ENCOUNTERING THE WATERLANDS

Stories of Environment, Animals and Architecture in the Ahiak

by
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AUTHOR'S DECLARATION

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

In spring of 2019, I travelled through Iqaluktuuttiaq (Cambridge Bay), Nunavut to the Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary for a five-week volunteer position studying populations of migratory geese. In this space of migration, I question not only how we understand our changing environment but also how we can recalibrate a relationship in it. In so doing, I approach the Karrak Lake research station as a multiplicity of landscapes, buildings, animals and climatic forces, putting forward a method of engagement and expression that engages each of these actors through photographic composites and narrative-based writing.

This research is informed by a wide spectrum of cultural study, historical research, the philosophies of Gilles Deleuze, Félix Guattari, Henri Bergson, and James Gibson among others as they helped to reflect upon personal encounter with the Arctic environment over the course of five weeks in the Ahiak. The narratives were composed largely in-situ and tell the story of intense interrelations between living beings, landscape, weather and architecture. The thesis reframes the research station as an integrated component in much larger environmental processes. It explores the interconnectedness of the humans and animals whose territories it sits among, as well as its unique ecological surroundings, and looks toward how we can pursue a relationship with the land in the context of Canada's changing environmental and reconciliatory discourses.

ACKNOWLEDGEMENTS

A thesis is an endeavour that cannot be done alone, and there are so many without whom this work would have been limited to what I could imagine.

Firstly, I would like to thank my supervisor, Dereck Revington. It has been a pleasure to study with you over the years, of which this thesis is only the latest chapter. I am very grateful to you for advising my thesis so carefully and patiently. Thank you for teaching me how to look, perceive and encounter.

Thank you to my committee member, John McMinn. Working on the arbour for the Mississaugas of the New Credit First Nation was, in retrospect, pivotal in working through my own challenges to find agency in my work. Thank you for offering your guidance and support in the development of this thesis through even the busiest of months.

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Thank you to Dana Kellett and Ray Alisauskas, for making possible my travel and experience at the Karrak Lake research station. I owe a great deal of gratitude to the friends I met along the way, including Ryan, Kayla, Maliya, Toren, Katelyn, Alain, Brian, Robin, Melanie and Gustaf. It was an immense pleasure to work and learn alongside you. The laughs, discussions, adventures and struggles we shared are ones I will never forget. Thank you for trusting in my abilities and for supporting me.

During a short five weeks in Nunavut, I encountered thousands of animals who in their own ways challenged and informed this work. Thank you to the bear, for showing me fear and determination. Thank you the goose who taught me purpose. Thank you to the ptarmigan for teaching me to be bold, and to the hare for teaching me to be silent. Thank you to the caribou, who taught me the value of life. Thank you to the wolf, for teaching me to disappear.

To my many friends and colleagues in Cambridge, thank you for making these five terms a rich and enjoyable experience. Thank you to Callan and Jessica for your counsel and for your rigour in editing this work. Thank you to Elaine for teaching me to believe in myself, for continually reading and reviewing my work and for keeping me on course.

Finally, thank you to my family. To my grandparents Christena, William and Patricia, thank you for your support, wisdom and love. To my sister, thank you for your encouragement. To my parents, thank you for your endless support and for always believing that I could find what I set my mind to. To my father, thank you for teaching me to see a world filled with animals. To my mother, thank you for teaching me how to capture what I could see.

TABLE OF CONTENTS

LIST OF FIGURES

All images by author unless noted.

PREFACE

This thesis is a journey in re-perception and finding agency as much as it is a journey in distance. It forms an experiment of affective encounter in, and affective engagement with, the environment of the Canadian Arctic. This journey has taken me north of the arctic circle to the Ahiak Migratory Bird Sanctuary, Nunavut, where the Canadian Wildlife Service studies enormous waterfowl migrations out of a small research station.

The Ahiak and its water-filled lands form a point of convergence for discourses that prioritize the protection of land, water, wildlife and cultural resources and require the dismantling of old colonial frameworks in favour of new relationships that respect people and the environment.

In order to begin this process of re-perception, this thesis draws on a range of philosophers, design thinkers, ecologists and biologists in the formation of its theoretical foundation. As a thesis composed over five terms does not permit a comprehensive analysis of each of these writers, I have made time for the analysis and comprehension of those portions of their writing in which I found a glimmer of inspiration. Rather than critique, I found my job was to uncover the meaning of these concepts in the context of my experience in the Ahiak.

I hope that the following thesis inspires us to look more closely, perceive more deeply, and listen to the many 'stories' that are always unfolding around us.

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31.16

32.00

32.42

19:16:33.00

ARRIVAL / THE AHIAK

Fig.1.1 Karrak Lake Research Station from the helicopter
Two exposures at 1/180 sec., one second apart

OPENING NARRATIVE

Flying above the shimmering arctic fens, the helicopter pilot tells marbled stories of sex and women and helicopter crashes in a sharp Québécois accent. He lifts a hand from one of the stout joystick controls to flit his fingers across an old iPad mounted to the top of the gauge cluster. The void left from his voice in the headset is filled with a rush of static and the enveloping roar of the helicopter's turbines. Slapping the screen with an air of finality, he reaches back into his lap to retrieve a small printed photo of boots, rocks and running water. He inspects the photograph, eyes flitting between the flat bit of earth in his hand and the flattened earth unrolling from the horizon ahead of him. He interrupts the static to say that land should never be dismissed as boring, or ugly, because there is beauty in everything where the time has been taken to find it.

The pilot drops us at the centre of an expansive grassland that recollect the grazing fields of Saskatchewan. The plain is a wide carpet of golden grass that splashes with water underfoot. The plateau is flooded with meltwater, blades of grass still poking through the surface. Surrounding each island of grass are interconnected pools of still, clear water set over black soil. A shed caribou antler sits discarded among the pools, the white bone a lone interruption in the black and gold surroundings. Further south begins the ascent of the terminal moraine, a wide rock quarry that is the footprint of long-ago glaciers. Climbing the moraine is like ascending into a moonscape—a disaster of crumpled bedrock, tumble-dried boulders and river rocks.

Beyond the moraine's final rise is a series of low wetlands thick with dwarf birch and willow. Everywhere is water. And everywhere water is different: swaths of shining clay summoned from the graves of permafrost, oily mud flats, dark turbid drainages over

the peat and rusting, iron rich sand beaches. All saturated with more water than they can carry. All flooding and draining and seeping. All glinting in the high morning sun. Salt-stained upheavals of peat mark the extents of past year's floods as boulders mark the extents of past millennia's glaciers; scales of time differentiated by several orders of magnitude, immediate and overlapping. In the deepening mud, light impressions of ptarmigan feet mingle with the heavy, sucking prints of caribou hooves. The mud is formed from thousands of years of dying mosses and lichens set down in layers like unrolled tree-rings that contract around our boots with each step. Below the weight of our bodies emerge vivid oil slicks in blue, copper and silver in the trapped pools of black. Who knew time had so many colours?

Shorebirds alight before us, flying beyond the bog's edge and up over the flat-topped esker that borders it. The esker rises against the horizon like a misplaced stroke of yellow paint, mediated from the black and blue of everything else by only a thin band of pale lichens. Ancient riverbeds cross the esker in geometric patterns. We climb up its sandy bank, cresting its top into a plateau containing hundreds of thousands of geese. They appear as specks of white that lift up in flocks of thousands like clouds evaporating before us into the sky, leaving only a scattering of snow-white feathers atop the inky tarns. Their nests lie buried, hidden among the mounds of heath around our feet. A blanket of noise and wings swirls above.

The north wind pulls a tide of black clouds over the already saturated tundra. The coming rain pushes over our shoulders, water droplets pulling back in the eddy created in our wake. A cloud of exhaled breath hurriedly turns invisible. Below our feet the sod swells with water till it flows from every particle, weeping down the hillsides into puddles and tiny streams—everything mixing and flowing from river to lake to river to ocean. The water flows north into the distant gulf, and the winds bring it all back again. Ahead, caribou stumble clumsily across the embankment. Below them, across the delta, the melting cap over the frozen lake reveals a hidden, vibrant aqua.

From low over the lake the helicopter roars toward us, rearing back overhead in a blast of soil and lichen made airborne. Hands held against the deafening slap of air and sound, we duck below the whirling rotors and pull ourselves into the machine.

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TRAVERSING SPACE, TRAVERSING SCALES

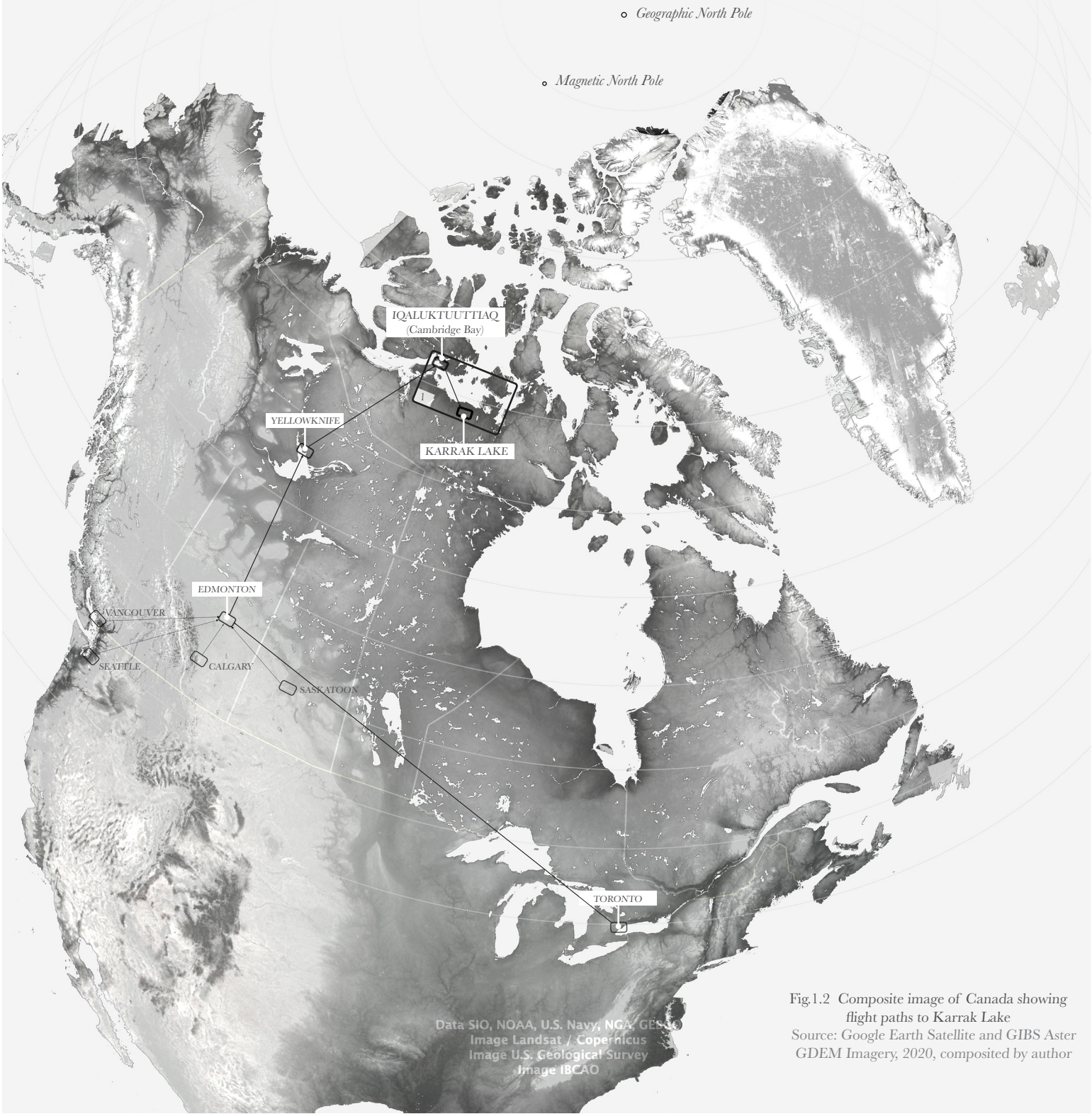


Fig.1.2 *Composite image of Canada showing flight paths to Karrak Lake*
Source: Google Earth Satellite and GIBS Aster GDEM Imagery, 2020, composited by author

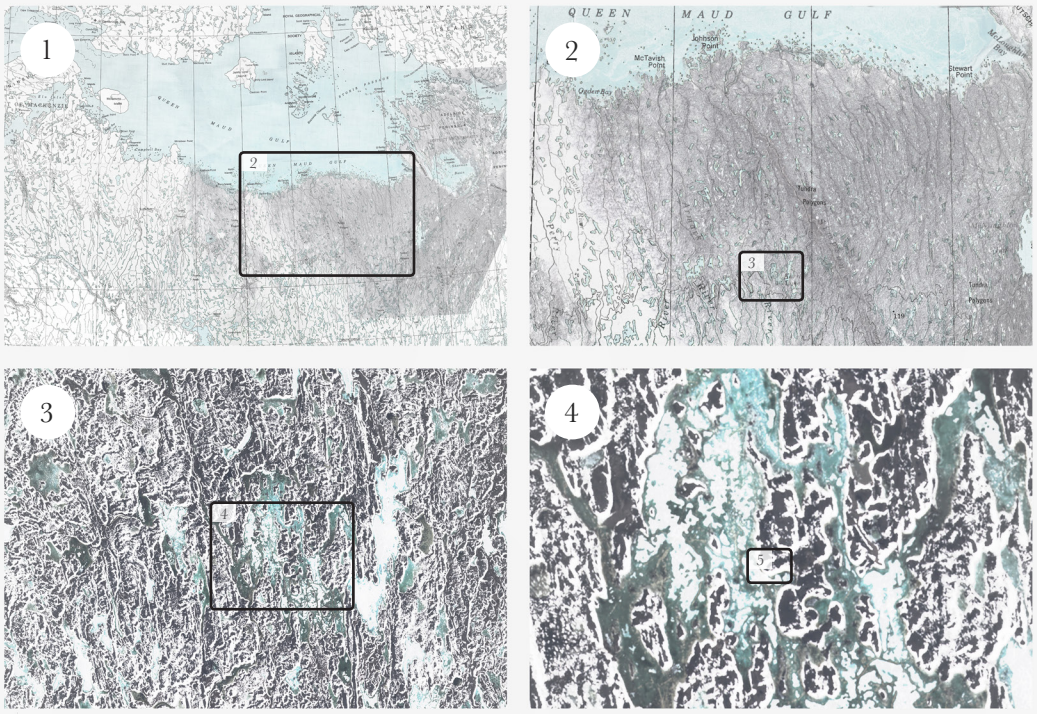


Fig.1.3 *Situating Karrak Lake*
Source: *Government of Canada topographic panels NR-12/13/14, NQ-12/13/14 and Sentinel 2A L1C imagery dated 2019-06-03*

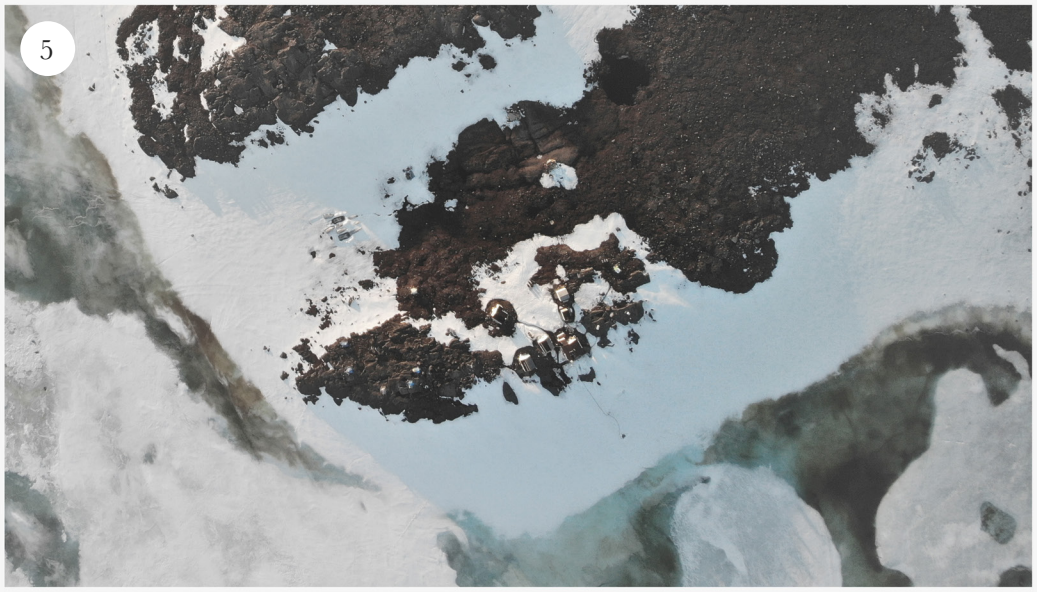
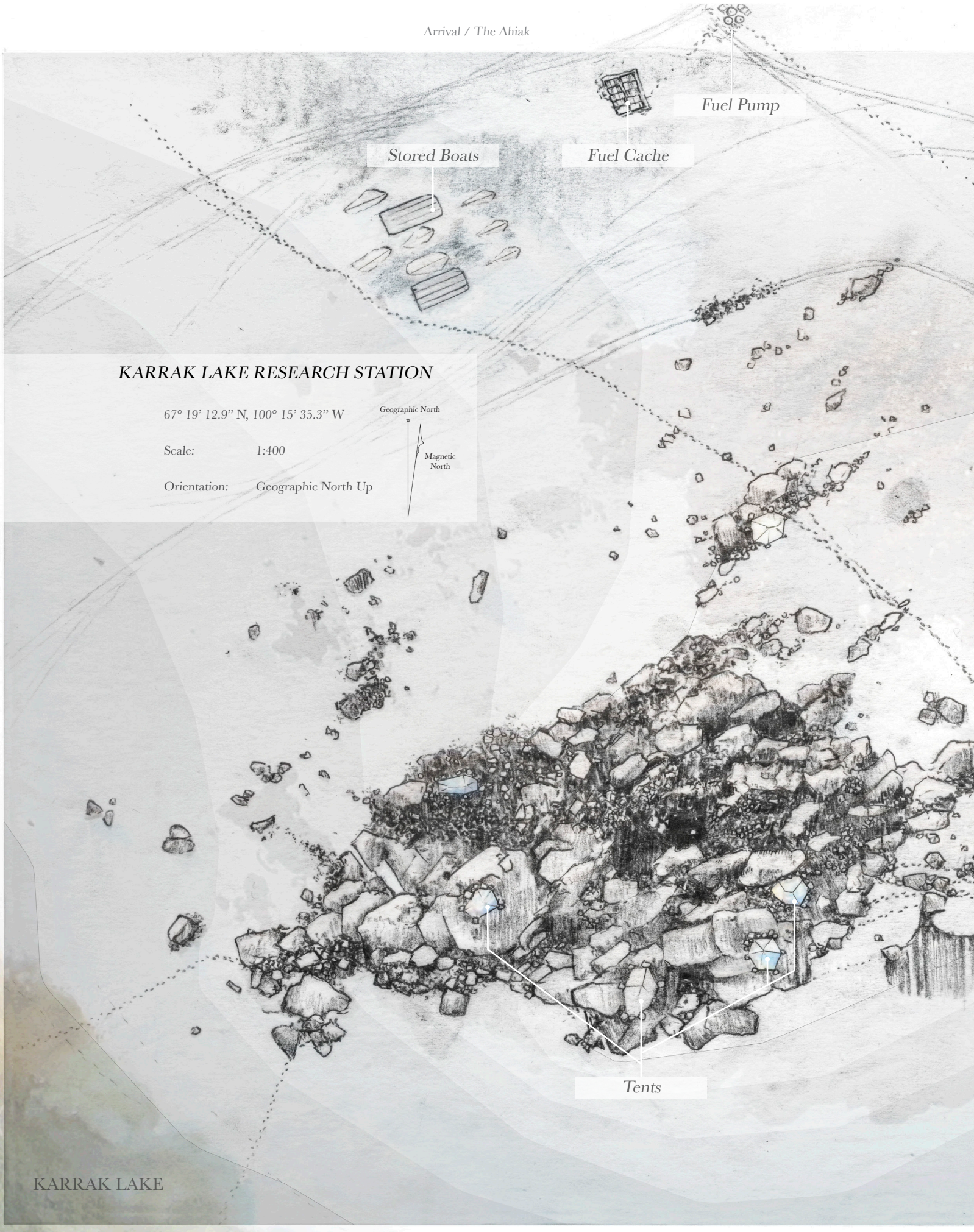


Fig.1.4 *Drone photo of the Karrak Lake research station*
Source: *Brian Malloure, 2019, used with permission*


Fuel Pump
Stored Boats
Fuel Cache
KARRAK LAKE RESEARCH STATION
67° 19' 12.9" N, 100° 15' 35.3" W
Scale: 1:400
Orientation: Geographic North Up
Geographic North
Magnetic North
Tents
KARRAK LAKE

