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Article Summary: The article describes the geology of a one-hundred-square-mile section of the South Divide in Cheyenne and Logan counties, Nebraska and Colorado, respectively. From this perspective, then it explores the building of the Czech immigrants in the use of the water-borne rock into the area.

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Photographs / Images: Josef and Anna Oliverius farm; Topographic map of the South Divide settlement area in Nebraska, 1896; Lower Cow Creek showing the gravel-bottomed drainage and outcroppings from the Jenik quarry in background; Ondre (Andrew) J Krikac; Tipi ring at Point of Rocks; Exposed bed of stone in the Josef and Anna Soral Hornicek pasture; Vosika house, 1892; date stone and hood above south door; Soral family in front of the house built by mason John Soral; Detail of John Soral's masonry work at the Vaclav Seda barn, about 1900; Frantisek and Marie Mika Oliverius concrete-block house, about 1905; James and Anna Skrdle Oliverius concrete house, 1932

ROCK IN THE GROUND STONE IN THE WALL:

Czech Buildings from the Ogallala Deposition

By David Murphy

Though life seems confined to the surface of the earth, much of our cultural existence is conditioned by that which occurred (and occurs) above and below the surface. Such is the case with the presence and use of local building materials, which when viewed from the broader perspective of landscape, demand a deeper look at the dynamics of materials formation and availability in addition to their subsequent cultural manipulation. This perspective permits a more thorough description of the natural setting, with an increased appreciation of the relationship between culture and nature that is architecturally apparent in the preindustrial environment.

A portion of the High Plains of western Nebraska can be explored in this way. The water-borne movement of rock into the area as a part of the Ogallala Group of formations leads us to investigate geology in order to appreciate the dynamics of material formation as it relates to material availability. In describing these dynamics, the cultural use of stone in building construction is yet another stage in the movement and transformation of rock. The land that will be described is a one-hundred-square-mile section of the South Divide in Cheyenne and Logan counties, Nebraska and Colorado, respectively. The cultural relationship to be explored with that land will be the one established by Czech immigrants there in the late nineteenth century (fig.1).

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Over the course of the first two decades of mass immigration to Nebraska, Czechs found ample lands among the more moist and fertile soils of the eastern half of the state. By the mid-1880s the older settlements had become firmly established, and available lands had been claimed. Czech settlers then began to push farther west into the margins of the Sand Hills and into southwestern Nebraska. Though in regions of reduced rainfall, most of these later settlements still occupied lands covered with the fertile, and familiar, loess soils typical of the eastern settlements.

In 1884 and 1885 the first Czechs ventured onto the High Plains of western Nebraska, a mostly exposed and quite varied bedrock landscape. Among the vanguard of farmers into what was then ranching territory was Alois Civiš from Belle Plaine, Iowa, the first Czech to explore the region. He spent the summer of 1884 examining soils all over northwestern Nebraska, reporting his findings via letter through the newspaper *Pokrok západu*.¹ Civiš returned with his family the following year to establish residence in what was to become Box Butte County. At about the same time three others entered Cheyenne County to the south, making the first claims in what was to become a substantial Czech settlement.

Of the three Cheyenne County pioneers, the resourceful V. F. Kučera conceived of the idea of establishing a Czech colony, and began advertizing in the *Pokrok západu*. The first to respond was Ondřej (Andrew) Křikač in 1886, followed by a large influx of Czechs the next year. By 1893 over fifty families were located there.²

The colony's substantial size, however, proved to be only temporary. Already by the late 1880s drought had led to crop failures.³ If rain did follow the plow, enough land had been cultivated among the fifty-seven families that surely the rains would have come. When the drought persisted it was more than many could take, and, one by one, Czechs abandoned the settlement.

The drought and the accompanying depression were widespread, but the effects on the Cheyenne County Czech community were more pronounced than among the older Czech settlements in eastern Nebraska. The 1900 census indicated that, in the seven years after 1893, thirty families or nearly 60 percent of the settlement had left.⁴ For many, the short time of residence had not allowed them to gain a firm foothold before the drought; for others, psychological factors may have increased the exodus, since the land was so unlike either the Old Country or the eastern settlements. František Mareš' comments in the *Hospodář*, which accompany the 1893 census, are telling. He described the drought as more severe than he had seen in the other Czech settlements. But the land had a certain severity to it as well. Concerning the landscape of the county, he observed: "The topography here is more or less rolling and in many places found to be rocky . . . Remarkable layers of rock can protrude from a field into mountains and hills on both sides of the valley and further around the countryside its desolate, wild and completely bad."⁵

Mareš emphasized rocks and rocky soils for good reason. Rocks form a subtle yet significant part of the land-

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Fig.1. Josef and Anna Oliverius farm in the South Divide Czech settlement.
(D. Murphy, NSHS H673.2-9402/16:13)

