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Article Summary: The traditional zigzag rail fence was the most common pioneer enclosure on most of the prairie. Nebraska had much less fence than states to the east, however. The Nebraska herd law made it possible to ranch without expensive fences or slow-growing hedges; farmers simply herded their cattle together.

Cataloging Information:

Writers Cited: Joseph F Moffette, William Clayton, Edwin A Curley, Lawrence D Burch, Robert P Porter, James C Malin, Horace Greeley, Lewis Henry Morgan, C Howard Richardson, C B Boynton, T B Mason, Nathan H Parker, Marguerite R Burke, James Davie Butler

Types of Fencing: zigzag rail (worm, snake, or Virginia rail), board, post and rail, post and boards, shanghai (rails laid on crotches), rough and ready (rails nailed to posts), stake, paling, palisades, logs, corduroy (poles nailed to posts), hedges (primarily Osage orange, some honey locust), wire (smooth and barbed), earth or turf walls, ditches, brush, stone walls

Keywords: herd law, *Hayden Report*, zigzag, worm, post and rail, shanghai, rough and ready, Osage orange

Photographs /Regional Maps Illustrating Trends in Fencing:

Fig 1: major types of fencing in part of the Middle West, 1871

Fig 2: Ohio settler building a staked and ridged worm fence

Fig 3: post and rail fence, New Harmony, Indiana

Fig 4: fence of rails nailed to posts, Daniel Freeman homestead near Beatrice, Nebraska, about 1870

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Fig 8: fencing of crops required in Nebraska in the 1870s

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Fig 13: private land, Norton County, Kansas, 1875

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Fig 15: herd law in Kansas, 1875

Fig 16: leading fences in Kansas, 1878

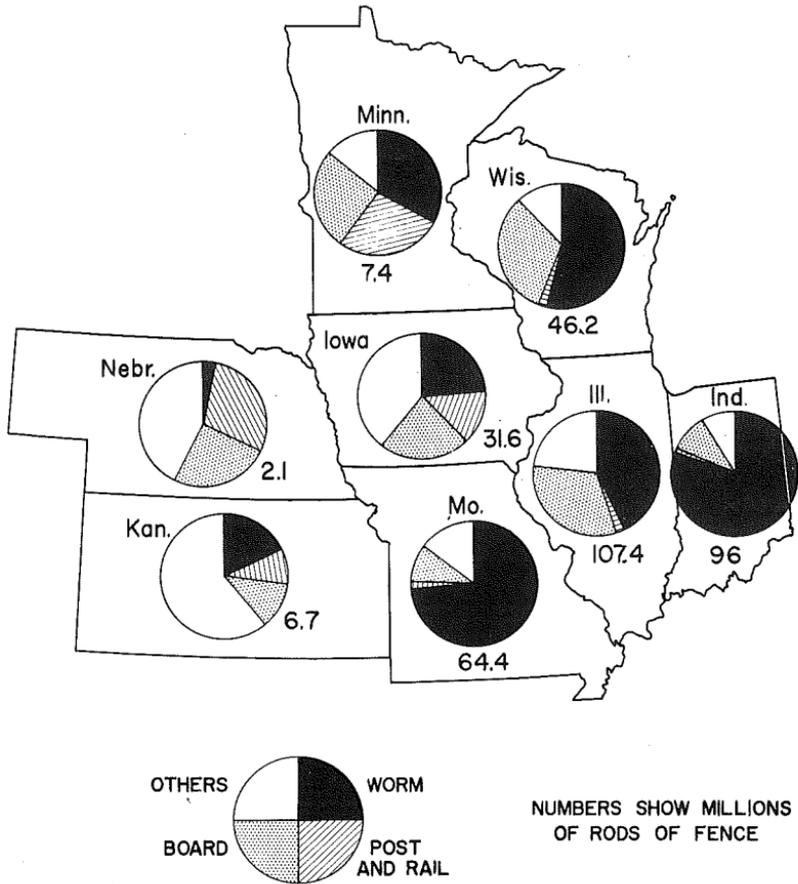
Fig 17: leading fences in Kansas, 1882

Fig 18: relict hedge, west edge of Flint Hills, Kansas

Fig 19: old stone fence in Morris or Chase County, Kansas

*Solomon Butcher photograph

Fencing In Part Of Middle West, 1871



Source-Report of Commissioner of Agriculture, 1871

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FIG. 1. Major types of fencing in part of the Middle West, 1871. "Other" fences included "shanghai" (rails laid on crotches or posts), "rough and ready" (presumably rails nailed to posts), still other types of rail fence, paling, palisades, logs, corduroy (poles nailed to posts), hedges, wire (mainly smooth), earth or turf walls, ditches, brush, and stone walls. To convert rods to meters, multiply by 5.03.

Early Fencing on the Western Margin of the Prairie

BY LESLIE HEWES

ABSTRACT. The pioneers used familiar modes of fencing in order to help establish effective settlement in Nebraska and Kansas. Ordinarily they started with zigzag rail fence, but soon resorted to substitutes as timber ran short. Hedges, especially of Osage orange, became unusually important in eastern Kansas and southeastern Nebraska. Due to observance of herd law, few enclosures of any kind were made in most of Nebraska and in western Kansas before barbed wire became dominant.

Making fences was an essential part of pioneering on most of the American frontier. Whether the early farmers carried on a primarily subsistence or commercial enterprise, separation of livestock and crops was necessary. Although children and others might be called on to herd cattle and other domestic animals of the farm, the foraging stock of others commonly led settlers to fence gardens and fields before the first harvest. Providing the required protection was usually a laborious and often expensive undertaking for the frontiersmen, many of whom were short of funds.

Pioneers on the western margin of the prairie drew on experience gained in living in more eastern parts of the grassland. It is not surprising that familiar modes of fencing were transferred westward as essential parts of the Middle Western pioneer landscape; however, the late settlement of Nebraska and Kansas made possible the telescoping of trends or stages of fencing that took longer in the eastern part of the prairie.¹ The supply of timber, especially small in Nebraska, was outgrown sooner than to the east, reinforcing the diversity of answers to the question of how to fence. This study emphasizes the period before barbed wire became important.

The traditional zigzag rail was the most common pioneer enclosure in most of the prairie. However, as settlement moved onto the broad prairies, other ways of fencing that required less wood were commonly substituted. By 1871 fences of post and rail, of post and boards, and others, including

hedges, were common on much of the prairie. Nebraska and Kansas, especially Nebraska, had exceptionally small amounts of fence.² (Fig. 1)

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A little fencing was done in Nebraska before its opening to white settlement in 1854: ditch, and probably sod fence, and rail, by the Mormons near Winter Quarters; both rail and sod by government and missions among the Indians; some rail by the inevitable squatters and traders, and by temporarily resident Indians from farther east.³

The original United States land survey of eastern Nebraska, conducted largely in 1856, gives some meaningful glimpses of the landscape in a very early phase of agricultural occupation. But the recording of fences was decidedly hit or miss. In a few survey units (congressional townships, squares six miles [9.9 km] to the side), fields were reported as quite completely enclosed or fenced. It seems a safe assumption that except for some of the most recently made fields, or "breakings," many, if not most, fields were in fact enclosed—whether so reported or not. Those who prepared the maps based on the field notes of the surveyors must have worked on this assumption because most fields shown on their township plats are bordered by zigzag enclosing lines. One must conclude that the map-makers, working at Lecompton or Wyandotte, Kansas, or Nebraska City, took the traditional Virginia rail, or worm, fence for granted (Fig. 2). Only rarely did the surveyors recognize the kind of fence encountered. Sod fences were identified in four townships. Some of the fences in these survey units were called "sod."⁴ No other kind of enclosure was distinguished. This is all that is certain about the fences seen by the surveyors; however, it seems a safe assumption that the very early pioneer landscape of eastern Nebraska included zigzag rail fences, sod fences, probably with ditches alongside, and fields as yet unfenced.

Even the Missouri River counties of Nebraska had hardly as much timber as the average for the Middle Western prairie. The United States Census of 1880 gave acreages of woodland that range from about eleven percent to less than one percent for the counties bordering the Missouri River where the earliest white settlement occurred. According to the 1880 census, the only counties in the new state exceeding five percent were on the Missouri River. In all, only seventeen exceeded 1½ percent, eight of them on the Missouri. The other nine

were in the southeast, on the Big and Little Nemaha and the Big and Little Blue; one of these counties also touching the Platte. In all, twenty-seven counties exceeded one percent. The estimate of the western editor of a Chicago journal that the counties along the Missouri ran from eight to fifteen percent woodland was higher. The judgement that "from five to fifteen percent of the total area of the eastern counties was originally in woodlands" made in a follow-up publication to the 1880 census cannot be accepted for more than a very narrow belt.⁵

Woodland in eastern Nebraska, as determined from township plats made from the field notes of the surveyors, was scarce and had a discontinuous pattern of distribution. In some cases the surveyors referred to woodland even in the valleys as occurring in groves or as scattered trees. The rare notation that "this township has a vast amount of good hardwood timber" was more than offset by others, such as, "there is very little timber in the township. There is enough on the creek which runs through the west side of the township to support one or two good claims only." A number of townships were described as having no timber. In one case a wooded area along the Missouri was said to be claimed largely "by squatters living farther from the river on the high prairie."⁶

The township plats showed far more fields and houses on the prairie than in woodland. Both houses and fields, expectedly, increased on the margins of the woodland. In some cases, houses were located in the woods with fields on the prairie or partly in the woodland and partly on the prairie. Some contemporary accounts described the situation as common. In one township the surveyor making the general summary admitted: "There are eight or ten settlements but the most of them being situated in timber or ravines convenient to water could not be seen from the surveys [along section lines] and consequently are not noted in them."⁷ Perhaps there were more farms in the woods than reported, but there were few wooded areas large enough to hide even newly made small farms. Wooded valleys were esteemed as providing water, shelter for livestock, mast for hogs, and wood for buildings, firewood, fencing, and other purposes.

Traditional zigzag rail fences were taken for granted by those at Nebraska City who compiled township plats from the

surveyor's field notes. It is probably a safe assumption that worm fences were used as long as the necessary rails could be obtained readily from the claims of the pioneers or from land of the government, Indians, or speculators. Fencemaking was a common wintertime activity. Although where and how long worm fences were common probably cannot be determined, certainly they were used most commonly and longest in and along the woodland bordering the Missouri. As late as 1875, a farm was advertised in Burt County as having forty-eight acres in cultivation "all fenced with good 9 rail or post and slat fence." In 1891, a worm fence, not staked and ridered, was noted near the Little Blue River, and one that was "staken ridered" far west by the Republican at Arapahoe. In all probability, where log cabins could be built, even into central Nebraska, rails for some Virginia rail fences could be found. A Nebraska historian, like those drawing the early township plats, concluded that the worm fence was the usual pioneer rail fence.⁸

Two early accounts of fencing in Nemaha County, which borders the Missouri River, may well be representative of fencing along the wooded belts. One John W. Hall, who settled in the county in 1855, had in 1858 "under cultivation and enclosed with good staked and ridered fence, 108 acres," and "J. S. Minnick, Esq., has under fence and cultivation the present year [1857], the whole of his claim, one hundred and sixty acres. He has been on it only fourteen months and has *hauled his rails five miles*." Both farmers had fenced with rails, but the second hauled his five miles (8.2 km). Already in 1857 settlement on the prairie was out-running the supply of rails for the wasteful worm fence. In the winter of 1858-59, Wesley Dundas down "on the river" in Nemaha County fenced with post and rails, using probably one-third as much timber as required for the worm, or Virginia rail, fence. The fact that the post and rail fence recognized by the territorial legislature in 1860 as a legal fence was described as made of three or more rails *nailed* [italics mine] to posts suggests that placing rails in holes cut or augered in posts was exceptional (Fig. 3). At least part of the fence on the Daniel Freeman homestead near Beatrice, Nebraska's most famed homestead, now a National Monument, seems to have been of the crude type known as "rough and ready" (Fig. 4).⁹



FIG. 2. Ohio settler building a staked and rided worm fence. The crossing stakes with rail (rider) on top made the fence more secure. With or without stakes and riders such a rail fence of zigzag form was called "Virginia rail" or "snake" fence as well as worm. Also, it was called the "common" rail fence. Built from the ground up, this kind of enclosure was better than most for confining hogs. Photograph courtesy of Keystone Steel & Wire of the Keystone Group, Peoria, Illinois.



FIG. 3. Post and rail fence, New Harmony, Indiana. Less wood was required for this fence and less space was used than for the zigzag rail fence.

Both a temporary Mormon settlement, apparently a supply point, and permanent residents continued to dig ditches, and built sod fences for enclosure of fields. With the Platte River securing one side, the Mormons enclosed 1,200 acres (485.6 ha) with about five miles (8.2 km) of ditch and sod fence in 1857. Moffette, in his account of Kansas and Nebraska, noted sod fences having "a degree of permanence." Settlers near Grand Island also constructed ditch and sod fencing. Farther west, Bowles recorded that "turf and mud make the best houses, and the same material is used for military forts and fences around the cattle and horse yards" found at intervals along the Platte west of Fort Kearny.¹⁰

Diversity of fencing was the rule almost from the outset of white settlement in Nebraska. In addition to worm, sod, and post and rail, fences of board, and of wire, and hedges were in use early. A Sarpy County farm fenced with board was offered for sale in 1857; and one using wire fence was advertised in Omaha in 1859. Hedging was begun as early as 1857 or 1858.¹¹ The territorial legislature in 1857 either recognized or anticipated diversity, as shown in its definition of a lawful fence:¹²

Any structure or hedge or ditch, in the nature of a fence, used for purposes of enclosure, which is such as good husbandmen generally keep, and shall, on testimony of skilful men, appear to be sufficient, shall be deemed a lawful fence.

Three years later, the legislature after reaffirming the legality of "any structure or hedge or ditch" specified that three-rail and three-board fences were lawful fences in counties in which sheep and swine were not permitted to run at large. One may infer that post and rail and board fences were then common in localities in which sheep and hogs were confined and that worm fences, built securely from the ground up, were needed for the protection of crops where these animals still ran at large. By that time, legal action to restrain swine and sheep had been taken in at least nine counties, including five of the more populous, and best timbered, counties along the Missouri, from Omaha south. It became increasingly feasible to replace old Virginia rail fences and to build other types that required less timber. By 1861, board fences had become sufficiently common to be used in the estimate of the cost of making a farm written for the *Nebraska Farmer*. According to

this essay, "Experiments have shown that fencing 1¼ inches thick, four inches wide, and 12 feet long, makes the most suitable for a prairie country." Shortly thereafter came the report from Brownville: "Fencing lumber, which has heretofore been a drug, is now taken from the mills as fast as it is drawn. So great is the demand for fencing that the price has advanced 25 cents on the hundred."¹³

Subsequently, fencing lumber increased in price. An apparently objective account of the state published in 1868 included the following statements:¹⁴

Cottonwood, oak, and black walnut lumber can be had along the principal rivers in quantities sufficient for present purposes at from \$20 to \$40 per thousand feet. Pine lumber is worth double that amount. This want of timber is the most serious drawback to the rapid settlement of the State.

