A Place in the Grass

by

Lindsey Nette

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

We reached the edge of that forgotten dock and jumped, arms raised, into knee-deep grass. We wore rubber boots, and carried a camera strung to a kite. The dock was the unfinished fragment of a bridge. After crossing a dried up coulee it ended abruptly, two feet above the grass and some unknown depth above solid ground. How many tourists, after detouring hours off the highway to visit the park, had stopped here, startled by the deep murk below, perhaps taken a snapshot, sighed at the immensity, then turned back to the car? What more could be out there? It was empty.

A Place in the Grass offers a series of reflections on how we navigate empty space and make our place in it, how measures amass into patterns, and perceptions ultimately become places. It reflects on how the elements of place unfold on the landscape to orient us, and blind us. It unpacks the instruments that harness a Prairie we've yet to discover.

I'm searching in the margins of our measures, beyond our instruments, for fragments where the unknown not only survives, but evolves. I'm operating on a hope (as all Prairie endeavors do) that these fragments, gathered together, might expand that empty park and its deep grass into an atlas, a quilt of marginal places where one can still get lost.

There is a fine line between belonging and being lost, a possibility that they are one and the same, and a fear that we are unable to distinguish them. In this context, anchoring ourselves against the undertow of empty space, we build.

Acknowledgments

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And of course, to Dave, thank you for everything; for driving us across the country and building us a kite, for your patience, and for your overwhelming faith in me.

In memory of my Grandfather

Contents

List of Figures

LOST IN THE EMPTY

The word "lost" comes from the Old Norse *los*, meaning the disbanding of an army, and this origin suggests soldiers falling out of formation to go home, a truce with the wide world. I worry now that many people never disband their armies, never go beyond what they know.

-Rebecca Solnit, A Field Guide to Getting Lost, 2005

fig. 1.1

fig. 1.2

fig. 1.3

fig. 1.4

fig. 1.5

We came to the park to get lost. I wanted so badly to be those people in the advertisement, their tent pitched at the center of all that space, nothing around them but sky and grass. I wanted to feel saturated with space, with air and light and then darkness. It seemed to me like an architectural pilgrimage of the less travelled kind, enlightening me to the effect of even the slightest definition of space: the smallest landmark or the scarcest trace of a path. Here I could feel how architecture, in its elemental state, enables; how it articulates light and sound and texture, the cardinal directions and the direction of the wind. It makes forces tangible and gives meaning to space. But if indelicate, it can obliterate the senses; it can blind your peripheral vision or dampen your sensitivities – to light, and sound, and texture. Such is the park's struggle, to find a delicate balance between.

To be out there was on the one hand empowering. But on the other hand, it was to feel entirely out of place – and then to begin to ask yourself why.

Place is a matter of perception. It's an orientation. It's found and shaped by your lens.

fig. 1.6

fig. 1.7

fig. 1.8

Every explorer has a compass. I found mine in one of Dave's harebrained ideas when he thought, we're going to the prairies – we should bring a kite (and strap a camera to it). For Dave, my partner and fellow explorer, the kite opened up a world of airborne bottom-up reconnaissance. But that's his story. For me, the kite was a compass. A "compass" can refer to the range or scope of something, or to a device used to draw geometry, or more often an instrument used to find direction. Our compass did all three. Most importantly, it gave us a purpose in our explorations. We went out looking for something, even if it was something as illusive as wind. We developed a heightened awareness to it, learning to distinguish wind from a breeze, and gusts from steady gales. We could read it in the grass.

Then once we attached the camera, the whole contraption gained a new dimension. The kite-camera was entirely unbiased in every way except to air currents. It actually dismantled biases. It got over horizons. Looking at the pictures afterwards, Dave said the kite wasn't very useful for reconnaissance, but it was great for discovery. And that was why we were out there.

fig. 1.9

fig. 1.10

fig. 1.11

But that unbiased lens exposed our little secret. Our blue tent, which looked so surreal against the open grass, was pitched next to a tree — next to a patch of trees growing in mowed grass. Our tent wasn't out in the middle of nowhere, but rather at its edge. Architecture clung to us like an annoying habit. We loathed them — those awkward trees. But we needed them as well. We had wandered out in the deep grass and learned what it was to move in empty space. But when it came to standing still, to setting up camp, we held fast to the familiar and hovered at the edge of all that emptiness.

AME —

Isles TRION
Hachyts
Wale sound

Alderman Ionas sound

Baffins Bay

Wester holme sound

les trois Isles
Hoye Sanderson
Horne sound
Womeas Isles
London coste
Elyce R.
Best Barber
Marchand I.
Olan fl.

Sire Iames
Lancaster sound

Sire Dudley Digs Kape

TERRES ARCTI QVE

Vieil Grœnland
neland

Cercle du Pole Arcticque NOVVEAV DANE:

New C Comfort

Cumberland's Isles

C Charles

Destroit de ge Hudson

Cap Christian

MARO

North Walles

Cap Philipe
Port du Manck

Scoborÿ point

Hacklwith R.

MER DE HVD
Southampton
CON ou CHRIS
TIANE.

Resolu tion I.

QVE

But tons Bay

Hope check

Bmas bis Bay

New South Walles.

Golfe de Hudson ou Hudson Bay.

Smith Forland

Estotiland
Merchants Isles
Stey hoeck
Ganfe Bay
Slapers haveo

Schilpadde
Cardinaels hoeck
Sadel Eyland
Sybolde hoeck
Tween

Buttons Isle

MER

Port Nelson

GLACIALE.

New Severne

Westons I.

Cap Henriette Marie

Terre de Labora: dor et Nouv. Bretagne

Nations

SEP TEN NOV

CANADA ou

Saguenay

Cana

Irini Nadous.
Kristinous.

CA
Nadouessis
Paouitigou eienhac

Nipissiri mens

Attica me ques.

Silley

Quebec

Cibola

Lac Supe: rieur

VELLE

Algom quis

Etechemins

Apaches de Navajo

Lac des Puans

FRAN

Huron

N. du Petun

Ontario
L. des S. Loys

Iro quois

Abnaquois
N. Anglois Brissan
quiois

Malebarre

NOVVEAV
Nouveau Apaches de Xila

Tacsy

Apa ches de

MEXI

N. du Feu

Mon Royal

Nouvelle Hol

Nouvelle Amsterdam

TRIONA

Apaches Vaqueros

Lago de Oro
Cuny
Cibola
Moqui
Apaches de Peryllo

Ameies
Acoma
Tebes
Puy
Socorro
M. ases

Niaua Mexico
Peie

MEXI: QVE.

FLO RI

Xuala

Guan Jule

Chalaque
Cefachi qui
Cofaqui

Apalach M.

NIE

GI

Chepaseck

VIR

C. de Feare
Port Royal

Nouvelle Grenade.

QVE Quivira

LE

P. de S. Clara
R. de Norte

Ipues
Aixai

Achus

Colima
Tica
Ocali

Mollua Apalta
S. Francois

PE

Mar Vermejo

Cinaloa
de Sinaloa

Tumanes
huma:
Tobosos
Passaquates
Conches

Desoto de S. Jul

MER DE MEXI

Isle.

Nouv. Bis
caye.

S. Barbara

Nombre de Dios
R. Bravo
R. de Palmas

R. de Spiritus
C. de Cruz

B. de Toupea
B. de Carlos
la Punta

B. de S. Joseph

S. Augustin

Barra de Matanoas
Barra de Misquitas

Isles Lucay

queneque
Ciquato
Gatao
Labanan

Lucayoneque

S. Salvador

Can
Culia
Panu:
catecas

R. de Montanhas
Osta Baixa

Golfe

LA NOVVEL LE

Tortuga

Canal la Bahama

Bahama
Bimini
Roque

C. de S. Lucas
les trois Maries

Quautla
Xala

Guadala

Mexique.

Y. de Arenas

Negrilles
los Alacranes

Bermeja

Cuba

Puerto de Principe
Bayamo
Baracoa

Miraporvos
Inagua
Siraguos
Tortuga I.

Linago

Suca
Zumpango

Conti

Triangulo
la Carga

C. de Cotuche

ISLES

Pinos

S. Spiritu

Sevilla

An

Spa

Guaxaca

Tabasco
Chiapa

Hondu: ras.

Merida
Valladolid
Cozumel

Campeche
Yuca tan.

Golfe de Honduras.

Jamaica

gno

Acapulco
Aguatulco
Tecoantepeque

Guaimala

Nicaragua

de las Perlas
S. Andrea

MER

SVD.

Costarica

Three Empty Spaces

There are places where we live in this world, that are yet to be discovered. And there are people who've remained lost in their very homes:

> […] lost over the centuries, lost not in the practical terms but in the more profound sense of apprehending where they truly were.

> - *Rebecca Solnit, A Field Guide to Getting Lost, 2005*[1]

The prairie is such a place.

Rebecca Solnit, a San Francisco based author with an expertise in getting lost (having lost herself in every subject from wandering to political activism), says there are two meanings to being lost. One makes the world shrivel, while the other watches it grow around you. You can be lost searching for the familiar where it can't be found. Or you can be lost *from* the familiar, lost to the outside world – completely immersed in place. Solnit compares the first meaning to facing backwards on a train: you're blind to the reference points before you. As the familiar falls away, you're lost in deprivation. But, she says, if you face forward, you encounter new discoveries; you welcome the unknown. This second meaning is less about *being* lost, and more about *getting* lost. By getting lost, you find your way.

This book is not about *forging* place (though it documents a century and a half of such attempts). It is rather about *finding* place. And I've become the Architect as Explorer.

I've observed a place made by its observation: by the maps and words that initially describe it, and will linger with it for longer than we can foresee. An observation, or an assumption, can come to claim a site even after the slow revelation of experience has chimed in. The place is changed, already thrust into its creation the moment it's observed. Such is the role of the survey.

fig. 1.12 | Amerique Septenrionale, Nicolas Sanson, 1650.

Showing the unknown extent of the Canadian west.

Lavallee
Montreal L.
Whiteswan L.
Whitegull L.
Bittern L.
Candle L.
Torch L.
skesiu L.
Surgeon R.
Cumberland L.
Cumberland Hou
Torch R.
River
Saskatchewan
Whitefox R.
Carrot R.
Cormorant Lake
Rock L.
Atikameg L.
Barrier L.
Reader L.
The Pas
Saskeram L.
Saskeram
MOOSE L.
Limestone
CEDAR
LAKE
WINNIPEGOSIS
Overflowing R.
Prince Albert
Ft a la Corne
23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 48 3 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14
27 26 25 24
PASQUIA HILLS
Red Deer L.
Dawson Bay
Hudson Bay Junction
Waterhen L.
C. N. RY
Red Deer R.
Pelican L.
Swan L.
Jumping L.
Wakaw L.
St Brieux Basin
Barrier R.
Etomami R.
Birch L.
Inland L.
Middle L.
Lake Lenore
Nut L.
SECOND MERIDIAN
Saskatoon
Humboldt
Ponass L.
Swan R.
Woody R.
Red Deer R.
Assiniboine R.
Preeceville
Winnipegosis
THIRD MERIDIAN
Lanigan
Young
Wolverine
C. P. RY
Fishing L.
Quill Lakes
Good Spirit L.
Whitesand R.
L. DAUPHIN
Nokomis
BIG TOUCHWOOD HILLS
C. P. RY
RIDING MOUNTAIN
Dauphin
C. N. RY
Arm River
Last Mountain Lake
BEAVER HILLS
Yorkton
C.N.RY
Qu'Appelle River
Melville
Kaposvar G.
Rirtle
Beulah
C. N. RY
Minnedosa
Qu'Appelle Riv
Buffalo Pound L.
Qu'Appelle
C. P. RY (MAIN LINE)
Qu'Appelle River
Moosomin
Miniota
Chaplin
Chaplin L.
Moosejaw
REGINA
29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 16 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18
Weskana Cr.
C. P. RY
G. T. P. RY
Kirkella
Elkhorn
Lenore
Brandon
Johnston L.
Moosejaw Cr.
Moose Mountain
Firesage
Virden
Oak L.
Souris R.
L. of the Rivers
Arcola
Reston
Souris R.
C. P. RY
Whitewater L.
Twelve Mile L.
Radville
C. N. RY
Alida
Willowbunch L.
Montague L.
Bengough
Neptune
Long R.
Souris R.
Alameda
Antler C. P. RY
Deloraine
WOOD MOUNTAIN
Fire L.
Big Muddy L.
24
Estevan
Lyleton
TURTLE MOUNTAIN
North Portal
Poplar R.

In her essay, *On Site: Architectural Preoccupations*, Carol J. Burns suggests two opposing ways that we observe site: as cleared, or constructed.[2] The architect and professor at Harvard, Yale, and MIT, has written a great deal on the meaning of "site" across disciplines. She says the 'cleared' perception observes site as a neutral void. It's measured mathematically on a planar surface. The disillusion however, is that the clearing is already a construction itself, never neutral, but embedded with intent.[3] The second approach, the 'constructed' site, observes the site in section – through physical and historical layers. While this reading is no doubt more grounded, Burns points out that it's limited by what is *visible*. The eventual design leaps on the visible as a "literal basis of construction,"[4] and misses all that has been fused or buried along the way.

Through the cleared lens, the prairie is *made* empty by maps: by a survey that scraped its surface into a tabula rasa. Through the constructed lens, the prairie is *found* empty – its patterns emerging long after the place has been observed. The apparent is overtly bare, while the significant is barely perceptible. Either way, the prairie is observed as 'empty'.

A Place in the Grass considers three perceptions of empty space: a void, a trace, and an indecipherable noise. The *void* is framed by the survey, by outlining vacancies and filling them. The *trace* is based on memory, or rather on the regret that there is no memory of what the prairie used to be. The *noise*, in turn, is my own search for emptiness, but an emptiness that falls between the void and the trace – a presence to be found instead of an absence to be filled.

This thesis is a catalogue of reflections on how we measure and alter the empty, how we make place within it. Then it is an atlas, an explorative expedition in reverse – carving out white space from all the lines on the map.

(prev. page)
fig. 1.13 | Index to Townships, Dept. of the Interior, 1918.

fig. 1.14 | Index to Townships (Detail)
In 1871, The Dominion Land Survey commenced as the largest continuous survey in the world. It covers over 800,000 square km.
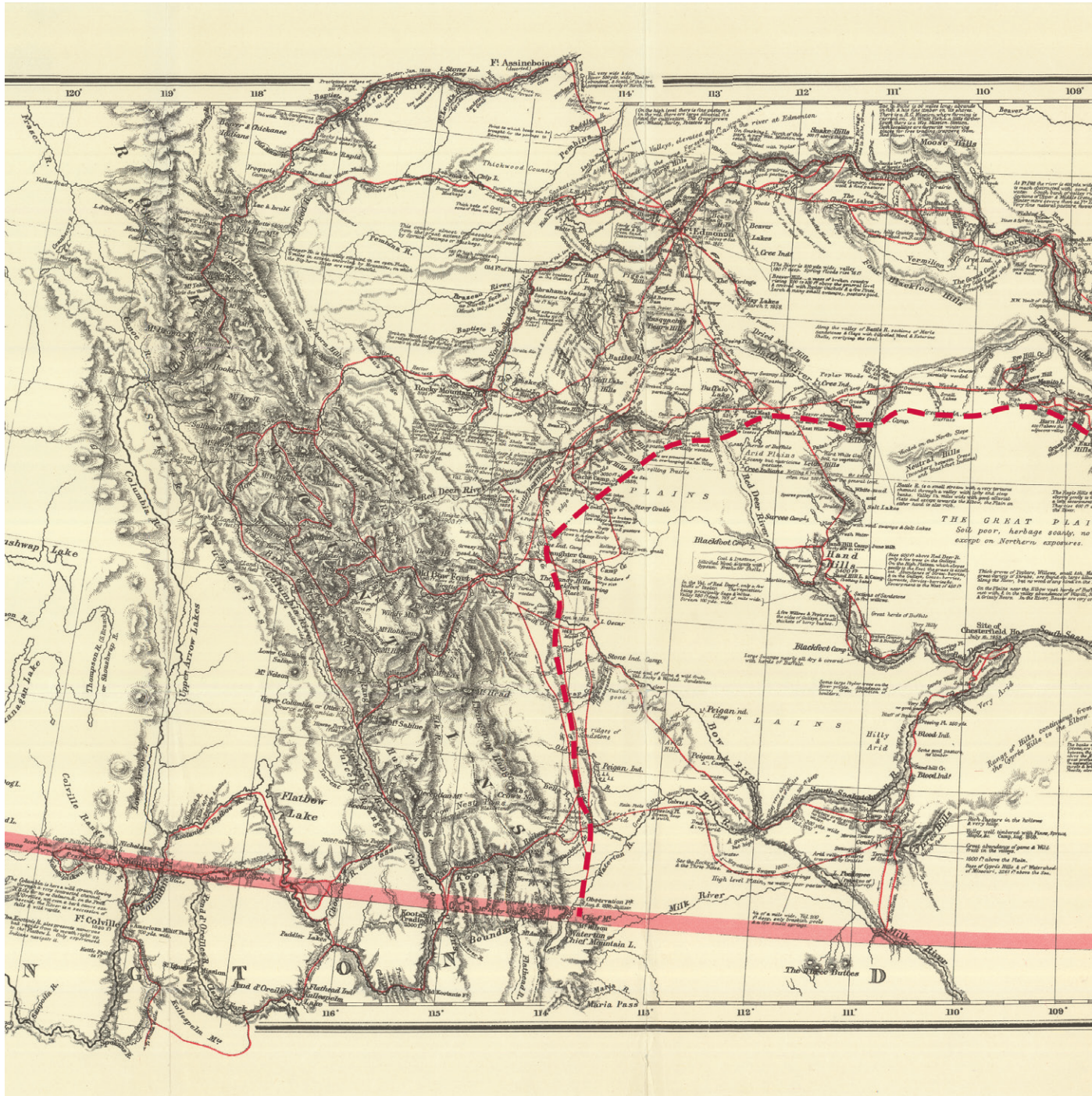
fig. 1.15 | *Map of the Palliser Expedition,* The University Press, Glasgow, 1862.

River at Edmonton

Beaver R.

Beaver R.

Snake Hills

Moose Hills

H.B. House . N.W. House

Mcadow L.

Green

Pelican L.

Lac la Biche is 30 miles long, abounds in fish & has fine timber on its shores. There is a R.C. Mission, where farming is carried on. At White Fish, a little further South there is a Wes. Mission Station. Both localities are favourite wintering places for free-trading trappers from Red River.

The Great Chain of Lakes

Buffalo found Decr 1857

At Ft Pitt the river is 400 yds wide; the channel is much obstructed with sand bars at low water. South bank of valley rises to 500 ft. Sections of Upper & Middle Cretaceous Strata. Winter more severe than at Ft Edmonton or Carlton. Very fine natural pasture, favourite place for rearing horses.

Fishing L.

Red Deer R.

Fort Pitt 1851 Decr

Cree Ind.

French Knoll

Thickwood Country. Pines (P. Banksiana) on the ridges Spruce & Larch in the hollows, Poplars & a variety of small shrubs in the River Valleys, abounding in fish.

Thickwood Hills 350 ft above the Plains. Salt Lakes are fringed with crystals of Sulphate of Soda.

Stinking Lake

L. Iroquais

Brackish Water

Vermilion

Cree Ind.

Blackfoot Hills

The Grand Coulèe A dry Gully with Terraced Banks 200 ft high.

Red Deer Hill

Covered with Willow and Rose-bushes.

The Timber has been recently burnt off

N.W. limit of Sugar Maple (Negundo)

Jack Fish L.

Sweet Grass

Muskeg Lake

Fort Carlton

Duck

The River is 210 yds wide, valley 190 ft deep. Spring floods rise 16 ft.

Beaver Hills — a mass of broken country rising 200 to 400 ft above the general level & covered with Poplar thickets & a few Pines, Larch & many small swamps; pasture good.

Along the valley of Battle R. sections of Marls Sandstones & Clays with Silicified Wood & Estuarine Shells, overlying the Coal.

Dried Meat Hills

Poplar Woods

Cree Ind.

Eye Hill Cr.

Broken Country partially wooded

The Willow Hills

Broken, Hilly Country wooded with Poplar & Birch Bear Lakes

Thickwood

Redberry Lake (Salt)

The Elbow

South Saskatchewan River

Beaver abounds in this district

Last Willow Ridge

Elbow

Neutral Hills (Boundary between Crees and Blackfoot Indians)

Buffalo

Horn Hill 400 ft above the adjacent valley

Battle River Cree Ind.

Plain with little wood, Soil impregnated with Sulphates of Soda

Moose Woods — Halfbreed settlement for much fine land & rich pasture

Sullivan's

Paint Cr.

Hard White Clay Soil, no vegetation

Leith Hills

Wooded on the North Slope

Grand Coulee

Eagle Hills

Bear Hills

Cree Ind.

Rabbit Point

The Bad Hills

Red Deer L.

Qu'appelle Fork

Surcee Camp

White-mud and Salt Lakes

Battle R. is a small stream with a very tortuous channel through a valley with lofty and steep banks. Valley 1½ miles wide with good alluvial flats and except towards the Elbow, the Plain on either hand is also rich.

The Eagle Hills form a high Plateau sloping gently to the S.W. & presenting a lofty escarpment to the N. & E. They rise 600 ft above the level of the River.

THE   GREAT   PLAINS
Soil poor, herbage scanty, no wood
except on Northern exposures.

Rise 600 ft above Red Deer R. only a few trees on the Gullies. On the High Plateau which slopes gently to the East the grass is excellent. Abundance of Straw-berries, & in the Gullies, Goose-berries, Currants, Service-berries &c. Escarpment to the West of 450 ft.

Thick groves of Poplars, Willows, small Ash, Maple and a great variety of Shrubs, are found on large alluvial points along the River, but no wood of any kind on the Plains.

On the Plains near the Elbow vast herds of Buffalo were met with, & in the valley abundance of Wapiti, Small Deer & grizzly Bears. In the River, Beaver are very common.

Surcee Camp

Hand Hills 3400 ft

Hand Hill Camp June 1858

Hand Hill & Camp

The River here is 300 to 400 yds wide 10 to 15 ft deep, the current swift channel much obstructed by sand bars above the Elbow. Valley 1½ miles wide, 230 ft deep.

First meet with the Sage Artemisia, in quantities & the Cactus (Opuntia). In the valley a few trees were seen of Populus Granadentata.

Elbow of the South Saskatchewan River

E. limit of true Prairie Land

Ledges of soft Sandstone of Upper Cretaceous. Beds of Ironshot Sand with fresh water shells & Buffalo bones.

Site of Chesterfield Ho. July 18, 1859

South Saskatchewan River

Blackfoot Camp

Willow Cr. or that turns

Cree Camp

Eyebrow Hill Ridge

Mountain

Buffalo Pound Hill Lake

A large proportion of the thickets in the river valleys is formed of Fruit bearing shrubs, cherries, service-berries, Scarlet Buffalo Berries, &c.

Lookout Hills

Thunder-breeding Hills

Chaplin or Old Woman's Lakes

Chaplin

Cree Ind. Camp 400 ft above Plain Sep 18, 1857

Continuation of the Coteau des Prairies

Blood Ind.

Crossing Pt. 250 yds

Some good pasture no timber

Range of Hills continuous from the Cyprès Hills to the Elbow.

The banks of the Saskatchewan Riv. where it cuts through the Coteau, are lofty and ruinous, sometimes 13 landslips occurring between the Plain level and the Water's edge. For 12 miles above the Elbow the banks are formed of Sandy drift with a great profusion of boulders of primitive rocks & Limestone. In ascending the valley the drift is seen to rest on strata of soft purple & brown Clays, containing cement-stones with Cretaceous Fossils, also Selenite in crystal groups of Crystals.

Blood Ind.

Sand-hill Cr.

South Saskatchewan R.

Hilly & Arid

Cyprès Hills 3800 ft

Rich Pasture in the hollows & very hilly.

Valley well timbered with Pines, Spruce, Maple, &c. Camp, Aug. 1859.

Great abundance of game & Wild fruit in the valleys.

1600 ft above the Plain.

Base of Cyprès Hills & of Watershed of Missouri, 3261 ft above the Sea.

L. Pakowee

My journey crosses three sites that correspond to those three perceptions – one large, one small, and one fragmented and always changing. The "empty" is never void, but filled with the unfamiliar; *getting* lost is very different from remaining lost.

VOID
Palliser's Triangle

After leaving the eastern limit of the country that is within the influence of the mountains […] the South Saskatchewan flows in a deep and narrow valley, through a region of arid plains, devoid of timber or pasture of good quality. Even on the alluvial points in the bottom of the valley trees and shrubs only occur in isolated patches. The steep and lofty sides of the valley are composed of calcareous marls and clays that are baked into a compact mass under the heat of parching sun. The sage and the cactus abound, and the whole of the scanty vegetation bespeaks an arid climate.

-John Palliser, General Report, 1860[5]

John Palliser set out in 1857, under British decree, to explore the territory where the Hudson's Bay Company's lease would soon expire. The young Irish geographer followed a route no further south than the banks of the South Saskatchewan. The region he bypassed, in search of more favorable land, became known as *Palliser's Triangle* – a void, the northern extent of the "Great American Desert." When he returned to Dublin and presented his findings to the British Parliament, Palliser reported a dried up wasteland "comparatively useless" to its northern edge.[6]

But the location of this swathe of useless land was politically charged. The 'desert' was a crucial barrier to expansion from the south. And while the Dominion heard the warning of a void, they acted on it as an opportunity – sheer disassociated space. So without ever truly exploring it, the Dominion moved in on

fig. 1.16 | Map of the Palliser Expedition (Detail)

Grasslands National Park

The Great Plains

5   10   20 km
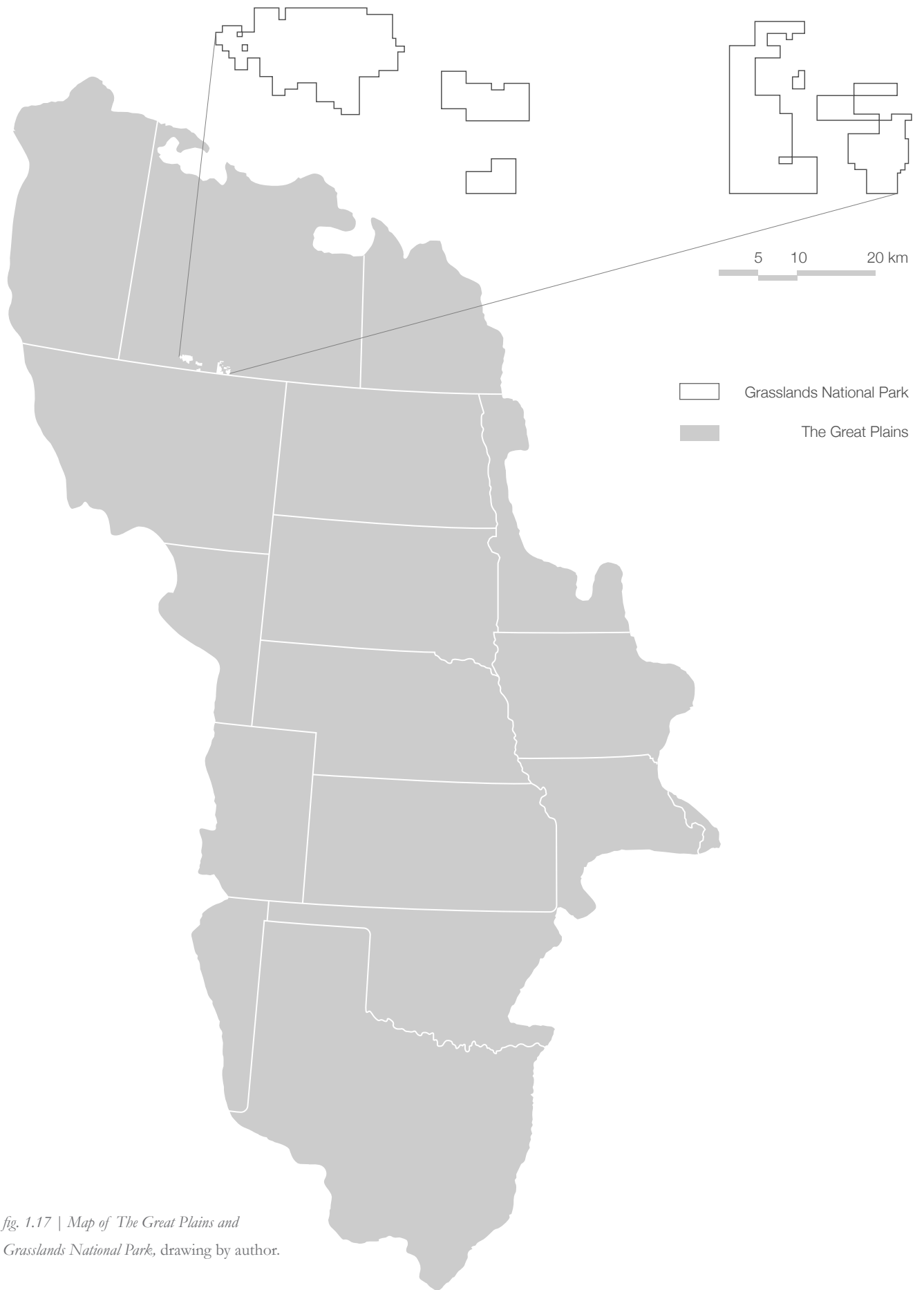
fig. 1.17 | Map of The Great Plains and
Grasslands National Park, drawing by author.

Palliser's Triangle, flooding it with the lines and seeds of place – attempting to fill the void.

Almost immediately the land resisted. A friction grew between stagnant places built on changing ground. Palliser had drawn his boundary on a very real but intangible contour, a climatic region that drifts over the grasslands like a tide. The site has become a significant one in other disciplines of study. It's a region irregular and changing, yet we occupy it with such a narrow tolerance for change.[7] The agricultural model is easily upset and overly susceptible to fluctuations.

  So much of the region's imbalance begins with how we orient ourselves in its space – in the ways we approach and reshape it. That sliver of tolerance with which we build our place, abandons a human habitat that once rushed the site. Without a place to inhabit, the prairie becomes a mere resource. We abuse the land we leave behind.

This thesis is framed within Palliser's Triangle. And its boundary continues to reveal itself like a persistent, though misinterpreted, truth.

TRACE
Grasslands National Park

I had been eager to stretch my legs in the Grasslands for weeks, since we drove the stretch of the TransCanada that shears southern Manitoba's lakeland and opens to a flood of light, a wall of jack pines in the rearview mirror. And since before that too, I'd been dreaming of this place where you could pick a point on the horizon and just walk, aimlessly, into open space.

The prairie had been surprisingly more full than I had expected – full of such repetition that it seemed somehow empty, washing over me like an ambient soundtrack. There was something I was searching for: less.

I came to realize I wasn't alone. So many were out here looking for absence: absence of noise, absence of light. Among others, I hoped to find it in the park.

When Grasslands National Park officially opened in 2001, it set out to return its visitors to the experience of discovery, as unprescribed and unpolluted as possible. They wanted the public, both local and far removed, to learn to see the 'grasslands' as a place in itself, rich with complexities, an expanse to be explored. Here they felt, was a trace of something rare. But restoring this 'emptiness' is no small feat. Karin Smith-Fargey, the park's public relations manager, explained it to me like this:

> It's as if you built a building, something so bewildering people didn't know how to access it. They couldn't find the entrance.
>
> They think, it's not for me.

Karin was relatively new to southern Saskatchewan, and in that soft-spoken candor I was met with throughout the province, she admitted she'd struggled with the place. It seemed there was some primal human skill we had forgotten – some fear that had overcome our basic spatial instincts. The park's guests could not orient themselves, would not let themselves get lost. Their struggle, *my* struggle, is at the heart of this thesis.

But the park also struggles with another reality: it is nothing more than a trace. Since it began purchasing land in 1981, the park has slowly gathered parcels that ranchers have thrown to the curb. The survey that once fragmented the land, a means of orientation, disassembles in a painstaking way. The struggle is – though the grasslands are incredibly resilient to disruption, even thriving on it, they cannot survive fragmentation. As an isolated and fragmented trace, surrounded by surveyed property, the park has little chance of restoring itself as a true *grassland*. "Grassland is indivisible."[8]

The basic and overarching truth is that grasslands have been divided. And even still, we find fragments of them surviving in the margins of the survey, in the un-mowed crevasses of highways and suburbs. In their new isolated form, grasslands are changing. A new paradigm is needed, not of restoration, but of discovery. There is a space that falls somewhere between grassland and grid, between the sacred and the profane.

NOISE
An Archipelago

A captain encounters an island and disembarks his ship to explore. He finds all forms of strange species and gathers them in crates to bring home. He finds another island close by, larger than the first. He goes to shore and follows the same routine, adding more crates to his cargo.

It will be decades before someone returns to sort out which species came from where. By then, many of the species will be lost, while others will have been reshaped, remade. Centuries later still, the science of bathymetry will extend the islands' geographies onto their surface beneath the sea, revealing that the two islands were once one. The gap between is merely a shallow trench, flooded by an opportunistic sea.

Oceanic islands are born anew from beneath the sea. They emerge, void of life forms, and are quickly inhabited by lost beings. *Continental islands* on the other hand, are lost themselves. Cut off from some parent rock in a moment of fracture:

> A continental island begins with everything, and has everything to lose. An oceanic island begins with nothing, and has everything to gain.[9]

In *The Song of The Dodo*, Ohio-based science writer, David Quammen, speaks this truth, somewhat tainted by the tragic lens of extinction. He writes of a world torn to pieces. Continental

islands are the paradigm of our time. They emerge at an unprecedented rate, not only cut off by water, but more often by tracts of abused and homogenized land. Today we find islands within the continent itself: isolated fragments of rainforests, glaciers, and grasslands.

In his essay, *Desert Island,* French philosopher Giles Deleuze reminds us that, "the island is deserted more than it is a desert."[10] The desert lies in the expanse surrounding, while the island itself is a harbinger for all that resists or is born strange. Quammen agrees:

> […] nonconformists of every sort […] Islands are havens and breeding grounds for the unique and anomalous.
> They are natural laboratories of extravagant evolutionary experimentation.[11]

In this light, the continental island is seen as generative. Its very desertion and isolation drives it to recreate itself. And as Deleuze suggests, it is this recreation that confirms the life of the place.

In the prairie these cutoff islands emerge from the survey, in the thickness of its lines, in the points where they meet, and the contours where they bend. They emerge from the very instruments that displaced them, in their misapprehensions and the margins of their reach. But there is a particularly strong struggle in the prairie between isolation as creator, and as killer. The Grassland requires large tracts of uninterrupted space – space for movement. Because of this, these fragments can no longer operate under the prairie's original rules. But while they quickly lose species along with their expanse, they gain the debris of their surroundings.

Once in a conversation, my thesis supervisor, Donald McKay, referred to these islands as the noise between radio frequencies. I liked the metaphor. While one frequency, one set of conditions

is going out, another is coming in. These are the spaces where weeds grow and drifters rest. An emptiness is perceived in the indecipherable layering of noise. But it's an emptiness thick with potentials.

In a *void*, we create our own context, ignorant of what we fail to see. In a *trace*, we attempt to restore a context that's irreconcilable with the context that's grown there today. But in this *noise*, where the context is in flux, both what we perceive and conceive (context and creation) emerge simultaneously. Here we find a new reading of empty space, neither "cleared" nor "constructed", but rather unfolding in the present.

For a park attempting to restore a place that has been nearly erased without ever being known, this is a hopeful idea. These are places that fall between the void and the trace. They're places where inhabitation is inherently an act of exploration. I see them as a potential extension and re-imagination of the park, both its space and its substance, into the landscape at large.

POINTS OF ENTRY

There are no thresholds in the grass – at least to a newcomer's eye. Beyond the forest, before the Missouri Coteau, far from the Great Sand Hills, you are lost. And not as in a forest, where so many trees are spun into a labyrinth and the sun trickles through its gaps – you stop, for fear of going any deeper. Here, everything is laid out before you in plain view, everything is bathed in light; but there is nothing to stop you, nothing to track the sun as it moves, or the day as its passing. You just keep moving. There is nothing to say you've arrived. You are here,

> […] mere presence upon this circumference of absence.

> *-Kenneth McRobbie*[1]

fig. 2.1 | Canada West: The Last Best West, Dept. of
Immigration and Colonization, 1909

 "The Last Best West" was a marketing scheme and publication run from
around the turn of the century until the First World War. It advertised the
Canadian west in direct contrast to the remaining marginal land in the United
States. This was the last of the frontier.
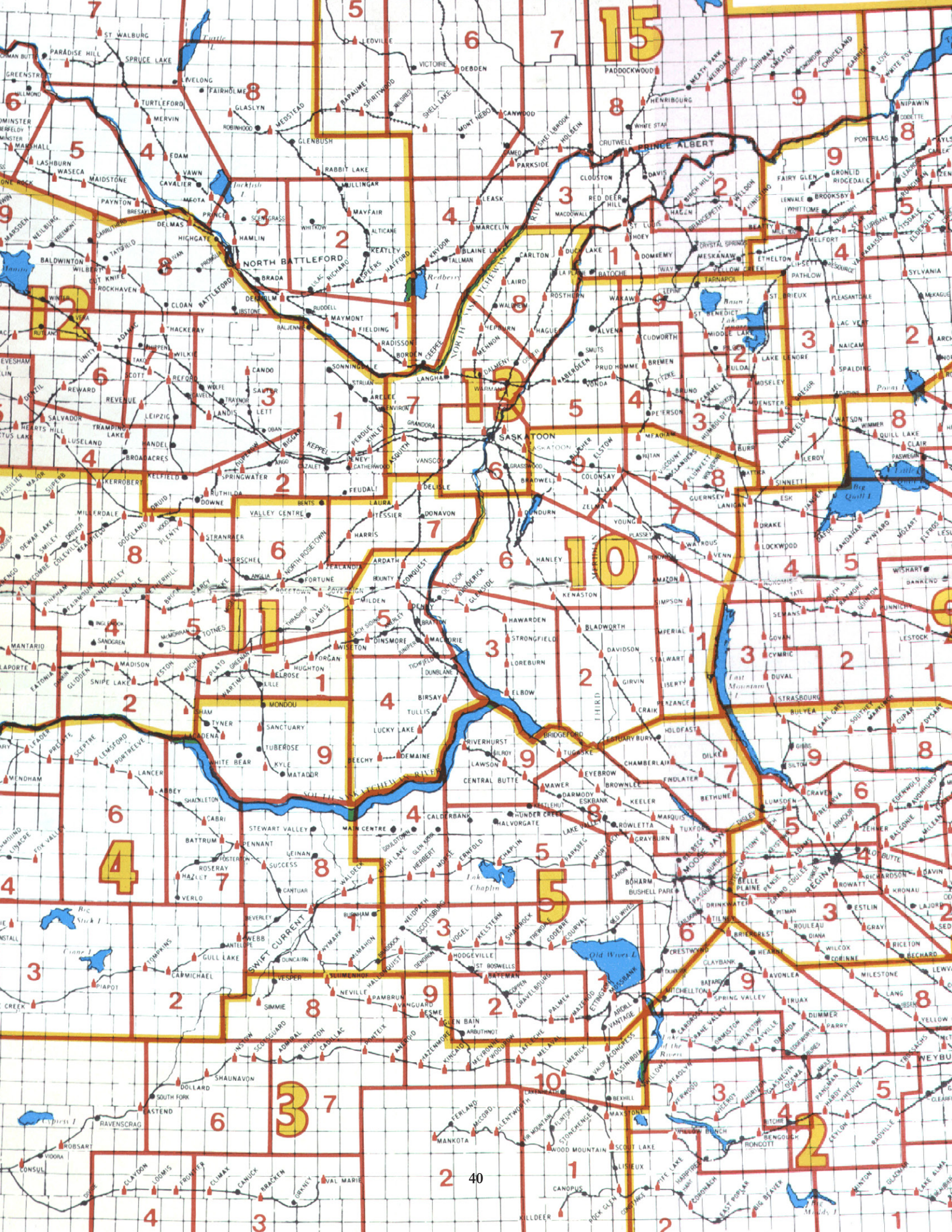
fig. 2.2 | Saskatchewan Wheat Pool Country Elevator System,
Saskatchewan Wheat Pool, 1984

For sixty years, the Saskatchewan Wheat Pool published an annual calendar and map of the province's grain elevators. In the 1984 map, we can already see elevators closing along the rail lines (represented as black dots).

POINTS OF ENTRY
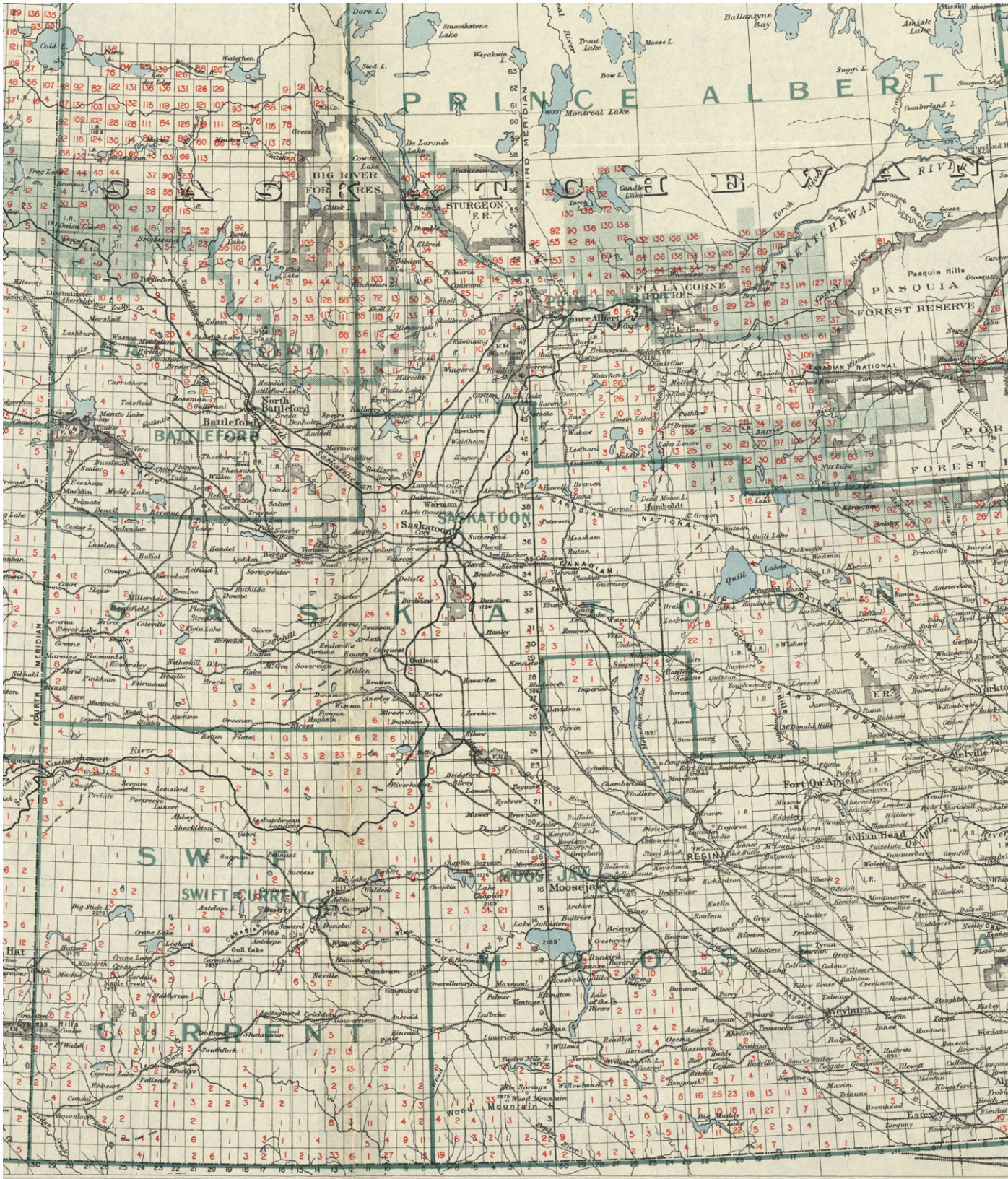
Base from plates of Department of the Interior
revised by Natural Resources Intelligence Branch.

(prev. page)

fig. 2.3 | Map of Manitoba, Saskatchewan & Alberta Showing the Number of Quarter Sections Available for Homestead Entry in Each Township. Department of the Interior, 1920

fig. 2.4 | Map of [...] Quarter Sections Available for Homestead Entry in Each Township (Detail)

LEGEND

Figures in red show number of quarter sections
available for Homestead entry in each township } ------- 105 -------
Boundaries of Agencies _____
Office of Agencies_____
Forest Reserves _____
Parks _____
Townships surveyed are outlined in black.

LANDS RESERVED FOR
PURPOSES OF SOLDIER SETTLEMENT

Area shown thus_____

All Vacant Dominion Lands within fifteen miles of a Railway

All suitable Dominion Lands lying south of green cross-hatched
line and within fifteen miles of a Railway which may become
available as a result of cancellation or abandonment._____
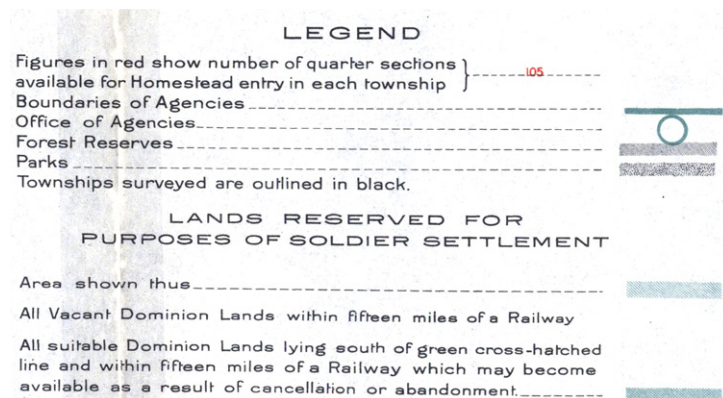
THE GRAIN GROWERS' GUIDE

AND FRIEND OF LABOUR

A WEEKLY NEWS RECORD AND REVIEW OF EVENTS AND OPINIONS

VOL. II.   No. 1

WINNIPEG, AUGUST 7th, 1909

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EQUITY

"BUT CROWN HER QUEEN
AND EQUITY SHALL USHER IN
FOR THOSE WHO BUILD
AND THOSE WHO SPIN
AND THOSE THE GRAIN WHO GARNER IN
A BRIGHTER DAY"

CONTENTS

fig. 2.5 | The Grain Grower's Guide and Friend of Labour.
Winnipeg, 1909

Propaganda played a key role in not only founding an image *of* the place, but also in maintaining a faith *in* the place and its role.

> "EQUITY: But crown her Queen and Equity shall usher in for those who build and those who spin and those the grain who garner in a brighter day."

Granary Migrant Studio

Chain Strip Garden

Rod Strip Garden

Porous Pavers

Concrete Pad

1 Chain = 66'-0"

1 Rod = 16'-6"

Moveable Artists' Studio
(Migrants)

Fixed Shared Buildings
("Domestics")

Earthroom
(Subgrade Event
Space)
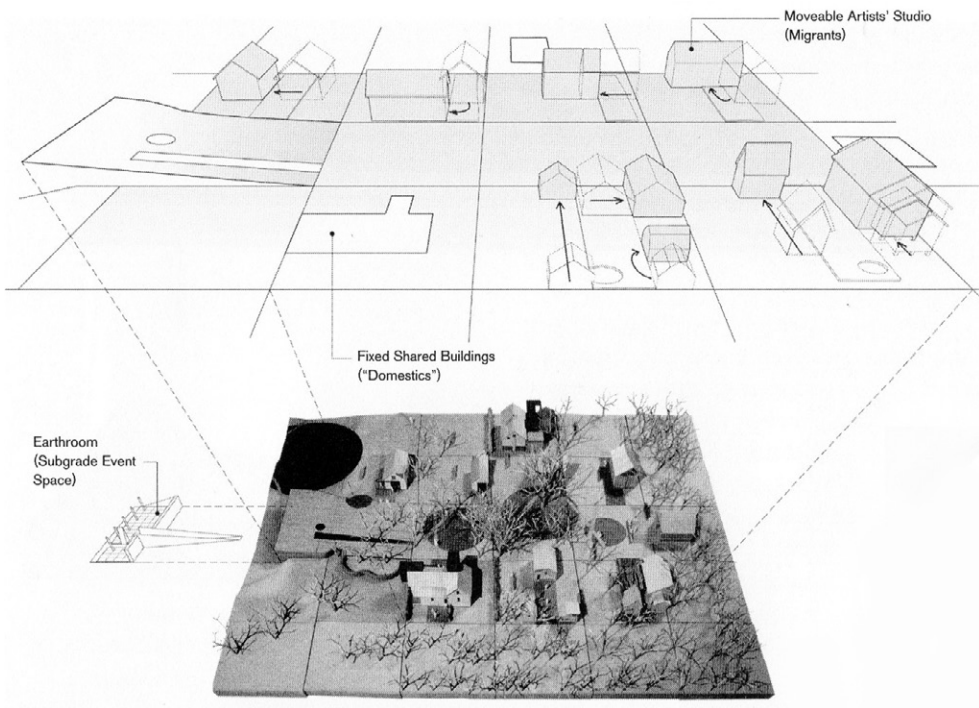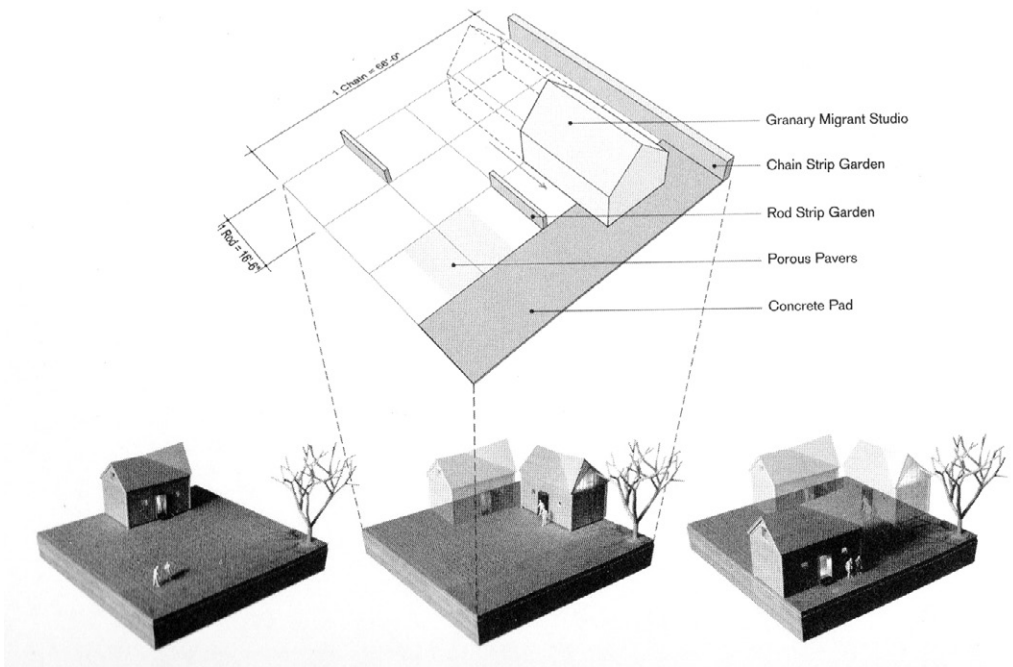
fig. 2.6 | Typical Artist Studios at Art Farm. Nebraska, Diagram
and Photograph by Larry Gawel

Art farm opened in 1993 as an artists' residency program. Artists reside in 66' x
66' "mini-sections" that are rearranged and altered through their work. While
attempting to write a new "post-agricultural" narrative for the land, the farm
still draws on the same prairie-grid threshold: the right to transform space, and
oneself in the process.

fig. 2.7 | Kite Photo of Grasslands National Park. photo by author, 2011

Radius of Place

LOST: The human being, by his mere presence, imposes a schema on space. Most of the time he is not aware of it. He notes its absence when he is lost.

