Deeper into Prairie

Don Gayton

WIND SIFTS OVER AN UNDULATING, directionless sea of hills. The outright greens of spring have given way to bluegreens, yellows and browns of midsummer. Here, on top of one of the higher hills, is a circle of stones, with the firepit still visible in the centre. Anthropologist John Dormaar found there were two teepee ring sizes on the prairies: a smaller one that predates the arrival of the horse, and a larger one that came after. This looks to be one of the large ones.

Surely there were practical reasons why plains Indians made their camps on hilltops like this one. The movements of people and game could be seen from a distance and the wind would keep the mosquitoes down. But there may also have been other reasons: maybe a need to expose themselves to this view of prairie distance. A culture that built dream beds might also have sought this view of the landscape for the calming and oceanic effect it can provide.

In reality there is no landscape, nothing to fix the eye but the rolling horizon. Prairie exists concretely only at a microscopic, hands-and-knees level. From a distance it is an abstract, the total absence of a landscape. Clouds fill in, as does the mind. Perhaps that is what they were after.

Underneath the teepee ring is a soilscape. Nearly a mirror of the sky, it too has random shapes and elegant bands of color. Lenses of gravel, columns of solonetze, and strata of deposition are layered beneath the roots. Both scapes are random, and change unpredictably. Those who study them are forever devising taxonomic categories.

SOILS MEN MAKE DIRECT CONNECTIONS to the sky when they dig test holes. Sunlight is essential to fully appraise the soil colors; in the morning the soil surveyor stands to the southeast as he digs a test hole, slowly shifting around to the southeast as the day wears on. Their rewards for hours of shovel work are the unexpectedly rich blacks of litter, the graded browns of organic staining and the mineral yellows. Color has such fundamental meaning in soil that it forms the basis of the four great Canadian prairie soil groups, the Browns, Dark Browns, Blacks and Grays.

Hans Jenny, the famous soil classification expert, took a year off late in his career to study color through the medium of painting. Prairie potters also blend these subtle colors of earth with clays from places like Wood Mountain, Eastend, Lethbridge.

Then there are the sands. There is something special about them. They blow, they reach phenomenally high surface temperatures, they hold virtually no water and fewer nutrients. Yet sands support the most diverse native plant communities on the prairies. And the desert sands of southwestern United States and Mexico support the most diverse plant communities of North America.

There is a little elevator town, Ernfold, that sits on the Canadian Pacific Main Line between Moose Jaw and Swift Current. The remarkable thing about Ernfold, visible from miles away, are the spruces. Towering over the prairie, a single row of mature and majestic spruces follow the CP tracks for a mile or so. Nowhere else on these prairies do they grow so tall and luxuriant. Like Tom Sukanen's landlocked ship near Moose Jaw, they are living anomalies on the landscape. Legend has it that the trees were planted back in the 1930's by a local railroad section hand. No one is there to care for them now, section crews having left Ernfold long ago. But the spruces are content. They were planted along a high, sandy ridge, and got a helping hand through the seedling stage. That was all the trees needed. Even though they may reproduce, life to a full term is assured. They might even outlive Ernfold.

Sandy sites seem to be the only ones where respectable growth of conifers can be achieved on the prairies. The heavier loams and clay loams common to the area may heave and buckle in the spring, refuse to allow hardening off in the fall, create oxygen shortages around the root, or allow the pH to rise too high. No one really knows the reason. But conifers, so sought after by both urban and rural landscapers, frequently die protracted, malingering deaths on the prairies, unless they are in sand.

SOIL OF ANY KIND IS A CURIOUS AND DIFFICULT medium. It is scientifically and economically important, like space, or the oceans. It can be approached through physics, chemistry, geography, microbiology, geology, or rarely, art. But it is opaque, and agonizingly random. You begin to see the reasons why soil science is not a familiar discipline, and why it is well known for attracting unique and difficult personalities to itself.

Soil was once thought to be non-living matter. Now we know that nearly every characteristic of soil is affected by living organisms. Nostoc, for example, is an insignificant-looking blackish algae crust frequently seen on bare patches of soil. It has been found to contribute to the soil nitrogen economy by atmospheric nitrogen fixation.

Then there are the huge and rapidly cycling populations of soil microorganisms that break down plant litter. Live bacteria, dead bacteria, fungi, microbial waste products and free
enzymes of microbial origin are components of nearly all soils. The common rule of thumb is that each gram of agricultural soil will contain roughly 1,000,000,000 separate microorganisms.

One microbiologist, trying desperately to get around the problem of opacity while estimating the size of soil microbial populations, hit on an indirect but revelatory method. He took the biological energy compound, ATP, as an analogue of live soil microbial biomass. ATP is a good measure, since it is present in all living organisms and breaks down rapidly after death. Fireflies also use ATP to run their tiny phosphorescent lanterns. The microbiologist leached ATP from a soil sample and added it to an extract of firefly tails. The amount of phosphorescence produced was a measure of the size of the soil microbial population: the greater the glow, the more microbes. Here, then, is a bioassay in the truest sense of the word, developed by a scientist who was thinking on the level of the organism.

Occasionally these microbes become visible. The wanderer of prairie might stumble on to a puffball, a curious leathery sphere the size of a large egg. At some obscure signal, miles and miles of underground fungal threads will together throw up this ubiquitous structure (the Spanish name for it is "witch's fart"). Once the puffball breaks open, wind will carry its spores for miles.