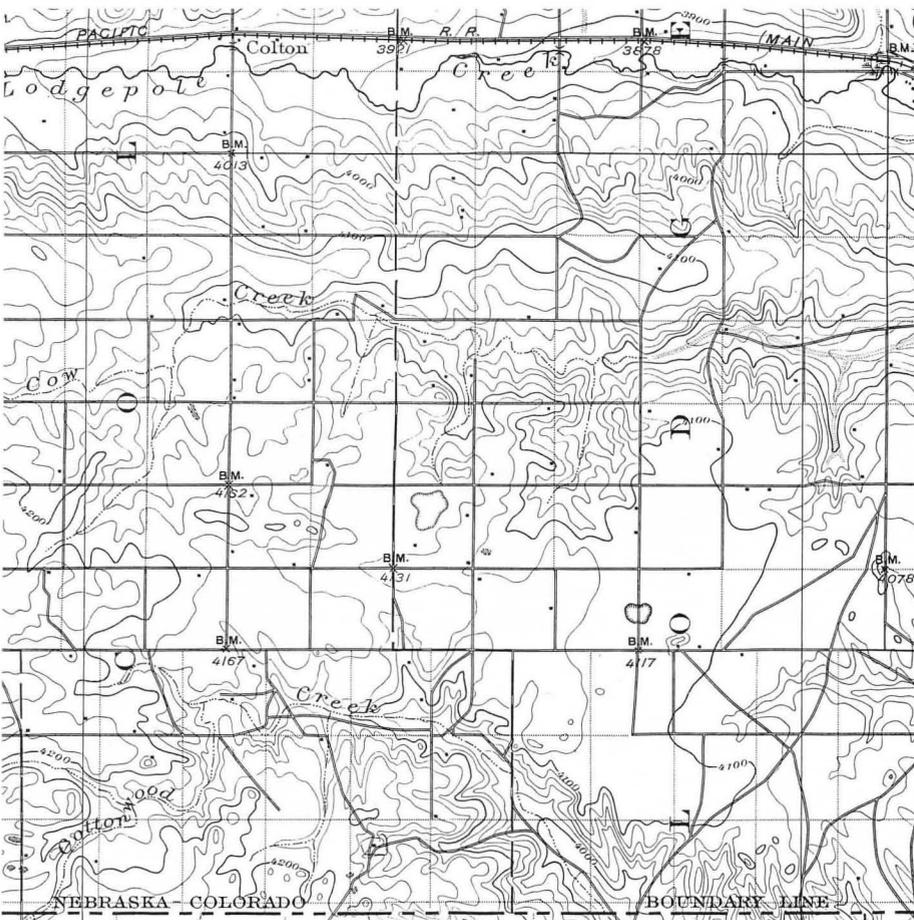


Fig.2. Topographic map of the South Divide settlement area in Nebraska, 1896.
(From USGS 30 min. series, Sidney Quadrangle, edition of November 1899)

scape in the settlement, which was centered in the southeastern quadrant of Cheyenne County in an area known as the South Divide (fig.2). The northernmost extent of the Czech homesteads lay along the south slope of Lodgepole Creek, and along the draws of the Cow Creek drainage. A second cluster of homesteads lies across the Divide to the south, spreading out to occupy the draws of Cottonwood Creek, and southward into northern Logan County, Colorado. A few Czech places on top of the Divide loosely connected the two clusters.

The Divide itself is an old surface remnant of an ancient alluvial slope deposit known as the Ogallala Group of formations. Its greater extent between the two Platte rivers is known as the Cheyenne Plains. Ogallala sediments are associated with the Rocky Mountain uplift, from which streams moved rock into this area primarily during Miocene time, beginning roughly ten million years ago. Upper-level Ogallala Group (Ash Hollow) formations directly overlay the Brule formation of Oligocene age (beginning about thirty-three million years ago), into which Lodgepole Creek and Sidney Draw to the west have eroded.⁶

The Ogallala Group in the settlement area is approximately two hundred feet in maximum thickness at the Divide. It is composed of a "calcareous grit with a calcareous cement, often containing pebbly conglomerate and beds of Rocky Mountain sand and ledges of fairly compact sandstone."⁷ Much of its essential substance of gravel, sand, silt, and sandy clay was transformed either by movement into the region or by subsequent consolidation. The Ash Hollow formation is the most conspicuous in the landscape and has the most relevance for the cultural dialogue. It includes widespread but inconsistent, sheet-like channel deposits of gravel, some up to twenty feet thick; and gray, brown, and reddish-brown, fine- to coarse-grained sandstones, silty sandstones, and siltstones. The consolidated beds were formed primarily from local carbonate zones in the sediment.⁸

The topography conforms intimately with the Ogallala formations below. The well-drained materials, together with semiarid conditions, left significant remnants of the old high plain intact atop the Divide. Erosion below the Divide has produced a very gentle undulation, which turns into gently rolling hills lower in the landscape. Drainages are very subtle until lower in the terrain, where they become defined by narrow strips of gravel. These give way, lower still, to more pronounced gravel-bottomed drainages (fig.3). These drainages tend to encourage infiltration as much as flow. Cow Creek, for example, along the north slope of the Divide, flows during storms until it strikes the Lodgepole Creek bottom, where it dissipates into the rocky bottoms soils rather than flowing into the creek as a channel. The gravel-bottomed drainages are one of the most conspicuous aspects of the landscape.

Soils on the plain and most of the uplands in the settlement are deep to moderately deep, well-drained loams and silty loams. Lower, especially in more steeply eroded slopes adjacent to the

Cottonwood, Cow, and Lodgepole Creek drainages, very fine sandy loams and gravelly sandy loams are more common.⁹ In spite of the apparent desolation of the landscape, especially as experienced during drought, the Ogallala formations were parent to very rich soils. Prior to Euro-American immigration they supported a lush growth of deeply rooted prairie grasses including gramma, buffalo, western wheat, and wire grasses, as well as sedge blackroot.¹⁰ Well adapted to semiarid conditions, these grasses seem not to have been affected by the mild climatic cycles of historic time.

The dynamics of Ogallala movement into this area is contemporary with an emergent life cycle that was ancestral to the one encountered by the first Euro-Americans; the Miocene sediments are intimately associated with a grasslands habitat. Fossil remains in the formations indicate a rich plant and animal life.