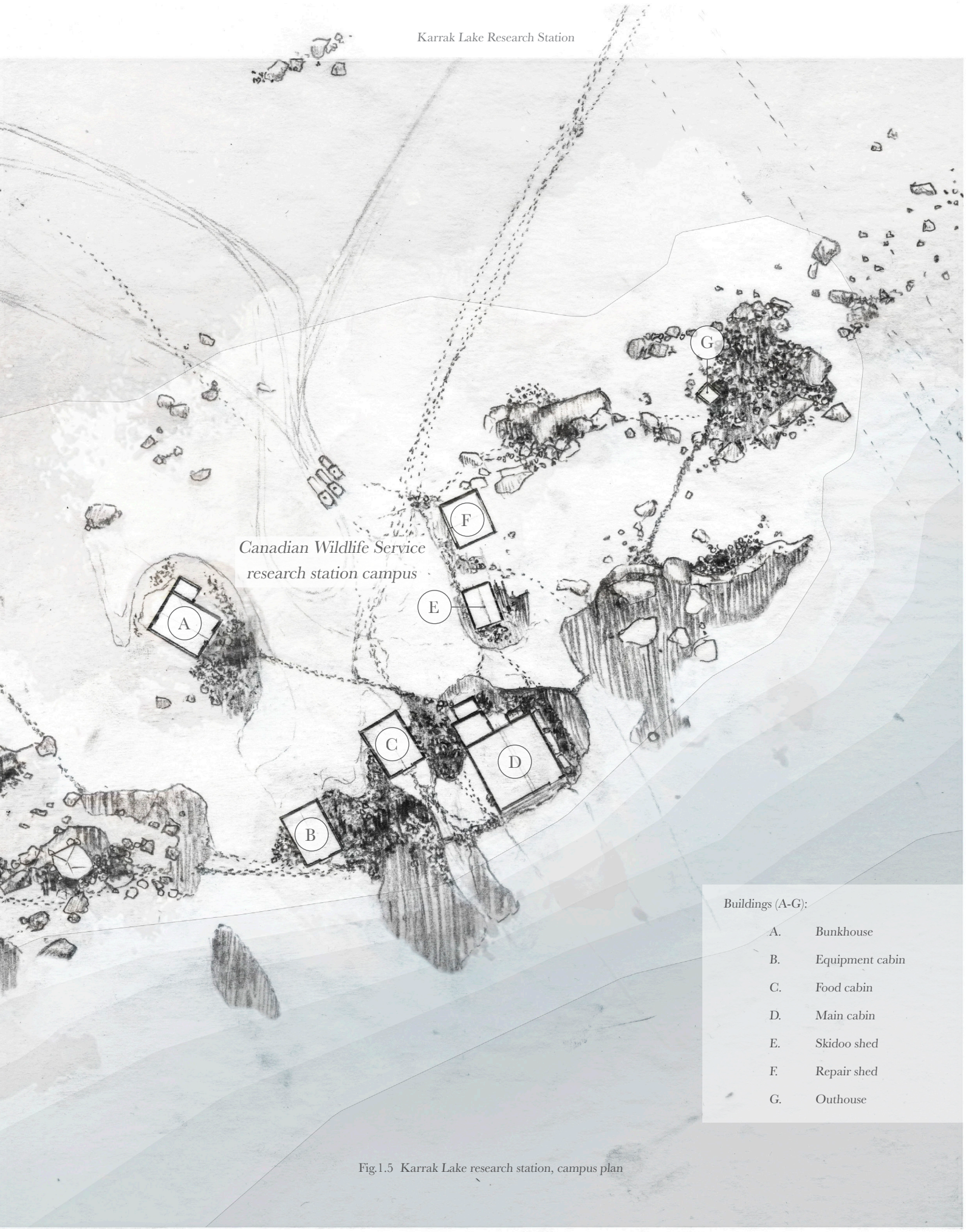


Fig.1.5 Karrak Lake research station, campus plan

INTRODUCTION

From the helicopter, the landscape appears as an endless mosaic of water and water-filled land. This is already very different from the way it appeared when we arrived here in the lingering mid-May winter. Then, it was a vast rolling topography of white, the near-horizontal inflections of snowy terrain broken only by the upright corner boards of a group of cabins. The small wooden structures comprise the Canadian Wildlife Service's Karrak Lake research station. Almost 300km from the hamlet of Ikaluktutiak (Cambridge Bay), Nunavut, the station sits at the centre of the largest and most ecologically significant arctic wetlands on earth.

Inside the central cabin, a wall-height topographical map is tacked to the plywood wall. At its centre, within the largest of the hundreds of interconnected lakes printed out in black and grey, is situated a sprawling island. A hand-drawn circle denotes the station: set midway between the northern and southern limits of the island and along the north shore of a small bay. Stamped across the map in block letters reads:

QUEEN MAUD GULF BIRD SANCTUARY
REFUGE D'OISEAUX DU GOLFE REINE MAUD

The Norwegian queen for whom the sanctuary was named never visited. The title block describes the region as Karrak Lake, Keewatin District, Northwest Territories. Copyrighted circa 1988 on behalf of the Canadian Department of Energy, Mines and Resources, it is both the first and, to date, the last government-issued map of this region. The gridded, Cartesian space portrays all that is needed to navigate the landscape; the paper it is printed on is all that is needed to claim the territory.

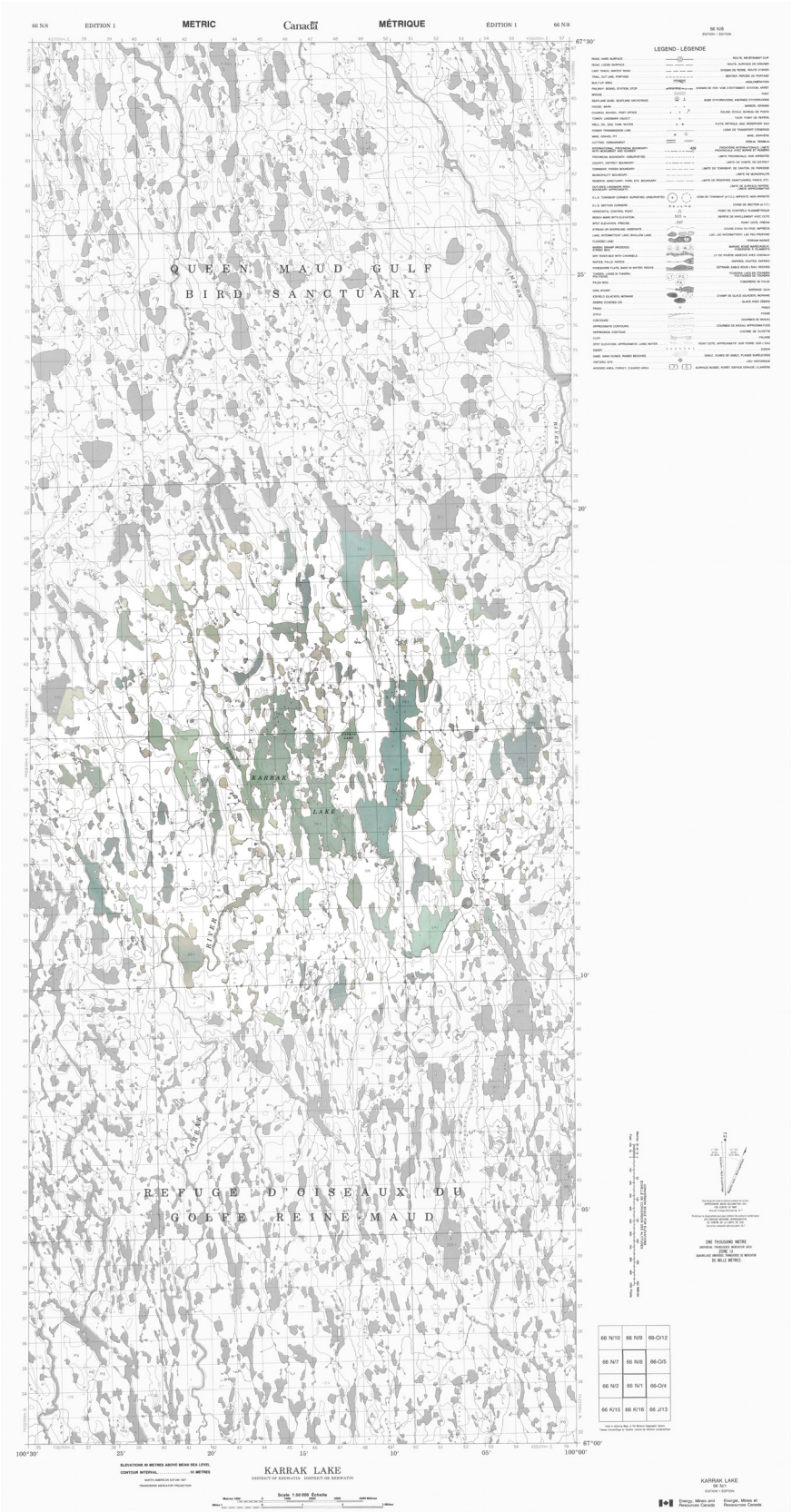


Fig.1.6 Composited map of Karrak Lake

Image created using topographical maps by Canada Dept. of Energy, Mines and Resources, Canada Centre for Mapping. *Karrak Lake, District of Keewatin*. Edition 1. Scale 1:50,000. Canada 1:50,000, sheets 66N/8 and 66N/1. Ottawa: Canada Centre for Mapping, 1990. Composited with colour by author.

Today the region is known by a name that appears nowhere on this map: the Ahiak. The newfound recognition for its Inuit Language name accompanies the expected change in the region's protected class to a National Wildlife Area, a recognition that the area it comprises is important not only for geese, but for a variety of animals as well as the protection of cultural resources.[1] Similarly, the map no longer depicts a fragment of Northwest Territories, but a territory whose name, Nunavut, translates to "Our Land" in Inuktitut. Pursuant to the map, the research station does not yet exist, in a territory that does not yet exist.

Each year, to this blank space on the map a team of volunteers, researchers and photographers are sent, people who for a brief window of time become part of larger migrations of animals, and thereby part of the ecosystem. As do hundreds of thousands of waterfowl, caribou, and bears, the team of researchers will embark towards Karrak Lake along their own well-defined migratory flyways. Moving inland from the seaboards, the researchers will land to rest at the established hubs of Calgary, Edmonton, Yellowknife and Cambridge Bay before finally arriving at this specific island among thousands of islands. Like the animals, some of the researchers already understand the particular nature of each lake and each polygon of land, while others will learn them for the first time. But neither the animals, nor the researchers who follow them, nor the histories of Inuit who have followed them here for four thousand years, have any place on the map that hangs on the wall—whose legend distinguishes between gravel and paved roads, between houses and churches, between mines and gravel pits but allocates no legend item for patterns of use and occupation that have no built accompaniment. The researchers know where rivers have moved, where the lakes have expanded or shrunken, they know the order in which lakes will thaw come spring, that the geese will move from the south through the dips in the horizon. They know how to interpret the change in the wind. None of this exists in the flattened space of this map, whose icons and symbols are restricted to a colonial vocabulary. Where they exist are in stories.

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[1] *"Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]," Draft report (Environment and Climate Change Canada, Canadian Wildlife Service Northern Region, 2018), 63, https://www.nwmb.com/en/public-hearings-a-meetings/meetings/regular-meetings/2018-1/rm-002-2018-iqaluit-wednesday-june-6th-2018/english-documents/7055-eng-tab-08-bird-sanctuary-management-plan-pdf/file.*

> "Stories are as varied as the landscapes and languages of the world; and the storytelling traditions to which they belong tell the different truths of religion, of science, of history and the arts. They tell people where they came from, and why they are here; how to live, and sometimes how to die."[2]
>
> J. Edward Chamberlin (2003)

The above quote is borrowed from Chamberlin's *If This Is Your Land, Where Are Your Stories?* An anthropological and linguistic endeavor into Canadian colonization and Indigenous conciliation, Chamberlain's book would be found catalogued in the social folklore section of any library.[3] Like the nesting areas of geese, the migratory paths of the caribou, the Inuktitut place names and the pre-colonial human occupation of Canadian territory, critiques like that of Chamberlin's find no place in the legends of colonial society's maps. Such ignorance has bred the tabula-rasa conception of the Canadian Arctic that is evidenced by the throngs of far-flung kings and queens whose names crowd ostentatiously over as many arctic lakes, channels and islands. This is the same ignorance that has instigated successive waves of cultural genocide brought first by northern missionaries, then by the government-led Inuit Settlement program, then by the Northwest Territories residential schools that swept away first a way of life and then (largely) a language. Like the stories without place in our institutions, the stories of the Ahiak are similarly placeless on our maps.

It is also evident that stemming from the same ignorance is the overexploitation of ecological systems that support life in this country. That the Arctic has been largely spared environmental destruction is thanks to the very maps that document it as a poorly surveyed frontier of barren, empty lands. However, as climate change induces ever-lengthening ice-free summers[4] these subarctic regions are transforming slowly from useless to underused. The two acute threats identified towards the ecosystems within the Ahiak Migratory Bird Sanctuary are the expansion of regional mineral

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[2] J. Edward Chamberlin, *If This Is Your Land, Where Are Your Stories? Finding Common Ground*, 1st ed (Toronto, ON: A.A. Knopf Canada, 2003), 1–2.

[3] According to its designation with the National Library of Canada Cataloguing in Publication, as it is found in the Musagetes and Dana Porter libraries at the University of Waterloo.

[4] *Arctic Marine Shipping Assessment 2009 Report.* (Arctic Council, second printing, April 2009), 28

extraction with its corresponding shipping activities[5] and changes to terrestrial ecologies that come with a changing climate.[6] Such threats are nothing new. Governance of the Canadian arctic has consistently seen agendas of sovereignty and national identity subverted as tools to legitimatize resource exploitation,[7] agendas which have resulted in large, short-sighted developments of buildings and infrastructure. Of this the DEW line stations and the now formally abandoned Mackenzie Valley Pipeline are examples. These point to much larger anthropocentric and colonialist tendencies dominant in Canadian society; it also shows how these tendencies work hand in hand. The same failure to listen and understand that originally shattered a rift between settlers and the Indigenous, the same racism that ignored a way of life to impose a 'civilized' existence and a 'civilized' language, is what underlies parallel processes of environmental ignorance. They constitute mutually supportive frameworks that reinforce increasingly inappropriate attitudes towards others and towards our environment, attitudes deeply rooted in perception. Within the context of Canada's shifting environmental and reconciliatory discourses, the question of how we perceive our relationship as humans among fellow humans, among animals, and among ecologies is of growing importance. Fundamentally, our understanding begins with what we perceive—what we see, or (more importantly) what we fail to see.

Perception, as defined by Gilles Deleuze and Félix Guattari, is simply "the discernment of materials, the sensing of their presence or absence."[8] The blank space of the island depicted on the map belies its true nature as a dense structure of negotiated territories and ecosystems. Surrounding the station are the intensified refrains of animal migrations, the forces of weather and traces of pre-colonial Inuit occupation, all of them present and immediate. In dialogue with these forces and actors, not only our understanding of our surroundings, but also our relationship with them is recalibrated.

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5 *"Queen Maud Gulf Migratory Bird Sanctuary, Nunavut Territory. Information Sheet on Ramsar Wetlands," Information Sheet (Ramsar Sites Information Service), accessed August 31, 2019, https://rsis.ramsar.org/ris/246; Environment and Climate Change Canada, "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]."*

6 *This is mentioned in "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]." as an element largely out of their control; the extensivity of how climactic changes affect other arctic wetland ecosystems is studied in T. G. Sim et al., "Pathways for Ecological Change in Canadian High Arctic Wetlands Under Rapid Twentieth Century Warming," Geophysical Research Letters 46, no. 9 (May 16, 2019): 4726–37.*

7 *Lisa Williams, "Canada, the Arctic, and Post-National Identity in the Circumpolar World," The Northern Review, no. 33 (Spring 2011): 116–17.*

8 *Gilles Deleuze and Félix Guattari, A Thousand Plateaus: Capitalism and Schizophrenia (Minneapolis, MN: University of Minnesota Press, 1987), 51.*

FIGURE 48. Forester and oak

FIGURE 50. Fox and oak

Fig.1.7 *The different perceptions of an oak tree*
Source: Uexkull, A Foray into the worlds of animals and humans, pgs 127 and 128

How can we recalibrate our position as not one of anthropocentric conception but as only a component in the midst of a meshwork of living and non-living beings?

Baltic German biologist Jakob von Uexküll, whose work was important to Deleuze, illustrated how the perception of a tree differs between the human (who might perceive it as a resource) and the fox (for whom the tree has become a roof and a shelter).[9] In fact, a person could perceive a tree as many things—an obstacle, a danger, or a scenic object—and in fact these perceptions are impossible to escape on our own. Deleuze references Canadian filmmaker Pierre Perrault to say that speaking on one's own "won't get away from a "master's or colonist's discourse," an established discourse."[10] Instead, Deleuze posits that a person can only challenge existing ideas through mediators—a mediator being someone or something whose perspective, once understood, can enrich our own perception of the world. In the case Uexküll's fox and human, the person can only understand the tree as a home by engaging the fox as a mediator. Active engagement is thus the principal means of breaking up entrenched perception.[11] It is something that we cannot do on our own. In order to challenge colonial tendencies that have destroyed both Indigenous peoples and the environment together, it is necessary to side-step anthropocentric conceptions of place to realize

[9] Jakob von Uexküll, *A Foray into the Worlds of Animals and Humans: With A Theory of Meaning,* trans. Joseph D. O'Neil (Minneapolis, MN: University of Minnesota Press, 2010), 127–29. First published in 1934 by Verlag von Julius Springer.
[10] Gilles Deleuze, "Mediators," in *Negotations: 1972-1990*, trans. Martin Joughin (New York, N.Y.: Columbia University Press, 1995), 125.
[11] Deleuze, 126.

the interrelations between ourselves, the buildings we inhabit, and their environments. From a change in perceiving the interrelated-ness of human beings within the various environments we occupy follows a changing in approach to the built environment. That is to say that enriching our perception actualizes real change to the way we build and inhabit built space.

Mediators of such diversity as are recorded in this thesis do not speak the same language. Their lessons are likewise difficult to synthesize in any language, especially English, as ill-equipped as it is to depart from its colonial linguistic framework.[12] Nevertheless, it is within this body of writing that space is given to the intertwined stories of inhabitation in the Ahiak. The work is most simply an act of storytelling. It is a story of encounter and becoming that began with a heavy step from the old deHavilland onto the frozen Karrak Lake, and which continues to this day.

The work unfolds through encounter with the environment of the Ahiak, as well as reflection on a wide spectrum cultural study, historical research, and theory: Gilles Deleuze and Félix Guattari on territory and affect, James Gibson on ecology and its affordances, Henri Bergson on time, Elizabeth Grosz on chaos and Jakob von Uexküll on animals. The thesis is centered at the intersection of architecture and the arctic environment, re-framing the Karrak Lake research station as an interval of human habitat within an environment full of interrelated living beings, forces and territories through a series of photographic composites and written stories. These stories are based around affective encounter with architecture, territory, the environment (including weather and water), animal and non-animal life, as well as processes of remembering and forgetting.

After a brief introduction to a methodology of storytelling, the thesis will unfold over three episodes: Affect/Encounter; Remembering; Earth and Architecture. The main components to each of these episodes are written narratives, photographic composites, and philosophical analysis.

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[12] *The difficulty for the English language to escape a colonial mental framework is elaborated by Canadian poet and literary critic Susan Glickman, as will be explored later in greater depth.*

2019 05 22 — 16:33:02.00 — 2019 05 23

Lat/Long	67° 14' 34.7" N, 100° 14' 42.8" W
Distance	0.85 km from the station (RS)
Orientation	looking north
Trajectory	walking north,
Company	with two researchers,
Situation	we snomobile around the hills and then up along the coast, disembarking to hammer an iron rod through the meter deep snow, recording the depth, then moving on.

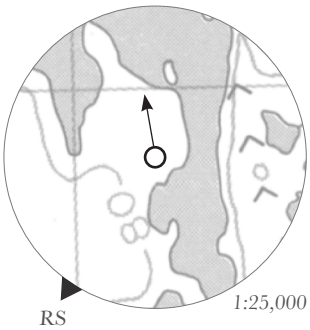

Fig.1.8 Two figures in the landscape
One exposure at 1/250 sec.

"There is no longer a tripartite division between a field of reality (the world) and a field of representation (the book) and a field of subjectivity (the author). Rather, an assemblage establishes connections between certain multiplicities drawn from each of these orders.... In short, we think that one cannot write sufficiently in the name of an outside. The outside has no image, no signification, no subjectivity. The book as assemblage with the outside, against the book as image of the world."