-Yi-Fu Tuan, Space and Place: The Perspective of Experience, 1977, 36.

SPACE: […] there is an immediate relationship between the body and its space, between the body's deployment in space and its occupation of space. Before producing effects in the material realm (tools and objects), before producing itself by drawing nourishment from that realm, and before reproducing itself by generating other bodies, each living body is space and has its space: it produces itself in space and it also produces that space.

-Henri Lefebvre, The Production of Space, 1974, 170.

With the kite overhead, and nothing to do but rotate the camera with a joystick, I took in the surrounding terrain. There were no familiar reference points to give it scale, shape, or duration. My body becomes the only measure. How many paces from here to there? How deep is the grass against my legs? Does the wind propel me from behind, or does it resist me like a tacking sail? My body creates space in the way that a sail gives shape to the wind. Here, the body becomes architectural. It imposes a geometry without even being conscious of its effect – a circle that radiates from it.

The camera above spits out picture after picture of texture and not space. The viewer is lost until the camera rotates toward the photographers and captures us as the only reference point it can find. We capture space, create space, only upon our own measure.

On a clear day, standing at an average five foot seven on flat terrain, the circumference of your horizon sheers the curvature of the earth over four and a half kilometers away. Everything within sight, within "direct experience" is tangible, measurable, knowable. Everything beyond, as Chinese-American geographer Yi-Fu Tuan writes, takes on mythical proportions:

> This unperceived field is every man's irreducible mythical space, the fuzzy ambience of the known which gives man confidence in the known.[3]

Noted for his humanistic study of geography, Tuan describes 'place' emerging from the center as a gradient that becomes imperceptible at its circumference. For a range we can imagine

ALTERNATE ORIENTATION: Wintu Peoples
Northern California

There is a tribe in Northern California, whose language all but died out with its last fluent speaker in 2003. The Wintu conceived of a world in which the self was never an autonomous being, and space was not produced *by* the body, but rather shaped the body itself. The Wintu had no words for "left" or "right." Instead, they described their own bodies using the cardinal directions, so that the body was always a reflection of its surroundings; one's "west" arm becomes one's "east" arm when they turn around. Rebecca Solnit writes of the Wintu,

> I was enraptured by […] a cultural imagination in which the self only exists in reference to the rest of the world, no you without mountains, without sun, without sky. […] In that language, the self is never lost the way so many contemporary people who get lost in the wild are lost, without knowing the directions, without tracking their relationship not just to the trail but to the horizon and the light and the stars, but such a speaker would be lost without a world to connect to, lost in the modern limbos of subways and department stores. In Wintu, it's the world that's stable, yourself that's contingent, that's nothing apart from its surroundings.[4]
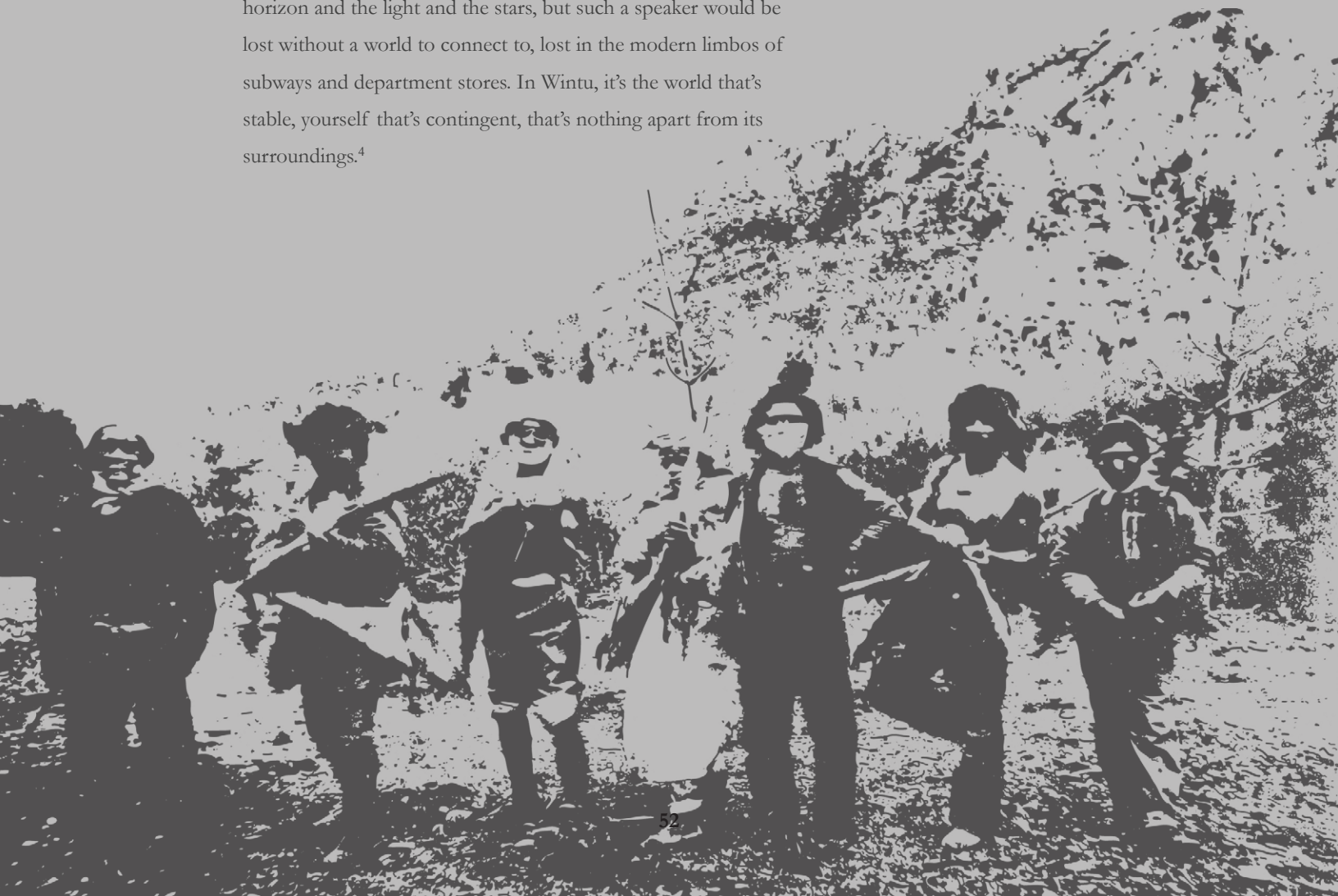
our footsteps in stride, until at a certain radius their markings are too small, distance is too abstract. And then it's gone.

I keep imagining grain elevators landing along the railway like pin drops sending shockwaves into unsuspecting terrain. Everything touched came under the plow. Everything out of range remained, although shaken, some remnant of *Terra Incognita*. 'Mythical space' proliferated beyond pockets of appropriated ground.

In this way place emerged from the center, from the tower or the post office, pulsating between train schedules and wheat yields. The elevator formed a community hauling grain; the post office, an umbilical cord to the outside world. The plowable and seemingly *knowable* ground had its limits.

The lived world is circular. When we stretch its limits, we're testing its radius. We're asking, how far can I walk and still get home before dark? Each homestead creates its own radius of place. It upholds different allegiances, picks its mail up somewhere else, and sends its kids to another school. A place in the empty adheres less to boundaries than to tangents that are within reach.

The word 'tangent' derives from the latin *tangere*, meaning 'to touch', and perhaps from the Old English *thaccien*, 'to touch gently.'^ A circle ends at the horizon, touching its surroundings without consuming them. But the grid continues beyond the horizon, assuming that 'there' is the same as 'here.' It never differentiates between the known and the unknown, between place and its mythical otherwise. It makes boundaries that are meaningless, that are regularly and casually breached.

Place remains a circle, its radius marked out in squares.

LANDSCAPE: The rectilinear grid of the map was wrapped around a spherical solid, while perspective reframed the circular perimeter of our vision into rectangular picture windows. Both abstracted us away from looking at land and into considering a landscape.

-William L. Fox, The Void, The Grid, and The Sign, 2005, 115.

fig. 2.8 | Winnemem Wintu War Dancers. California, 1870
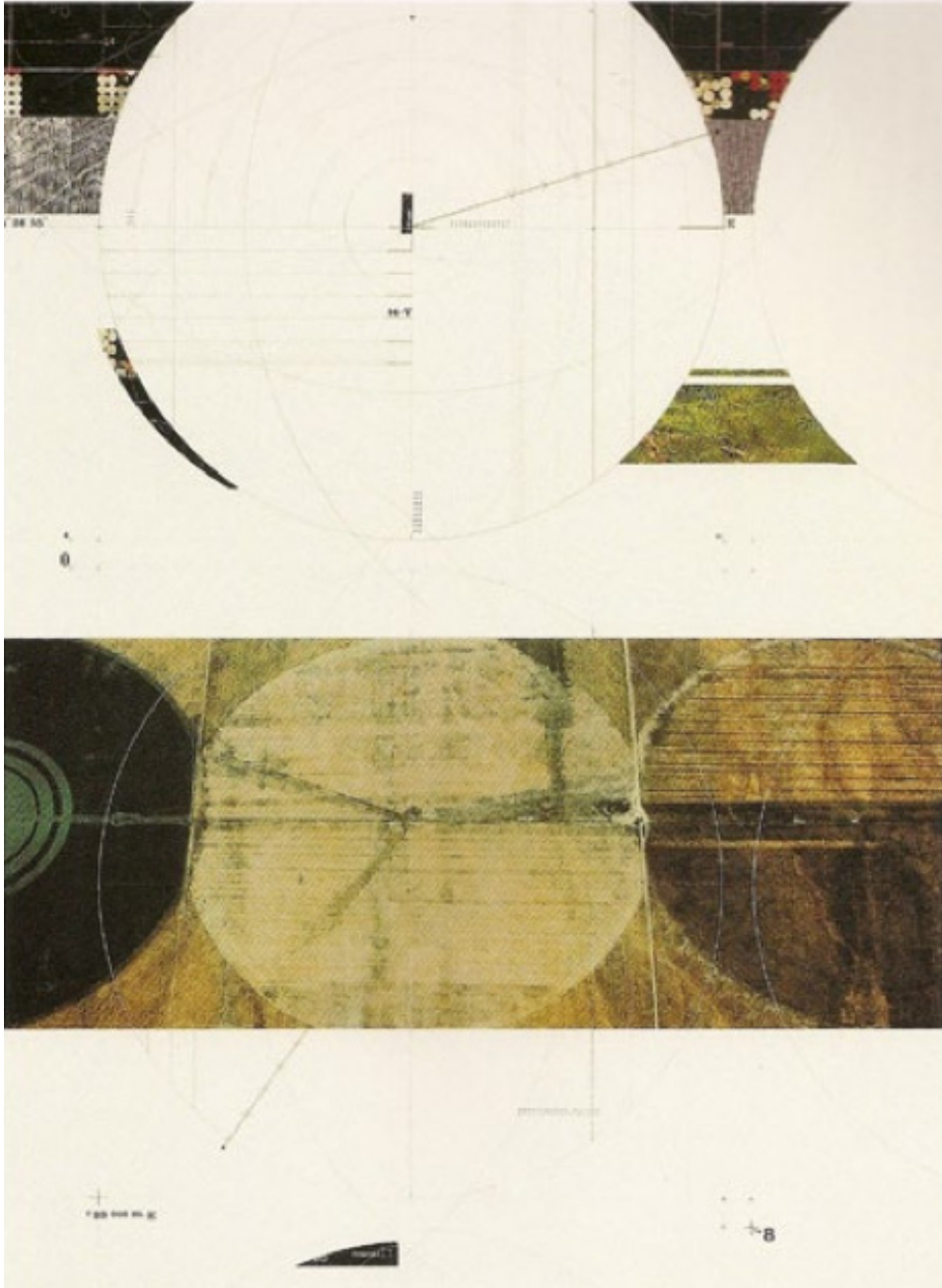
fig. 2.9 | *Pivot Irrigators II.* James Corner, 1996

Yi-Fu Tuan believes the ways we see the world, the ways we perceive and describe nature, are based on the geometries we build ourselves:

> First man creates the circle, whether this be the plan of the tepee or the ring of the war dance, and then he can discern circles and cyclical processes everywhere in nature, in the shape of the bird's nest, the whirl of the wind, and the movement of the stars.z

-Yi-Fu Tuan, Space and Place, 1977[5]

While the western worldview builds squares (the most rigid geometry) to distinguish the built from the natural. The prairie's First Nations built the tipi and the medicine wheel to teach both social roles and natural orders. For them, circular space teaches that nature, family, and *place* is a sustained cycle.

In 1952, Frank Zybach patented a center-pivot irrigation system in Columbus Nebraska.[6] A six-inch pipe arm rotates around a central water source. Like a clock, the motion repeats itself and begins to decipher patterns. Unlike a rectangular field, irrigated in relentless tides, Zybach's system has evolved to measure space as a cycle. It reads anomalies in the topography, adjusts its pressure at intervals, and can be programmed to fine-tune its distribution of water.

Over the seasons, place is etched into the grid, time enacting the threshold between place and its otherwise. Each circle is tailored to a quarter section, the odd one reaching out to a full section square. But as we've known since 'pi' was proven transcendental, you can never really 'square the circle.' So unreachable fragments linger in the corners. Farmers build their houses there, or mine them for hay. An oddly geometric pattern of new Terra Incognita is born in the tension between geometries, in the crevasse that belongs to neither circle nor square.

5.3 km
from truck cab

8 km
from upper level of house

4.6 km
from eye level

0.8 km
1/4 Section

1.6 km
Section

D

3.9 km
from car level

R

R + H

$(R+h)^2 = D^2 + R^2$
$D^2 = h(2R + h)$

$D = \sqrt{2Rh}$

fig. 2.10 | *Measures of The Horizon at two scales.* drawing by author

29 km
radius of rural school
(Chinook District southern Sask.)

18 km
view from t/o elevator

14 km
catchment basin for
wood elevator

15 km
10 min drive 90 km/h

0.8 km
1/4 Section

9.6 km
Township

1.6 km
Section

24 km
catchment basin for
concrete elevator

80 km
catchment basin for new
High-Throughput Elevator
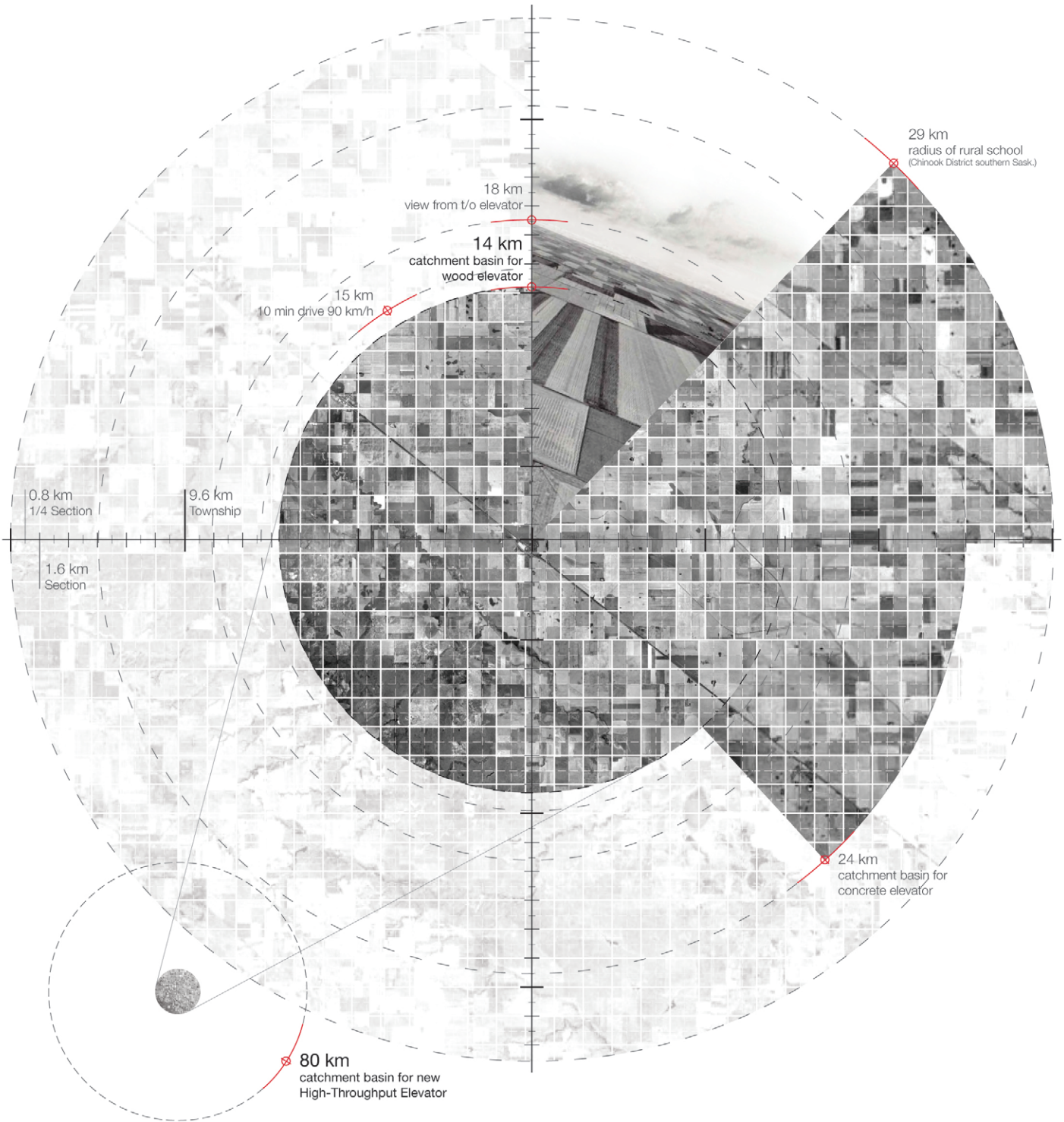
fig. 2.11 | Islands: Field Corners in Irrigation Districts. St. Mary's
Irrigation District, Alberta, aerial image from Google Earth

0.8   1.6   3.2 km

You cannot square a circle. Corners are left un-irrigated, and under-used. Yet irrigation has a net cooling effect on its surrounding microclimate.[7]

If grasslands were allowed to grow in these corners, perhaps we'd find pockets of tall grass in a short grass region.

fig. 2.12 | *Pulling Down an Elevator.* Hatfield, Saskatchewan, 1967

Vertical Measures

The world is very large, the sky even larger, and you are very small. But also the world is flat, empty, nearly abstract, and in its flatness you are a challenging upright thing, as sudden as an exclamation mark, as enigmatic as a question mark.

-Wallace Stegner, Wolf Willow, 1962[8]

A pair of chainmen follows a trail of poles. Their task is to measure out distance where direction has already been marked. The rear man bundles the chain and crouches low behind the first pole. The headman tows the chain towards a distant pole, carrying in his belt a set of pins. The rear man directs his partner left or right, into an imaginary line between himself and that distant pole. When the headman runs out of chain, he drives the second pin into the ground where the imaginary line falls, and waits for the rear to catch up. The rear man retrieves the first pin and tucks it in his belt. They continue in this way, the headman creating middle ground for the rear, until all the pins have been stuck and retrieved.[9] Four sets of pins mark the edge of a quarter section. Eight marks a full section. In each case, the mounders dig a whole and drive in a monument. The survey is grounded.

The prairie has no middle ground. Our eyes wander between the immediate and the far-off, with no place to rest between.[10] It's difficult to enter such a space, without any sense of distance or threshold. We need a middle ground to draw us into the field. We need posts, trees, and grain elevators.

We build *menhirs* – like the colossal stones upturned against the landscapes of Europe, Africa and Asia, which sprung from the paths of nomads. Not a place itself, but a point of transition, the "menhir" becomes the first artifice in otherwise undifferentiated terrain.[11] It segments the horizontal, enabling

MENHIR: The word *menhir* comes from the Breton dialect and literally means 'long stone' (men=stone, and hir=long). The erection of the menhirs represents the first physical transformation of the landscape from a natural to an artificial state.

-Francesco Careri, Walkscapes, 2002, 53.
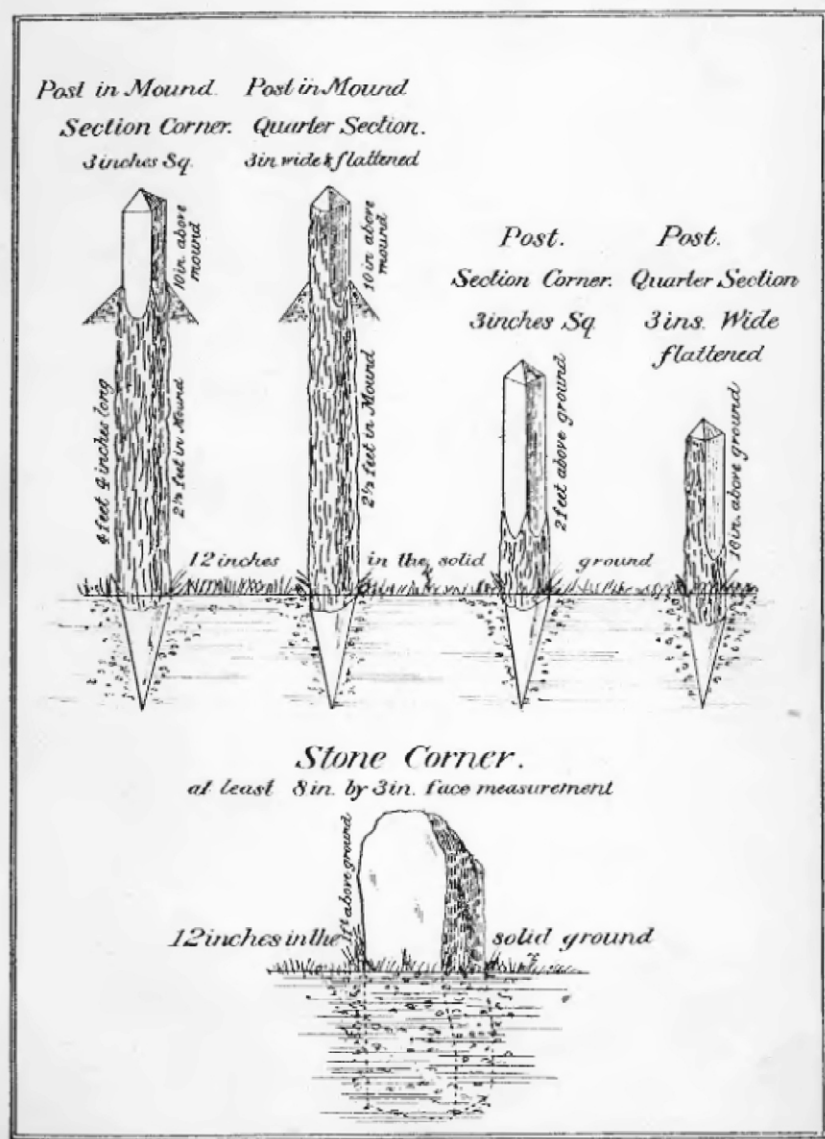
fig. 2.13 | *Illustrating Corner Boundaries*. Manual of Survey: Second Version, Dept. of the Interior, 1881

us to *move*. And it stratifies the vertical, so that under its datum we *stay*. It expands an otherwise flat horizon so that we're not so foreign, so out of scale. So many planted trees map the human stance like "menhirs" of another era. Standing alone, so far from the forest's edge, they track our persistence out amid the grass.

Humans have a unique sense of orientation that comes from our ability to stand. Perpendicular to the surface of the earth, Yi-Fu Tuan suggests that we navigate our world through asymmetries: front and back, left and right.[12] We stand to counter our biological condition. We stand to create and give meaning to space:

> For the infant the move from the supine horizontal to the seated perpendicular is already 'more than a postural triumph. It is a widening of horizon, a new social orientation.'[13]

The Savanna Theory says that grasslands propelled the human line to our feet.[14] But it's also grasslands that send us cowering into dugouts in a windstorm, and grasslands that drive birds into abandoned burrows beneath the soil.

It seems that "widening of horizon," as we stand or build a tower, also loosens our foundations – our sense of place stretched thin across a wider field of vision. Perhaps it tears at the seams, and thrusts us back into a state of drifting – into more *space* than *place*.

PLACE: Place is security, space is freedom: we are attached to the one and long for the other.

-Yi-Fu Tuan, Space and Place: The Perspective of Experience, 1977, 3.

It's been said that the first menhirs were built to stabilize the vertical dimension of the world[15]: that before we could begin to speculate on the cosmos, we had to conceive of the basic notion of *up* and *down*. The menhir, with its long shadow that bends and sprawls beneath the sun, stabilized both the sun above, and the earth in motion. It established both *vertical* and *temporal* dimensions, as they go hand-in-hand.

A vertical measure, like a survey monument or a tree,

Roof: 1 layer common boards, cedar shingles

Head ventilator

Sway bracing

18'-0"

Access door

Walkway

Cedar bevel siding

2" x 4" scantlings

42'-0"

2" x 6" scantlings

Most bins hold at least 1 carload or about 2000 bushels, about 60 tons

2" x 8" scantlings, spiked together

END SECTION

1 Driveway where grain is unloaded

2 'Pit' where grain is dumped

3 Endless bucket elevator that carries grain to storage or to be loaded in a railway car

4 Device that directs grain to various bins

5 Scale where grain is weighed before shipment

6 Boxcar loading spout

7 Grain cleaner

Manhole

Lightning rods

26'-0"

Window

4

40'-0"

3

70'-0"

6

5

1

2

18'-0"

Office

7

SECTION THROUGH WORKFLOOR

6'-0"   14'-0"

The large elevators in which grain is stored, cleaned and assigned a final grade before it is shipped out to a buyer, or to transfer elevators, are called terminal elevators. Transfer elevators differ in that they have no facilities for cleaning or drying grain. Mill elevators are terminal-like elevators in which grain is stored before being transferred to a processing plant, such as a flour mill, a brewery or an oilseed crushing plant and are usually located beside the plants they serve.

fig. 2.14 | A Typical Prairie Grain Elevator. University of Alberta Press, 2005

ETERNITY: And whatever the sky may do, however the earth is shaken or darkened, the Euclidean perfection abides. The very scale, the hugeness of simple forms, emphasizes stability. It is not hills and mountains which we should call eternal. Nature abhors elevation as much as it abhors a vacuum; a hill is no sooner elevated than the forces of erosion begin tearing it down. These prairies are quiescent, close to static; looked at for any length of time, they begin to impose their awful perfection on the observer's mind. Eternity is a peneplain.

- Wallace Stegner, Wolf Willow, 1962, 7.

can locate 'time-zero' against the timeless horizontal. And as the monument leans or the tree grows, it measures passing time thereon. To move vertically is to move through time – through past eras or future stock. But its also to *last* through time – learning to dig or to stack means survival in such exposed terrain. The horizon is a threshold, not only that illusive line in the distance, but rather the very ground beneath one's feet. Always is the question of crossing back and forth, of digging roots and stacking grain.

In 1842, a merchant in Buffalo invented the elevating leg: a series of scoops mounted on an endless conveyor that could lift the burden of grain, quite literally, off the backs of men.[16] The ability to move grain vertically, to elevate and pour it into ship hulls or railcars would change the grain trade, and the towns tied to it. It would arrive in the Canadian west via the CPR's standard policies, to only pick-up from elevators (25,000-bushel capacities at least).[17] These towers would sweep the rail lines clean of flat bed warehouses and the farmers who built them.

From this point, the vertical threshold stretches farther than between place and ground. It stretches between ground and railcar, railcar and ship, prairie and the rest of the world. Functionally, the elevator was the threshold between prairie wheat and a global market. Symbolically, it was the threshold to a new western identity:

> […] the ENGINEERS of to-day make use of the primary elements and, by coordinating them in accordance with the rules, provoke in us architectural emotions and thus make the work of man ring in unison with the universal order. Thus we have the American grain elevators and factories, the magnificent FIRST-FRUITS of the new age.

> *-Le Corbusier, Towards a New Architecture, 1931[18]*

Musée Héritage Museum
St. Albert Historical Society fonds

fig. 2.15 | Andy and Alex Kennedy and Others Stacking Hay. Musee Heritage Museum, 1900-1950

Hay stacks were built with a geometry that allowed water to run off without rotting the hay. Today's round bales are based on the same geometry - they can last a full season left out in the field.

The "rules" the elevator best expresses are those of gravity and of weight.

The vertical measure (the temporal measure) is always a measure of weight. A heavy thing is stable – it resists blowing away. In lightness things drift and change. The elevator sifts grain into its lightest form, ready to be carried. Then it stacks the grain until its heavy again, weighed down awaiting the train. But while elevators are built on principles of weight, they operate with goals of lightness and speed, so much so that they have made themselves nearly obsolete. In the last fifty years, 3000 Saskatchewan grain elevators have been reduced to fewer than 200.[19]

Eatons and *Sears Roebuck* introduced another kind of tower around 1900; the balloon-framed house shares our ambition to counter the horizon but completely misses the connection between permanence and weight. Designed in pieces that are easily shipped, it stacks up like matchsticks that lean and fall after years of prairie wind. These houses built to be *homes*, and these elevators built to be sentinels, certainly *measure* permanence; but they may not enable it.

As a species seeking permanence, a rational enclosure in an irrational place, perhaps we ought to start digging. For now, we can look to these towers as thresholds. They allude to widened vistas, depths to be explored, and places bound to change or be uprooted.

> […] for that was a wind, and that was a country, that hated a foreign and vertical thing.
>
> *-Wallace Stegner, Wolf Willow, 1962[20]*

HOME: […] This surely is the meaning of home – a place where every day is multiplied by all the days before it.

-Freya Stark, quoted in, Yi-Fu Tuan, Space and Place: The Perspective of Experience, 1977, 144.

PLACE: […] time as motion or flow and place as a pause in the temporal current; attachment to a place as a function of time, captured in the phrase, "it takes time to know a place"; and place as time made visible, or place as memorial to times past.

-Yi-Fu Tuan, Space and Place: The Perspective of Experience 1977, 179.

fig. 2.16 | Root Systems of Prairie Plants. The Conservation Research Institute
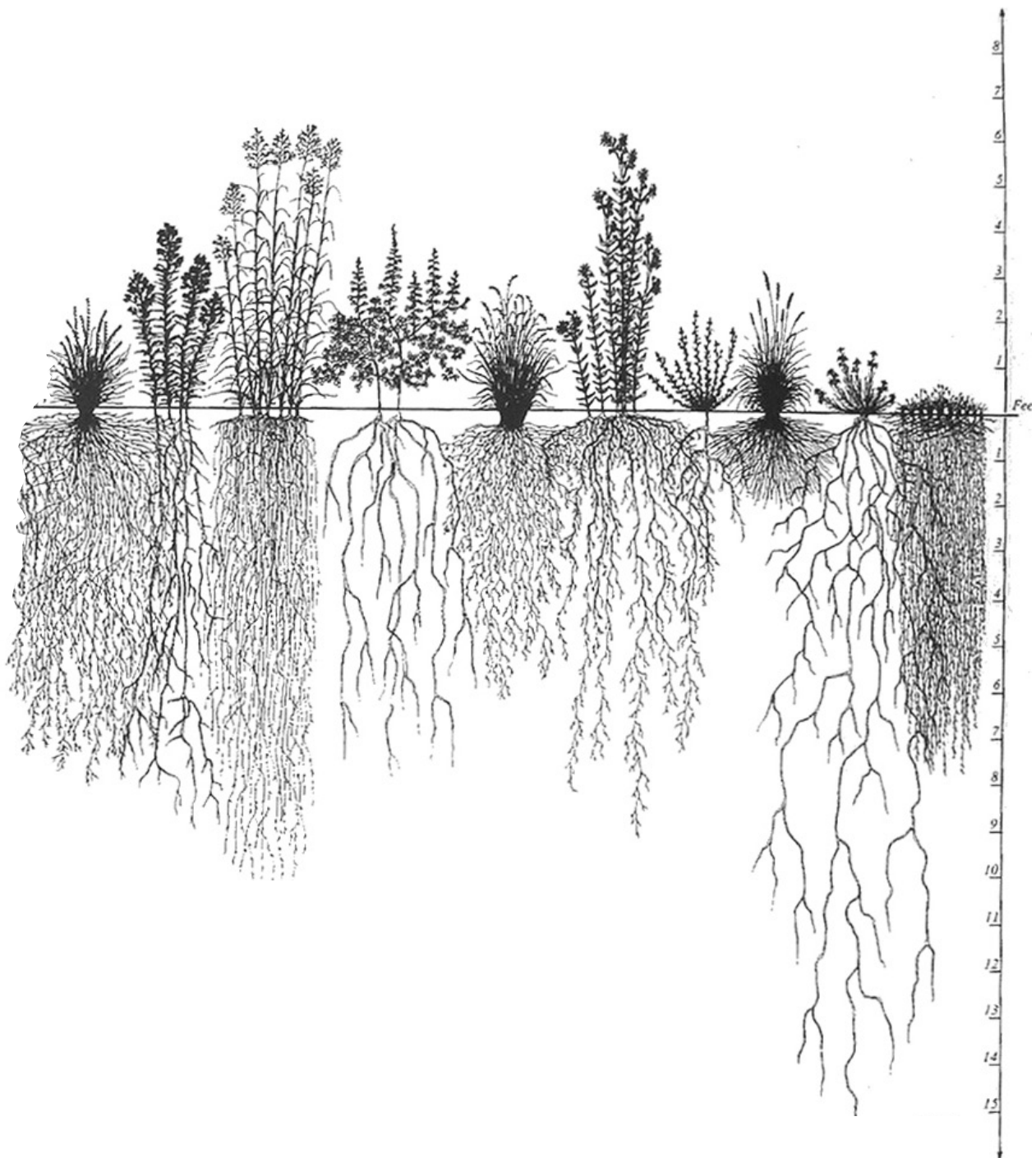
Side Oats Grama	False Boneset	Switch Grass	White Wild Indigo	Little Blue Stem	Rosin Weed	Purple Prairie Clover	June Grass	Cylindric Blazing Star	Buffalo Grass
Bouteloua curtipendula	*Kuhnia eupatorioides*	*Panicum virgatum*	*Baptisia leucophaea*	*Andropogon scoparius*	*Silphium perfoliatum*	*Dalea purpurea*	*Koeleria cristata*	*Liatris cylindracea*	*Bouteloua dactyloides*
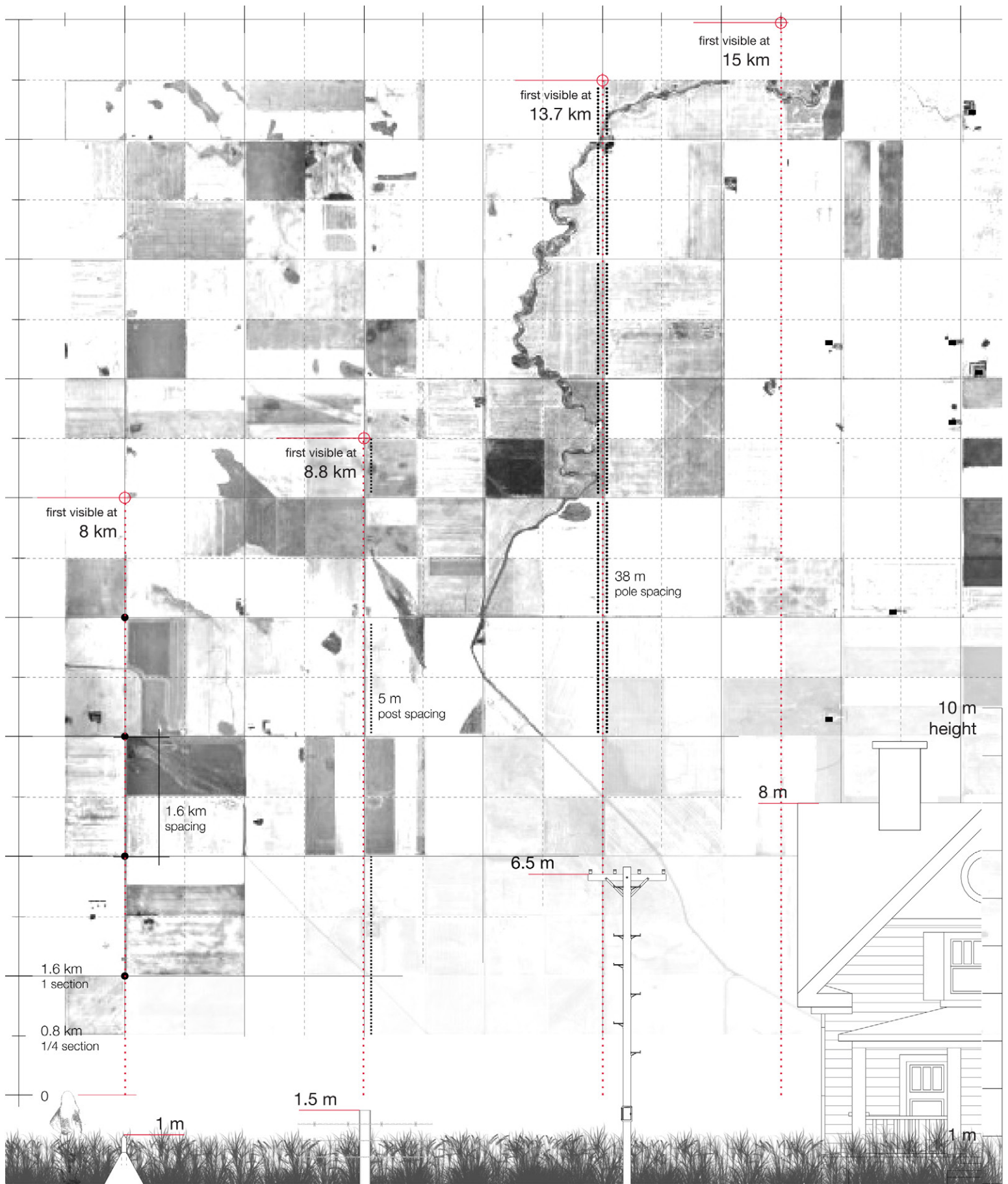
fig. 2.17 | Landmark Datums: Heights, Spacing, and Distance. drawing by author

first visible at
32 km

60 m

15 km original
elevator spacing

first visible at
23.6 km

30 m

30 m
height

first visible at
10 km

14 m

5 m

1 township

1 section

1/4 section
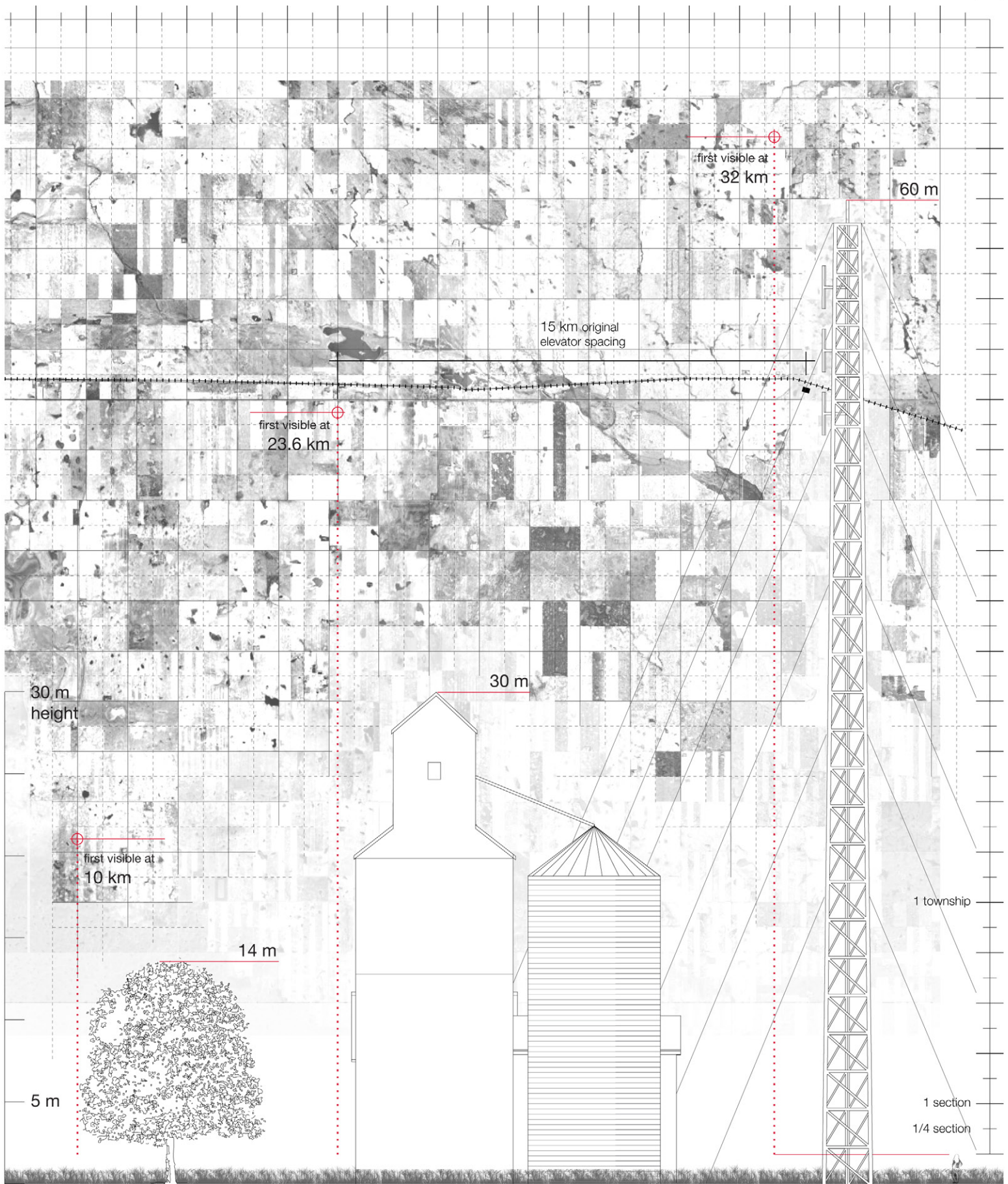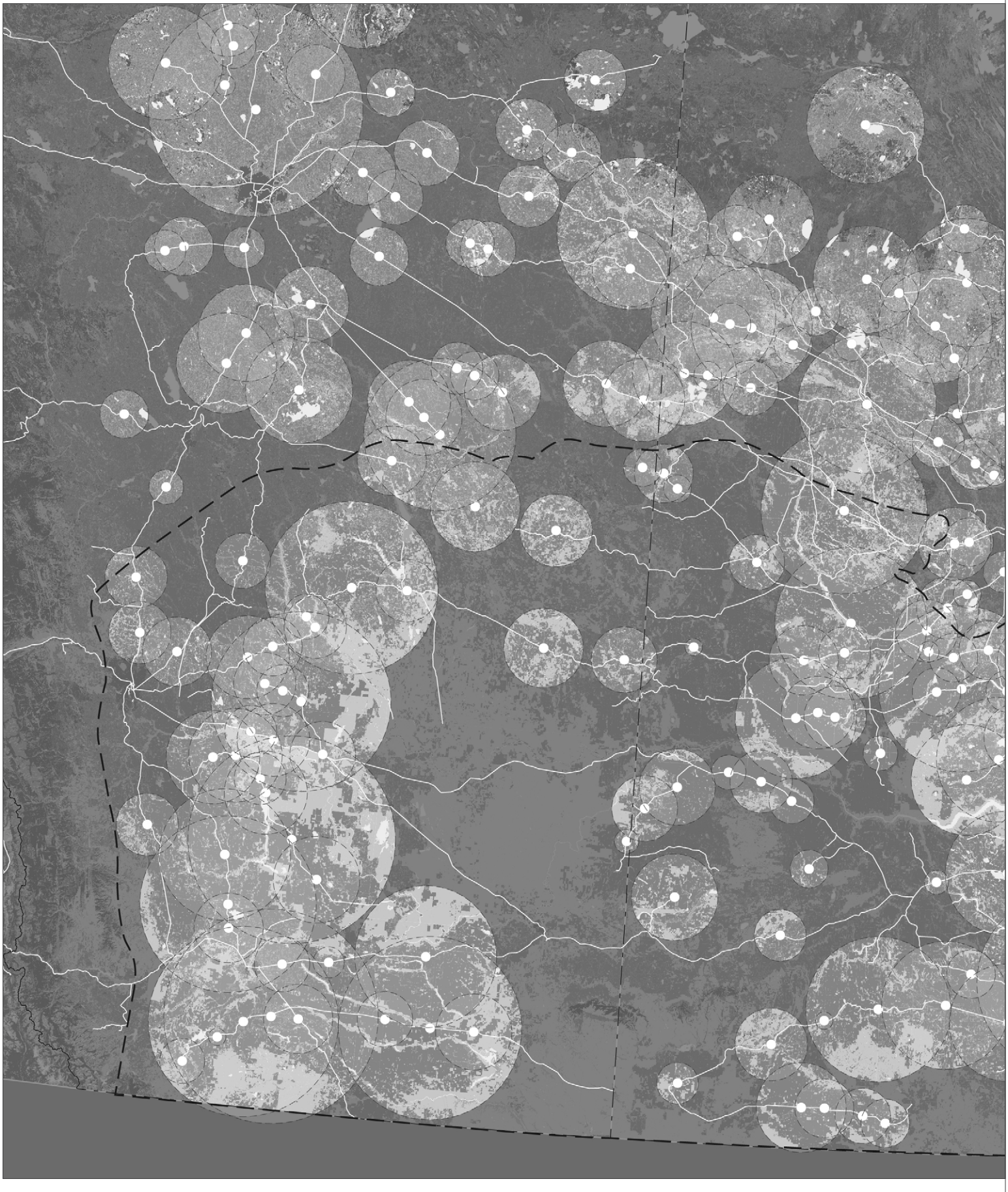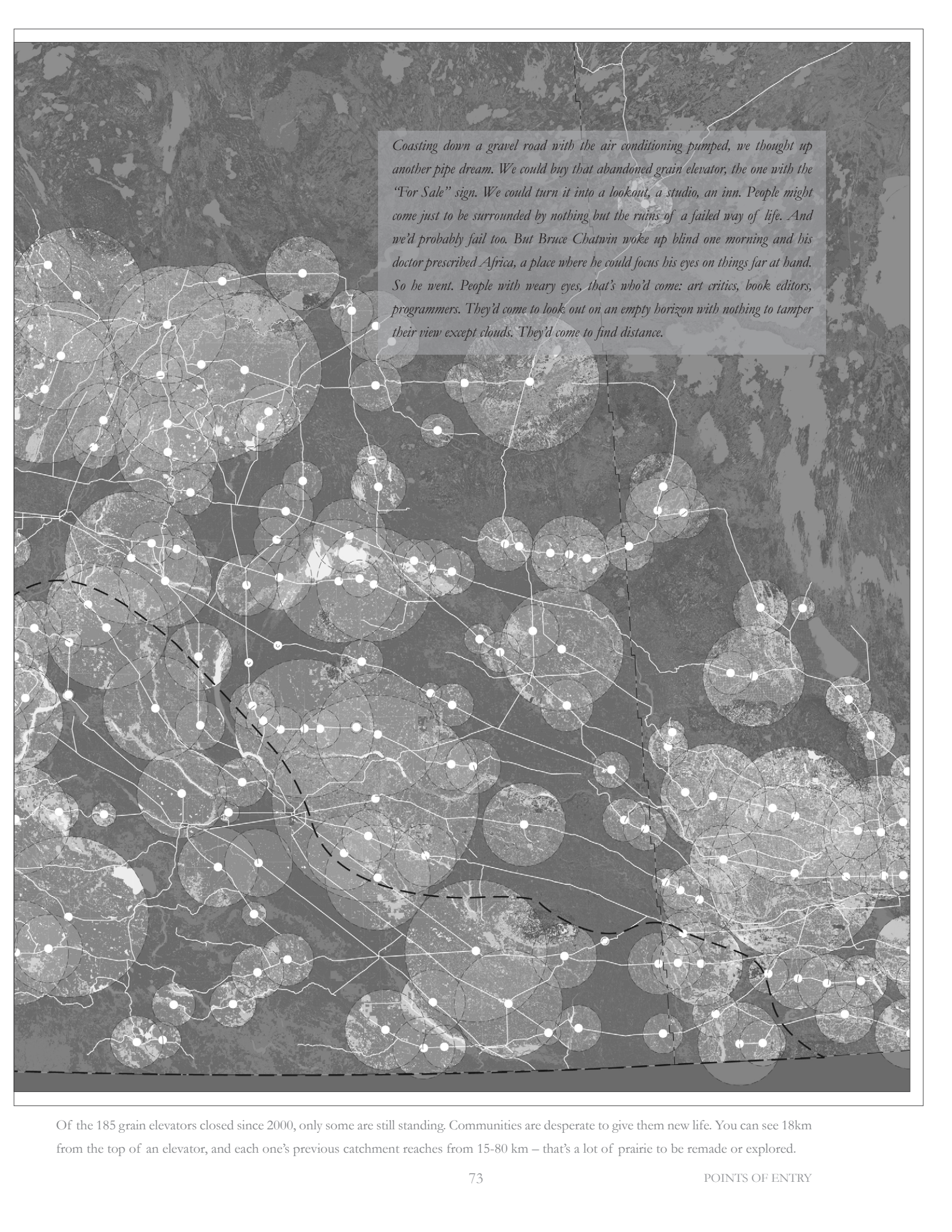
*fig. 2.18 | Islands: Grain Elevators Abandoned Since 2000,
and their effected catchment basins.* Map by author.
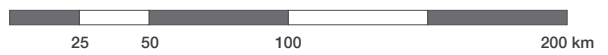
Coasting down a gravel road with the air conditioning pumped, we thought up another pipe dream. We could buy that abandoned grain elevator, the one with the "For Sale" sign. We could turn it into a lookout, a studio, an inn. People might come just to be surrounded by nothing but the ruins of a failed way of life. And we'd probably fail too. But Bruce Chatwin woke up blind one morning and his doctor prescribed Africa, a place where he could focus his eyes on things far at hand. So he went. People with weary eyes, that's who'd come: art critics, book editors, programmers. They'd come to look out on an empty horizon with nothing to tamper their view except clouds. They'd come to find distance.