The spread of grasses caused pronounced evolutionary changes in horses and other herbivores, such as antelope, into a grazing habit. Other mammals that roamed the area, such as the

rhinoceros, camel, and elephant, eventually became extinct.¹¹ Later the evolved grasses supported wandering herds of bison. These herds in turn were a principal food source for nomadic plains Indians before rapid Euro-American removal of both left a niche that was filled by a range cattle industry in the nineteenth century. This latter era was closed by the influx of farming homesteaders.

Czech farmers found topsoil depths on the upland of only six to ten inches. Organic buildup in the soil had been slow due to scant rainfall. Nonetheless, the water retention qualities of much of the soil provided adequate ground to support agriculture, as long as minimal rainfall occurred. Dryland production of wheat, with some corn, oats, and potatoes, proved practical and sometimes profitable.¹² Nonetheless, most of the land in the Czech colony remained in grazing in support of stock farming. The character of the land, however, was slowly but extensively modified by roads and fences. It wasn't until deep-well irrigation emerged in recent times that land use turned heavily to cropping.



Fig.3. Lower Cow Creek showing the gravel-bottomed drainage and outcroppings from the Jenik quarry in background. (D. Murphy, NSHS H673.2-9402/7:11)

Superficially the Divide looks like a simple, homogeneous landscape. On the other hand, a close look at the soils, with all of their intricacies, reveals a complex interplay of forces above the surface with those below.¹³ The complexity is apparent in building material availability and utilization as well; certain materials were available near the surface in one place but not in another and cultural factors led to the use of a particular material in some places but not in others.

The geology of the Divide landscape might best be described as inconsistent in both depth and extent.¹⁴ Concerning the rock, one can sense in this inconsistency a fluidity of material deposition much different than the older sediments more commonly associated with building construction.¹⁵ Fluidity is readily apparent in the gravels, which exposure has been neatly rearranged along the draws. Elsewhere erosion has exposed consolidated beds of sandstone. The inconsistency of their presence has much to do with variability in the carbonate content of the deposition. Where they do appear, sandstones are generally in small ledges that are not as conspicuous here as they are in the Lodgepole Valley to the west (fig.6). The local beds are of such varied composition that some have called them limestones and others, sandstones. Essentially they are a limy or calcareous sandstone (caliche)—sands cemented with calcium carbonate—that were formed locally from carbonate zones in the sandy soil profile. Consolidation, in fact, is partly associated with exposure, as the carbonate-rich zones become more highly cemented during surficial weathering.¹⁶ Their color varies considerably throughout the settlement, ranging from brown to gray to whitish-yellow. The most conspicuous exposures of the sandstone now are the result of cultural activity.

The variation of rocks found at the surface reflects the inconsistency of the deposition itself. The reminiscences of Andrew Křikač, an early well digger in the settlement, provide a more intimate

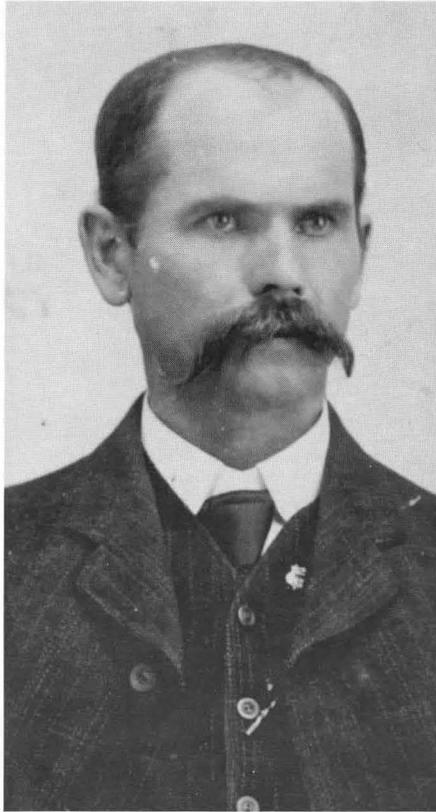


Fig.4. Ondřej (Andrew) J. Křikač.
(NSHS C998-101)

sense of this complexity (fig.4). In describing one well, he stated:

On top of the well there was 20 feet of soft clay, mixed with sand; then hardpan, then 10 feet of gravel, and under that 5 feet of rock, which I had to chisel and drill. Under that stratum was very coarse, dry gravel. The farmer hauled water 3 1/2 miles by wagon, and I sent him after water to wet the gravel. The gravel had to be wet in order to stay in place before I could place the curb. After a while, even the water would not hold the gravel in place, so I built a box that fit the size of the well. . . . When I had dug 6 feet more, the length of the box, the gravel was still there. I built another 6 feet of box. . . . But even a third box became necessary. Then I hit a rock stratum which was 1 1/2 feet higher in one corner than in the other. . . . Under this rock was a little gravel, then yellow slate. Water began to seep in. After digging 12 feet deeper through the slate, I had plenty of good, soft, cold water.¹⁷

The propensity for gravel to move is clearly evident. Likewise it is obvious

that the forces of consolidation produced quite varied results. Each well dug into the deposit was different in terms of both depth and stratigraphy.

The movement of water is the principal explanation for the dynamics of the landform, and provides another way of describing it. Water moved the material into the area, and water—both above and below the surface—continued to move it around. As complex erosion from the mountains, the inconsistency of deposition in area and depth is more easily understood.¹⁸ Water-borne rock moved and settled, and sometimes moved again with each new wave of deposition; a saturated landform “slumped” into place as the water receded. This slumping is literal on top of the Divide, with its scattered, large depressions. As dry as the area is today, the presence of old water is still visible in the topography.