Gilles Deleuze and Félix Guattari, referencing the construction of their book,
A Thousand Plateaus: Capitalism and Schizophrenia, trans. Brian Massumi
(Minneapolis: University of Minnesota Press, 1987), 23.

ON STORYTELLING

Storytelling is a strange and wonderful thing. It seems to be a product of the intersection of a capacity for language and the faculty of memory that humans acquire not exclusively, but certainly in particular intensity. From these capacities emerge an ability to perceive and recollect the world at great length, and also communicate that world to another. A propensity for storytelling, from these aptitudes appears as not only a likely inclination, but a necessary one. Like all stories, this work emerges from individual experience. However, storytelling does not end at personal experience, because personal experience is only one of many experiences, and a story from one perspective is only one of many stories. Many years ago, in a televised interview between Noam Chomsky and British philosopher Bryan Magee, Magee posited that:

> "Each one of us as individuals tends to construct a picture of the world round his own experience, and indeed it's difficult to see how we could do anything else. We are bound to do that. We have no alternative. But it does mean that each one of us forms a systematically distorted view of the world because it's all built up on what accidentally happens to be the particular and really rather narrow experience of the individual."[13]

This bit of conversation is worth reflecting on. The narrowness of human experience serves as a jumping point into the realms which affect that experience, not only of

[13] *Bryan Magee in conversation with Noam Chomsky in "Noam Chomsky Interview on Language and Knowledge," YouTube video, 44:43, "Manufacturing Intellect," October 6, 2017, https://www.youtube.com/watch?v=ZVXLo9g-Jq-U&t=1095s. Originally aired as Men of Ideas, Episode 11, "The Ideas of Chomsky with Noam Chomsky, Professor of Linguistics, Massachusetts Institute of Technology" Produced by Janet Hoenig, Directed by Tony Tyley, aired March 30, 1978 on BBC Two.*

linguistics and philosophy of the mind, but also, because 'the world' of an individual is not a thing of its own agency is built up over a long duration of personal experience.

Storytelling, then, is like painting; it is the concluding stage in a process of perception, remembering and recollection in that reflects as much the individual as what they perceive. The very structure and linguistic assemblages[14] that comprise this body of work expose my position as a non-minority writer, a writer who has been afforded the luxury of indulging in ruminations without fighting, so to speak, for position. This position is self-evident. It could be seen to appear even without my disclosure of this fact, in the same way that, if I were to read these words aloud, a trained linguist would be able to decipher in my speech a Midwestern Ontario regional variation announcing the specific place of my upbringing even without my having disclosed it.

Language does not dumbly communicate information but, as Deleuze and Guattari wrote in *A Thousand Plateaus*, actively imposes power relations. By virtue of language it is "obvious that 'man' holds the majority, even if he is less numerous than mosquitoes, children, [or] women."[15] Ronald Bogue, a comparative literary theorist and professor at the University of Georgia, builds on Deleuze and Guattari's writing to reveal how the terms "white/colored, heterosexual/homosexual, European/non-European, male/female encode power relations, and the dominant term of each opposition serves as a norm against which deviations are measured."[16] The white, male speaker is imbued with a sense of majority which has become fundamentally inappropriate in contemporary society.

Simply through the continued employment of English to describe and analyze the Arctic environment, the congealed histories of Arctic colonization are reasserted in the present day. That this thesis is composed in Standard Canadian English reveals an active history of British occupation, confederation and colonization. Canadian poet and literary critic Susan Glickman observes that the act of putting the Canadian landscape into writing has been widely regarded as an act of continued colonialism, not

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[14] A linguistic assemblage is the minimum unit of language as defined in Gilles Deleuze and Claire Parnet, *Dialogues*, trans. Hugh Tomlinson and Barbara Habberjam (New York, N.Y.: Columbia University Press, 1987), 51, 65.

[15] Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia,* trans. Brian Massumi (Minneapolis, MN: University of Minnesota Press, 1987), 105.

[16] Ronald Bogue, *Deleuze's Way: Essays in Transverse Ethics and Aesthetics* (Burlington, VT: Ashgate, 2007), 22.

only because "the English language itself was evidence of [a] blinkered and inadequate [mental] framework" but also because the associated colonial mental framework "automatically rendered poets incapable of meaningful response to the world they inhabited."[17] The symptoms of a colonial framework can be seen through the pastoral structure of literary works inherited from English writers, as Glickman points out in the 18th century poems of John Dyer and Thomas Cary. The topographic depictions of landscape as surveyed fields, what Glickman calls "the prospect – a long view of an outdoor scene clearly divided into foreground, middle ground and distance,"[18] exemplifies a measured depiction of time and space that rationalizes and categorizes as it describes.

This active categorization through writing, which isolates and simplifies, has greatly impacted the English language's capacity to express natural environments in any meaningful depth. That is because no categorizing structure can actually demonstrate the reality of the environment. It can only reflect back simplified perceptions, drawn from what we deem important and rooted in what we already expect to see. Speaking to the work of Deleuze and Guattari, translator Daniel Smith reflects that "the writer, like each of us, begins with the multiplicities that have invented him or her as a formed subject, in an actualized world, with an organic body, in a given political order, having learned a certain language."[19] How then can we explore a new way of doing things, to re-purpose a colonial language as a means to sidestep our learned ways of being?

[17] Susan Glickman, *The Picturesque and the Sublime: A Poetics of the Canadian Landscape* (Montreal, QC: McGill-Queen's University Press, 1998), vii.
[18] Glickman, 24
[19] Daniel Smith in Gilles Deleuze, *Essays Critical and Clinical,* trans. Daniel W. Smith and Michael A. Greco (London: Verso, 1998), Iii.

"The painter's action never stays within the frame; it leaves the frame and does not begin with it. Literature, and especially the novel, seems to be in the same situation. What matters is […] the relations of counterpoint into which they enter and the compounds of sensations that these characters either themselves experience or make felt in their becomings and their visions."

Gilles Deleuze and Félix Guattari, *What Is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell (New York, N.Y: Columbia University Press, 1994), 188.

ON ASSEMBLING ENCOUNTER

American psychologist James Gibson pointed out that vision is "a process of exploration in time, not a photographic process of image registration and image transmission."[20] It is true through introspection that memories are not based on a well-defined still image of that event, but of an abstracted impression of that event in time. For Gibson this was obvious, that unlike the recording operations of a camera "the experience of the visual world is not compounded of a series of visual fields; […] only of the total *scene*."[21]

Understood in this way, a person's perception and remembering of the events that transpire around them is actually of great merit, despite its potential distortion, because it not only records but also rapidly interrelates a vast amount of visual information. The word *interrelates* is used here intentionally to describe the active bringing-together of actors in an environment. The verb *to interrelate* as defined by the Oxford English Dictionary has only one definition: "to bring into relation to each other."[22] This word conveys the intent with which mediators are brought together in this work, as compared to the more loosely defined *to relate*.[23] The latter is a passive verb stuck between two bodies, a word that can only recount or make reference to a connection. Interrelating, like becoming, is a process that unfolds in time.

Interrelation begins with physical encounter and continues through active engagement. Like in the case of Uexkull's fox and the human, the formation of mediators opens up capacities for engagement between self and the environment. Social anthropologist Tim Ingold argues that through "active and ongoing engagement with our environments, [we can] arrive at an ecology that is capable of recovering the reality of

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[20] Gibson, "A Theory of Direct Visual Perception," in *Vision and Mind: Selected Readings in the Philosophy of Perception*, by Alva Noë and Evan Thompson (Cambridge, MA: MIT Press, 2002), 78.

[21] Gibson, 78.

[22] "Interrelate, v.," in *OED Online* (Oxford University Press, December 2019), https://www-oed-com.proxy.lib.uwaterloo.ca/view/Entry/98248.

[23] "Relate, v.," in *OED Online* (Oxford University Press, December 2019), https://www-oed-com.proxy.lib.uwaterloo.ca/view/Entry/161807?rskey=atQGTq&result=3&isAdvanced=false.

the life process itself."[24] But more than connect actors as if by a line, this engagement implies a tangling together that emerges in the counter-play of forces that supplants fixed positions, fixed perceptions, and fixed identities.

Storytelling is not only an adequate but an ideal medium for documenting such entanglement. Deleuze and Guattari insisted that language is a mode of action, a way of doing things.[25] "The aim of writing," reflected Deleuze and French journalist Claire Parnet, "is to carry life to the state of a non-personal power."[26] Deleuze and Guattari returned to this again in their text entitled *What is Philosophy?*, stating that writing "entails a vast plane of composition that is not abstractly preconceived but constructed as the work progresses, opening, mixing, dismantling, and reassembling increasingly unlimited compounds in accordance with the penetration of cosmic forces."[27] This is what storytelling is all about, and it serves as the methodological basis for how it is leveraged in the context of this work.

Storytelling is my method of assembling the affective encounters that occur between me and my environment. As we have seen previously, the formation of mediators is what enables affective engagement through encounter. That engagement extended over a duration is what forms the mixing and reassembling of environmental relationships, in effect destabilizing my entrenched perceptions of the Canadian North. My intention in so doing is to test an ontology of *becoming* that works to escape any fixed notions of our 'place' as humans in a categorical network of flora and fauna; I frame affective encounters as a becoming that unfolds between complex entanglements of forces and actors. Those intersections are first experienced, then assembled through storytelling and further engaged in reflection. Each story is a laying down of durational, affective encounter between me and interrelated mediators.

Italo Calvino offered a valuable precedent both for the emphasis of encounter and for a structure of portraying its importance in his novel entitled *Invisible Cities*:

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[24] Tim Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill* (New York, N.Y: Routledge, 2002), 16.

[25] Bogue, *Deleuze's Way*, 20. Referencing the fourth section of *A Thousand Plateaus*, "November 20, 1923: Postulates of Linguistics."

[26] Deleuze and Parnet, *Dialogues*, 50.

[27] Gilles Deleuze and Félix Guattari, *What Is Philosophy?* (New York, N.Y: Columbia University Press, 1994), 188.

"Leaving there
and proceeding for
three days toward
the east,
you
reach Diomira, a city
with sixty silver domes,
bronze statues of all the gods,
streets paved with lead,
a crystal theater,
a golden cock
that crows each morning
on a tower.
All these beauties will
already be familiar to the visitor,
who has seen them also in other cities.
But the special quality
of this city
for the man
who arrives there
on a September evening,
when the days are growing shorter
and the multicolored lamps
lamps are lighted all at once
at the doors of the food stalls
and from a terrace
a woman's voice cries ooh!,
is that he feels envy
toward those who now believe
they have once before lived
an evening identical to this
and who think they were happy,
that time."

Emphasis is not on a fixed place
...but instead on an action
...the duration of that action
...and vector of that action from an as-yet undefined place.
The subject is identified
...and the destination
...as well as its specific qualities.

But beyond these components
...we dive deeper in to a recurring action
...and the place of that duration.
Though beautiful, we are shown
...how these become dim
...when we see what we expect to see.
Perhaps the greatest qualities
...of a place are not in the place itself
...but in a person's encounter with it;
encounter that unfolds through action
...over a specific duration
...within even larger durations;
encounter that is less about things
...than how those things change;

encounter between places
...that might only be heard or seen by them
...but that overwhelms in its affection.

Italo Calvino, *Invisible Cities*, 1st Harvest/HBJ ed, (New York: Harcourt Brace Jovanovich, 1978), 8.

The following thesis draws from Calvino's precedent a method of storytelling that emphasizes actions over objects, encounters over particular places, becomings over fixities. Like Calvino, whose work emerged first from an act of journaling,[28] the encounters recorded herein were first the fragments of journals composed by the glow of a cell phone in the cold air of an uninsulated cabin. Just as much has come later, or has been substantially reworked in reflection.

While Invisible Cities is conceived as a series of reports from the traveller Marco Polo, the narrative is unbounded from any concrete path of travel. It similarly abandons a necessarily continuous timeline. Calvino wrote that its structure discounts the perspective of the author; "it is as if the book, as I have explained, wrote itself."[29] Instead, his image of a city seems formed from intensifications of time and material and memories, and all of them are left somewhat emergent. Seeking a similar narrative structure, my stories expose durations of affective encounters between self and environment. While each story is framed in time or space and follows a roughly chronological progression from late winter to spring, continuity in space or in time is often forsaken.

The following narratives frame a becoming wherein I encounter a site and engage its interrelated elements. Each narrative within the larger episodes describe a scene of experience, which in my travel to the Ahiak Migratory Bird Sanctuary may have unfolded over a duration of several days, or as briefly as a single moment in time. They recount affective encounter and affective engagement, occupying the tangle between forces and actors. Each story frames a becoming.

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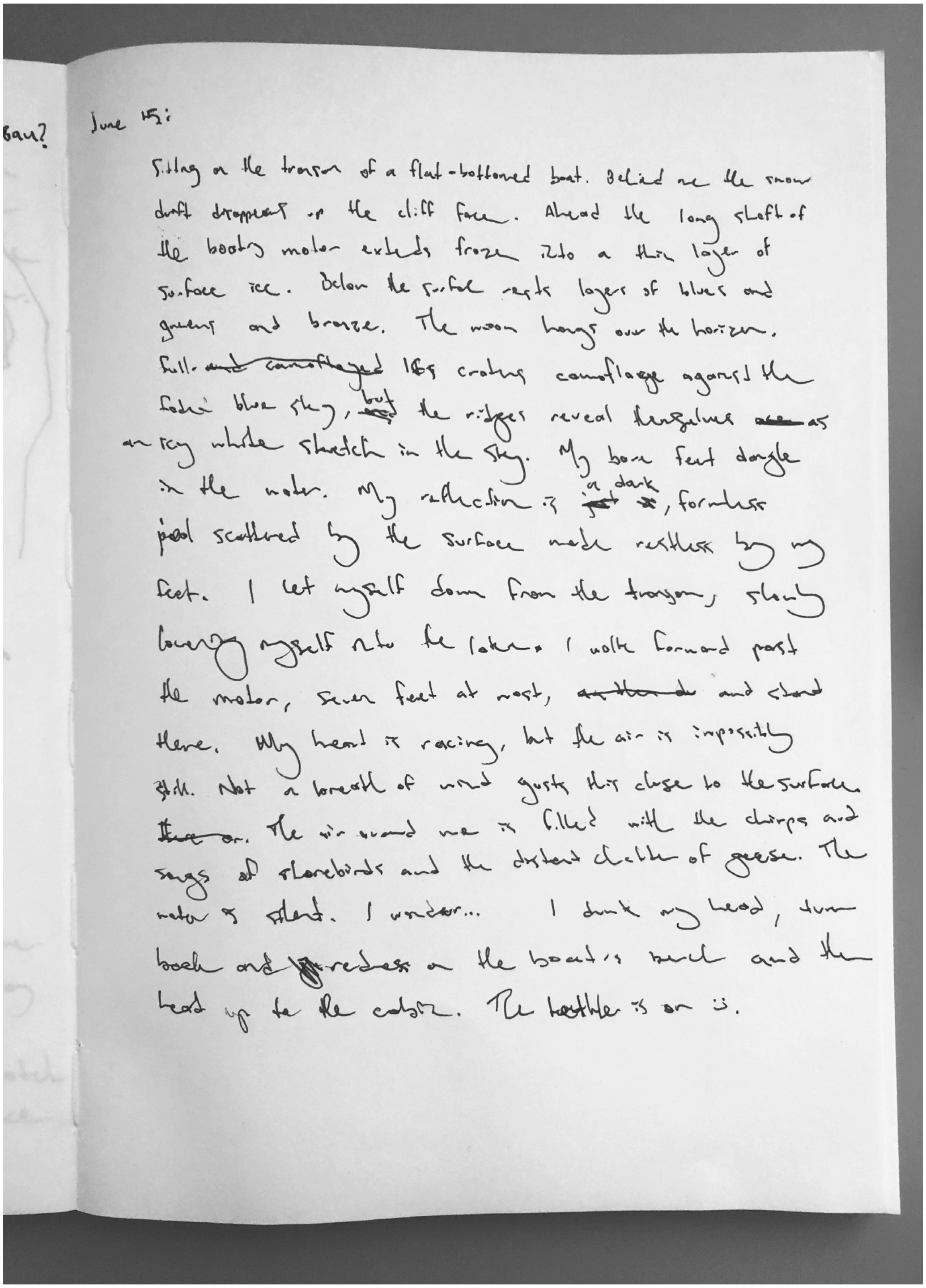
[28] Italo Calvino, "Italo Calvino on 'Invisible Cities,'" *Columbia: A Journal of Literature and Art,* no. 8 (1983): 37.
[29] Calvino, 42.



Bay?

June 15:

Sitting on the transom of a flat-bottomed boat. Behind me the snow drift drapes up the cliff face. Ahead the long shaft of the boat's motor extends frozen into a thin layer of surface ice. Below the surface rests layers of blues and greens and bronze. The moon hangs over the horizon, full. ~~and camouflaged~~ Its craters camouflage against the faded blue sky, but the ridges reveal themselves as an icy white sketch in the sky. My bare feet dangle in the water. My reflection is ~~just~~ a dark, formless pool scattered by the surface made restless by my feet. I let myself down from the transom, slowly lowering myself into the lake. I walk forward past the motor, seven feet at most, ~~and then~~ and stand there. My heart is racing, but the air is impossibly still. Not a breath of wind gusts this close to the surface ~~then~~. The air around me is filled with the chirps and songs of shorebirds and the distant chatter of geese. The water is silent. I wonder... I dunk my head, turn back and ~~re~~dress on the boat's bench and then head up to the cabin. The kettle is on :).

Fig.1.9 Journal entry dated June 15
Written in the bunkhouse at Karrak Lake

Fig.2.1 *Pressing into the night*
Two exposures at 1/125 sec, fifteen seconds apart

TAKING OFF FOR KARRAK LAKE

North of the Arctic Circle a small orange aircraft awaits takeoff on a hardpack gravel runway. Inside, a mess of people, fuel drums and freight boxes fill the cramped cargo bay. Outside is a churning wall of dust and snow. We sit in wait, breathing in the cold, stagnant fetor of jet fuel. The air burns inside our bodies and is exhaled in disappearing plumes of smoke. I settle into some fume-induced calm. The aircraft is a de Havilland DHC-6 Series 300 Twin Otter, serial number 426. The pilot estimates it dates to 1974. From the threshold of the open cockpit, we are given a quick smile and two thumbs up. Turning back, the pilot's right hand reaches forward and clasps tightly over the co-pilot's left atop the time-polished throttle. One hand atop the other's, they push forward on the throttle, coercing the engines into a roar. The smell of fuel intensifies, hitting me with an olfactory sensation that simultaneously elicits the most pungent characteristics of petrol and kerosene. It burns at the back of my throat as I inhale sharply through the raised collar of my jacket. The machine pulls ahead, bouncing heavily over the uneven runway and with an ever-amplifying howl lifts off into the blind of snow.

The curtain that separates the passenger compartment from the cockpit remains open. The pilot eats some yogurt while the co-pilot charts a heading on a de Havilland branded plastic chart. We are headed just south of due east, a heading of 100 degrees over an immense terrain, half concealed into snow squalls that dance below us. In the clearing, I see parallel ridges of black rock that pierce the undulating terrain. Strokes of sunlight highlight the expanse of snow in corresponding bands. This is my first glimpse of the Ahiak, a vast swath of arctic lowlands extending 135 kilometres inland from where its waters flow into the Queen Maud Gulf. Its innumerable lakes and wetlands, representing the largest protected area in Canada, lie dormant below the cap of snow

unrolling below the aircraft. A few seconds pass, and the land is once again reclaimed into the squall.

The Otter lands forcefully onto a frozen lake sixty kilometres inland from the coast. The force is enough to put my head to the seat ahead of me even while I was bracing against it. The engines cry out loudly under the momentary strain before the power is backed off. They spin down jerkily as the great machine grinds across the ice and are finally idled and cut off entirely as it reaches its resting place on the frozen lake. Heavy metal latches of the aircraft's passenger compartment door clank open with a push down on the faded orange handle. Sleet pours silt-like through the opened seal with a surge of wind. I shrug the strap of my duffle bag back onto the shoulder of my coat and grimace in anticipation of the wild white sea beyond. Giving the door a heave, I crouch through the low metal entry and drop down onto the ice below the wing. I buckle under the weight of the gear and the slap of the wind, then turn and steady towards the advancing wave of air.

Ahead of me rivers of snow drift down from the tall blackened crests of broken bedrock that border the lake where I now stand. Set atop the embankment, and seemingly lodged between huge fragments of rock and tall drifts of snow are a series of small, white painted cabins. Wide ribbons of snow flow around the structures from beyond the ridge, while a long wind slab of snow rises up from the flat expanse of the surrounding plain in some seemingly orographic act to subsume the structures in their entirety. A tall figure in a blue puffer jacket and turquoise tuque approaches down the embankment from the battered station. The figure ducks below the wing to shake the hand of the co-pilot, exchanging some inaudible phrases against the wind before turning towards me. "Welcome to Karrak Lake."