Of the 185 grain elevators closed since 2000, only some are still standing. Communities are desperate to give them new life. You can see 18km from the top of an elevator, and each one's previous catchment reaches from 15-80 km – that's a lot of prairie to be remade or explored.

73

fig. 2.19 | Homesteader Pinnoch. Postcard. Irma, Alberta, 1909

Patterns of Autonomy

The vast spaces of the American West, so little known to its immigrants even now, have always invited travelers to lose their past like so much luggage and reinvent themselves.

-Rebecca Solnit, A Field Guide to Getting Lost, 2005[21]

Hardy Campbell's 1907 *Soil Culture Manual* hit the press over a few unusually good years. The coincidence went viral. His widely followed manual preached of "capillary action" and the prosperity in dryland farming. He believed, to the point of bankrupting his own Montana farm, that repeated cultivation would seal moisture deep beneath prairie soil, keeping it for drier days.[22] It was a far cry from the preposterous "rain follows the plow" theory. But it still jumped on a climatic hiccup as testimony to long-term change. It still badgered new farmers with the same challenge: to be *autonomous* from prevailing conditions, to make the farm autonomous from its grassland setting.

The challenge opened doors. This newfound autonomy was a threshold for many coming from a countryside being chewed up by British landowners and their sheep. The expansive space of the prairie, and its grid of equal opportunities, was a welcome invitation. There was (and is) something about this canvas that tugs at the human spirit and flexes our muscles to create; it is impossible not to dream big.

This is a landscape *for* and *by* place makers. And not just in its past. Wallace Stegner believed that the prairie would always be a frontier[23], more *space* than land. The American author, born in 1909, grew up on farms in Iowa, Saskatchewan, and Montana, and spent the rest of his life writing stories of the west, perhaps trying to reconcile his relationship with the land. He feared that time would always sand away the taint of failed enterprises, and

SPACE: Space, rather than land, was what the settlers bought, and it was so easy to buy, so easy to sell, that commitment to a specific plan for the future must have been difficult for many. Freedom from tradition and freedom from topographical constraints was something they had never known before.

-J.B. Jackson, A Sense of Place A Sense of Time, 1994, 154.

to its own detriment, space would reclaim its hopeful virtue – beckoning the freedom to find and remake oneself, and the right to transform space.

The West developed alongside its individuals, their identities unfolding in sync. Foreign things on a horizontal plane, this landscape had a way of forging their identities: of pronouncing heroes, and exposing failures. Like a stage set, as much defined *by* the actor as it defines the actor himself, the prairie made and was made an identity. The American West became synonymous with cowboys and vigilantes, a lawless frontier; the Canadian West on the other hand, had a more noble pursuit, promised and protected by the "red coats".[24] It was a place where order seemed inherent in the universe,[25] and anyone could find some autonomy within it. It was into this vacuous threshold, ordered but empty, that so many poured their dreams and were remade.

But autonomy was an illusion. It required all the tools and conditions the prairie didn't have to offer. It required strategies, like Campbell's dryland farming, that hadn't been proven. And it required an influx of people to surround any single farm and turn it into a place. The Dominion sold the illusion throughout Europe, through school atlases printed in multiple languages, and wagons that toured the Scottish countryside in search of persevering people.[26] But autonomy, in the west, was bestowed from the outside – illusively tethered.

It was under these conditions that the catalogue developed as the "emblematic symbol of geographically dispersed communities."[27] *Eatons* and *Sears* delivered the gospel of self-sufficiency, selling not only things, but the "ultimate sanity" and assurance of *home* that accompanies them[28]; not things at all, but rather *tools*. Instead of clothes, a homesteader could buy patterns and yards of fabric. Instead of a fence, a farmer could buy a wire stretcher and post auger to build, and rebuild, the

LANDSCAPE: I grew up with landscape as recourse, with the possibility of exiting the horizontal realm of social relations for a more vertical alignment with earth and sky, matter and spirit.

-*Rebecca Solnit, A Field Guide to Getting Lost, 2005, 49.*

HOME: Home is an intimate place. We *think* of the house as home and place, but enchanted images of the past are evoked not so much by the entire building, which can only be seen, as by its components and furnishings, which can be touched and smelled as well […] "In smaller, more familiar things," says Freya Stark, "memory weaves her strongest enchantments, holding us at mercy with some trifle, some echo, a tone of voice, a scent of tar and seaweed on the quay […]"

-*Yi-Fu Tuan, Space and Place: The Perspective of Experience, 1977, 144.*

fence again and again. Instead of a house, a family could buy its pieces in a kit, become the carpenters and build it. From the pages of the catalogue, newcomers assembled their survival kits – complete with all the luxuries and the added reassurance of approval from the outside world.

In its origins, the catalogue as a type belongs less to the flyers that stack up in our recycling today, and more to a school of manuals. From its founding in the late 1800's to its rebirth in the 1960's, the catalogue has always recruited those seeking self-sufficiency and embodying the human spirit to create. It's in this light that the house comes to join the catalogue, and becomes a tool itself.

I came across a book by French anthropologist, Marc Auge, titled *Non-places: An Introduction to Supermodernity.* To my disappointment, Auge's description of "non-place" is limited to traveller's space: to highways and gas stations, motels and airports. He refers to the spaces that populate our itineraries, the passages that bypass any intimate knowledge or identity of place.[29] But his description alludes to a much wider meaning of non-place; through the catalogue and today through suburban developments, the house too, becomes a passage:

> At the back of the builder's mind was the notion that in time he and his family would sell the homestead and move away. Farm journals and agricultural bulletins and emigrant handbooks cautioned settlers against making their houses too personal, too individual, lest they be hard to sell.

> *-J.B. Jackson, A Sense of Place A Sense of Time, 1994*[30]

Purchasing a house, from pages of houses, measured a family's wealth. Building it measured skill. But all the while it was tentatively occupied, the autonomous house would have to
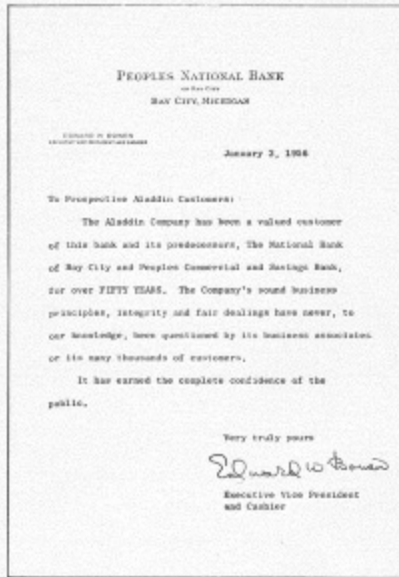
fig. 2.20 | Here's How Your Aladdin House is Shipped. The Aladdin Company, 1954

"While the cubic contents of this loaded Coronado No. 1 occupy only 1920 cubic feet, when erected the house contains 13,392 cubic feet of staunchly built floors, walls, ceilings and roof."

conform. Thus arises a paradox: the prairie is strewn with patterns of autonomy: patterns made of repetitions, of prospects that, as Henri Lefebvre writes, have been utterly diminished. He writes that the basic structure of property and production (in this story the survey and the catalogue):

> […] shatter conceptions of space that tend to form in dreams,
> in imaginings […] the possibilities are always systematically
> reduced to the triteness of what already exists.[31]

Of course, very little appeared to exist here. The possibilities must have *seemed* endless. But the house was limited to a catalogue and a boxcar, the crops were limited by what could grow, and the homestead was tied into a contract – free land in exchange for its cultivation. As Auge writes, "The space of non-place," the relentless grid of isolated lots, tied more to an idea than to the land, "creates neither singular identity nor relations; only solitude and similitude."[32]

After the depression era, when help was plentiful but money scarce, then during the war when money was available, but labor hard to find, that solitude began to weigh all the more. The repeated patterns of failure began to stack up and resurface that question of *sanity* the catalogue had so successfully suppressed.

It was in this context, in a growing dissatisfaction with the measure of home, that the co-operative found some traction against the grid. The Co-operative Commonwealth Federation was elected to Saskatchewan's Provincial Government in 1944[33], and co-operative farms, built with veteran hands and CCF support proliferated in pockets of unused land. Throughout the prairie's settlement, there are instances when the autonomous holdings of the grid are shepherded into new patterns, their communal structures drawing out an organic nature from the grid. These clusters come and go, assembling with a vengeance, then disintegrating into the all too familiar structure of the grid – the all too familiar measure of home.

VERNACULAR: It was and is a unique regional style in the sense that it rejected any of the characteristics of the environment, of the natural region.

-J.B. Jackson, A Sense of Place A Sense of Time, 1994, 155.

PLACE: Place and non-place are rather like opposed polarities: the first is never completely erased, the second never totally completed; they are like palimpsests on which the scrambled game of identity and relations is ceaselessly rewritten. But non-places are the real measure of our time.

-Marc Auge, Non-places: An Introduction to Supermodernity, 1995, 64.

C.N.R. GARDENS — KAMSACK, SASKATCHEWAN

fig. 2.21 | C.N.R. Gardens - Kamsack, Saskatchewan. Postcard, 190-

The Necessary Gateway

After watching Bluestem and Buffalo Grass roll by for days, the tentative immigrant stepped off the train and onto Bermuda grass. An oasis of exotic flowers and shady trees grew between the platform and the street, opening toward them like a diorama: an acclimatizing zone between where they came from, and where they were going.

The Canadian Pacific Railways wasn't about to cast off its passengers in all directions, blindly wandering into the dust. They had a further investment at stake. Instead, the company offered a projection – a threshold that could propel the imagination forward in time, past the hardship, to the fertile potentials of this soil. The railway garden would train the eye to "imaginatively flesh out the unpainted areas of the canvas,"[35] then set it loose on virgin ground. Not a triumphal arch, but rather a thickened buffer that allowed one to project their past into this otherwise foreign place. A more familiar *nature* was their necessary gateway.

NATURE: Eden is the problem, of course. Eden stands as the idea of nature as it should be rather than as it is, and in attempting to make a garden resemble Eden, the gardener wrestles the garden away from resembling nature – nature, that is, as the uncultivated expanses around it, the patterns that would assert themselves without interference.

-Rebecca Solnit, Storming the Gates of Paradise, 2007, 254.

The moment *Road Runner* rips through the billboard and keeps on running, the image, as Solnit recalls, becomes "habitable space."[36] The idea, the billboard or the railroad garden, could be entered like an alternate universe – a more inviting place woven through the wasteland; a place only accessible to such crafty and agile beings, and to those who believe. This threshold of course, was an illusion: a cognitive switch.

Fig. 1.

Fig. 2.

Fig. 3.
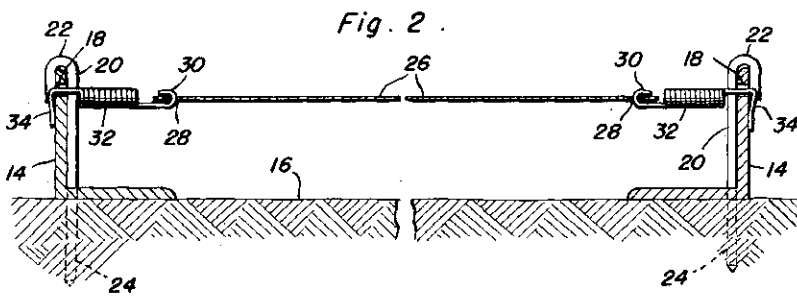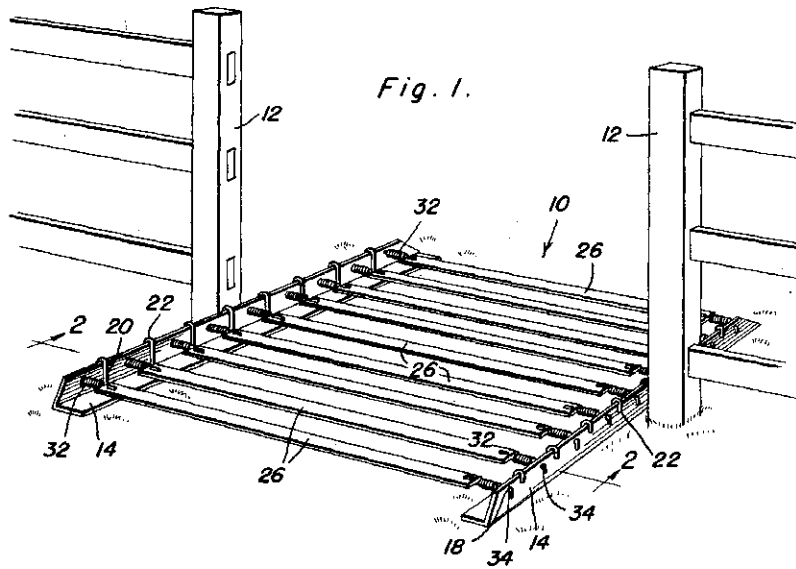
Inventor

John K. Warner

By
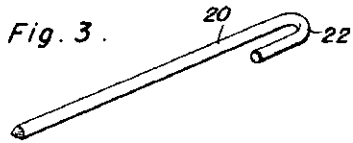
Attorneys

The prairie gateway is always an illusion (or is at least illusory). To drive an archway into open ground and watch as weeds and animals flow around it like an eddie, is to realize this. To drive over a cattleguard and watch the cows stand dumbfounded on the other side is to witness the illusion. Of course, cows can't cross because their hooves will slip through. But even a series of white lines painted on dark pavement will suffice – the cow unable to differentiate between mere contrast and true depth. In this manner, either physically or psychologically, gateways tend to be relative. They're open to some and closed to others.

In his treatise on Island Biogeography, David Quammen discusses a much broader definition of islands, and of how they are relative to varying species. Even an island in the truest sense will not be so isolated to those species that can breach oceans. On mainlands, rivers and clearings will cut off some species, while welcoming others.[37] Nature draws barriers and gateways on the contours of mobility – all who can adapt their movement and alter their pace are welcome.

We build more arbitrary gateways – into *abstract space*. We build gates to mark entry into a *distinct* place, even if the place is indistinguishable. As architects, we're always wrestling with the question of thresholds: with the initiating act that comes to define a place, and tells its inhabitants they've arrived. When the threshold is so invisible, so abstract, this becomes a daunting task.

People can't seem to find their way into Grasslands National Park. They follow the road right through it and out the other side. But they never arrive. Karin Smith-Fargey, the Park's Communications Officer, told me that getting people out of their cars and into true prairie was one of their greatest struggles. Many can't tell the difference between the surrounding ranchland, and the park itself. They keep driving south and asking, like impatient children, "Are we there yet?" And when they do arrive, most people don't

BIOGEOGRAPHY: Biogeography is the study of the facts and the patterns of species distribution. It's the science concerned with where animals are, where plants are, and where they are not.

-David Quammen, The Song of the Dodo, 1996, 17.

feel welcome. Many I'm sure, are afraid. After walking just a few meters, the car and the road disappear behind tall grass. Then space is without structure, without front and back, entrance or exit, center or edge.

The management's current goal is to make the park more accessible, from prominent gateways announcing one's arrival, to paths and signs choreographing their stay. The park's most dedicated patrons aren't happy. To the birdwatchers, the horseback riders, and the stargazers, the gateway is already open. And if you can't find it, perhaps you ought to stay out.

As a National Park however, a place funded for accessibility to the Nation, the park needs a gateway. Perhaps not to differentiate park from surroundings or *prairie* from field, but instead to differentiate motion – to allow guests to adapt their movements and alter their pace. Somehow, the threshold needs to make a cognitive switch in the way the visitor moves. It needs to draw the explorer from the cabin-fevered driver. And rather than defining the place geographically, it could offer up an *experience*: a relative gateway open to all those willing to put on their boots and explore.

fig. 2.23 | *Rogers Pass and Mount Carroll on the Canadian Pacific Railways.* W.M. Notman & Son, 1887

Exit Strategies

The most convincing gateway of course, is always a way out – an exit strategy. The prairie wasn't always as it is now. It had been ocean, and tundra, and forest. But the first time it opened to reveal a bed of grass, it opened as a passage to a warmer, safer, south.

There is an archeological site in the Yukon called "Old Crow." It's one of the few un-glaciated sites we have in North America – a window into our past. "In Africa and unglaciated central Europe, deeper means older," writes Canadian scientist and author, Don Gayton. But, he says, "Not here. With one or two notable exceptions, the North American new and old have been relentlessly ground together."[38] Old Crow is such an exception.

Archeologists have exposed human artifacts and mastodon bones cracked open. Gayton calls the site "a hole in the glacier," and conjures up an image of people – waiting – sucking the marrow from mastodon bones to pass the time. The Bering Land Bridge from which they'd come, and the continent they were headed for, operated like the two sides of a great lock, with Old Crow in the middle.[39] As the prairie froze under a cold spell, the Bering Land Bridge surfaced. They crossed. Then in the next warm spell, a seam cracked in the ice from Old Crow through to Montana where it widened, flooding the Bering Land Bridge behind. The people moved through, across the new prairie, and kept moving right into South America. The prairie's first inhabitants, however temporary, went on to build the ancient civilizations of the Aztecs, Mayans, Toltecs, Chibchans, and Incans.[40] Perhaps, with an ever-pressing fear of cold and ice, the prairie was too terrifying. Perhaps it was swarming with bears and tigers and superbison. Whatever the reason, they didn't stay.

28,000 years later, a mountain pass out the other side opened the prairie to settlement and the rail. A catalogue house that could be

ALTERNATE ORIENTATION: The Sontianen

Moosejaw, Saskatchewan

Damianus Sukanen was a ship builder and seaman by trade. His wandering mind took him from his hometown in Finland, to Roseau County Minnesota, to the dried up heart of Saskatchewan in the thirties. It eventually abandoned him in an institutional hospital in North Battleford, where he was declared insane.

Whatever he may have been, he was an inventor, a man who foresaw change. While his neighbors tried desperately to remain still, to draw up crops from the dust, he had the will to move. He let the weeds grow wild over his property. And he spent his days retrieving massive shipments of parts in a time when nothing else was coming in or out. He'd caught on to the change and motion that *is* this place, and he made his house a vessel so he could float.

Today the *Sontianen* is a museum. It's the stuff of tall tales, of post cards and oversized relics that western towns are so proud to display. But also it stands there like an unresolved question: he had sensed motion, but lacked the architecture in which to move.

re-sold initiated its construction. And the *Winnipeg Grain Exchange* opened the region to the rest of the world. Today, there is an "Ecotour Road" that passes right through Grasslands National Park; visitors can view native prairie without ever setting foot in it. They move through the park (and the prairie at large) tethered to their vehicles, their way out. They hover at a threshold, neither inside prairie, nor out.

Many are established here solely on a way out. Just north of the prairie for instance, lies one of the largest and dirtiest crude oil deposits on the planet. It produces far more than we as a country can either process or consume. Michael Klare, author of *The Race for What's Left*, wrote in a recent article:

> Like an army bottled up geographically and increasingly at the mercy of enemy forces, the tar-sands producers see the completion of Keystone XL as their sole realistic escape route to survival. "Our biggest problem is that Alberta is landlocked," the province's finance minister Doug Horner said in January. "In fact, of the world's major oil-producing jurisdictions, Alberta is the only one with no direct access to the ocean."[41]

So much of this landlocked territory, which now produces at an industrial scale, depends on these "escape routes to survival." The prairie no longer even *attempts* to enable the autonomous and self-sufficient farmer. Its aims are much larger, but also much more temporary.

Wallace Stegner describes the classic settler's story as one of *arrival*, of hope planted in new ground. But he follows that sentiment with his own experience, that of the settler's child. His is a story of *escape*. Of building an exit strategy, of cutting lines and finding passages.

fig. 2.24 | The Sontiainen. south of Moosejaw, SK, Sukanen Ship Pioneer Village and Museum, 200-

fig. 2.25 | Islands: Oil and Gas Fields. Maidstone, Saskatchewan,
aerial image from Google Earth

0.8   1.6   3.2 km

Over 100,000 capped wells in Alberta are awaiting reclamation, supervised by the ERCB, (which is heavily funded by oil and gas). The time it takes is unregulated, so a constellation of abandoned wells and their surrounding fallouts have been waiting, unused for 25 years.[42]

CROSSINGS

This is a place of ceaseless motion. To exist here is to be in motion, whether in narrow lines or great waves, in circles or spirals bound up in squares. This is a distance to be crossed, an expanse to be measured, and a rhythm to be harnessed and controlled. There are threads that weave this place, that join disparities and direct the flow.

> The story of the west is the accumulated record of millions of journeys. It is written in tracks in the dust and the snow.

-Richard Manning, Grassland, 1997[1]

PORCUPINE

HILL

1600

SWAN
LOAKIE

IND. VILLAGE

WINTER TR.

THE STORE

TELEGRAPH

LINE

THUNDER
HILL

IND. RES.

LITTLE
QUILL LAKE

LIVINGSTONE

DUCK

MOUNTAIN

BIG
QUILL
LAKE

IX BASE

FISHING

PELLY

IND.
&
RES.

WHITE SAND RIVER

STEEP CR.

SNELL RIV.

BIG BODDY CR.

TOUCHWOOD HILLS

Touchwood

VIII BASE

THE TWO CR.

STONY C.

ASSINIBOINE

RIVER

Mission

IND. RES.

FILE HILLS

LEECH
LAKE

BIG CUT-ARM RIVER

VI

PHEASANT HILL

PHEASANT CR.

THE FISHING

QU'APPELLE

IND. RES.

C. MISSION

LAKES

RIVER

IND.

RESERVES

Round L.

OAK CR.

REED CR.

BIG CUT ARM

L. CUT ARM CREEK

BEAVER
CR.

FORT ELLICE

BIRDS TRAIL CREEK

RED DEER CR.

SHOAL L.

XXXI
XXX
XXIX
XXVIII
XXVII
XXVI
XXV

IND. RES.

XXXVI W.

THE TWO CR.

Y

O

R

MERIDIAN

SECOND PRINCIPAL MERIDIAN

N. BRANCH

S. BRANCH

PIESTONE CREEK

MOOSE

MOOSE MT.

P L A I N   O F   T H E   S O U R I S

MOOSE CR.

BOSS HILL CREEK

96

QU'APPELLE

(prev. page)

fig. 3.2 | The Operations of the Special Survey of Standard Meridians and Parallels (Detail)

In 1874, The *Special Survey* took off ahead of the Dominion Survey to lay a fixed grid of meridians and base lines "with reference to the immutable stars":

> Like the fireguards which prairie settlers plowed around their homesteads to check the onslaught of fires, so this grid laid down by the Special Survey effectually checked the cascading of errors of distance or direction.[2]

Red Deers River

Bad River

d'kest va nas que

Chris torille Braun.

South Branch River

Ja tim me coo—hell goad prine d'fur

Kin max is va ta or little river

mio ois sou ry River

98
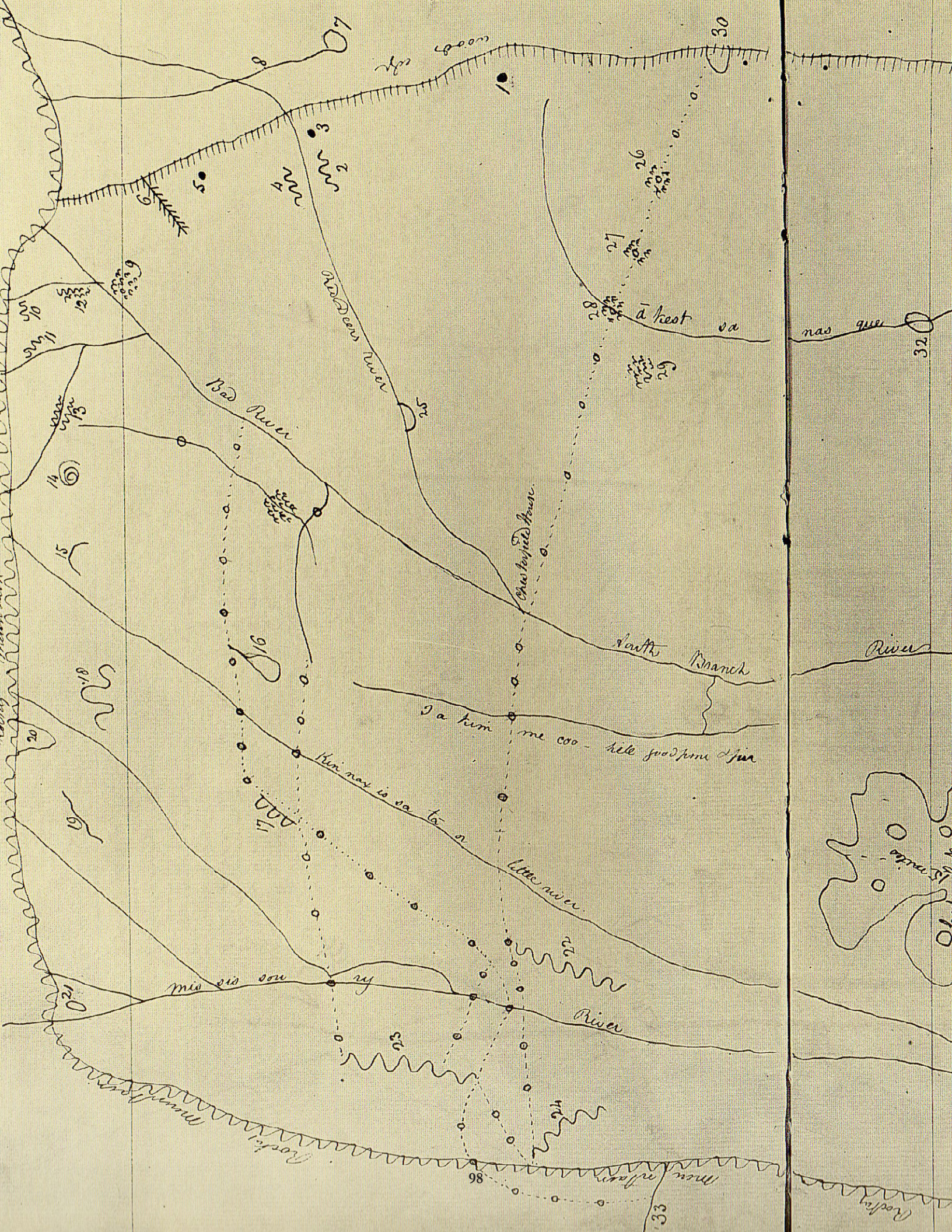
fig. 3.3 | Ki oo cus's Map of Area from the Red Deer River South to
the Missouri River. Peter Fidler, 1802

Peter Fidler transcribed nine maps based on Native knowledge of the territory surrounding his post at Cumberland House.[3] This one shows the major rivers flowing east from the Rocky Mountains, and the Native tracks that cross them. Each track is measured out in numbers of "night's sleep," so that the topography and nature of the territory can be read in its varied degrees of effort to cross.

MAP
OF THE PRAIRIE REGION

To accompany Report of Sandford Fleming, Engineer-in-chief, Canadian Pacific Railway.

8th APRIL, 1880.

In this Map an attempt has been made to distinguish the general physical character of the country on the routes followed by different Explorers and Scientific Travellers.

The red lines indicate the routes of such Explorers and Travellers, of which any record has been made.

The tinted portions indicate generally the nature of the land as described, vis:—

No. 1.   Soil of rich quality and pasture land more or less fertile.

No. 2.   Pasture land of questionable value, not sterile.

No. 3.   Marshy land, much of it producing hay.

No. 4.   Muskeg.

No. 5.   Rocky or sterile land.

The portions of the country left untinted, so far as known, have not been explored. For detail descriptions and explanations, see Appendix No. 13.

Scale of Statute Miles

KEEWATIN — TERRITORY OF KEEWATIN

LAKE WINNIPEG

MANITOBA

DAKOTA

Boundary between the Dominion of Canada and the United States

GREAT PLAIN OF THE SOURIS

Churchill River

Lake of the Woods

KEEWATIN

55

54

L. of the Woods.
L. Heron.
Birch L.
Beaver L.
H.B.C° Post.
H.B.C° Post.
Pelican L.
Herb L.
Cross L.
Sea R.
Gt. Playgreen Lake
Mouth of the Saskatchewan R.

Churchill River.
Trout L.
Otter L.
Portages
Dead L.
Black Bear L.
English or Churchill R.
H.B.C° Post.
L. la Ronge
Bear L.
L. Plonge
Dore R.
Dore L.
Montreal L.
Green L.
Candle
Of Sturgeon L.
Swan R.
Pine Id. L.
Cumberland
Pine Id.
Swan L.
Shoal L.
Goose L.
Moose L. Ho.
Cedar Lake
Moose Portage
Basquia Hills
Red Deer L.
Swan L. Ho.
WINNIPEGOSIS LAKE
Water-hen L.
Water-hen R.
Lit. Sask.

SASKATCHEWAN R.
Big Sturgeon R.
Old Fort
The Forks
Pr. Albert
Presbyt. Mission
Ft. à la Corne
Carleton
Birch Hills
Finlay's Ho.
English R.
Southern Limit of the true Forest
L. Etoimami
Basquia Hills
Red Deer River
Porcupine Mts.
Swan L.
Thunder Hill (1837)
SWAN RIVER
Duck Mountain
Riding Mount

Stinking L.
L. Iroquois
Muskegg Lakes
MacKay L.
Old H.B.C° House
The Elbow
Redberry L. (Salt)
Cree Ind.
Northern Limit of the true Prairie Land
Where the Moose died
Nut Hill
Fort Pelly
21

RIVER
Behold
Saskatchewan R.
Red Deer R.
Finland R.
Grenobe
Baldasin
Denton
Gold Lake
Hoptoob
Thundering
Buck
Quill
Moose Jaw R.
White Sand River
Fort Pelly
Good Lake
Thunder Hill
Heart Hill
Touchwood Hills Trading Post (Eng. 3 Missn.)
Touchwood Hills
Last Mt.
File Hills
Leech L.
TERRITORY
Long or Last L.
Mountain L.
Qu'appelle Fork
Sand Hill L.
Eyebrow Hill Ridge
Thunder Creek
Lookout Hills
Bambia Pond Hill
Cree Indians
Bismark Lakes
File Hills
Pheasant Hill
Spy Hill
Cut Arm
Ft. Qu'appelle (H.B.C.)
Qu'appelle R.
Squirrel
Wolf Hills
Stony
Cut Arm Creek
Fort Ellice
Pipe-stone Cr.
Little Cut Arm
Thunder-breeding Hills
Chaplin or Old Woman's Lakes
Chaplin L.
Johnston L.
THE GREAT COTEAU
GREAT PLAIN OF THE SOURIS
Moose Mount.
Moose Jaw R.
Moose Mount.
Oak Cr.
Souris R.
Whitewater L.
Turtle Mtn. (2,150)
Souris R.

...SIVE PLAINS
The Dirt Hills
Wood Mount. (3,500)
Settlement (2,624)
Boundary between the Dominion of Canada and the United States
La Roche Percée
St. Peter's Spring
Souris River
DAKOTA

107 106 105 104 103 102 101 100 9

102

(prev. page)

fig. 3.4 | Map of the Prairie Region to Accompany Report of
Sandford Fleming, Engineer-in-chief, Canadian Pacific Railway. 1880

fig. 3.5 | Map of the Prairie Region to Accompany Report of
Sandford Fleming, Engineer-in-chief, Canadian Pacific Railway
(Detail)

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physical character of the country on the routes followed by different
Explorers and Scientific Travellers.

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No. 5. Rocky or sterile land.

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explored. For detail descriptions and explanations, see Appendix No. 13.

HUDSON
BAY

JAMES
BAY

LABRADOR

NEWF...

L. Apiokacumish
L. Nitchegaun
L. Mechikeman
Nth West R.
St. of Belle Isle

R. Churchill
R. Nelson Fort Nelson
R. Fox Hill
Nelson L. & F!
Severn F!
Severn Ho.
R. Severn
C. Jones
East Main F!
Mistassinnie Lakes
R. Rupert
R. Harricannaw
Agoniska I.
R. Equan
R. Albany
F! Albany
R. Moose
Black R.
R. S! Lawrence
Gaspe B.
Chaleur B.
G. of St. Lawrence
Anticosti I.
Pr Edward I.
Breton
C. Bre...

L. Winnipeg
L. Manitoba
Ft. Garry
R. Pembina
R. Lake
L. Sal
R. Saguenay

UPPER CANADA
L. St Ann
R. Montreal
R. Abbitibbe
Abbitibbe L.
Temescamang L.
R. S! Lawrence
QUEBEC
New Brunswick
Frederiction
R. S! John
S! John
Bay of Fundy
NOVA SCOTIA
Halifax

LOWER CANADA
Nepissing L.
R. Attawa
Three Rivers
Montreal
Maine
Penobscot
N. Hampshire
Vermont
Montpelier

L. of the Woods
R. Pembina
Red L.
Rainy L.
L. Superior
I. Royale
Green Bay
L. Huron
Kingston
L. Champlain
Boston
Massachusetts

Mandan
R. Goose
Rice L.
Spirit L.
Wisconsin
L. Travers
Speaking L.
F! S. Anthony
Winnebago L.
R. Wicansin
L. Michigan
Toronto
L. Ontario
Niagara
New York
Albany
Hudson
Connecticut
NEW YORK

NORTH
ATLANTIC
OCEAN

R. James
R. Sioux
R. des Moines
Detroito
Munroe
L. Erie
Erie
Sandusky
Pennsylvania
Pitsburg
R. Susgehanna
R. Delaware

R. Missouri
Council Bluff
R. Rock
Ohio

90   80   70

	Railway already executed
- - -	Proposed Line of Railway
*	Main Stations 400 Miles apart

E RAILWAY BETWEEN EACH OF THE 400 MILE DISTANCES.

CENTRAL FORT or HEAD QUARTERS			LOG FORT No2 EAST			MIDDLE TERMINUS-EAST			LOG FORT No1 EAST			TERMIN...
B	A	A	B	C	D	E	F	G	H	I	J	K	L
225	212 1/2	200 Miles	187 1/2	175	162 1/2	150	137 1/2	125	112 1/2	100 Miles	87 1/2	75	62 1/2	50	37 1/2	25	12 1/2

Men-100 Women-33 | Men-20 Women-7 | Men-1500 Women-500 | Men-20 Women-7 | Men-100 Women-33 | Men-20 Women-7 | Men-400 Women-133 | Men-20 Women-7 | Men-100 Women-33 | Men-20 Women-7 | Men-800 Women-266 | Men-20 Women-7 | Men-100 Women-33 | Men-20 Women-7 | Men-400 Women-133 | Men-20 Women-7 | Men-100 Women-33 | Men-...

Convicts - 500
Guards - 166
Women - 54

Convicts - 500
Guards - 166
Women - 54

fig. 3.6 | Proposed Line of Railway. F.A. Wilson and Alfred B. Richards, 1850

Wilson and Richard's *Proposed Line of Railway* was one of several proposals submitted to a government seeking the most direct route to Nationhood. Unlike the others however, theirs included a *North American Work Plan* that provided the logistics for constructing the railway and simultaneously, for settling it. The plan aimed to relieve Britain's problems with overpopulation by recruiting a team of "pensioners, paupers, and prisoners" to work the line.[4] At the same time it would fill vulnerably open territory with the workers, guards, and women that would hold up the operation.

TOWN
COMMON

Park Lots

RESERVE

HALF PLAN OF TOWN PL

Farm Lots

RAILWAY

RAILWAY
STATION

RESERVE

Farm Lots

HALF PLAN OF VILLAGE PLOT

VILLAGE
COMMON

Small Farm L

One Mile

One Mile

DESIGN
FOR
TOWN AND VILLAGE PLOTS
AT STATIONS ON THE
CANADIAN PACIFIC RAILWAY,
REFERRED TO IN
REPORT ON SURVEYS OF THE CANADIAN PACIFIC RAILWAY, 1877,
Pages 90 to 95.
SANDFORD FLEMING, Engineer-in-Chief.

fig. 3.7 | Design for Town and Village Plots at Stations on the
Canadian Pacific Railway. Sandford Fleming, 1877

Working for the CPR, Fleming's plan wrestles with the opposed geometries of
rail line and grid. It proposes a finer grain of land tenure near the town, plots
akin to river lots along the track, and a central square around the rail station.
The grid, which is derived independently from the rail line, appears to radiate
from the station.

Manitoba and the Northwest T...

Showing the Lines and Lan...

Canadian Pacifi...

The Company's lands in part consist of the odd-number...
remaining sections being Governm...

A L B E R T A

B R I T I S H C O L U M B I A

SASKATC...

ASSIN...

C. P. R.

MAIN LINE

CANADIAN PACIFIC

SOUTH SASKATCHEWAN RIVER

RED DEER RIVER

BATTLEFORD LAND OFFICE

EDMONTON LAND OFFICE

CANADA BANK NOTE CO.
526 CRAIG STREET,
MONTREAL.

SOUTHERN MANITOBA—THE GARDEN OF THE PROVINCE—The lands along the Line of the Manitoba and Southwestern Railway, leased by the Canadi...

fig. 3.8 | Manitoba and the Northwest Territories of Canada,
Showing the Lines and Land Grant of the Canadian Pacific Railway.
1886

In contrast to the CPR's proposed route towards the Yellowhead Pass, its route ended up cutting directly through Palliser's Triangle, on the straightest trajectory towards the more southern Rogers Pass. The arc of Palliser's Triangle can be seen, only partially avoided, in the area of granted land.
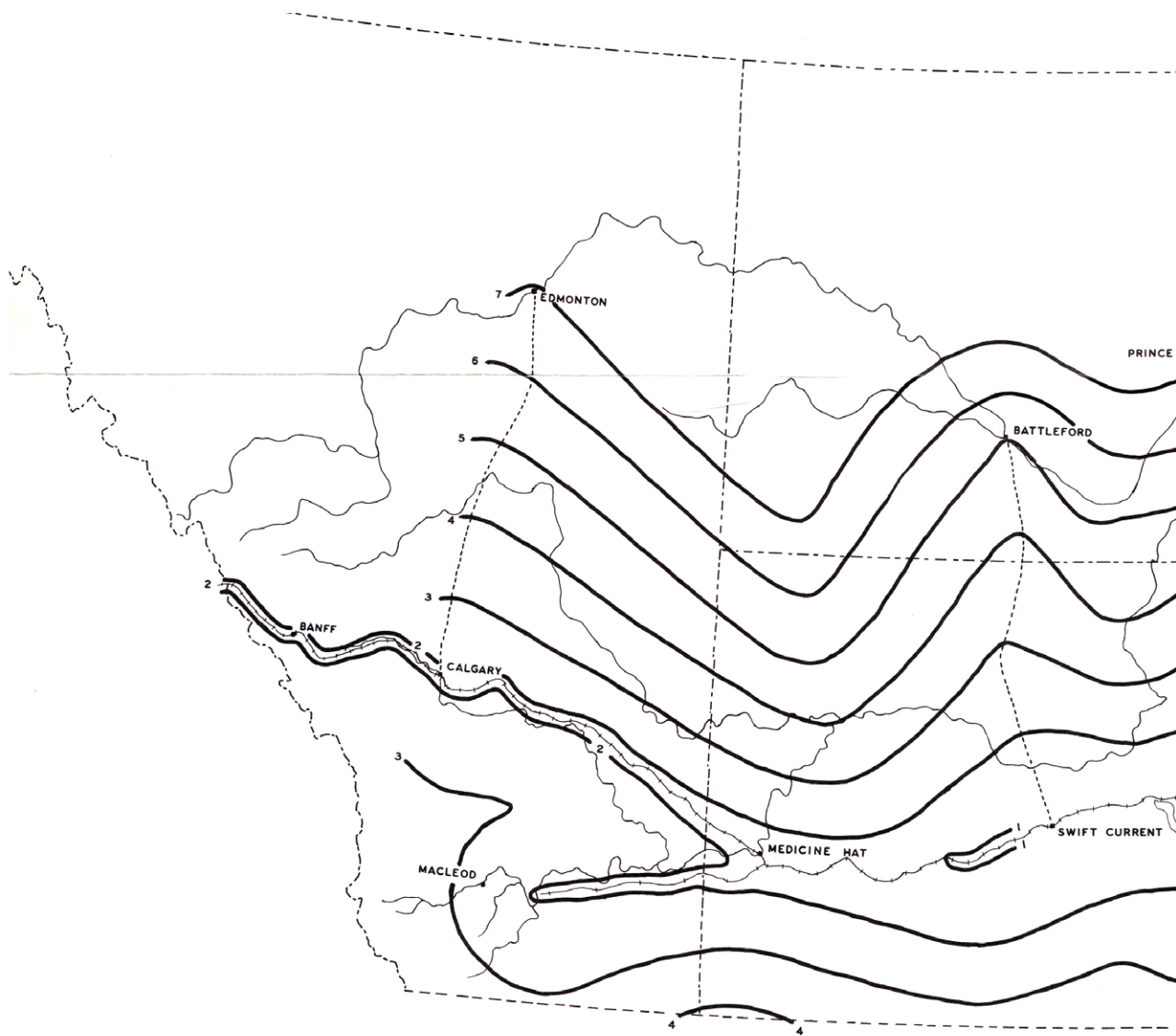
TRAVEL TIME IN
FROM WINNIP

TRAVEL TIME IN HOURS ——————
TRAVEL TIME IN DAYS ——————
MAIN STAGE ROUTE ------------
TRAVEL TIME IS BASED ON DAYTIME
TRAVEL ONLY EXCEPT ON RAILWAY LINES
AND ON LAKE WINNIPEG.

SCAL
0   25
MILES

ALBERT

GRAND RAPIDS

7

6

5

4

3

2

LANGENBURG

14   13

5

4

3

12

12

2

6

QU' APPELLE

6

12

3

WINNIPEG

REGINA

6

12

12

12

BRANDON

3

2

2

12

3

DELORAINE

6

2

EMERSON
3 6 12   2   3

12

4   4   3

2

HOURS & DAYS
'EG IN 1886

THE MAP IS BASED ON INFORMATION
IN WAGHORN'S TIMETABLES FOR
1886 AND CONTEMPORARY NEWSPAPERS
AND BOOKS.   THE ISOCHRONE LINES
ARE NOT RELIABLE AWAY FROM THE
MAIN ROUTES.

EE

50
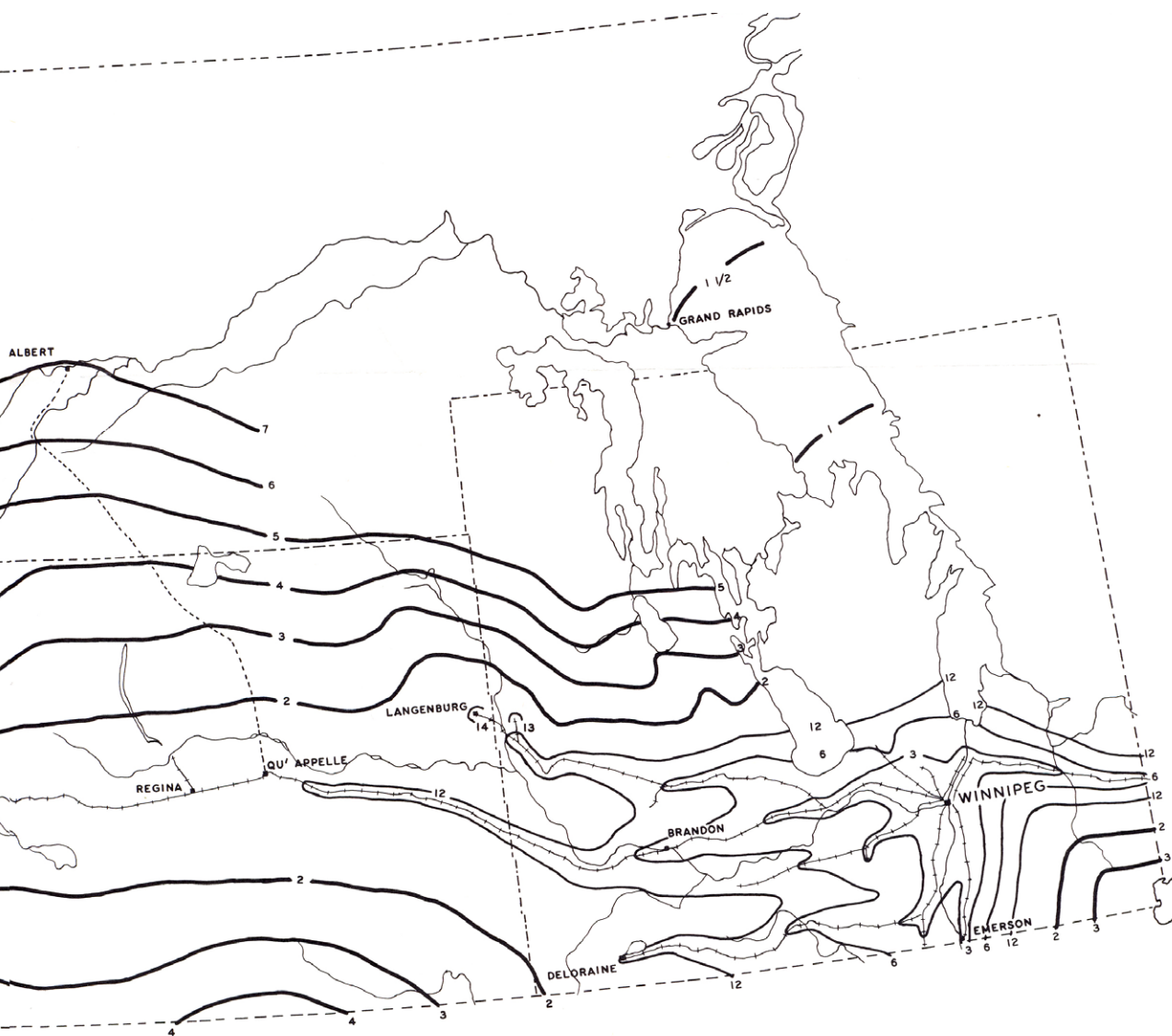
fig. 3.9 | Travel Time in Hours and Days From Winnipeg in 1886.
From the "Historical Atlas of Manitoba", Warkentin and
Ruggles, 1965
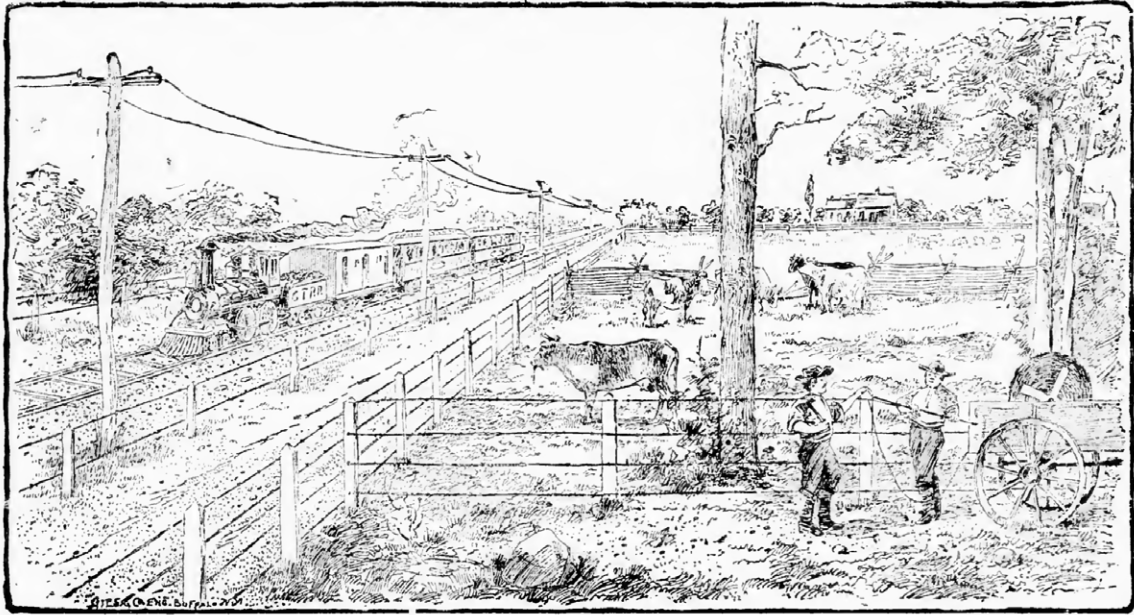
fig. 3.10 | Advertisement for Lyman Steel Fencing. Dominion Barb-Wire Co., 1886

Length and Distance

One could no longer get really lost on the prairie: these roads, with their slavish devotion to the cardinal points of the compass, had converted the land into a full-scale map of itself. But one could lose count of the turns, and feel the prairie begin to spin disquietingly on its axis.

-*Jonathan Raban, Bad Land: An American Romance, 1997*[5]

I read once that we in the west have been the only people to measure land as if it were an ocean, in nautical terms. Wallace Stegner once said that, "across that oceanic land a boundary line could run as straight as an equator or a tropic, serene, almost abstract."[6] Lines could run without any reference to terrain or history, but with the upmost adherence to some abstract ideal. The invisible lines that wrap the globe with measure are made concrete in the prairie. Here is where lines of latitude splice a country into jagged rows of states, and one grassland into two. Here is where lines of longitude measure new provinces, in degrees, from England. Here is where abstract lines become absolute – where they take off as if *natural*, through the grass.

NATURE: It was faith in reason above all else, even above observation. […] there was an article of faith that said nature would eventually add up, would reveal itself on all fronts as it had so cleanly in the geometric proof. There was an assumption that nature, like refined men, was rational, as if the calculations were the equivalent of a sort of contract.

-*Richard Manning, Grassland, 1995, 95.*

In 1874, a highly skilled outcrop of Dominion Surveyors peeled away from the tedious survey of townships in Manitoba, to conquer wider and more westerly terrain. The *Special Survey* formed an elite party that laid the lines of a skeletal framework from which all future surveys would be drawn.[7] These master-lines would serve as controls for all the other lines that tended to drift and bend on the open ground. The framework would prevent those lines, and the people who follow them, from getting lost. It would convert the land, as Jonathan Raban suggests, "into a full-scale map of itself." And that's what it did – it created a full-scale map of the *framework*, of the *system*. It referred to nothing but itself. And it doused with *geometry* all that was organic and curved. By the time the general survey

and its followers arrived in Saskatchewan and Alberta, order seemed "inherent in the universe."[8] This order, writes Margaret Atwood in her guide to Canadian Literature, *Survival*, is what distinguishes the Canadian settler from its southern counterpart:

> Canadian settler figures are less likely to see their activities as the construction of a new world built according to their free fancies than the implementation of an order that is "right." The imposition of the straight line on the curve tends to get seen by those doing the imposing as part of the Divine Plan [...][9]

Law and geometry arrived in the prairie before most of its settlers. And wherever this order was not established, it was up to the settler to iron out the wrinkles and stitch taut the seams.