However, according to the same account, no fencing was needed in the "open regions" because of observance of herd law. In Richardson County, according to a resident of the Elmore community, walnut and oak posts sold at ten to twelve cents and cottonwood lumber at from fifteen to twenty dollars per thousand feet (30.48 m) in 1869. In the early 1870s, cottonwood lumber, probably cheapest, sold for sixteen dollars at Blair; expectedly, fencing lumber was more expensive at inland points: Columbus, \$32.50; Plymouth Colony, in Saline County, \$35.00; and \$38.00 at Beatrice. In 1873, lumber fencing, presumably pine, was \$33 at the yard and cottonwood fencing was advertised at \$20 and \$25 in Beatrice.¹⁵

Although some wire was used for fencing early, the failure of the legislature to list wire fence as lawful before 1867 suggests that it was not used much prior to that time. In that year a correspondent in the *Nebraska Advertiser* advised that a four-wire fence, using wire of telegraph size on posts two rods (10 m) apart would cost \$207 per mile (1.64 km). The editor added, "This kind of fencing has long been practiced, but somehow has never met general favor." A little later, the editor conceded that wire fences and hedges would soon replace rail and boards; then reported, "Fence wire is being very extensively used by our farmers this season, which is proved by the fact Shallenberger Bros. [advertisers in the paper] have during the past week, received over fifteen tons, one-half of which is already sold." An outside observer in 1868 made the apparently curious statement that "in some parts,

adjacent to timbered regions, wire fences are resorted to."¹⁶ This remark probably meant that wire was used in some localities where fence posts were not expensive, competing with board fences and possibly those of post and rail and hedge. Wire was not at all common on the open prairie.

It is possible to chronicle the introduction and spread of hedging with greater assurance than that of other types of fence used by the pioneers. The Osage orange (*Maclura*, or *Bodark*, a corruption of *bois d'arc*) was an alien plant, a tree from the sub-humid South, whose seed must be shipped in, with hedge plants raised in commercial or farmers' nurseries. Advertising of seed, of plants, and of the services of professional hedge-makers caught the attention of some newspaper editors. In some areas, a kind of hedge crusade occurred in the hope that the fencing problem would be solved at low cost, permitting the populating and civilizing of the broad prairies, while adding to the aesthetics of the landscape. A fairly basic pattern can be noted. First, came advocacy of hedging by someone with prior experience elsewhere; then, offering of seed or plants by an agent of a nursery in Illinois. The agent might contract to set hedges. Competitive advertising followed, first by other Illinois nurseries, then by nurseries in southeastern Nebraska, Iowa, and Missouri. From time to time, fairly direct shipments of seed from Texas would be made. As the use of hedges was extended to the west, local supply points, including nurseries, were established (Fig. 5). Probably it is significant that some of the agents and contractors had prior experience in hedging in Illinois, some in Europe. Some nurserymen also moved west with their growing business.

Nemaha County, the second Missouri River county from the south, provides a case study of early hedging in southeastern Nebraska. After the editor of the Brownville newspaper copied a story about hedging with the Osage orange from a Missouri paper in 1856, a resident signing himself "Hoosier," recommended such hedges, citing the experiments of Professor Jonathan Turner and Overman of Illinois. The following winter, the nursery firm of Overman and Mann of Bloomington, Illinois, advertised 1,000 bushels (35,211 l) of *Maclura* seed from Texas, to be shipped from Bloomington, Cairo, or St. Louis. That spring D. C. and T. N. Sanders, as agents of the Illinois firm, advertised Osage orange plants. For several

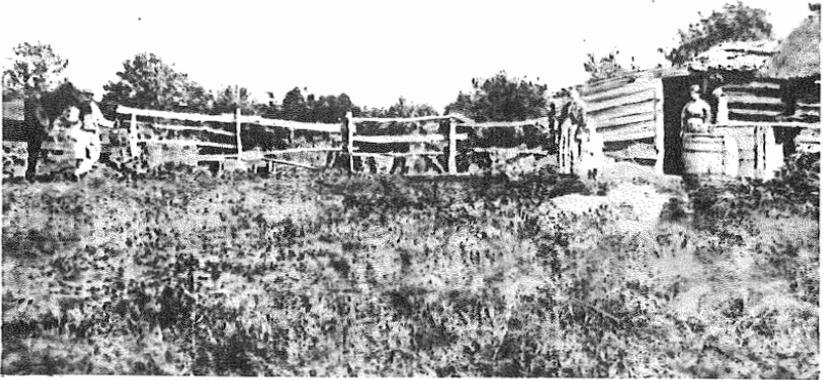


FIG. 4. Fence of rails nailed to posts, commonly called "rough and ready." Part of the fence on the Daniel Freeman homestead, near Beatrice, Nebraska. Photograph taken ca. 1870. Courtesy Nebraska State Historical Society.

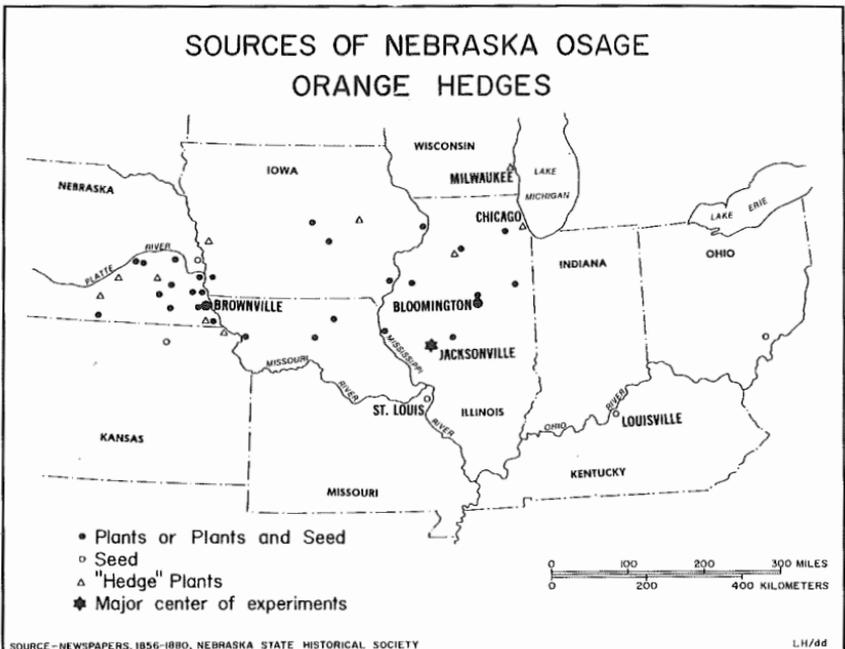


FIG. 5. Sources of Osage orange hedges in Nebraska.

years the Sanders brothers offered hedging under contract. Meanwhile, instructions from Professor Turner on hedging were reprinted locally; and nurseries at Napierville and La Moille, Illinois, as well as at Bloomington, advertised seed and plants.¹⁷ A front page news note in the *Advertiser* in 1859 showed both that hedging was catching on and keen perception of the possibilities of the plant:¹⁸

No plant grows more in favor than the Osage orange, as men learn its habits, and to work with and against its nature. Although it is a southern tree, in our latitude it becomes dwarfed and adapts itself to the wants of the hedger. No doubt as we grow plants from seed raised in the North we shall get hardier stock than at present.

Probably Osage orange hedges were tried at many places in eastern Nebraska. They were reported in Cass County, the second county north of Nemaha, in 1858. If the prediction made for northeastern Nebraska in 1856 that "fencing can be done better and cheaper with hedges than fences" were based on the use of the Osage orange, hedging was bound to fail in that northern latitude. The winter of 1859-60 killed some hedge, including Osage orange in a nursery at Syracuse, in the next county north of Nemaha, although hedge of honey locust set four years earlier survived.¹⁹

Probably the cutting off of southern sources of seed during the Civil War was the main reason for the interruption of the spread of Osage orange hedges at that time in Nebraska, as in other parts of the Middle West. However, even before seed and plants became difficult or impossible to obtain, a Syracuse, Nebraska, nursery began offering Osier willow as a more hardy substitute. Shortly, gray, or white, willow was advertised by the Syracuse nursery and its agents in Brownville, Pawnee City, Beatrice, and Austin; a nursery in Bureau County, Illinois, also offered this willow. However, the ending of advertising in the Brownville paper even before the termination of war bespeaks little acceptance of willow hedges, an inference supported by the judgment made in 1867 that it had not given satisfaction. That the legislature specified hedges of both willow and Osage orange as lawful fences in that year is evidence that willow nevertheless was being used in the territory.²⁰

Only a few months after the end of the Civil War, readers of the *Advertiser* were informed of two developments which

became related: the progress of settlement and the availability of Osage orange seed. The country was "well settled fifteen miles back," it was said, and those wanting to hedge were referred to an advertisement of seed.²¹ As earlier, a farmer with experience in Illinois was representing an Illinois nursery. In this case, Wesley Dundas wrote from western Otoe County a little later:²²

The Hedging Company—of which I am senior partner—set on contract, last spring, 44 miles of hedge and 6 miles of my own, and prepared about 25 miles for this spring's setting . . . Father had a nursery in Europe—I commenced setting plants in the hedge row when ten years old (they were the Hawthorn) . . . We hedged some in Illinois. But the war stopped our operations, as there was not seed in the market.

He continued by stating the intention to do hedging in Otoe and Johnson, as well as in Nemaha County.

A competitor, Mathew McKeighan, who later claimed fifteen years experience, shortly proposed to obtain agents in every county in Nebraska and Kansas and western Iowa and Missouri, and offered to set hedge from Kansas to Omaha in a strip of country thirty to forty miles (49-65.6 km) wide. A local nursery, in advertising one million Osage orange plants in autumn, 1866, was offering fresh, locally grown plants. The editor advised that the firm had much experience in raising plants and making hedges. A price of 90¢ to \$1.25 per rod (\$.18-\$.25 per m) was quoted.²³

The three bid hedgers, Dundas, McKeighan, and Burches, of the nursery firm, did not advertise long in the Brownville paper; perhaps they had sufficient business without doing so. At least, in the spring of 1867, "a great deal" of hedging was being done. Several owners of very large farms were among those hedging or planning to do so.²⁴ Probably many farmers set their own plants, buying either seed or plants.

When and to what extent Osage orange seed grown in the Middle West supplemented that brought in from the South is unknown. However, alert nurserymen were aware before the end of the Civil War that seed produced in the North would grow. Someone signing himself E. H. B., probably Burches, a Brownville nurseryman, early in 1868 wrote that the tree, a native to several states of the South and Mexico, "now . . . has become acclimated to this country."²⁵ Acclimatization must have included local production of seed and probably selection.

Probably, locally produced seed and judicious selection as well as more experience in hedging helped make Osage orange hedges common landscape features in southeastern Nebraska. Even so, plowing furrows against young hedges was considered useful as protection against winter damage.

Judging from numerous descriptions, hedges, especially those of Osage orange, were conspicuous features of the landscape in southeastern Nebraska as boundaries of farms and individual fields. Prize winning hedges in 1867 were described as thick and at least twelve feet (3.65 m) high. A leading advocate agreed that hedges should be dense, as a result of close setting and judicious trimming, but about five feet (1.5 m) tall. He urged that *plashing*, cutting some plants part-way through and intertwining them in the hedge row, should be used only as a last resort. The territorial law of 1867 called for setting Osage orange plants not more than eight inches apart and required a height of at least four and a half feet (1.4 m). A later report that hedges in Pawnee County ranged from four to twenty feet (1.2-6.1 m) high may well have been representative.²⁶

Although it is probably not possible to determine the period of greatest hedging in Nebraska, the years around 1870 were ones of especially active advertising of seeds and plants. Sources available to readers of the *Advertiser* in 1869 included seed from Ohio, Texas seed by way of St. Louis, seed and plants from Bloomington, Gillman, Quincy, and Springfield, Illinois; from Benton and Clinton counties, and State Center, Iowa; from Kirksville and Brookfield, Missouri; and from Brownville and London, in Nemaha County, Nebraska. The nursery at London advertised 250,000 plants; the one at Kirksville, Missouri, offered them "by the million"; two million were claimed at Brookfield, and fifty million at Gillman, exceeding the thirty million offered from Warren County, Illinois, the following year.²⁷

By 1870 seed and hedge plants from most of the sources located east of Nebraska had been advertised in the *Nebraska Advertiser*. Thereafter, an increasing number of nurseries in southeastern Nebraska entered the competition for local and regional markets as hedging spread westward. For example, at Fairbury, located near the Kansas border in the fourth county west from the Missouri River, the newspaper carried, in se-

quence, notices of the availability of Osage orange seed at a local hardware store; of plants from a Nebraska City nursery, run by a nurseryman recently of Davenport, Iowa; also of plants from Bloomington, Illinois; from Beatrice; and from Brownville. About seventy miles (115 km) still farther west at Red Cloud, two local nurseries in 1873 advertised hedge plants, one specifying Osage orange. The following winter one offered African golden willow for hedges or windbreaks.²⁸

The setting of hedges was greatest in southeastern Nebraska. The regionally aware *Nebraska Advertiser* identified Gage, Johnson, Nemaha, Otoe, and Pawnee counties as places of active hedging. A state agency estimated 200 miles (338 km) in Johnson County and "many thousands of miles" in Nemaha; and hedging, especially of Osage orange, was a "great success" in Richardson County. Extensive cultivation of Osage orange was claimed for Saunders County and of Osage orange and honey locust hedges in Johnson County.²⁹ The exaggeration for Nemaha County emphasized the perceived importance of hedges. There is good reason to think that the distribution of hedges in Nebraska about 1870 was much as it was in 1879, except that hedges extended farther west at the later date (Fig. 6).