Freight is pulled out of the cargo bay along with its passengers. Onto the ice are deposited duffle bags, large cardboard boxes, boxed milk and wire cartons of eggs. Heavy fuel drums are rolled down the ramp and onto a wooden qamutiik[1]. A snowmobile strains to pull the loaded sled up the hill, then returns with empty drums to be taken back to Iqaluktuuttiaq (Cambridge Bay). After two further loads with

[1] *A qamutiik is a wooden sled whose runners and crossbars are held together with rope, rather than nails or other hardware. Traditionally towed by a dog team, the researchers pulled it by hand or by snowmobile.*

the qamutiik, the cargo door is resealed. This will be the pilot's final flight back to Iqaluktuuttiaq before returning home on leave.

The starboard motor whines to a start, pulling the plane out to the foot of a runway marked by a line of steel drums set into the hard-packed snow. Set against the immense backdrop of white, the small orange aircraft appears without scale. Its left engine splutters to life with a plume of white smoke visible only for a brief moment as it wraps around the plane before disappearing into the surrounding white beyond. Throttle down, the engines roar furiously across the plateau and the plane pulls off the ice. The machine banks around the hills, then rolls left for a wide loop overhead for a final, saluting goodbye, close enough to feel the surge of air swell behind it. Leveling out, it pulls over the station and disappears into the flurrying atmosphere.

Pressed together into that single machine, now arcing away into the snowy air, is packed everything of my normal existence. It is a metal sinew drawn between me and the place I grew up in, the school I attend, the utilities I pay: a sinew that is now extending 400 metres, 800 metres, a kilometre, 800 kilometres. The line drags across the Queen Maud Gulf, then down over the Northeastern passages. The steel body of that old deHavilland wails east over Hudson Bay, the stiff tailwind of the following storm carrying it south.

2019 05 17 — 18:22:15.94 — 2019 05 17

Lat/Long	67° 14’ 14.7” N, 100° 15’ 33.2” W
Distance	0.00 km from the station
Orientation	looking south
Trajectory	moving south,
Company	all,
Situation	watching the departing deHavilland

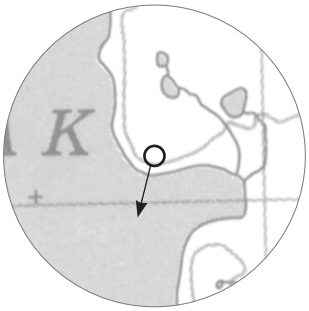


Fig.2.2 The Twin Otter taxis on Karrak Lake
Single exposure at 1/125 sec.

Fig.2.3 *Main cabin south (top) and west (below) facades*

THE MAIN CABIN

Components (A-J):

- A. *Stove fuel*
- B. *Propane cylinders*
- C. *Summer water reservoir*
- D. *Ice storage*
- E. *Heat stove*

- F. *Winter water reservoir*
- G. *Cookstove and sink*
- H. *Pantry and storage*
- I. *Dining table*
- J. *Common bunk*

Fig.2.4 *Main cabin in plan*

Fig.2.5 *Main cabin looking south down the west wall (top) and north facade (below)*

Fig.2.6 *Main cabin east facade showing toolshed (top) and looking west down the south facade (below)*

THE FOOD CABIN

Components (A-H):

- *A. Propane cylinder storage*
- *B. Propane freezer*
- *C. Vegetable storage*
- *D. Dry goods*
- *E. Baking supplies*
- *F. Snacks and cereals*
- *G. Canned goods*
- *H. Fruits storage*

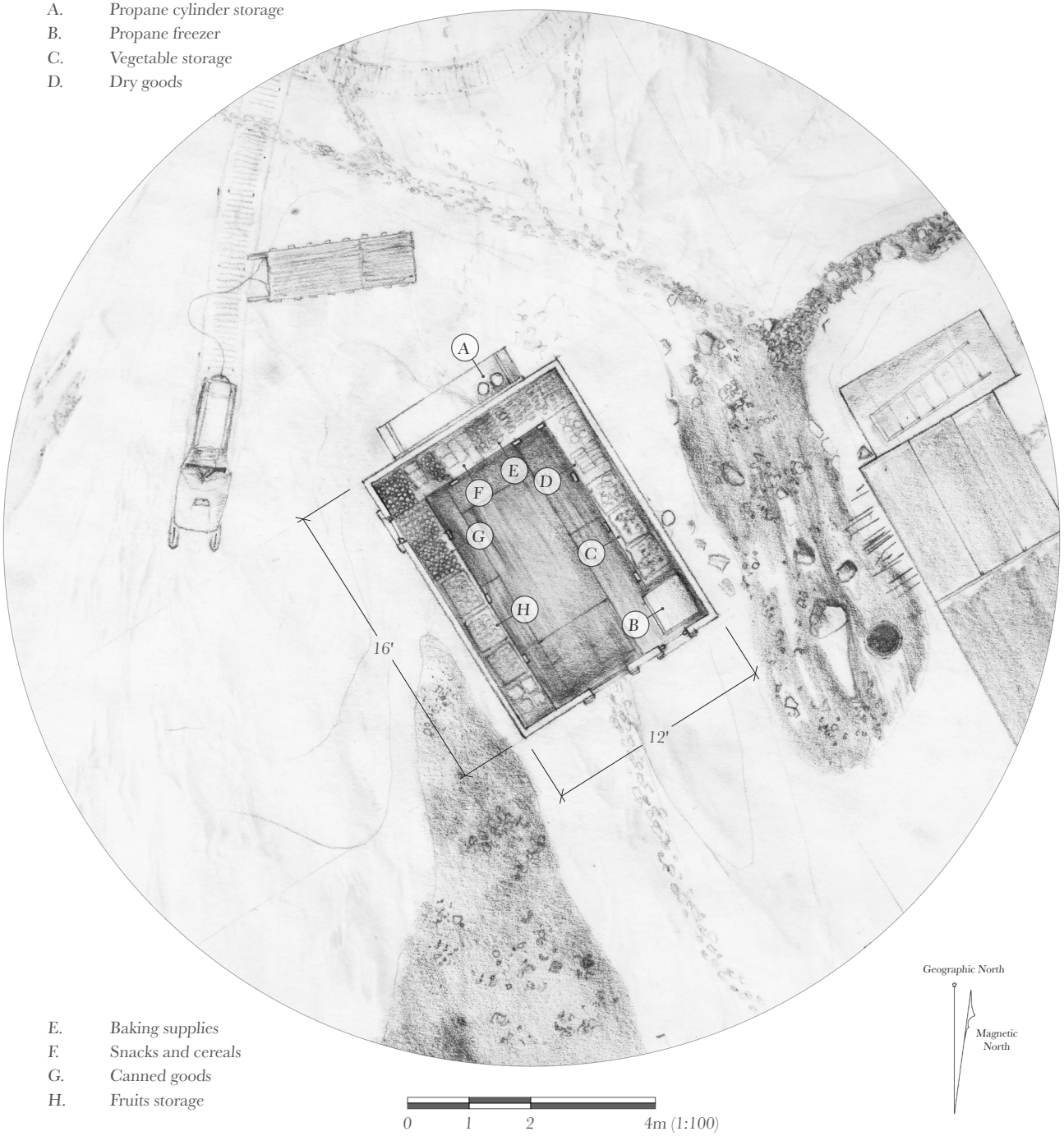


Fig.2.7 *Food cabin in plan with main cabin roof visible at right*

Fig.2.8 *Food cabin south (top) and north (below) facades*

THE EQUIPMENT CABIN

Components (A-D):

- *A. Sleeping bunks*
- *B. Nest survey supplies*
- *C. Tarp storage*
- *D. Misc storage*

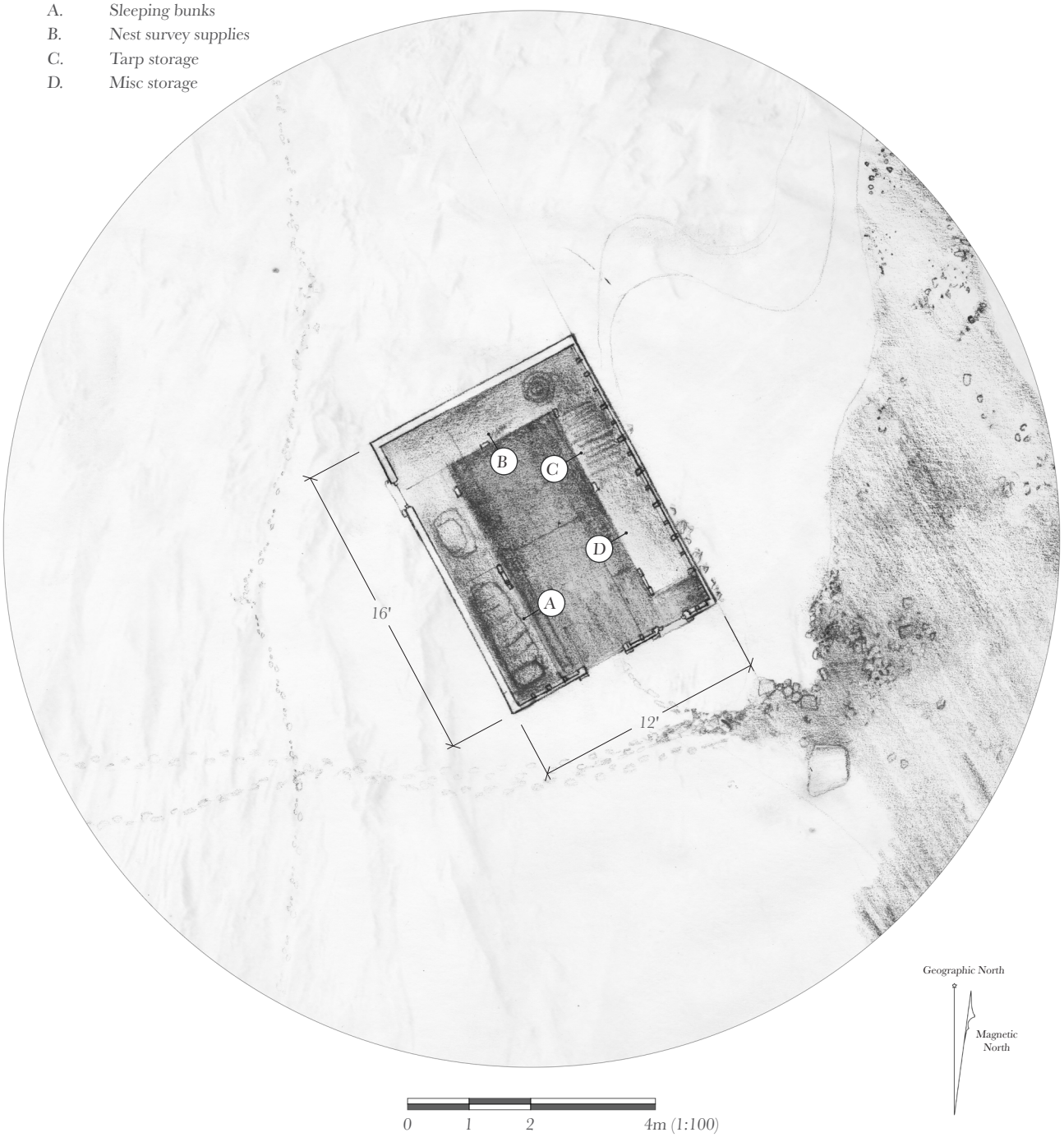


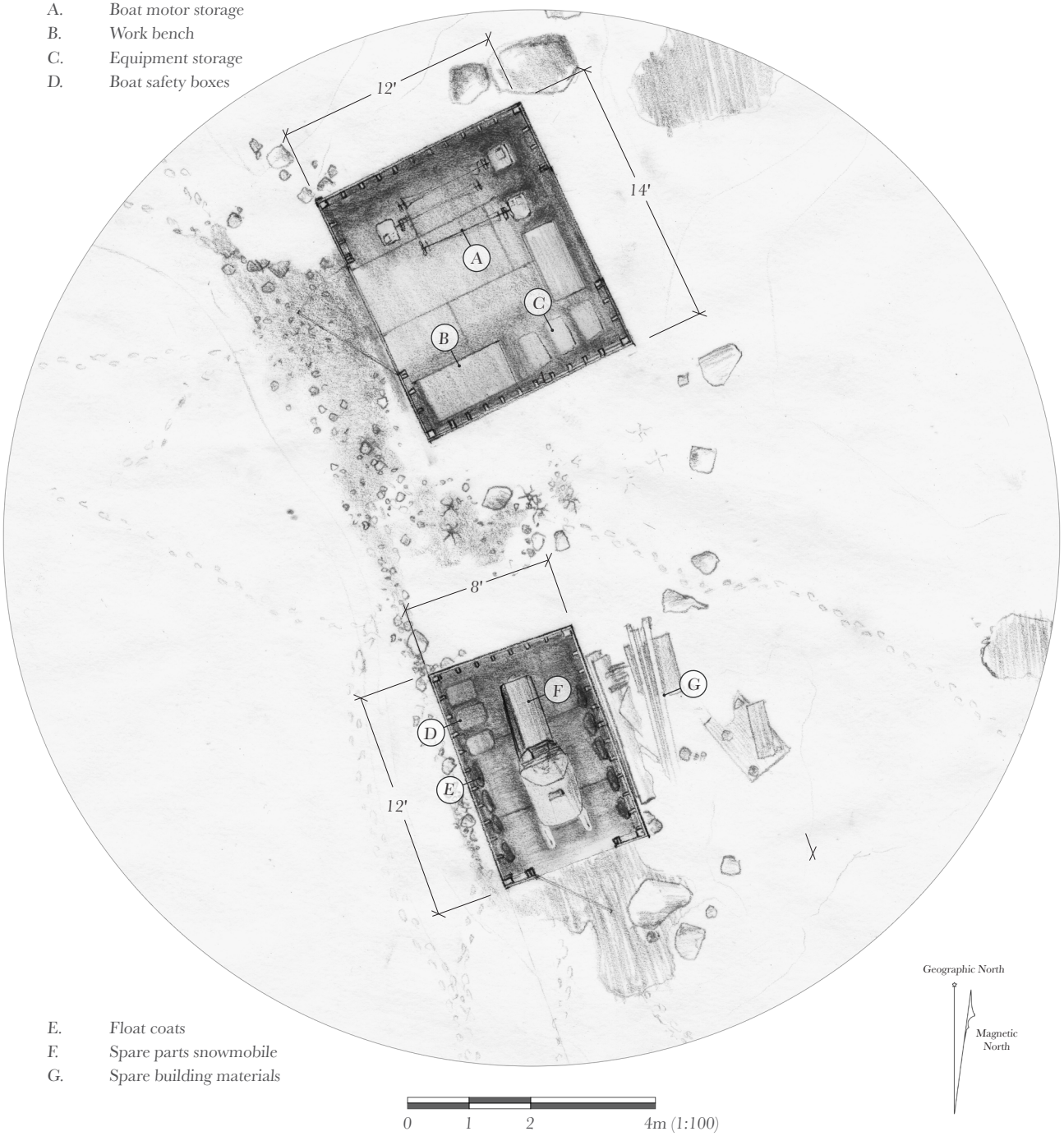
Fig.2.9 *Equipment cabin in plan*

Fig.2.10 *Equipment cabin west (top) and south (below) facades*

REPAIR SHED AND THE 'SWAMP'

Components (A-G):

- *A. Boat motor storage*
- *B. Work bench*
- *C. Equipment storage*
- *D. Boat safety boxes*



- *E. Float coats*
- *F. Spare parts snowmobile*
- *G. Spare building materials*

Fig.2.11 Repair shed (top) and ski-doo shed known as the 'swamp' (below)

Fig.2.12 Repair shed from the north (top); repair shed and swamp seen together from the northwest (below)

THE BUNKHOUSE

Components (A-D):

- *A. Shower room*
- *B. Clothing storage*
- *C. Sleeping Bunks*
- *D. Bear gun*

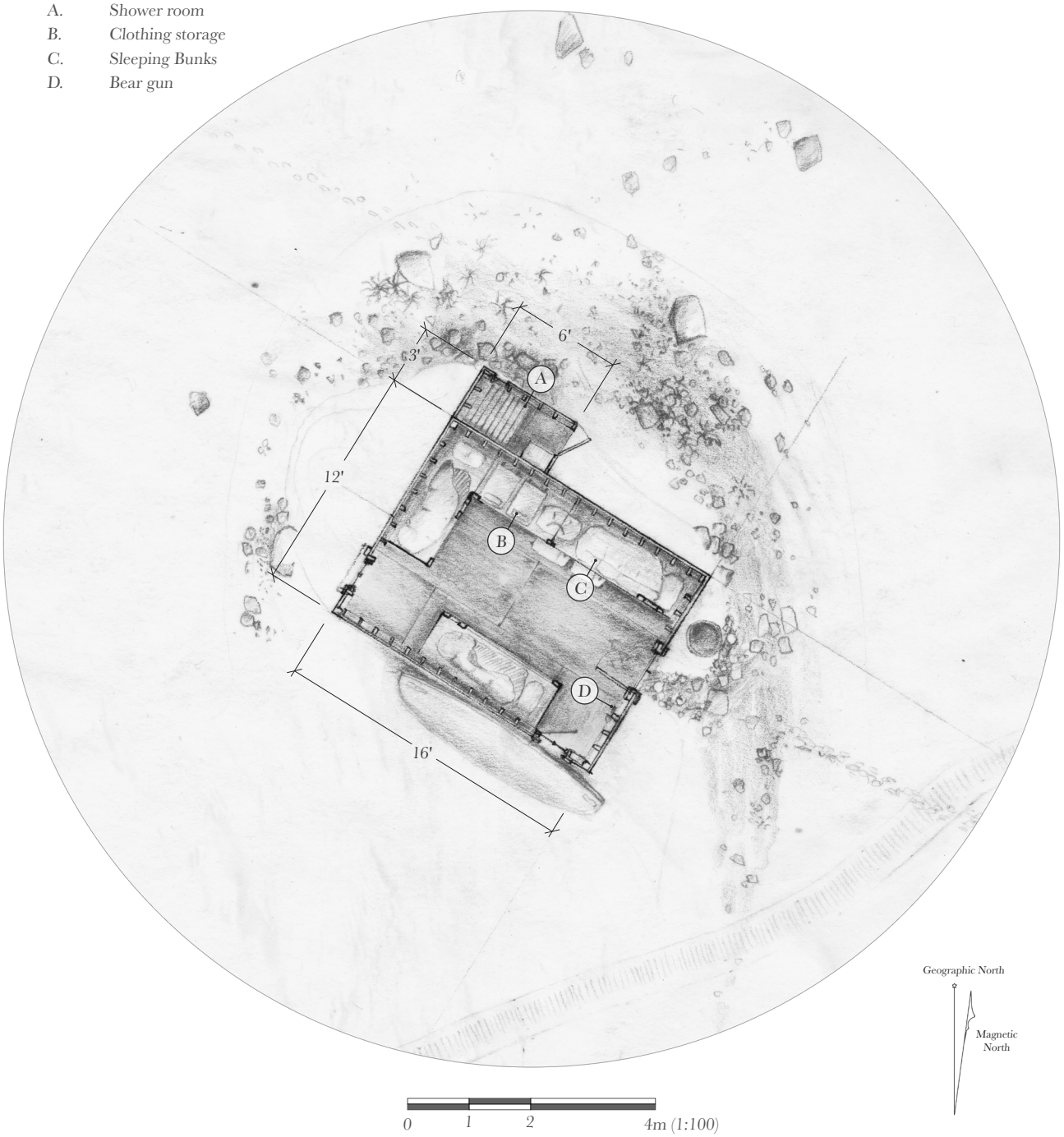


Fig.2.13 *Bunkhouse in plan*

Fig.2.14 *Bunkhouse from southwest (top) and east facade showing shower (below)*

2019 05 16

Lat/Long	*67° 14' 18.3" N, 100° 15' 18.1" W*
Distance	*0.20 km from the station (RS)*
Orientation	*looking southwest*
Trajectory	*walking northeast,*
Company	*with three researchers,*
Situation	*we walked west*
	past the small green outhouse
	onto the rocky tundra

15:36:40

2019 05 17

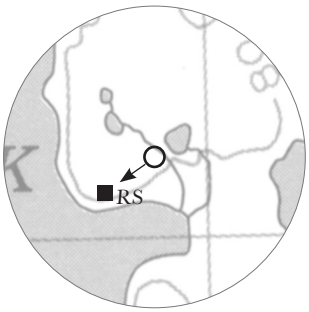


Fig.2.15 Karrak Lake research station
from the northeast
Single exposure at 1/500 sec.