The singular significance of ground water to Euro-American life on the High Plains cannot be overstated. For a time settlers hauled water from Lodgepole Creek, but the ultimate solution was to go below ground.¹⁹ Over the long duration, the well-drained materials of the Ogallala moved with and retained a great amount of water in their rocky structure. Most of what remains in the aquifer has glacial origins, and the accumulation essentially ceased many thousands of years ago. The aquifer is in its shallow phase throughout most of the Cheyenne Plains, and the supply varies considerably. Its present location is well below the surface, but modern well drillers can read the “slumped” terrain as an indicator of water location.²⁰

Already by the later nineteenth century on the Divide, wells needed to be sunk into the lower levels of the Ogallala. Depths depended on terrain. Václav Libecajt, who was located on a rise overlooking Cow Creek, had to dig 159 feet, while František Zaleský, just below Libecajt near the creek, went only 96 feet to water. These depths were at the extremes for the Czech community during the initial settlement period,

when averages were recorded at 100 to 150 feet; modern wells on the Divide are drilled to about 180 feet.²¹ Water supplies in the settlement were quite adequate. Only a dozen miles west of the Czechs, still in the Divide, water was described as a “mere trickle.” John J. Treinen, a well driller in the 1920s, put thirty-five holes into his land before striking water, which led him thereafter to advise people to “get your water first then build.”²²

On one level, it could be argued, the building problem was not a problem at all. The image of homesteaders stranded on the land and left wholly to their own devices does not apply as it did earlier for Native American construction of shelter. True, early Euro-Americans often built a temporary dwelling at first, such as a dugout or a small sod house, but for Czechs, a network of friends, family, and compatriots greatly eased their transition into homestead housing. By the time farmers arrived at the South Divide, the transcontinental railroad had run along the Lodgepole Valley for nearly two decades. All manner of imported construction material, principally lumber cut from the upper midwestern forests, could be purchased economically at Sidney or Lodgepole.

Some Czechs built with lumber fairly soon. Their inclination to do so reflected a modest financial footing derived from earlier ownership of property, and a concomitantly greater degree of assimilation.²³ But for others there was a tendency toward an older way of building, using materials derived from the locale. Part of this tendency was undoubtedly driven by economics, and part was the result of preference. In fact, the availability of stone here may have enticed some to immigrate. The beds were pronounced enough that František Mareš described them in an 1892 article about the settlement.²⁴ The coincidence of Euro-American settlement here with rapid industrialization nationally meant for the first time there were choices of building materials avail-



Fig.5. Tipi ring at Point of Rocks. (Richard E. Jensen, NSHS 25CN43-3)



Fig.6. Exposed bed of stone in the Josef and Anna Soral Horníček pasture; former quarry operations are visible in the drill-hole at the lower right corner of the photograph. (Courtesy Lorraine Lafler, NSHS C998.1-725)

able to ordinary people.

Earlier the choices were always local. On the Divide, the Ogallala offered its rock. The last million or so years of weathering on the Cheyenne Plains produced fairly widespread but very localized exposure of Ash Hollow formation rocks, sands, and gravels, particularly

along the near draws of Lodgepole Creek. The most pronounced exposures are in the Lodgepole Valley itself, to the west of the Czech settlement, at Point of Rocks near present-day Potter. There erosion of a soft stratum of shale undercut harder rock, forming caves of varying depth along the north side of the val-

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ley. These were utilized as shelter by prehistoric peoples of probable Woodland association.²⁵ Native Americans near there also gathered rocks for the construction of shelters. Most conspicuous are a series of tipi ring sites spread along the plain overlooking the Lodgepole Valley (fig.5). The stones vary considerably in size, from as small as two inches to over twelve inches in diameter, and are arrayed in clusters of circles that range from less than ten to more than twenty feet in diameter. The stones were used to secure bison skin tipi membranes to the ground around the circumference of each tipi. One unusual site, probably a fasting or eagle-trap shelter, utilized unworked stones laid into a low, rubble wall. No cultural affiliation has been established for the gathered-rock sites.

A much more widespread use of the Ogallala deposits for building began with the arrival of Euro-American farmers. A notable concentration of these constructions occurred in the South Divide Czech community, where a dozen different places exhibit major uses of the local formations.

The Czech settlement focused primarily on the draws below the Divide. Building site selection was typically near the base of a draw. Several of these held exposed ledges of good quality rock; others did not. Only one exposure in the settlement was of sufficient quantity and quality to support commercial quarrying. This was the Jeník quarry along the lower reaches of Cow Creek (fig.3), which provided rock that was of high enough quality to be used for carving.²⁶ Rock from the Jeník quarry was probably used primarily outside the Czech community, such as in Lodge-

pole, where greater wealth could absorb commodity and transportation costs.