Fencing in Nebraska about 1871

The so-called national census of fencing in 1871 provides the most quantitative survey of fencing available for Nebraska. The estimates made by correspondents of the United States Commissioner of Agriculture for an undisclosed number of counties gave averages for the state of post and rail twenty-nine percent, board twenty-five, worm three, and others forty-three. A comparison of these figures with those for other prairie states shows that Nebraska ran high in post and rail and "other" enclosures, and very low in worm fences.³⁰ According to the text of the report, "In many counties of Nebraska few fences are to be found." It added, that fencing other than post and rail, board, and worm consisted of "hedge, wire, shanghai, and earth walls; Hall County having 25 percent of the latter." Perhaps it is reasonable to assume that hedge, wire, shanghai, and earth walls, in that order, comprised most of the forty-three percent unclassified as "other." Shanghai fence consisted of a few rails, placed on posts or crotches, usually straight rather than zigzag. A visiting Englishman a few years

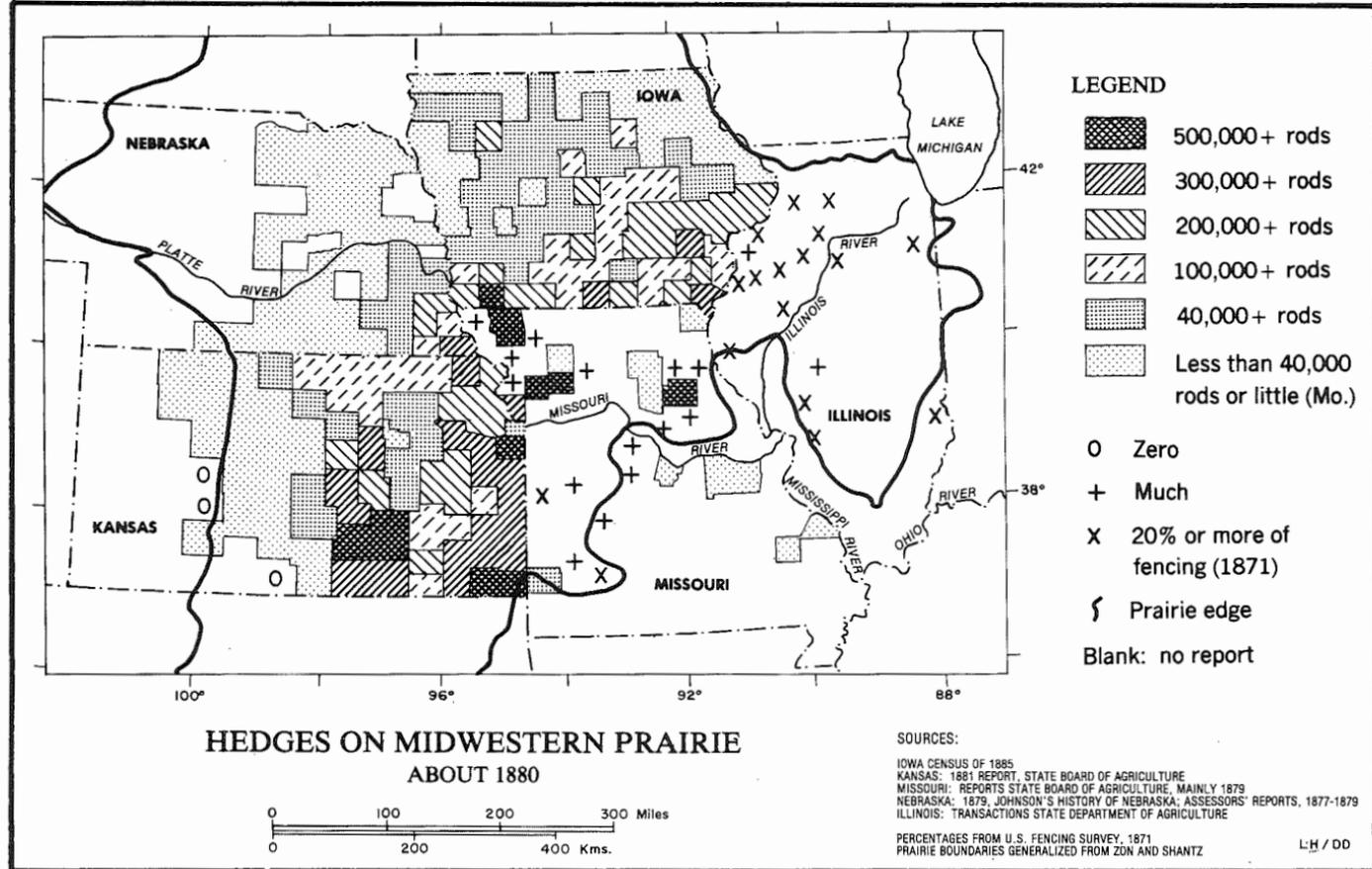


FIG. 6. Hedges on the Middle Western prairie about 1880. Data were complete for Iowa and Kansas, least so for Illinois and Missouri. Parts of western Nebraska and western Kansas had not yet been occupied by farmers.

later identified fences of poles, or corduroy, and official illustrations of scenes in southeastern Nebraska of the period show what appear to be fences or palisades of closely spaced stakes or upright rails, perhaps driven into the ground.³¹ The emphasis given to earth, or turf, walls means that a type of enclosure usually thought of as temporary, and rarely reported, was not limited to out-of-the-way locations because Hall County, which includes the town of Grand Island, was crossed both by the Mormon Trail and the Union Pacific, the first transcontinental railway (Fig. 7).

Easily the most striking conclusion about fencing in Nebraska drawn from the survey of 1871 was the *lack* of it. Tables included show less fencing in Nebraska than in any other state except Nevada, and fewer acres fenced than in any other state except Nevada and Rhode Island. The comparatively unfenced situation in Nebraska emphasizes the practices of herding cattle and confining of hogs. An advocate of general herd law that would require the confining or herding of livestock claimed in 1869 that "the statistics of the State show that more than half of the farmers are farming without a fence." Although he failed to give particulars or to identify the source of his information, he may well have been correct because as farmers advanced onto the open prairie, herding became common. As of 1869, the legislature, perhaps in recognition of local ordinances, had acted to protect crops from livestock in at least fourteen counties, two of them fronting on the Missouri River, and in parts of several others. In a few southeastern counties the protection was conditional upon fields being hedged; in addition to the fourteen counties, there were others where the protection was limited to night or summer. Generally, the confining of hogs and sheep was required at the same time or earlier than of cattle and horses. The herd laws may well have aided in growing of forest and fruit trees and live fences, claimed as chief objectives.³² Certainly cultivation was encouraged. *Campbell's Western Guide* was quoted in 1866 as saying that the practice of herding in some of the newly settled country in doing away with the need for fencing made it "much easier for persons of small means to make a start."³³

The state averages derived from the survey of fences of 1871 give some help in reconstructing the distribution of types of fencing—a tentative map of fencing. By this time, worm

fences, at three percent, must have been restricted to a few localities, including parts of the most heavily wooded areas, especially in the places where hogs and sheep continued to or recently had run at large. Some farmers in the four precincts along the Missouri River, one in Burt County, and three adjoining precincts in Nemaha and Richardson counties, which in 1869 had been exempted from the general law restraining swine and sheep, probably continued to protect their fields by the usually hog-proof Virginia rail fence.³⁴ In addition, some farmers on the frontier might elect to make this use of some of their timber.

Next to worm fences, those of post and rail were most dependent on local supplies of timber, leading to the assumption that they would be found primarily in the woods and in fairly narrow belts along the most wooded valleys—the Missouri, the Big and Little Nemaha, and the Big and Little Blue rivers—and by the few tracts of upland timber by the Missouri. Probably there was “timber enough for building and *fencing*” [*italics mine*] for a few years along the Republican.³⁵ Richardson County, with woods pretty well distributed through the county, along the Missouri and both Nemaha rivers, probably had an unusual amount of post and rail fence. The opinion that crops were already well protected was given as the reason that the county delegates in the legislature in 1869 asked that Richardson County be exempted from the herd law being considered “as it did them no good whatever.”³⁶

Fences of post and board presumably overlapped the other types referred to and extended beyond them, especially along wagon roads and railways. The localities where fencing lumber was for sale previously cited—along the Missouri, along the Union Pacific, and in the southeastern quarter of the state—were probably representative.

By 1871, hedges, mainly of Osage orange, probably ranked with post and rail, and board, among the three leading types of enclosure in Nebraska, at least in the southeast, with the major concentration located east of the Big Blue and south of the Platte, overlapping the other types identified. Also there were some fences of wire. The southeastern portion of the state probably had the most varied fencing; also it was probably better fenced than most parts. Even so, the immigration agent



FIG. 7. Sod wall, Custer County, Nebraska, 1888. Solomon Butcher Collection, Nebraska State Historical Society.

for Richardson County asserted in 1873, after herd law had been applied to parts of the county, that fencing was not general "except in the extreme eastern portion of the county." A little later a herder advertised his services at Syracuse, Otoe County, within twenty miles of the Missouri.³⁷ It follows that many fields in the southeast were not enclosed.

The prestigious *Hayden Report* repeated generalizations that probably were representative of southeastern Nebraska away from the Missouri River. The report of a railroad land office to the Secretary of the Interior that was quoted said in part:³⁸

Fencing is not a rapid process. When boards are used the work is costly, and therefore there is not much of that kind of fencing. Sod fences occasionally occur being taken up on breaking. . . . The honey locust and Osage orange grow rapidly, and if properly attended to, in four or five years they will make a fence that will turn cattle. The only cost of the fence is the price of the seed and labor. However, a settler frequently finds it necessary to obtain returns from his land before investing even the smallest amount of capital in any way but the most essential permanent improvements. Under these circumstances, the herd law of Nebraska has been a beneficial operation. . . . The result of this law is—as live fences have to grow and board fences are expensive—that, when a locality is settled, the cattle are herded together. . . . It prevents the necessity of fencing when the farmer could not well afford the

cost; but it must be added that it is a check on fencing when the work ought to be undertaken.

From his own observation, Thomas, who repeated the summary above, stated that Osage orange was preferred for fences and windbreaks, but that honey locust, willow, and white thorn were used also.

It may be assumed that the longer the delay in adopting the herd law, the more nearly completely fields were enclosed. Cattle and horses continued to roam freely in limited areas along the Missouri later than 1871 (Fig. 8). In general, the supply of timber for fencing was most adequate there. In the four northeastern counties refusing herd law until 1875 or later, wood for fencing the limited crops was probably sufficient up to that time. According to the United States census of 1870, all four had more woodland than improved land. These were the only counties in the state that had such a ratio.

Only a short distance beyond the Missouri, usually less than the width of counties bordering the river, timber was scarce in northeastern Nebraska. Herding of cattle and horses was general and fences were few in most of northeastern Nebraska. An immigrant from southern Iowa who came to Nebraska in 1871, who probably reached the upper Elkhorn by taking the usual route up the valley, later commented, "For the first time in our lives saw farms with growing crops on them without any fences around them." A few years later, the promoter of an Irish colony still farther up the Elkhorn, in describing farming in the Elkhorn Valley in Antelope County, wrote, "There are no fences—cattle are kept in herds in summer in care of a herder and in winter run at large, having access to straw piles, open range, and stalk fields." Also children were called on to watch farm stock: "Since there are no fences, children herded cattle, some youngsters beginning this task at the age of five." Apparently, hedges were used more for adorning front yards than fencing fields in Elkhorn Valley.³⁹ Even with herding, some corrals, barnyards, hog lots, and pig pens had to be enclosed. In one probably representative instance, in a locality a little east of the center of Nebraska, a pioneer farmer dug a ditch around his pasture and enclosed the hog lot with ditch and sod wall. Probably corrals consisting of rails or logs and poles represent the chief competitor to earthen or sod walls (Fig. 9). A few pastures and fields were enclosed.

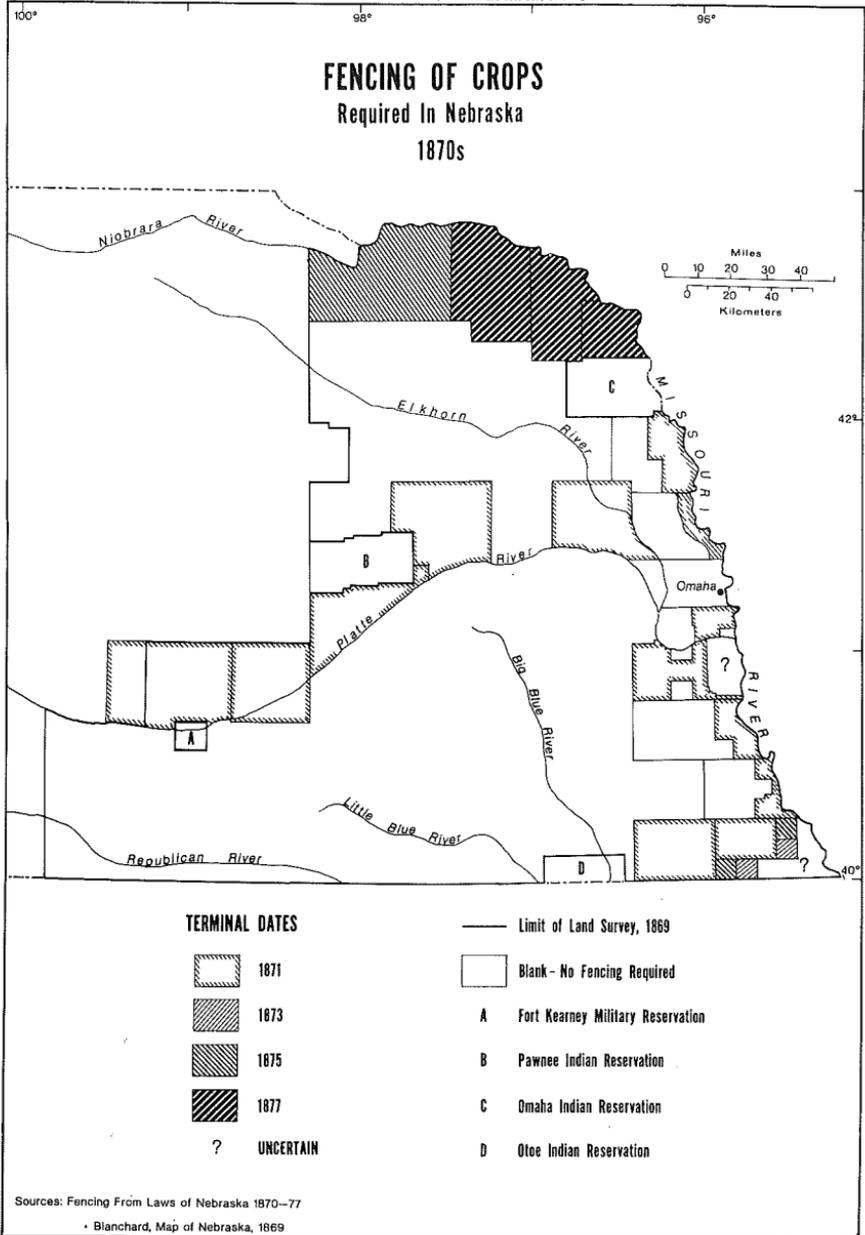


FIG. 8. Fencing of crops required in Nebraska, 1870s. Herd law requiring herding or confining of livestock was common. Only in the shaded areas were fences required by law. Such areas were reduced greatly in 1871 and more gradually thereafter. In a few cases, as in Richardson County in the extreme southeast, and in eastern Cass County, bordering the Platte and Missouri rivers, herd law was rescinded temporarily. Herd law became state-wide in 1877.