The straight line appeared to forge order of chaos. It was a profound act of hubris, to reach out and pierce the round horizon with a straight line. And so the tautness of a barbwire fence,[10] or the unwavering length of a furrow was evidence of a settler's backbone, of their eventual triumph over this unyielding plain.

The initial lines of the survey are part of what Henri Lefebvre calls *conceived space*: a space made of representations, rationally devised and abstractly communicated.[11] All the lines that later inhabit that space – the fences and furrows that in contrast are *lived* or made by experience – fall subject to the geometries of the survey (which are taken to be true). The desire for straight lines, in Lefebvre's words, may have come from a desire for a "stable visual world."[12] These lines could harness the prairie as if caught in a net: distance could be measured and stability confirmed. But it came with a price.

For Lefebvre, the growth of *conceived* space results in the repression of *lived* space and experience. For Margaret Atwood, when a character draws a straight line in space, he destroys some "life force," something vital, in the process.[13] In most western

GEOMETRY: Geometry united man and nature; it was the secret measure by which God's original creation had been ordered and sustained. It thus behooved God's highest creatures to employ that same measure in making their own, lesser worlds. Through geometric measure, Man would author the Earth and, most especially, a new-found land in the West.

-Dennis Cosgrove, The Measures of America, 1996, 5.

CONCEIVED SPACE: This *conceived* space is thought by those who make use of it to be true, despite the fact – or perhaps because of the fact – that it is geometrical: because it is a medium for objects, an object itself, and a locus of the objectification of plans. Its distant ancestor is the linear perspective developed as early as the Renaissance: a fixed observer, an immobile perceptual field, a stable visual world.

-Henri Lefebvre, The Production of Space, 1974, 361.

narratives, she reflects, it's the wife or the daughter that doesn't make it through. In western history, it's another cyclical force, another way of life, an underlying ecology and its nomadic counterpart, that are torn to pieces by straight lines. Perhaps more powerful than the desire for stability, was this need to break away from a cycle – to seek out *progress* over repetition. Yi-Fu Tuan writes:

> Seeing landscape in perspective presupposes a major reordering of time as well as of space. From the Renaissance onward, time in Europe was steadily losing its repetitious and cyclical character and becoming more and more directional. The image of time as swinging pendulum or as circular orbit ceded to the image of time as arrow. Space and time have gained subjectivity by being oriented to man.[14]

Perhaps the round geometry of the horizon was so insistent on cycles, on the repetition of an existing order, that the settler felt compelled to whittle it away with lines – with progress.

> […] on a remote ridge above Waterton Lake they completed the line that now ran from sea to sea. Behind them, evidence of their personal contribution to international polity, stretched 388 cairns and pillars and forty astronomical stations. They could all go back to civilian jobs or to their normal army duties, leaving behind them that very open and penetrable fence; yet their work had drawn a line not merely between two countries, but between two periods of history.
>
> *-Wallace Stegner, Wolf Willow, 1955*[15]

The 49th parallel that "ran directly through" Stegner's childhood runs 1427 km from the western shore of the Lake of the Woods, to the Continental Divide. But it runs any number of distances. In truth, a line is only finite as an abstraction. Otherwise it has infinite variations.
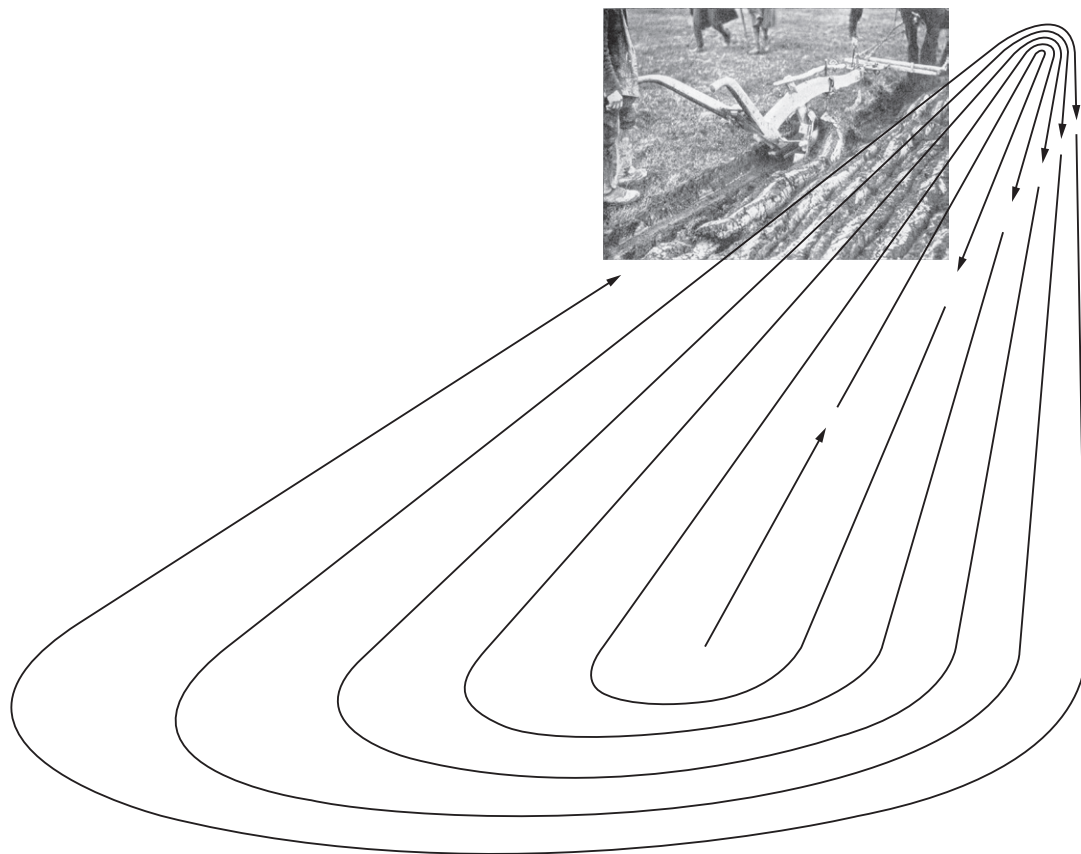
fig. 3.11 | Plowing an Acre. The Museum of English Rural Life

After centuries of plowing, the furrows are inscribed as ripples in the earth's surface. Our measures remake the land.

Take a pair of oxen for instance, pulling a plow. Let them pull and turn the earth until they're winded. Then let them rest and turn them around. Continue coiling their path around the turned up ridge of soil (the *furrow*) until the sun begins to set. They have plowed the surface of an 'acre'.[16]

The acre didn't begin as a decimal measure, as square or rectangular, or even as fixed. It was a unit of *time* inscribed into the earth. It depended on the heaviness of the soil and on its moisture. It depended on the strength of the oxen, and on the hours of daylight. It was the plot of land allotted to a family because it was what they could plow in a day. Then the oxen, communally owned and high in demand, were passed on to the next family to inscribe their own.

In its origins, the acre is a unit of *effort* in space and time. It's a measure, as Yi-Fu Tuan notes, made up of distinguishable rhythms of the body. A 'pace' for instance, "is felt as a biological arc of effort and ease, strain and relaxation."[17] Each pace, each distinguishable strain, is tied to a unit of space crossed – a unit of *distance*.

The prairie however, is a bewildering expanse taking varied degrees of effort to move across it, much like sailing an unsteady sea. Surveyors turned away from units of distance, and measured in units of *length*. Oxford defines *distance* as "an amount of space between two things or people."[18] But it defines *length* as "the measure or extent of something from end to end."[19] Distance is a negative space into which you filter your efforts. It embodies the duration of paths; it can be occupied and thus manipulated. But length *occupies*. It's seen as something solid, something fixed. The lines of the survey are drawn as strands that weave a surface, that structure distance and occupy it with rules.

Bringing farmers who measure space by practice and instinct, into space already measured out in lengths, marks a key

DISTANCE: […] the meaning of distance is as varied as its experiential modes: we acquire the feel of distance by the effort of moving from one place to another, by the need to project our voice, by hearing the dogs bark at night, and by recognizing the environmental cues for visual perspective.

-Yi-Fu Tuan, Space and Place: The Perspective of Experience, 1977, 16.
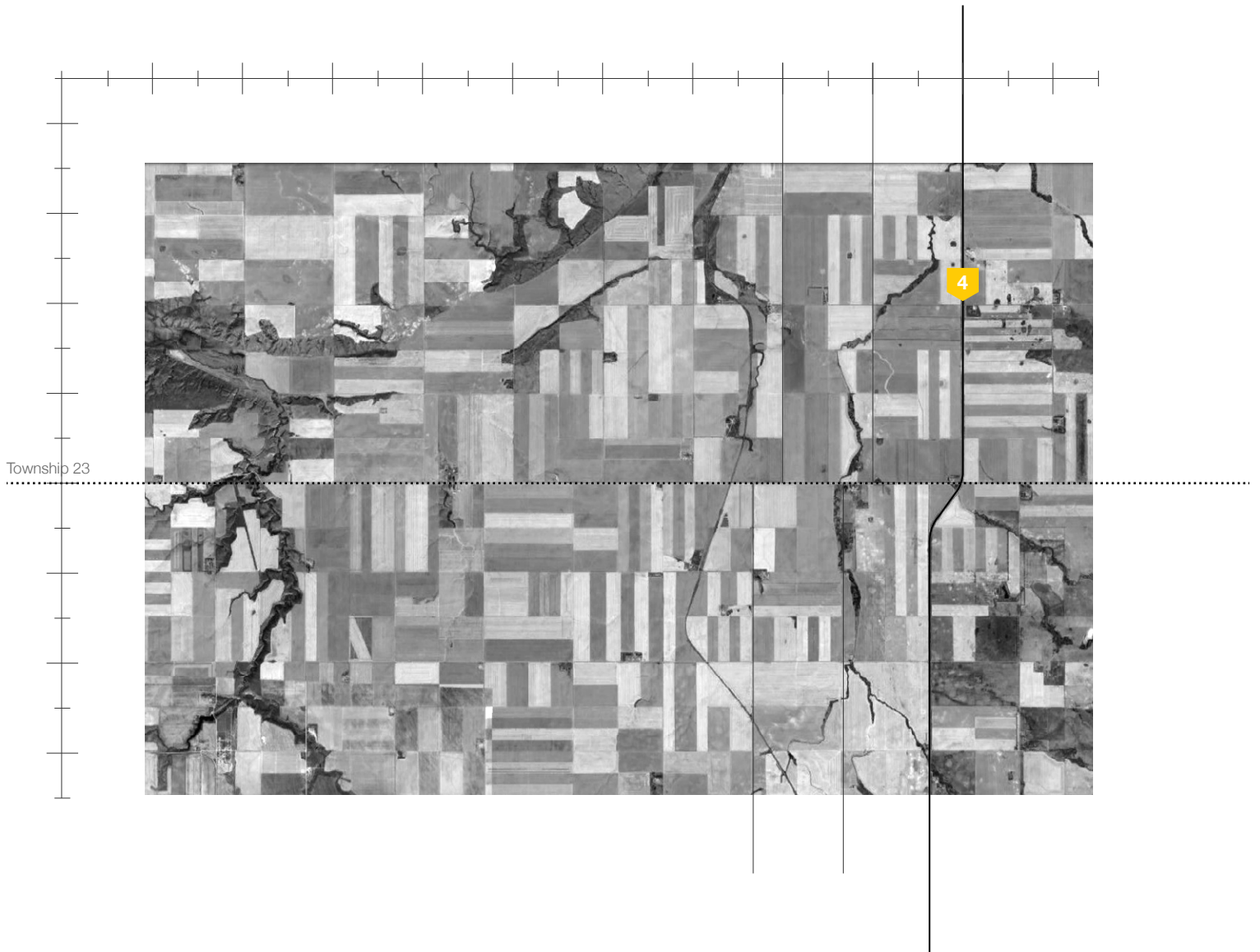
CROSSINGS

Township 23

fig. 3.12 | Correction Line. aerial image from Google Earth. drawing by author

At correction lines, where the grid offsets itself, and in fractional townships, where the last township before a meridian is cropped, the rigid measures of the survey adjust to the organic lay of the land.

transition in spatial perception. An awkward translation (that we make daily) arises between distance and length.

In the seventeenth century, Edmund Gunter observed a naturally occurring ratio in ox-plowed fields (4 perches wide by 40 perches long), and made a "conceptual leap" towards a new unit of measure.[20] He fabricated a chain, meticulously bending 100 equal links, and spanning the short side of a field. 4 perches equaled 1 *chain*. Using his ratio, an acre was equal to 1 by 10 chains, so that to find the number of acres in any given field you simply had to multiply length by width, and drop a digit.[21]

Today we say that 1 chain equals 66 feet (or 20.1168 m), and 1 acre equals 43, 650 square feet (or 4046.8564 square meters). These units mean nothing to us. They're beyond rational; they're intangible. But they're useful in *calculations*, a necessity that's relatively new. Over a long history of survey and measure, decimal thinking arises only to serve the space of *accumulation*, the space of capitalism: the adding, subtracting, and multiplying of space, time, and money. Our earliest measures were based on the act of dividing a set amount into tangible fractions, as in folding a length of twine or shifting grain between the two trays of a scale.[22] But for space and time that is either too large or too microscopic to be perceived, measurement becomes much more abstract.

This is when the prairie begins to spin, as Jonathan Raban suggests in *Bad Land: An American Romance*, the British author's journey through the ruins of western settlement. This is when we get lost *in* the geometry, lost *from* the place. Always we are making these translations: between distance and length, lived experience and conceived space, and straight lines attempting to structure a curve.

MEASURE: Imagine a time when each people that had managed to measure space had its own units of measurement, usually borrowed from the parts of the body. […] The body's relationship to space, a social relationship of an importance quite misapprehended in later times, still retained in those early days an immediacy which would subsequently degenerate and be lost: space, along with the way it was measured and spoken of, still held up to all the members of a society an image and a living reflection of their own bodies.

-*Henri Lefebvre, The Production of Space, 1974, 111.*

0 sec.

1.5 sec.
1 utility pole
38 m

10 min.
1 grain elevator
15 km

7.5 sec.
5 utility poles
190 m

0.2 sec.
1 fence post
5 m

2 sec.
10 fence posts
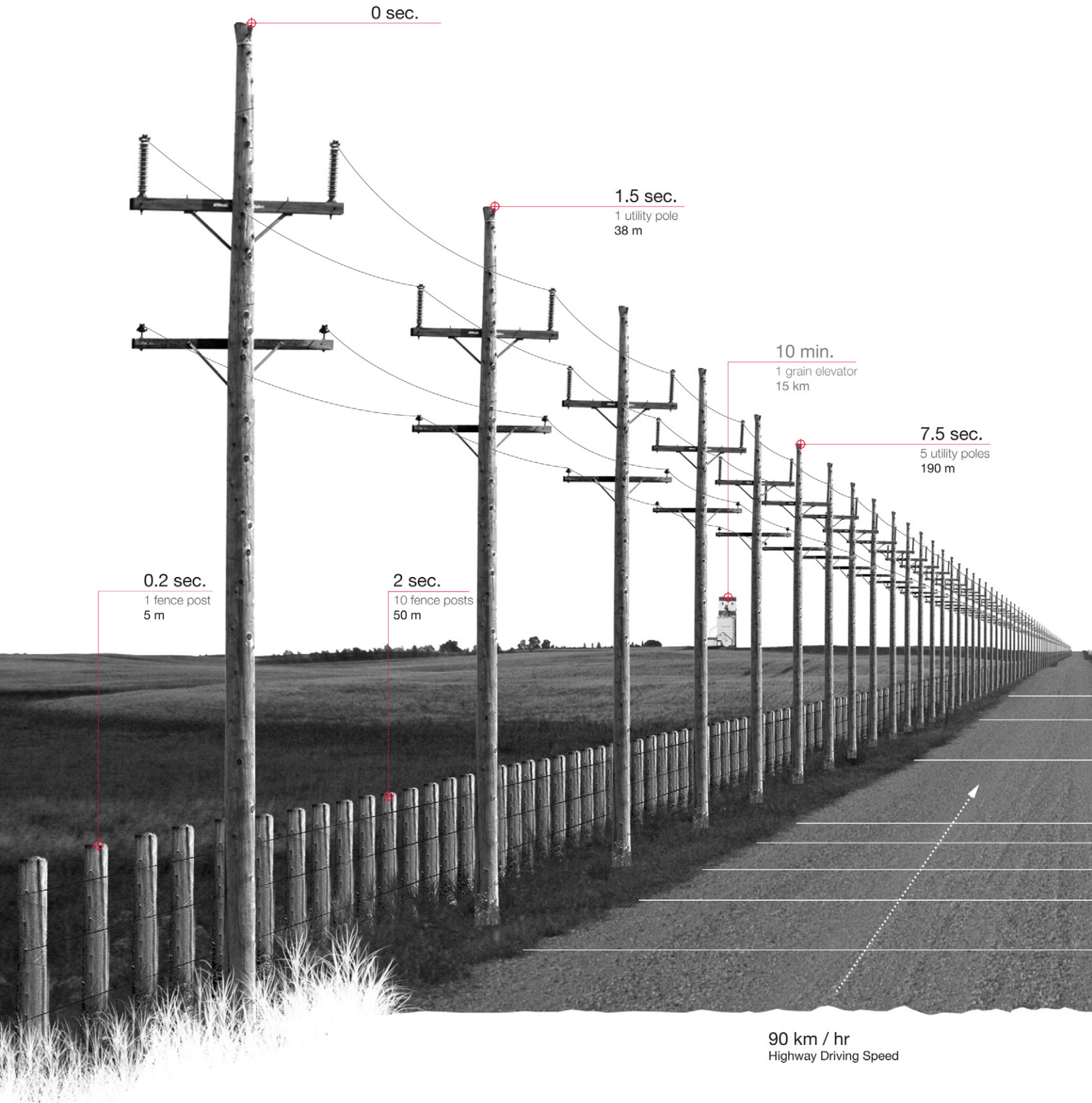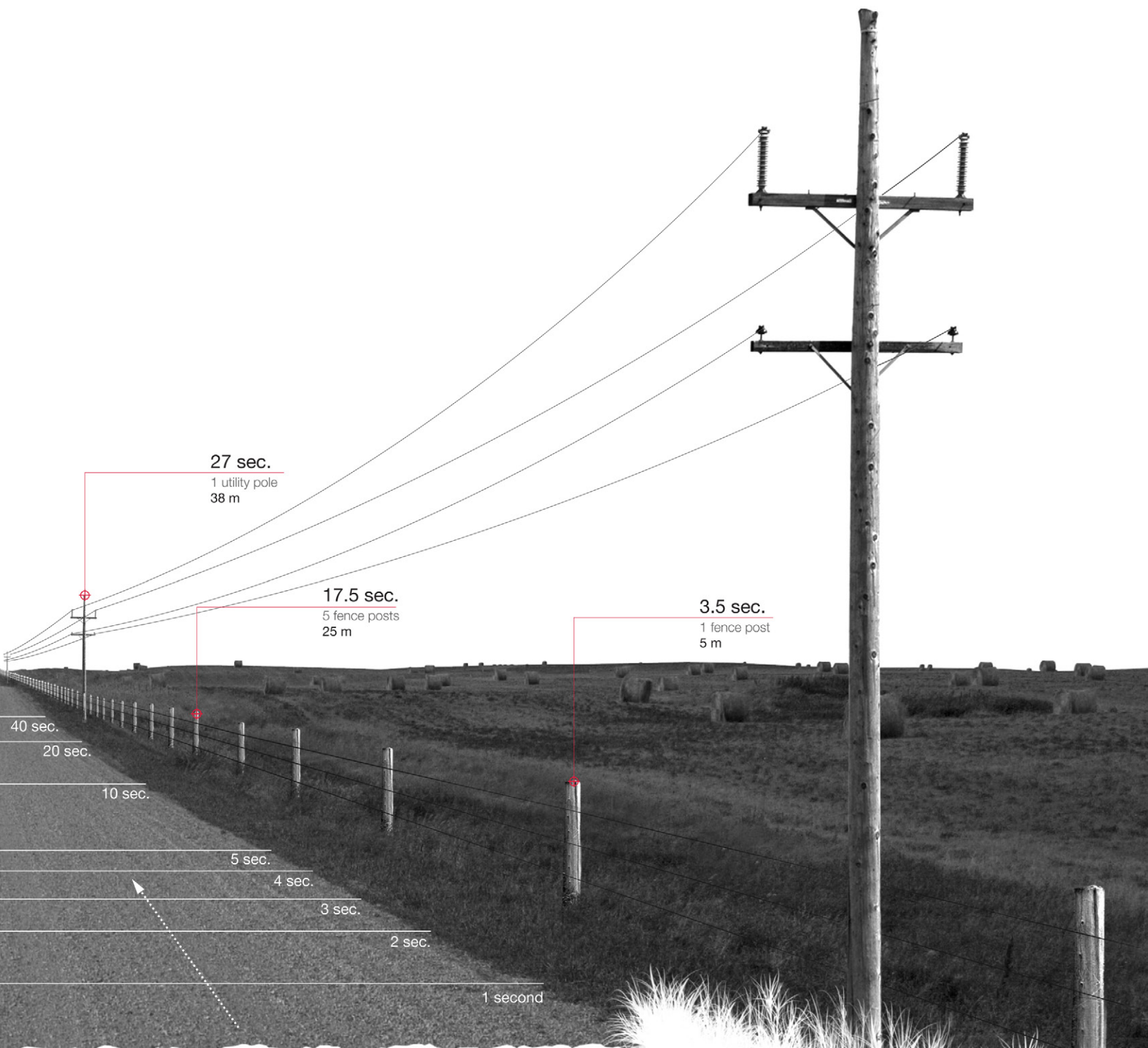50 m

90 km / hr
Highway Driving Speed

fig. 3.13 | Measures of Distance. drawing by author

27 sec.
1 utility pole
38 m

17.5 sec.
5 fence posts
25 m

3.5 sec.
1 fence post
5 m

40 sec.

20 sec.

10 sec.

5 sec.

4 sec.

3 sec.

2 sec.

1 second

5 km / hr
Ave Walking Speed

fig. 3.14 | *Path in a Field.* photo by author, 2011

The Pathmakers

I don't know much about the Civil War, and what little I do know is either the residue of Hollywood story telling, or is filtered through a spatial lens. I know there was a dividing line between the North and the South, and an anticipation of westward expansion. I know that the two sides of the line had two conflicting views on the *control* of land:

> […] a northern country, where fields were controlled by the intensive use of the fence, and a southern country, where fields were controlled by the intensive use of the whip.[24]

And I know that the North won, but that when the dividing line fell and they realized the west's aridity, Texas opened its gates and America filled with cows.[25]

PLACE: For thousands of years, when the physical construction of a symbolic place was still unthinkable, the crossing of space represented an aesthetic means through which it was possible to inhabit the world.

- Francesco Careri, Walkscapes, 2002, 64.

In many ways, the cattle drive and the open range seemed to operate in much the same pattern as the prairie had done for millions of years. The land reshaped the bovid, and the bovid in turn shaped the geography. The *pathmaker* converted the land's sole sustenance into something we could digest. Both the Native-Bison ecology and the Cowboy-Longhorn economy played out as the fluid wanderings of a hungry cow. Over the centuries, these animals read and interpreted the landscape for us. They were our compass – we followed the cows.

Of course, the two bovid eras and their respective grasscapes were not the same. Although cattle and bison

descended from the same family "bovidae," their paths had split two million years ago, somewhere between China and India.[26] While bison turned north and crossed the Bering Land Bridge, cattle turned west and found the greener pastures of Europe. In these two very different grasscapes, their stomachs evolved.

In his story of the path, of wandering and nomadism, Italian architect and professor Francesco Careri, says the path is so critical to place making because it enables, "simultaneously an act of perception and creativity, of reading and writing of the territory."[27] And what a description of architecture – both its capability and responsibility. The pathmaker, the place maker, digests the territory (either literally or cognitively), and at the same time remakes it – carves it, shapes it, supplants it with values born from their reading of the context. The effect becomes all too apparent when the paths of two different bovid descend on the Great Plains. There were failed attempts to hybridize the species,[28] and a gradient that emerged between the wildness of a bison and the complete domestication of a cow. But overall, the bison were gone before the cows began to roam north, reading and re-writing the grass as they grazed.

To change the nature of the pathmaker is to change the nature of the place. After the civil war, a beef economy, that had previously been stifled, opened between Texas and Chicago. Six million cattle worth nothing in Texas spilled out into a country where their value escalated.[29] They adopted the prairie as a full-service conveyor belt, transported and fattened on the way. In contrast to the bison's sweeping waves, patterns that changed yearly to seek new grass and let the trampled stuff grow back,[30] the cattle drive worked to narrow, direct, and repeat one motion:

> The general ebb and flow, the motion that had been the rule, became channeled into the roads that drained the power from the place.[31]

PATTERN: The pattern which connects is a metapattern. It is a pattern of patterns. […] We have been trained to think of patterns, with the exception of those of music, as fixed affairs. It is easier and lazier that way but, of course, all nonsense. In truth, the right way to begin to think about the pattern which connects is to think of it as primarily (whatever that means) a dance of interacting parts and only secondarily pegged down by various sorts of physical limits […]

- Gregory Bateson, Mind and Nature, 1979, 11-13.

fig. 3.15 | Kite Photo of Paths in a Field. photo by author, 2011

1860   1900

Goodnight Loving Trail
1866-1880s ———

Western Trail
1876-1884 — — —

Chisholm Trail
1867-1882 - - - - - -

Shawnee Trail
1866-1867 ....

1950   2001

Head of Cattle

< 300,000 ·

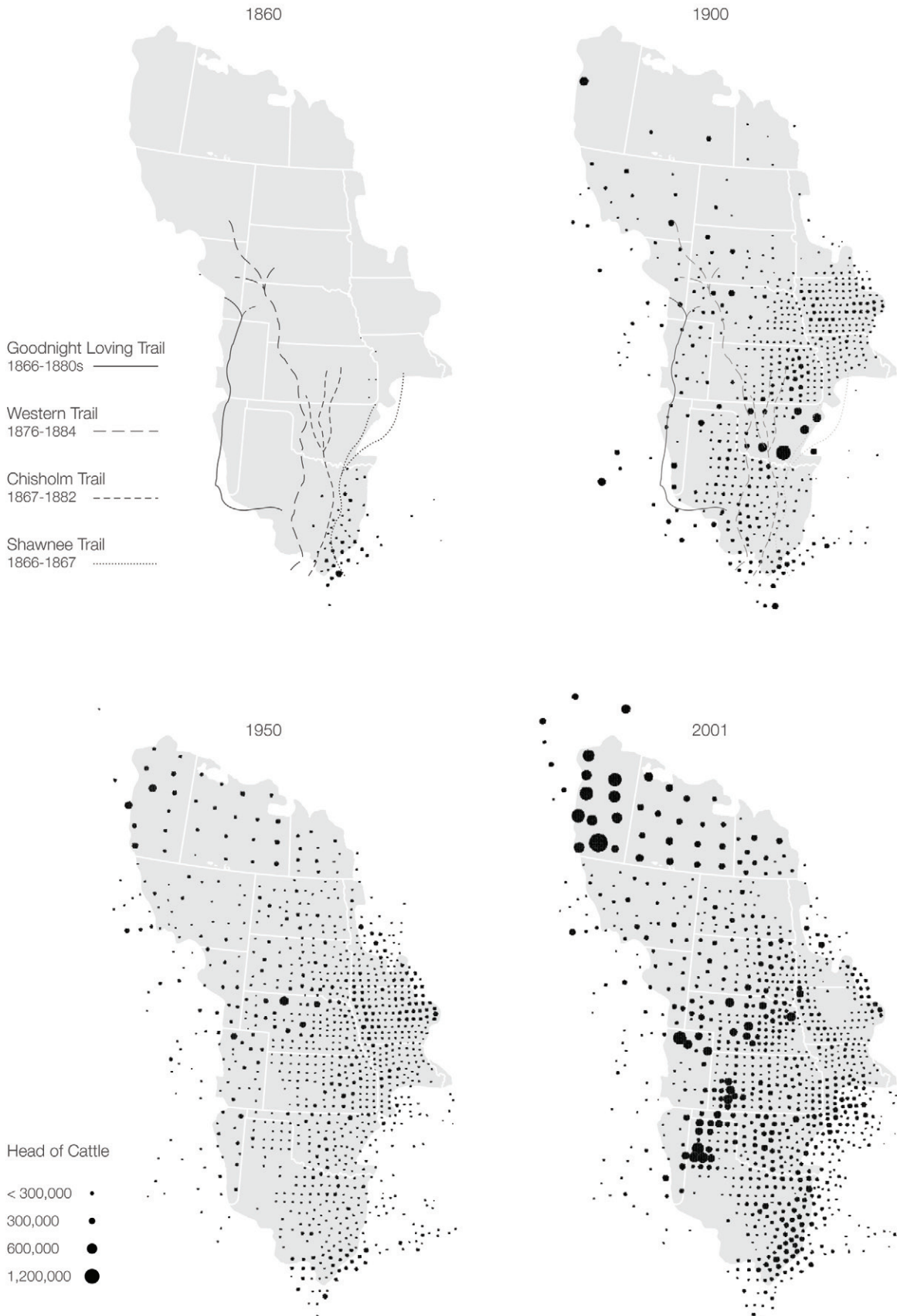300,000 •

600,000 ●

1,200,000 ⬤

fig. 3.16 | Map of Cattle Drives and the Migration of the Cattle Industry, drawing by author

The cattle drive reigned from 1866 until the 1880's, when most of the states enforced quarantine against Texan Longhorns and their "Texas fever."[32] But the land through which those trails passed was changing; the railroad was progressing, and the trails were blocked with barbwire. The paths were forced westward, where they opened up and spilled into a new and short-lived time – the era of the open range. The path would have to change again, and then so would the pathmakers.

Here, in the foothills and the short grass, the path slowed and spread into fields. The British introduced another breed, not nearly as robust as the Longhorn, but to the British, more palatable on the plate and in the field. "The Canadian cattle, whiteface or whiteface-and-shorthorn cross, were impenetrably stupid and slow."[33] They preferred forbs to grass, shade to exposure, rivers and valleys to high and flat plains. They were, and are to this day, entirely unfit for the prairie. To accommodate their slow domestic habits, we've detached the path they feed on (the field and the feedlot), from the one that moves them (the rail). To accommodate their stubborn stomachs, we've introduced foreign plants like crested wheatgrass – a bunch grass from the deserts of Siberia. In the family of grasses, there are two kinds – "increasers" that flourish after being grazed, and "decreasers" that become scarce. Crested wheatgrass, a fast-growing increaser ideal for cattle grazing, is an uncontrollable invader that crowds out native species.[34] Ranching and its entourage of methods, has upset and remade the grassland's intricate weave.

The bovid's path was blocked, relocated, slowed, widened, and made spiral, in a flood of overgrazing that spread from south to north as the cowboys and ranchers attempted to replace one bovid with another, and squeeze its path into the survey. Always, in this landscape based on motion, the path is inseparable from place. The path, its movement and makeup,

MOTION: In grassland, life flows, waxes, and wanes, upstream and down, up slope and away from drought, toward refugia, escaping the rigid structures of geometry just as fluid dynamics escape the linear formulae of physics. The power of the land moves, and those who derive their power from the land must move with it.

- Richard Manning, Grassland, 1995, 108.

define the place. Stagnating or slowing the path only hinders its role, and dismantles its place.

> The commonly held belief is that architecture was born of the necessity for a "space of staying", as opposed to nomadism, understood as a "space of going". Actually […] there is a much more profound relation that connects architecture to nomadism through the notion of the journey or path.[35]

Francesco Careri argues that the foundations of architecture do not belong to our sedentary ancestors, but rather to their nomadic predecessors. It's nomadism, movement and wandering, that both calls for and creates symbolic meaning in space. It's nomads who first require a sense of orientation and choreography to space. Too often, and to the detriment of our built world, do we divide the act of dwelling into two ancestral roots, two spatial experiences:

> […] that of the cave and the plough, excavating space from the body of the earth, and that of the tent that moves across the earth's surface without leaving any lasting trace.[36]

From this spatial dichotomy, Careri defines two seemingly conflicting perceptions of architecture:

> […] an architecture seen as physical construction of space and form, as opposed to an architecture seen as perception and symbolic construction of space.

If we look closely at the prairie however, at the places made within it, we find the "space of staying" is entangled with the "space of going". The path is not so easily separated from place. Solid is not so easily distinguished from void. If "Place is security" and "space is freedom," as Yi-Fu Tuan defines them, the two are not so black and white. This is a landscape where freedom *is* security. The path always enables the place.

Paths, for instance, ripened the land into a "west" built on law and order; North West Mounted Police patrolled the

landscape, circumscribing place with a rhythm of security over time. The Dominion Survey, learning from its southern predecessor, embedded a road allowance into the survey itself, surrounding each section with the promise of a path. And places were built under the pathmaker's agenda; railway companies laid out approximately 75% of the small towns in Alberta.[37] The layouts of these towns are almost always aligned with the rail line's geometry; they're spaced in accordance with the company's needs, its points for rest and transfer; and many were developed to become obsolete, to fill the temporary needs of constructing or feeding the line – the evidence showing up in a range of station "classes" from temporary and mobile, to fixed and relatively grand.

PATH: Most nomads claim to 'own' their migration path (in Arabic *Il-Rāh*, 'The Way'), but in practice they only lay claim to seasonal grazing rights. Time and space are thus dissolved around each other: a month and a stretch of road are synonymous.

- Bruce Chatwin, The Songlines, 1987, 184.

To this day, place itself *is* a path. Not only a foundation or a precursor to place, the path is the ongoing substance, or the very definition, of the place. Quite literally, J.B. Jackson wrote,

> Roads no longer merely lead to places; they *are* places.[38]

In the American west to which he devoted a lifetime of study, author and editor of *Landscape* magazine, and professor at Harvard's GSD, John Brinckerhoff Jackson found a new purpose in the road. He was entirely preoccupied with it, not as an exhibit of engineering, but as an instrument of community. He saw roads as the west's truly *vernacular* spaces:

> […] as promoters of growth and dispersion, and as magnets around which new kinds of development can cluster. In the modern landscape, no other space has been so versatile.[39]

Jackson alludes to a public space stretched through the landscape in threads; the road tugs on the dispersed heart of the community and becomes the space of the community itself: the space of shared encounters, of exchanges and the rhythmic activities in which a place steeps.
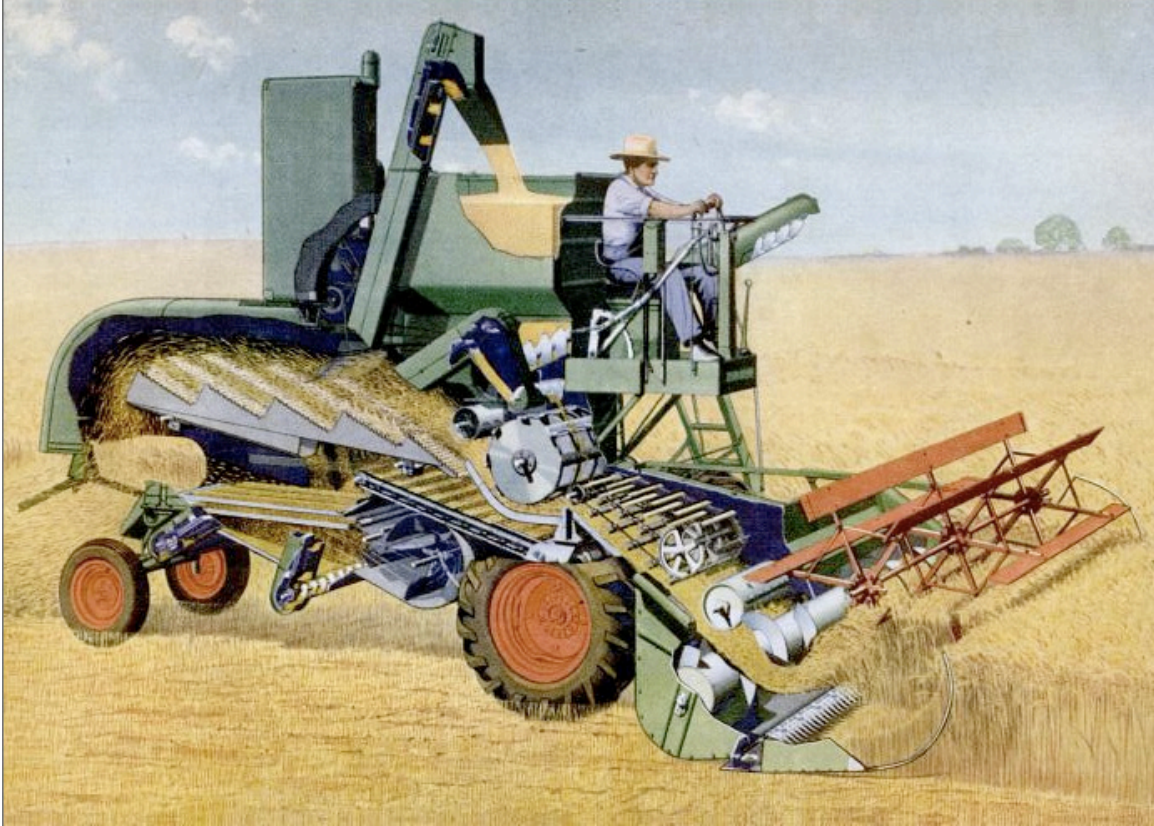
fig. 3.17 | John Deere Self-propelled Combine. Popular Mechanics, 1949

Humans cannot digest grass. Our inhabitation of the grassland has always
depended on the pathmaker, on some machine or animal that processes grass.

Every place in this landscape is an adaptation of the path. Every line is a narrowing of motion, every square a spiraling of the line, and every tower a siphoning of movement upwards where it intercepts a new line that carries the motion right out of the place. Fields and grain elevators belong to the typology of paths. The history of western settlement can be read as the persistent reworking of paths: of shifting the role of pathmaker from winds and glaciers and bovid, to human hands. But as the paths are more restricted, they rely on artificial schedules, on the choreography of an increasingly complex patchwork of place. Underneath, the original paths that carved the place, the trails left by oceans and ice as it retreated, resurface in the soil and in our patterns of land use. They seep through our methods of raising livestock and farming crops, questioning their appropriateness and forcing them in new directions.

As the patterns of settlement continue to unfold, always in search of stability, we might even imagine a future reworking of the path: an eventual unfurling of spirals across open space.

150 acres / day
67 km unfurled
30' Combine (2013)

30 acres / day
33 km unfurled
Combine (1939)

20 acres / day
33 km unfurled
Deering Twine Binder (1920)

1 acre / day
2 km unfurled
Grain Cradle (1800s)

1.6 km (section)
0.8 km (1/4 section)

2.1 m →
Grain Cradle (1800s)

2.4 m →
Deering Twind Binder (1920)

3.6 m →
Combine (1939)
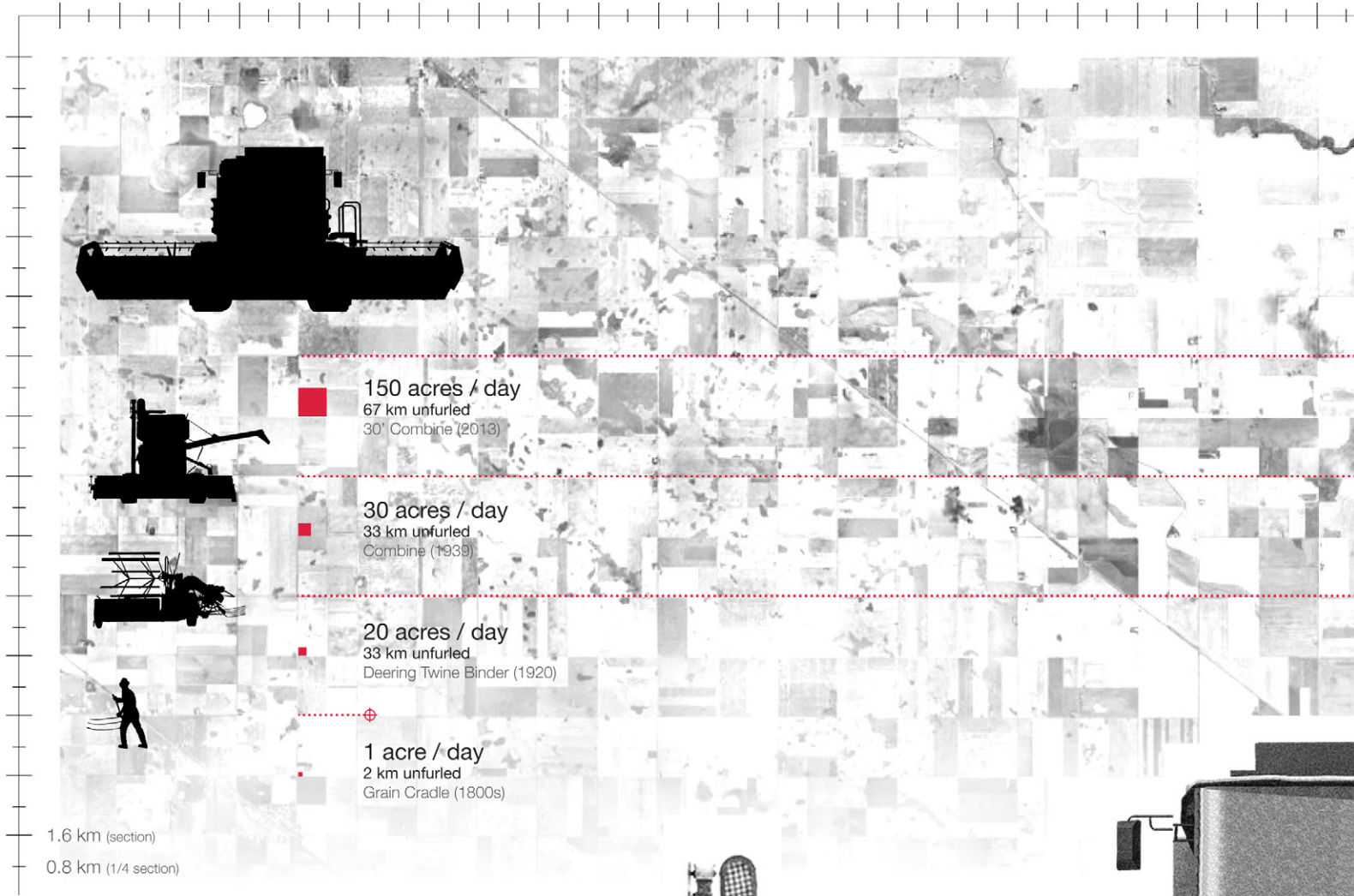
fig. 3.18 | Path Makers. drawing by author

9 m
30' Combine (2013)

CROSSINGS
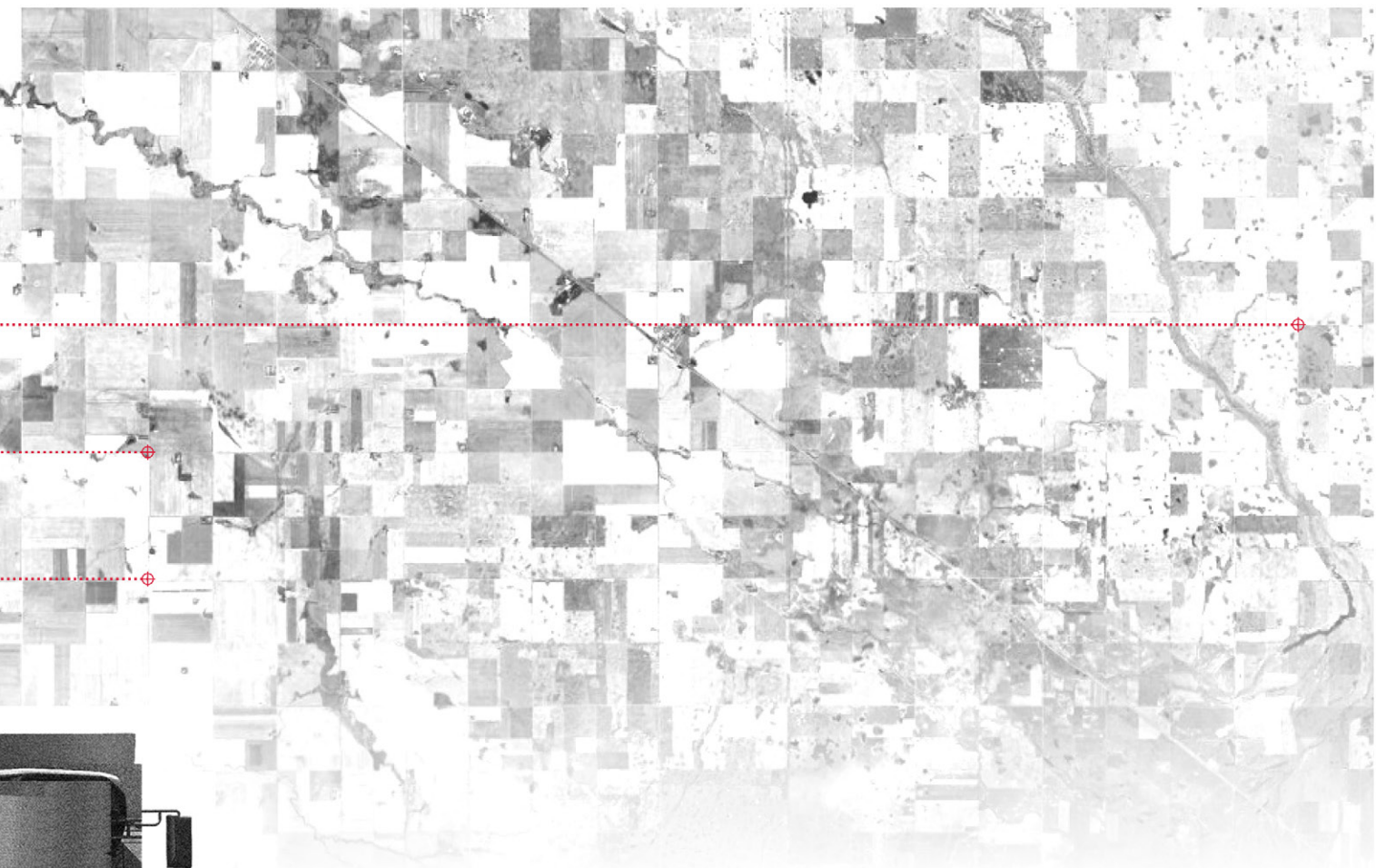
fig. 3.19 | Path Geometries I. aerials for Google Earth, drawing by author.