Other soil dwellers make their mark. The classic prairie chernozems—the most highly developed of all the grassland soils—can become literally saturated with the alien earthworm. Viruses, springtails and nematodes are also part of the prairie soil bestiary.

The tallgrass prairies that once grew on these chernozems
are history. When early settlers wrote home about stirrup-high grasses, they were talking about the bluestems and fescues of the tallgrass prairie, which covered the U.S. midwest, and reached up across the southern borders of Manitoba and Saskatchewan. Modern students of plant ecology have difficulty with the concept of tallgrass prairie, because there is simply none of it left. The prodigious fertility of the chernozem underneath was its undoing.

Beneath this teepee ring is another scape, the prehistoric one: scattered thinly across these prairies are dinosaur beds, medicine wheels, fossilized trees, ancient kill sites, glacial flutings and strange concretions. Artifacts of a past so distant that memory no longer has a place. Deduction and imagination thus become powerful tools. The very grass and wind and day once inspired an elaborate medicine wheel at Moose Mountain, Saskatchewan. To the builders, it was clear then why long strings of rock needed to radiate from the centre at precise angles, why the wheel faced the sky and to whom it spoke. Momentarily clearing the mind of expected realities, and standing among the modern grass and wind and day, those things may come clear once again.

**THE STONES OF THIS TEEPEE RING** weather quietly. The few rings, wheels and boulder effigies left here are probably safe: we seem to have slaked our thirst for new cropland for now. The structures are a mute reminder of a shifting but metastable occupation of this land that goes back some 10,000 years, and may someday be found to go back 50,000 years.

The Pleistocene, the era before the present, the one that saw the beginnings of human occupation of the prairies, is covered with a distant fog. Only a few things that are clear about that incredible era when aboriginal coexisted with glacier, mastodon, sloth, and superbison. But patiently we work our way back.

The Cree, the Blackfoot, the Sioux, the Sarcee, the Gros Ventre, the Saulteaux, the Assiniboine and latterly, the Metis, have all made use of Canadian prairie in the Holocene. The written record of their history starts with the notes of others, the colonizers. Not surprisingly, it is one of displacement, death, and monumental misunderstanding. But that history is not without its luminaries.

Sitting Bull and his Band lived in the hills just south of Wood Mountain, Saskatchewan, from 1876 to 1881. They came seeking refuge after their unprecedented rout of the U.S. Calvary at Little Bighorn. To the credit of the Dominion Government of the day, they were allowed to stay, safe from military reprisals. But time, the death of the buffalo herds, and hunger, all took their toll. Dominion officials never granted the Sioux Canadian citizenship or helped them in any way, for fear of angering the Americans.

**SITTING BULL WATCHED HIS BAND** slowly disintegrate from hunger, disease, and internal strife, and finally gave in to persistent demands for his return to American soil. He knew full well what would happen, and it did, in due course. He was murdered in 1890, on a reservation in Standing Rock, North Dakota. That was the end of an era.

A few of Sitting Bull’s younger generals refused to return, and stayed on at Wood Mountain. Long Dog, one of the chief’s most trusted associates, is buried there. Andrew Ferguson, a native farmer from Wood Mountain, showed me his grave. It too sits on a distant, windy hilltop that is dominated by the native stips and wheatgrasses.

That tiny graveyard at Wood Mountain links us to another luminary in North American aboriginal history. Many historians feel that Chief Joseph was the greatest military mind the continent ever produced, better than either Sitting Bull or Robert E. Lee.

Joseph’s crime was an attempt to return to the eastern Oregon hill country that was taken from his people, the Nez Perce. The Calvary went after his Band, and in what was probably the first example of guerrilla warfare, Joseph and his people alternately eluded the troops or struck them unexpectedly. The action lasted for most of 1879 and ranged through Oregon, Idaho and Montana. But the inevitable end could be postponed only so long. Joseph knew, as did Sitting Bull before him. After an agonizing powwow in eastern Montana, Joseph gave himself up. The authorities resettled Joseph and his followers in Nespelem, a dreary community in northeastern Washington, cruelly close to their beloved Wallowa country. Joseph wrapped himself in his blanket and waited to die.

But a few of his people did not. Living on leather and exhaustion, they slipped across the Medicine Line into Saskatchewan, becoming part of the ethnic mix that is Wood Mountain. One of those immigrants was White Bird. A small metal plate marks his resting place in that graveyard of legends.

The wind on this hilltop is a steady pressure, combing through the grass. This is the wind that puts empty grain bins into coulees and turns snow into polished marble. In the old days it carried mosquitoes away from Indian encampments. Now, in dry years, it carries away the summerfallow. In prairie cities, still imperfectly tuned to their environment, it tips over park benches and destroys young garden transplants. Lethbridge, on the shortgrass prairie in southeastern Alberta, has an average windspeed of 20 kilometers per hour, day and night, winter and summer. It is a fact of this bioregion, like winter, grasshoppers, and the CPR.

**TEEPEE RINGS, DREAM BEDS, BUFFALO JUMPS**, turtle effigies. Marks on the land: myths. These things are not found on farmland, only on the dwindled remnants of native prairie, along with the burrowing owl, the crocus and the horned toad. The myths and essences of our natural bioregion are slowly being traded off in our dubious quest to be the world’s breadbasket. Somehow we must find room for both the myths and the wheat. They need each other.