The Fencing Scene in Nebraska after 1871

Fencing as a part of the rural landscape in eastern Nebraska appears to have remained much as reported in the 1871 survey for the next decade or more. Generalizations that remained valid included: the scarcity of fencing, especially on the open prairie, more and more varied fencing in and adjacent to the limited wooded areas, and a concentration of hedges in the southeast. The chief change, less marked than the continuities, was sporadic and gradual increase in fencing with the intensification of mixed farming. This change was aided by lower costs for fencing lumber, increases in hedge-planting in the southeast and extension to the west, and rather tardily, adoption of manufactured barbed wire.

The two most useful accounts of rural Nebraska of the period emphasize continuities in fencing. Curley, a visiting Englishman, recognized the general existence of herd law, with its resulting reduced need for fence, and the prominence of Osage orange and honey locust hedges in part of the southeast. In his statement that "as a temporary fence I am decidedly in favour of sod, which may be made almost without cost," and in his use of the cost of sod enclosures for a pioneer's field and cattle yard in determining the cost of making a farm, he gave unusual emphasis to sod. In at least some cases he thought the hedge a proper successor to the temporary sod fence. A general statement of Curley's suggests both local diversity and change: "In many parts of Nebraska no fences are used . . . yet as the land becomes more generally cultivated some inclosures become more and more desirable, and almost every thrifty settler obtains them with more or less promptitude." Fences of board, or wire (presumably plain) or in combination were quoted as costing \$1.10 to \$1.15 per rod.⁴⁰

Burch, the Western editor for a Chicago magazine, likewise emphasized herding and the shortage of fence in much of the state. Also, he noted the prominence of hedge, especially of Osage orange but also of honey locust and white willow, in the southeast: "The visitor to Nebraska may ride hundreds of miles without the sight of a fence. . . . There are no stronger or more beautiful hedges in America than in Richardson, Gage, Jefferson, Saline, Seward, Lancaster, Saunders, Cass, Otoe, Nemaha, Pawnee, and Johnson counties." "The cost of pine lumber for general fencing is too high for popular use," he wrote, pro-

bably because of his Illinois background, although local wood had been used much more commonly in Nebraska.⁴¹

Support for the herd law because of its making fences for crops unnecessary continued in state and local newspapers. For example, the question was asked in the December, 1877, issue of the *Nebraska Farmer*, under the heading "Always a Mystery," "Why eastern farmers will spend one fourth their time and half their income in keeping up fences when they could farm in Nebraska without fences?" Five different herders advertised their services in one issue of an east central Nebraska newspaper.⁴²

Hedges increased in established areas and were extended westward into newly settled country. In long-settled Otoe County, an Andrew Campbell completed thirty miles of Osage orange hedge, which would be full grown in two years. Near the western limit of hedging, branch nurseries at Hastings and Juniata advertised Osage orange and honey locust hedge plants. The 2,000,000 Osage orange and 4,000,000 honey locust plants from Brownville advertised as far west as North Platte may have been intended more for "timber claims," permitted under an extension of the Homestead Law, than for hedges. The introduction of Russian, or Caucasian, mulberry hedges in Mennonite colonies in and near Jefferson County added variety.⁴³ The northern limit of importance, as in Iowa, was set by the hardiness of the Osage orange.⁴⁴ Whether climatic limitations or lateness of introduction or other considerations, such as competition with barbed wire, or all of them together, were responsible for the westward thinning is uncertain (Fig. 6). Probably improved transportation aided in making fences of post and board more competitive, with some increase in their use.⁴⁵

Although fences of rail were not mentioned by Curley or Burch, worm fence continued in use in a few wooded areas, as noted earlier. Fences of post and rail, the most common type in 1871, probably declined in relative importance as the prairies were occupied. The farmer on the Little Blue who in 1876 split posts, sharpened rails, cut forks, and on several occasions split rails, as well as making hedge, obviously was making rail fences, whether of post and rail, worm, or of the shanghai type. The continued common use of fence of post and rail is implied in the comparison with another fence made in a

letter to the editor of the *Nebraska Farmer* in 1880, which was claimed to be "as good as any board or *post-and-rail fence* [*italics mine*] in existence."⁴⁶

It is commonly, but incorrectly, assumed that the invention of barbed wire and its mass production in factories revolutionized fencing on the Middle Western prairie in short order. The first offering of barbed wire through Nebraska newspapers seen was that from the northeastern part of the state of June 25, 1875. The invention of J. F. Glidden of June 25, 1874, factory-produced in De Kalb, Illinois, it was stated, was approved by the editor as solving the problem of fencing the treeless plains.⁴⁷ However, old attitudes and practices relative to fencing persisted.

The following description from Polk County, centrally located in agricultural Nebraska, represents the countryside undergoing some change in 1880:⁴⁸

Some attention, during the year, has been given to hedge and tree planting for fencing, while here and there we notice new barbed wire fence. There is little necessity for fences as the herd law makes every man responsible for his own stock.

The regional view as presented from Lincoln was not very different:⁴⁹

Those who have much stock employ a herder . . . and where several farmers jointly employ a herder, the cost is but a trifle. . . . Yet farmers are rapidly enclosing their farms by hedges, chiefly grown to Osage orange. . . . Until such time as hedges serve to protect grain, many make fences of barbed wire. . . . It does not do well to enclose horses.

Increasingly, the need for separating livestock and crops in mixed farming became more evident. Fencing of both pastures and crops became more common.⁵⁰ But change occurred very slowly. Several examples follow. Professional herders were still advertising in county newspapers past 1880. An "American Ditcher" that was said to solve the problem of fencing the treeless plains by making ditches and embankments side by side, enclosing a quarter section in four days, was offered in York in 1878. In 1882, the *Nebraska Farmer* after noting that plain wire fences were "continually being broken down" and that barbed wire injured stock, advocated more use of Osage orange hedge. Sod fence and walls were being made in Custer County in 1889 (Fig. 10). A nursery in Bloomington, Illinois, advertised hedge plants in the *Nebraska Farmer* in 1892.⁵¹



FIG. 9. Corral of rails and poles or small logs near Middle Loup River, northern Custer County, 1886. Solomon Butcher Collection, Nebraska State Historical Society.



FIG. 10. Sod fence or wall under construction, northeast of Anselmo, Custer County, 1889. Thin slabs of sod, cut by the breaking plow, some still on the ground, are shown. Solomon Butcher Collection, Nebraska State Historical Society.

Many living in southeastern Nebraska recall the use of hedge for fences into the 1920s. Old landscapes gave way slowly.

KANSAS

Although the whites who rushed into Kansas following the opening in 1854 were primarily responsible for making it an agriculturally productive part of the country, they were not the first to fence, nor even the first to extend cultivation onto the upland prairie. In 1839, Farnham wrote that the fields of a number of bands and tribes of eastern and Middle Western Indians who had moved or been moved to eastern Kansas were enclosed by rail fences. Included were Delaware, Shawnee, Ottawa, Miami, Peoria, and Kaskaskia, as well as Cherokee. However, other Indians, including Iowa, Sauk, Kansas, Otoe, and Osage, either did not generally fence or their fields were poorly fenced. According to *Annual Report of the Commissioner of Indian Affairs of 1845-46*, Stockbridge, Kickapoo, Potawatomie, and some Osage were also using rail fences. The fields of the Potawatomie were described specifically as "well fenced, staked, and ridered." In 1845, the Osage, because of flood losses in the valleys, began planting on the prairie despite lack of equipment, and the Potawatomie, under instructions, it was reported, "are now cultivating the prairie land with much success."⁵² One can assume that the fields and fences of the Indians were occupied promptly by the incoming whites as they obtained possession of former Indian land.

The amount of timber in easternmost Kansas, and perhaps in the Kansas River Valley, a convenient avenue of westward penetration, at more than ten percent woodland, approximated average conditions in the prairie farther east (Fig. 11). Malin's summary of the perception of the adequacy of woodland for pioneer settlement may have represented majority opinion of the 1850s: "The timber supply was considered sufficient for most immediate needs of settlers along the streams for log cabins, fuel, and fences, and some insisted for settlement on the upland prairies as far west as the meridian of Fort Riley." However, there was considerable evidence of shortages early. Horace Greeley so reported just west of Atchison; Morgan noted more general deficiencies. Numerous squatters

settled on Indian reservations in eastern Kansas, reputed to contain much of the better timber. It is probable that others, because of conscience or uncertainty of their status if they occupied Indian land, made homesteads more remote from sources of wood. Some preferred not to live in woods or on their margin. Richardson, whose observations extended over a number of years, in 1859 wrote that Missourians near Holton invariably settled in timber along the streams "while northerners made their home upon high open prairies."⁵³

Many early settlers in Kansas found enough timber for the construction of worm fences about their small fields. A number of diaries, letters, and other accounts indicate that zigzag rail fences were common in early Kansas, probably the most common first fencing. Early observers, Boynton and Mason, called rail, or worm, fence the "first stage." One farmer first recorded in 1855 "getting out my rails"; then two years later wrote: "There is little fencing timber on my claim. Most of the rails I will have to buy." In 1859, he added: "I think of buying a few acres of timber as there is no rail timber or good saw logs on mine." Richardson in 1857, wrote of country along the Missouri above Wyandotte: "I was in a richly wooded region, dotted with neat log-houses and well tilled farms, enclosed by substantial Virginia fences six or seven feet high."⁵⁴ However, he continued:⁵⁵

Crossing the Kansas, we reached the prairies and left the woods behind . . . yet the farmer would far better settle where he must go twenty-five miles for house and fence lumber and firewood, than where he must clear forests.

Morgan, like Richardson, noted "regular" rail fences, the former generalizing that they occurred in the best timbered areas.⁵⁶ It appears clear that worm fences were the first choice of many—perhaps most—of the early settlers in Kansas.

Understandably, there was a wide variety of field enclosures in eastern Kansas almost from the start, depending on the availability of fencing material, the experience of the farmers, and other considerations. In 1857, Parker gave what he called average rates for fencing: sod fence 30 to 40 cents per rod (5 m); hedge set, 32 cents per rod; stone, 80 cents to \$1 per rod; and rails from \$2 to \$3 per hundred, presumably to be used mainly for worm fence.⁵⁷ These types did not encompass the full range of choices.

Morgan, on the basis of travels in 1859, made some interesting generalizations about pioneer life, including the identification of a crude type of post and rail fence as the most common enclosure. The name "rough and ready" was sometimes used for this fence. In addition, Morgan recognized worm fences, and another type, perhaps a version of shanghai, using rails and stakes in a different way. In Morgan's words:⁵⁸

After the field is plowed and planted . . . they then look to the fencing. They have first a hog law in the territory, which makes it necessary to shut up all swine. They are thus compelled to fence against cattle alone. As timber is so scarce, the fences are slight. The common kind is made by setting posts in the ground and nailing to them three strips or rails, all of which is done in the roughest manner. Another form is to drive stakes in the ground at an angle of about 60° and insert from the opposite side another stake through it by means of an auger [sic] hole, and then nail on the strips and allow them to rest on the other stakes, thus avoiding the danger of blowing over, or falling apart, to which the upright fence is liable. In the best timbered portions we see the regular black walnut and burr oak rail [worm] fences.

It appears likely that a wood-conserving fence of posts and rails, of the sort described by Morgan, was common from the beginning of settlement by whites on the prairie margins. A pioneer in Johnson County wrote in 1857 that post and rail were "usual." One of the diary entries is of nailing rails on one side of a field.⁵⁹ Johnson County, immediately south of Kansas City and the mouth of the Kansas River, was not poor in timber by Kansan standards (Fig. 11). Worm and post and rail were probably the two chief kinds of fence built during the first decade of white settlement in Kansas. The third type of rail fence described by Morgan may have been a form of shanghai fence. Shanghai may have been common, also. A description of shanghai fence that appeared originally in the *Ottawa (Kansas) Home Journal* follows:⁶⁰

The lower rail is laid upon posts about two feet above the ground. These posts of course are driven securely into the ground. The first rails are then secured above by the longer stakes, upon which again are laid the upper rails, about two feet above the lower. This is the cheapest fence I know of, and a great deal better than no fence at all.

At greater distances from woodland, fences of board or, temporarily, of sod with a ditch alongside, probably had their greatest use. It is unlikely that the resident of Jackson County (north of Topeka) was alone in his use of board. He testified, "I settled on the bare prairie. I first built board fence, sharpen-

ing the posts and driving them in nailing on three boards. With one man helping me, I enclosed 100 acres between the 29th of April and 4th of July, 1858."⁶¹

Malin's summary relative to settlement and fencing near the Upper Kansas River Valley about 1866 probably was applicable over a much broader region.⁶²

As late as 1866 and as far west as Salina the predominant tradition still held sway, the commentator [in the *Junction City Union* of May 19, 1866] pointing out that by 1865 the timber claims were all taken and only then were prairie lands occupied: "Settlers taking prairie claims depend on those who have timber claims and on ditching and on the Osage orange for fencing."

However, Malin and the commentator ignored some earlier settlement on the prairie.

The introduction and spread of hedges in Kansas seem to have paralleled events in Nebraska. However, there were differences, of which the most notable was that Osage orange hedges were about as common in the northern as in the southern part of the state. Also, there appears to have been less dependence on nurseries in Illinois and more on local sources. There was surprisingly early awareness that Osage orange seed produced in the North would grow. The Civil War-time shortage of seed and plants may not have been severe.

Parker's listing of Osage orange hedge as an early option, despite its taking four or five years to form an effective barrier, is confirmed by accounts of its use, for example, in Johnson County about 1857. As might have been expected, widespread dependence on hedges materialized only after settlement outran local supplies of timber. Malin's date of 1866 was probably realistic for widespread prairie settlement in much of northeastern Kansas. Richardson, whose acquaintance extended over at least nine years, in 1866 noted marked changes on the upland prairie in Johnson County: "In riding five miles to the eastward, where in 1857 was no human habitation, I saw almost every quarter-section fenced, with dwellings of frame or stone, *long hedges* [italics mine], young shade trees and great expanses of grain."⁶³ He generalized for Kansas:⁶⁴

Limestone and sandstone make excellent building material, and Osage orange admirable fences. . . . To inclose it [the prairie field] he puts in the Osage orange; for one or two seasons replants what the gophers destroy; and in four years he has a fence equal to a stone wall.

The fact that both Richardson and the source quoted by Malin

noted that Osage orange hedges were common in 1866, shortly after the end of the Civil War, suggests that the wartime interruption of the trade in seed and plants did not have major impact on fencing in Kansas. Readers of the *Kansas Farmer* were told in October, 1863, that seed grown in Illinois would grow, likely leading to the conclusion that seed grown in Kansas, located closer to areas where the trees were indigenous, would also grow. Perhaps it is significant that the Scott Farm, in Jefferson County, advertised 100,000 Osage orange plants as well as 80,000 white willow cuttings for sale in April, 1864. However, during the war both honey locust and white willow received some attention as substitutes for Osage orange. One who tried willow reported that the hedge was killed by drought.⁶⁵ Apparently, Osage orange became the standard hedge plant in Kansas again very soon after the end of the war.