Harvesting patterns, though always restricted to the same field scale and geometry, reveal the more nuanced characteristics of the land. The path exaggerates obstacles like ripples from a drop of water.
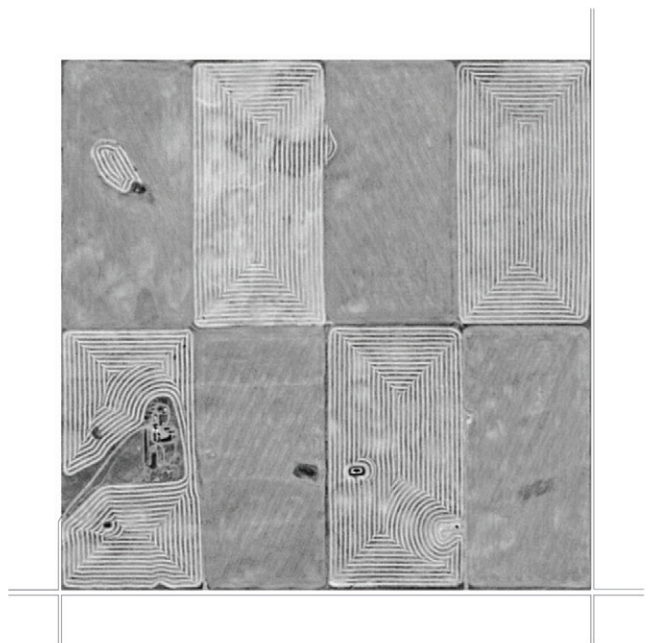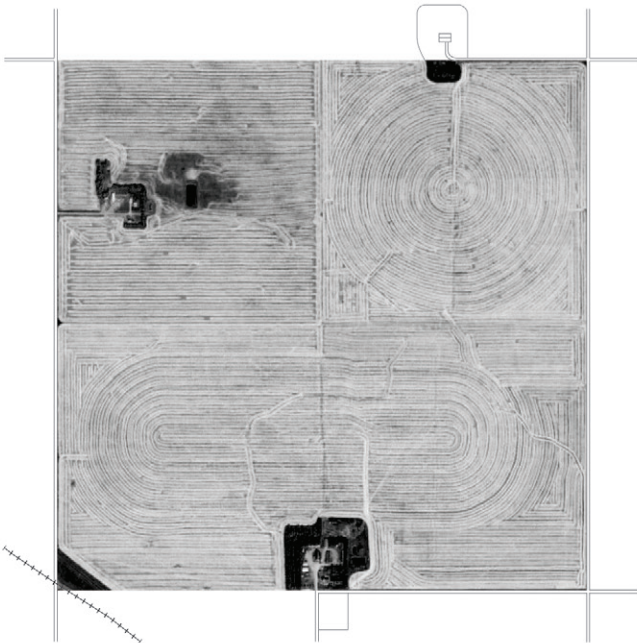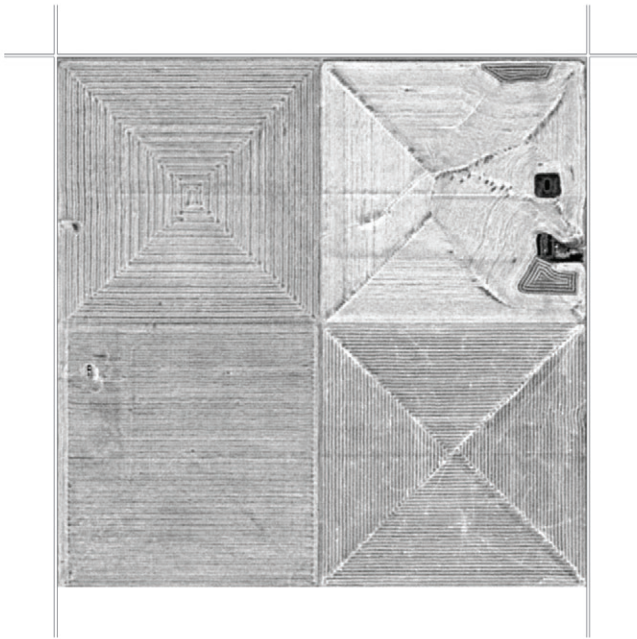
1.6 km
section

0.8 km
quarter-section

0
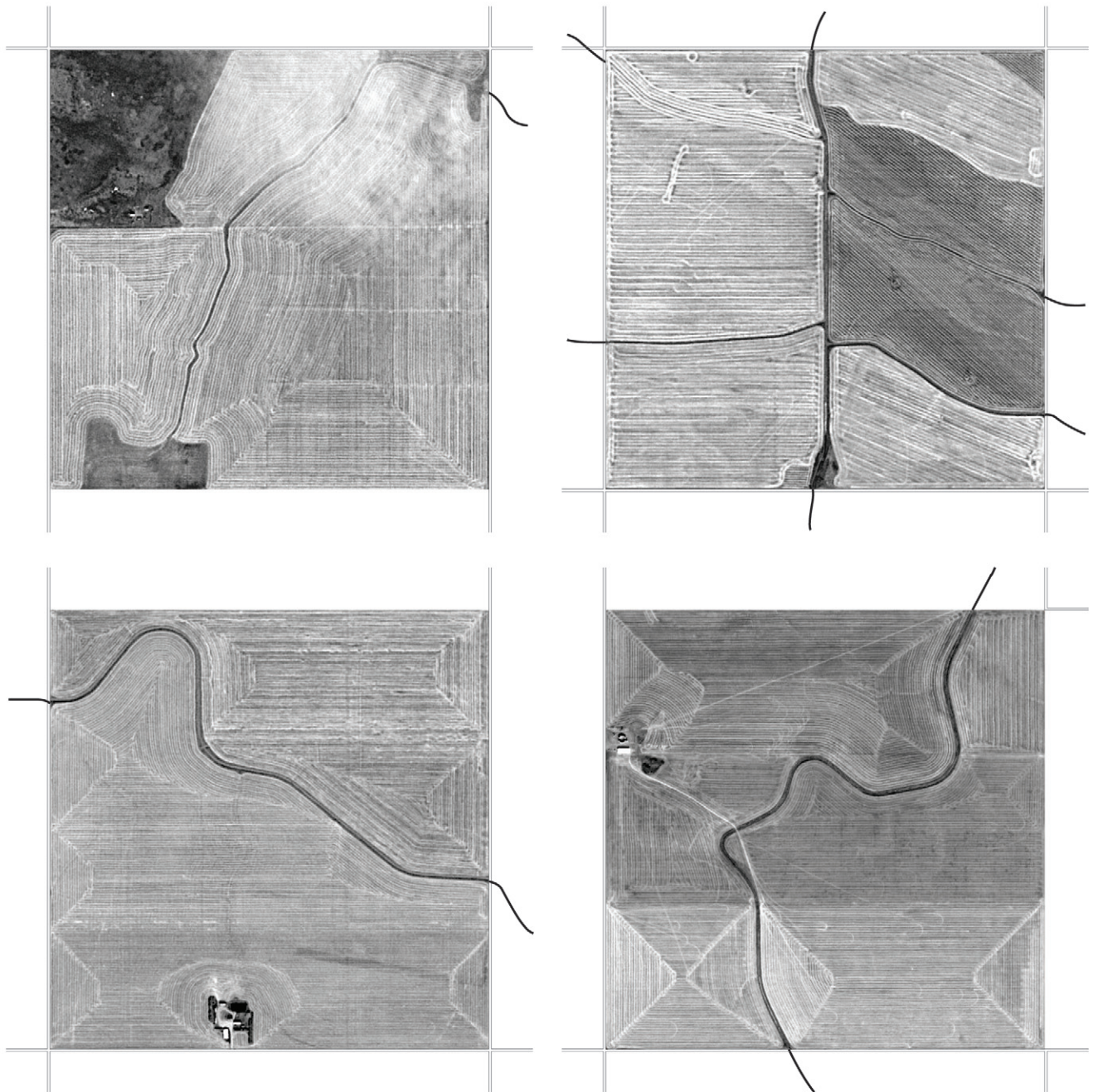
fig. 3.20 | *Path Geometries II.* aerials from Google Earth, drawing by author
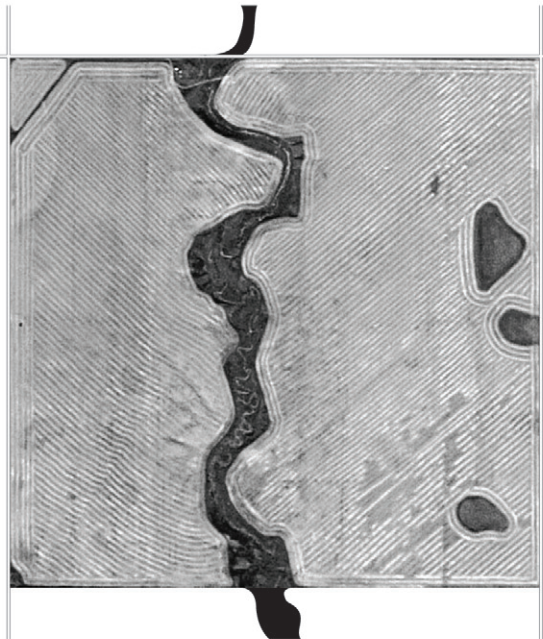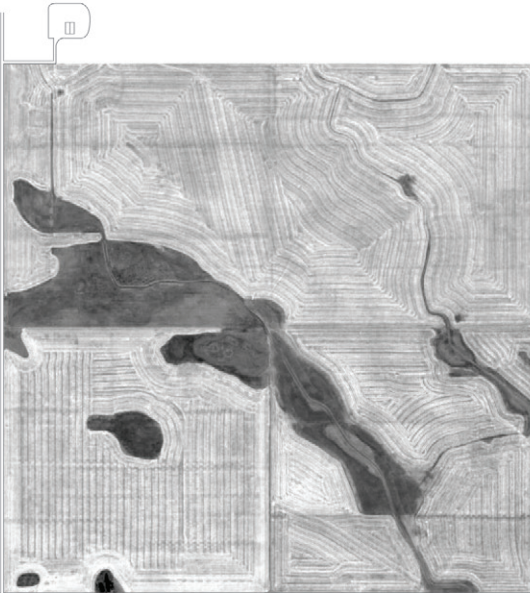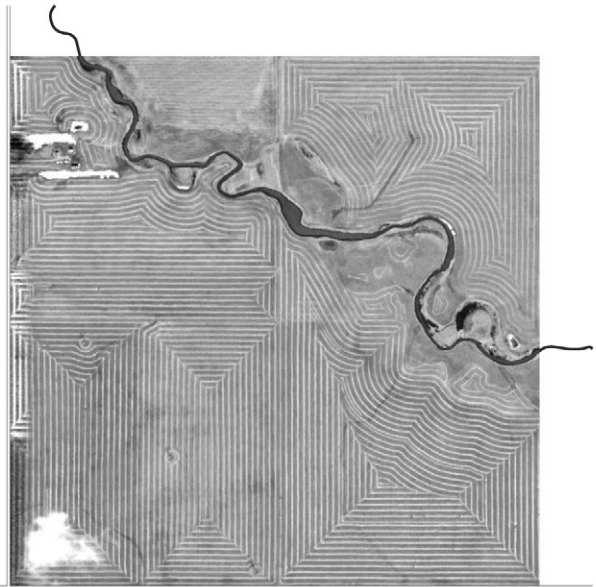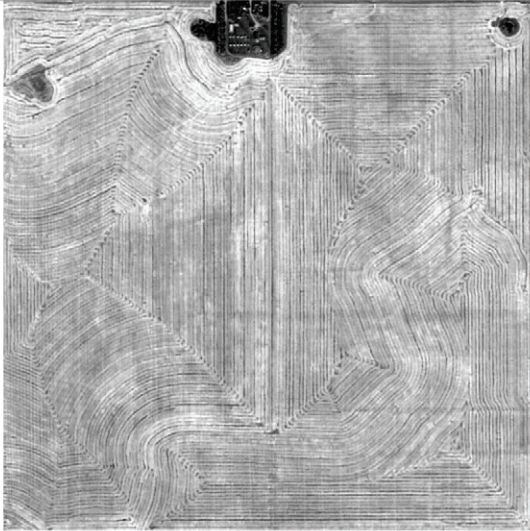
1.6 km
section

0.8 km
quarter-section
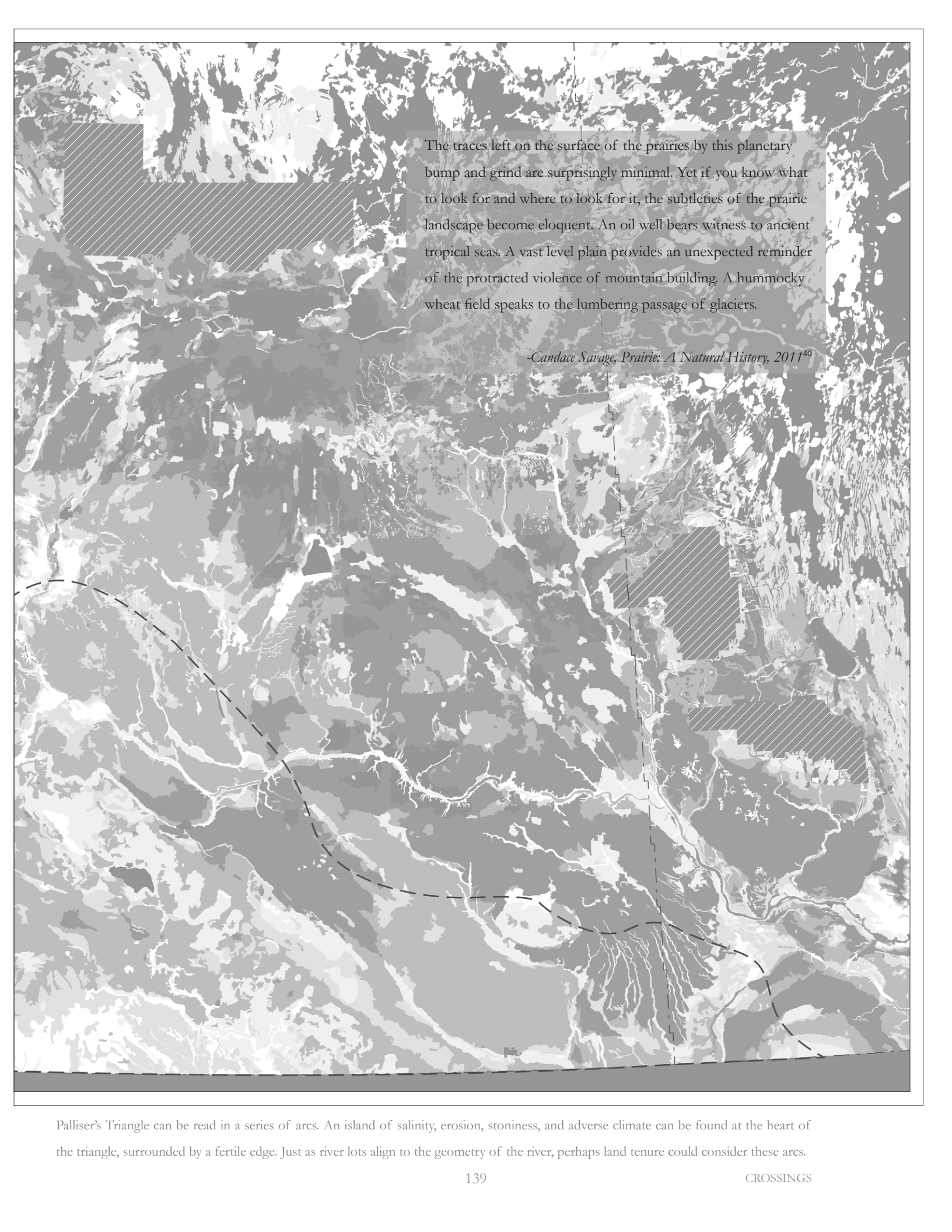
0

fig. 3.21 | Islands: Agricultural Limitations and Paths.

Map by author.
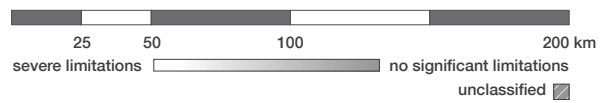
severe limitations — no significant limitations

unclassified

25   50   100   200 km

The traces left on the surface of the prairies by this planetary bump and grind are surprisingly minimal. Yet if you know what to look for and where to look for it, the subtleties of the prairie landscape become eloquent. An oil well bears witness to ancient tropical seas. A vast level plain provides an unexpected reminder of the protracted violence of mountain building. A hummocky wheat field speaks to the lumbering passage of glaciers.
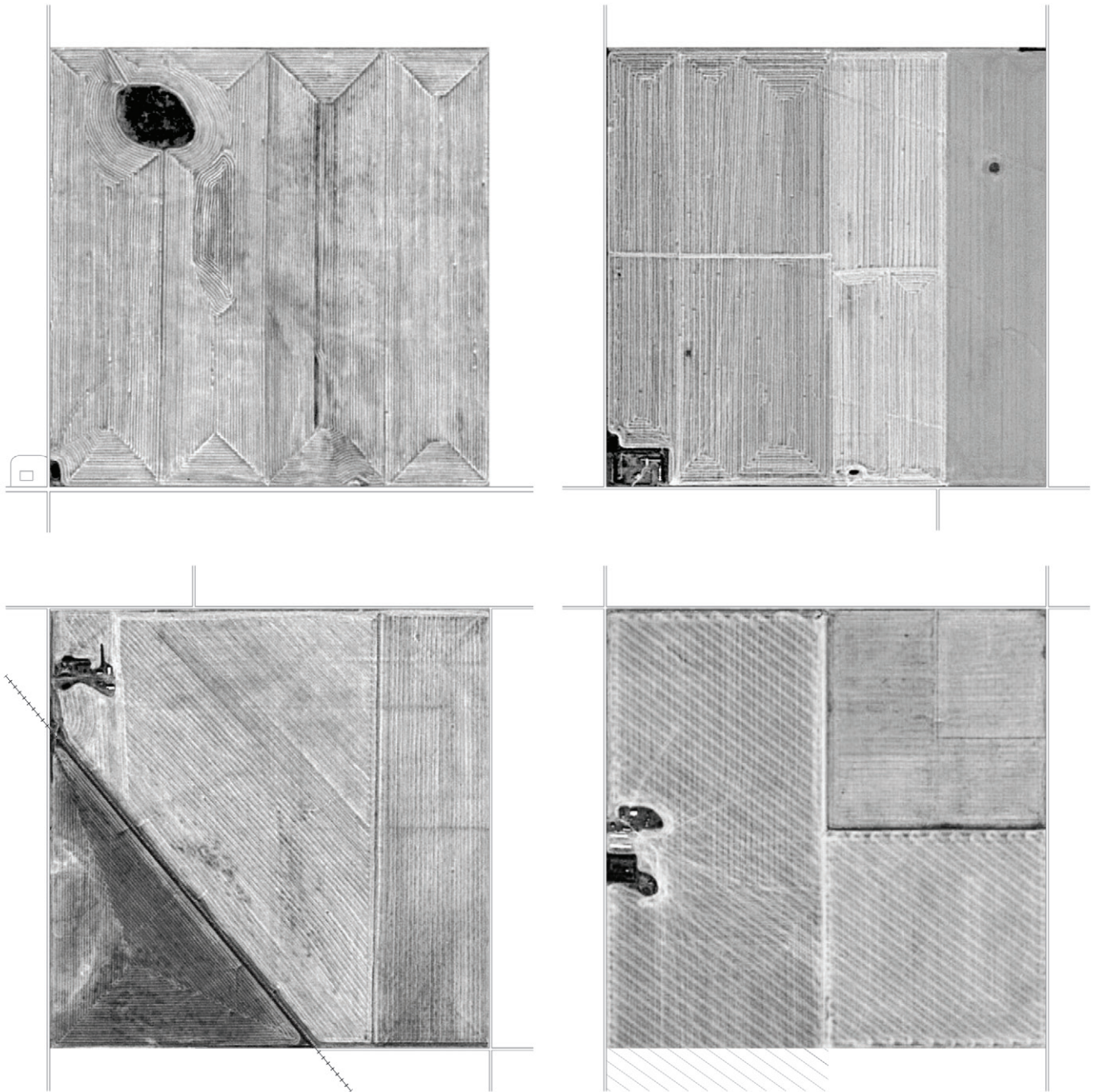
-Candace Savage, Prairie: A Natural History, 2011[40]

Palliser's Triangle can be read in a series of arcs. An island of salinity, erosion, stoniness, and adverse climate can be found at the heart of the triangle, surrounded by a fertile edge. Just as river lots align to the geometry of the river, perhaps land tenure could consider these arcs.

fig. 3.22 | Hiking in Grasslands National Park. photo by author, 2011

Wearing any such path in the earth's rind is an intimate act, an act like love, and it is denied to the dweller of cities. […] So we had an opportunity that few any longer can have: we printed an earth that seemed creation-new with the marks of our identity. And then the earth wiped them out again.

-Wallace Stegner, Wolf Willow, 1955[41]

They wanted us to feel an emotional bond with the park. Karin expressed her visitor's ideal experience, one that I knew to be possible, as an intensely personal one – an experience to take away and be drawn back to. But the park's overwhelming mantra was accessibility, as if the two goals went hand in hand. They had commenced an extensive undertaking to plan and cut a network of paths. And I couldn't help but wonder if this new accessibility might begin to untie the emotional bonds that many visitors, including myself, were already making.

LOST: There are moments in life in which we learn how to learn from the space around us. […] To change places, to come to terms with different worlds, to be forced to continuously recreate our points of reference, is regenerating at a psychic level, but today no one would recommend such an experience. In primitive cultures, on the other hand, if someone never gets lost he never grows up. And this is done in the desert, the forest, places that are a sort of machine through which to attain other states of consciousness.

-Franco La Cecla, via Francesco Careri, Walkscapes, 2002, 47.

The path, as both a record and an act, is a way of learning place, of valuing it. While the trace of a path is able to *communicate* value, the act of wearing a path tends to *infuse* value (in one's memory as much as in place). The trace, as Jonathan Raban suggests, is symbolic:

> […] each path is the line of an old friendship, a dependency, a working partnership […] a residual body of meaning of a kind that mere space cannot yield.[42]

But as Yi-Fu Tuan points out, place really can't be learned, if we experience it as a map, as a trace – if we merely follow. People learn place as a rhythm, as a "succession of movements."[43] In *The Practice of Everyday Life*, a text that values our unconscious means of navigation, Michel de Certeau goes even farther and suggests that the trace of a path actually diminishes the act of walking it:

> Itself visible, it has the effect of making invisible the operation that made it possible. […] The trace left behind is substituted

ALTERNATE ORIENTATION: Aboriginal Songlines

Australia

Imagine a country created by walking – brought into being through song. It's perceived to have started with nothing. Then every time a descendant walked it, the world was made, and remade, again.

> Thus the Aborigines are not merely attached to the earth, they are essential to its existence. Without the land they would die. But without the people, the ongoing process of creation would cease and the earth would wither.

> *-Wade Davis, The Wayfinders, 2009*

There is a past, a time of creation. But creation is ongoing. People and nature are deeply entwined through the path.

Bruce Chatwin went to Australia to write a book about the Songlines. He returned with a story – part fiction, part documentary – of ancestral melodies, modern challenges, and a radically different meaning to land:

> White men, he began, made the common mistake of assuming that because the Aboriginals were wanderers, they could have no system of land tenure. This was nonsense. Aboriginals, it was true, could not imagine territory as a block of land hemmed in by frontiers: but rather as an interlocking network of 'lines' or 'ways through.'

> *-Bruce Chatwin, The Songlines, 1986*[45]

for the practice. It exhibits the (voracious) property that the geographical system has of being able to transform action into legibility, but in doing so it causes a way of being in the world to be forgotten.[44]

The path is both a route and a method. Karin said that rattlesnakes have never bitten locals in the park. Locals know how to move in the grass – they have what Karin calls "landscape literacy." The park needs to find a balance between passing on knowledge, and enabling discovery. Perhaps if they focused their new plan on how the paths are made, even enlisting the visitor, the paths could create that balance.

Place belongs to the pathmaker.

fig. 3.23 | Aerial photo of Rouleau, Saskatchewan. George Hunter, 1954

Junctions

We tend to think of the prairie as the empty void at the center of the continent, isolated from coastal activity, from rain and flood, from foreign politics: a sort of barren refuge. But in reality, the prairie is not a *void*, but rather a dense convergence of forces coming from all directions, from all edges of the continent, as they sweep over mountains and lakes and deserts, compounding here in the plains. Neither dry enough to be a desert, nor wet enough to be a forest, the grassland is suspended somewhere between – it sustains the push and pull of four competing fronts, and the extreme fluctuations that result. In this sits the farmer, suspended between droughts and flooding, the good years and the bad.

This landscape is a junction in the truest sense.

PLACE: […] the very term place is problematic, implying a discrete entity, something you could put a fence around. And they did […] but it didn't keep in the radiation or keep out the politics. What we mean by place is a crossroads, a particular point of intersection of forces coming from many directions and distances.

- Rebecca Solnit, Storming the Gates of Paradise, 2007, 1.

Junctions define patterns. They define *place*. They make forces and geometries, otherwise invisible, apparent as they collide. While the underlying prairie has been shaped by massive fronts converging, the surveyed prairie is a much finer weave of lines: the meeting of various speeds, rhythms, agendas and values as they play out at the junction.

In his essay, *The Stranger's Path*, J.B. Jackson professes his love for a street or a passageway that exists in all cities, but is usually written off as either an insignificant tourist trap, or unwanted blight. When we visit a foreign place, we're often told by the locals that to really *see* or *experience* the city in its most authentic form, we have to venture off to remote neighborhoods and
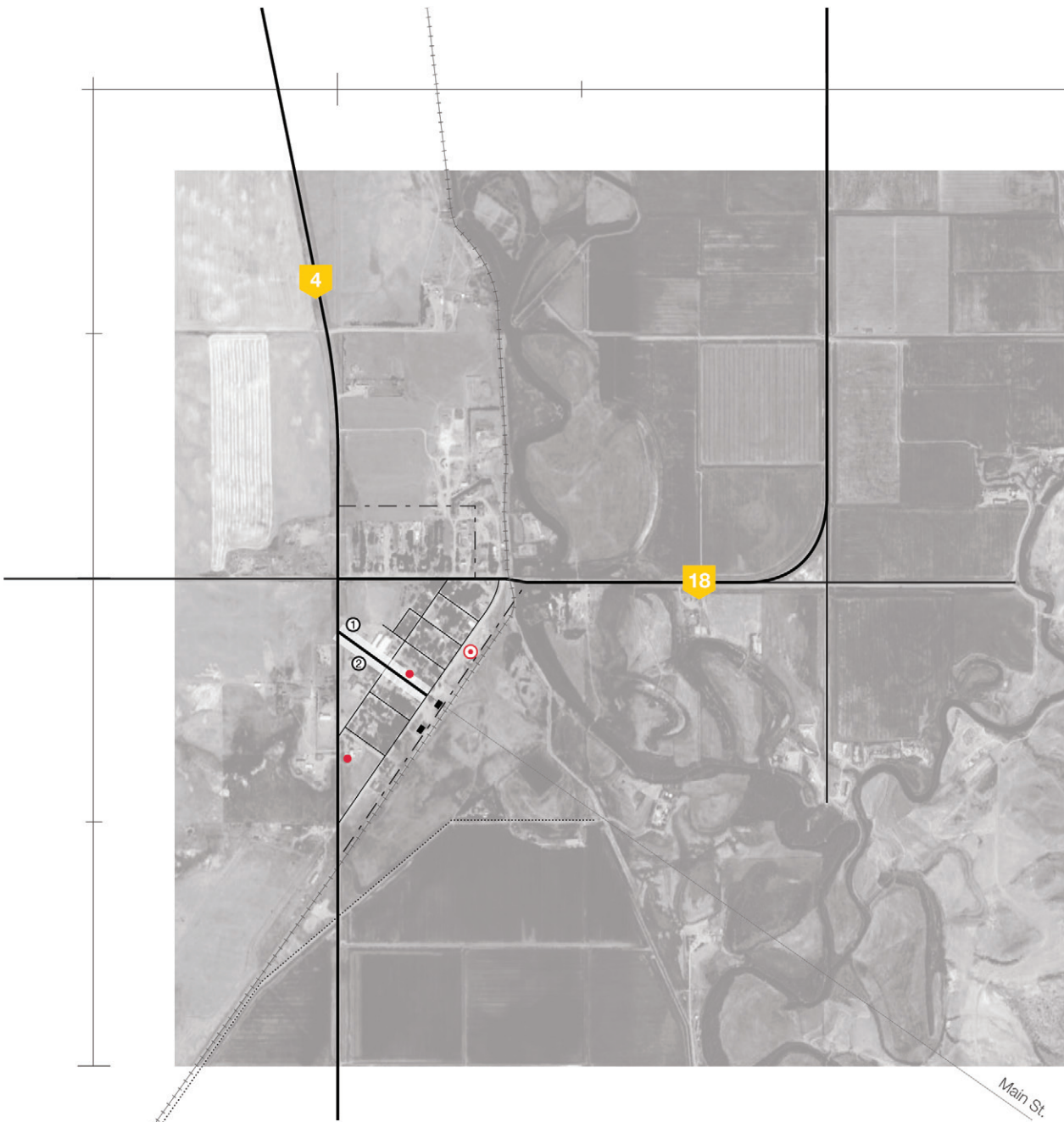
① Grasslands National Park
  Visitor Information

② Prairie Wind & Silver Sage
  Museum & Coffee Shop

● Hotels

◉ Gas Station

■ Grain Elevator

Val Marie, Saskatchewan   Population: 98   Incorporated 1926

fig. 3.24 | Junction I. drawing by author

obscure restaurants. This advice without a doubt, has offered me some of the most rewarding evenings abroad. But there is some value that's been overlooked, and perhaps because of that also suppressed, in the more accessible parts of town.

To visit the "stranger's path" is to see and experience the city in its most dynamic form – in the form of exchange, of newcomers and new ideas, of global and local patterns interpenetrating, of translating dialects and enacting roles and donning costumes. Jackson says,

> To walk up such a street into the quieter, more formal part of town, is to be part of a procession, part of a ceaseless ceremony of being initiated into the city and of rededicating the city itself.[47]

Perhaps this procession is why I so enjoyed prairie towns. We stopped for coffee at Tim Hortons on the highway. We had sandwiches and split pea soup on 2nd Ave (along the railway) in Austin. I bought groceries on Broadway in Killarney, and mailed postcards on Main Street in Carberry. When we asked the waitress in Assiniboia to recommend a descent motel, she steered us away from the neighboring establishments, and off to a Motel on 3rd Ave, far from the rail tracks and the highway. There was a notion that all the major streets, to one degree or another, were segments of the "stranger's path", whether they were the territory of one-time, or veteran passerby's. They revealed the city in its broadest extent, in its makeup of surrounding farms and truck routes. These towns, as stunted as they may have seemed in growth, were constantly shifting gradients of strangers and locals, one of which was me.

S. Railway St

Broadway St

10
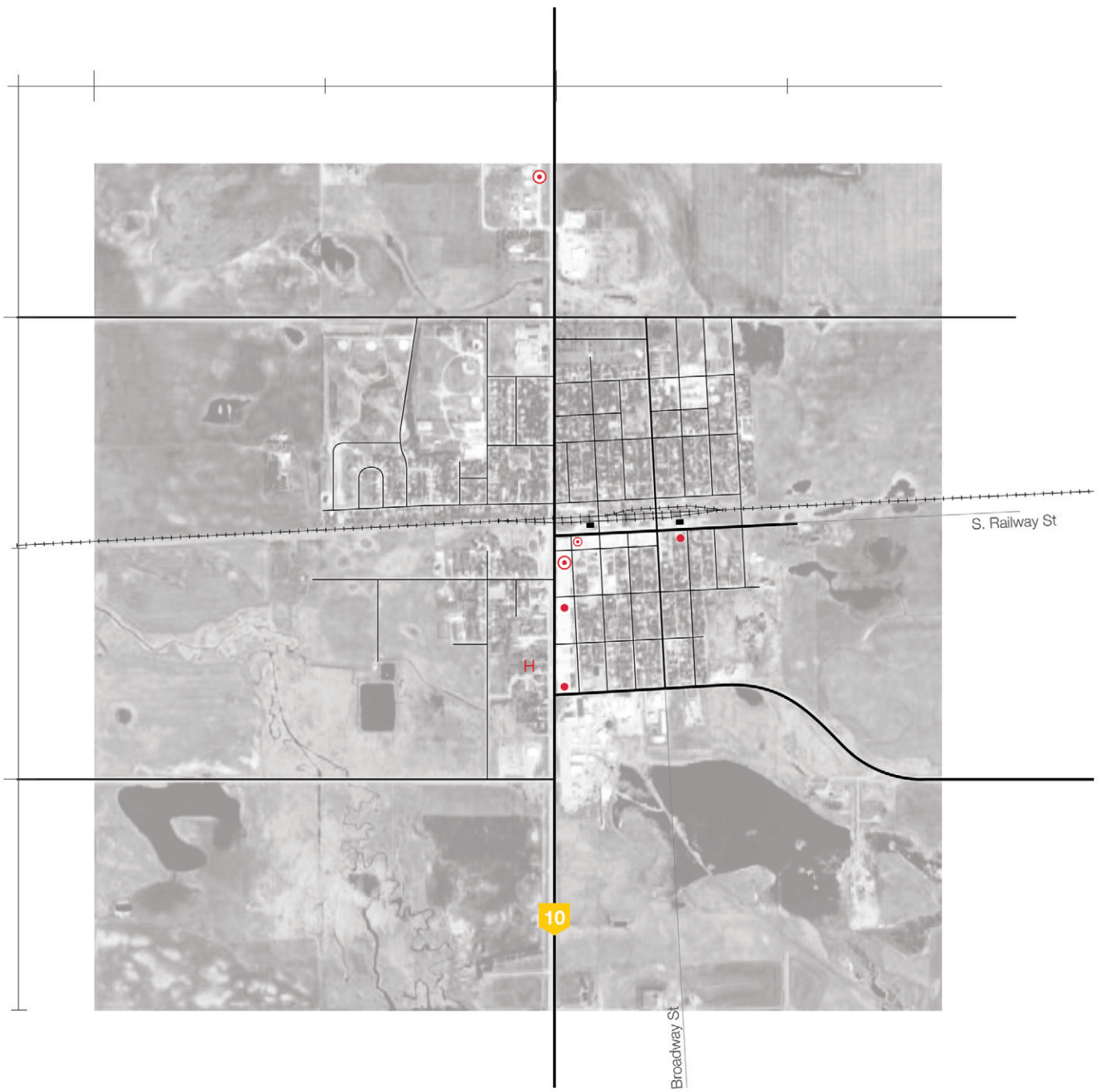
⊙ Co-op Gas Bar

● Hotels   Canadian Wilderness Inn
             Red Coat Inn
             The Home Hotel

H Boissevain Health Center

▪ Grain Elevator

Boissevain, Manitoba   Population: 1500   Incorporated 1906

fig. 3.25 | Junction II. drawing by author

37

18

H

Main St.
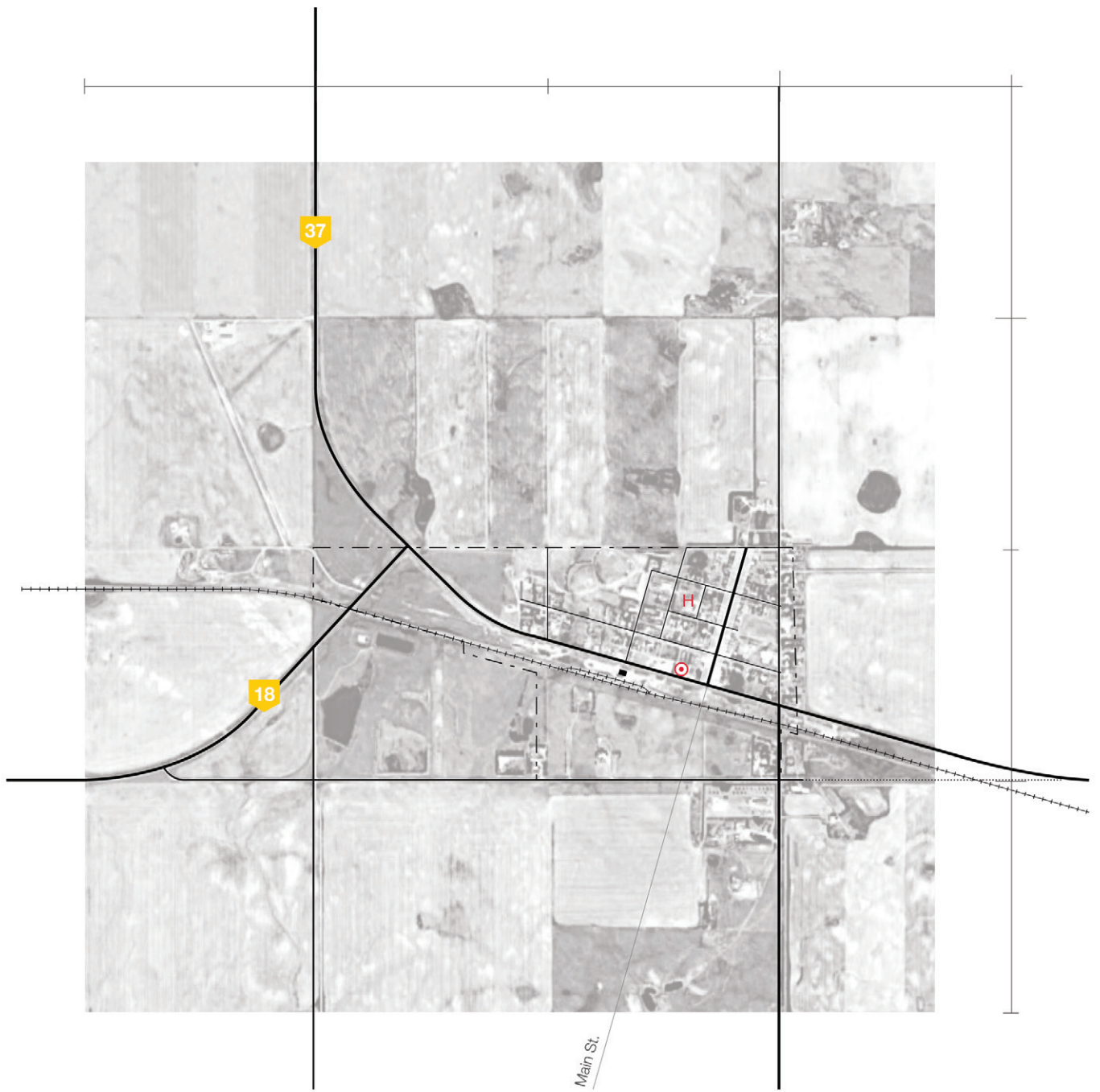
⊙   Climax Garage

H   Border Community Health Center

▪   Grain Elevator

Climax, Saskatchewan   Population: 180   Incorporated 1923

fig. 3.26 | Junction III. drawing by author

fig. 3.27 | The Maglev Effect. Bruce Mau, 2004

Closing The Gap

Lift your eye to the horizon and it devours this place. Prairie becomes mere distance between here and there, a strain on one's eyes to focus. The familiar trudges out into the distance, and the distant draws into the near. We approach that distance with apprehension, if not to bypass it, then to close it up. Fast.

When the CPR laid its first tracks westward in 1881, they were headed on a northern trajectory towards the Yellowhead Pass.[49] Their line would bypass Palliser's Triangle, and would gain land grants to some of the most fertile and valuable sections in the west. But later that year, one of the company's engineers would turn their attention south, to a pass that would lead the rail straight through the wasteland they had previously proposed to avoid. (*fig. 3.8*, 109)

Major A.B. Rogers had been ordered to find this other route. And the company had several reasons for looking south: the ease of construction in a flat territory, and a shorter more direct route;[50] but perhaps it was the realization that the gap was political. It would be closed. It would be filled. The question was when, and by whom.

The *gap* has been both an obstacle and a preoccupation that haunts the Canadian psyche. Margaret Atwood alludes to our unwavering faith in the distance; a desperation to reach it that

A PRAIRIE FARMSTEAD.
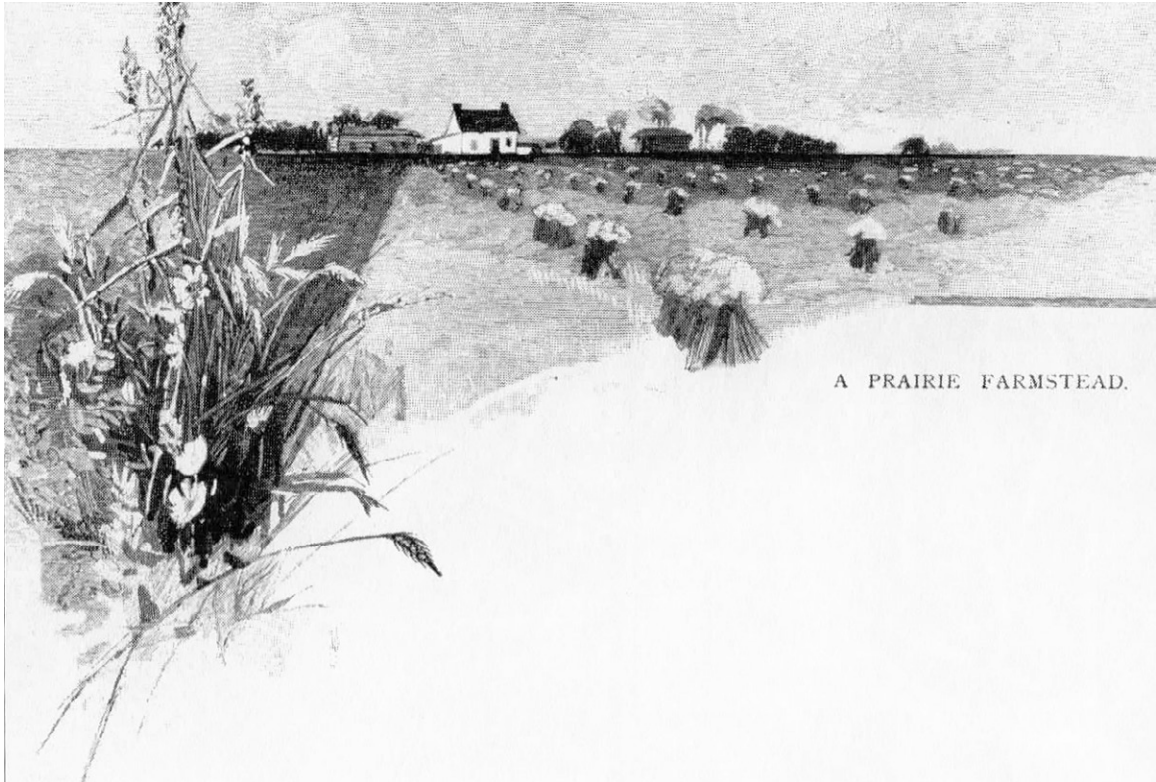
fig. 3.28 | A Prairie Farmstead. Picturesque Canada, 1882

runs so deep, we are blinded from the foreground. She says that in Canadian literature, immigrants bring with them a deep but divided faith in the *nature* of their time: a longing for the sublime natures of Edmund Burke, and for a more motherly Wordsworthian nature (that seems to fail) near at hand:

> Nature the sublime can be approached but never reached, and Nature the Divine Mother hardly functions at all; like God she may be believed in but not experienced directly, and she's not much help with the vegetable garden.[51]

Nature in the distance of this expansive country was beautiful. It held promise. But here in the foreground, in the bug infested fields and the blowing dust, nature was hostile and came up short. This foreground, the gap between the viewer and their dreams, had to be closed. In a landscape so clearly bound by its horizon, where the foreground is both overlooked and overwhelming, the promise lay in the distance. And that's how they would sell it.

In 1882 the Dominion published 'Picturesque Canada', a travel book that collected the various regions of the Country for consumption. The Prairie was illustrated in a way that would become its signature – foreshortened, its horizon high and inhabited, and its foreground cut out (except for a lone swathe of grass to envelop the viewer).

Jonathan Raban describes a similar technique used by a young photographer in Montana around the turn of the century. Evelyn Cameron used her Graflex to not only *learn* the space, but to *manipulate* it.[52] By playing with the horizon, the foreground, and the space between, she could make the landscape strange or familiar, large or small. She could capture the scale and solitude of a place she knew to be hopelessly bare. Then by lowering her tripod until the subject stood heroically over a close horizon, she could sell the next image to the Milwaukee Railroad, who would sell it to the next hopeful client, empowering them to go west.
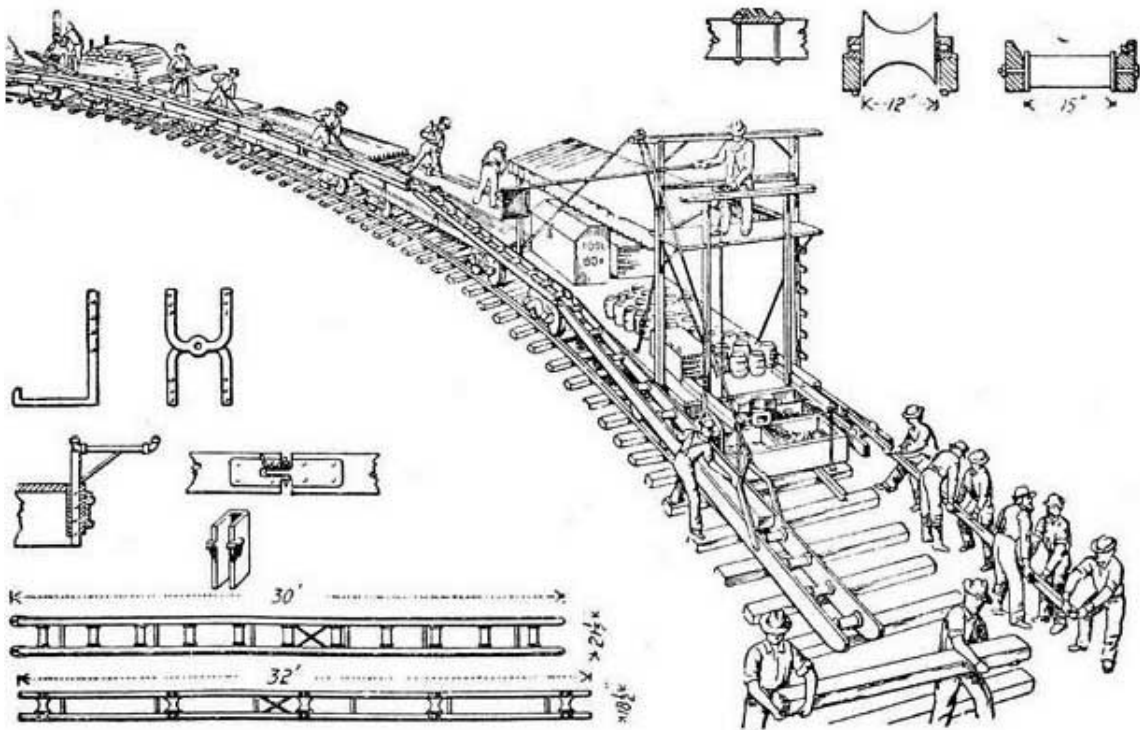
fig. 3.29 | Holman Track Laying Machine.

But the gap was real, and the railway would have to stitch it tight. In Canada, the CPR was dealing with a yawning gap that stretched from the Rocky Mountains to Europe, where its potential inhabitants were still waiting. South of the border, the railway was merely catching up to a wave of settlers already closing in. In order to close the gap in Canada, they would have to open it first.[53] Theirs was a matter of speed – so they turned their attention to that southern pass.

It's strange that a place defined by motion could be so upset by it. But both the ceasing of motion (through property), and the speeding of it (through rail lines and truck routes), has stalled the prairie's rhythms all together. Environmental journalist and grasslands expert, Richard Manning, writes of the evolution of western ranching that,

> […] the industrialization of the motion was the beginning of its undoing. The motion was not contained within the community […] It was international and began responding directly to international markets. It stepped across the limits imposed by place.[54]

Closing the gap was never a struggle between motion and stillness, but rather between *types* of motion – between a rhythmic "ebb and flow," and a hard-cut linear progress. The prairie was, after all, a geological basin and a nomadic triangle between the sheltered rockies, the eastern forests, and the southern plains; its motion was akin to that of water sloshing in a tub. But now, Manning reflects,

> The general ebb and flow, the motion that had been the rule, became channeled into the roads [and railroads] that drained the power from the place.[55]

Such channels gained momentum in a marriage of materials – of wood and steel.

ALTERNATE ORIENTATION: Listening to Silence
Grasslands National Park, Saskatchewan

In 2009, Grasslands National Park was designated Canada's largest
Dark-Sky Preserve, tangible proof of its wealth of emptiness. Then in
2012, perhaps looking for further evidence, the park called in another
specialist to carry out a pilot sound survey. Gordon Hempton is a
sound artist and acoustic ecologist who has been travelling the globe
in search of silence. When he finds it, he records it. For Hempton,
silence is a sound in itself – a chorus of sounds. Generally, he says,
we think of listening as an act of filtering. But in the case of silence,
listening becomes an act of layering up – of taking it all in and
hearing the relationships woven between the sounds:

> "Listening is not so much about sound as it is about space and
> place."[58]

In his home state of Washington, Hempton has set out to preserve
just one-square-inch of silence, measuring and perceiving sound
in spatial terms. It's as this 3-dimensional substance that Hempton
believes one-square-inch of silence can have as much effect on its
surroundings as a passing aircraft.

The sound survey of Grasslands National Park revealed an
overwhelming 22 dBA, softer than a whisper heard five meters away.
But what is really remarkable, having heard it, is just how loud and
layered that silence sounds.

Eastern manufacturers cut fence posts and rail ties in mass. They bundled and shipped them west where builders drove them into the earth, or laid them in a bed of gravel. Iron fence wire and steel rails followed, to be stretched across and tied in place – wood to anchor, metal to traverse. In two years, the CPR finished the railroad from Winnipeg to Calgary, 1350km long. The connections they left in their wake had the power to close and distort the gap. The prairie became narrow from east to west, and fat from north to south (see *fig. 3.9*, 111). The line had opened the territory, but it had cut through at such a speed so as to pass right over it, hardly touching it, barely seeing it. Today the lines move even faster. Highways stretch and coil this landscape until it fits in the frame of a window: a glimpse, at high speed. It isn't difficult. With the horizon so far off it seems you're hardly moving. But in a day, maybe two, the prairie is behind you.

We long for the horizon. It offers a threshold to something more, something else. But in describing the blue light that gets lost on the horizon, Solnit prescribes a shift in perspective. She asks if you can *own* that longing, not as a problem to be solved, but an emotion to be embraced, "…if you can look across the distance without wanting to close it up."[56] What we long for is neither here nor there, but in the distance itself.

Yi-Fu Tuan might suggest that we close our eyes all together, that seeing *creates* distance.[57] If we bring something close enough to taste, to touch, or to smell, we can know it in another way. This is a landscape still strewn with gaps – with space to hear grasshoppers, and see stars, and smell wolf willow. There is space here for the senses – space to be inhabited in all its dimensions.

fig. 3.30 | Gordon Hempton Recording Silence at Grasslands National Park. Photo by Nayan Sthankiya, 2012.

CLEARINGS

Clearing is always an act before it's a condition. We've been drawn to the illusion of a pre-existing space, without any awareness of a pre-existing *place*. So quiet is this history of turbulence and violence, masked by a calm and steadfast plain. Worn and scraped by oceans and glaciers, and hooves and plows, each wave makes way for new inhabitants – an ever-present frontier for all who are drawn to bare soil and open space.

INDIAN TREATIES
1850 - 1912

Scale 100 miles to one inch

Note I.
The boundaries of the south-eastern
portion of the tract surrendered under the
Robinson-Huron Treaty are undetermined

Nº 1
Nº 2
Nº 4
Nº 5
Nº 6
Nº 7
Nº 8
Nº 10

Adhesions to Treaty Nº
1908, 1909 and 1910

Adhesion to Treaty Nº 6
1889

ALBERTA
SASKATCHEWAN
MANITOBA
NORTH DAKOTA

GREAT SLAVE LAKE

160

the direction of James White, F.R.G.S.

fig. 4.1 | Indian Treaties 1850 - 1912. James White, 1913

Canada's First Nations ceded land to the Dominion over eleven successive treaties. Those who signed gave up their right of movement in exchange for a fragment to inhabit. The treaties commenced in southern Manitoba, clearing the tall grasslands that were prime for settlement, then continuing west and north.

MAP
ILLUSTRATING
THE EXTERMINATION OF
THE AMERICAN BISON
PREPARED BY
W. T. HORNADAY.

EXPLANATION.

—— Boundary of the area once inhabited by the American Bison.
      (Mainly after J. A. Allen.)
----- Approximate boundary between the area of desultory extirpation
      and that of systematic destruction for robes and hides.
      Area of gradual extermination by desultory methods
  A B Area of wholesale slaughter by systematic methods
—— Range of two great herds in 1870
—— Range of the herds in 1880.
—— Range of the scattered survivors of the southern herd in 1875, after
      the great slaughter of 1870-1875.
••••• Range of the northern herd in 1884, after the great slaughter
      of 1880-1883.
Dates in red figures represent the year of the Bison's extermination in the
      localities over which the figures are placed.
Figures in green represent the locality and number of wild Bison
      in existence January 1st 1889.

162

fig. 4.2 | Map Illustrating The Extermination of the American Bison.
W.T. Hornaday, 1889

EXPLANATION.

Boundary of the area once inhabited by the American Bison
(Mainly after J. A. Allen.)

Approximate boundary between the area of desultory extirpation
and that of systematic destruction for robes and hides

A Area of gradual extermination by desultory methods
B Area of wholesale slaughter by systematic methods

Range of two great herds in 1870
Range of the herds in 1880.
Range of the scattered survivors of the southern herd in 1875, after
the great slaughter of 1870-1873
Range of the northern herd in 1884, after the great slaughter
of 1880 - 1883.

Dates in red figures represent the year of the Bison's extermination in the
localities over which the figures are placed.
Figures in green represent the locality and number of wild Bison
in existence January 1st 1889.

PRECAMBRIAN STRUCTURE
Generalized structure contours for the top of the
Precambrian basement
Contour interval = 100 metres

Legend:
- Control well
- Fault zone/ Shear zone (defined, inferred)
- SRIS — Steen River Impact Structure
- LSMS — Lake St. Martin Structure
- Monadnock

scale 1:5 000 000

0 100 200 300 kilometres
0 100 200 miles

Map labels:

YUKON

NORTHWEST TERRITORIES

Great Slave Lake

McDonald Fault

Great Slave Lake Shear Zone

Tathlina Fault Zone

Hay River Fault Zone

SRIS

Fort Nelson

Lake Athabasca

Black Bay Fault

Allan Fault Zone

Snowbird Tectonic Zone

Athabasca Polymetamorphic Terrain

Virgin River Shear Zone

Needle Falls Shear Zone

SASKATCHEWAN

Canadian Shield

MANITOBA

Trans-Hudson Orogen

Tabbernor Fault

Churchill - Superior Boundary Zone

Phanerozoic cover

Saskatoon

Phanerozoic cover - edge

ALBERTA

BRITISH COLUMBIA

Columbia R.

Fraser R.