On Czech farms, small quarries were worked at or near the construction site. Where they appeared, the beds were along either side of and just above the sand draws in the rolling terrain. Often

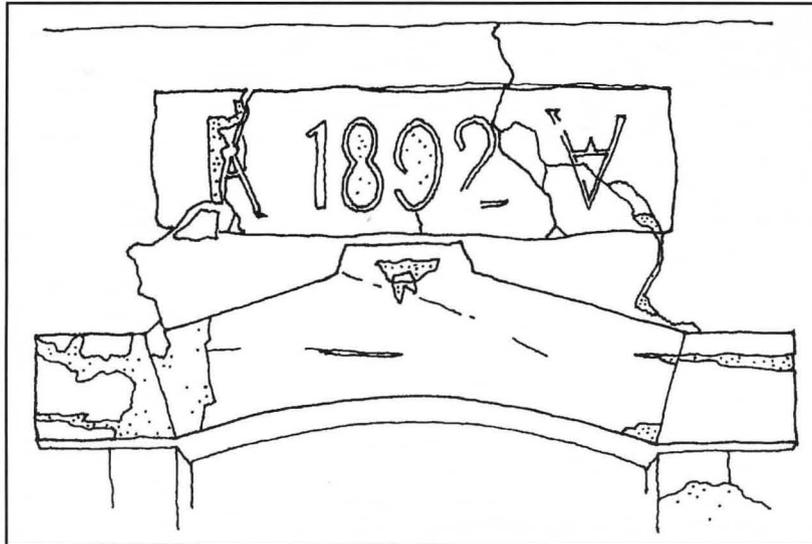


Fig.7. Vosika house, 1892; datestone and hood above south door. (D. Murphy, NeHBS CN00-052)

more than one quarry was needed to obtain enough stone. The situation at the Soral farmstead is typical:

There were 4 places on the farm where building stone was available on the surface, [along] the sanddraw that extended roughly through the center of the property from South to North. . . [There were] 3 quarries [to the south] and 1 north of the house, which furnished the stones for the milk house and the cooling and stock tanks. . .

About 200 yards North of the Soral property there was good quality sandstone easily quarried. When broken from the bed it rolled down the slope, and could easily be loaded onto the transport sled.²⁷

Conditions were similar at the Šeda farmstead, where three quarry sites were located on the quarter section near the construction site.²⁸

The more exposed the ledge, the better. Users prepared weathered rock from the top of the ledge, when available, since it was clean and ready to use.

Beds that needed excavation were less desirable because of their texture, and because the dirt and scale had to be removed in order for the mortar to bond.²⁹ Depending on the amount of overburden, excavation required more work to remove the rock. Common methods of removal started by hand-drilling a line of holes back of the face of the exposure. Then the ledge was broken along this line by using tapered "plugs" inside split steel tubes or "feathers," which were placed in the holes (fig.6). If there were multiple beds, they would be separated using wedges. The blocks were transported to the building site on sleds, where they could be easily dressed with chisels while they were still damp.³⁰

The quarries discussed above are in the northern part of the settlement area—two

are low in the Cow Creek drainage, and two others are just over the hill in the upper reaches of the Lodgepole Valley. Here the gray, whitish-gray, and/or whitish-yellow beds provided extensive ledges of a more-or-less uniform thickness of twelve to eighteen inches.

In the south part of the settlement, in the Cottonwood Creek draws, less is known of the rock supply. Data is lacking on specific quarry sites. Nor can much be deduced from rocks found in the walls of buildings, since three of the four extant stone structures retain their historic plaster coatings. On the fourth, the František and Marie Kutis Vosika house, most of the plaster has fallen away. Its walls offer some clues regarding the quarrying situation in the vicinity (see cover illustration).

Based upon the Vosika house evidence, a majority of the Cottonwood Creek stones appear to be a brownish

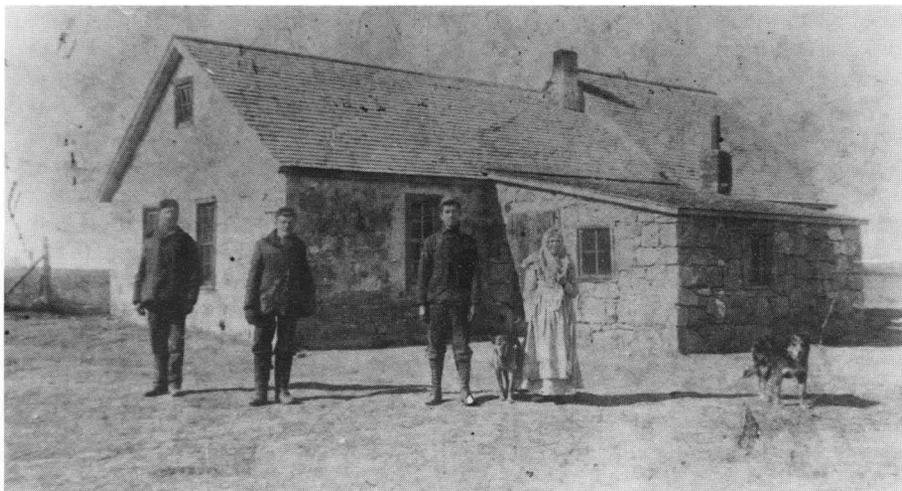


Fig.8. Soral family in front of the house built by mason John Soral (left to right): Joe, Josef Sr., John, and Trijse Soral. (Courtesy Lorraine Lafler, NSHS C998.1-726)

sandstone whose ledges were generally thinner and less uniform than the Cow Creek beds. There were also whitish-gray beds, similar in color to the Cow Creek ledges, but here they were very thin. These latter stones may not have been quarried *per se*, but rather gathered from fields.³¹ Building possibilities here were limited to rubble masonry techniques by the unevenness of the consolidation and by the small size of stones. The ingenious intermingling of the different stones in the Vosika walls, however, displays the possibility of a very distinctive coursed-rubble masonry technique. Though not intended to be an aesthetic statement, since the wall was originally covered with plaster, the gable is testament to the skills of the principal mason, Jakub Škrdle. His skills are also evident in the segmentally arched window hoods of traditional design, which emphasize the keystone and impost blocks, and in the plaster work, which is best seen in the date stone above the main entrance (fig.7).