As in Nebraska, the decade following the Civil War saw a major extension of Osage orange hedges. Symptomatic were the offerings at Leavenworth of "800,000 good Osage plants raised in the county," 300 acres (121.4 ha) of plants growing in a nursery at Lawrence that the nursery offered to set out, a "limit" of 600 miles (984 km) of hedge for the Spring stated by a Doniphan County concern, 1,000,000 plants for sale at Baxter Springs, and 2,000,000 at Ottawa, topped by 5,000,000 from Doniphan County, and advertising by a Bloomington, Illinois, nursery. The surge was probably encouraged by the reduction in taxes given for planting of hedges authorized by the legislature. Adoption of herding requirements in much of the newly settled country, even before passage of a general herd law, had the dual effects of protecting young hedge from wandering cattle and of reducing the need for any kind of fencing. Readers of the *Kansas Farmer* were reminded that only the rather unsatisfactory wire fence could be constructed about as cheaply as hedge. The farm magazine proposed an association of hedgers for the purpose of policing hedging.⁶⁶

The occupation by white farmers of former Cherokee land in southeastern Kansas came after Osage orange hedges were well established in the pioneer agriculture of Kansas. In 1873, it was reported, with some exaggeration, from Baxter Springs, in the southeasternmost county, "For fencing everyone relies on the Osage orange hedge . . . but a few posts and rails are indispensable and are obtained from forest one to twenty miles

TIMBER IN KANSAS

According to U.S. Land Survey
by counties

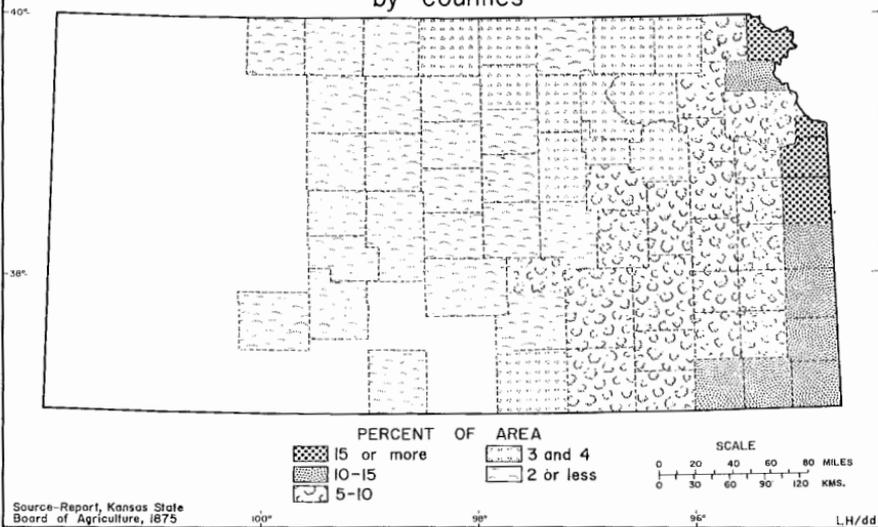


FIG. 11. Timber in Kansas, by counties.

CHIEF TYPE OF FENCE

KANSAS, 1875
by counties

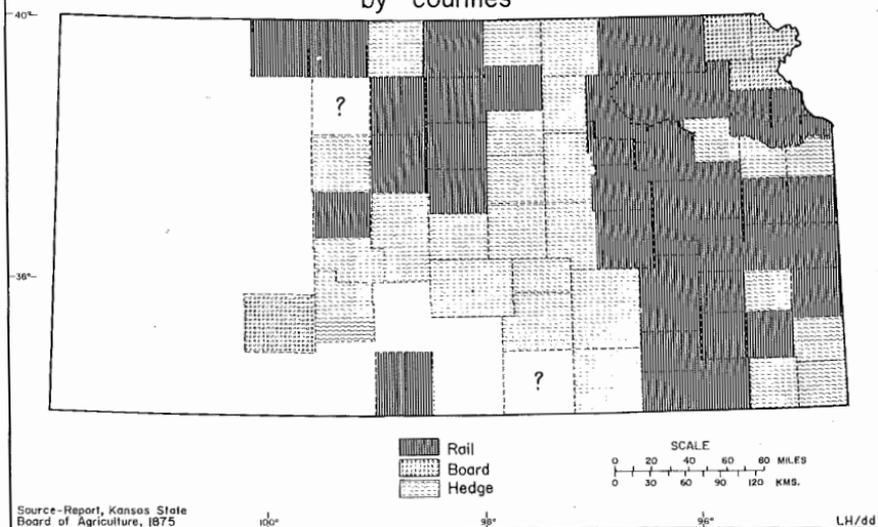


FIG. 12. Leading fences in Kansas, 1875.

distant." Although ditching and sod walls were not mentioned, they were in use.⁶⁷

Fencing in the Landscape in Kansas in the Early 1870s

The federally compiled figures on fencing offer a summary of the fencing situation in Kansas in 1871, as settlement was going beyond the relatively well-timbered eastern third. The summary for Kansas follows:⁶⁸

It is difficult to calculate the comparative prominence of styles in Kansas. Averaging the returns, the worm fence appears to constitute but 18 percent, board 12, post and rail 9; leaving 61 percent for a great variety of fences, reported somewhat indefinitely. The Osage orange is very prominent, apparently bidding fair to be the principal fence of the state. It is reported at 100 percent in Cloud; 50 in Bourbon, Franklin, Linn, and Osage; 40 in Leavenworth, 33 in Douglas; 30 in Anderson. Dickinson reports 400 rods of stone walls, built at \$2 per rod. The shanghai fence is also found in Kansas. Cherokee County reports fences with names hereto unheard of.

The ten counties listed give some notion of the geographical spread of the sampling of opinion; more important, a gauge of the accuracy of the results is provided. The percentage of hedge claimed ran much too high in six of the eight counties—in all but Douglas and Anderson—judging by Kansas state returns in 1875.⁶⁹ The difference in dates is not important; in fact, hedges were increasing well past 1875. In addition, the somewhat indefinite reporting referred to seems to have confused the results. Worm and board would be hard to misinterpret, eighteen and twelve percent, respectively. The state report of 1875 did not distinguish worm; board fence figures out at 14.7, reasonably close to the average of twelve percent given for 1871. However, nine percent for post and rail in 1871 must be judged much too low unless the crude "rough and ready" fence—rails nailed on—was excluded. There is no reason for thinking that a timber-conserving rail fence, already a main type before 1860, should have lost importance as timber became scarcer.⁷⁰ Reporters in only eight counties volunteered the nature of rail fences in 1874, the only date in which such a breakdown was provided. All eight said post and rail; one of the eight listed worm also.⁷¹ The 1875 Kansas state averages figure out at rail, 44.7 percent, hedge 30.5, board 14.7, wire 6.3, and stone 3.7. The classification "rail," it may be assumed, included worm, post and rail, shanghai, probably pole, or "corduroy," stake, and palisade. It appears a

reasonable interpretation that hedges were first and post and rail second in 1871, followed by worm, and then board.

A traveling Missourian verified the diversity of enclosures found in northeastern Kansas in 1871 in picturesque, but not very exact language:⁷²

Being familiar with all the expedients and substitutes for fences resorted to on the Illinois prairies before the day of railroads, we had them all pass in review—not in vision, but in fact—on the prairies between Atchison and Waterville, and in fact all through Kansas . . . here we have sod fence (adobe) and ditch, wire fence with posts a rod or more apart, pole and post fence (never secure), to be renewed every three or four years, “galloping” pole fence, Virginia rail, and every other expedient the fertile brain of man can conjure up.

Of course, sod fence was not adobe. Its mention means that sod and ditch had not yet been crowded out of northeastern Kansas.

The year 1875 was the first for which county data permit mapping or the making of other at all detailed statistical comparisons. Reference has been made to state-wide averages that showed rail first, hedge second, board third, wire fourth, and stone fifth. The averages serve to show the continuing prominence of rail fence and the marked spread of hedges. Rail fence continued to be concentrated in the older, more wooded, eastern part of the state. Only seven of the thirty-nine counties entirely or mainly east of the 97th meridian reported fewer than 100,000 rods (503 km) of rail fence, not any less than 65,000 (327 km); nine counties reported more than 300,000 rods. West of the 97th meridian, only nine counties reported more than 10,000 rods (50 km), two of them over 20,000 (100 km). Thus, the dominance of rail in much of eastern Kansas was based on large amounts; but the fact that rail fences were the most common kind in eleven western counties was in spite of there being little fencing of any kind (Fig 12). Rail and hedge had largely overlapping distributions, but the western range of hedges, as a common feature of the landscape, was greater than for rail fences. Of the thirty-nine counties east of the 97th meridian, twenty-six reported more than 100,000 rods (503 km) of hedge, only one less than 10,000 (50 km). In addition, four counties a little farther west, Dickinson, Saline, Harvey, and Sedgwick, reported as many as 100,000 rods (503 km) of hedge. Board fences were less evenly

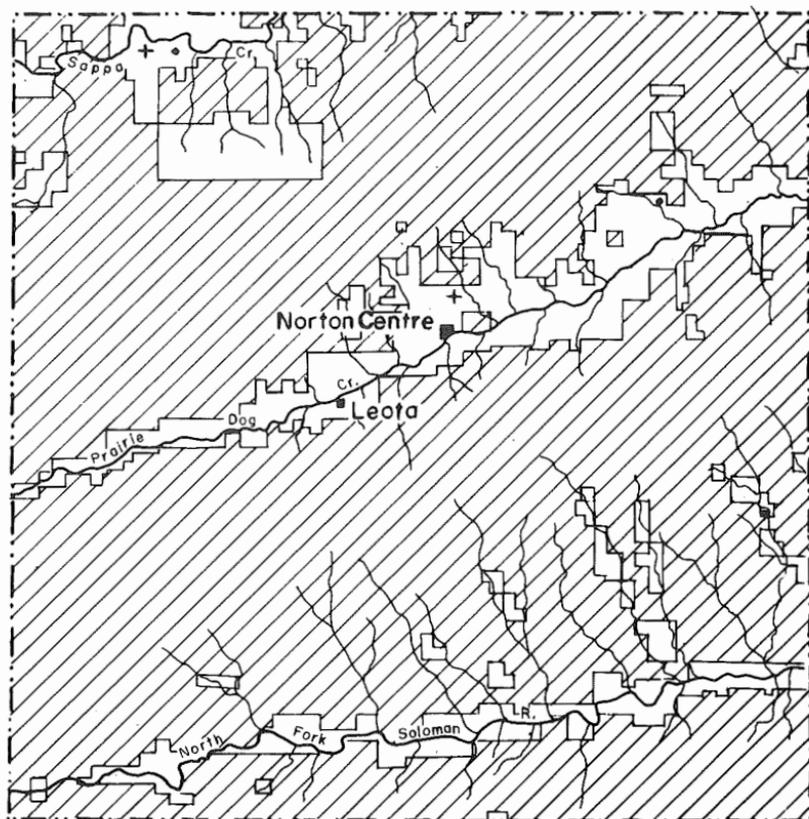
distributed; more than one-half were north of the Kansas River, constituting the leading type in three counties in the extreme northeast. However, only four counties east of 97° had less than 10,000 rods (50 km). Only two to the west exceeded 10,000. Railroad linkage to southwestern Missouri and to Indian territory, which had been expected to bring in hard pine, considered excellent for fencing, had not led to a big surge in board fences in southeastern Kansas.⁷³ In 1874, those reporting costs of fencing listed both native wood and pine for most counties. Usually native wood was cheaper, probably leading to its greater use. In 1875, there was little difference reported in the average cost of fencing with rail or boards—rail \$1.31 and boards \$1.33 per rod (5 m); stone averaged \$1.89, wire 73¢, and hedge 51¢.

Stone as fencing material was conspicuous only locally, reaching 80,000 rods (402 km) in Douglas County (county seat, Lawrence), where stone fences ranked fourth. Stone fences were second in the counties of Davis (now Geary) and Wabaunsee, and a good third in Riley, these three in the Flint Hills. Wire (plain) fences were found almost entirely east of the 97th meridian, ranking third in several counties, a poor second in Wyandotte (Kansas City area). They had not caught on widely despite an advertising flurry about 1871. Some objection was voiced due to stock injuring themselves on a fence they could not see. The cheapness of wire for a "tolerably good fence" was probably well known.⁷⁴

The fact that rail was the leading fence in eleven western counties, ten of them west of 98°, and one on the 100th meridian, indicates that an old tradition of the woodsman and prairie farmer—starting with rail fence—still held. It is probable that most pioneers had to make-do with post and rail or shanghai fence rather than worm. However, as noted, the rail fencing in Phillips County was both post and rail and worm. Phillips County is entirely west of 99°. Some years earlier, when the lower Republican River in Cloud County was being settled, the following appraisal indicated the use of post and rail fence:⁷⁵

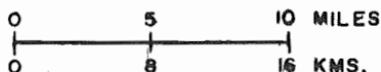
Timber is of ordinary quality, such as found on the tributaries of the Missouri River, and can be taken up or bought from ten to twenty-five dollars per acre; posts can be bought for three cents, rails three and a half and there is no sale for firewood; coal can be had for the trouble of digging and hauling.

PRIVATE LAND NORTON COUNTY, KANSAS, 1875



- //// GOVERNMENT LAND
- VILLAGES
- OTHER NAMED PLACES
- + SCHOOLS

KANSAS



SOURCE—REPORT, STATE BOARD OF AGRICULTURE, 1875

LH/DD

FIG. 13. Privately owned land in Norton County, 1875. The dependence on water and wood seems obvious.

The judgment by a Kansas State College professor of conditions suitable for settlement of the Solomon River Valley, in northwestern Kansas, in 1872 was much the same as for country farther east:⁷⁶

Some of the "creeks" as they are called, are timbered thirty miles from the river, with oak, black walnut, ash and elm. Cottonwood is found chiefly on the river banks. Small timber lots can usually be bought of those who settle on the streams.

However, it is very doubtful that the earliest settlers, living near the streams, had any surplus of wood. Norton County, on the 100th meridian, exemplified early settlement along streams in northwestern Kansas (Fig. 13).