2019 05 16

Lat/Long	*67° 14' 21.9" N, 100° 15' 18.3" W*
Distance	*0.28 km from the station (RS)*
Orientation	*looking southwest*
Trajectory	*crossing the island north,*
Company	*with three researchers,*
Situation	*we paused*
	to look back on the station
	and the lake whose borders
	are as yet unknown

Fig.2.16 *Karrak Lake research station from the island's centre*
Single exposure at *1/350 sec.*

THE COMING STORM

Inside the inky black of the small, uninsulated bunkhouse I am offered only restless sleep. In the dusky darkness of late winter night, the north wind shrieks across the snow-covered earth. The land lies crushed below a raging blue. The cabin jostles for position with the atmosphere, an atmosphere turned ocean. Here on the bottom, the wind sounds like thousands of stones smashing and tumbling over one another, vibrating the air and the earth together. It is deafening. The wooden walls quake in the successive blasts of air or water. Nailed wood groans and shards of broken glass clank in their panes. The alternating pressure and vacuum of air wrapping around the structure registers in the metallic patter of ice crystals moving across the roof above me. Wind gusts lift the corners of the tin roof, sending pulses of icy draft through the interior. Closing my eyes, the whole building seems to move around me like the subway cars back home, clanking and sagging from one rail to the next, metal screaming in the dark.

In the morning, light blooms around the crooked plywood shutters. The bunk house sits in cold, dark slumber while outside is a bright white gale. Snow and light hit me together as I swing the door open to face the high 8am sun. Sparkling particles of snow fly over the waist-high drift that has formed overnight between the bunk house and the central cabin. Rust from the short-handled shovel I use stains each block of snow hurled aside. The stiff north wind whips fine icy snow into my face from the taller, shoulder-height drifts that pile against the cabin walls. In a blizzard, the air becomes snow, wind pierces the ground and ground swirls up into the sky, the environment becomes immediate. It slaps me in the face.

Ahead of me, enveloped in a blur of bright white snow is the main cabin. Drifts form almost to the bottom chord against the north walls, and higher still to the south, up the unadorned gable aside the entrance door. The building was constructed in 1991 from materials dragged by boat and snowmobile from Cambridge Bay, a few years after migratory research had begun at Karrak Lake. Measuring approximately 18' by 20', the main cabin is a simple wood-framed construction with white-washed exterior walls of butt-jointed plywood, neatly painted dimension lumber trim and a black shingled roof. The cabin reminds me of the red and white company cabins written about by Farley Mowat.[2] It rests on haphazard wood blockings and stone piles sunk into a shallow depression adjoining a large swath of wind-swept bedrock beyond. A repurposed radio antenna rises from the workshop, a small Canadian flag writhing at its top in the gale force winds. A small 8' by 8' addition extends from the north wall, as well as a low shed. The addition houses the uninsulated toolshed, and a low extension shelters a gasoline generator.

Descending the wind-burrowed path around the toolshed reveals a single north-facing window and a wooden frame supporting a grey fuel drum above the snowpack. The drum supplies the central heating stove within the cabin with waste turbo fuel (a mixture of two parts kerosene to one-part naptha gas). I follow the wind down the shovelled path around the cabin's east wall, where a line of white and grey insulated coolers sits atop snowbanks rising to the red-trimmed window. Within the coolers are wedged blocks of ice, stored until they are melted for drinking water.

Rounding the corner to the building's southern face, the snowpack rises to a raised, wood-planked porch outside the cabin's entrance door. Two windows overlook the cut snowbank that falls down to the obscured valley below. Above the two south-facing windows, a chaotic array of black folding frames is bolted against the gable, supporting two new solar panels and a disused wind turbine mast that rises up and over the rake of the roof. Against the wall, a wooden structure has been constructed to hold aloft a large polymer water reservoir, a reservoir that will not be used until after the thaw.

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[2] Farley Mowat, *The Snow Walker* (Toronto, ON: McClelland and Stewart, 1975), 12.

Beside the main cabin to the west are situated two smaller cabins. The closest, a food cabin used to store the season's supply of dry goods and fresh produce, measures 12' by 16' and was built in 1998. A year later, an identical structure was built beside the food cabin to be used for equipment storage and additional bunk space. To the north, over the crest of the hill lie the bunkhouse and two storage sheds. The smallest shed shelters boating equipment and a parts snowmobile. The larger, with wide swing doors on either side, is the repair shed. To the east of those buildings, over a windswept inflection of bedrock, a small green-painted outhouse overlooks the rolling plain beyond. These buildings together constitute the research station.

Snow spirals into the slipstream of the buildings and falls gently down around me as I climb the porch which runs the length of the main cabin's south wall. Ahead of me, through the horizontal snow, a person stands atop a boulder holding a small green sensor above their head. They check the reading and make a note in a clipboard before heading back towards me. This, they explain, is the weather log. The weather log is taken twice daily in the morning and evening. Each time a minimum and maximum temperature are recorded for the previous 24 hours and the sensor is reset. Wind speed, cloud cover, fog conditions, and current temperature are also taken. They pass me the sensor and the clipboard. From now on, I am doing the weather log.

ENCOUNTERING THE MAIN CABIN

I walk through the blind of snow into the main cabin, a large, dimly lit room filled with the smell of people and propane. Classic rock plays from an iPod and an old dented speaker. It is warm and humid, with floors and walls made of plywood and a drooping beige fabric ceiling. There are memorabilia everywhere, giving the impression of a densely occupied ecosystem all to its own. Every possible space of the age-stained plywood has been filled by one means or another. Along its walls are stuffed all the memories made here of people from elsewhere, together with all the memories of elsewhere brought here. It is a wild confluence of the immediate and the far away.

On the south wall is framed photographs of people and animals are surrounded by an array of topographical maps. Each map is heavily annotated with tracings of travels, points of interest, significant co-ordinates. A four-month timeposter marks the birthdays of people from years past along with hand-scrawled notes for holidays, traditions, and hockey playoffs. Written in permanent marker directly onto the wall are running records for animal sightings, high and low temperatures…even poetry. These markings are accompanied by a wild assortment of wildlife drawings, from caribou profiles in pencils to tattoo-styled foxes to detailed acrylic paintings of ptarmigan—all composed directly on the wall itself. A single, small window is surrounded by photographs, curling where the water stains permeate around it. The satin feathers of loons and eiders are tucked into the blackened wood frame.

Along the east wall, a sleeping bunk has been repurposed as a reading nook. Where the top bunk used to be, bookshelves and storage compartments have been fashioned from plywood and dimension lumber. Each compartment is stuffed with the effects of an individual researcher, and the whole thing overflows with clothing, cameras, toiletries and souvenirs from home. The collection of books seems to span every category of literature, form the classics to novelty magazines. They also span an array of languages. From the foot of the bunk is hung a spotting mirror and the severed base of a gasoline jug, fashioned into a shave sink. Old iron traps, metal binoculars and an ancient looking hatchet are affixed to the wall above it. Obscured beneath a line of hanging jackets and parkas are placed two small windows overlooking the crest of the hill and the outhouse beyond. Below them is a corresponding line of boots, snow still clinging to them in the cold of the uninsulated floor.

The south wall is predominately an area of food preparation. A countertop runs almost the full length of the cabin from the west, brightly lit from the two south facing windows above it. A metal dish sink has been installed below one window, with a hose that will supply water from the elevated water reservoir during the summer and a drain that flows into a slop bucket below the counter. While the countertop, clad in sheet metal and flowery vinyl, appears at first to be a single construction, one half is actually a plywood folding table that has been subsumed into the construction around it. The entrance to the cabin is set near the corner of the room. A bear gun is hung by its side.

In the prime wall space of the south wall is a map of Northern Canada, and directly in the centre is a large green rectangle denoting the Ahiak. I remember the Roman villas with their foyer mosaics, informing visitors of the expansiveness of the estate. Or the topographic maps hung in cottages, boasting the seclusion of their environs. Here, the estate is a stretch of almost 63,000 square kilometers, all of it buried under a hard-packed cover of late winter snow.

Most of the final wall is covered with floor to ceiling shelving that serves both as an open pantry. Dry goods are stocked near the top, while fruits and vegetables are kept lower down, near the cool of the floor. This pantry is continually restocked from the food cabin. Towards the north wall, the same shelves are used for storage of equipment, maps, and other documents needed for the field work that will begin with

the thaw. Towards the south wall, the shelving gives way to another metal counter and the old propane cookstove.

At the cabin's centre sits a large blue cistern with a wooden cap and a heavy, blue-fleck enamel cup hanging from its side. The container is about the size of the fuel drums we rolled off the plane, but much older. Condensation rolls down its sides and soaks into the plywood floor. Beside it sits the stout gas stove that heats the cabin's interior. The heater burns with uneven intensity in the draft of the wind that buffets around the chimney flue. A drying rack of clothing hangs from the ceiling above, among an assortment of paper origami and carefully sanded bone carvings that twist on metal wires in the wake of heat from the stove.

Lifting the hand-carved antler handle of the reservoir reveals translucent blocks of ice floating in crystal clear meltwater. Taking up the enamel cup, water is ladled to a saucepan, which is set down onto a battered cookstove with a clap of metal. Beside it, a steak of caribou sears in a heavy cast iron pan, the steam fogging the windows. A colleague scrubs at the flowery adhesive vinyl that wraps the dining table, loosening black grease from the black and white print and scratching at the duct tape patches adorning its corners, or wherever else it has torn. The cookstove is clicked off and the station's crew of eleven crowds around the faintly lit table. Cutlery rattles in tin cans that are handed around the table, along with a passing rainbow of faded melamine plates. The legs of plastic dining chairs scuttle across the hollow floor.

Outside, the temperature hovers just below freezing, and the station is enveloped in snow. Visibility is less than 100 meters, winds from the northeast averaging 24 kilometres per hour. I check the boxes of the weather spreadsheet habitually.

09:33:00 *09:33:22*

Lat/Long	*67° 14' 14.7" N, 100° 15' 33.2" W*
Orientation	*looking west,*
Company	*none*

Fig.2.17 *Inside the main cabin, south side looking west*

09:34:20

09:35:00

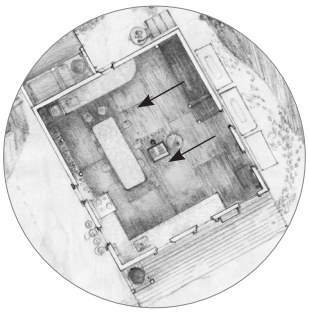

Fig.2.18 *Inside the main cabin, north side looking west*

FRAMING SPACE, FRAMING TIME

After supper, one rectangular basin is filled with hot wash-water from the stove pot, and another with cold rinse-water from the reservoir. A capful of dish soap is swirled into the hot water and a capful of bleach dropped into the rinsing bin. The pile of dishes is passed from one basin to the other to the side, passed from one person to the next to the next.

The cabin's interior could be understood as a frame of its own—an interval of human territory set inside a wider arctic environment. Not that its interior is closed off from the outside; its walls and floor and windows as partitions are far from sealed. The wind and snow exert their pressure on the creaking structure and in return it exerts its own obstinate force. In the middle is a great mixing, a mixing of air and material and sound. The sound of the wind emanates through the walls. The cabin is entangled in the grip of the storm that I not only see, but *feel*.

Over the sink, a window frames a view to the food cabin and the storm raging beyond. The window is an instrument whose history is embedded linguistically. The word's origins lie in the combination of the early Scandinavian cognate of WIND, n. and the early Scandinavian cognate of EYE, n., that is, an eye opened towards the wind. The order of this pairing, being first an aperture allowing light and ventilation, and only secondarily to allow for an outward gaze is historically accurate. In present day, we have come to a time where the window is most often constructed for its view. Ventilation and light have become secondary imperatives that are largely left for machines to do better. The word window itself has therefore become obsolete. 'Aperture,' describing an open space between portions of solid matter, could be a more appropriate terminology

and one that is useful in its embedded reference to the frame and the window's consequential action of framing.

The frame operates in storytelling as it does in photography, albeit through two separate but intertwined operations for the composition of space. The photograph frames a specific piece of reality and records it over a small fraction of time, usually spanning only a few tenths or hundredths of a second. In so doing it rationalizes the world around us to a spatially and temporally graspable fragment—a fragment that is useful for extracting a certain kind of information. However, as objective a mode as the photograph is made out to be, its durational limitations imbue it with the same subjectivity as we would see in any other art form. While a written story might betray the artist's conceptions of the world through the active distortion of elements and their placement within the wandering frame of the narrative, as well as the colouring of those elements, the photograph merely disguises these perceptions in a format that is not often disputed. The photographer, through their judgement of the particular moment in time that they portray, form what perspective and what elements are included (or excluded) from the frame. The photographer does this continually, whether they do it conscientiously or not. In this way, the photograph is comparable to the map on the cabin's plywood wall; both portray a set of visual information deemed important or useful to the observer at the time it was produced, and both are often understood to be unbiased, factual representations of space. However, like photography or writing, photography most consistently and most accurately offers a view into its author.

It is well understood that living beings are well practiced in the suppression of external influences that are not in line with their interests. Jakob von Uexküll posited that living beings are "able to distinguish as many objects as [they] can carry out actions" and "with the number of actions available… the number of objects increases."[3] Similarly, Bergson stated that because of this, a thing can exist in reality "in the totality of its elements and of their actions of every kind" without being perceived by us in a representation of anything more than a limited assumption of usefulness for our

[3] Jakob von Uexküll, A *Foray into the Worlds of Animals and Humans: With A Theory of Meaning*, trans. Joseph D. O'Neil (Minneapolis, MN: University of Minnesota Press, 2010), 96.

own functions.[4] Kevin Lynch hints at a similar phenomenon when he states that the environmental images a person creates for themselves, once developed, simultaneously limit and emphasize parts of that environment with which they have resonated in some way.[5] In all these cases the self-augmenting nature of human perception is very clear. Our perception is limited by the set of interrelations in the environment that are deemed of relevance.

How might it be possible to, rather than produce images of the arctic that are of self-referencing importance to me, to capture something invisible to my eye? How do we render the invisible visible?[6] Through this I hope to sideline my own entrenched perceptions of the landscape and instead foreground the original chaos. It is therefore through the multiplicity of framed images that the frame is able to melt away. What I attempt to do through the composites is the same as what I attempt to do through written stories; to frame interrelations over a duration.

Take, for example, the main cabin's western window. Here, the window is recorded at four different instances and in four different states: Blue, Bright, Fogged, and Sunny.

The photographs show the window as I typically see it: centered in my field of view, and from eye-level. If I see this particular field of view every day, I can capture that view every day. Overlaying the images begins to capture that particular scene over a duration. Through such a method, the capacity of the photograph is extended from 'what has been' to 'how has it become.' Therein, an entire spectrum of interrelations emerges in a format that undoes our ability to clearly distinguish between elements. Each element is blurred together across space and time, blurring to form, as Deleuze and Parnet suggested, "something which has its place between the elements or between the sets. (…) And even if there are only two terms, there is an AND between the two, which is neither the one nor the other, nor the one which becomes the other, but which constitutes the multiplicity."[7]

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4 Henri Bergson, *Matter and Memory*, trans. Nancy M. Paul and W. Scott Palmer (New York, N.Y: Zone Books), 38.

5 Kevin Lynch, *The Image of the City*, Publication of the Joint Center for Urban Studies (Cambridge, MA: MIT Press, 2005), 6.

6 This question was similarly investigated in Gilles Deleuze and Francis Bacon, *Francis Bacon: The Logic of Sensation*, trans. Daniel W. Smith (New York, N.Y: Continuum, 2003), 56.

7 Gilles Deleuze and Claire Parnet, *Dialogues*, trans. Hugh Tomlinson and Barbara Habberjam (New York, N.Y: Columbia University Press, 1987), 34–35.

Fig.2.19 *Four photographs of the Main Cabin's west window.*

Fig.2.20 *Main cabin, west aperture from the interior*

Fig.2.21 *Main cabin, apertures from the interior*

Compositing these four exposures together will press the four states into the same 'scene': a blue-bright-foggy-sunny view of 'Main Cabin, west aperture from the interior.' This view does more than simply compress these different states. It also compresses time, allowing the viewer to see other patterns that are not immediately apparent. For instance, the pattern of human life within the station is seen in the shifting forms of frequently handled elements: the cutlery, water bottles, spatulas and cast-iron pans. It also provides a glimpse of slower change as seen in the half-exposed earth beyond the windows. In doing so, the main cabin's west window is portrayed closer to its true nature, as changing as the people who use it, the weather that affects it, and the environment visible through it.

Extending the photo composite further, we can take the view from each of the cabin's six windows and merge their perspectives into a composite of 'Main Cabin, apertures from the interior.' If the previous composite unfolds time into a duration, this one begins to unfold space, and different spaces. By this point, the image has taken on an agency of its own. Emerging across the frame are books, maps, manuals, radios, cookware, coats and memorabilia—all the chaos that comprises the cabin itself. This begins to offer a semblance of space that is not tethered by my own preconceived notions of importance. In some instances, these composites open up longer durations of time than the camera is capable of recording. In others, it is the (scale) of space that is opened up, overlaying several perspectives together.

MAIN CABIN, APERTURES FROM THE INTERIOR

Date	2019 05 19 - 2019 06 19
Lat/Long	67° 14’ 14.7” N, 100° 15’ 33.2” W
Duration	4 weeks
Exposures	10
Orientation	looking through different windows on different days at different times

2019 05 01

2019 05 19

2019 05 27

2019 06 01

2019 06 01

2019 06 03

2019 06 04

2019 06 04

2019 06 11

2019 06 19

2019 07 01

Fig.2.22 *Composite image of main cabin, apertures from the interior*

ON PROXIMITY

Each evening, the skies outside dim to their even blue gray. The encroaching night is announced by a sharp mechanical buzz from the station's solar inverter. Each evening, a broom is grabbed from beside the door and the switch on the box's side is hit off. The inverter falls silent, together with the iPod and speaker. With a series of mechanical clicks the lights of the radio transponders fade to black. The station's battery is depleted, but nothing needs electricity anyway. The two single tube lights fixed to the ceiling are never used, the cookstove and heater are both run on gas, there is no connection to the outside world to maintain.

The cabin falls into silence.

With each lengthening day the buzz from the inverter is pushed further into the night, and the calm that overtakes the cabin's interior is pushed along with it. This one specific cycle tied to even larger cycles. Books are drawn out from shelves and people settle into the darkening corners. There is no clock to tell us the time; disconnected from the outside world as this station is, there is little need for 'time' at all. All that matters is the duration of the day.

I sit along the bench on the north side of the room, copying plot book tables across each page of a half-letter sized all-weather notebook. The swirl of snow beyond the windows casting slowly purple. Through the condensation-filled windows, drifting snow whips off the craggy rock upslope and whirls in the air before being pushed on and down by the succeeding gust. The effect is a shaky disappearing and reappearing of the landscape beyond. The cruel white sinks each night to an excruciatingly slow

tide of night. Crushed between the boulders and the snow and the deepening pressure of the sky, the main cabin becomes a small, demersal pocket of warmth. Whisky bottles rammed with candles are produced and set alight, casting a flickering glow against the bone carvings that hang from the ceiling. All eleven of us sink together into sluggish seclusion, packed together into individual worlds of thinking and writing and reading: a graphed field notebook is flipped through, a pdf report is scrolled through, a camera menu is edited, a photograph is modified, a dictionary re-labelled as 'Google' is consulted, a calendar marked up, a GPS is programmed, a field guide perused, the page of a cookbook folded, and a notebook is scribbled in. I pull a book from the shelf, Herman Melville's Moby Dick, and settle back against the bench to read.

> *Say you are in the country; in some high land of lakes. Take almost any path you please, and ten to one it carries you down in a dale, and leaves you there by a pool in the stream. There is magic in it. Let the absent-minded of men be plunged into his deepest reveries—stand that man on his legs, set his feet a-going, and he will infallibly lead you to water, if water there be in all that region.*[8]

■

[8] Herman Melville, *Moby-Dick; or, the Whale* (Chicago, IL: Northwestern University Press and the Newberry Library, 1988), chapter 1.

ON THE SURROUNDING ENVIRONMENT

Each evening I duck out from the cabin and head for the bunkhouse. I press into the darkness, my wind block pushed over my nose and up to my eyes. The night is a roaring tumult struck with the thunder of the wind; air shocked with snow. I feel the landscape more than I can see it. I hear the wind batter bedrock. I descend the drift into the space between the two buildings and am hit with a wall of wind. I feel my way through the air, sensing the still-shoulder height banks to either side of the path, a voyage more swimming than walking. Each wave of snow is a raging swell that I stumble against, blindly. The arctic weather, in its capacities for extremes in light and darkness, inescapable sound and vacuums of silence, overwhelms with sensation. It moves through me as much as acting on. Such an affective force was painted by Gilles Deleuze and Félix Guattari as a zone of indiscernibility of self, where raw sensation moves and affects and the interrelation of self with environment becomes real and visceral.

At the root of the word *environment* is not actually a place, but an action. That is, though we commonly use the word as a noun to delimit a certain region around us in space, the word is in truth a verb intended to describe the action of a *space surrounding us*. The term comes from the French *environnement*: the action of surrounding something. It could equally be used to describe the actions of an army as the actions of nature. This corresponds to Deleuze and Guattari's use of the French word *milieu* as a technical term combining the spatial meanings of *surroundings*, *medium* and *middle*.[9] Knowing this, I can no more reduce the environment of the station to the kind of quantifiable measure

[9] Brian Massumi on page xvii of the Translator's Preface to Deleuze and Guattari, *A Thousand Plateaus*.