Vancouver

Edmonton

North Saskatchewan

Calgary

Saskatchewan

Regina

Superior

Lake Winnipeg

LSMS

Winnipeg

1st Meridian

Cross section G – G':

G

(A–A')

SASKATCHEWAN | MANITOBA

G'

Assiniboine River Valley

Manitoba Escarpment

Prime Meridian

Lake Winnipeg

Canadian Shield

Lake Manitoba

Well labels:
6-3-1-19W2, 16-36-1-18W2, 3-20-2-16W2, 9-34-2-15W2, 6-26-3-12W2, 15-24-5-12W2, 3-19-6-10W2, 3-27-8-8W2, 4-18-9-6W2, 13-14-10-5W2, 2-23-11-4W2, 15-28-12-2W2, 6-19-13-32W1, 16-4-14-31W1, 2-14-16-28W1, 1-27-17-26W1, 5-19-19-23W1, 6-33-23-16W1, 8-30-29-8W1

2nd Meridian

Stratigraphic units:
Ravenscrag, Eastend, Viking, Sundance & Lr. Gravelbourg, Kibbey, Charles, Midale, Ratcliffe, Mannville, Mission Canyon, Souris Valley - Bakken, Watrous - Poplar, Three Forks, Elk Point, L. Prairie Evap., Winnipeg, Deadwood, Montana & "Upper Colorado", "Lower Colorado", Base Second White Specks, Duperow, Souris River, Dawson Bay, First Red Bed, Interlake, Red River, L. Stonewall & Stony Mtn, Birdbear Saskatchewan, Manitoba, Winnipegosis, Ashern

kilometres
0   100   200
miles
0   50   100

metres
1000, 500, Sea level, -500, -1000, -1500, -2000, -2500, -3000
500, Sea level

Geological Time Chart

Sequences	Systems	
Tejas	Quaternary	2
	Tertiary and	65*
Zuni	uppermost Cretaceous	
	Cretaceous	146
Absaroka	Jurassic	208
	Triassic	245
	Permian	290
	Pennsylvanian	330
Kaskaskia	Mississippian	363
	Devonian	409
Tippecanoe	Silurian	439
	Ordovician	488
Sauk	Cambrian	510, 540
	Precambrian	600

* Isotopic age, using linear scale
in millions of years

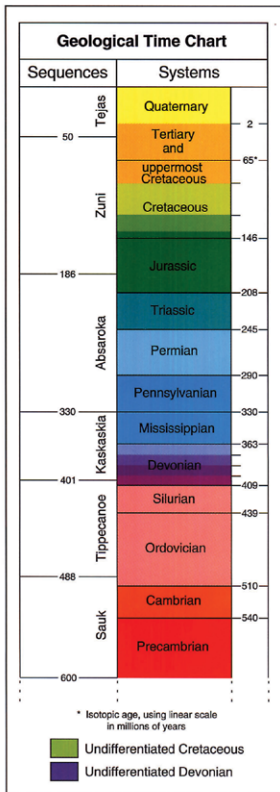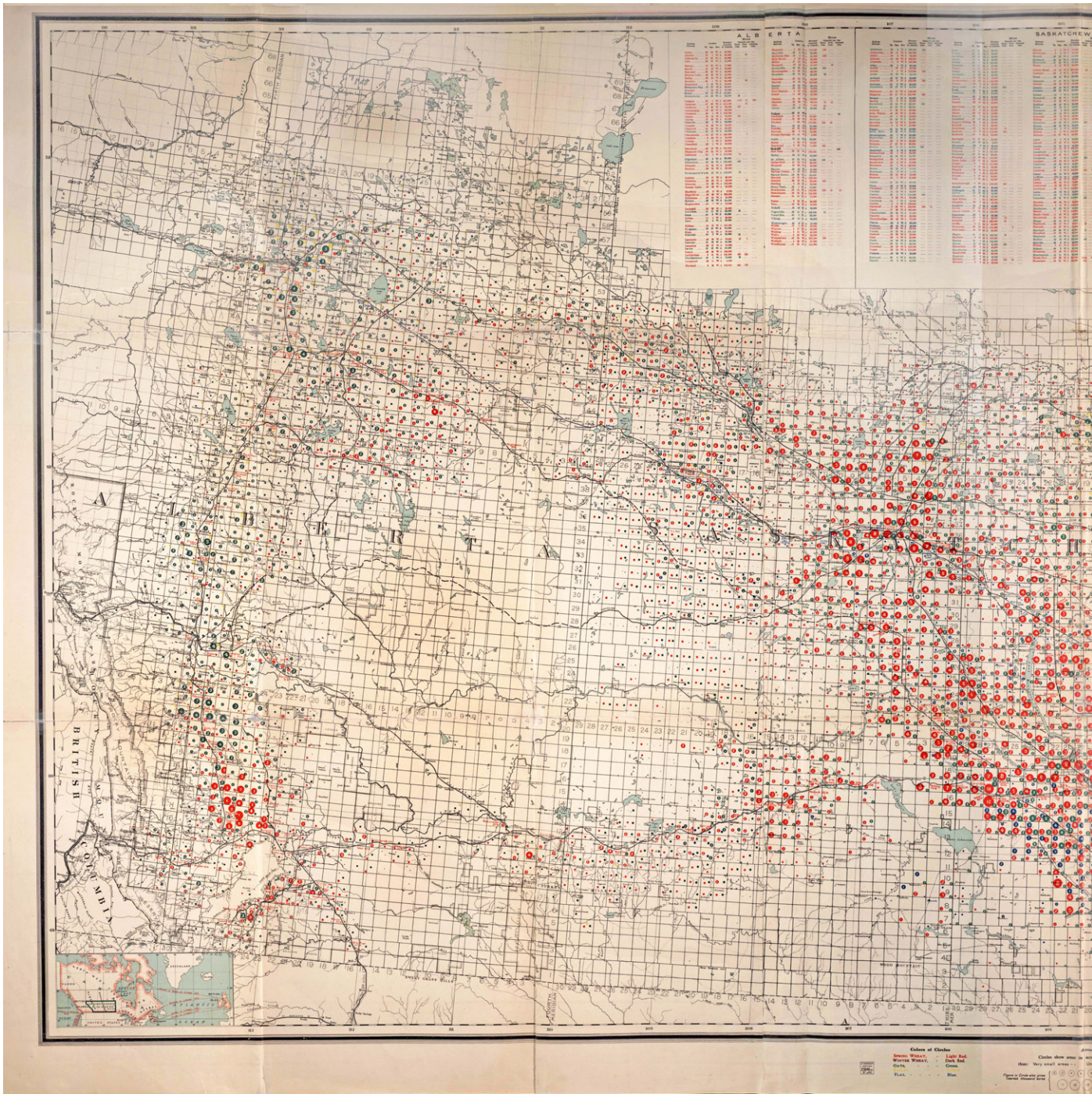Undifferentiated Cretaceous
Undifferentiated Devonian

fig. 4.3 | Precambrian Basement Structure of the Western Canada Sedimentary Basin. Alberta Geological Survey, 1994

fig. 4.4 | Geological Section Across the Western Canada Sedimentary Basin. Alberta Geological Survey, 1994

The *Western Canada Sedimentary Basin* is a wedge of sedimentary deposits above a Precambrian crystalline basement.[1] The rock and rich mineral deposits are left from the repetitive filling and clearing out of ancient oceans, later covered in glacial till. The level prairie is made of geological strata that reach depths up to 5,500 metres at the Rocky Mountain edge, and narrow to a mere sliver at Lake Winnipeg.
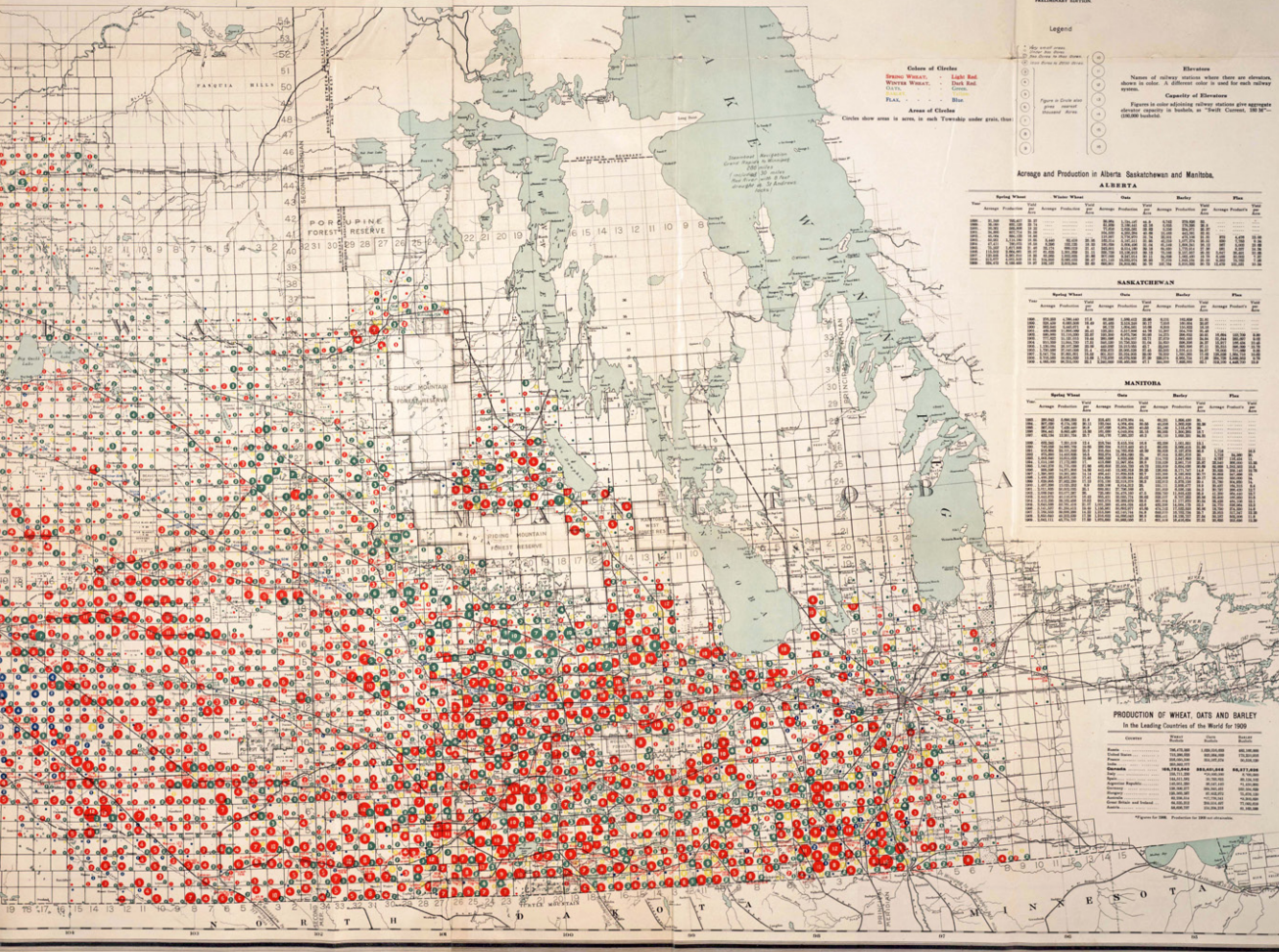
Department of the Interior
Canada

HONOURABLE FRANK OLIVER, MINISTER
W. W. CORY, DEPUTY MINISTER

CEREAL MAP

OF

MANITOBA, SASKATCHEWAN

AND

ALBERTA

SHOWING ACREAGE UNDER CROP IN EACH TOWNSHIP
In Wheat, Oats, Barley and Flax.

1909.

Scale, 1:792,000 or 12½ Miles to 1 Inch

Prepared in the Railway Lands Branch
From information supplied by Provincial Governments.

PRELIMINARY EDITION.

Legend

Acreage and Production in Alberta, Saskatchewan and Manitoba.

ALBERTA

SASKATCHEWAN

MANITOBA

PRODUCTION OF WHEAT, OATS AND BARLEY
In the Leading Countries of the World for 1909

(prev. page)

fig. 4.5 | Cereal Map of Manitoba, Saskatchewan, and Alberta Showing Acreage Under Crop in Each Township. Dept. of the Interior, 1909

fig. 4.6 | Cereal Map of Manitoba, Saskatchewan, and Alberta Showing Acreage Under Crop in Each Township (Detail)
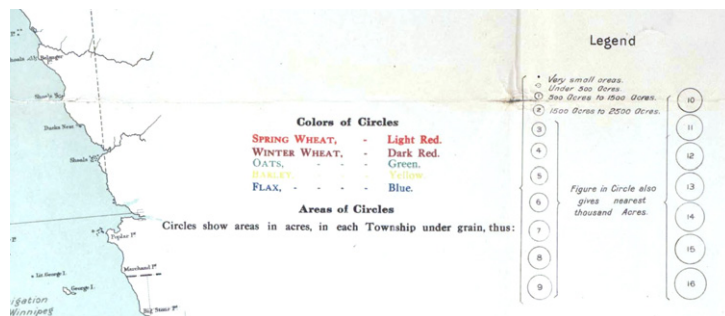
fig. 4.7 | Harvesting, 20 cent Stamp, Canadian Bank Note
Company Ltd, January 1929

fig. 4.8 | Combined Reaper and Thresher, Canadian Prairies, 20 cent
Stamp, Canadian Bank Note Company Ltd, September 1946

Two stamps represent two visions of the harvest and the prairie. In 1929, the
rail and forest and mountains surround the clearing; opportunities lie beyond
the clearing – they frame and define the clearing. They embed it with growth
and change. In 1946, the clearing extends as far as the eye can see. A solitary
farmer harvests an extensive piece of land. The clearing is constant – nothing
is changing – everything remains, as it should be.

fig. 4.9 | Cypress Hills and the prairie beyond. photo by author, 2011

Plane Sailing

[…] between what is above (mountains, highlands, celestial beings) and what is below (in grottoes or caves) lie the surfaces of the sea and of the earth's flatlands, which thus constitute planes (or plains) that serve both to separate and unite the heights and the depths.

-Henri Lefebvre, The Production of Space, 1974[2]

The prairie tilts ever so slightly from west to east. It happened when the Rockies rose and cut off what had been the west coast from the ocean that regularly filled it. The tilt is imperceptible – except in the spring, when sandbags line the roads in Manitoba, and the fields wear the evidence of the glacial Lake Agassiz. Every spring, the prairie in this lowland is exposed with all its temperament – unsteady and unpredictable – yet predictable enough to fill the bags and have them waiting, every single spring.

I first encountered the term, "plain sailing" in Jonathan Raban's book, *Bad Land: An American Romance*. The chapter that follows recounts an illusion of smooth seas ahead: of rain following the plow, excessive crop yields, fertile soils, and the growth of communities. A clever pun in this context, "plain sailing" is also a broadly-used sentiment that assumes whatever lies ahead is no more turbulent than what has already passed.

The term originates as a method of navigation. *Plane Sailing*, as opposed to "plain sailing", imagines the ocean as a flat surface, almost as if it were frozen – without currents or tides. Skidding across the surface of a frozen sea, a ship moves with reference to latitude, and finds its location by triangulating on the plane. Even under heavy cloud cover, when stars are out of sight, the assumptions that can level an ocean can locate a ship with the upmost of ease.

It all falls apart of course, when you realize the surface

of the ocean is always changing, and the surface of the prairie is nothing more than the temporary median of earth and sky, always evolving with the relationship between. To navigate by "plane sailing", or by "plain sailing", is to assume not only flatness, but steadiness as well. It's only appropriate that Raban follows the chapter "Plain Sailing" with one titled, "Heavy Weather," then "Clinging to the Wreckage."

Stewart Brand, the founder of *Whole Earth Catalogue*, once had a conversation with Buckminster Fuller about the first photograph (which hadn't yet been taken) of the Earth as a whole – as an island in a sea of blackness:

> Islands know about limitations. Bucky led me to this notion. He said people still think the earth is flat because they act as if its resources are infinite. But that photograph [would show] otherwise.[3]

There is a connection between flat space and infinite space, or infinite time, or material. Upset the plane – break down infinity. Along the TransCanada, the prairie seems flat as a board; but turn on to a Range Road and take the jog at the next correction line, and you feel the plain begin to curve. You can plow up soil as if it runs indefinitely; but plow a hill and watch the soil erode, and the rock below quickly becomes apparent. The prairie is neither infinite nor flat. It has merely been reduced to flatness, both perceptually by the grid, and physically with plows.

Henri Lefebvre describes how occupants, who've been reduced to singular roles, have reduced space to a singular dimension:

> The person who sees and knows only how to see, the person who draws and knows only how to put marks on a sheet of paper, the person who drives around and knows only how to drive a car – all contribute in their way to the mutilation of a space which is everywhere sliced up.[4]

These occupants read space through a single lens, and use it in a singular, exhaustive way. They implant what they perceive as a mono-topography with a monoculture that won't accept irregularities. Soon, "*volume* leaves the field to *surface*,"[5] and surface becomes indistinguishable from space.

We forget that planes are mere illusions. Lines have a thickness. Surfaces have depth. If the settlers had perceived (and they did over time) that the prairie's surface was a *threshold*, a malleable datum against which change is measured and made concrete, they might have realized it was also temporary. It was the hard-packed residue of weather and oceans and glaciers, all matted together by roots. They might have realized that this surface to which their "land" rights really only entitled them, was sacrificial:

> Percy saw that the whole civilization of his childhood had been erected, perilously, on a finger-thick crust of decomposed vegetable matter and dead beetles. From the moment that the first plow blade bit into the crust, the homesteaders began unwittingly to destroy the foundations of their new life [...].[6]

Grasslands are soil builders.[7] Without their deep roots, the soil returns to dust and blows away. Their surface has always been sacrificial – cut, grazed, and trampled. But the layers just below are integral. Rich soil and a tangle of roots conspire to *make* grasslands.

Agriculture has always been ignorant to this fact. It starts with a plow. It rips through roots and turns them over to parch in the sun. Our blindness to the depth of the surface, and to all the imperceptible dimensions of this place, has lead to the erosion of tonnes of prairie soil and years of sustenance. But it could also be argued that in some cases, blindness has lead to preservation. Since we've begun to understand the link between

ALTERNATE ORIENTATION: Cypress Hills Vinyard & Winery
Maple Creek, Saskatchewan

The Bohnets had been ranching in the Cypress Hills for generations. But in 2003, when an outbreak of mad cow ravaged the industry, many ranchers were looking for a way out.[11] These hills had seen little precedent other than ranching, but the Bohnets couldn't bear to leave. In a whim of inspiration or desperation (sometimes the same thing), they turned a patch of grape vines, a mere hobby growing behind the bunkhouse, into a vineyard – the first and only vineyard and winery in the Canadian prairie today.

Now, grapes and saskatoon berries grow on these slopes that have conspired against all other use. And you can sit in this strange oasis, and sip wine as you watch cattle graze the ridge beyond.

prairie soil and grass, we've been developing new tactics for farming that refer to this symbiotic relationship. No-till farming and contour plowing are both built on an awareness of the depth and fragility of soil. And while there are numerous benefits to these methods, they've also expanded agriculture into previously unplowable terrain.[8] The slopes of hills and valleys, that have always offered refuge for grassland species, are shrinking.

These islands of retreat have been around since long before humans encountered the prairie. Paleoecologists call them *refugia*, "places of retreat from ice and drought."[9] They've offered a higher ground, where hilltops wick moisture from clouds, or have hovered above sheets of ice, islands in a sea of turbulence and change. They've offered refuge from the "pistol-shot cracks of roots breaking,"[10] as plows turned the flat land below. Today these islands are protected by Provincial and National Park status, perhaps because of their beauty, but more likely because their topography resists the plow. The land falls instead into the hungry hands of conservationists starved for intact ecologies.

We drove through the prairie and camped in these hills – we travelled through time. By day, we saw the landscape carved and reshaped by years of clearing (human and otherwise). But by night, we climbed up untouched plateaus and pitched our tent on pre-glacial ground. Places like the Cypress Hills are anachronisms. They're departures not only in topography, but also in land use and in scales of time. Our road trip had a pulse, rhythmical shifting between past and present. And with the knowledge that they bleed at their edges, I wondered where the future lies.

fig. 4.10 | Cypress Hills Vinyard.
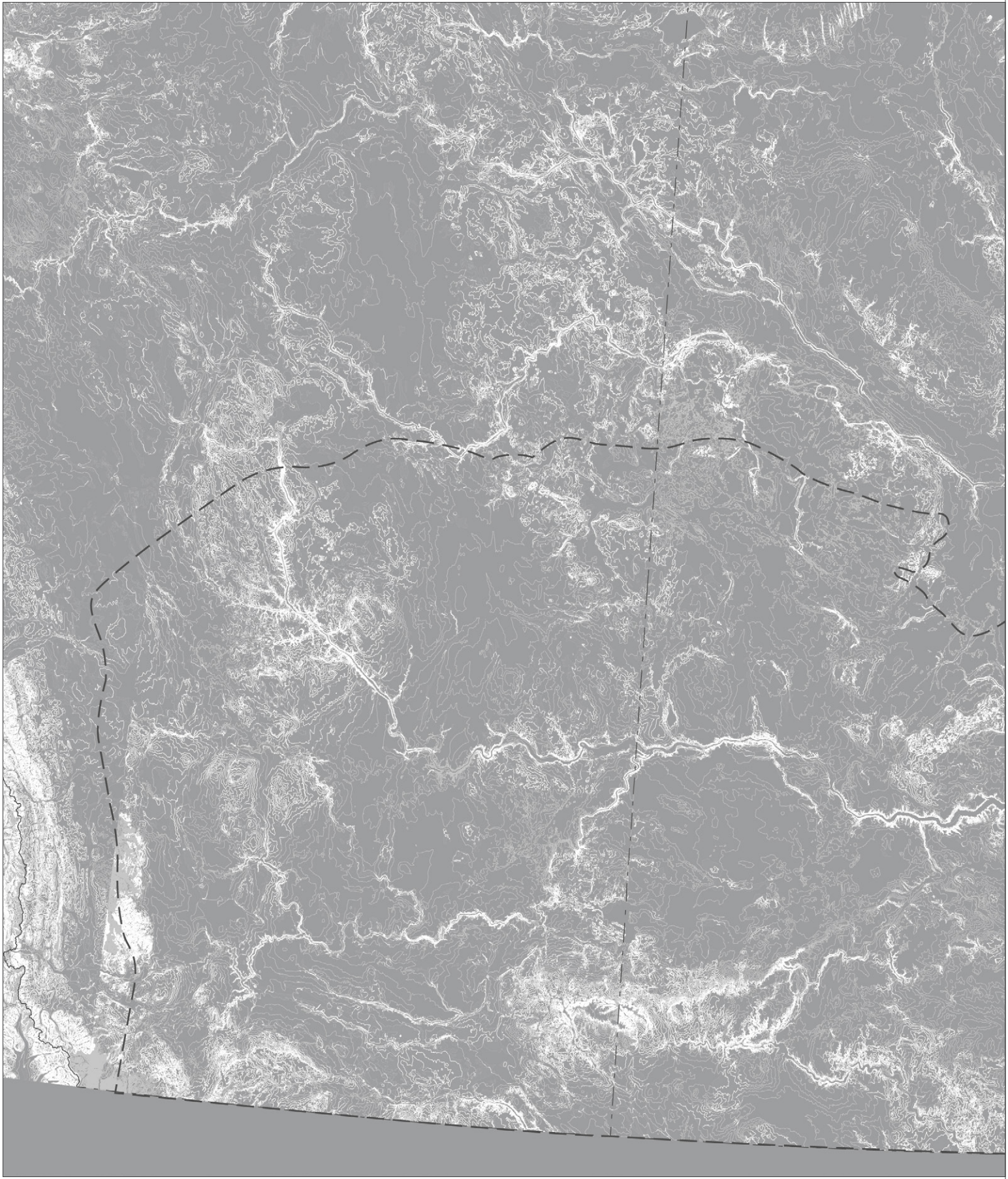
fig. 4.11 | Islands: Unplowable Topography.

Map by author.
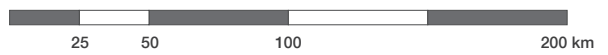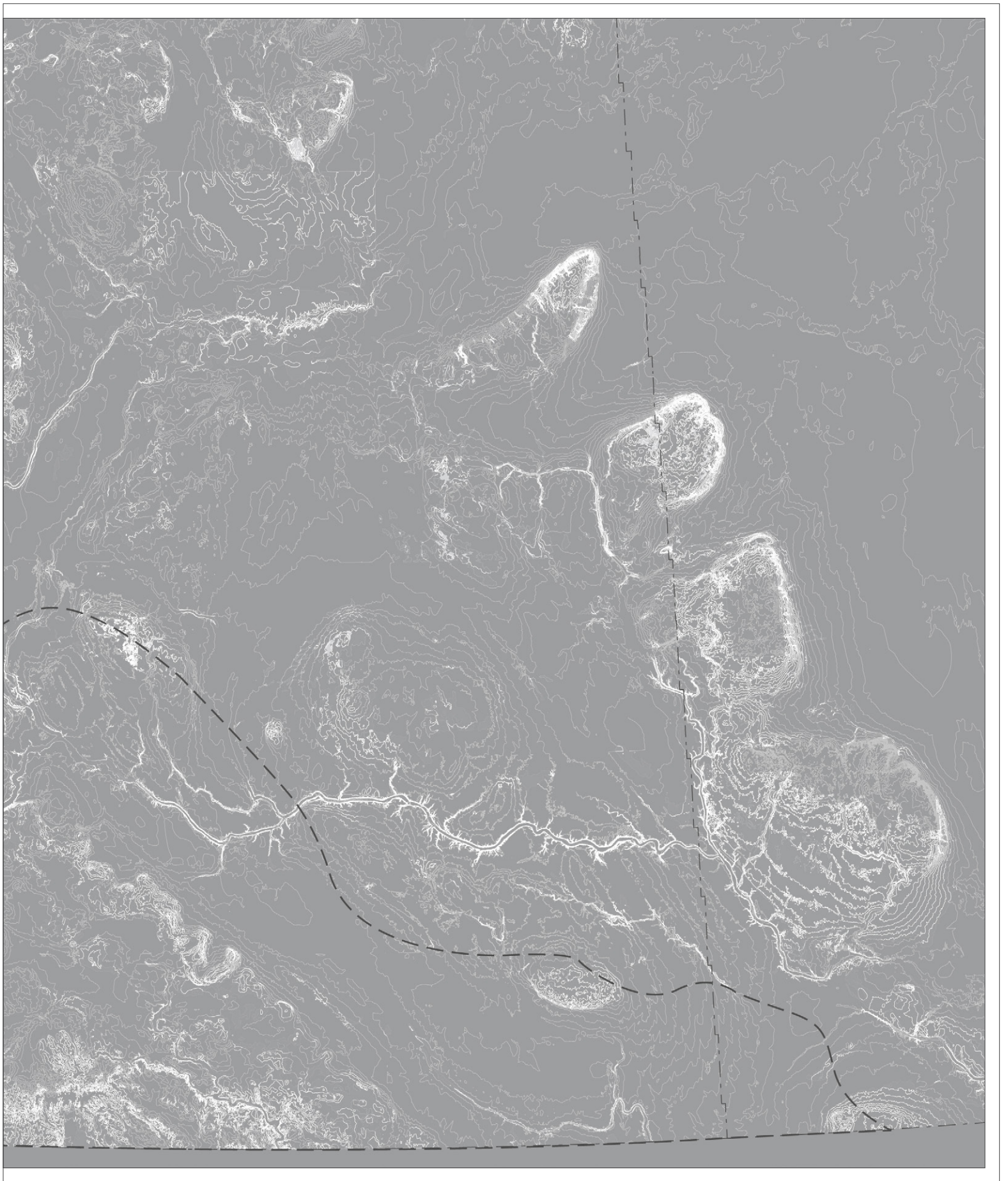
Prairie agriculture doesn't allow for slopes. These are soils only grasslands can navigate – held down by their deep roots. Unplowable slopes can be found throughout the prairie, as small as a coulee, or as large as an escarpment.

CLEARINGS

fig. 4.12 | Loading Bison Bones. Moosejaw, Saskatchewan, 1910

Clearings and Containers

Yes, he said, the favored moist forest habitat was becoming restricted during the altithermal, and more animals crowded into what was left. Just as this was happening though, some wild-eyed newcomers popped out of a hole in the glacier. The second-wave migrants descended on the partly-glaciated midcontinent like Hells Angels on a church picnic: fast, destructive, and unexpected.

-Don Gayton, The Wheatgrass Mechanism, 1990[12]

The story always opens with a clearing – with emptiness as far as the eye can see. But if you look close enough, or far enough, you'll see it hasn't always been so empty, and that it won't always be. The story opened with extinction.

While the first wave of migrants to cross the Bering Land Bridge didn't stop until they reached South America, the second wave emerged on to the Great Plains hungry and resourceful, with an impressive hunting "vitae."[13] This is Paul Martin's theory, an archeologist from the University of Arizona, as quoted in Don Gayton's *The Wheatgrass Mechanism*. He suggests that the near overnight extinction of all the Pleistocene megafauna, the mammoths and mastodons and saber-tooth tigers, was not due to climate change, but rather to a merciless killing spree. Climate change had indeed herded the animals into the remaining clearing; but it was humans that took them out. The same story repeats itself some 12,000 years later. The flat and empty *nature* of this landscape has long been man-made.

The Dominion of Canada purchased Rupert's Land from the Hudson's Bay Company in 1869, and began clearing it of its inhabitants, sustenance, and history – making it appear *vacant* as if it had been all along. People had occupied this land for thousands of years, and for two hundred years, the HBC had occupied it with trade, "not by covering areas but by connecting

points."[14] In his account of barbed wire and how space entered history, Stanford Professor, Reviel Netz differentiates between *trader's colonialism,* which Rupert's Land had been under, and *investor's colonialism*, which it would be usurped by. "Trader's colonialism" finds value in *distance*, in moving commodities across it; "investor's colonialism" places value in *area*. Suddenly the region needed borders, controls, and clearings.

The US had a native policy that ignorantly "granted" First Nations land; Canadian policy admittedly took it; it claimed and cleared out patches of territory, promising the outcasts a reserve when they required it. While the US forced civilization by herding its nomads, Canada saw civilization as an unavoidable effect; as the land was cleared out and filled in, the Natives would have to settle. And long before they would run out of space, out of places to go, the tribes would run out of sustenance, out of animals and plants to *go to*. Most of the bison were extinct by 1850 (*fig 4.2*, 162). The remaining herds receded into the hills and were gone by 1878, less than a year after the Blackfoot signed their treaty.

Of course, the Natives played a key role in the extinction of these animals, and subsequently of their own way of life. But for centuries they had cleared this land in almost tidal rhythms that corresponded with the ebbs and flows of the herds[15]. Each wave of mass hunting was absorbed into the herd's lifecycle. Bison too had cleared the grassland in massive sweeps, obliterating the plant life of an area. But they moved in such harmonious exchange with the grass, with its stages of ripeness, that all the plants regrew in their wake. The prairie had sustained itself on thousands of years of clearing. But always there was this choreography to the motion, a built-in time for healing.

But this time, either unknowingly or unable to resist, the Natives joined a wave that would clear the land beyond the point of replenishment. Now they were *mining*. They were dismantling

CULTURE: Agriculture implies culture, which in turn implies a lasting and symbiotic relationship with the land. Successful agriculture is the integration of the human community into the existing society of soil. In this regard, settlement of the grasslands was and is a failure.

- Richard Manning, Grassland, 1995, 143.

the balance of the landscape, and thus the very foundations of their culture. And they were not alone:

> In spite of my mother's flimsy pretense that we were farmers of the kind her Iowa parents were, drawing our full sustenance from the soil and tending the soil as good husbandmen should; […] in spite of her chickens and eggs and vegetable garden, she was not fooled. It was not a farm, and we were not farmers, but wheat miners, and trapped ones at that.

-Wallace Stegner, Wolf Willow, 1955[16]

Farming works in cycles; but mining is progressive, or rather *regressive*. It uses up. Agriculture on the prairie teeters between farming and mining, as does cattle ranching, as did bison hunting when it became more "advanced." Even over annual cycles of harvesting and replanting, there is always this nagging reality of wearing down and clearing out. Having scraped the land of any sustenance, we are forced to build containers for reserves.

The prairie has always sustained itself on a built-in principle of reservation – of dormancy. Grasses are experts in this field. After being trampled and devoured or dried up in the parching sun, Blue Gramma can remain dormant beneath the soil for up to fifty years, storing nutrients and awaiting better conditions above.[17] In a landscape of extremes – of floods and droughts, blizzards and heat waves – dormancy and a well-stocked reserve are basic to survival.

In settlement we've come to realize this too, though we've shifted the means and the very principle of reservation. Farming and modern-day ranching have extracted the reserve from the land itself, and placed it in a container outside the clearing. The pastures, now cleared of cattle, grow hay that is cut, baled and stored for when it's needed. The cattle themselves are isolated

fig. 4.13 | Grain Fed Three Year Old Buffalo. Buffalo National Park, Wainwright, Alberta, 1910

to feed lots – incubators mediated by antibiotics. Farm fields are cleared each fall, their grains poured into silos and elevators and railcars. But the clearing is left to blow away. No longer embedded in the preservation of the land, of the *place*, these reserves are set aside for the *market*. We've extracted the container from the clearing, its contents from its leftover *space*. The clearing suffers because of it.

In the heat of the great bison slaughter, a few forward thinking people captured a few orphaned calves. Between 1872 and 1896, Charles Allard and Michel Pablo grew a handful of runts into a herd of three hundred. They were conservationists and businessmen, preserving a species while also ranching it, selling hides, and supplying live animals to other endeavors like their own.[18]

Eventually their sprawling Montana land was cut up and sold as farms, and the herd had to find a new home. After several moves they ended up at the newly developed *Buffalo National Park* in Wainwright, Alberta. They had lost fifty head along the way, fifty that refused to be captured – their story will come back around. The rest of the herd found their place, and their end at one of the largest failures in North American wildlife preservation to date. They were adopted into a herd of 6000 that was steadily growing beyond the capacity of their container. After years of culling, hybridizing and domesticating, the park finally had to close. In 1939, they slaughtered nearly 3000 bison and shipped the rest from this barren patch of overeaten prairie to new soil up north.

The Wainwright reserve failed for many reasons, the most significant being not only the size of the container, but also the container's lack of porosity – a fixed setting isolated from its surroundings. The original Pablo Allard Ranch was sprawling and unfenced, with varying topographies and grasscapes. Natural

fig. 4.14 | Lakeside Feedyards. Brooks, Alberta. Photo by Jim Wells, 2012.

barriers contained it, flexing with the growth of the herd.[19] It was hardly a container at all. But the park at Wainwright was an *incubator*; it preserved through isolation. And when it was bursting at its seams, it opened to its surroundings to ranch and sell the ever-growing herd. So it brought cattle into the park, into an already overpopulated area, to experiment with hybrids. Instead of a harmonious exchange between reserve and surroundings, the park became an even denser incubator for disease.[20] Soon the surrounding population wanted nothing to do with the park's offerings, and the park wanted nothing to do with surrounding herds. Isolation was its downfall. Just as grain silos and hay stacks do nothing to preserve the land from which they're drawn, this bison reserve did nothing to preserve its place. It exhausted the grass until the herd was exhausted too. Then it shut down, like all mines do.

The fifty bison that escaped the Wainwright roundup became the ancestors of the most genetically pure Bison left in North America today.[21] They were preserved because they were *not* set apart. The divide between the clearing (the land) and the container (the reserve) parallels a divide between the exploited and the protected, the cultural and the natural, the productive and the unproductive, sheer space and our place. Things are never preserved in isolation. Things, like bison and cattle and seeds, are altered when gathered and set aside. It wasn't easy for instance, for the *Iowa Prairie Network*, a roadside restoration effort, to gather native prairie seeds without harming them, the very principle of seed gathering being to break them down.[22]

But integration seems the key to preservation. Of the 150,000 bison on the prairie today, 130,000 are bred on ranches.[23] We need to weave ecologies into our economy, and the container back into the clearing. We need to stop valorizing *nature*, and abusing what we consider its other.

NATURE: Out of the imagination of wilderness and the ignorance of indigenous presence [in a landscape dubbed virginal] came a false dichotomy: a wholly nonhuman nature and a wholly unnatural humanity. The latter was seen as a threat, meaning that the former had to be protected as a place apart.

- Rebecca Solnit, Storming the Gates of Paradise, 2004, 245.

Part of the Sutherland Station, shelterbelts around some plots and buildings.   *Star Phoenix Photo.*
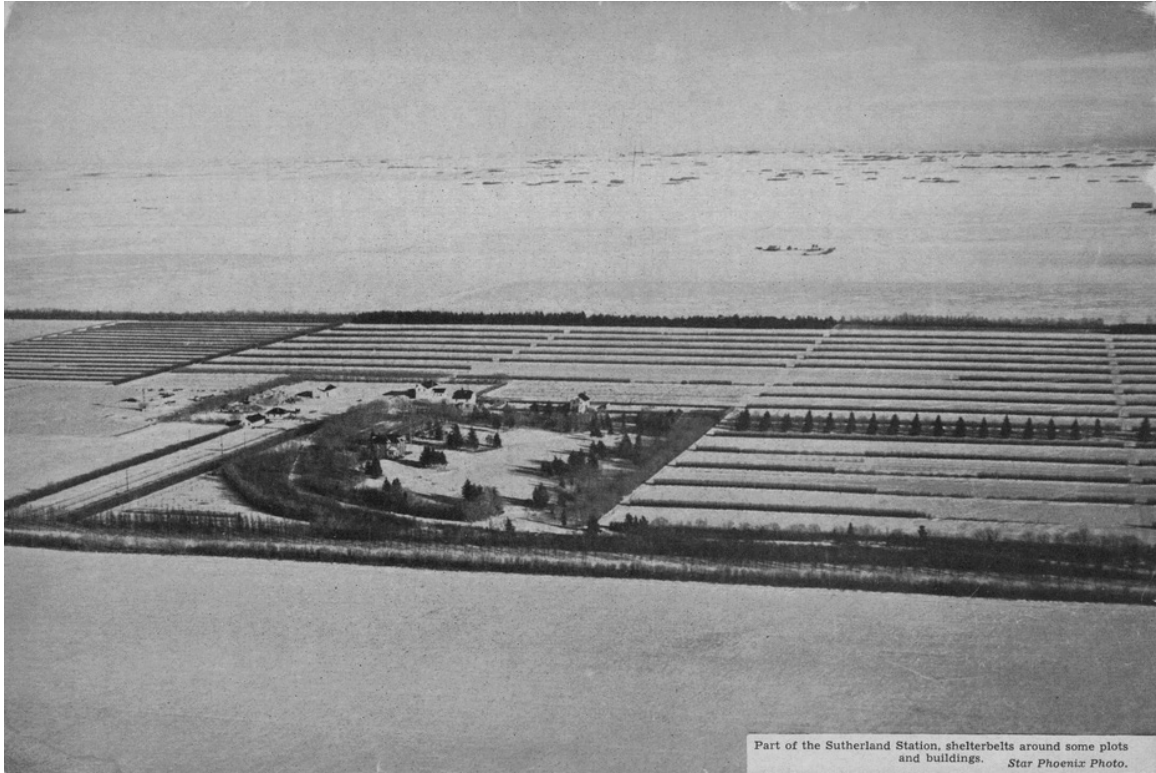
fig. 4.15 | Sutherland Forest Nursery Station. Saskatoon, SK, Star Phoenix, 1949

Bridging the Gap

More is known; there is less to know; we lose both what we know and what we don't. It is certain that species are vanishing without ever having been known to science. To think about this is to imagine the space inside our heads expanding but the places outside shrinking, as though we were literally devouring them.

-Rebecca Solnit, A Field Guide to Getting Lost, 2005[24]

The Prairie breathes at its edges and against its slopes. In wet years the aspens stretch their thirsty legs beneath the fescue grass. In dry years they retract, and the prairie regains its sundrenched ground. But since they began to notice a change in tide, range scientists have been watching as the Prairie's pulse goes quiet. They've been tracing the edge of the forest as it grows like a lesion, propelled by human hands. We have stifled the fires that once stifled the growth of trees. So the canopy spreads broad over thinning grass.

In 1901, the Dominion launched a campaign to spread the trees. It fell on wanting ears. Emigrants leaving behind lush pastures and old growth forests arrived desperate for a piece of home. J.B. Jackson says it takes a single tree, transplanted beyond the forest's edge, for us to feel its effect in space. In the forest, surrounded by its own breed, the tree is merely a resource. But in the open, the tree is an *environment*, "a permanent, carefully tended element of the human landscape."[25] Here, more than anywhere, the tree becomes a reassuring symbol of home:

> It takes a prairie dweller to fully appreciate the way trees change the world. To sense how they cut the wind and scatter the light. To smell the rising odors of sap and moistness and rotting earth.
>
> *-Candace Savage, Prairie: A Natural History, 2011*[26]

Between 1901 and 2012, when it was cancelled, the Shelterbelt Program planted over 600 million free trees across the prairie.[27] With a great deal of persistence and a fair share of luck, many of those trees survived.

It takes five years for a Manitoba Maple to grow eight feet in prairie soil, and ten years for a White Elm.[28] In that time the prairie's bird song had changed. A new cast of voices had followed the homesteaders out into the open, silencing some of the old. For years that amass into eons, the prairie was an un-crossable gap between eastern and western breeds: a diversifier generating new species at its edges. Suddenly, hundreds of woody islands were springing up beside fields, mustering a sort of hopscotch for birds and people alike. With every seedling planted, we've been bridging the gap without ever questioning what that really means.

DIVERSITY: the range of answers life can offer to the questions posed by change.

- Candace Savage, Prairie: A Natural History, 2004, 213.

What we've found, are Baltimore-Bullocks Orioles: the mix and match offspring of previously distinct species that are hybridizing in the prairie.[29] Hybrids are of course the way of evolution – but there are two kinds. One is productive, creating new avenues for survival. But the other is *reductive*, merging diverse populations into one, oversimplifying complexities and homogenizing distances.

According to ecologists, *specialists* (species that have evolved to a particular place) have been steadily giving way to *generalists* that can thrive anywhere.[30] We don't have to look to ecologists to know this is true. We need only look at the mass generalization of our own habitat – at suburbs and condos and farms that span the length and breadth of this continent. The Baltimore-Bullocks is merely traceable evidence of a homogenizing pattern sweeping all habitats, avian and human alike. Beneath its outward evidence in the canopy, the pattern emerges in the grass; beneath the canopy, we've been thinning the surface.

"Land, alone, does nothing for humans."[31] Nomadism finds no value in it, but rather in the resources that move across it. Land ownership implants value only by altering the land, by putting it to use. The history of the *productive surface* has always been one of exclusion, of limitations. Outside the false embrace of a democracy that 'includes', is an all too common rejection of those peoples, plants, and animals that fall outside the 'appropriate' use: all those weeds and pests it generates.

The perpetual expansion of agriculture and its population, has forced the productive surface out from its place beside the river, and into inhospitable terrain. We've only been farming the prairie for 150 years. And as the productive surface continues to spread, it tears away oddities and seeks out those generalists who can thrive in *all* terrains. Wheat has become a generalist of that kind. The plant we grow today has never been genetically modified; but we've hybridized it to the point that it hardly resembles its parent. The first strains started mixing some 10,000 years ago in the Levant and then along the Caspian Sea.[32] There the plant became dependent, for its own wellbeing, on human hands. But our most recent hybrids, those that have altered the very molecular structure of the plant, began when an American agronomist collected a variety from Japan that grew only two feet tall. It was 1949, and the strain was called "Norin 10."[33]

The dwarf plant made its way to a research station in Mexico, and into the hands of Norman Borlaug. The hybrids he produced with the dwarf propelled the "Green Revolution" in the sixties, and won him the Nobel Peace Prize.[34] His premise was entirely spatial; shorter plants could hold larger seeds, and grow in exposed and windswept terrains. By thinning the surface, its productive range could expand all the more.

In Canada, the question was not only spatial, but also temporal. The northern prairies required faster ripening plants to beat the early frost. Hundreds of hybrids were conceived and

fig. 4.16 | The Norman E. Borlaug Experiment Station, Mexico, 196-

'Sonora-64' was a semi-dwarf, high yield, drought resistant wheat variety. In Canada, we primarily grow varieties of 'Hard Red Spring Wheat'. These varieties are hybrids of numerous plants including semi-dwarf wheat, and Marquis wheat (a hybrid variety developed in Canada in 1906 for shorter stalks, higher yields, and faster growth).

tested in the Dominion's Experimental Farms, attempting to shorten growing time by a matter of days.

The makeup of these and later hybrids, suggests that diversity has been reduced to a microscopic level. Specialization now happens at the scale of genetics, so that we can reproduce across varied terrain, one *unvarying* smell and taste, one technique, and one market.

Hybrids show up where the current measure fails to perform. They tend to locate obstacles – not moments of rupture, because breeding requires time, but the slow deficiencies that reveal themselves with growth. Borlaug's hybrid seeds made their way to India and tripled the country's wheat production during a growing famine.[35] But the productive surface he extended has been asking previously diverse ecosystems to answer to one call: to feed the billions. In many cases, in some years, on some slopes, the prairie fails to answer.

Tame hay becomes the last resort. It's another hybrid, marking the leftovers and the meeting point between two land uses that could not work. It's the crop that grows where nothing else will, and the feed for cattle that cannot survive in the field. It's grass – abstracted to a mere surface and thinned like a carpet, peeled up, rolled, and shipped away. Hay has found its way into every crevasse that resists being put to *use*. Its acreage has been on a steady rise since the prairie discovered the baler.

Tame hay bridges the gap between agriculture and livestock. And it bridges every spatial gap in the productive surface of the field. But as a last resort that barely pays out, it only operates in mass: massive fields awaiting a better use. In this case the margins don't so much surround the place, but rather reside within it. The place itself is marginal.

fig. 4.17 | Annual Crop Cover, primarily grains.

Map by author.

25   50   100   200 km

crop cover
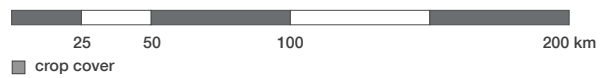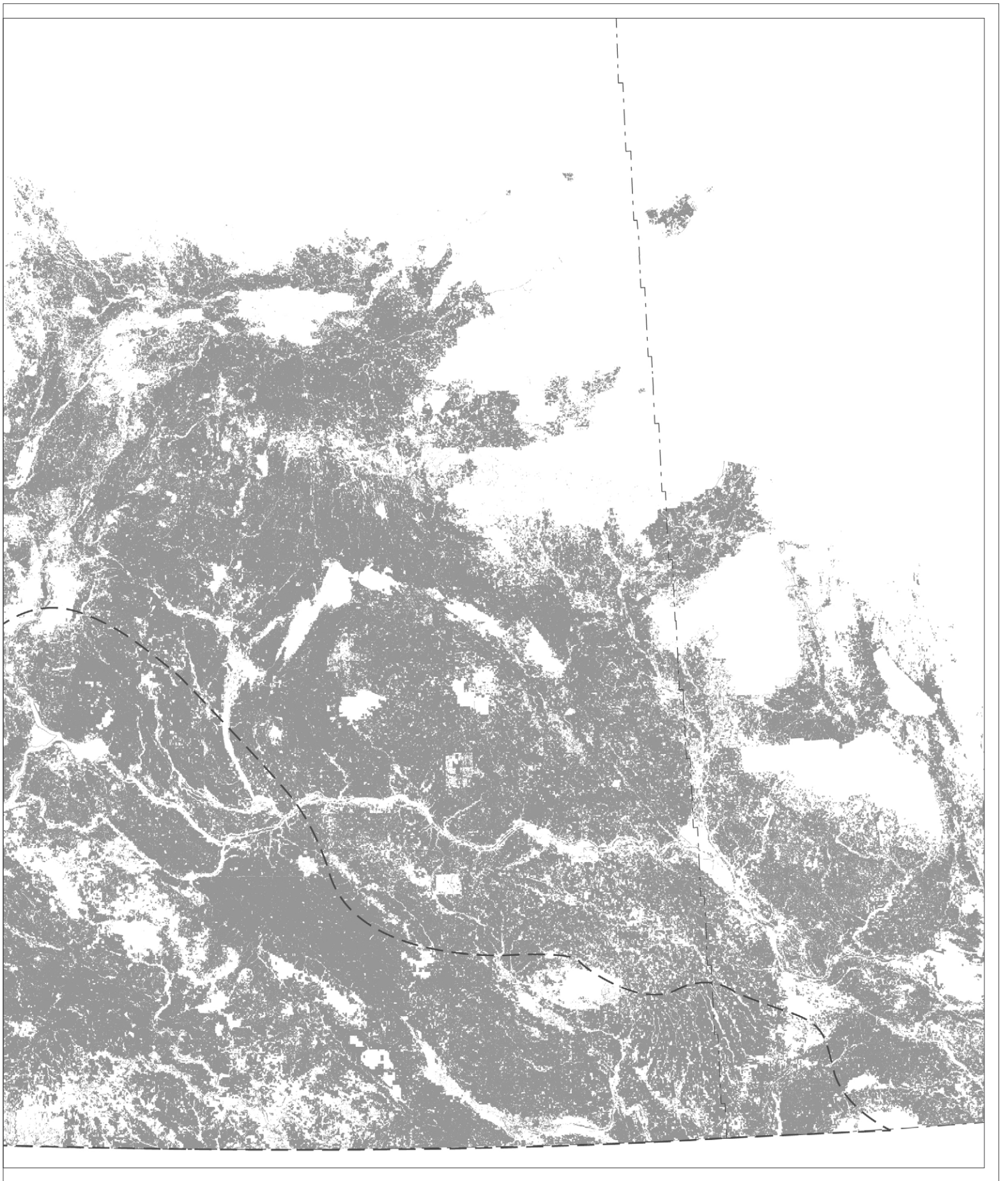
The fertile band at the edge of Palliser's Triangle reads clearly in annual crops.