While the Vosika house was the largest stone one built in the settlement, measuring seven by almost sixteen meters in plan, its mason, Jakub Škrdle, also built the smallest for his own family nearby in northern Logan County, Colorado. Measuring only four and one-

half by eight meters, all of his stone buildings, including the house, bunkhouse, and chicken house, retain their original coats of plaster. Very little is known about Škrdle (1869-1954), other than his Czech descent. His masonry and carpentry work, however, are well-known throughout the settlement.

In the Cow Creek part of the settlement, where the sandstones were formed in more uniform ledges, the masonry work of John Soral reflects these geological conditions. As the principal mason there, Soral's work is distinguished by an exquisitely laid, coursed rubble that was clearly meant to be seen. He was a mason by trade in the Old Country, born at Dolní Studěnky, Šumperk, Moravia, in 1869. He emigrated in 1892. His father, Josef Soral, was also a mason, but did not pursue that career here. John built a number of stone buildings both within and outside the Czech community; among them, all of those on the Joseph and Trijse Granich Soral farm (fig.8). His masonry skills are best seen today in two of his early works, the barns on the Václav and Johanna Vaněk Šeda farm, built about 1900 (fig.9).³²

As the more accessible ledges were exhausted on the lands where they occurred, other local materials came to



Fig.9. Detail of John Soral's masonry work at the Václav Šeda barn, about 1900, showing chisel marks. (Courtesy Lorraine Lafler, NSHS C998.1-727)

the forefront. Most of the draws provided clean sand at the surface.³³ This material was used locally for mortars and even for some hard plasters before 1900, but it was used sparingly. Throughout the settlement the principal mortar for stone construction was puddled clay. The use of lime mortars appears to have been limited to the exterior surfaces of the joints.

After 1900, when Portland cement became more economical, new trends in local material use began with the advent of concrete block and poured concrete.³⁴ Among the early uses of concrete technologies in the settlement was the hard plastering of hand-dug wells, which replaced wooden cribbing,³⁵ and the on-site manufacture of concrete blocks. Details are sketchy, but it appears that the block technique was first utilized in the community about 1905 or 1906. Frank Vosika sold his first place on Cottonwood Creek late in 1905 to purchase a larger farm south of Lodgepole.³⁶ There he built a large, two-room concrete block dwelling measuring five

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by ten meters. At nearly the same time, about five miles to the east, František and Marie Mika Oliverius built a commodious, five-room dwelling of rock-faced concrete block (fig.10).

The blocks for each house are quite large and approximately the same size, measuring about 60x20x25 centimeters. Both are clearly made with the local sand deposits, and are of rock-faced style, but their finishes are quite different. At the Vosika place, the rock facing is very shallow and highly modeled, complete with margins and a fairly smooth finish texture. The precise repetitive pattern of the blocks makes its artificial qualities explicit. In addition to his house, Vosika used the material to construct a bunkhouse, barn, and other minor constructions. The Oliverius blocks, on the other hand, have a deeply rusticated finish, giving the material more the appearance of rock-faced ashlar stone. In addition, the local aggregate gives the Oliverius blocks a pronounced texture, lending to them a more "natural" appearance. The imitation of stone, however, had limits; while both houses replicate the massiveness of stone, the color of the cement dominated the color of the aggregates, distinguishing it greatly from the local stone.

By the teens, Portland cement and local sand deposits were seeing widespread use in the community as poured concrete in a variety of applications. In 1914 Josef Horníček built a concrete water tank on his farm, where it functioned for garden irrigation and steam engine needs, as a watering place for travelers going to Lodgepole, and as a swimming hole for the family.³⁷ A more distinctive use appeared early in 1932 when James and Anna Skrdle Oliverius built their new house in the Cottonwood Creek drainage. The house harkened back to an older way of building on the plains, one that provided a dwelling "cool in the summer and warm in winter."³⁸ The two-room dwelling is dug back into the side of the draw, facing south, with walls of poured-in-place concrete. While recalling the form of a pioneer dugout,

it was finished as comfortably as any contemporary house (fig.11).

Like the form of the James Oliverius house, concrete is in its own way a harkening back to older ways. Usually described in terms of the cementing agent, the aggregates—the very old sands and gravels—are an equally important constituent. When aggregates are mixed with cement and water and used poured-in-place, the material is essentially a new way of doing an old thing—using a fluid mixture that hardens into a massive wall. Mass walls of this type were common in parts of Europe for centuries. The most common older ways of doing this involved the puddling of clay, and even then the use of rocks as aggregate or filler was not uncommon.³⁹

More common yet, throughout preindustrial Europe and most of the rest of the western world, were massive walls constructed with masonry techniques. The use of cement with Ogallala aggregates to make concrete blocks mimicked the calcareous cementing of sands that took place in sandstone formation as the Ogallala created the high

Divide. The manufacture of these blocks was more like brickmaking than stone quarrying—the product was artificial, uniform, and modular. But in aesthetic effect, when the product imitated stone, it was similar to highly manipulated ashlar stone blocks. The presence of rock on the South Divide clearly informed the local manufacture of concrete block. The repetitive pattern of the Vosika house blocks announced their manufactured quality, but the selection of rock facing also symbolized the local stone. The Oliverius blocks on the other hand, with their more natural appearance, more explicitly "reflected" the stone ledges found in the landscape (fig.10).