I record each day in the weather logs than I can reduce the station itself to wood or steel. The environment can be abstracted in absolutes such as wind speed, snow depth, cloud cover, but it can never *be* those things, because an environment is not actually a *thing* at all; it is a relationship. It is the "action of circumnavigating, encompassing, or surrounding something; the state of being surrounded."[10] It follows necessarily that as a person, we affect the environment, and the environment affects us in return. We are interrelated agents who act and are acted upon.

Elizabeth Grosz, a philosopher and feminist theorist, posits such reciprocal affect as a "becoming-other, the creation of zones of proximity between the human and those animal and microscopic/cosmic becomings the human can pass through."[11] Such affective forces can seem like the blizzard, immediate and all-consuming, or as gravity, a withdrawn but enduring force. Deleuze and Guattari once remarked that "even if the material lasts for only a few seconds it will give the power to exist and be preserved in itself *in the eternity that coexists with this short duration.*"[12] What they describe as a potential summoning together of that affective force is the very definition of the percept: "to make perceptible the imperceptible forces that populate the world, affect us, and make us become."[13, 14] The material of sensation is the snow stinging against my face in the crushing arctic evening. Some of it chances to touch me, to affect me, while some of it may affect someone else. Some of it appears and disappears for no one but the sun and the wind.

The sheet of snow and air surrounding me seems to be continuously forming out of the future and disappearing behind me into the past—but its force is what I feel immediate and enduring. The force of the wind is somewhere in its yawning roar and biting cold. The force of the night is its chasmic blue.

■

[10] "Environment, n.," definition 1 (marked obsolete) in *OED Online* (Oxford University Press, December 2019), https://www.oed.com/view/Entry/63089?redirectedFrom=environment.
[11] E. A. Grosz, *Chaos, Territory, Art: Deleuze and the Framing of the Earth*, The Wellek Library Lectures in Critical Theory (New York, N.Y: Columbia University Press, 2008), 77.
[12] Deleuze and Guattari, *What Is Philosophy?*, 166. Original italicization.
[13] Deleuze and Guattari, 182.
[14] Barbara Bolt, "Unimaginable Happenings: Material Movements in the Plane of Composition," in *Deleuze and Contemporary Art*, ed. Stephen Zepke and Simon O'Sullivan (Edinburgh: Edinburgh University Press, 2010), 266.

Fig.2.23 *Night in the Ahiak, early spring*
One exposure at 1/90 sec.

THE DISAPPEARING WOLVES

In the late winter evening, the wolves move over the frozen plains as apparitions; smears of white and grey fur moving among the snow, and the blowing snow. In the dusky light their forms seem only half-attained as their bodies drift from hilltop to hilltop. All that is discernible is their vector, a ponderous but pressing pursuit north and east of the migrating caribou. Their howls coalesce in wild harmony with each other's and with the crying wind. From my small plywood box at the side of the moraine, their shadowy bodies seem separated only in degree from the space whence they appeared. They are the surrounding and disappearing, becoming snow itself. And into the snow they are soon forgotten.

REMEMBERING / FORGETTING

Fig.3.1 *Snowmobile tracks descend onto Karrak Lake from the research station*

ON SNOW AND MEMORY

I click a handheld radio onto channel one. Pressing down the talk button, I speak into the receiver: "One." With a squeal of static, my voice echoes back from the station's central receiver on the wall behind me. I recite a mental list: *When away from the station, it is necessary to carry*

1) a handheld VHS radio,

2) a GPS,

3) backup batteries for said GPS,

4) a small explosive flare called a 'bear banger,'

5) pepper spray

6) a first aid kit,

7) a camera (my addition),

8) food and water, and

9) a paper map.

I touch each article in confirmation, then extend my hand to the turn the cold metal knob of the main cabin's entrance door. A cold blast of wind pushes the door open against me, and I press forward into the blinding white swirl of blowing snow. The boot-trampled path leads down the porch and out past the three parked Indy snow machines. On the map, a scrawled blue circle indicates an area of terrain four kilometres south of the station, an old riverbed recommended for its scenery by one of the research scientists. On the GPS is a straight blue line indicating a geodetic route across the frozen lakes and rolling terrain that, remarkably, not a single obstacle prevents me from pursuing. Instead, I follow the snow machine tracks off the island and west onto the flat expanse of the hidden lake.

Though no new snow is falling, the gusting north wind picks up the snow around me into a squall. The icy particles sting against my face. From the middle of the plateau, and looking back, the island and research station behind me are barely perceptible through the snowy air.

I cast my gaze back the snow machine tracks extending ahead of me. The path is a frozen washboard from the snow machine's rubber tracks, repeatedly packed by researchers scouting fox dens. In a way the trail acts like an externalized neural network of the brain, existing for only as long as they are successively reinforced. Left too long without passage and they become obscured below the drifting snow, necessitating re-navigation and re-compaction. The track is as hard as concrete underfoot, in some areas set down into soft snow and in others forming a highway of packed snow raised above deep blue exposures of ice. The dark sapphire of the ice is immensely beautiful, creased with white hairline fractures that disappear almost to black underfoot. The lake is frozen all the way down to its bottom.

Memory in this place is recorded in these kinds of tracks and traces, continually being remembered and forgotten. Elements like the snowmobile track occupy a short span of time, arriving with the researchers at the cusp of spring and sinking with the ice in thaw. The ice below them, cracking under its own internal pressures of expansion, exists for a longer duration, though it too is always changing. The skidoo tracks are but a short cycle set inside a much larger seasonal change of freeze and thaw. Shorter still are the snow drifts that build and erode simultaneously; moving across time and across

landscape they execute an insinuating agency that buries, erases, uncovers, and recalls.

Off the trail, the wind-sculpted snow is formed into waves and ribbons referred to as sastrugi, ridges of snow formed by (and aligned parallel to) the prevailing wind. They form a topography all of their own. Crossing them are traces of animal movement, from the deep, meandering hoof prints of migrating caribou to the light triangular prints of ptarmigans. Their various trajectories, whether executed three hours ago or three days ago, now lay intertwined together in the snow.

Further on, I encounter the widely spaced tracks of a sprinting arctic fox. Where the snow was compacted below the animal's paws, pillars have now formed above the flat expanse around them, actually elevating them above the datum of the surface. Whatever drift they were initially sunken into has been eroded by the wind and moved elsewhere. The snow crystals that continue to buffet around these pillars have formed miniature arrows pointing south. Each footprint forms an assemblage of circumstantial forces, wherein the memory of the fox and the memory of the north wind tangle together.

I wonder if each footprint is itself a frame, as the main cabin is a frame? Even if its only partition is a floor, it is a partition nonetheless. Elizabeth Grosz writes that the construction of a frame is a gesture that cuts into space and separates and composes, rarefying some small piece of the earth. She writes that "this cutting links [the frame] to the constitution of the plane of composition, to the provisional ordering of chaos through the laying down of a grid or order that entraps chaotic shards, chaotic states, to arrest or slow them into a space and a time."[1] The plane of composition, a term from Deleuze's work that Grosz defines succinctly in her later essay "Sensation: The Earth, a People, Art" can be understood as a loose field of all types of artistic production, a plane of materiality becoming-sensation.[2] From a plethora of material orders and forces, a material work is composed, and is framed. Inside each print is the bodily force of the sprinting fox, raised from the surrounding surface and monumentalized…given durability through compaction.

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1 Elizabeth Grosz, *Chaos, Territory, Art: Deleuze and the Framing of the Earth*, The Wellek Library Lectures in Critical Theory (New York, N.Y: Columbia University Press, 2008), 13.

2 Elizabeth Grosz, "Chapter 5 Sensation: The Earth, a People, Art," in *Gilles Deleuze: Image and Text*, ed. Eugene W. Holland, Daniel W. Smith, and Charles J. Stivale (London, UK: Continuum, 2009), 84.

Fig.3.2 *Animal tracks on the lake: ptarmigan (top) and the fox (below).*

Around it, in the tails of snow, the prevailing wind is rendered physical. The print is in some way the body of the animal, and below it (outside the frame) are all the forces and materials of that animals' environment. I am reminded of Grosz's characterization of how "life can only exist and perpetuate itself to the extent that it can extract from the whirling and experientially overwhelming chaos that is nature, materiality, and their immanent forces those elements [it requires] so that it may incorporate what it needs."[3] I wonder what the fox was running towards, or away from. "Whirling, unpredictable movement[s] of forces"[4] surround me in space but only find durability in composition here, on the ground, at my feet. The wind is everywhere yet is impossible to grasp; the fox is small and yet could be anywhere. In this barely emergent intensification of the surrounding snow, these two exist together simultaneously.

■

3 Grosz, *Chaos, Territory, Art*, 6.
4 Grosz, 5.

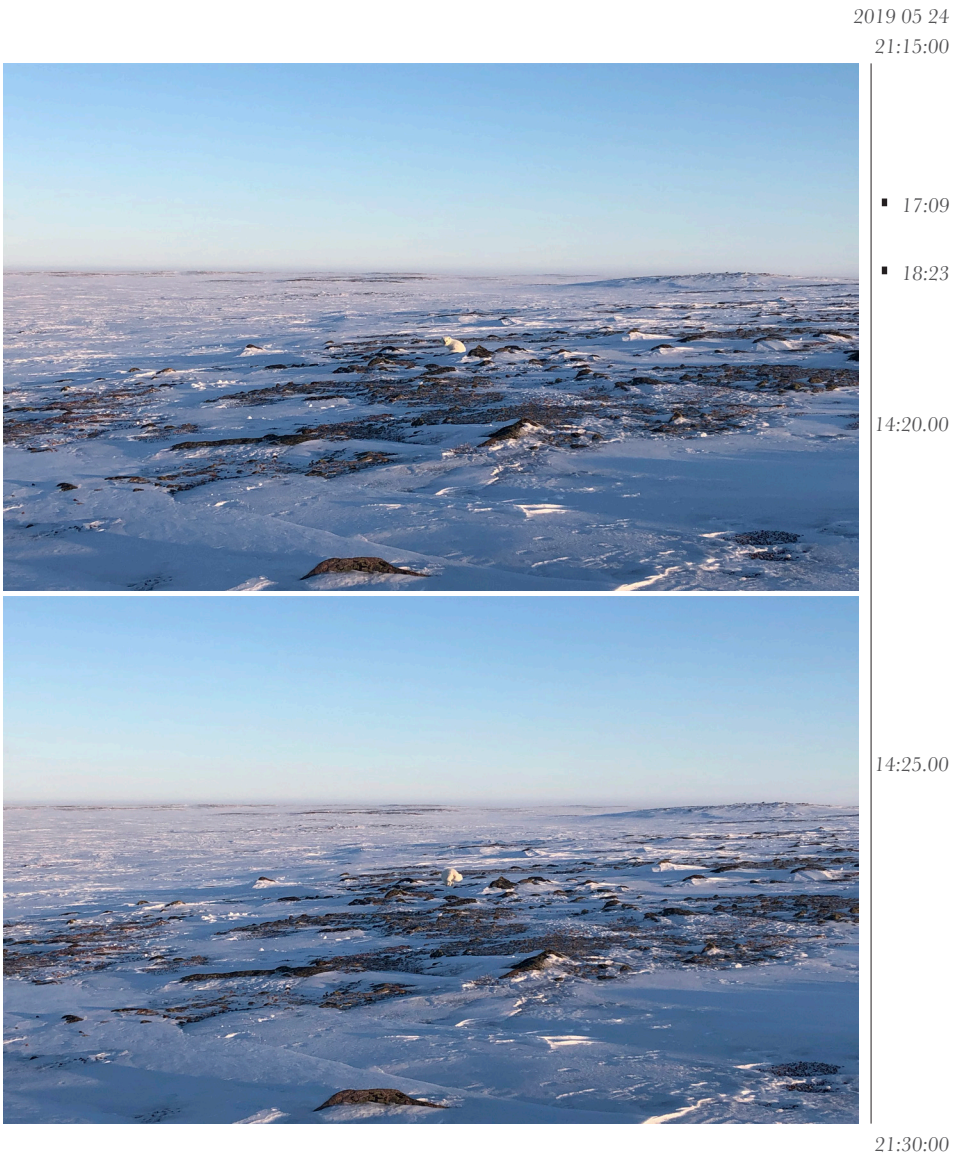

Fig.3.3 *A fox sits on the snow, then runs away.*
Two exposures at 1/200 sec., one minute apart

"We are each, to a great extent, made up of our poor and frail memory.

And that memory is made up largely of forgetfulness"

Jorge Luis Borges and Roberto Alifano, *Twenty-Four Conversations with Borges: Including a Selection of Poems*, trans. Nicomedes Suárez Araúz, Willis Barnstone et. al. (Housatonic, MA: Lascaux Publishers; 1984), 62.

Ahead, tufts of golden-brown blades of grass project through the lowland terrain. They remind me of the cover grasses that obstinately projected through the snow cover of the farm fields of Ontario. Even such a simple image is enough to evoke this memory.

Experience is tinted by memory the same way that a sky appears orange or green when looking through a coloured glass window, in real time and, apparently, real. As observed by Henri Bergson, "Our perceptions are undoubtedly interlaced with memories, and, inversely, a memory […] only becomes actual by borrowing the body of some perception into which it slips. These two acts, perception and recollection, always interpenetrate each other, are always exchanging something of their substance as by a process of endosmosis."[5] As such, remembering is intertwined with the process of forgetfulness.

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[5] Henri Bergson, *Matter and Memory,* trans. Nancy M. Paul and W. Scott Palmer (New York: Zone Books, 1988), 67.

FOOTSTEPS OVER SNOW

Date	2019 05 16
Lat/Long	67° 19’ --” N, 100° 15’ --” W
Distance	1-10 km from the station
Duration	6 hours
Exposures	19
Orientation	looking down
Trajectory	walking south, then north, along the low rises of glacial deposits sculpted first by the glaciers and then by the wind

10:00:00
10:25:58
10:33:12
10:36:44
10:45:00
11:00
12:00
13:00
14:00
15:00
15:24:09
15:25:37
15:32:03
15:41:09
15:49:03
16:00:00

Fig.3.4 *Composite image of footsteps over snow*
Nineteen frames composited into a single image

THE ARCTIC HARE

To walk the arctic lowlands in the snow is to walk among the active processes of forgetting and recollection. All around me is buried. Kneeling down, I scrape away the snow with my gloves to reveal what has been hidden: the interlocking stones of an old Inuit food cache. Filling again with drifting snow, it is soon re-covered. But we will return here later. I half-slide down from the ridge into the valley, a narrow, snowy valley that will become Karrak Lake's outflow when the rivers turn on in thaw. Until then, the river, and the lake that flows into it, are together frozen solid to the active layers of permafrost at their bottom. I follow the valley south.

Ahead, on a sediment deposit in the center of the invisible lake arm, is a small herd of arctic hares. Prevailing north winds have swept away much of the snow cover from the low rise, and the hares are feeding on the stunted branches of arctic willow that remain exposed through the cover of snow. They allow me to walk up the rise and crouch down nearby. Their coats are pure white, with black eyes and black-tipped ears. The large thick pads of their hind feet support their round, furry bodies while they dig into the snowpack with their front paws. Heads to the ground, the hares shuttle snow away from the plants with their noses. Left behind them is a mottled mat of fallen leaves and hard, pink sand. Several individuals seem to be almost sleeping, their ears tucked down into the silky hair of their backs—a luxury afforded by the comfort of the herd. Another moves closer, apparently unconcerned by my presence as it scratches at the snow not ten feet away. This is the territory of the hare; I am a guest.

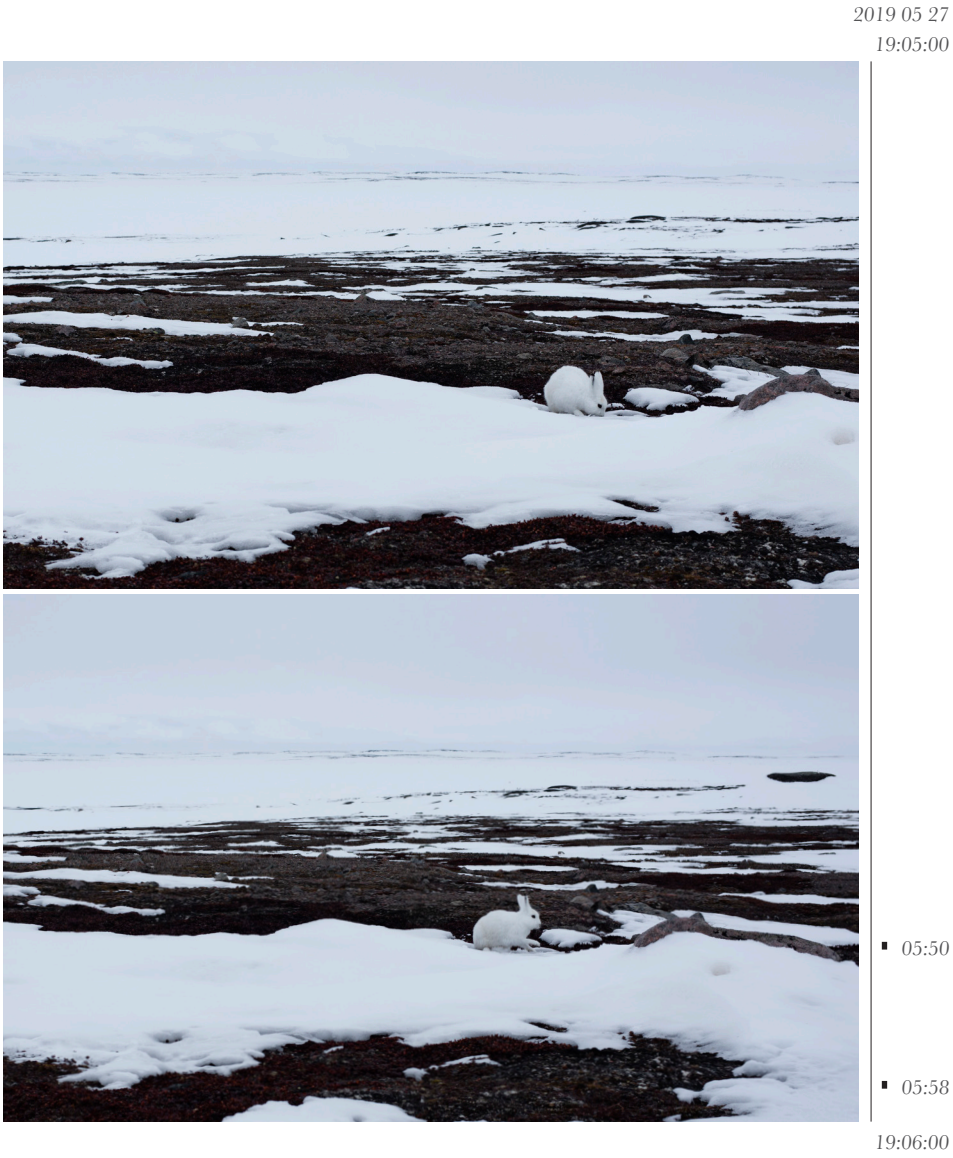

Fig.3.5 An arctic hare digging to the buried sedge.
Two exposures at 1/500 sec., eight seconds apart

Crouching here in the snow, my otherness is amplified. Each movement seems too big, my footsteps seem too deep, my coat seems too black. I am the animal whose trajectory has cut across the territory of another.[6] But even pausing with them for a short while, there is offered an opportunity to come to know the hare—an opportunity that can be indulged so simply as sensing and perceiving. James Gibson writes that,

> "To perceive the environment and to conceive it are different in degree but not in kind. One is continuous with the other. Our reasons for supposing that seeing something is quite unlike knowing something come from the old doctrine that seeing is having temporary sensations one after another at the passing moment of present time, whereas knowing is having permanent concepts stored in memory. It should now be clear that perceptual seeing is an awareness of persisting structure. Knowing is an *extension* of perceiving."[7]

According to Gibson, an individual's knowledge of their environment grows fuller and finer with attentive encounter. For Deleuze, the result of this encounter is a process of re-perception wherein the hare mediates my experience of this place and challenges my perception of it.[8] Suddenly, I can see the low rising terrain not only in aesthetic or abstract topographical terms, but also come to know the specific affordances it provides to the animal. On this patch of terrain, the surface of snow camouflages with the hare's white coats, but the wind has swept it thin enough that it is easily punctured. A wide sightline across the frozen lake insulates the herd from predators, and the craggy shoreline provides a means of escape if a predator is sighted.