Although rail fences were the leading type reported on most parts of the western frontier of Kansas in 1875, other choices were made also. In 1875, rails were the only kind of fence reported in two western counties, Norton and Rush; however, Ford, on a railroad, reported only board, and Edwards and Pawnee only hedge (Fig. 12). One can only wonder how much sod was used for corrals and other enclosures. Surely there was some carryover from the corrals of earth banked by sod described by Horace Greeley.⁷⁷

As of 1875, west of longitude 97°W the emphasis belonged on the amount of fence—the near absence of fence of any kind, rather than on the kinds of fence (Fig. 14). County averages of below ten rods (50 m) of fence per farmer in seven counties in 1875 meant that few farmers had any enclosure except possibly small corrals. In two townships in Norton County only 3 of 137 farmers reported any fence in 1875.⁷⁸

The explanation for the open, unfenced character of most of central and western Kansas lies in the earliness of adoption of the practice of herding, enforced by locally accepted herd laws. An argument in favor of immigrants choosing Kansas cited the advantage of not having to put up fences: "In most of the newly settled counties but little fencing is required as they have laws requiring the stock to be herded during the day and corraled at night." In most cases the law was adopted as soon as the newer counties were organized. In 1875, herd law was generally in effect west of 97°, and in some places to the east (Fig. 15).⁷⁹

Fences in Kansas after 1875

The chief change on the Kansas fencing scene in the short

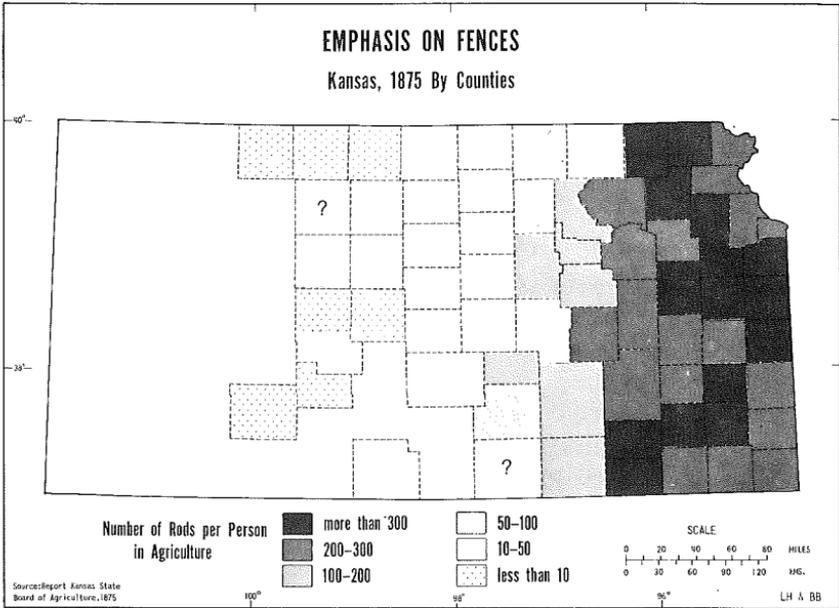


FIG. 14. Fencing per farmer, Kansas, 1875. The amount of fence, especially west of longitude 97°, was small. The complete fencing of a square field of forty acres (16.2 ha) requires 320 rods (1609.6 m). The average was this high in only six counties in the state. The highest average was 427 rods (2,261 m), in Franklin County.

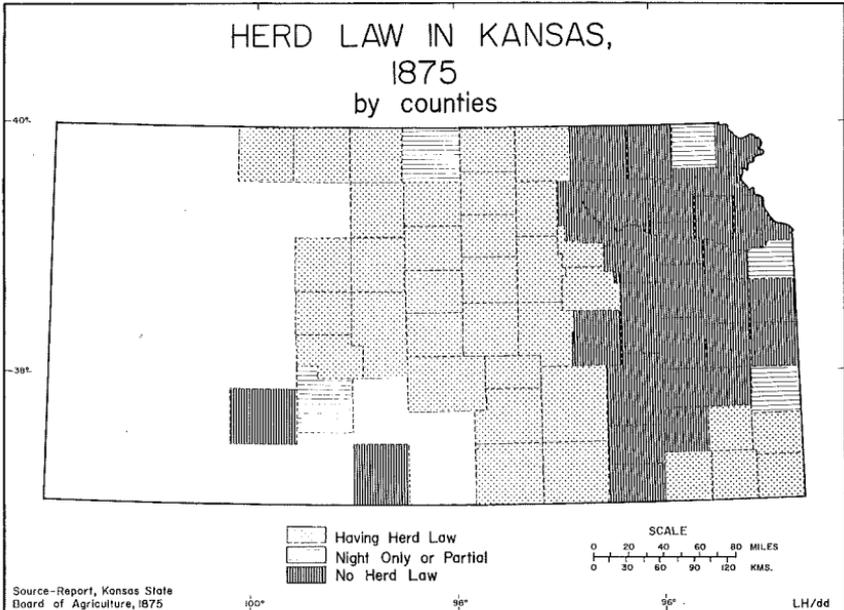


FIG. 15. Herd law in Kansas, 1875. In extensive areas, especially to the west, fences were not required. However, fences were required by law in a much larger part of Kansas than in Nebraska.

time between 1875 and 1878 was the great increase in hedges, which nearly doubled. This large increase and substantial reduction in rail fences resulted both in hedges becoming the leading fence in the state, with about forty-nine percent of the total, and a notable extension of the territory in which hedges were the chief type of enclosure (Fig. 16). Board fences showed a small loss; there were small increases in wire fence, and in those of stone. Wire became the leading type in three counties, two of them western, with minimal amounts. Most of the wire fence, however, was in eastern Kansas.⁸⁰ Newspaper accounts in 1876 from Smith County probably represent both attitudes about fencing and the situation in western herd law country. The construction of hedges and barbed wire fences was approved, although it was pointed out that fences were not required.⁸¹ Indeed, few fields or pastures were fenced. The fencing reported for the county in 1878 was sufficient to enclose less than seventy forty acre (16 ha) tracts.

Between 1878 and 1882, both hedges and wire fences in Kansas increased substantially, with hedges in the lead, at nearly forty-eight percent of all fencing, and wire a good second. Rail fences were a poor third. By 1882, hedges and wire fences were the leading enclosures in nearly all of Kansas (Fig. 17). The distribution of hedges was much as before. The eastern half of Kansas is very prominent on the regional map of hedges (Fig. 6). Barbed wire fences had generally replaced those of rail both in the east and west. Although the gains shown on Fig. 17 were largely in the formerly nearly fenceless west, the largest increases and greatest totals were in the east, especially in the northeast.⁸²

Although the amount of fence in the state had increased by more than a third from 1878 to 1882, the number of rods reported in most of the western part of the state was enough to enclose a small fraction of the fields. In an explanatory section of the official report on Kansas agriculture for 1881-82, a defense of the reporting of but little fencing was included: "This is explained by the fact that the herd law is in effect in these counties, and the law itself serves as a protection to the growing crops from depredations of live stock." A few years earlier it was reported from Abilene: "In the exclusive wheat districts there are no fences." Nor were they common in many areas of mixed farming, which was more widespread than wheat farming.⁸³

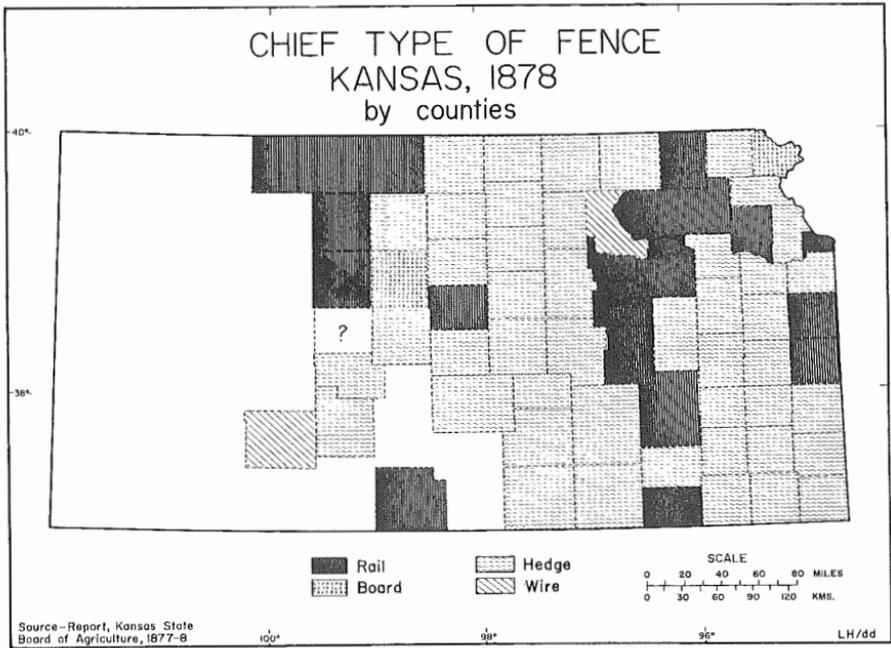


FIG. 16. Leading fences in Kansas, 1878.

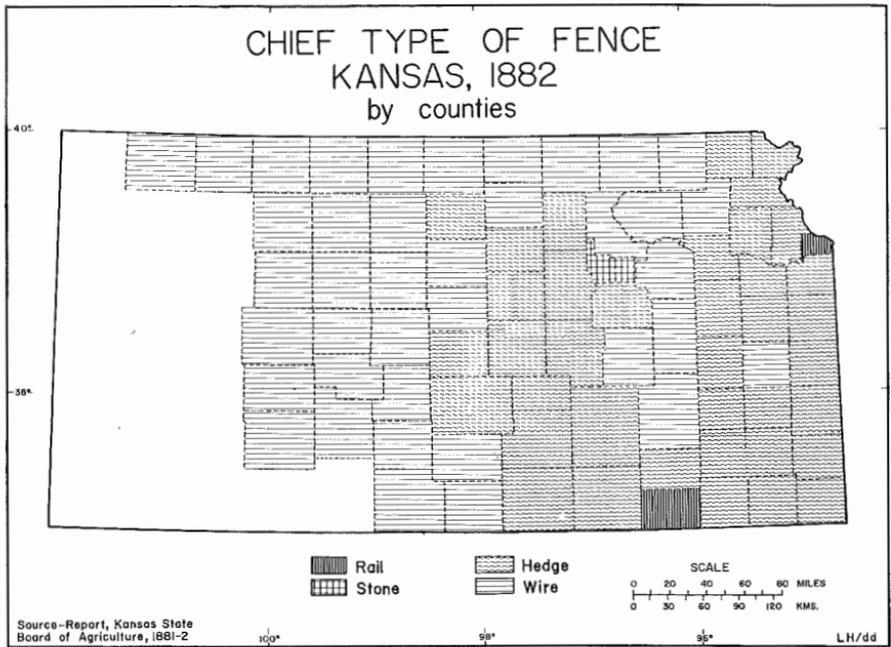


FIG. 17. Leading fences in Kansas, 1882.



FIG. 18. Relict hedge, west edge of Flint Hills.



FIG. 19. Old stone fence in Morris or Chase County, Kansas. A fence of barbed wire has been added, a clear record of succession. Kansas State Historical Society.

Perhaps a study of early fencing in Kansas should end with barbed wire established as a major type in 1882, or state leader in 1885. In 1885, wire was the leading fence in all but nineteen counties, all these in the eastern and central parts of the state. Hedge was the most common fence in eighteen; rail fence was the leader in one. Hedges, and stone walls, to a smaller degree, continued to be enduring features of the landscape. Also dependence on fencing instead of herding occurred only gradually. In 1885 it appears from county statistics that herding to protect crops was still used widely in the western half of the state. To cite an extreme example, at that time in a township in the southwestern county of Edwards, only five of forty-eight farmers reported any fence, although some settlers had lived there ten or eleven years. The five farms that were partly fenced were among the larger farms, averaging 200 acres (81 ha) of enclosed land.⁸⁴

The use of hedge fences peaked in Kansas in 1895, although hedges led in only three eastern counties. In 1915, the last year in which classes of fences were recorded, nearly as much hedge was reported as in 1882, when barbed wire was coming into use. The hedge was still a functioning part of many farms in 1915 and a striking feature of the rural landscape in much of eastern Kansas. The distributional pattern differed little from that of 1881 (Fig. 6).⁸⁵ Perhaps only the stone wall of New England equalled the hedge of the Middle Western prairie as an essential man-made part of a distinctive historical regional landscape. The Kansan part of that landscape rivaled that of New England in durability. Make-work activity in the 1930s stripped the area of most of its hedges.⁸⁶ Numerous fence rows of neglected Osage orange trees and occasional stone fences are the chief reminders of early field enclosures to be seen in eastern Kansas (Figs. 18 and 19). Such relict features are few to the west.

CONCLUSION

With the accumulated experience of more than a generation of living on the prairie as part of their culture, surely many of the pioneers in Nebraska and Kansas did not think themselves in a strange land. Their prior experience and the exchange of information and ideas between those in the older and newer parts of the prairie made for a common heritage, which in-

cluded how to use the land. Fencing was a means toward making the land produce. Enclosures of worm, post and rail, board, ditch with sod walls, and hedge were common elements of the rural landscape of the Middle Western prairie, Nebraska and Kansas included. All these enclosures were shared with other areas but in different degrees. The worm, or Virginia rail, fence lasted less long as the dominant enclosure than in more wooded areas. Hedges, commonly of Osage orange, gained unusual prominence, especially in Kansas. Although less numerous than hedges, stone fences helped to set the landscape of eastern Kansas apart.

Perhaps it is not far-fetched to recognize three main stages in the protection of crops from livestock on the western margin of the prairie. First was the making of traditional enclosures about crops. Second was the herding of cattle and horses, minimizing the need for fences. Herding with minimal fencing was general in Nebraska and was the rule in the western part of Kansas. Third was barbed wire for both fields and pastures. The three stages were not clear-cut, but overlapped.

Although little fence was built on the Great Plains of Nebraska and Kansas before barbed wire, contrary to the dictum of Walter Webb, the 160-acre (64.7 ha) farm was well established in the pre-barbed wire era. In the prairie plains of Kansas and Nebraska the 160-acre farm may have become more profitable with barbed wire, but certainly barbed wire did not make it possible.⁸⁷ Pioneer landscapes in most of Kansas and much of Nebraska did not include barbed wire. The pioneering had been done earlier with other means.

NOTES

This study is reproduced, with minor changes, from *Annals*, Association of American Geographers, Vol. 71 (1981), 499-526, with permission of the Association. Figures 1 and 3 are reproduced, with permission from Hewes and Christian L. Jung, "Early Fencing on the Middle Western Prairie," *Ibid.*, Vol. 71 (1981), 177-201.

The assistance of the Department of Geography, University of Nebraska, Lincoln, of the Nebraska State Historical Society, of Eugene D. Decker, State Archivist, Kansas State Historical Society, and of the University of Nebraska, Lincoln, Research Council is gratefully acknowledged.

1. Leslie Hewes and Christian L. Jung, "Early Fencing on the Middle Western Prairie," *Annals*, Association of American Geographers, Vol. 71 (1981), pp. 177-201.

2. Hewes and Jung, op. cit., footnote 1, Fig. 4, on p. 179.

3. Joseph F. Moffette, *The Territories of Kansas and Nebraska: Being an Account of Their Geography, Resources, and Settlements, Etc., Etc.* (New York: J. H. Colton and Company, 1855), p. 58; *Journals of John D. Lee, 1846-47 and 1859*, ed. Charles Kelly (Salt Lake City: privately printed for Rolla Bishop Watt by Western Printing Company, 1938), p. 151, 175, and 183; E. Widtsoe Shumway, "Winter Quarters, Nebraska, 1846-1848," *Nebraska History*, Vol. 35 (1954), pp. 115-25, reference on 123; and *William Clayton's Journal, a Daily Record of the Journey of the Original Company of "Mormon" Pioneers from Nauvoo, Illinois, to the Valley of the Great Salt Lake*, published by the Clayton Family Association (Salt Lake City: The Deseret News, 1921), p. 90; *Annual Report of the Commissioner of Indian Affairs*, 1854, p. 98-102.