CLEARINGS
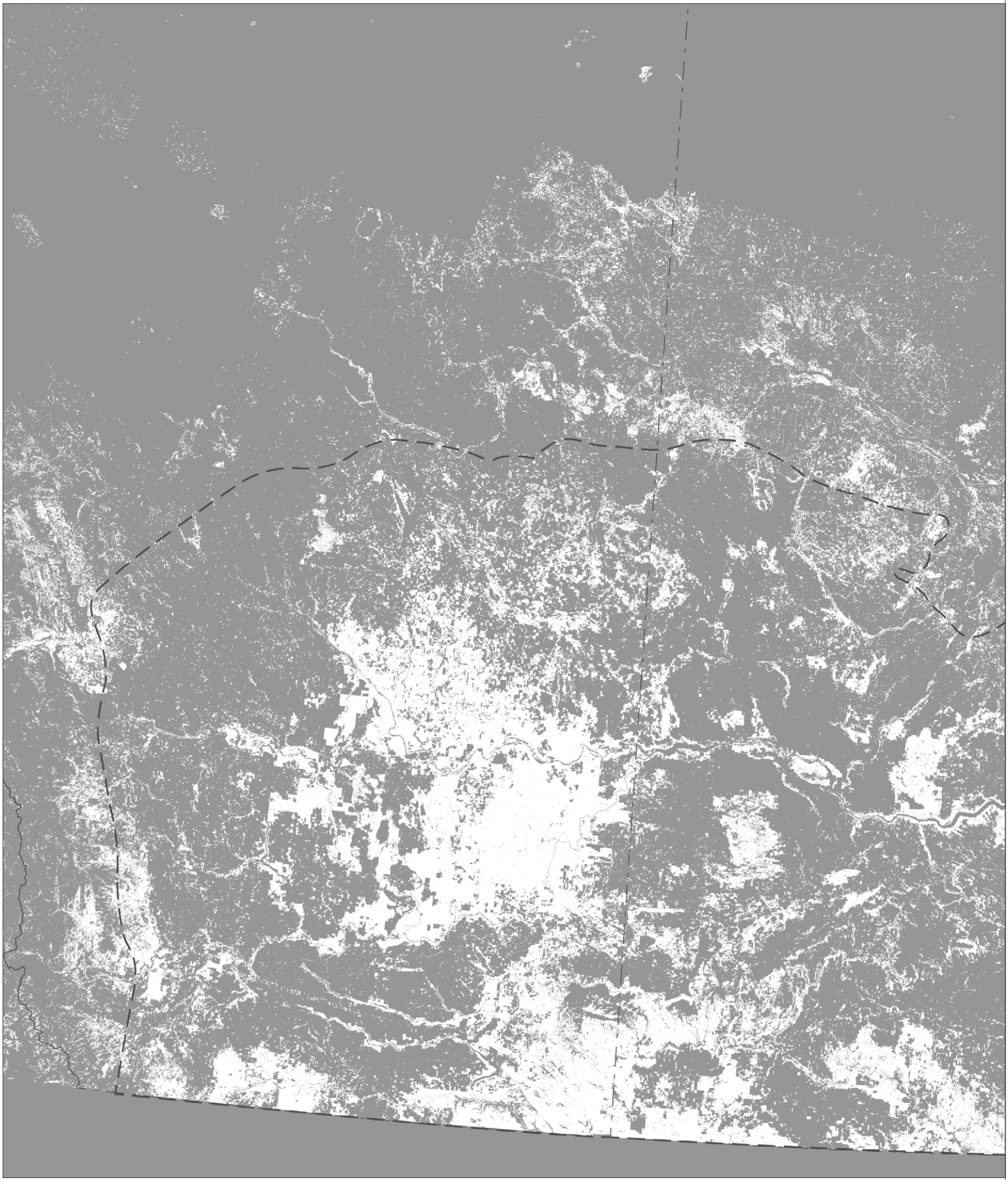
fig. 4.18 | Islands: Grass Cover.

Map by author.

25   50   100   200 km
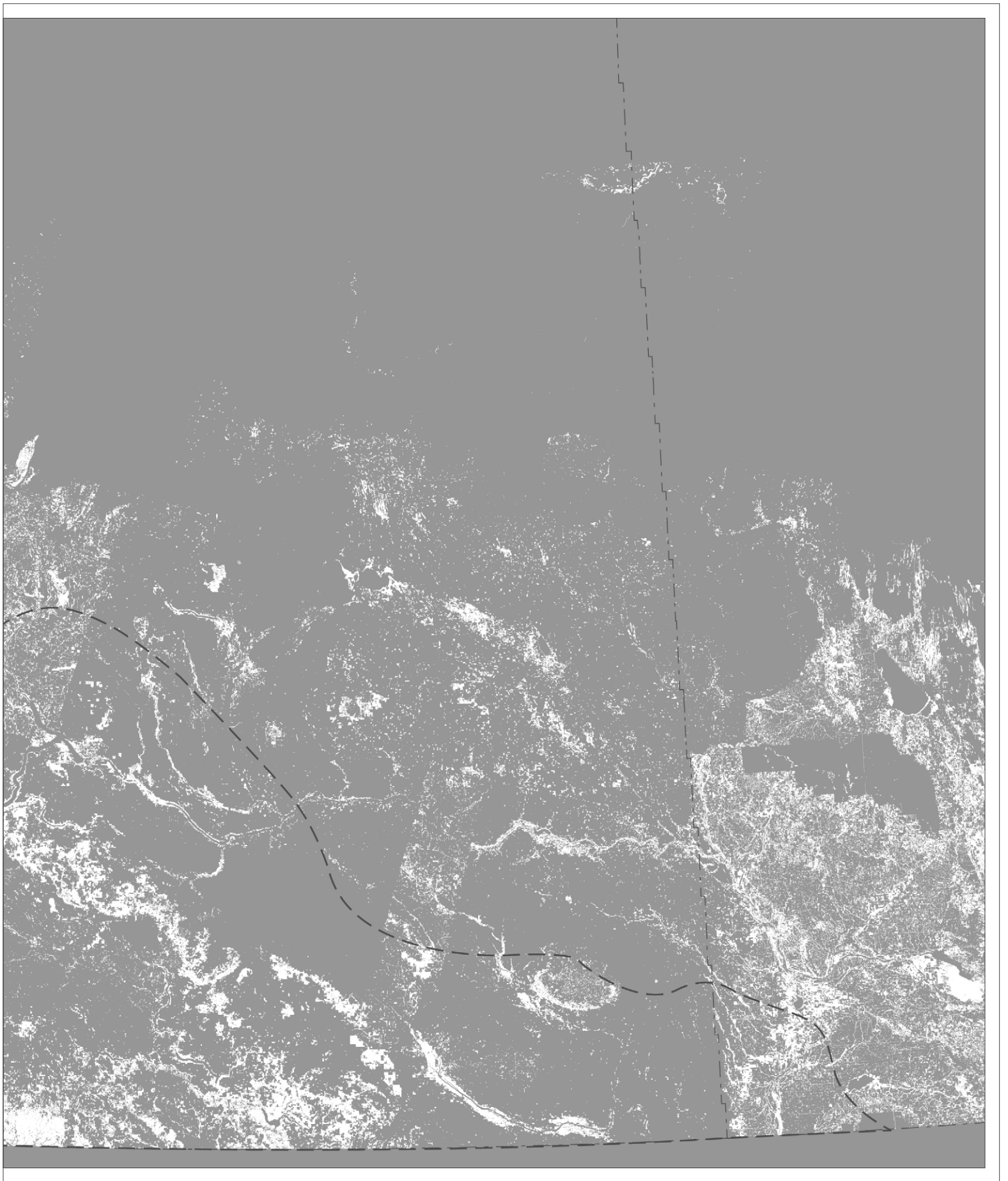
☐ grass cover

There is a distinct island of remaining grass cover that follows the Alberta-Saskatchewan border, and turns along the International Boundary.

This area, though no longer native grassland, is primarily grazed as opposed to farmed.
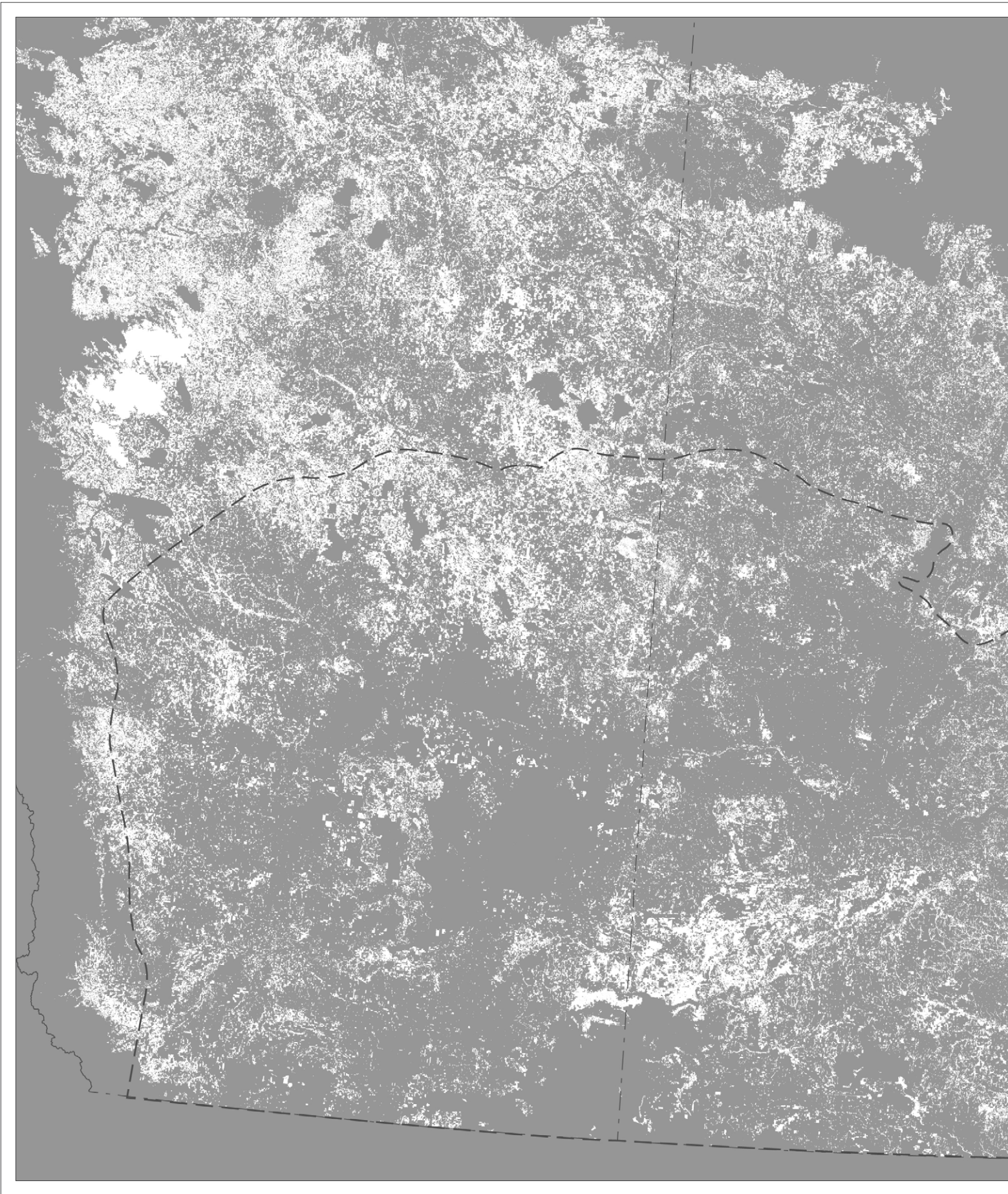
fig. 4.19 | Islands: Hay and Forage Crop Cover.

Map by author.

25   50   100   200 km

☐ hay and forage crop cover
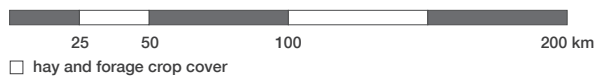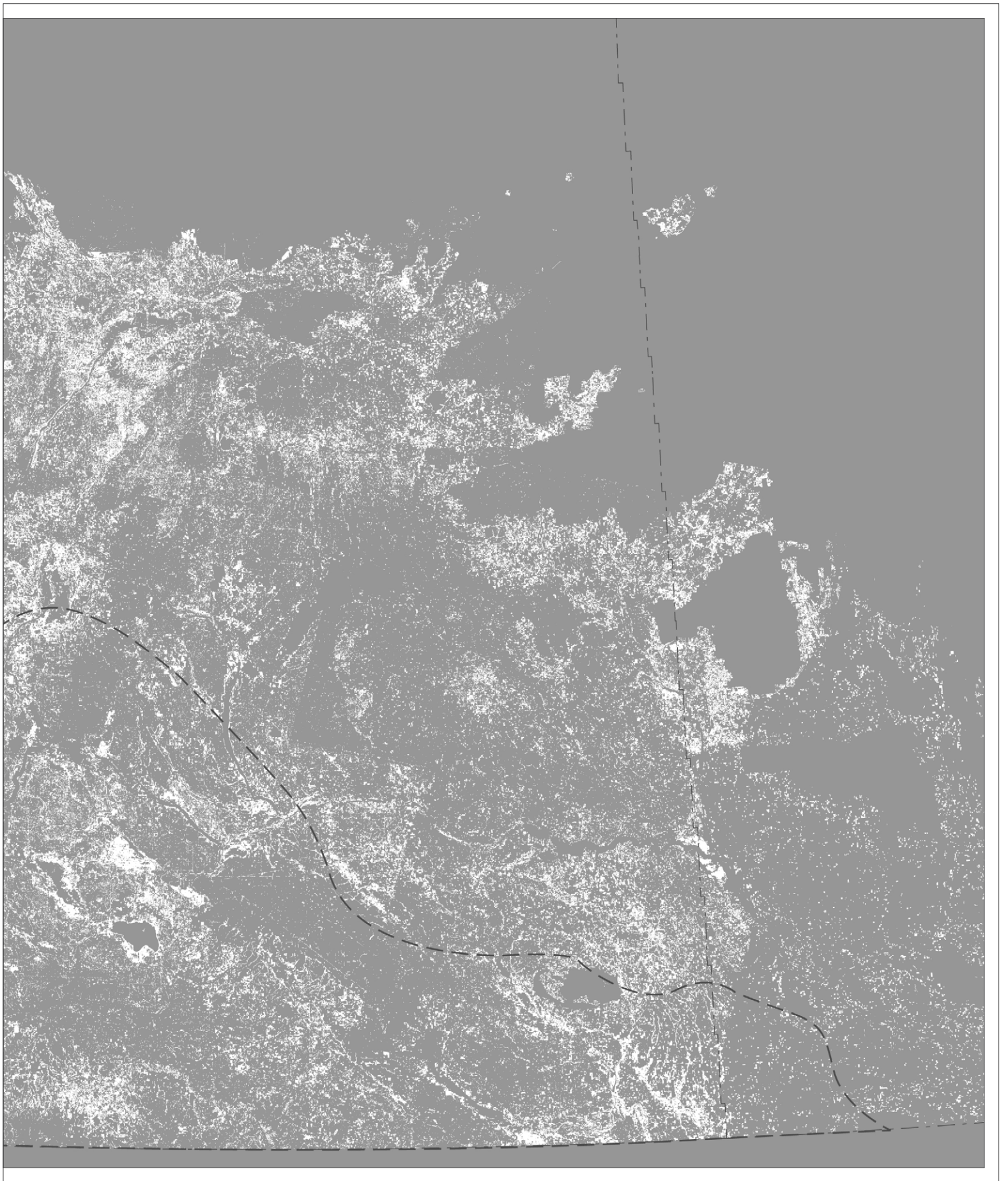
In 2011, nearly 13 million acres of land was seeded with tame hay – a crop that yielded on average, 1.38 tons/acre, and sold at only $54/ton.[36]

Using the stocking rate practiced at the Konza Prairie Reserve in Kansas (15 acres/head), that land could feed over 860, 000 bison year-round.

fig. 4.20 | Suburban Edge. Lethbridge, AB. Photograph by Rudy Wiebe.

Abandoning the Clearing

It happened when we left the trees and strode erect across the grass, when the bones of our legs lengthened and those of our feet relaxed and arched away from the curling grasp of tree climbers. In that faraway time we became hominids – members of the human family.

-Joe C. Truett, Grass: In Search of Human Habitat, 2010[37]

We have a bone in our big toe that distinguishes us from other primates. It developed for long-strides. The *Savanna hypothesis* is based largely on this bone and says that, "adaptation to open terrain was the spark that initiated the human lineage."[38] It describes how forests dried into savannas and we stood up and walked into our present form. In 1975, a British sociologist named James Appleton suggested a link between this evolutionary experience and our current preferences for habitat: we are drawn to environments with good visibility – to see predators and seek out prey. We are drawn to clearings, to places of prospect.[39]

While the term *prospect* often describes a spatial condition, a wide horizon and the freedom to move across it, it actually refers to a temporal mobility – a future potential or foresight. But the two go hand-in-hand. Studying two aboriginal cultures, one in the forest and the other on a plateau, Yi-Fu Tuan drew a connection between spatial experience and perception of time. To the Pygmies of the rainforest, "Time like perceived distance, is shallow: neither the genealogical past nor the future holds much interest."[40] But to the Hopi Indians who dwell in the American Southwest, time and space exist together in two realities: the manifested and the manifesting. Manifested reality, "includes all that is or has been accessible to the senses, the present as well as the past."[41] But manifesting reality is, "the future and the mental. It lies in the realm of expectancy and of desire," in the distance beyond the horizon.

fig. 4.21 | Bare Field. Saskatchewan, photo by auther, 2011

In spaces of prospect, like that of the prairie, we are able to either project into the future or recede into the past. Our creative roots are in the clearing.

The prairie showed up in history like the exposed belly of a great beast, of Mother Nature the *monster* who bore jagged rocks and foreboding woods across the rest of the continent. This clearing offered the prospect of a Nation joined sea-to-sea, and of citizens bound to the earth and the nation in true Jeffersonian means. Here in the clearing, we might tame the beast.

In *Discovering the Vernacular Landscape*, J.B. Jackson describes the medieval world in three concentric rings: the village and arable land, the grazing commons, and the wilderness.[42] The peasants dwelled at the center, in the heart of a clearing where they cleared it once more, and planted it with seeds. An unmediated clearing surrounded them, a zone of protection and resource for sharing. And the forest grew beyond that – everywhere, a terrifying domain. The clearing was synonymous with place.

But the clearing was also temporary. Man had burned it into the forest, then lived in and off it until the trees forced their way back in. The clearing is so fundamental to place, because it's where things grow. Life springs up from the bare ground – an intoxicating green through the ashes. For thousands of years, Natives had shaped the grassland's patterns by burning great swathes down to their roots. It wasn't long before herds of bison came trampling over the horizon, drawn to the fresh sprouts. The prairie peoples were coaxing the wild into the clearing, while European peasants were always fighting it off.[43] Today we abandon the clearing, not because the wild has grown back, but because nothing grows – the wild comes back barely, patchy and remade. Of course, to "abandon" a place is merely to make way for something else[44] – a new kind of wildness always grows in.

ALTERNATE ORIENTATION: Perennial Agriculture

Salina, Kansas

There have been two leading responses to abandonment of the prairie. The first, and most widely adopted, is GIS-based "precision farming." It has taken the farmer's eye to the level of satellite imagery, filtering it through the lens of the "Normalized Difference Vegetation Index." The formulas assesses light reflected off crops to determine the biomass and crop condition in the field.[47] Through its assessments, and its GIS coordinates, farmers are able to deliver what the crops need down to the individual plant at the precise time. And they're able to do it on autopilot; the tractors literally drive themselves.

This response to absence is based on a precise measure of momentary time. The second response instead, is based on long and gradual time cycles.

Wes Jackson, a plant scientist based in Salina, Kansas, has been questioning the temporal basis of prairie agriculture since 1976. For the last thirty years, his non-profit organization, *The Land Institute*, has been developing and refining perennial grains. Agriculture generally works on an annual cycle; farmers plow and seed the land every spring, and harvest it every fall. Jackson saw the issue with this method in a grassland context: grasslands are held down by roots.[48] Perennial grains, growing back year after year, would have us farming on a larger time scale, leaving the roots and the soil untouched for years.

fig. 4.22 | Roots of Perennial Wheatgrass vs. Annual Winter Wheat.
National Geographic Magazine, 2011

The problem is, we've abandoned the clearing as a habitat, but kept our finger on it while we're away. Much of Palliser's Triangle has a population density today that meets the US census bureau's "frontier" criteria from 1890. Yet even in our absence, we suppress the wild. What was an environment, has become a mere resource. What was a human place, *the* human place, has become no-man's-land. Over the decades we've removed all obstacles to farming: first bison because they roam the grass, then Natives because they follow, then horses because they eat the grass, and now citizens because we don't (at least until its processed). We've relegated the clearing to a feeding lot and in it have lost our place. We've abandoned the field and moved into the forest, or built forests of our own. But this shift reveals an underlying choice of habitat; most people live neither in the city nor the country, but in the suburbs between.

There is another half to James Appleton's equation for the places we call home; we desire not only prospect, but *refuge* as well.[45] Humans are transitional beings. It wasn't simply open space that sparked our lineage, but rather our transition into and out of it. Some anthropologists claim that we owe less of our humanity to the grass, and more to the tide-like motion between grassland and forest as they oscillated as climate changed. This oscillation would have presented us with two environments to navigate, two means of gathering or hunting food, and two facets to our diet. These shifts "opened the way for a physically adaptable and problem-solving being – our ancestor."[46]

We are drawn to the clearing in the forest, and to the forest in the clearing. But we dwell at the edge between.

LIMITS

It seems a place without limits, except its always limiting you –
you in your oddness, your upright stance, unable to digest grass.
We try to control the empty, to contain it, divide it, and call it
our own. We try to break through limitations, and draw our own
instead.

> For the 49th parallel was an agreement, a rule, a fiction
> perhaps but a legal one […] Civilization is built on a tripod
> of geography, history, and law, and it is made up largely of
> limitations.
>
> *-Wallace Stegner, Wolf Willow, 1962*[1]

J. F. GLIDDEN.
Wire-Fences.

No. 157,124.

Patented Nov. 24, 1874.

FIG. I.

FIG. II.

FIG. III.
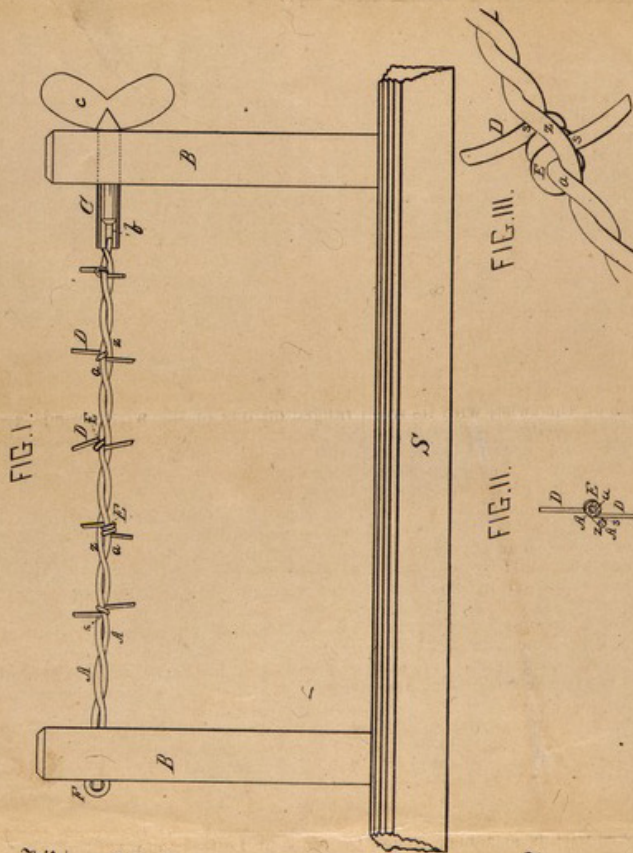
Witnesses:

J. W. Elliott.
F. G. Bellows.

Inventor:

Joseph F. Glidden
By G. L. Chapin
Atty.

fig. 5.1 | Patent for Improvement to Wire Fencing, Joseph F. Glidden. Illinois, 1874

Glidden's invention was not the first in wire fencing, but it was the most successful. To solve the issue of weak strands and loose barbs, he twisted a second wire around the first – anchoring the barbs in place and making the strand sturdier. At the same time, he patented a machine to mass-produce the wire.[2] Just twelve years after the US Homestead Act, and two years after the Dominion Lands Act, his invention proliferated across the west.
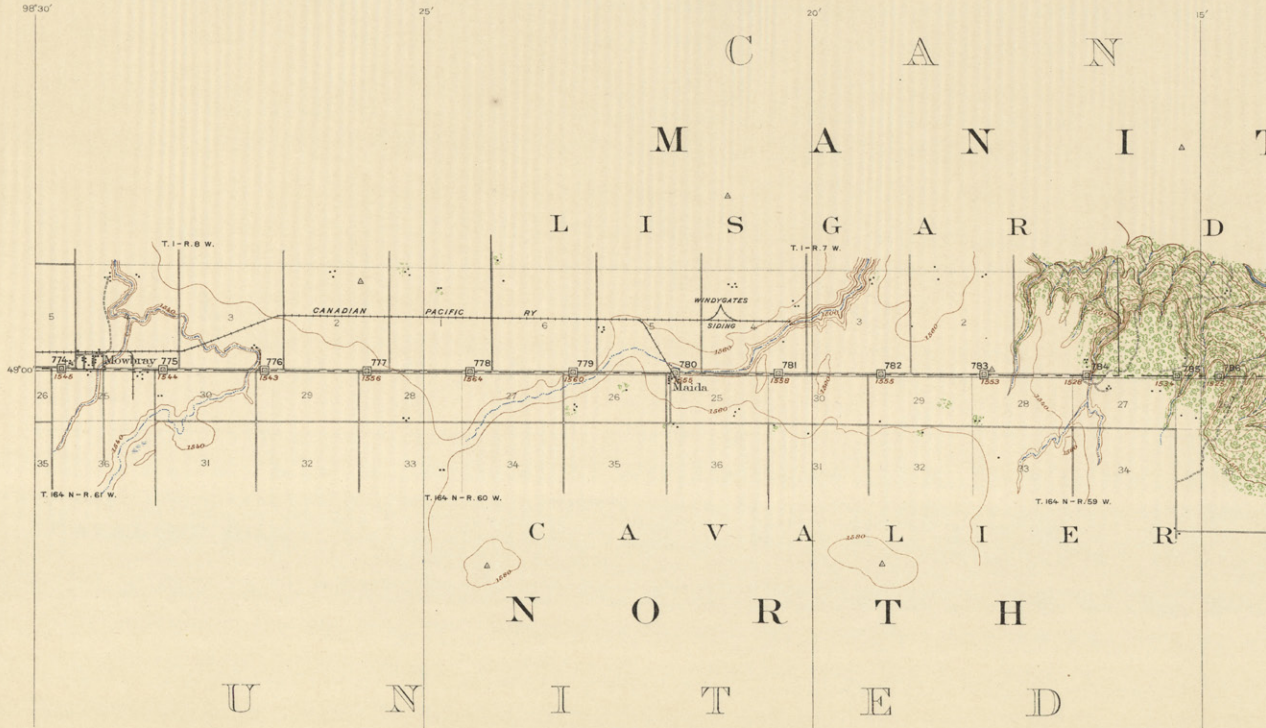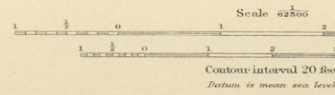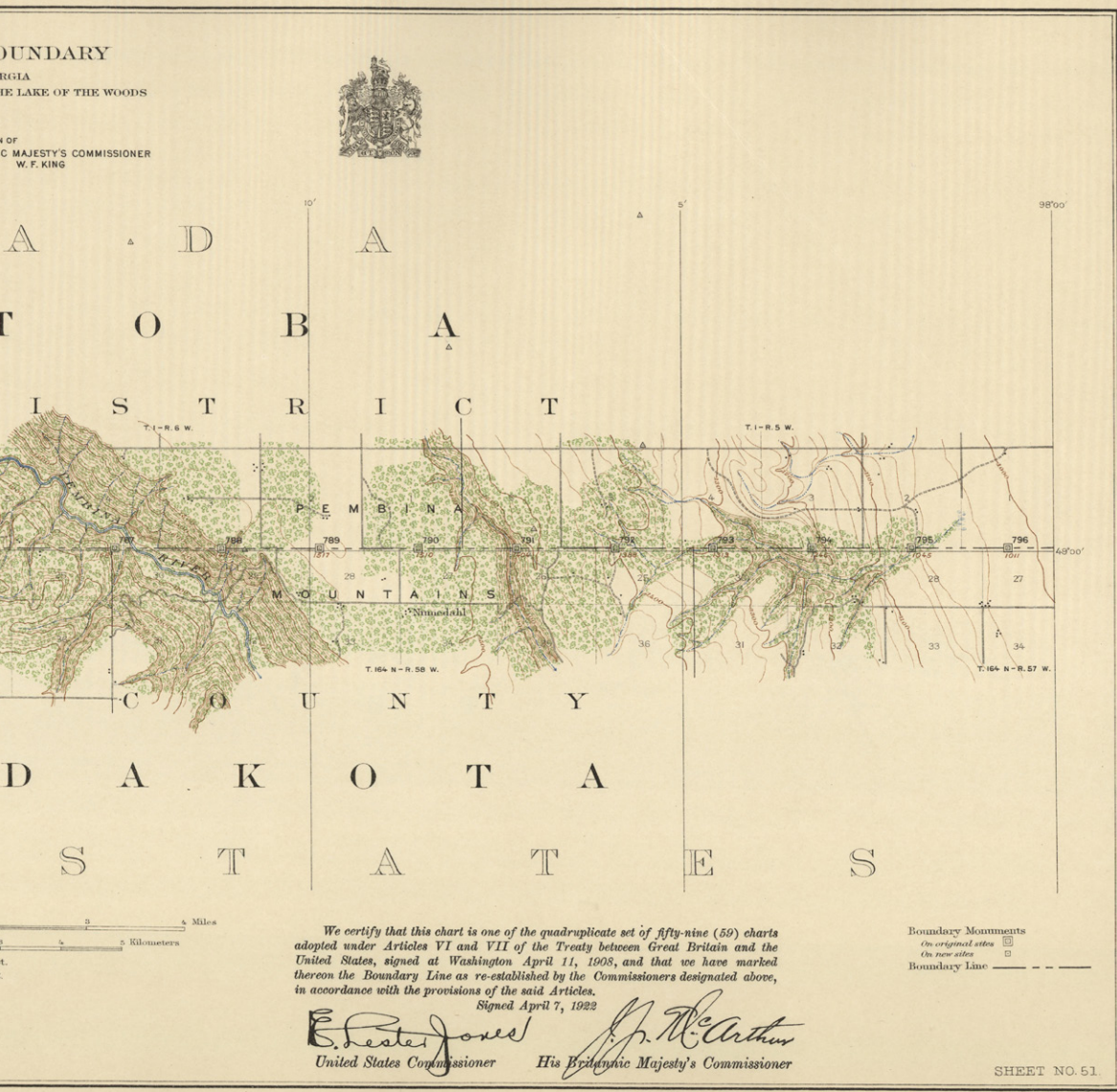
fig. 5.2 | International Boundary Sheet No. 51. 1922

The *International Boundary Commission* was, and is, a joint venture from north and south of the 49th parallel. In 1874, they erected the last monument and closed the line that had been determined some fifty years prior:

> […] a line drawn from the most northwestern point of the Lake of the Woods, along the 49th parallel of north latitude, […] and from the point of such intersection due west along and with the said parallel, shall be the line of demarcation between the territories of the United States, and those of His Britannic Majesty […]
>
> -*Article 2, Convention of London, 1818*[3]

Plan of Township 54 Range 25 West of the Fourth Meridian

fig. 5.3 | Plan of Township 54 Range 25 West of the Fourth Meridian. Dept. of the Interior, 1904

The Metis people of the *Red River Settlement* used a river lot system of land tenure, that they took with them when they were pushed west of the incoming survey. The river lots, arranged perpendicular to the river, gave each family equal access to a gradient of soil types and topography. In some places across the provinces, the Dominion Survey worked around these existing lots. The junction between the two systems reveals an ideological switch that accompanies a geographical switch – beyond the logic of farming along the river, the logic of the survey becomes rigid and abstract.

Legend

- Canadian Government Railway
- Canadian Pacific Railway.
- Canadian Northern Railway
- Grand Trunk Pacific Railway.
- National Transcontinental Railway
- Great Northern Railway (U.S)

SASKATCHEWAN

MANITOBA

CANADIAN GOVERNMENT RAILWAY

CANADIAN NORTHERN

CANADIAN PACIFIC

LIMITS

ARID REGION
OF THE
UNITED STATES
Showing Drainage Districts.

Scale:
100   50 25 0   50   100   200   300 STAT. MILES.

(prev. page)

fig. 5.4 | Manitoba, Saskatchewan, and Alberta Railway Territories.
Atlas of Canada, 1915.

*fig. 5.5 | Arid Region of the United States Showing Drainage
Districts.* John Wesley Powell, US Geological Survey, 1890.

These two maps show territories based on a pooling of resources, and a line
of drainage. The *Railway Territories* were areas in which the railway companies
were given first choice of land grants (of all odd numbered sections). The
areas generally surround the company's tracks. The *Drainage Districts* on the
other hand, were U.S. states proposed by John Wesley Powell, so that each
drainage basin fell within the organic borders of a state. His proposal was
never realized.

fig. 5.6 | *Shelterbelts.* Conquest, Saskatchewan, 1962

fig. 5.7 | *Strip Farming.* Saskatchewan, 1950's

Edges

In winter, the prairie appears all the more like an ocean. Snow drifts across its surface and forms crests in the fields. It washes across highways, and piles up against fences and barns and trees. Winter makes wind and motion visible; it makes edges concrete. But it exposes them like shorelines, all that moves lapping up against them again and again, wearing them down and shifting them over, building up a residue like lichen on a rock. Edges inevitably *become* places; but first, they divide and surround them.

We build two kinds of edges here – the visible and the invisible. We build both to limit motion. But while the former cuts a boundless vista, giving tired eyes a place to rest, the latter aims to keep it boundless, eyes made wide by opportunity.

There was a sickness of the eye believed to have affected sailors on the open sea. Brought on by distance, it caused a state of delirium in which one lost their way. The same sickness fell on travellers, lost in the open grass. In 1879, while crossing the mid-western United States by rail, Robert Louis Stevenson wrote:

> He may walk five miles and see nothing; ten, and it is as though he had not moved; twenty, and still he is in the midst of the same great level, and has approached no nearer to the object within view, the flat horizon which keeps pace with his advance

[…] His eye must embrace at every glance the whole seeming concave of the visible world; it quails before so vast an outlook, it is tortured by distance. […][5]

The visible edge is a remedy to distance. It evokes a sense of place amid the spacious. It keeps the mind, among other things, from wandering. In the form of shelterbelts, it encloses the house, the gardens, and the fields. It creates the confines of a clearing that is not unmanageable, but rather made and maintained.

Invisible edges on the other hand, do not demark a visible or fixed space – in fact, they mean not to. Prairie flows right through them; while people and animals quickly learn to pause. In 1874, an Illinois farmer patented barbed wire with both the practical concern of building fences in a region without wood or stone, and an underlying concern for sedentary people surrounded by motion and change. It didn't aim to be visible, to draw a solid line between classes of people (all of whom were welcome to *settle*). It aimed instead to be *invisible*, un-obstructive to all who stayed put – violent only to those who moved:

Boards and posts have a role with respect to space: they separate. On the other hand, barbed wire has an active relationship with bodies: it removes and alienates.[6]

French philosopher, Olivier Razac, makes this distinction in *Barbed Wire: A Political History*. He describes how the fencing's relationship with bodies,

[…] occurs at the subtlest of levels, that of people's [and animal's] awareness of suffering and their inclination to avoid it.[7]

Barbed wire is designed for living things. It makes tactile, not spatial, boundaries. Barbed wire is violent and powerful *because* it is invisible. And as Razac points out, modern power structures, "with the greatest of discretion," are increasingly turning to the psychological potency of invisible boundaries in space:

LOST: When the landscape is so bare before us that we cannot ignore the fact that most of the universe around us is empty, we invent systems in order to hold it in our minds so we don't, either literally or psychologically, lose ourselves in the void.

-William L. Fox, The Void, the Grid and the Sign, 2005, 111.

> When barbed wire first appeared, power was already rejecting the thickness of stones, massive separations, to create territorial divisions. Yet the appearance of barbed wire also foretold its eventual obsolescence, the time when it would be too visible and too heavy and thus would have to be replaced by more ethereal means of controlling space [...][8]

In the prairie's subdued landscape, where the barbed wire's fallen down, its unbound spaces are enforced by the "ethereal means" of sheer habit. Yi-Fu Tuan says we "ritually maintain" the boundaries we can't see.[9] We plow fields, wear paths, and trace properties. I stood at the edge of fields with my tripod, wary to step inside. We actively participate in outlining these limits, in making them the shared dialect of the place. Our daily reinforcement of invisible edges, suggests they've become embedded in the consciousness of the place. Collectively, we give them meaning.

Whether visible or invisible, we build edges to block motion – to exclude or contain it. Everything that drifts – nomads, cattle, snow, and largely soil – has been contained by some constructed edge. The prairie, after all, is blanketed in loess, a word that's origins mean "loose".[10] It's, "a wind-bred soil," writes grassland specialist, Richard Manning, "ready to run again at the slightest excuse of wind."[11] Once they tore up the roots that held it down, farmers constructed edges to contain it. With snow too, farmers plow ridges to let it accumulate in otherwise frictionless fields – to keep moisture for the spring.[12] But these edges are only substitutes for the functions the native grassland previously fulfilled.

Many of these edges, shelterbelts, fences, and roadsides, eventually begin to harbor motion. They are occupied and defined by those who trace them, again and again.
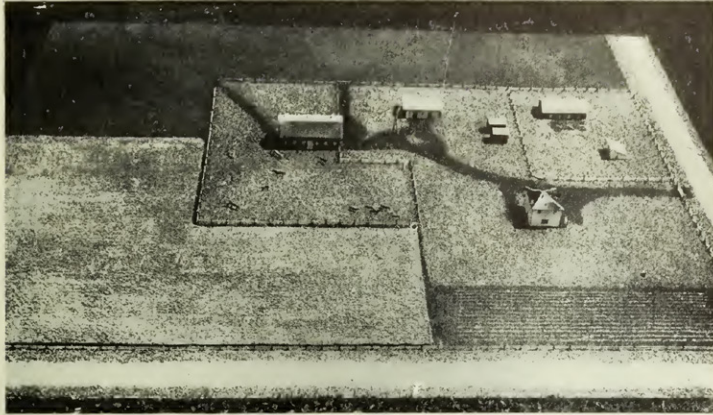
Plate 12.—Farmstead with good buildings and equipment but without trees. (F.S.C. Photograph 17947.)
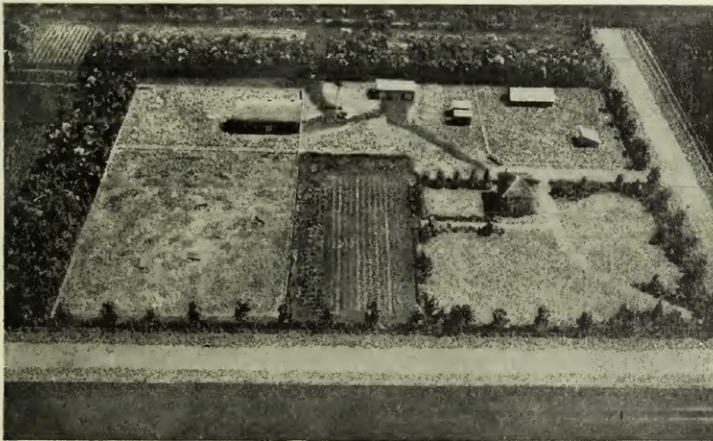
Plate 13.—The same farmstead planted with trees as suggested in plan No. 2. (F.S.C. Photograph 17943.)

PLATES 12 AND 13.—MODELS ILLUSTRATING THE APPEARANCE OF A FARMSTEAD WITH AND WITHOUT TREE-BELTS.

fig. 5.8 | Models Illustrating the Appearance of a Farmstead With and Without Tree-belts. Forest Nursery Station, SK, 1938

Property

Too much of this country went to islanders. They never understood it. They're afraid of space.

- Bruce Chatwin, The Songlines, 1987[13]

Grasslands have a dual scale, an "incongruity" between the scale of the grass, and that of the land. Standing in it, you feel at once massive and miniscule. You tower above frail blades and stamp them with your feet. But together they outnumber you – they could swallow you whole.

> Evelyn has mounted her tripod about ten yards farther away from the shack than one would expect, and it's an artful move. The dollhouse homestead is framed by an oversized rectangle of earth and sky. The people in the picture are just too far away for their features to be distinct, and they look as if they're there more for purposes of scale than portraiture. The photograph is a study in incongruity. The land is too big for the house, the house is too tall for its own good, and too small for the people who live in it. […] The prairie yawns all around the scene, as if to mock the spatial conundrum in the middle of the picture, where there isn't room to swing a jackrabbit, but a giant could walk through the door without ducking his head.[14]

Evelyn is laughing at the people in the scene, or so Jonathan Raban imagines as he describes the old photograph. An islander herself, with a "British, middle-class sense of scale and proportion," she laughs, or perhaps weeps, at these awkward islanders in a sea of grass. They are enveloped in abundance, but drowning in scarcity; they stand in this newfound freedom, and all the limits it imposed.

Space means something different to islanders, particularly to those escaping a century of land enclosures in England. From 1750 to 1860, England's open fields and commons were cut up and enclosed by wealthy landowners to be grazed by sheep.[15] Space, in its increasing scarcity, and enclosures in their

EMPTINESS: The beliefs, desires, and visions inherent therein, originally nurtured in the crowded, fragmented, and bellicose little worlds of that splintered, sub-continental peninsula that is Europe, have been inscribed onto what, in European colonialist eyes, was essentially a vast, blank space.

-Dennis Cosgrove, The Measures of America, 3.

expanding web work, became *limitations* for the common man. But here in the west, space and enclosure were a promise, a *right*. The Dominion Lands Act promised a protective (and free) legal enclosure to anyone willing to work the land. And the grassland's dual scale was the ideal palette; one's smallness in the landscape ensured plenty for all; and one's largeness against the grass alluded to a sense of control. Property was free for taking, not bought, but "proved up." The Dominion gave families 160 acres and three years to build a house, clear ten acres, and "improve" them.[16] After three years, the land was theirs.

Property mediates scale, both spatially and socially. It fragments what is large or collective, until it's controllable; and gathers what is small or individual, until it's substantial.

For citizens, property parcels the prairie's overwhelming expanse into attainable, plowable, pieces. And it buttresses each tenuous existence with neighbors – neighboring properties, shared fences, and an army to hold back the weeds:

> […] putting up a fence together was, for the settlers, a fine way of bridging their different languages and social classes.[17]

J.B. Jackson says that boundaries make, or "stabilize" relationships. Boundaries, "make residents out of the homeless, neighbors out of strangers, strangers out of enemies."[18] They make citizens out of people. The Dominion could weave a nation in barbed wire, every family entitled to a clearing in the bramble. But every clearing is bound up in thorns.

For the government, property fragments a region that could otherwise not be held. It fragments groups of people, so they too can be controlled. Henri Lefebvre writes that, as backward as it seems, fragmentation is the very key to controlling a space whole. Power,

> […] maintains [space] in a 'disjointed unity', as at once fragmentary and homogenous: it divides and rules.[19]

SQUARE: […] a shape that human beings recognize more quickly than any other because of its lack of ambiguity. It has sharply defined edges and corners and carries the most basic of attributes it is possible to find in a shape, an inside versus an outside. The square is a bedrock form in the neurological lexicon of our boundary recognition and contrast […]

-*William L. Fox, The Void, the Grid and the Sign, 2005, 109.*

GRID: The square, however, has the advantage of being easily stackable – it adds to itself and multiplies more easily in the mind and on paper than a circle, a triangle, or any other shape you can think of. We call it a "gnomon," a parallelogram the corner of which, when it is removed, retains its parent shape. [...] Applying a related principle to map grids, we call them "graticules," a lattice that can be proportionately enlarged or shrunken, increasing or decreasing the scale.

-William L. Fox, The Void, the Grid and
the Sign, 2005, 109.

There are places where the grid has been compiled to make islands. But one after another, they crumble into properties, back into a state of control. Over 7000 Mennonites moved to Manitoba under the *Hamlet Clause* of the Dominion Lands Act.[20] The group was given land as usual, one quarter-section for every family. But they were given one continuous swathe which they were free to rearrange – to establish a traditional village. Their quaint island lasted for a while. But when the railway came through and opened new centers for trade, more and more families decided to peel off and farm on their own.[21] The village was overlaid across individually owned parcels; when one family perceived the value of their own parcel and broke off, it tore a hole in the remaining village. The shredded pieces eventually broke off too.

In 1887, the American Government passed the Dawes Act, which divided native tribes into nuclear families, and reserves into individual parcels of land. The intention was to break up the tribe and "civilize" its members.[22] This year, our federal government is expected to pass a new legislation that would allow private ownership on First Nations reserves.[23] There are key differences between the "First Nations Property Ownership Initiative" and the Dawes Act, the most significant being that it is First Nations initiated, and voluntary. Of course, the Mennonite reserves were quite voluntarily broken up. Where the legislation does align with the Dawes Act, is in its fundamental ignorance of an *indigenous* and a communal way of life. It poses individual land ownership as a right, and as a means to autonomy – a solution to poverty on reserves. The issue with voluntary land ownership is that its set in a system of land tenure, and a currency of exchange, that may pressure or even force owners to participate (as in the case of the Mennonites). To over 600 native communities resisting the act, gaining land title opens a justifiable fear of losing the land forever.[24]

fig. 5.9 | Bergfeld, Mennonite East Reserve. Manitoba, Royal Canadian Air Force, 1946

The land shows traces of the village fields oriented perpendicular to the river, disregarding the survey.

ISOLATE: Let's start by imagining a fine Persian carpet and a hunting knife […] An ecosystem is a tapestry of species and relationships. Chop away a section, isolate that section, and there arises the problem of unraveling.

-David Quammen, The Song of the Dodo, 1997, 11.

There is no such thing as a fragment. As David Quammen explains in *The Song of the Dodo*, a fragment of a previously intact ecosystem, or a community or tribe, is an "isolate" – you can't scale it down.[25] It ceases to function the way it did, and evolves into something else.

Seen in another light, this opens new possibilities for all the isolates property creates. In his 1946 presidential address to The Association of American Geographers, John K. Wright proposed that property has inscribed the world in a new mosaic of "miniature Terra Incognita."[26] These privately owned territories may be known *of* by all (surveyed and mapped at an intangible scale), but are only *known* by their owners – in whose hands they've undoubtedly changed. This leaves most of the prairie, and most of the world, still unknown – unexplored.

Section
Sec. 33, Twp. 18, Rge. 28,
W of 3rd Meridian

Farm Size Sask.1872
160 acres (1 quarter-section)

Farm Size Sask. 2012
1660 acres (2 1/2 sections)

9.6 km
(6 miles or 483 chains)
1 TOWNSHIP

blind line

road allowance
(1 chain wide)

1.6 km (section)

0.8 km (quarter-section)

0

1.6 km
(1 mile or 80 chains)
1 SECTION

Quarter Section
NE 1/4, Sec. 33, Twp. 18,
Rge. 28, W of 3rd Meridian

0.8 km

Harvested by Combine 1949
500 acres

Harvested by flail 1800s
10 acres (Metis Farm in Red
River Settlement)

0

fig. 5.10 | Dominion Land Survey: Third System of Survey, 1881-1917, drawing by author

fractional township   Rge. 29   Rge. 28   Rge. 27

Twp. 20

5th base line
(every 4 townships
from 49th parallel)

Twp. 19

4th correction line
(every 4 townships)

Twp. 18

1.6 km (section)
0.8 km (quarter-section)
0

4th MERIDIAN
(Alberta / Saskatchewan Border)

Township
Twp. 18, Rge. 28, W of 3rd Meridian

Township

Land Grants

Railway Lands reserved for
company selection

Hudson's Bay Company Land

School Land

fig. 5.11 | Islands: Remaining River Lots. Ste. Agathe, Manitoba, aerial image from Google Earth

0.8   1.6   3.2 km
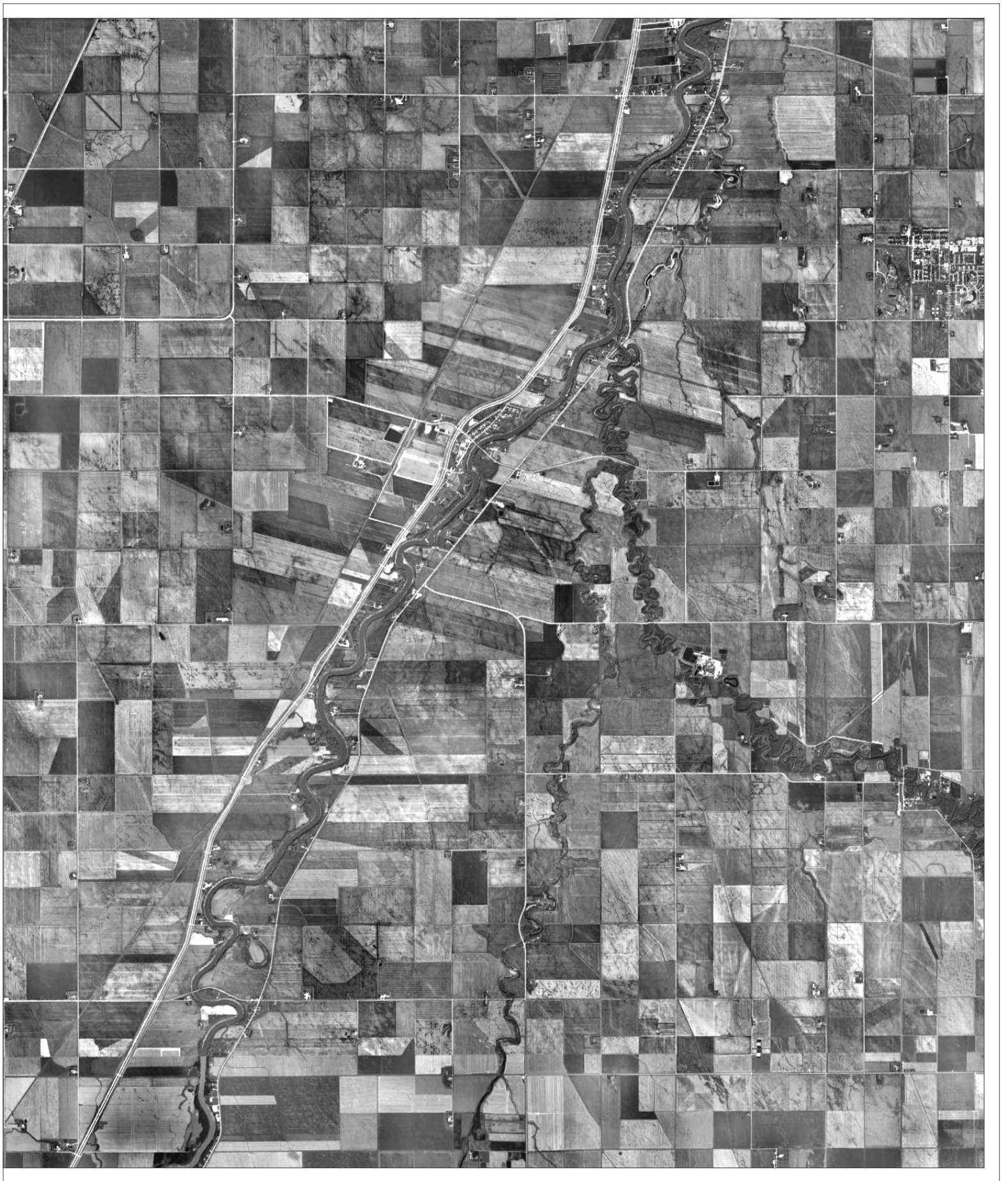
It's not difficult to imagine the survey distorted by the various contours of the land – both man-made and natural. With the survey now as a datum, and with the increasing size of consolidated properties, we might imagine new patterns of land tenure emerging from local conditions.

fig. 5.12 | *The Ideal Fence Co. Ltd.* Advertisement in "The Grain Grower's Guide," 1914.