I am beginning to know the terrain on a stratum I had never before considered, but which had of course been there all along. Not only does tis allow me to recognize the value of this ground for the hare, it also reveals the range of potential action between the hare and the *forces* of the environment it occupies. Brian Masumi, a Canadian

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6 In *What Is Philosophy?,* trans. Hugh Tomlinson and Graham Burchell (New York, N.Y: Columbia University Press, 1994), 185, Deleuze and Guattari write that "every territory encompasses or cuts across the territories of other species, or intercepts the trajectories of animals without territories, forming interspecies junction points."

7 James J. Gibson, *The Ecological Approach to Visual Perception* (Boston, MA: Houghton Mifflin, 1979), 258.

8 Gilles Deleuze, "Mediators," in *Negotations: 1972-1990,* trans. Martin Joughin (New York, N.Y.: Columbia University Press, 1995), 125–27.

philosopher and professor at the University of Montréal, illustrates the implications of this knowledge as the reading of signs by a woodworker as they shape a piece of wood into a table. The quality of the wood (its grain, texture and colour) is:

> "an indicator of a future potential and a symptom of a past. It envelops material processes pointing forward (planing; being a table) and backward (the evolution of the tree's species; the natural conditions governing its individual growth; the cultural actions that brought that particular wood to the workshop for that particular purpose)."[9]

Those qualities are not passive but embody a capacity to affect the woodworker and the people who will use the table later.[10] The woodworker, conscious of those forces, works the wood in a particular way.

The hare is not unlike the woodworker, skillful in its negotiation of the embedded qualities of the terrain and its broader environment. It can read the intersection of the topography and the wind as a means to find food. In watching and learning from the hare, I recognize the depth of the force that connects the animal to its environment. I am beginning to know the hare.

■

[9] Brian Massumi, *A User's Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari* (Cambridge, MA: MIT Press, 1992), 10.
[10] Massumi, 10–12.

2019 05 19 — 16:28:44 — 2019 05 20

Lat/Long	67° 13' 24.0" N, 100° 17' 47.2" W
Distance	2.90 km from the station (RS)
Orientation	looking southwest
Trajectory	walking northeast,
Company	alone,
Situation	looking back towards the south tower as I head north towards where it pointed me

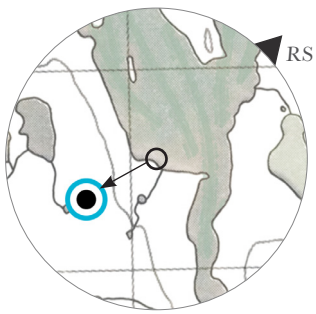

Fig.3.6 The south navigation tower

LAND MARKING

My boots squeak against the surface of the frozen lake. Pausing, it becomes immediately silent, as though the earth had pulled the sound waves from the shimmering air and buried them. The silence is palpable. Its absence rings in my ears. I feel like an imposter, loud and clumsy and brightly coloured.

Ahead, a slender aluminum obelisk looms at the crest of a boulder-strewn drumlin.[11] Labeled on my folded paper map as SO-TO—South Tower—the structure is one of four outboard navigational landmarks, each standing in a cartesian quadrant roughly three kilometres from the station. A fifth tower stands in the centre, on a hilltop just 300 metres from the station. The towers can be seen across the frozen lakes from kilometres away, their vertical lines easily distinguished from the horizontal and near-horizontal skews of terrestrial inflections. Orienting oneself along the line between two towers will point a direction inward towards the station, a directionality that can extend almost endlessly over the terrain until a rise in the topography or the curvature of the earth itself obscures the sightline. There is no edge, only an ever-expanding periphery in relation to the cabins positioned at the centre. This localized orientation is important: situating a body in reference to a centre, even if the centre is far away, actualizes a territory.[12]

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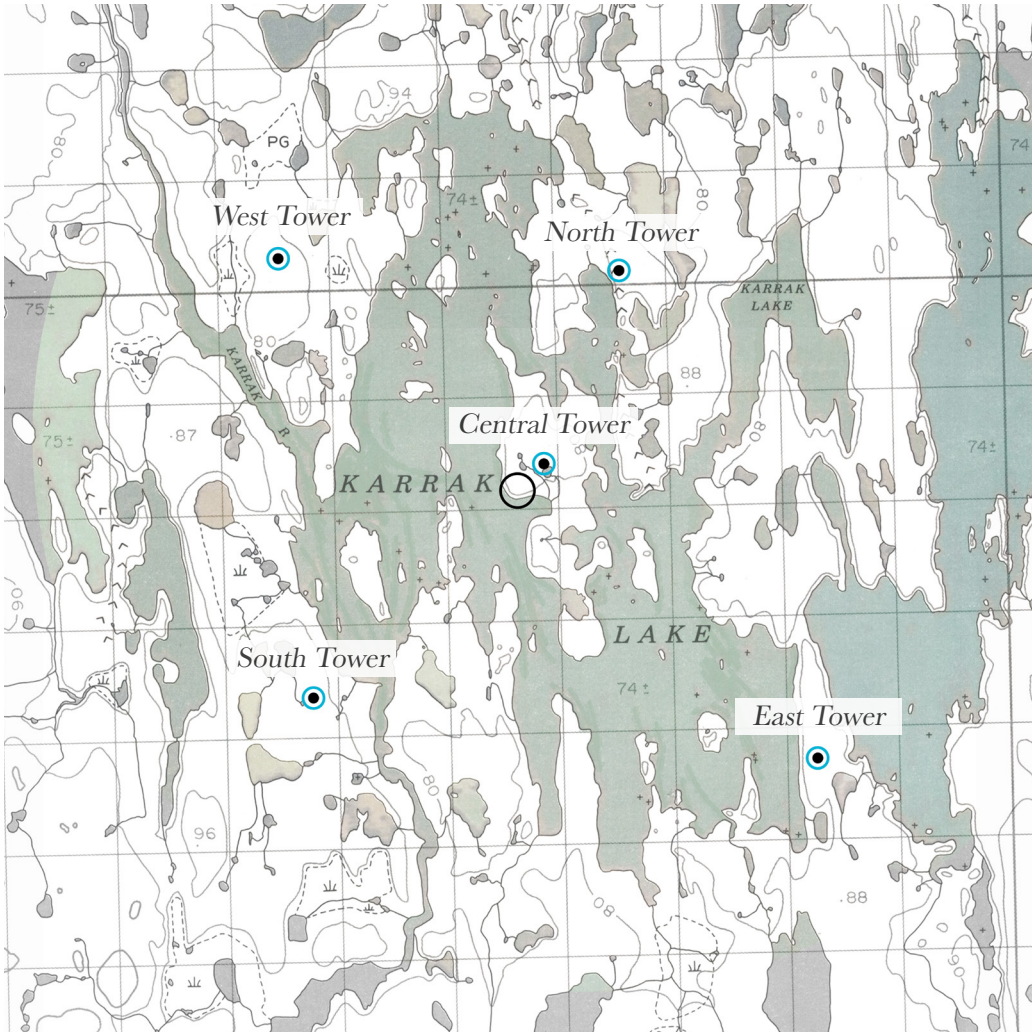
[11] A drumlin is "a long low hill or ridge chiefly composed of till which has been rounded and smoothed by past glacial action," as defined in "Drumlin, n.," in *OED Online* (Oxford University Press, March 2020), https://www-oed-com.proxy.lib.uwaterloo.ca/view/Entry/58020?redirectedFrom=drumlin#eid. in the Oxford English Dictionary.

[12] Henri Lefebvre, *The Production of Space*, trans. Donald Nicholson-Smith (Oxford, UK: Blackwell, 1991), 169–70.

Because they are designed around the body, the structures serve as navigational aids over a span of distance dictated by the reasonable limits of human vision. Tailored as such, the placement of the towers does not actually form a measured quadrilateral grid—surveyed accuracy has been devalued in favour of elevated topographical position. Their positions are also specific to the body of the researcher, in that the inwardly drawn lines of convergence do not coincide with larger integers of longitudinal and latitudinal space. Tracing the positions on a map reveals a disregard for any accepted geodetic datum or their associated orthogonal trajectories. Measured from geographical north, the South Tower is decidedly south-west of the station. Instead, they form their own highly particular geodetic datum. Distance and orientation, in this system, are measured from the research station rather than any external plane of reference.

What does this orientation mean for my situation within the environment? Detached from an abstracted coordinate system, the navigational towers define position tangibly. James Gibson would describe this as the creation of a *place* as contrasted to a *point*. "Whereas a point must be located with reference to a coordinate system, a place can be located by its inclusion in a larger place…. Places can be named, but they need not have sharp boundaries. The habitat of an animal is made up of places."[13] On this datum my position is no longer in a remote area of the far north, 2800km from Canada's south-eastern centre. Instead I am positioned from a territorial centre, self-referential in its importance to the body measured against it. I am three kilometres from the station. This draws attentiveness to the human scale, a scale that has everything to do with the immediate, physical environment. The environment, understood at this scale, is not rigid and predetermined but is instead affective. What is most relevant is not the drawn line of the lake edge, undistinguishable below the snowpack and in any case prone to wide variations year to year and season to season, but qualities of the land which are registered bodily and perceptively. Understanding position at this scale has less to do with geographic co-ordinates and more to do, as Kevin Lynch wrote in his reflections of environmental images in the city, with focal points linked by remembered routes.[14] And further, remembering is itself tangled with the physical—it is about the texture of the snow in one area versus another that can

[13] Gibson, *The Ecological Approach to Visual Perception*, 34.
[14] Kevin Lynch, *The Image of the City*, (Cambridge, MA: MIT Press, 2005), 6.



Tower position:		Distance from central tower (RS):
Central tower:	At peak of hill overlooking the station	-
North tower:	On rise of gravel esker	1.88 km
South tower:	Atop small rocky drumlin	2.90 km
West tower:	At high spot within upland plain	2.99 km
East tower:	At peak of hill separating two lakes	3.64 km

Fig.3.7 Map indicating navigational towers
Image created using topographical maps by Canada Dept. of Energy, Mines and Resources, Canada Centre for Mapping. *Karrak Lake, District of Keewatin.* Edition 1. Scale 1:50,000. Canada 1:50,000, sheets 66N/8 and 66N/1. Ottawa: Canada Centre for Mapping, 1990. Composited with colour by author.

make walking difficult or easy, or the topography that alternatively shelters and exposes to the winds. Lines of navigation are then better described by encountered objects, *places,* than trajectories through abstract space. Correspondingly, I traverse not across empty voids between lines on a map but over land and water and rocks that are still in formation, and whose formation affects me as I affect it in return.

Orienting my body northward, I scan the horizon for the profile of the central tower. Finally, I find a thin grey line, shakily appearing against the grain of the swirling silver clouds that surround it. Below it, light glints off the white, vertical walls of the research station's cabins. The cabins rise immense in my mind. Raising my camera, it is therefore surprising to find that within the frame of the viewfinder they appear small, almost invisible against the vast, snowy terrain. The amplified rendering of the station in my own perception is distorted according to my own values and interpretations, the same process which enables the distinction of the thin silver obelisks against the wide silver sky, or the low-pitched roofs among the folds of terrain like an old friend through a crowd.

As James Corner, a landscape architect and theorist, posits, this eidetic conception literally conditions reality and is therefore participatory in emergent, experienced reality—my reality.[15] The camera offers another mediation, a technically passive and impartial documentation of an otherwise unframed, boundless environment.[16] However, as I can infer through my own surprise, the exposed image seems incorrect without the experiential image. French literary theorist Roland Barthes expressed a similar sentiment in his own reflections on photography:

> "What I had noted at the beginning…that every photograph is somehow co-natural with its referent, I was rediscovering, overwhelmed by the truth of the image. Henceforth I would have to consent to combine two voices: the voice of banality (to say what everyone sees and knows) and the voice of singularity (to replenish such banality with all the élan of an emotion which belonged only to myself)."[17]

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[15] James Corner, "Eidetic Operations and New Landscapes," in *Recovering Landscape : Essays in Contemporary Landscape Architecture* (New York, N.Y: Princeton Architectural Press, 1999), 153-169.

[16] Corner, 153-169.

[17] Roland Barthes, *Camera Lucida: Reflections on Photography*, trans. Richard Howard (New York, N.Y: Hill and Wang, 2006), 76.

As Barthes explained, the photograph evidences only an existence, and an existence in a specific time and place: "false on the level of perception, true on the level of time."[18] Time, in the case of a photograph, is typically only a fraction of a second.

I step down the drumlin, from one exposed boulder to another, heading for the tower in the distance. Across the little plain and over the next sandy hill, then out over the big expanse of the lake.

[18] *Barthes, 115.*

"We should express in two ways the manner in which duration is distinguished from a discontinuous series of instants repeated identically: On the one hand, "the following moment always contains, over and above the preceding one, the memory the latter has left it" (Bergson, The Creative Mind); on the other hand the two moments contract or condense into each other since one has not yet disappeared when another appears."

Gilles Deleuze, *Bergsonism,* trans. Hugh Tomlinson and Barbara Habberjam (New York, N.Y: Zone Books, *1988*), 51.

2019 05 16 — 15:42:51 — 2019 05 17

Lat/Long	67° 14’ 21.9” N, 100° 15’ 18.3” W
Distance	0.28 km from the station (RS)
Orientation	looking down,
Trajectory	walking back,
Company	alone,
Situation	documenting rocks

Fig.3.8 Stone piles anchor the guy wires of the central tower

ON THE COLLECTION OF ROCKS

The terrain surrounding the station is a product of the advancement of the Laurentide ice sheet as it flowed north from the Keewatin ice divide over Hudson Bay and out over the Queen Maud Gulf, as well as its recession about 6000 years ago.[19] The action of the glaciers left the hills of rocky till, the swaths of exposed bedrock with their deep linear striae and the flat-topped gravel eskers that stretch for kilometres to the terminal moraine north of the station.[20] Despite being temporally distant, movements of the ice sheets during the last glaciation continue to affect life in this place today. The long winding deposits of gravel and sand that are raised above their surroundings were once the beds of rivers that poured from below the ice sheets rivers that carried the churned bedrock and built it up along their length before the ice sheet melted from above them. Not unlike those footprints in the snow which were once compacted below the surface but now project above it, the ancient riverbeds are the footprints of glaciers now pronounced high above the surrounding plateaus.

Writing of the city of Lausanne, Switzerland, where he finished his degree in architecture, architect and theorist Bernard Cache writes that a place is largely made up of the lines of forces made immanent in present experience. Cache calls attention to the idea that the identity of Lausanne is not a fabricated thing, nor is it fixed, nor even a thing at all. Instead, what happens to be the present situation of the city is a result of alternating pressures exerted between people and geological forces that can be followed back to the glaciers, forces that are even now continually overwriting each other.

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[19] W. W. Shilts, C. M. Cunningham, and C. A. Kaszycki, "Keewatin Ice Sheet—Re-Evaluation of the Traditional Concept of the Laurentide Ice Sheet," *Geology 7*, no. 11 (November 1, 1979), 537–41.

[20] J.M Aylsworth and W.W Shilts, *Glacial Features around the Keewatin Ice Divide: Districts of Mackenzie and Keewatin, 1:1000000* (Map 24-1987: Geological Survey of Canada, 1989).

> "The first four [of Lausanne's] historical concerns that have been described can all be translated into gravitational terms: letting stones fall, climbing a hill, positioning oneself on the thalweg, or choosing the least inclined plane. What counts, in fact, is the reading of a territory in terms of a conjunction between two sorts of images: concrete gravitational vectors and abstract vectors."[21]

Herein is an exercise in seeing the sameness in different actors, processes, forces as each of them forms a gravitational force on stone. In the stones surrounding Karrak Lake could be found a similar narrative which begins through geological processes. Since the gradual deposit of glacial till, the terrain has been further shaped by forces of erosion,[22] the rivers carve new pathways through the parallel topographical inflections with each spring flood and leave shallow, boggy channels in their past routes. It is further shaped by heavy frost heaves, caused by an active layer of permafrost typically lying at a depth of only one metre, which pull down organic sediment and push up ice and boulders long lost below the surface.[23]

This uplifting, depositing, carrying away and recycling of rock forms a continuing terrestrial narrative that provides for or encourages patterns of movement and occupation. The upward fold of Precambrian bedrock at the hip of Karrak Lake's largest island, atop which sits the research station and, to the northeast, the central navigation tower, may have spurred the surrounding deposits of fine gravel till that slope down into the lake on all sides. The resulting island, unusually large (3.5 kilometres from north to south and up to a kilometre wide at its centre) and supporting of long stretches of organic matter is uncommon in an area dominated by bodies of water no more than a few hundred metres across, and typically without any islands at all. Separated from the mainland, the island provides a protective buffer for nesting geese from predation by foxes and bears on the mainland.

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[21] Bernard Cache, Earth Moves: *The Furnishing of Territories*, ed. Michael Speaks, trans. Anne Boyman, Writing Architecture (Cambridge, MA: MIT Press, 1995), 12.

[22] "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]," Draft report (Environment and Climate Change Canada, Canadian Wildlife Service Northern Region, 2018), 9–10, https://www.nwmb.com/en/public-hearings-a-meetings/meetings/regular-meetings/2018-1/rm-002-2018-iqaluit-wednesday-june-6th-2018/english-documents/7055-eng-tab-08-bird-sanctuary-management-plan-pdf/file.

[23] "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]," 9.

This affordance has doubtlessly contributed to the preference for the lake as the historical core nesting grounds for 90% of the world population of Ross's Goose.[24] In the late 1980s, 200 000 Ross's geese would have nested on the island and the shores immediately surrounding Karrak Lake, along with an equal number of light geese, while the decades since have seen a gradual dispersion of that population across an area stretching ten kilometres north of the island and up to fifteen kilometres to the east and west.[25] This concentration of geese effected a high population of arctic fox that predate the goose eggs during the spring. It also created a unique site for studying those concentrated animal populations.

The collection of rocks for the foundations of the research cabins, or for the guy wire pegs of the navigational towers are perhaps the most recent action in the narrative movement of those rocks. They are moved back up the rocky slopes by humans when they had initially been pulled down by gravity. That bringing together of rocks facilitates the study of animals that have also, over some duration, been brought together because of the particular (if accidental) collection of rocks by the glaciers. The material of the landscape affects and is affected over a long and continually developing duration.

If the rocks collected for the research station are the most recent of such human movements, they are far from the only ones. Surrounding the station is a rich history of human occupation whose tracks and tracings also exist in stone markings encountered throughout the region. Human occupation of the region surrounding Karrak Lake has been estimated to extend back 4000 years, by both the Inuit and the Thule who preceded them,[26] and continued until the 1950s. Evidence of this occupation surrounds Karrak Lake in all directions. Like footprints in the snow, they exist today as only a snapshot in an ongoing process of transformation and decay. The markings lie buried in the snow and in the earth together.

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[24] "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]," 15; Dana Kellett and Ray Alisauskas, "Arctic Ecosystem Research in the Ahiak - Queen Maud Gulf Migratory Bird Sanctuary Annual Report," Annual, 2019, 4–8, obtained via email correspondence with Dana Kellett, authorized for distribution.

[25] Kellett and Alisauskas, "Arctic Ecosystem Research in the Ahiak - Queen Maud Gulf Migratory Bird Sanctuary Annual Report," 11. Based on data from 1988 and 2011.

[26] Freeman, Milton, ed., *Inuit Land Use and Occupancy Project*, (Ottawa, ON: Dept. of Indian and Northern Affairs, 1976), 2:103.

Most prominently among these traces is a food cache situated on the lake's western shore, near the outflow of the Karrak River that winds north to the gulf. Set into the southern tip of a small rocky hill is a dome-shaped structure of interlocking rocks built roughly two metres in height on its projecting side and backing into the hillside. Its base disappears in the drifting snow that has accumulated in the shelter of the wind. The top of the dome has been dismantled, such that it is possible to look into the dark space within. Inside the cavity would have been placed a store of caribou hunted from the mid-May migrations north, cut into strips and dried before being laid in the cache over a floor of interlocking rocks set almost a metre below the ground plane.[27] The food was covered carefully with stones to protect the meat and keep it refrigerated by the cool of the permafrost below. Scraping the snow from the lower wall of the structure reveals stones still perfectly interlocked, their craggy geometric forms rotated and set together so tightly that even without mortar they retain a regular domed face.

In the narrow valley below the food cache three immense stones project from the snow cover. Each shard of rock is around two metres tall, and from the valley they appear to be three people standing abreast. A researcher kneels in the snow to draw a diagram with their gloves. It would make sense, I am taught, that caribou could be corralled in the little valley between their hunters and the rocks stood up to appear as people on the far side. Caribou favour movement along large lakes like Karrak while migrating north to their calving grounds;[28] the topography of the narrow valley and its situation along the lakeshore would have been ideal for hunting. Standing up, the researcher gestures to places on the surrounding hills where it is possible to see the traces of old Inuit camps. The ripcord of the snow machine is whipped back and the researcher pulls away up the valley, qamutiik in tow. I step through the drift up the hill to its windswept top.