4. *Surveyor's Records* (Field Notes, subdivisions) and *Township Plats*. Townships in which the field notes recorded mainly enclosed fields included T12N, R13E; T8N, R14E; T2N, R16E, and T3N, R16E (Half-breed Reservation parts). Sod fences were recorded in T10N, R13N; T11N, R13E; T15N, R13N; and T13N, R14E.

5. From north to south percentages of woodland for Missouri River counties were: Knox less than 1%, Cedar less than 1, Dixon 1.6, Dakota 4.8, Burt 1.7, Washington 3.7, Douglas 3.6, Sarpy 10.7, Cass 5.9, Otoe 3.8, Nemaha 6.8, Richardson 6.3. The modern Thurston County, made up mainly of the Omaha Indian reservation, was not reported. The other counties shown as at least 1½ percent woodland were: Johnson 4.1, Polk 3.1, Saline 2.2, Gage 2.1, Seward 1.9, and Jefferson 1.8. The remaining counties exceeding 1 percent were on the Republican, the Platte, the Elkhorn, and Salt Creek. These counties were: Dodge, Cuming, Lancaster, Harlan, Webster, Madison, Nuckolls, Saunders, Furnas, and Franklin. A high figure for the Sandhills county of Sherman was disregarded as unrealistic. Lawrence D. Burch, *Nebraska as it is. Resources, Advantages and Drawbacks of the Great Prairie State*. (Chicago: C. S. Burch & Co., 1878), p. 33, made estimates for the Missouri counties. Robert P. Porter, Henry Gannett and William P. Jones, *The West from the Census of 1880, a History of the Industrial, Commercial, Social, Political Development of the States and Territories of the West from 1800 to 1880* (Chicago: Rand McNally & Company, London: Trubner & Co., 1882), p. 352. The claim of thirty-one percent for Nemaha County in *Nebraska Advertiser*, September 14, 1865, must be considered greatly exaggerated.

6. C. Howard Richardson, "The Nebraska Prairies: Dilemma to Early Territorial Farmers," *Nebraska History*, Vol. 50 (1969), pp. 359-72, map on p. 358. The map of Robert B. Kaul, *Vegetation of Nebraska (circa 1850)* (Lincoln: University of Nebraska Conservation and Survey Division, 1975) also shows very little woodland. Moffette, op. cit., footnote 3, p. 27, confirmed that timber on the Elkhorn, the first major tributary of the Platte, occurred as groves. The surveyors claimed abundant timber for T9N, R14E, which is just north of Nebraska City: T6N, R12E, in northwestern Nemaha County, was offsetting. The fractional township, T13N, R14E, south of Bellevue, was reported as claimed for its timber.

7. James M. Woolworth, *Nebraska in 1857* (Omaha City, N.T.: C. C. Woolworth: New York: A. S. Barnes & Co., 1857, reprinted by Johnson Publishing Company, Lincoln, Nebraska, 1967), p. 86, copied verbatim, with credit, in Nathan H. Parker, *The Kansas and Nebraska Handbook for 1857-8* (Boston: John P. Jewett and Company, 1857), p. 152, stated for Otoe County, "The best farms in the country are those lying partly in the prairie and partly in the bottom, in equal proportions." Farms were reported missed

in T17N, R12E. The locality includes Fort Calhoun, just north of Omaha.

8. The United States marshal early protested the taking of timber from public land from "all parts of the territory" in *Nebraskian* (Omaha), November 23, 1855. Late autumn was considered the best time for cutting timber for fencing, according to *Nebraska Advertiser* (Brownville), November 17, 1858. *Weekly Burtonian* (Tekamah), April 11, 1875; and Frances I. Sims Fulton, *Through Nebraska, by a Pennsylvania Girl* (Lincoln, Nebraska: Journal Company, 1884), p. 196 and 207. Groves along the Elkhorn almost to the Sand Hills were said to provide logs for the construction of log cabins for three or four years. A. J. Leach, *History of Antelope County* (Chicago: Lakeside Press, 1909), pp. 12 and 93. The Solomon Butcher collection of photographs from Custer and other counties in central Nebraska contains several of log cabins. Collection in Archives, Nebraska Historical Society. Everett Dick, *Conquering the Great American Desert* (Lincoln, Nebraska: Nebraska Historical Society, 1975), p. 70.

9. *Nebraska Advertiser*, August 26, 1858, and June 18, 1857; and John Henry Dundas, *Nemaha County* (no facts of publication), p. 42. If the Wesley Dundas was the one who did hedging after the Civil War, the date of 1848-49 may be in error. *Laws of Nebraska Territory, Sixth Session* (1850-60), p. 97. Three paintings of a portion of the Freeman homestead (by Herron, Tobias, and Strahm) are so nearly identical that all of them may have been based on the old photograph or one like it, reproduced as figure 2. The Homestead National Monument was created in 1936.

10. "Henry James Hudson and the Genoa Settlement," ed. Marguerite R. Burke, *Nebraska History*, Vol. 41 (1960), pp. 201-35, reference on p. 229; *History of Hall County*, eds. A. F. Buechler and R. J. Barr, associate compiling ed. Dale P. Stough (Lincoln, Nebraska: Western Publishing Company, 1920), pp. 78 and 80; Moffette, op. cit., footnote 3, p. 13; and Samuel Bowles, *Across the Continent: A Summer's Journey to the Rocky Mountains, the Mormons, and the Pacific States, with Speaker Colfax* (Springfield, Massachusetts: Samuel Bowles & Company; New York: Hurd and Houghton, 1865), p. 21.

11. *Bellevue* [Sary County] *Gazette*, April 2, 1857; *Nebraska Republican*, November 23, 1859; and *Nebraska Advertiser*, April 2, 1857, and July 1, 1858, and *Nebraska Farmer*, Vol. 2 (1861), p. 22.

12. *Laws of Nebraska Territory*, Third Session, 1857, enacted April 13, 1857.

13. *Laws of Nebraska Territory*, Sixth Session (1859-60), enacted January 13, 1860. By that time sheep and swine had, by law, been restrained in Cass, Dodge, Douglas, Hall, Monroe, Nemaha, Otoe, Platte, and Richardson counties. *Nebraska Farmer*, Vol. 2 (1861), p. 86, gave as customary prices: fencing lumber at the mill, \$1 per 100 feet, amounting to \$125 for 12,500 feet to enclose 40 acres; walnut posts 5 cents, oak posts 6 cents, totaling \$120 for walnut posts; 500 post holes dug \$5; 1½ kegs of nails, \$6.37; house \$250; breaking \$120; total cost (without cost of land) \$531.37. *Nebraska Advertiser*, January 2, 1862.

14. Joseph Avery Bent, *Hand-book of Nebraska: describing its physical geography and geology — its agricultural resources and other capabilities of producing wealth; also the price of public lands and how to obtain them* (Chicago: R. Blanchard, 1868), p. 27.

15. *Nemaha Valley Journal*, December 30, 1869; *Blair Times*, September 26, 1872; *Platte County Journal*, May 25, 1870; *Saline County Post*, February 2, 1872; and *Beatrice Express*, February 17, 1872, and March 20, 1873.

16. Legislation enacted February 12, 1867, included four-wire fence on posts within a rod, with posts or stakes between every two posts, as a lawful fence. Although post and rail, post and board, worm, hedge, and ditch had been mentioned in the law of 1860, wire had not been. Ditches were omitted in the list of 1867, *Laws of Nebraska Territory*, Twelfth Session. *Nebraska Advertiser*, April 30, 1868, and May 20, 1869; and Bent, op. cit., footnote 14, p. 27.

17. *Nebraska Advertiser*, June 28, 1856; August 30, 1856; February 19, 1857; April 2, 1857; March 25, 1858; and March 17, 1859. Census records show that both Sanders were born in Indiana and had lived in Illinois before coming to Nebraska.

18. *Nebraska Advertiser*, September 15, 1859. Robert W. Furnas, the editor, later to become a leader in horticultural and other agricultural groups in the state, and governor of Nebraska, may have been the author.

19. *Bellevue Gazette*, July 29, 1858, quoting the *Platte Valley Times*; and James C. Malin, *Grassland and Historical Studies: Natural Resource Utilization in a Background of Science of Technology*, Vol. 1, *Geology and Geography* (Lawrence, Kansas: James C. Malin, 1950), p. 71, quoting a letter printed in *Daily Press* of Chicago, July 11, 1856, from Omadi, Dakotah County; *Nebraska Advertiser*, November 21, 1861.

20. Advertising of Osage orange seed and plants in the *Nebraska Advertiser* during the war ended in August, 1862. The May, 1862, issue of the *Nebraska Farmer*, also then published in Brownville, the last war-time issue seen, included an offering of seed at inflated prices from Louisville, in neutral Kentucky. Advertising by the Louisville firm in the *Advertiser* ended on June 26, 1862. An advertisement of Osier willow appeared in *Nebraska Farmer*, Vol. 2, no. 8 (August, 1861), p. 125. *Nebraska Advertiser*, beginning in April 3, 1862, offered gray willow cuttings from Bureau County, Illinois; and from Syracuse, Nebraska, beginning in September 27, 1862. The January 28, 1864, issue claimed that in Illinois the white willow provided a good wind-break, firewood, and fence rails, as well as making a fence. *Laws of Nebraska Territory*, Twelfth Session, February 12, 1867.

21. Dundas, as agent for Overman and Mann, of Bloomington, Illinois, offered seed "fresh from Texas" in *Nebraska Advertiser*, September 4, 1865.

22. *Nebraska Advertiser*, March 26, 1868.

23. McKeighan's offers appeared in several issues of *Nebraska Advertiser*, including those of April 26, May 3, June 21, and June 28, 1866, into November, 1866. E. H. Burches & Co. Nurseries, near Brownville, began advertising and was recommended in *Nebraska Advertiser*, September 13, 1866.

24. *Nebraska Advertiser*, May 9, 1867. New owners from Illinois and prominent Nebraska residents were reported to be hedging. A Colonel Cropsey was arranging for 100 miles in Pawnee County, *Nebraska Advertiser*, June 28, 1866, May 30, 1867, January 1, and December 24, 1868.

25. C. R. Overman, of a Bloomington, Illinois, nursery in 1864 wrote the *Prairie Farmer* (of Illinois) that seed produced in Illinois would grow; in response to advice in that farm magazine many living near abandoned hedges had harvested such seed, according to *Nebraska Advertiser*, February 4, 1869. "Fences — No. 1" by E. H. B. appeared in *Nebraska Advertiser*, January 23, 1868.

26. *Nebraska Advertiser*, October 10, 1867, reported the selections by the County Fair committee. E. H. B.'s recommendations were carried by the newspaper on January 30, and February 6, 1868. Several other experienced hedgers entered the debate through the *Advertiser*. The territorial law was enacted February 12, 1867. For hedges of willow, requirements included

spacing of no more than fifteen inches and a height of at least six feet. According to the *Nebraska Farmer*, Vol. 1 (November, 1877), p. 2, "nearly every farm was beautifully hedged about with a thrifty growth of Osage from four to twenty feet."

27. *Nebraska Advertiser*, February 11 and 25; March 4 and 18; April 11 and 18; September 9 and 16, all in 1869; and March 31, 1870. Many of the ads were repeated, especially in spring and autumn.

28. *Fairbury Gazette*, February 4 and October 14, 1871, and May 4 and October 19, 1872, and March 3, 1873; *Red Cloud Chief*, October 8, 1873, and January 1, 1874.

29. *Nebraska Advertiser*, March 5, April 2 and 9, 1868; October 14, 1869; and March 31, 1870. *Fourth Annual Report Nebraska State Board of Agriculture, 1871-2, Proceedings*, pp. 365, 370, and 373.

30. Hewes and Jung, op. cit., footnote 1, Fig. 4, on p. 179.

31. "Statistics of Fences in the United States," *Report of the Commissioner of Agriculture for the Year 1871*, p. 505 for summary; tables on pp. 507 and 510; Edwin A. Curley, *Nebraska, Its Advantages, Resources, and Drawbacks* (New York: The American and Foreign Publication Company, and the American News Company, 1875), p. 351; and *Report, Nebraska State Board of Agriculture, 1871-72*, p. 305, and 1871-1873 f. pp. 202 and 304.

32. *Nebraska Advertiser*, March 18, 1869. Legislative acts to protect crops against free-running cattle go back to 1858. As of February, 1869, counties given protection in the main or entirely included Platte, Monroe, Dodge, Hall (1858); Clay, Douglas, Gage, Lancaster, Saline, Seward (1865); Butler, Pawnee, Saunders and Washington (1869). In addition, the legislature in 1862 gave permission for the formation of associations to restrain livestock in Dodge County. A notice to claim holders in the Nebraska City area in 1857 to meet for the purpose of devising means to grow crops without fences (*Nebraska News*, March 21, 1857) is evidence of very early concern. The stated objectives were carried in *Nebraska Advertiser*, February 2, 1865. Legal aspects of herding are emphasized by Rodney O. Davis, "Before Barbed Wire, Herd Law Agitation in Early Kansas and Nebraska," *Journal of the West*, Vol. 6 (1967), pp. 41-52.

33. *Nebraska Advertiser*, November 29, 1866.

34. Arizona precinct in Burt, St. Derion in Nemaha, and St. Stephens, and Orago in Richardson, *Laws of Nebraska, Fifth Session*, passed February 15, 1869. As of March 1, 1875, it was illegal for sheep and swine to run at large anywhere in the state.

35. James Davie Butler, *Nebraska, Its Characteristics and Prospects* (n.p., ca. 1873), p. 22. Each of the five counties traversed by the Republican west to the hundredth meridian contained a little more than one percent of woodland, according to the 1880 census. Timber was scattered, partly along the tributaries.

36. *Nebraska Farmer*, Vol. 2 (1878), p. 122.

37. *Nemaha Valley Journal*, December 4, 1873; *Nebraska City News*, April 25, 1874.

38. Cyrus Thomas, "Physical Geography and Agricultural Resources of Minnesota, Dakota, and Nebraska," in F. V. Hayden, *Sixth Annual Report of the United States Geological Survey of the Territories, embracing portions of Montana, Idaho, Wyoming, and Utah, being a report of Progress of the exploration for the year 1872* (Washington: Government Printing Office, 1873), pp. 273-313, references on pp. 312 and 309.