Prisons

Barbed wire faces both ways. It doesn't articulate its violence. Its twisted knots of iron come to two beveled ends that point off in opposite directions – at both the outside and the inside, the fence cutter, and its builder. It attempts to draw a distinction:

> On the one side, the productive subjects are preserved and covered in the guise of democratic rights. They are a herd, but one with a human face. On the other side, the abandoned are deprived of rights – they resemble beasts more than humans.[28]

LOST: They [the beasts] are not the equivalent of a herd, which has economic value and *belongs* to the interior. Those banished to the exterior are lost to the unknown.

- Olivier Razac, Barbed Wire: A Political History, 2000, 85.

Over its history, barbed wire has drawn appalling distinctions between the herd and the "beasts" (and has herded the beasts as well). But in its prairie origins, in its delineation of property, it's more difficult to distinguish which side is imprisoned – the inside, the outside, or both.

Settlement flooded a hostile *outside* with *inside* spaces – spaces that both contained, and were contained by, the national agenda. Everything outside (bison, Natives, cattle) was fenced out. Everything inside was converted, herded, and domesticated. The inside washed over the outside in a growing wave – in uneven patterns that clung to rail lines and good soil. The shape of the *outside* began to change.

At first it was an expanse beyond a line, then a surroundings shot through by points, and finally the outside was reduced to points itself. We've fenced-in ranches, native reserves, and conservation areas – ecologies and communities that operate on motion and change. "Barbed wire belongs to the iconography of
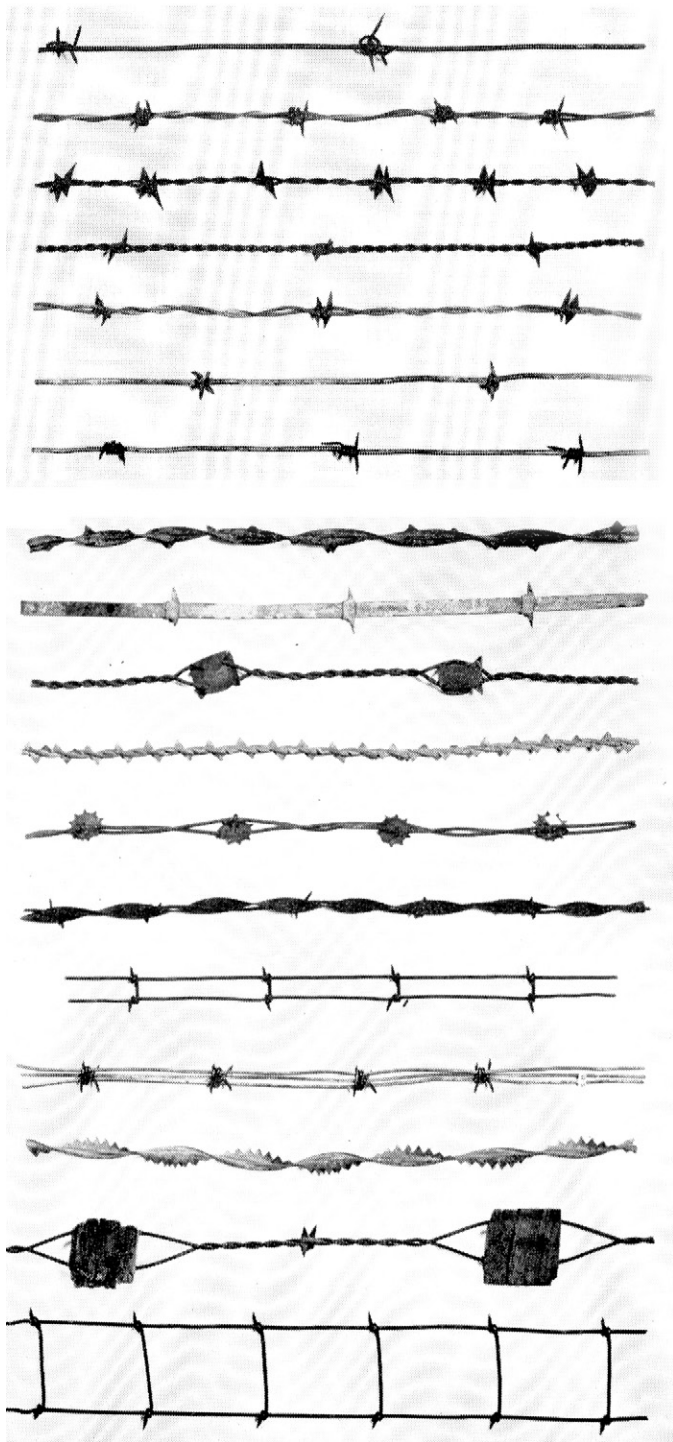
fig. 5.13 | Barbed Wire Types: From Vicious to Visible.

war, which was how the ranchers saw it."[29] But when the ranchers began to build it themselves, the outside had successfully been imprisoned. The fence started to look different; more strands made it appear like a surface, a net to *catch* as opposed to repel. The barbs wrapped tightly around the joints, their tips tucked into a rounded knot. The prison had changed its vocabulary to protect its inhabitants – a refuge for ranchers and their cattle.

In its Indian policy, the Dominion (the great nurturing Mother) withheld the violent backhand so outwardly used in the United States. Instead, she stood back with a passive aggressive coldness that slowly made prisons out of refuges, and refuges out of prisons. Saskatchewan-based author, Candace Savage reflects, "The Queen's government […] decided to stand by and watch hunger do its work."[30]

A *prison* is defined as a "state [or place] of confinement or captivity"; but the word comes from the Latin *prehension*, meaning to *take*, or to *seize*.[31] In this way, Natives were being steadily imprisoned long before they settled in reserves. They were being deprived of food, of space, of *Otapanihowan* – the people's livelihood.[32]

By 1883, Cypress Hills and Forth Walsh, an NWMP post established there a decade before, was a center for exchange between Natives from both sides of the 49th parallel, the NWMP, and the crown. There had always been refuge in these hills – in ice age and hunger and drought. So as conditions in the prairie worsened, the hills swelled with desperate refugees. The government had established reserves in the Qu' Appelle valley, far from these hills and far from their promise to locate reserves according to the tribes' choice. They sent a chief from the reserve to promote it to the people in the hills; but he warned them away instead. The hills continued to swell by the thousands:

The nights throbbed with drum songs, and the atmosphere crackled with bitter stories about shoddy farm equipment, wild oxen, stringy cattle, incompetent instructors, inedible rations – hunger, always hunger – and the blatant inadequacy of the treaties.[33]

The people were starving. They were holding out for the last bison, for title to *this* land, and for the rations and assistance they'd been promised. The government wouldn't budge. Rations were made smaller and denied to those who refused to move on; winter breathed down on the hills. The tribes were caught between this holdout, where nothing was left and people were starving, and the reserves, where nothing was growing and people were starving still. There was a fine line between prison and refuge, and the following spring, the people abandoned the hills and crossed it – reluctantly filling the reserves.

The same line creates properties and prisons – limiting motion either inward or out. But for every property, there is an adjacent prison, and barbed wire still faces both ways. The only thing that distinguishes property from a prison is one's ability to *leave*.

Wallace Stegner's family left the same hills in 1920, after a few years of hard-pressed failure.[34] He moved more times after that. My Grandmother's family moved too, in an almost reverse trajectory to Stegner's. And my Mother, her sisters and her parents, sold the farm in Alliance, and moved on to other things. Even while living on the farm, they were always moving, herding the cattle through coulees and along roads, rotating crops in the fields. Today, there is a growing number of "suitcase farmers" who camp out for the harvest, but live in a city somewhere else.

This is all to say that a degree of nomadism is embedded in property. The prairie's uneven temperament requires it. But First Nations reserves are stagnant – continental islands in a pseudo-nomadic landscape.

Borders and Sanctuaries

It never occurred to us to walk along the border from obelisk to obelisk – an act that might have given us a notion of the boundary as an endless, very open fence, with posts a mile apart. And if we had walked along it, we would have found only more plains, more burnouts, more gopher holes, more cactus, more stinkweed and primroses, more hawk shadows slipping over the scabby flats, more shallow coulees down which the drainage from the Old-Man-on-His-Back crept into Montana toward the Milk.

- Wallace Stegner, Wolf Willow, 1955[35]

Wallace Stegner once wrote that the 49th parallel was a colour line:

> […] blue below, red above, blue for treachery and unkept
> promises, red for protection and the straight tongue.[36]

Boundaries are drawn to *make* differences, or to locate differences in space. They make identities that are only possible relative to the line. Without American Indian policy to frown on, Canadian policy wouldn't look so noble. While the Americans had a "frontier", Canada had a "hinterland". And while the Americans had cowboys, Canada had its "gentlemen" – the naïve offspring of British aristocracy weaseling their way into the west.

At times, the boundary seems to dissolve and identities are borrowed across the line. Calgary totes its cowboy heritage at the "Calgary Stampede." And while the city's home to the "Ranchman's Club," an elite country club on 13th Ave (originally for British gents), it's also home to "Ranchman's," a rowdy western bar with a mechanical bull on Macleod Trail.

Artificial boundaries tend to draw artificial differences. The 49th parallel cut one extensive grassland in two. But it ignored the fifteen unique grasslands and savannas that collectively add up to the Great Plains.[37] Abstract boundaries, in creating states and provinces and properties, diminish real differences. The lines of

BOUNDARIES: No Sooner are maps acknowledged as social constructions than their contingent, their conditional, their *arbitrary* character is unveiled. […] Once it is acknowledged that the map *creates* these boundaries, it can no longer be accepted as *representing* these "realities," which alone the map is capable of embodying.

- Dennis Wood, The Power of Maps, 19.

the survey *allude* to differences in order to suppress them. Henri Lefebvre writes that in such spaces, differences are reduced to those that are,

> [...] internally acceptable to a set of 'systems' which are planned as such, prefabricated as such – and which as such are completely redundant.[38]

While on the one hand, the survey creates a datum to measure difference from, it also creates a *standard* to filter difference through, and level it out. In drawing the survey, "the land was assumed to be democratic."[39] And wherever it's proved not to be, it's been exploited, abandoned, or remade.

While a boundary draws a line between identities and rules, the boundary itself belongs to neither side. And as more of a zone than a line, it becomes a habitat for those also without a side, an identity, or a place. It becomes the domain of wanderers – creating and harboring its own "variety of law breakers,"[40] who waltz across the line to the rhythm of its two sides. Wallace Stegner reflects that a boundary, "provides for the guilty and the hunted," and for the lost, "the institution of sanctuary."[41]

For years, the Cypress Hills and the territory just north of the 49th parallel provided sanctuary for American Indians fleeing violence in the United States. But when the bison were gone, so was the sanctuary. The crown wouldn't offer treaty rights to American tribes – though "American" was a meaningless label.

Before that too, the Cypress Hills were a natural boundary between Native tribes – a neutral ground for all peoples and the animals they hunted. There was something culturally sacred in those hills. They'd resisted hundreds of meters of erosion while the plains to the north washed off to the Arctic, and those to the south shed into the Gulf of Mexico.[42] But the Cypress Hills, a continental divide, stood strong.

FRONTIER: Frontiers are lines where one body of law stops and another body of law begins.

-Wallace Stegner, Wolf Willow, 1962, 96.

Edges have a thickness. They're layered with species and cultures, crossing and mixing in what biologists call the *edge effect*:

> […] a flurry of life that obtains where one ecotype shifts to another.[43]

You can witness the effect as it persists in the Cypress Hills, or as it grows on more artificial boundaries, slowly embedding them in the contours of the place. It grows on fence lines and in ditches along roadsides. And the extent of its effect reaches far beyond the edge itself. Farmers who understand this make way for margins beside their fields. The weeds that grow there offer a temporal home for natural pest-controllers – predatory insects that pass through, prowling the grass for crop-eating larvae.[44]

It's this kind of temporal use that Lefebvre finds so resistant to a wash of homogenous places – properties owned for the purpose of exchange. He writes that,

> […] *use* re-emerges sharply at odds with exchange in space, for it implies not 'property' but 'appropriation'. Appropriation itself implies time (or times), rhythm (or rhythms) […][45]

Property, he writes, "falls under the sway of those agents," that render it "unifunctional." It's next to impossible to appropriate a farm field and put it to another use. But margins are inherently appropriated – belonging to no one, they're sanctuaries for the displaced. Many of the differences reduced by artificial boundaries, re-emerge in the boundary itself. "What is different is, to begin with, what is *excluded*."[46]

The international boundary is, to this day, nearly invisible. It's marked more by an *absence* than a presence. Akin to the space between a field and a highway, this widened out absence, between the TransCanada and the border, swarming with hills and wild grasses, has long been a refuge for the displaced. Grasslands National Park rests firmly on the boundary – at the margins of the prairie's productive range, but at the forefront of

fig. 5.14 | Cattle on the Road. Photo taken from Dashboard Camera, photo by author.

The road and the ditch are a commons between locals, wildlife, and passerbys. More than once driving, we were brought to a stop.

its identity. There are other parks too – a string of sanctuaries hugging the border from the International Peace Garden that spans Manitoba and North Dakota, to Waterton National Park in Alberta.

What is visible, in contrast to the boundary itself, is both what freely moves across it, and what butts up against it and stops. Rivers, topography, and their wildlife, thread their way across. But the land use we assume is derivative of such conditions is sometimes opposed on either side of the line. Land that's deemed too dry or hilly for farming north of the border, can be found cultivated to the south; and vice versa. Such differences point to territories that have been shaped more by cultural or political forces than natural constraints. In other places, certain practices, consistent readings of the land, have spread across the line: constellations of oilrigs, rows of shelterbelts, sheets of the same vibrant yellow crops, and land found to be marginal – handed back to the grassland and its hosts.

We had left the east block of Grasslands National Park after lunch, then drove 35 km north to the first paved highway, and followed it west. The road was quiet. We saw a sage grouse, her speckled tail just appearing from the deep grass. Dave thought it was a lizard, scaly, hugging the edge of the hot pavement. We stopped the car and walked back, hoping to catch a closer glimpse. But she flew off.

The grass grew tall between the road and the fence – no-man's land. It wasn't planted, wasn't tilled, and only sometimes mowed. It followed the road's edge to the next intersection where it turned and followed that road too. It kept growing in this pattern, deep grass for sage grouse in a weave of narrow threads.

These edges built to cease motion, become its corridors instead. An ecology once without edges, has come to rely on them – to survive in them.

1.6 km
section

0.8 km
quarter-section
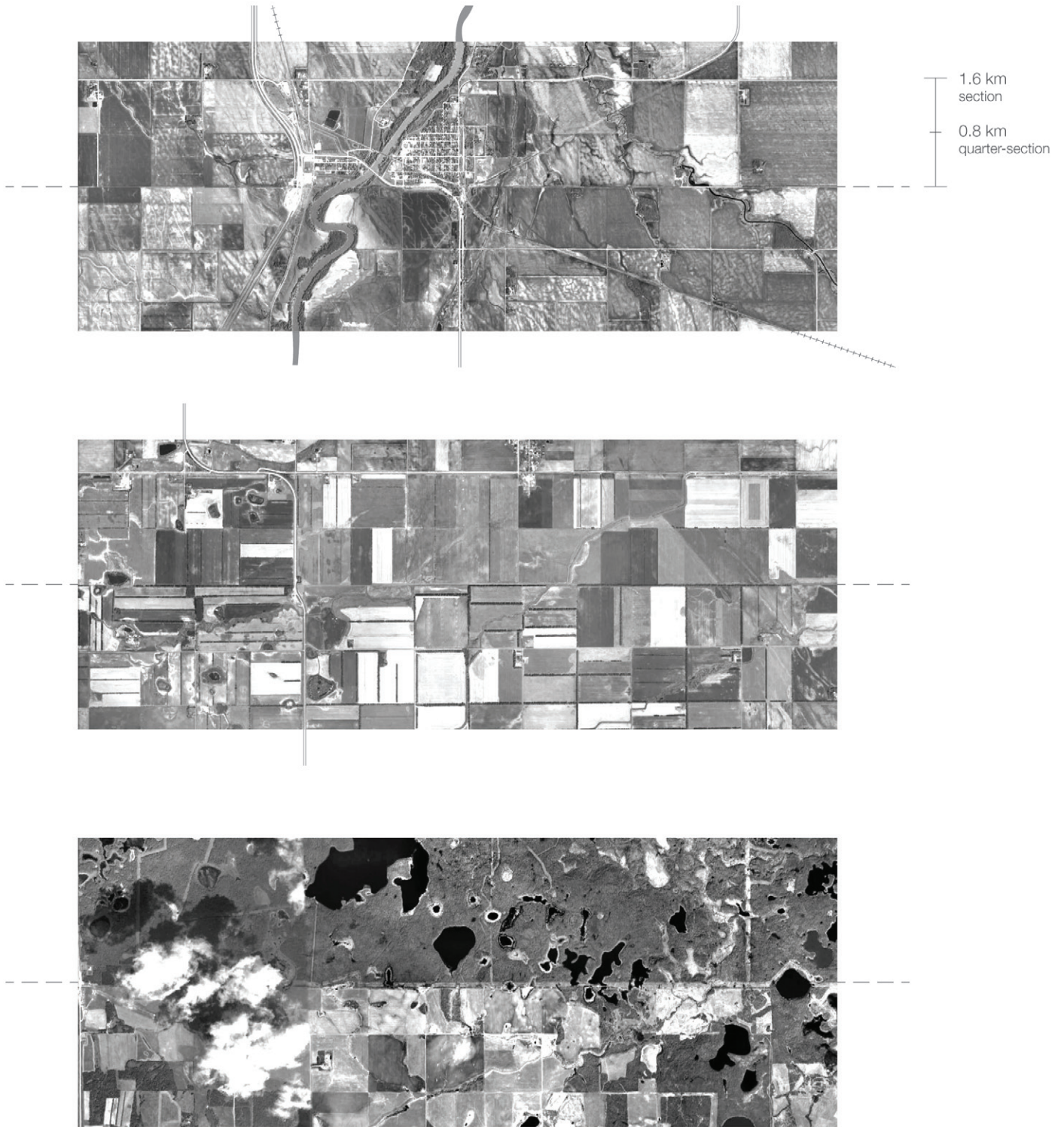
fig. 5.15 | *Patterns on the International Border.* aerials from Google Earth, drawing by author

1.6 km
section

0.8 km
quarter-section
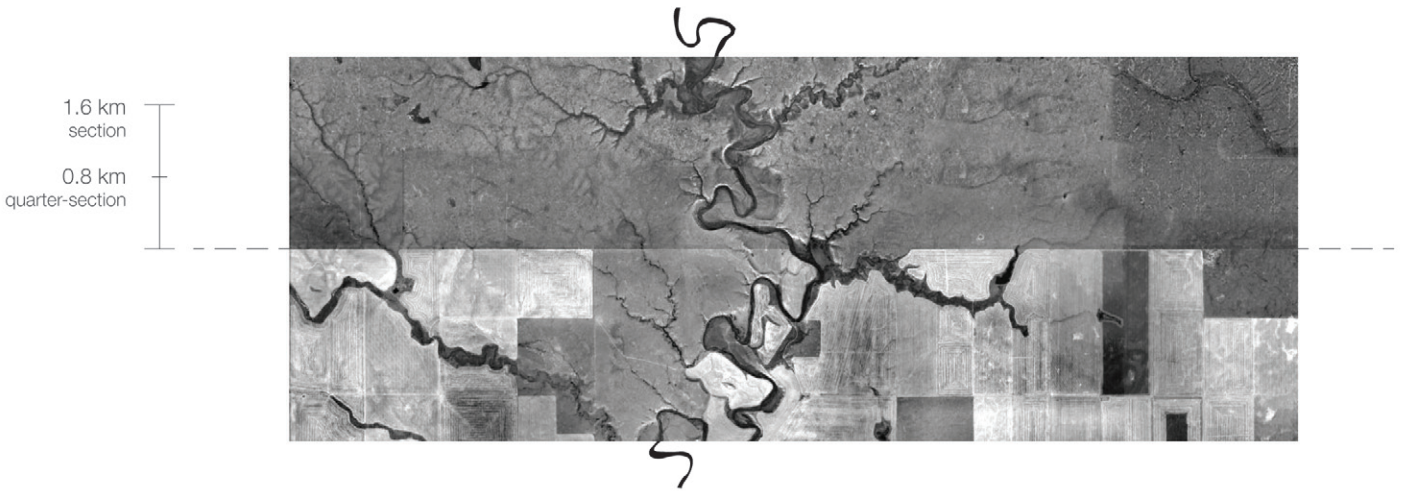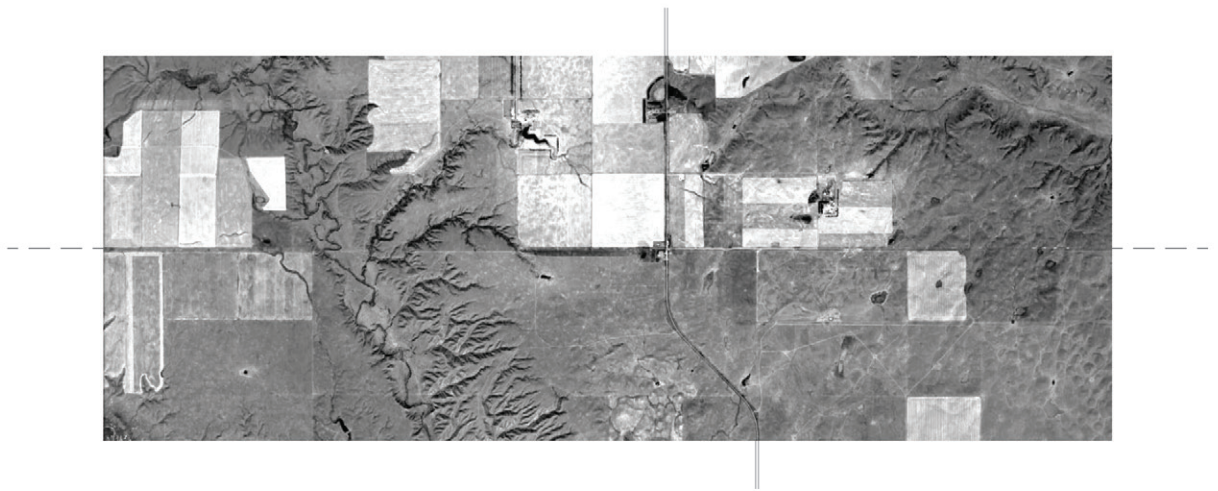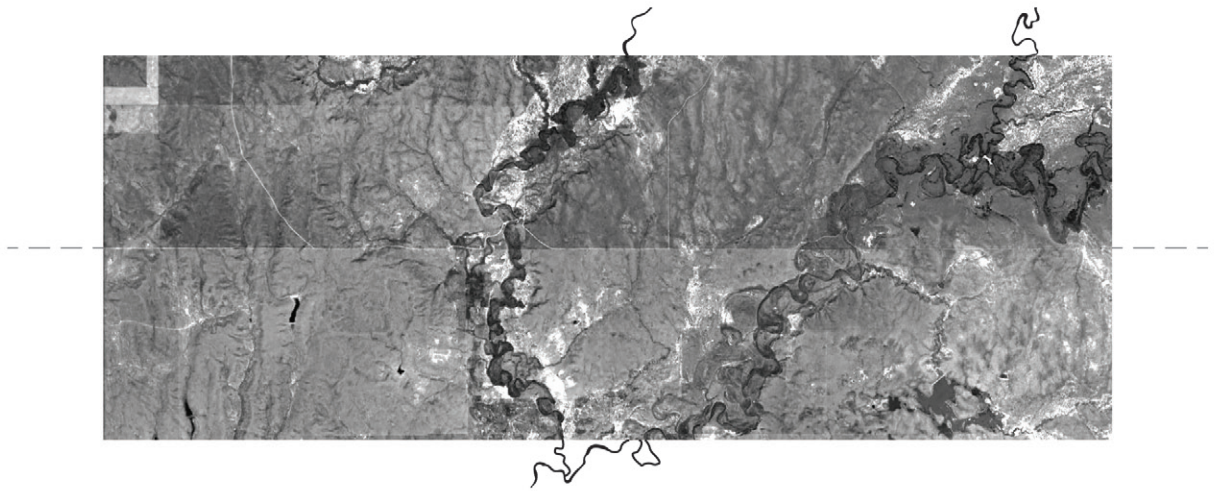
fig. 5.16 | Islands: A Network of Roads and Their Margins.
Map by author.
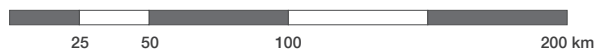
There is a play of entitlement to the grass growing in ditches. It goes to the contractor or farmer that baled it, or to the rancher that led out

his herd, or to the antelope that found it. In Iowa, there is an effort to seed roadsides with native grasses – a web of continuous grassland.

fig. 5.17 | *Diamond City.* Alberta, 1926

Names of Place

The Sprechers, my Grandfather's family, had a farm at the Southwest Quarter of Section 14, Township 39, Range 12 west of the 4th Meridian – like a coordinate in some stellar system, only locatable by telescope. To find it was an act of translation, from the landmarks you remember, to their location in the grid; from the place you know, to the name it's given.

Names are powerful tools for place making. They can claim territories, immortalize people, and teach us the lay of the land. But names are part of vocabularies, and vocabularies have their limits. These coordinates, this vocabulary, may define the place – but it does not describe it. Imagine,

> […] the entire North American continent in a time before living memory – this enormous sprawl of land, sheathed and cloaked and brilliantly arrayed with names. Names covering terrain like an unbroken forest. Names that wove people profoundly into the landscape, and that infused landscape profoundly into the people who were its inhabitant. […] I imagined how these names had dwindled with the death of elders, beginning five hundred years ago; a steady impoverishment of names, as the Europeans spread west, knowing too little of the land and its people to realize what was being lost.

> *-Richard K. Nelson, The Embrace of Names, 1998*[48]

The names we've lost are a potent reminder that the 'clearing' was more of an *action* than a found condition. We have completely erased most names and absorbed others, their original meanings forgotten. We've lost a rich knowledge of the land to abstraction

– to coordinates, imported names, brands and figures that are not of the place. We build (and limit) our understanding through names.

When Peter Fidler was posted at the HBC's Chesterfield House on the South Saskatchewan, he transcribed nine maps based on Native toponymy.[49] The names on these maps describe the places' inherent qualities: Oo Saks (rocks high, pines), Chis Seeks (little poplar), A Qun Us Que (plenty of berries).[50] Fidler *learned* the surrounding territory, and passed it on to the company, through names.

The fact that few of those names made it on to the survey, or into our common knowledge is no coincidence. Erase the name – erase the place. New inhabitants moved into new places on a *frontier* that never was. They shuffled names across the prairie at random. Yi-Fu Tuan says that to a child, things are not quite real until they're named – classified into a body of knowledge.[51] A place, however meager, materializes with a name.

Marc Auge and Michel de Certeau speak of a traveller making an itinerary out of names on a map. He can know *of* the places without ever *knowing* them. Place is eroded to a mere passage, "an absence of the place from itself, caused by the name it has been given."[52]

When the Grand Trunk Pacific constructed their transcontinental route, they ran through the alphabet over five times between Arona, Manitoba (never realized) and Jasper, Alberta. When they came across a town already consecrated with a name, they skipped that letter and went on in their systematic way. Some towns inherited existing names, existing knowledge; you can find Holland and Killarney in Manitoba, Strasbourg and Stockholm in Saskatchewan. A name could carry such symbolic weight that it could be made feather light, entirely detached from place. One could pick it up and carry it across the ocean,

bringing with it a sense of place already routed in memory, detached from the soil on which it fell. Henri Lefebvre defines a *metaphor* as a mobilizing of knowledge.[53] When we encounter new places and unfamiliar things, we give them names from an outside world. To measure a place in such a way is often to overlook it.

Names have barely grasped the prairie's ground; they fell with such speed, landed so recently, and were simply unsure of their footing. Some places were never intended to last; others were bound to shift and change. A herdsman on leased but unfenced land, or in a communal pasture, brands his place right on the hides of his cattle. His place can grow and shrink, consuming the river's edge, then being driven on to open grass. Without names, he's got a herd of mavericks, no capital, and no place. The name is paramount. Yet it lands so lightly, so autonomously, that it sets the very place in motion.

In 1987, two professors from New Jersey published an article in *Planning* Magazine, proposing to repurpose abandoned parcels of prairie into a massive restoration project. They called it the *Buffalo Commons*.[54] Some received it as an enlightened response to a dying place. To others, it was a narrow-minded insult. When the authors reflected on their proposal ten years later, they said it was a metaphor that set a region into motion.[55] In its ambiguity, people had appropriated the idea in all sorts of ways. It had opened imaginations, and people began to see the place in another light. There are other examples too, where a small place travels an enormous distance through a name.

There is a town in Alberta that a surveyor named after the Roman god of fire – we can only imagine what compelled him. But the town of Vulcan has since taken its name into its own hands, and with it has travelled to an imaginary planet for an identity. Every year the town gathers retired Star Trek

fig. 5.18 | T-Shirt Design for "Spock Days". Vulcan, Alberta, 2010

cast members and thousands of their fans to celebrate the otherworldly, in rural Alberta. It seems strange to reach so far for an identity. But on a frontier, with its lack of a perceived history, or its reluctance to own up to one, it isn't uncommon. From the Cypress Hills, Wallace Stegner reached back to his Grandfather's Civil War, and to his Grandmother's Norway, for a past to which he felt "tribally and emotionally committed." These pasts were far more detached, though probably more glorious, than the one in the hills around him:

> It seems to me now an absurdity that I should have felt it necessary to go as far as the Hardanger Fjord for a sense of belonging.[56]

The USS Enterprise is wedged on a podium in Vulcan. It seems to have landed there on a whim of desperation. Like others scattered carelessly on the land, and as flimsy as it may have once been, its name became *of the place*. It became local dialect. Could you for instance, find my Grandfather's farm without a map? Could you return a wandering cow to its owner? These vocabularies become the rhetoric that, as Descombes suggests and Auge refers to, is a measure of belonging to place.[57]

Still, they orient and blind us in particular ways. The coordinates of my Grandfather's farm give a cardinal and systematic orientation. Names brought from elsewhere turn us to where they came from. And the brands that adorn grain elevators give us an outward orientation, of where the place is going. If Yi-Fu Tuan is right, and we make names to classify, then these towns have been classified on an international scale – in a placeless rhetoric. They've become, as Marc Auge proposed, part of a *universal vocabulary*:

> It is less a question of the triumph of one language over the others than of the invasion of all languages by a universal vocabulary.[58]

A .

A Dept. of Agriculture, D. A. Act, Pt. 2, Edmonton (vent D immediately below brand); l. sh.

A Florer, Henry, Bottrell (vent bd. on l. sh.); l. sh.

A Noble, Thos. John, Morley; l. r.

A Dept. of Agriculture, D. A. Act, Pt. 3, Edmonton (vent D immediately below brand); l. h.

A Dept. of Public Works, Provincial Jail, Lethbridge; rt. h.

A Dunwell, Earl, Pincher Creek; rt. r.

A Davidson, John Alvin, Clive; l. j.

a Moore, J. E., Hope Valley; rt. sh.

-A Andrew, Wm., R.R. 1, Eckville; rt. sh.

A- Huamha, M. D. No. 393, Amisk; l. sh.

A- Asselstine, E. B., St. Lina; rt. h.

A Winkler, Rella May, Buffalo; l. h.

A Ashmont, M. D. No. 605, Boyne Lake; rt. h.

A Arthur, M. D. No. 340, Innisfail; l. sh.

A Allyn, Fred L., 10176 116th St., Edmonton; rt. sh.

A Connor, Mrs. Annie, Heart River; rt. sh.

A Allen, Hugh W., Huallen; rt. r.

A Truckey, Louise A., High River; l. sh.

A Armitstead, C. K., Onoway; l. h.

A Moffat, Robert, Wainwright; l. r.

A Avery, E. J., East Coulee; rt. sh.

A Ostwald, Mrs. Mary, Walsh; rt. r.

A Owens, Carlton Harold, Leslieville; l. r.

AB Bradshaw, A., Hutton; rt. h.

AB Burpee, Allen W., Rosyth; rt. h.

AB Bowman, Norman A., Standard; l. r.

AB Blower, John George, Onion Lake, Sask.; l. h.

AB Alexander Bros., Box 424, Lethbridge; rt. sh.

AB Belanger, Mrs. A. & Sons, R.R. 1, Edgerton; l. h.

AB Bosby, Albert, Wild Horse; rt. h.

AC Campbell, Wm., Bowden (vent bar over brand); l. r.

AC Cooper, H. Alex., Czar; rt. th.

AD Dhenin, Armand, R.R. 1, Halkirk; l. r.

AD Dorgatz, A. H., Hay Lakes; rt. sh.

AD Engblom, John, Pendryl; l. h.

AD Dan, George D., Three Hills; l. h.

AE Orwald, August J., Tilley; rt. r.

AE Els, Alex., Medicine Hat; rt. r.

AE Eastly, A. L., Sedgewick; l. h.

AE Mottus, Arthur E., Box 133, Eckville; l. r.

fig. 5.19 | Alberta Cattle Brands. (page 1 of 11 for brands under 'A') Alberta Dept. of Agriculture, 1937

Apparently, we lose languages at a rate of one per fortnight.[59] With every language lost, we lose another way of seeing, describing, and *knowing* the world. We can't even translate some languages because they express ideas so contrary to our own – we simply don't have the words. When the First Nations signed their treaties with the Dominion, they had no word for *property*.[60] And there was likely no word in English for how *they* had inhabited this land. Even within our own language, we're always making translations between what we know, and what we say. We do it unconsciously. As Yi-Fu Tuan says, "we tend to deny or forget" the experiences we find hard to express:

> We know far more than what we can tell, yet we almost come to
> believe that what we can tell is all we know.[61]

We lose something in the translation.

Gregory Bateson, an English anthropologist who strived for a multi-disciplinary "meta-science," wrote a series of rules that *Every Schoolboy Knows* (or should know). His second rule was, "The map is not the territory, and the name is not the thing named."[62] We make an unconscious translation in the brain between thing and name, classifying it. If we could only make the distinction, the name as a *lens* and not the place itself, we might see the forces working beyond it. We could see how the Sprechers' farm was a chip in a massive political system – less of an *enclosed* place than a *convergence* of abstract ideas and lines.

In language, the single word is meaningless without its adjacent words to qualify it or be shaped by it. Names often limit; definitions are meaningless; metaphors can presume. A name is a piece of vocabulary – an initiation into some means of seeing and making the world.

Pools

They'd come to the land and tried to shape it according to their imported ideas of science, progress, community, landscape. Now the land began to shape them. […] It shook itself free of the litter of surplus buildings, the fence posts and barbed wire with which the Lilliputian homesteaders had tried to pin it down. The land would wear just so much architecture and society, and no more.

-*Jonathan Raban, Bad Land: An American Romance, 1996*[63]

Something seemed sad about all those tractors, rows and rows of them in a field. Tractors and threshers and combines from every decade, dropped here by anonymous donors. The museum hosts an annual Threshermen's Reunion in July, when teams compete on gas and steam powered machines. The rest of the year, the grandstand sits empty and the tractors sit rusting in a field. Beyond the tractors, there were buildings – gathered along a gravel road to make a village. They had come from all different places: the church from Arizona, Manitoba; the elevator from Austin, just down the road; the train station from Baldur; the log house from Carberry, and the wood framed house was built by the Carrothers family, right here.[64] *The village was neatly arranged next to the haphazard miscellany of farm equipment in the field. But still, I thought, it seemed so dislocated, the buildings having been swept up and dropped in this arbitrary place.*

What I didn't realize was that this was far from unnatural or unusual; it was *vernacular* – the pooling of survivors to make a place. The Carrother's house, built here before the museum, was a melded cluster of smaller houses the family had gathered as they grew. These vernacular farmhouses, Raban writes,

> […] tell one that it took the homes of a dozen families who had failed to make the modest house of one family who managed, barely, to succeed. They are houses in which the walls of every spare bedroom are stained with somebody's despair.[65]

My mind drifts back to *Carrion Spring*.

> The moment she came to the door she could smell it, not
> really rotten and not coming from any particular direction,
> but sweetish, faintly sickening, sourceless, filling the whole air
> the way a river's water can taste of weeds – the carrion smell
> of a whole country breathing out in the first warmth across
> hundreds of square miles.[66]

The first time I read Stegner's *Carrion Spring*, I felt sick to my
stomach. I could almost taste the stench of decomposing
carcasses – I could hardly look at meat for days. I have felt the
onrush of a chinook, that massive warm front that graces the
prairie in the depths of winter, that thaws the snow and leaves
the air warm and dry – somewhere between spring fresh and
winter stale. But this story, fictional only in its details, thaws the
prairie only to lay bare a winter of cold and catastrophe as its
sprawled out dead in the moldy grass.

It was 1907. The ranchers had found their limit. The cows
had found their limits. Molly, the story's protagonist, had found
her limit. The very air reeked with the smell of limitations,
reached and surpassed. So Molly packed her bags and headed
for the city – disgusted and defeated. And then she found a
crocus:

> It lay in her palm, a thing lucky as a four-leaf clover, and as if
> it had had some effect in clearing her sight, Molly looked down
> the south-facing slope and saw it tinged with faintest green. She
> put the crocus to her nose, but smelled only a mild freshness, an
> odor no more showy than that of grass. But maybe enough to
> cover the scent of carrion.[67]

She looked at her husband, and he looked at her, pleading with
his eyes,

> When else could we pick up cattle for twenty dollars a head with
> sucking calves thrown in? When else could we get a whole ranch
> layout for a few hundred bucks? […] We're never goin' to have
> another chance like this as long as we live.[68]

They stay. The story ends there. All we're left with are the disconcerting hopes that arise from others' failures.

The story tells us two things: this is a landscape that limits without mercy, and clusters without bias. It sheds itself of excess, then gathers the remains. It's made of great expanses, and the mounds of whatever drifts across them. Some mounds are wretched, like the carcasses gathered for warmth, then piled from starvation; some are majestic like the sand hills, great dunes of sediment left by glaciers and picked up by wind; some are cooperative, like the pools of people and commodities – the great social movements born of isolation; and some are strangely opportunistic, like Molly and Ray after the snow storms, gathering all those unwanted remnants – realizing that this place has an equilibrium, and they have found it.

Every habitat has brackets: a minimum population to sustain itself, and a limit to which it can sustain. We seem to understand this about every other species except our own. In 1976, an American biologist named Thomas Lovejoy made an experiment out of a legal provision for Brazilian ranchers to preserve fifty percent of the rainforest on their land. The islands left scattered in the fazendas came to demonstrate Lovejoy's "Minimum Critical Size of Ecosystems" theory.[69]

To see the other end of the spectrum – the *limits* of an ecosystem – we need only look at our history of ranching in the prairie, at the overgrazed and obliterated pastures that are still healing a hundred years later. In 1886, in response to the pitiful state of prairie south of the border, Canadian ranchers petitioned for a reduction in lease-stocking requirements (the *minimum* inhabitation by law), because it exceeded the *maximum* capacity of the ground. Two years later, the government cut the requirement in half, from one cow per ten acres, to one per twenty.[70]

J.B. Jackson frames the limits of our habitat another way. Before the capacity of the place repels us, we are repelled by our own limitations – our own expectations for habitat.[71] In the prairie, this means our ability to deal with a climate that has no average; or with an ingrained sense of place that has no place here; or with isolation – particularly that isolation that sets in after the prairie has rung itself out.

Prairie co-operatives have always worked to mediate isolation. While farmers organized to *remedy* their isolation, ranchers organized to *preserve* theirs.[72]

The *Western Stock Growers Association* first developed at the threat of impending settlement. The cooperative did deal with internal codes of conduct; but largely it fought off impending cattle from the south, and farmers from the east.[73] Collectively, the ranchers pooled their voices and became avid protectionists, not only for their way of life, but in turn, for the land they grazed. It should be noted after all, that Garrett Hardin later regretted the title of his 1968 paper, and said it should have been called "The Tragedy of the *Unmanaged* Commons."[74] Originally he wrote,

> […] the rational herdsman concludes that the only sensible course for him to pursue is to add another animal to his herd. And another; and another… But this is the conclusion reached by each and every rational herdsman sharing a commons. Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limit – in a world that is limited.[75]

But what Hardin failed to see, as E.P. Thompson put it, was that "commoners were not without commonsense."[76] The ranchers had learned the limits of this land (the hard way), and now they petitioned on the land's behalf.

They had found an equilibrium.

In this landscape of dispersed inhabitants, always moving, always changing, pools inevitably form. It's one of the west's many legacies. The west made the Wheat Pools, and eventually the Canadian Wheat Board; it bred the United Church; it established numerous community pastures. They gather all the isolated people and places, into a commons where they can be sustained.

In 1905, while the Dominion drafted boundaries for its new provinces, a group of ranchers proposed a legal boundary around a naturally occurring pool. They proposed a Ranchers' Province, which spanned the Alberta-Saskatchewan border, and divided farming interests in the northern wheat belt from ranching interests in the south.[77] The proposal went nowhere, and the speculative province was cut down the middle.

John Wesley Powell had also proposed to base legal boundaries on naturally occurring pools – in his case, the pooling of water. Early on in my research, I came across the brightly colored map he drew for his *Report on the Lands of the Arid Regions of the United States*. The map outlines drainage districts and proposes that the new western states be drawn along such lines.

But the states were drawn, as Bill Hubbard notes in his book, *American Boundaries*, on "decidedly *inorganic* lines"[78] – on arbitrary lines that fragment coherent interests and the landscapes they emerge from. Enclosing split interests and dividing united ones, has functioned to keep two vast nations, made of countless landscapes and cultures, intact as two wholes. But it also upsets equilibriums, and breaks apart pools and islands that have painstakingly drifted together. In the past year, the Harper Government has disbanded the Canadian Wheat Board, and passed off federal community pastures into provincial (and inevitably private) hands.[79] The attitude of *The*

Tragedy of the Commons persists, even though such commons have discovered and created some balance with the land.

You can't walk the extent of Grasslands National Park. At some point you cross into private property – holdouts in an otherwise largely abandoned area. The park gathers its pieces on a "willing seller willing buyer" basis. Most of the property that surrounds and intersects it is ranchland. When its owners give up, for whatever reason, the abandoned land becomes part of this growing pool.

I asked Karin what the park's relationship is with the surrounding ranchers. She says the park owes them a great deal. Aside from introducing such foreign and irreconcilable species to this land, they have over the years, since that wretched winter of 1907, began to heal the land – to find some balance between the prairie and the grid.

WHAT GROWS IN THE EMPTY

In the spring of 1988, North America's fourth largest saline waterbody, Old Wives Lake, dried up. The exposed lakebed, encompassing some 300 square kilometers of southern Saskatchewan, was a vast new surface of very fine brownish silt, mixed with equally fine crystals of sodium sulfate. By June, it had begun to blow.

-Don Gayton, The Wheatgrass Mechanism, 1990[1]

Don Gayton had visited the dried-up lakebed in September of 1988, waiting for the dust and the media to subside. For months, Old Wives Lake had been inaccessible. The surrounding cattle were sick and the crops were failing – everything coated in a salty grime. At the heart of the problem was this void, an exposed salt-bed inhabited by nothing, and the question of how to fill it – how to hold down the dust. Engineers had come and gone, proposing to drill a deep well and draw up water to fill the lake. But the endeavor was too expensive. By September, Gayton arrived to find a hoard of salt-loving species growing from the shoreline – turning dust into soil, and the lakebed into grassland.

Kochia is a "pioneer plant". It grows in virtually empty soils that are, for most species, uninhabitable. And while sowing the seeds of its own destruction, it also changes its surroundings, creating a new niche. It lessens wind erosion and salt accumulation; it holds down moisture, and kick-starts a nutrient cycle between soil and roots. The process was clear at Old Wives. At the bottom of the lakebed, Kochia was growing tall and lush. But towards the shoreline, the plant became sparse, making way for clumps of forbs and mats of desert saltgrass. These ground-hugging plants had moved into the niche created by Kochia. And Kochia, having released its own fatal toxin into the soil, had dwindled. Some plants are "allelopathic"; they release a toxin that takes out surrounding plants. Kochia is "auto-allelopathic";

its own toxin retards the growth of its own seeds.[2]

This is how grasslands work – in a succession of species, one enabling the next. The initial and intermediary stages are occupied by what are called "seral communities." The theory of succession was made popular, particularly among ranchers, by the ecologist Frederic Clements.[3] His vision of a stable and inevitable "climax community" reigned from about 1900-1960. He wrote that no matter what the starting condition of the plant community, it would always progress to the same climax, the same dependable pasture. What Clements was wrong about, was that succession is never predictable. Every wave of succession will turn up something else. Something always grows in. But we can't know what.

It's difficult to picture the survey and the last hundred and forty years of settlement as a "seral community". It has been far more destructive than nurturing. And rather than finding a niche, the survey cleared a void for itself. But it *has* created new conditions. And it has, just like Kochia, sowed the seeds of its own destruction. If only by its own failures, it has uncovered roles – niches – that place ought to fill. Every failure points to something learned, something discovered in the land. Every blind measure generates some unusable fissure in the landscape – an island that emerges between grassland and grid, an opportunity for something else. The grid can now be seen as a datum from which we can measure change, and a web-work in which new places and ecologies are beginning to unfold. People have always shaped the nature of the grassland, from hunting megafauna to the point of extinction, to burning sweeps of old grass, to planting fields of crops that in turn have changed the tapestry of insects and plants that grow beyond the field's edge.

J.B. Jackson once wrote that *landscape* is the result of an ongoing tension between man as a political animal, and man as a

species of this planet.[4] This tension plays out everywhere, in all landscapes. But it is incredibly clear, if you look closely enough, in the grassland. The landscape has reached a point, perhaps of succession, when we realize that we've been leaning too hard on a political and economic framework, and have lost our ability to *survive*. The clearing is steadily being cleared out once more.

It's in this context that Grasslands National Park could be so much more than a trace; not a memory, but a hope – a projection. The park has achieved something people scoffed at only twenty years ago, when the Poppers proposed a "Buffalo Commons" made of abandoned land. The park has pooled an archipelago of unusable properties – islands re-emerging from the grid. But now they're dealing with the same question the surveyors and settlers and nation-builders were faced with at the edge of the prairie. How do we make this a place? How do we make any sense of place visible? How do we orient the newcomers? One hundred and forty years ago, this is how we came upon the survey.

It's hard to believe that something as seemingly benign as a post driven into a mound of dirt, could have provoked a sense of place, and remade one of the largest ecologies on earth. But for every two posts, we drew a line. And for every four posts, we closed a square. With every thirty-six squares, we bundled a township. And with over 6,500 townships, and the railways and highways and elevators that served them, we remade the Canadian prairie. The smallest, most elemental instance of architecture can have sweeping effects.

After our hike in the east block of the park, we packed up the kite and made lunch on the hood of the car. A park ranger sauntered out of the ranch house to retrieve the flag from a mud puddle down the road. "Strong winds last night," he said, wringing out the soiled fabric. There had been a

family who'd set up a tent in the clearing last night, but packed it in when the sound of coyotes came howling through the canvas. "They followed me back to town," he laughed. Then he asked us about our kite – he'd seen it flying in the distance. We talked about wind, and quick sand, and deer paths. He showed us the Crested Wheatgrass growing at the edge of the coulee. "We can't control it," he regretted, "it crowds out the native species." The grass was an invader from Siberia, a trace of the ranches that had been here before. Then, perhaps with more regret than he'd expressed for the weeds, he told us about a hike he'd taken last month. Walking along the ridge, where the grass thinned to dirt and overlooked the badlands, he'd spotted the worn bones of something massive showing through the ground. He called in a specialist and shortly after, it was confirmed. Deep history was resurfacing in Grasslands National Park. This was the skeleton of a dinosaur.

He told us the story tentatively, as if to let us in on a secret. "The last thing I want," he assured us, "is for this to become another dinosaur park," another badlands swarming with tourists wielding chisels and brushes; or another museum with actors donning pioneer costumes. The proud, but garish retelling of western history is precisely what the park tries to avoid.

The prairie is littered with pioneer museums and oversized relics, with stories that reach back to fossilized time, or only as far as the survey allows, conveniently avoiding the decades when the clearing was *made*, not found. But Grasslands National Park avoids any allegiance to a specific history. It does, however, hold an allegiance to a specific *nature* – one that predates settlement. Yet the most fascinating moments in the park, the moments that strike up conversations about the park's future, are those that are "nonconforming." In fenced-off pastures, the park is quietly running grazing experiments to see how cattle might fill a niche[5] – to graze the tons of dead biomass and invasive species accumulating where the park's bison can't reach. There are over 500 square kilometers of grassland in the park, all of it cut up in pieces. Most of it goes un-grazed, weighed down,

unable to grow. To bring cattle into the park would change its vision of *nature*, and its story of place. But in allowing this story to continue to unfold, and without limiting it to a prescribed past, history begins to reveal itself in all its levels – as dinosaur bones, and tepee rings, and Crested Wheatgrass. The grassland is an archive, if we only let it speak.

It's against these subtleties that the architecture of the park becomes a delicate question. Without a gateway, people may never arrive. But they can drive right through a gateway and never stop. Without paths, some are afraid to walk in the grass. But cutting a path says "walk here," and cuts off the chance to explore. Without landmarks, the park seems to go on forever – too daunting to explore. But every tree and motorhome and plastic outhouse can be seen kilometers away. Without a clearing, it's tough to set up camp. But within a clearing, you're confined to this extent, where you can boil water on a camp stove without starting a grass fire. And without signs, people don't know what they're looking for. But from a sign, they limit themselves to what they are *told* to see.

In the grasslands, absence seems the greatest storyteller. It has a thickness, and a presence like water. The horizon, the grass-scape, the silence and darkness are materials just like walls or ceilings, daylight or fresh air. Place is a matter of perception – architecture its lens. The challenge is how to create a lens, how to orient, without shouting out or filling in the absence.

I'm not sure what such an architecture looks like. I know it's about subtleties and change – a sensitivity to rising currents and emerging pools. I think it takes a turn toward the *Songlines*, toward a place made, and remade, by its wanderers – by the guests who might play an ongoing role in its creation. I think perhaps, its about gateways that descend rather than tower; and clearings

fig. 6.1

that can set sail, or be rolled and carried on your back; perhaps it's about paths you can graze with your feet, and leave behind you for someone else to find. I think it's about an architecture as foreign and fantastical as this land engenders, but as ingrained and subtle as this land requires to be seen and heard.

I don't have an answer. But I have a compass. And I think that's where I'd start.

fig. 6.2

273

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Lost In The Empty

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What Grows In The Empty

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