This reflection is also seen in South Divide stone masonry. Both Soral's and Škrdle's rubble techniques were straightforward; they both employed minimal levels of manipulation in regard to shaping. But beyond that their buildings emerged from a particularity of place and individual technique. Soral's artistry echoed the thick exposed beds of the north part of the settlement, using a somewhat higher degree of cul-



Fig. 10. František and Marie Mika Oliverius concrete-block house, about 1905.
(D. Murphy, NSHS H673.2-9402/7:3)



Fig. 11. James and Anna Škrdle Oliverius concrete house, 1932. (D. Murphy, NSHS H673.2-9402/9:11)

tural manipulation in the careful coursing of the blocks (cf. figs. 6, 9). His work appears as a rearrangement of the beds; as an artifice from the ledge that maintains the integrity of the ledge in the wall. Quite in contrast, Škrdle's inventive work at the Frank Vosika house stemmed from different conditions and has different metaphoric content (see cover illustration). The now exposed, interbedded coursing in the Vosika walls appears as a stratigraphic metaphor of the deeper geological processes that created the South Divide. Like Soral's, Škrdle's work mirrored the nature of the local deposition, but was expressed more as a meticulous reinvention of the stratigraphy. Here we literally see the rock taken from the ground, transformed, and raised in architectural enclosure above the earth, metaphorically in reverse of the original deposition. The "inconsistency" of the Ogallala is reflected through a deep subjectivity in masonry technique.

These reflections loom large in the creation of place on the South Divide; they are both of the land and of the cul-

ture, revealed in complex interplay. At the large scale of the Divide, the sense of place emerged from a geological and cultural homogeneity that characterized the entire settlement area. Simultaneously, at the small scale of the individual place, it was manifest in material and technical particularity. The preindustrial cultural dialogue with the land responded to the subtle diversity of the land itself.

Notes

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¹ Rose Rosicky, *A History of Czechs (Bohemians) in Nebraska* (Omaha: Czech Historical Society of Nebraska, 1929), 251.

² Rosicky, *A History of Czechs*, 262; Andrew Krikac, "Reminiscences of a Nebraska Pioneer," TS, n.d., Lorraine Lafler Collection, Sidney, Nebraska; F. Mareš, comp., "Seznam českých osadníků v Americe: Okres Cheyenne, Neb.," *Hospodář*, 1 března 1893.

³ Krikac, "Reminiscences," 18.

⁴ U.S. Bureau of the Census, Twelfth Census, 1900, Population Schedules, Cheyenne County, Nebraska, Colton and Lodgepole Townships.

⁵ Mareš, "Seznam," from the translation in Margie Sobotka, *Nebraska, Kansas Czech Settlers, 1891-1895* (Evansville, Ind.: Unigraphic, Inc., 1980), 88.

⁶ James B. Swinehart, Vernon L. Souders, Harold M. DeGraw, and Robert F. Diffendal, Jr., "Cenozoic Paleogeography of Western Nebraska," in R. M. Flores and S. S. Kaplan, eds., *Cenozoic Paleogeography of West-Central United States*, Rocky Mountain Paleogeography Symposium 3 (Denver: Rocky Mountain Section, SEPM, 1985), 211, figs. 2, 4, and table 1. Though out of date in some technical respects, for their descriptions see G. E. Condra and E. C. Reed, *The Geological Section of Nebraska*, Nebraska Geological Survey Bulletin 14, (Lincoln: Conservation and Survey Division, University of Nebraska, 1943), fig. 6; Raymond R. Burchett, comp., "Geological Bedrock Map of Nebraska," 1:1,000,000 (Lincoln: Nebraska Geological Survey, Conservation and Survey Division,

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University of Nebraska-Lincoln, 1969); A. L. Lugn, "Classification of the Tertiary System in Nebraska," *Bulletin of the Geological Society of America* 50 (1939):pl. 1.

⁷ Edwin H. Barbour, *Nebraska Geological Survey: Report of the State Geologist*, vol. 1 (Lincoln: Jacob North & Co., 1903), 163.

⁸ Swinehart, Souders, DeGraw, and Diffendal, "Cenozoic Paleogeography," table 1; Robert F. Diffendal, Jr., R. K. Pabian, and J. R. Thomasson, *Geologic History of Ash Hollow Park, Nebraska*, Educational Circular 5 (Lincoln: Conservation and Survey Division, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, 1982), 9-12; Diffendal, personal communication with the author, Sept. 29, 1995; W. J. Wayne, personal communication with the author, Sept. 28, 1995; cf. Lugn, "Classification," 1262-63.

⁹ H. C. Mortlock, Louis A. Wolfanger, and George W. Hearn, *Soil Survey of Cheyenne County, Nebraska* (Washington, D.C.: GPO, 1920); U.S. Department of Agriculture, Soil Conservation Service, et al., "General Soil Map of Scottsbluff Area—Nebraska," 1:250,000, 1982.

¹⁰ Mortlock, Wolfanger, and Hearn, *Soil Survey*, 21-22.

¹¹ Diffendal, Pabian, and Thomasson, *Geologic History*, fig. 4, and pp. 18-24; Condra and Reed, *The Geological Section*, 13-14. For an eloquent discussion of the emergence of grasses see Loren Eiseley, "How Flowers Changed the World," in *The Immense Journey* (New York: Random House, 1957).

¹² Mortlock, Wolfanger, and Hearn, *Soil Survey*, 19-38 passim.