39. Leach, op. cit., footnote 8, pp. 110 and 111. J. O'Neill, *Northern*

Nebraska as a home for immigrants; containing a general description of the state, sketches of northern Nebraska counties and answers to correspondence of intending immigrants (Sioux City, Iowa: Sioux City Times print, 1875) p. 73; Meroe J. Outhouse, *A History of Stanton County*, Masters Thesis in Social Studies, Colorado State Teachers College, 1944 (no publisher given), p. 20; and Edith Swain McDermott, *The Pioneer History of Greeley County, Nebraska* (Greeley, Nebraska: Greeley Publishing Company, 1939), p. 41. *Nebraska Republican* (Omaha), March 8, 1871, included in a description of the lower Elkhorn Valley reference to adorning front yards with hedges of Osage orange, hawthorn, honey locust, or Norway spruce.

40. Curley, op. cit., footnote 31, pp. 353-54, 219, 235, 393, and 422-23. Curley was representing *The Field*, a London newspaper.

41. Burch, op. cit., footnote 5, pp. 95-96.

42. *Nebraska Farmer*, Vol. 1, No. 12 (December, 1877) p. 3; *Osceola Record*, April 11, 1877.

43. *Lone Tree Courier*, June 4, 1874, reprinted from *Nebraska City Chronicle; Hastings Journal*, March 25, 1880; and *Juniata Herald*, March 13, 1878; *North Platte Republican*, February 8, 1873. The hedges of Russian mulberries, introduced in 1874 or shortly thereafter, were described in *Nebraska Farmer*, Vol. 6 (1882), p. 32 and in *Transactions State Board of Agriculture*, 1879-1880, p. 79.

44. Hewes and Jung, op. cit., footnote 1, p. 197 and Fig. 10.

45. *Nebraska Farmer*, Vol. 1, no. 7 (July, 1877), p. 16, quoted lumber fencing at Lincoln at \$22-23 per thousand feet, and cedar posts at \$20-22 per thousand; and \$24-25 and \$20-25, respectively, at Crete, with prices at Hastings left blank.

46. "The Diaries of a Nebraska Farmer, 1876-1877," ed. Clarence S. Paine, *Agricultural History*, Vol. 23 (1948), pp. 1-31, *Nebraska Farmer*, Vol. 4 (1880), p. 140.

47. *Madison County Review*, June 25, 1875.

48. *Osceola Record*, June 1, 1880.

49. *Nebraska Farmer*, Vol. 4 (1880); p. 221.

50. Thomas, op. cit., footnote 38, p. 313, quoted a land agent as saying that herd law was a "check on fencing when the work ought to be undertaken." Curley, op. cit., footnote 31, pp. 353-54, recorded, as others did, that even with herd law, many felt the need for some fence. The editor of the *Nebraska Farmer*, Vol. 2 (1878), p. 122, stated "gradually the necessity of fences will be felt."

51. *Valley County Journal*, April 16, 1881, and *The Progress* (West Point), March 28, 1880. However, *York Republican*, March 23, 1881, carried four advertisements offering pasture, presumably fenced, to one offering herding. *York Republican*, March 20, 1878, contained the notice of the machine that transferred sod and earth from a ditch three feet deep to a wall three feet high; this combination was claimed equal to a six foot fence. *Nebraska Farmer*, Vol. 6 (1882), p. 105, advocated hedge. *Nebraska Farmer*, Vol. 16 (1892), p. 139, carried the advertisement.

52. Thomas J. Farnham, *Travels in the Great Western Prairies, the Ana-huac and Rocky Mountains and in Oregon Territory* by Thomas J. Farnham. *Part I of Travels in the Far Northwest, 1839-1846*. Reuben Gold Thwaites, ed., *Early Western Travels*, Vol. 28 (Cleveland: The Arthur H. Clark Company, 1906), pp. 132-44; and *Annual Report of the Commissioner of Indian Affairs, 1845-46* (Washington: T. Barnard Printer, 1846), pp. 95, 93, 98, 96, 108.

53. Malin, op. cit., footnote 19, p. 74. Horace Greeley, *An Overland Jour-*

ney from New York to San Francisco in the Summer of 1859 (New York: C. M. Saxton, Baker & Co., 1860), p. 21. Lewis Henry Morgan, *The Indian Journals 1859-62*, ed. Leslie A. White (Ann Arbor: University of Michigan Press, 1959), pp. 39, 42, based on a visit in 1859. Albert D. Richardson, *Beyond the Mississippi, New edition, written down to summer of 1869* (Hartford: American Publishing Company, 1869), p. 284. In regard to Indian land or squatters on them, see Max Greene, *The Kansas Region* (New York, Boston, etc.: Fowler and Wells, 1856) pp. 38 and 99; J. Butler Chapman, *History of Kansas and Emigrant's Guide* (Akron: Teesdale, Elkins & Co., Printers, 1855) p. 20; and Rev. C. B. Boynton and T. B. Mason, *Journey through Kansas; with Sketches of Nebraska: Describing the Country, Climate, Soil, Minerals, Manufacturing, and Other Resources. The Results of a Tour made in the Autumn of 1854* (Cincinnati: Moore, Wilstach, Keys & Co., 1855), especially Chapter 21.

54. Morgan, op. cit., footnote 53, p. 44, based on a visit in 1859.

55. Boynton and Mason, op. cit., footnote 53, p. 78. "Letters of John and Sarah Everett, 1854-1864, Miami County Pioneers," *The Kansas Historical Quarterly*, Vol. 8 (1939), pp. 3-34, 143-74, and 279-310, references on pp. 13, 161, and 303. Richardson, op. cit., footnote 53, p. 31.

56. Richardson, op. cit., footnote 53, p. 77.

57. Parker, op. cit., footnote 7, p. 36.

58. Morgan, op. cit., footnote 53, p. 44.

59. Martha B. Caldwell, "The Diary of George H. Hildt, June to December, 1857," *Kansas Historical Quarterly*, Vol. 10 (1941), pp. 260-98, references on pp. 268 and 297.

60. *Kansas Farmer*, Vol. 5 (1868), p. 67.

61. Moffette, op. cit., footnote 3, p. 13, reported sod fences in 1855. A farmer made a large amount of board fence, according to *Kansas Farmer*, Vol. 1 (1863-64), p. 219.

62. James C. Malin, "Beginnings of Winter Wheat Production in the Upper Kansas and Lower Smoky Hill River Valleys, a Study in Adaptation to Geographical Environment," *Kansas Historical Quarterly*, Vol. 10 (1941), pp. 227-59, references on p. 249.

63. "George Sprague is the oldest farmer in the township [Spring Hill, Johnson County]; he put up the first board fence; raised the first Osage hedge, and built the first frame barn," according to *First Biennial Report State Board of Agriculture for the Years 1877-78*, p. 253, in the context of 1857. Another farmer bought Texas seed in 1858, from which plants were set six to eight inches apart, making a hedge, which after pruning, made a fence that "no animal could go through," as reported in *Kansas Farmer*, Vol. 1 (January, 1863), p. 5. A third farmer was reported as putting out 160 rods in the spring of 1859 (*ibid.*, August, 1863, p. 95). Richardson, op. cit., footnote 53, p. 558, reported great changes.

64. Richardson, op. cit., footnote 53, pp. 559-60.

65. According to *Kansas Farmer*, Vol. 1 (October, 1863), p. 122, a McDonough County, Illinois, farmer "has Osage plants of seed of his own raising," *Ibid.*, April, 1864, p. 248. As late as February, 1865, a correspondent from Manhattan, Kansas, recommended the native honey locust because Osage orange seed could not be bought (*Kansas Farmer*, Vol. 2 (1865), p. 17. Honey locust hedges were planted as early as 1861 (*Kansas Farmer*, Vol. 2 (1865), p. 39. Willow hedges or cuttings were advocated or advertised in the *Kansas Farmer*, Vol. 1 (December, 1863), p. 188, and Vol. 2 (March, 1865), p. 35; however, most of the willow planted by a farmer at Olathe died (*Ibid.*, Vol. 1, June 1863, p. 37).

66. *Kansas Farmer*, Vol. 4 (1867), pp. 59, 150; Vol. 5 (1868), pp. 15, 144; Vol. 7 (1870), p. 184. The advertisements cited were in most cases repeated at appropriate times for several months or years with little or no change. The tax reduction was noted in *Kansas Farmer*, Vol. 4 (1867), p. 76. Herding in newly settled areas was acknowledged in *Kansas Farmer*, Vol. 9 (1871), p. 12. Estimates of costs were presented at various times, including Vol. 4 (1867), p. 76; Vol. 5 (1868), pp. 66-67, and 167; Vol. 9 (1871), p. 6. Estimates for stone ran from \$1-\$5 per rod; post and board (5 boards) about \$1.56; worm about \$1.53; spike (rough and ready) about 51 cents; shanghai, about 33 cents; wire, about 50 cents. Regional nurseries offered hedging, labor included, at \$1.00. Other costs cited did not include labor. Apparently, only wire, and perhaps shanghai and rough and ready were at all competitive with hedge. Probably, hedge had a clear-cut cost advantage on most of the prairie away from sources of wood. *Kansas Farmer*, Vol. 4 (1867), p. 178, proposed an association of hedgers.

67. [Charles Monroe Chase] "An Editor Looks at Early-Day Kansas. The Letters of Charles Monroe Chase — concluded, III, The Letters of 1873," ed. Lela Barnes, *Kansas Historical Quarterly*, Vol. 26 (1960), pp. 267-301, reference on p. 285. Sod fence was reported in use in Labette County, the county next west of the one in which Baxter Springs is located, in *Third Annual Report of the State Board of Agriculture for the Year 1874*, p. 158.

68. "Statistics of Fences," op. cit. footnote 30, p. 505.

69. *Fourth Annual Report (Kansas) State Board of Agriculture, 1875*.

70. For those in a hurry to fence, hedges were too slow, as in the Kaw (Kansas) Valley, where in 1868, "hundreds of miles of completed fence and lines of standing fence posts, mark the work of the present spring. . . a single crop will pay for a substantial board, or rail and post fence," as reported from Manhattan in *Kansas Farmer*, Vol. 5 (1868), p. 72.

71. *Third Annual Report (Kansas) State Board of Agriculture, 1874*. Phillips County report on p. 188.

72. "Trip to the Rocky Mountains," *Seventh Annual Report of the (Missouri) State Board of Agriculture for the Year 1871*, pp. 12-13.

73. Joseph Avery Bent, *Hand-book of Kansas. Containing a description of the physical geography and geology of the state, its natural advantages and resources, its railroads, educational institutions. Also description of the counties &c.* (Chicago: R. Blanchard, 1869) pp. 29, 70; and Clinton Carter Hutchinson, *Resources of Kansas. Fifteen Years Experience . . . with a new map and forty illustrations . . .* (Topeka: The author, 1871), p. 51.

74. *Kansas Farmer*, Vol. 10 (1872), p. 39; and Vol. 5 (1868), p. 167.

75. *Nebraska Advertiser*, April 22, 1869.

76. *Kansas Farmer*, Vol. 9 (1872), p. 299.

77. Greeley, op. cit., footnote 53, p. 103. In Ness County, crossed by the hundredth meridian, it was recalled that in pioneer days "there was a few sod or stone walls built around the corrals, but the first cattle accumulated by the settlers were often herded by day and picketed at night on ropes" in Minnie Dobbs Millbrook, *Ness, Western County, Kansas* (Detroit: Millbrook Printing Company, 1955), p. 156. Very shortly Russian Germans from the Volga in Ellis County in 1876 were making sod walls around corrals as their first fence (Interview, with Albert J. Petersen, Jr., Lincoln, Nebraska, April 30, 1981).

78. The counties were Barton, Edwards, Ford, Norton, Phillips, Rush, and Smith. No fencing returns were made for Rooks and Sumner. Gilbert C. Fite, *The Farmers' Frontier, 1865-1900, Histories of the American Frontier* (New York: Holt, Rinehart and Winston (1966), p. 43, cites the figures for Norton County.

79. *Kansas Farmer*, Vol. 8 (1871), p. 12. *The Reports of the State Board of Agriculture* commonly included information about herd law by counties.

80. Hedges increased from 5,846,972 rods to 11,619,915. Rail decreased from 8,549,987 rods to 6,674,761, and board from 2,808,984 rods to 2,574,938; wire increased from 1,205,627 to 1,684,134, and stone from 707,718 to 1,007,197. Fifteen of sixteen counties reporting more than 30,000 rods of wire fence were east of the 97th meridian. *Third Biennial Report (Kansas) State Board of Agriculture, 1881-82*.

81. *Smith County Pioneer*, February 18, March 13, and May 12, 1876.

82. *Third Biennial Report (Kansas) State Board of Agriculture, 1881-82*. State totals for different kinds of fence in 1882 were hedge, 15,631,329 rods, wire 9,920,364, rail 3,460,151, board 1,946,363, and stone 1,788,836. In 1882, the three northeastern counties of Nemaha, Pottawatomie and Brown reported more than 400,000 rods each of wire.

83. *Third Biennial Report State Board of Agriculture, 1881-82*. Quotation on p. 507. State totals for 1878 and 1882 were 23,560,944 and 32,747,043 rods, respectively. Of the 29 counties on and west of longitude 98°W, only 4 reported more than 100,000 rods. A total of 100,000 rods would enclose 312 fields of 40 acres. The lack of fences near Abilene was considered picturesque in Henry King, "Picturesque Features of Kansas Farming," *Scribner's Monthly Magazine*, Vol. 19 (1879), pp. 132-40, reference on p. 134.

84. *Abstracts of Assessors' Rolls, 1885*, Kansas State Historical Society, continued the reporting of fences by the same categories as used by the Board of Agriculture. James C. Malin, "Evolution of a Rural Community, an Introduction to the History of Wayne Township, Edwards County, Kansas. Lewis High School Commencement Address, May 23, 1933," *Lewis Press*, June 15, 1933, detailed fencing in that township.

85. *Abstracts of Assessors' Rolls, 1885, 1895, 1905, and 1915*, Kansas State Historical Society, permit tracing the spread of barbed wire and a general increase in fencing, as well as the use of enclosures other than barbed wire. Of the pioneer types of enclosure, the one which survived longest was the hedge. Statewide totals for hedges were: 1875, 5,846,972 rods; 1878, 11,619,914; 1882, 15,631,329; 1885, 18,889,478; 1895, 23,180,073; 1905, 19,065,787; and 1915, 13,869,015. Forty-five counties in 1915 had more than 100,000 rods each of hedge.

86. I can vouch for the strangeness of a landscape in which hedges concealed fields and farms. I can still recall my boyhood wonderment in 1915 at seeing in Coffey County what seemed a landscape dominated by hedges. In north-central Oklahoma barbed wire bounded but did not conceal farms and fields. L. G. DeLay, historian, Nebraska State Historical Society, who had lived in southeastern Kansas, in an interview, February 1, 1980, related the destruction of many of the hedges there. By the 1930s, the hedges were somewhat patched up with stretches of barbed wire or posts driven in to fill some gaps.

87. Walter Prescott Webb, *The Great Plains* (Boston: Ginn and Company, 1931), pp. 280-318, reference to role of barbed wire on p. 318.