use and livestock nine miles. When asked why he did not drill a well, he replied that it was "just as near to water one way as the other" and he preferred to get his "along horizontal rather than perpendicular lines!"

---

<sup>18</sup>The picture is in Olson, *op. cit.*, p. 10.

<sup>19</sup>George C. Neeley, *op. cit.*





A SOD HOUSE, CUSTER COUNTY, NEBRASKA, 1888

Under such circumstances water was a precious commodity and must be used as sparingly as possible. Domestic animals could, of course, be made to travel to the source of supply under their own power and many a housewife found it far easier to load wash tubs, kettles, and soiled clothing into the wagon and take them to water and do her washing there rather than to bring water for that purpose to her home.<sup>20</sup> If the latter were done, however, the soap suds might be used to scrub the floor if it were of wood, which was not often the case, and children were bathed in the tub of water in which the clothes had been rinsed.

Even if water were found by drilling or digging a well, it was in some areas likely to be impregnated with mineral, usually gypsum, and so unfit for human consumption. "Gyp water" was a sore trial to many a family, while livestock often died from the effects of drinking "alkali water."<sup>21</sup>

Obviously, the first settlers of a region had no idea at what depth water might be found and were puzzled as to the exact spot where the well should be dug. Sometimes a neighbor supposed to be peculiarly gifted at "finding water" would be summoned to give advice. Such an individual would walk about grasping in his hands the two ends of a forked switch until it curved down and pointed at a spot where water presumably could be found. In some areas of western Oklahoma where it was necessary to sink a well to a depth of a hundred to two hundred feet settlers, since they had no money to employ a driller, dug wells with a pick and shovel which must have been a laborious and even dangerous task.<sup>22</sup> In many small towns the problem of securing an adequate supply of water was an acute one. Water sold at twenty-five cents a tub in Woodward, Oklahoma, for a time and at an equally high

---

<sup>20</sup>Alice Neeley, *Indian-Pioneer Papers*, LXVI, 207-208.

<sup>21</sup>Cornelia Newman, *Indian-Pioneer Papers*, LXVI, 398, who removed from Nebraska to Oklahoma soon after the first settlement of the latter area, speaks of bad water and the lonely life of the women of this region.

<sup>22</sup>William J. Newsome, *op. cit.*

price in Lawton during the first three or four months of the town's existence.<sup>23</sup> Towns that derived their water supply from shallow wells were frequently swept by typhoid fever which in some cases assumed epidemic proportions. In the early 1900's the author assisted in analyzing samples of water from nearly a hundred wells of a small town in western Oklahoma and found eighty per cent of them contaminated by typhoid. Even in the rural districts of the "shallow water" areas typhoid was often very common in earlier days.

Difficult as were the twin problems of securing an adequate supply of wood and water on the prairie plains, the passing years eventually saw their solution. Railroads were rapidly penetrating the entire prairie plains area. These brought in coal, lumber, and farm machinery. With a market for grain established at the little towns along these railway lines, the settlers increased their wheat production and with the money obtained from its sale purchased coal. They also were able to buy lumber and the sod house or dugout was replaced by a modest frame or box structure of two to four rooms. With a shingle roof over his head the prairie farmer in the "bad water" areas often placed gutters under his eaves, acquired cement and constructed a cistern thus insuring an ample supply of pure water for household use. Also if a suitable spot could be found on the farm, an earthen dam was thrown up to impound the rain water and so form a pond. Improved well drilling equipment soon began to be brought to the plains and many of the more prosperous settlers had wells drilled and erected windmills. These pumped water for domestic use and into a steel or wooden stock tank in the pasture or corral. The trees of the groves and hedge fences within a few years had grown large enough for fence posts, thus not only giving the homesteader a supply of "home grown fuel" but making it possible for him to cut down

---

<sup>23</sup>T. G. Netherton, *Indian-Pioneer Papers*, LXVI, 349. The author was at Lawton in August, 1901, and lived for a time with some "commercial water haulers."

the hedges and replace them with wire fences as barbed wire came into general use.

Eventually came the opening up of oil pools in the Mid-Continent Area and the eager search for oil further promoted improvements in well drilling machinery. Also many gas wells were opened and for many people oil and gas became available for fuel as numerous pipe lines were constructed. Oil stoves were installed in many homes to be used in cooking, especially in summer.

As the settlers grew more prosperous through the greater production of grain and livestock, many of them constructed a new home sometimes securing additional funds for that purpose by mortgaging their land to which they had by this time received a patent in fee thus making it possible to use it as collateral for a loan. A large two-story farmhouse was accordingly built and water piped to it from an elevated steel tank set up near the windmill. An oil burning furnace was sometimes installed in the basement since oil was a cleaner and more satisfactory fuel than coal. In regions where natural gas was available, it was used both for heating and cooking. Rural electrification became common in some areas and electric lights and equipment were installed in those homes near a "high line." An electric motor or gasoline engine in some cases was acquired to pump water to the house for domestic use and the windmill used only to provide a supply of "stock water." The era of sod houses and dugouts, of "prairie coal," and wood hauled for twenty to thirty miles, or of hay burner stoves, and water brought in barrels from some distant spring had largely passed away.

The visitor to the Prairie West today who drives his car along one of the many broad highways that traverse that region will often slow down to admire a big two-story white farmhouse standing beside the road in the midst of a grove of noble trees. If he looks closely enough, however, he may sometimes note, at short distance back of it, an ancient, unpainted structure of rough lumber consisting of two or three rooms probably used for storage and a short

distance beyond that the ruins of an old sodhouse or dug-out. These three represent the stages of the farm owner's economic progress, and the observer of a philosophical turn of mind may wonder in which one of these homes this family found the most happiness.

There is little shortage of fuel and water in the prairie states today. At least a few trees have been planted on virtually every farm and even the "shelterbelt" activities of the United States Government some years ago which brought considerable criticism from many people have in some areas been remarkably successful.<sup>24</sup> In those communities where the people depend for a water supply upon shallow wells and ponds long periods of drought may bring inconveniences but not nearly to the extent of earlier years. An occasional farmer, on marginal or submarginal lands, may still load his water barrels into a wagon and fill them at the well of one of his more fortunate neighbors or in years of crop failure be hard put to find enough money to buy his winter's supply of coal, for "the poor we have with us always" even in the Prairie West. Largely speaking, however, the twin problems of wood and water which proved so difficult for the settlers of the prairie plains half a century or more ago are now only a memory.

---

<sup>24</sup>The "shelterbelt trees" in parts of western Oklahoma where the soil is sandy have made a vigorous growth.