¹³ See map in *Ibid.*

¹⁴ Donald Lafler, Sidney, Nebraska, personal communication with the author, Aug. 22, 1995; Swinehart, Souders, DeGraw, and Diffendal, "Cenozoic Paleogeography," table 1, describe the deposits as poorly sorted, and Diffendal, Pabian, and Thomasson, *Geologic History*, 12, use the term "highly variable."

¹⁵ In Nebraska we could specifically mention the limestones of Permian and Pennsylvanian origins, which are comparatively more consistent and more highly consolidated than are the sandstones of the Kimball formation.

¹⁶ Diffendal, Pabian, and Thomasson, *Geologic History*, 10; Diffendal, personal communication with the author, Sept. 29, 1995; Wayne, personal communication with the author, Aug. 24, 1995; see also Nelson Horatio Darton, *Preliminary Report on the Geology and Water Resources of Nebraska West of the One Hundred and Third Meridian*, U.S. Geological Survey Professional Paper No. 17 (Washington, D.C.: GPO, 1903), 23.

¹⁷ Krikac, "Reminiscences," 13.

¹⁸ R. F. Diffendal, Jr., "Regional Implications of the Geology of the Ogallala Group (Upper Ter-

tiary) of Southwestern Morrill County, Nebraska, and Adjacent Areas," *Geological Society of America Bulletin* 93 (October 1982):964-76; Diffendal, "Megaclasts in Alluvial Fills from the Ogallala Group (Miocene), Banner, Kimball, and Morrill Counties, Nebraska," *Contributions to Geology* 22:2 (fall 1983):109-15.

¹⁹ Krikac, "Reminiscences," 13; Lorraine Lafler, "Hornicek, Joseph and Anna Family," in Cheyenne County History Book Committee, comp., *History of Cheyenne County, Nebraska, 1886* (Dallas: Curtis Media Corp., 1987), 610.

²⁰ John Opie, *Ogallala: Water for a Dry Land* (Lincoln: University of Nebraska Press, 1993), 32; Raymond R. Burchett, "Mineral Resource Map of Nebraska" (Lincoln: Nebraska Geological Survey, Conservation and Survey Division, University of Nebraska-Lincoln, 1973); and David E. Kromm and Stephen E. White, "The High Plains Ogallala Region," in David E. Kromm and Stephen E. White, eds., *Groundwater Exploitation in the High Plains* (Lawrence: University Press of Kansas, 1992), figs. 1, 2. Donald Lafler, a former well driller, read the terrain to determine optimal drilling locations; personal communication with the author, Aug. 22, 1995.

²¹ František Mareš, "Z mých potulek po Nebrasce," *Pokrok západu*, 27 července 1892, 3; and Donald Lafler, personal communication with the author, Aug. 22, 1994. See also the autobiography of Václav Libecaj, trans. Amelia Sigl, TS, n.d., and Krikac, "Reminiscences," 14, 17, both Lorraine Lafler Collection.

²² Dorys G. Fehringer, "The Man, the Machine, and the Water," *History of Cheyenne County*, 255.

²³ The Schimka family, for example, had property in Saline County before coming to Cheyenne County, and built one of the first frame houses in the Czech community in 1890; see Marcia Miller, *Schimka Dějiny, 1887-1987* (privately printed, 1987), 1-2, 4-5.

²⁴ František Mareš, "Z mých potulek."

²⁵ This discussion is derived from Richard E. Jensen, "A Preliminary Report of the Point of Rocks Archeological Survey," in Gayle F. Carlson and Richard E. Jensen, *Archeological Salvage and Survey in Nebraska*, Nebraska State Historical Society Publications in Anthropology, No. 5 (Lincoln: Nebraska State Historical Society, 1973). See especially 161-208.

²⁶ *Lodgepole Express*, Mar. 26, 1896.

²⁷ [D. L. Seda], "Items Recommended Considered for the Historical Records," TS, n.d., copy in NeHBS #CN00-054, Nebraska State Historical Society.

²⁸ *Ibid.*; Lorraine Lafler, personal communication with the author, Apr. 1992.

²⁹ [Seda], "Items."

³⁰ W. J. Wayne, "Building Stone in Lincoln, Nebraska," TS, n.d., 2, copy in author's possession.

³¹ James Oliverius, Sr., Sidney, Nebraska, interview by Lorraine Lafler, Mar. 1994, Lorraine Lafler Collection.

³² Lorraine Lafler, "Soral Family," *History of Cheyenne County, Nebraska* 965; Lorraine Lafler, "John Soral," TS, n.d., Lorraine Lafler Collection; [Seda], "Items."

³³ [Seda], "Items."

³⁴ See Pamela H. Simpson, "Cheap, Quick, and Easy: The Early History of Rockfaced Concrete Block Building," in Thomas Carter and Bernard L. Herman, eds., *Perspectives in Vernacular Architecture, III* (Columbia: University of Missouri Press, 1989), 109.

³⁵ Donald Lafler, personal communication with the author, Aug. 22, 1995.

³⁶ "Frank S. Vosika," in *Compendium of History, Reminiscence, and Biography of Western Nebraska* (Chicago: Alden Publishing Co., 1909), 686.

³⁷ Lorraine Lafler, "Josef (Joseph) Hornicek," TS, n.d.; James Oliverius, Sr., Sidney, Nebraska, conversation with Lorraine Lafler, Mar. 1994.

³⁸ Oliverius interview.

³⁹ David Murphy, "Building in Clay on the Central Plains," in Carter and Herman, *Perspectives in Vernacular Architecture, III*, 78-83.