On the crest of the rise and along the southern side, a group of circular rock formations emerge through the thinning snow. The stones are noticeably pronounced from the surrounding wash of small rocks and gravelly peat. They form circles of no

27 *Freeman, Milton, ed., 2:73.*
28 *Freeman, Milton, ed., 2:73.*

Fig.3.9 Opened food cache on western shore of Karrak Lake
Looking north (top) and looking south (below)

Fig.3.10 Stone corral at top of small valley
Up close (top) and from the valley (below)

less than two metres across and would have once weighed down the outside edges of a summer tent. A break in the ring of stones is noticeable in the south side of almost every ring. The inside floor is indistinguishable from the surrounding ground, and moss has fused them to the ground where they are placed. I walk along the lake's edge, up one rise and down another, and find similar rings of stones at each one.

Routinely placed on the southern tips of lateral topographical rises, the positioning of the rings would have provided a greater than 180° view over the abutting lowlands while using the rising land to the north as shelter from the wind. The intuition behind such a placement is immediately evident. A perhaps unsurprising similarity exists between these old Inuit tent rings and the rings of stones surrounding the tents back at the research station. The size of the stones in both cases is limited by the maximum weight that a person could reasonably lift independently, a weight that seems to correspond with a minimum unit required to resist the force of the wind on the supported structure. Each season, as the researchers move from the bunkhouses to more private and (I am told) more comfortable tents, rocks are set up around the prospective tent sites. Their placement is adjusted each year, and the accompanying of stones that weigh down the pegs and covering tarpaulins are adjusted in tandem, salvaged from their placements by other people in other seasons. I wonder if the people who deposited the rocks at these ancient tent rings had similarly uprooted them from still older tent rings. I wonder how long those stones had been used for summer tents, and what they had been used for prior to that.

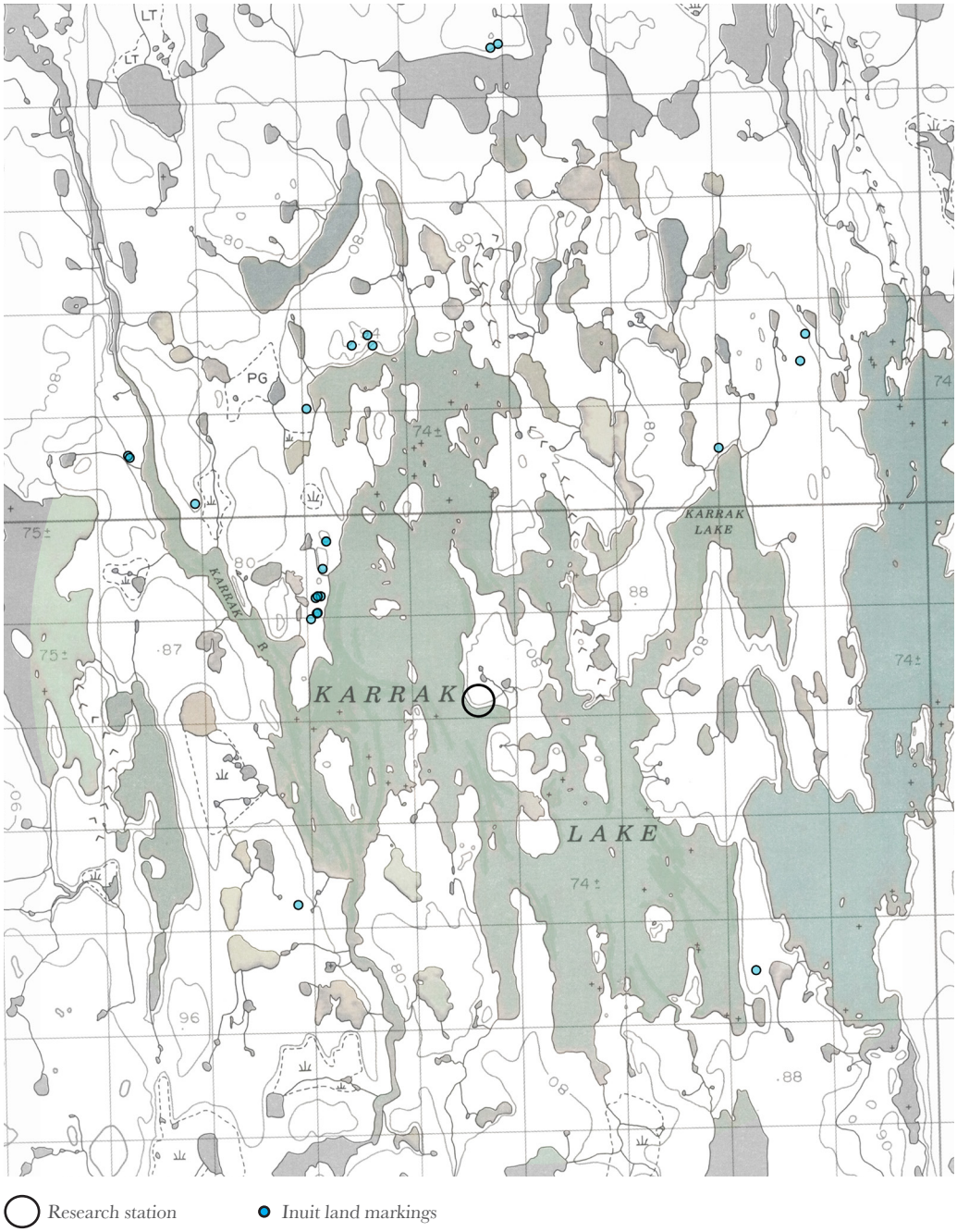

Fig.3.11 *Map indicating Inuit land markings, including tent rings, a place marker, a corral and a food cache*

Indicated markings include only those which I encountered personally, some at the direction of other researchers and some by chance encounter. Image created using topographical map by Canada Dept. of Energy, Mines and Resources, Canada Centre for Mapping. Karrak Lake, District of Keewatin. Edition 1. Scale 1:50,000. Canada 1:50,000, sheets 66N/8 and 66N/1. Ottawa: Canada Centre for Mapping, 1990. Composited with colour by author.

2019 05 29 13:42:57

Lat/Long	67° 14' 46.4" N, 100° 17' 47.0" W
Distance	1.84 km from the station (RS)
Orientation	looking south
Trajectory	walking south,

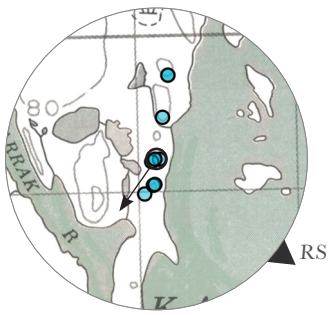

Fig.3.12 First tent ring encountered

2019 05 29 *13:49:13*

Lat/Long	*67° 14' 46.3" N, 100° 17' 47.0" W*
Distance	*1.84 km from the station (RS)*
Orientation	*looking south*
Trajectory	*walking south,*

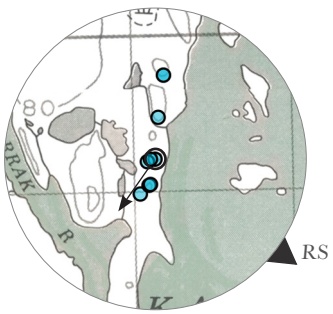

Fig.3.13 *Second tent ring encountered*

2019 05 29	*13:50:53*
Lat/Long	*67° 14' 46.4" N, 100° 17' 47.2" W*
Distance	*1.84 km from the station (RS)*
Orientation	*looking south*
Trajectory	*walking south,*

Fig.3.14 *Third tent ring encountered*

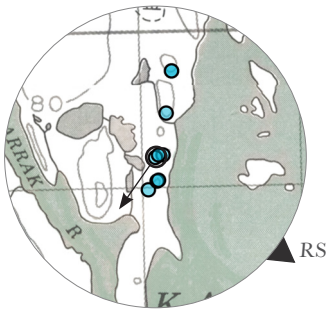

Fig.3.15 *Third tent ring detail*

2019 05 29	13:54:33
Lat/Long	67° 14' 44.6" N, 100° 17' 48.9" W
Distance	1.80 km from the station (RS)
Orientation	looking south
Trajectory	walking south,

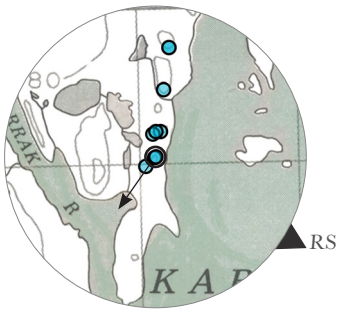

Fig.3.16 *Fourth tent ring encountered*

2019 05 29 13:56:55

Lat/Long	67° 14' 44.1" N, 100° 17' 49.1" W
Distance	1.80 km from the station (RS)
Orientation	looking south
Trajectory	walking south,

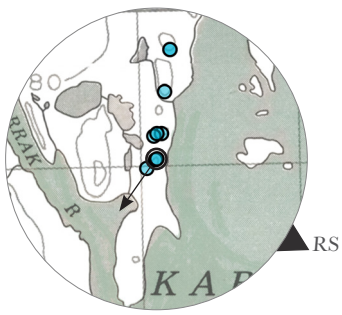

Fig.3.17 *Fifth tent ring encountered.*

2019 05 29	13:58:43
Lat/Long	67° 14' 43.4" N, 100° 17' 49.5" W
Distance	1.79 km from the station (RS)
Orientation	looking south
Trajectory	walking south,

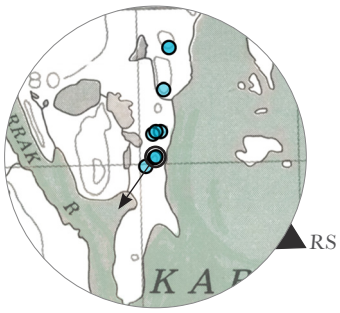

Fig.3.18 Sixth tent ring encountered.

2019 05 29 *15:18:37*

Lat/Long	*67° 15' 14.3" N, 100° 19' 25.3" W*
Distance	*3.33 km from the station (RS)*
Orientation	*looking south*
Trajectory	*walking northeast,*

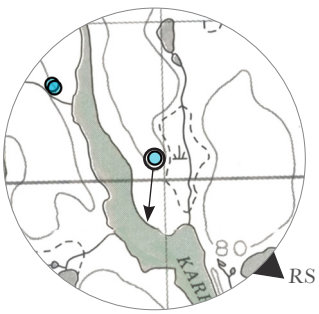

Fig.3.19 *Seventh tent ring encountered.*

2019 05 29 *15:49:22*

Lat/Long	*67° 15' 32.7" N, 100° 20' 22.5" W*
Distance	*4.21 km from the station (RS)*
Orientation	*looking south*
Trajectory	*turning around,*

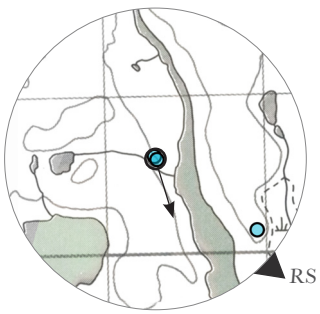

Fig.3.20 *Eighth tent ring encountered.*

2019 05 29 *15:51:14*

Lat/Long	*67° 15' 14.3" N, 100° 19' 25.3" W*
Distance	*3.33 km from the station (RS)*
Orientation	*looking south*
Trajectory	*heading back*

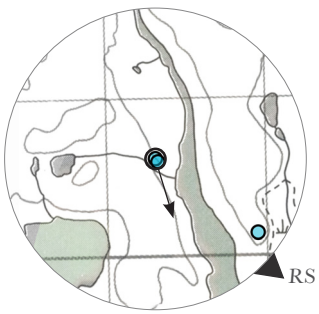

Fig.3.21 *Ninth tent ring encountered.*

"All peoples feel that their lands have a richness and life that go far beyond themselves. No person's sense of [themselves] has to do only with the present, nor with only [their] own people. [Their] lands have been occupied by other generations, other peoples, and their marks are, in a way, some part of [their] own mark on the land. The past – even the remote past – enters the present, becomes part of it in stories…. When the Inuit travel their lands, they see everywhere evidence of peoples who travelled before them. There are old house sites, tent rings, stone cairns and bones. It is not a landscape moulded and shaped by occupation; there are no large mounds, fields, or other geographical transformations that show what people have done. But it is a landscape dotted with, and given life by, the remnants of former peoples."

Hugh Brody, "Land Occupancy: Inuit Perceptions," in *Inuit Land Use and Occupancy Project*, ed. Milton Freeman, vol. 1 (Ottawa, ON: Dept. of Indian and Northern Affairs, 1976), 186. Original pronouns 'his' and 'himself.'

ON OCCUPANCY

The quotation at left was published in an essay by Hugh Brody in the Inuit Land Use and Occupancy Project (ILUOP), a three volume report initiated in 1973 at the request of the Inuit Tapirisat of Canada (now the Inuit Tapiriit Kanatami) to correct the shortcomings of the 1950s and 1960s area economic surveys of Canadian land occupied by the Inuit.

A member of the group responsible for conducting those area surveys, Jim Lotz, wrote in a critique featured in the ILUOP that those surveys aimed to "determine what use was being made of the resources in the areas, and to suggest ways in which the Inuit people could be helped to make more effective use of these resources, or to take advantage of unused resources."[29] Those area surveys[30] were founded on a paternalistic relationship between the Canadian government and Indigenous peoples, one that attempted to impose colonial solutions to the often settler-imposed problems of the Indigenous without seeking to understand their perspectives and ways of life. As Lotz described, the area surveys "produced snapshots of the life of the Inuit in the mid-1960s. (…) The information gathered was fitted into an economic framework based on the concepts and needs of a southern bureaucracy charged with 'helping the Eskimos'."[31]

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[29] Jim Lotz, "Area Economic Surveys: Critique and Assessment," in *Inuit Land Use and Occupancy Project: Volume 2*, ed. Milton Freeman, vol. 2 (Ottawa: Dept. of Indian and Northern Affairs, 1976), 23.

[30] Including reports proposing economic programs for new and expanded hunting activities (Evans 1958), population growth (Brack 1962) reducing unemployment, welfare costs and social problems (Abrahamson 1963, Currie 1963, Brack and McIntosh 1963), and impact assessments on regional economic regression (Abrahamson et al. 1964), as referenced in Lotz, 23–24.

[31] Lotz, 26.

That such a methodology produced problematic and misinterpreted conclusions[32] should come as no surprise. The area economic surveys betrayed the position of the government as chiefly concerned with resource extraction and economic development. The shift to settlements that concluded in the 1950s, when most Inuit who lived in the Ahiak had resettled into Iqaluktuuttiaq (Cambridge Bay) and Uqsuqtuuq (Gjoa Haven),[33] or otherwise to the south at Qamani'tuaq (Baker Lake),[34] created a myriad of socio-economic challenges. However, the primary concern of the Inuit (as expressed through the Inuit Tapirisat) was that of losing their lands and the claim to their lands.

Rather than try to fit modes of Inuit occupation into a colonial framework, the ILUOP used Inuit stories of the land and their occupation of it to build up a case for Canada to recognize their agency over it. This methodology lent validity to the stories, cultural values and traditional knowledge of each individual. Through that collection of stories was built a means to legalize territory without any conventional notions of property based on surveys and deeds. This methodology operated on a basis of recognition and respect for the Inuit and their knowledge of the land.

The resulting maps, essays and personal accounts underwrote subsequent regional Inuit land claims and eventually the Nunavut Land Claims Agreement Act in 1993 that saw Nunavut incorporated as a distinct territory in 1999. The report was a very early example of the valuation of traditional ecological knowledge in the context of Canada's legal and governance frameworks. It not only validated Inuit knowledge and modes of territorial occupation but proved that this occupation is still active and evolving.

Those agreements can be seen as part of a current Canadian discourse on Indigenous reconciliation. Though reconciliation in this context is understood to mean making reparations between settler society and Indigenous peoples, the term has been widely criticized for its ambiguity. As doctorate student of political science at the University of Ottawa Hannah Wyile wrote in the International Journal of Canadian Studies, the word's predominately religious connotations and lack of clear meaning has led to wide

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32 Freeman, Milton, ed., *Inuit Land Use and Occupancy Project*, 1976, *2:19*.

33 Freeman, Milton, ed., *Inuit Land Use and Occupancy Project: Volume 1*, (Ottawa, ON: Dept. of Indian and Northern Affairs, 1976), *42–49*.

34 Freeman, Milton, ed., *1:105*.

condemnation of the term as a 'bag word' that means very little in real terms.[35] That religious connotation was taken up by Eve Tuck and Wayne Yang in pronouncing the widespread usage of the term as a move to assume settler innocence, rescue normalcy and ensure a litigation-free future without actually effecting real change.[36]

To that end, I would instead follow the lead of several academic writers in employing the term 'conciliation' rather than reconciliation, because the latter points to re-finding something that once was, even though it arguably never existed.[37] I use the word conciliation because it seems at no point in the past have European settlers formally recognized the authority of the Inuit's ownership of their land; there is nothing to reconcile. There is only a new path to be forged. That path begins with acknowledgement of the persistent injustices towards Indigenous peoples in Canadian society and continues with the restructuring of that dominant settler society to make room for the two parties to exist as equals. Making room is a responsibility not just for the Canadian government, but for each of us as participants in this society.

Referencing the implications of this path to the discipline of land use planning, planner and urban geographer Libby Porter describes a "complex renegotiation of values, knowledge, meaning, agency and power between planning and Indigenous peoples, and within planning itself."[38] In line with Porter's assertion of renegotiated values, literary theorist Ronald Bogue writes that behind such recalibration lies not a return to something lost, but "to enter into a process of becoming whereby the constants and norms of the dominant, majoritarian order are put into continuous variation."[39]

Re-perceiving so-called dominant governing structures as themselves subjects to variation, themselves interrelated to actors on equal terms is one component of a path to conciliation. Such variation can be seen in the patchwork of federally owned and Inuit Owned Lands that covers most of the Canadian Arctic today. The Ahiak

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35 Hannah Wyile, "Lost in Translation?: Conciliation and Reconciliation in Canadian Constitutional Conflicts," *International Journal of Canadian Studies* 54 (2016): 84–88.

36 Eve Tuck and Wayne K. Yang, "Decolonization Is Not a Metaphor," *Decolonization: Indigeneity, Education & Society* no. 1 (2012): 1–40.

37 Including Hannah Wyile, David Garneau and John Amagoalik, to name a few from the Canadian context.

38 Libby Porter, *Unlearning the Colonial Cultures of Planning* (Burlington, VT: Ashgate Publishing Company 2010), 152–54.

39 Ronald Bogue, *Deleuze's Way: Essays in Transverse Ethics and Aesthetics* (Burlington, VT: Ashgate, 2007), 23.

Migratory Bird Sanctuary provides a unique model of governance, wherein the federal government is put on equal footing to that of local Inuit groups. The Sanctuary is managed by a joint committee formed between five members representing the communities of Iqaluktuuttiaq, Uqsuqtuuq and Umingmaktok, and one member from the Canadian Wildlife Service.[40] The committee draws together the interests of the partners, enabling the participatory incorporation of both Inuit and non-Indigenous concerns. In so doing, a mechanism is created to recognize traditional ecological knowledge in the management of the sanctuary.[41] Such recognition prioritizes the protection of land, water, wildlife and cultural resources. This is especially important in light of the presently warming climate and, with the corresponding extension of the ice-free summers, the influx of resource development and international ownership interests to the region.[42]

The willingness to recognize Inuit input that began with the ILUOP now extends to several regional initiatives regarding the management and appreciation of the land and its histories. The still in-progress Nunavut Land Use Plan is being formulated via the same input from Inuit people as Freeman's methodology, and an initiative now underway to recover Inuit place names in the Queen Maud Gulf are both present day steps toward conciliation. They constitute an effort not to include Indigenous ways of life into established frameworks[43], but to build up a new framework altogether.

The second component of the path to conciliation is the re-perception of all humans as interrelated with the land, water and animals that sustain them. The bit of land that the research station is situated on historically sustained several groups of Inuit: primarily the Ahiakmiut or Kogmiut who lived along the coast of the Queen Maud Gulf, as well as far inland over the entirety of what is now the Ahiak Migratory Bird Sanctuary hunting for fish, caribou, as well as birds and their eggs.[44]

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40 "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]."

41 Marcus B. Lane, "Affirming New Directions in Planning Theory: Comanagement of Protected Areas," *Society & Natural Resources* 14, no. 8 (September 1, 2001): 657–71, https://doi.org/10.1080/08941920118212.

42 Arctic Marine Shipping Assessment 2009 Report. (Arctic Council, second printing, April 2009), 28

43 Libby Porter writes of the difference between 'inclusive' modes of Indigenous recognition, which simply make room in a continuing dominant colonial structure, versus 'incorporation,' which sees the transformation of those structures in *Unlearning the Colonial Cultures of Planning*, 123–24.

44 "Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]," 24–25.; Milton Freeman ed., *Inuit Land Use and Occupancy Project*, 1976, 1:42–46.

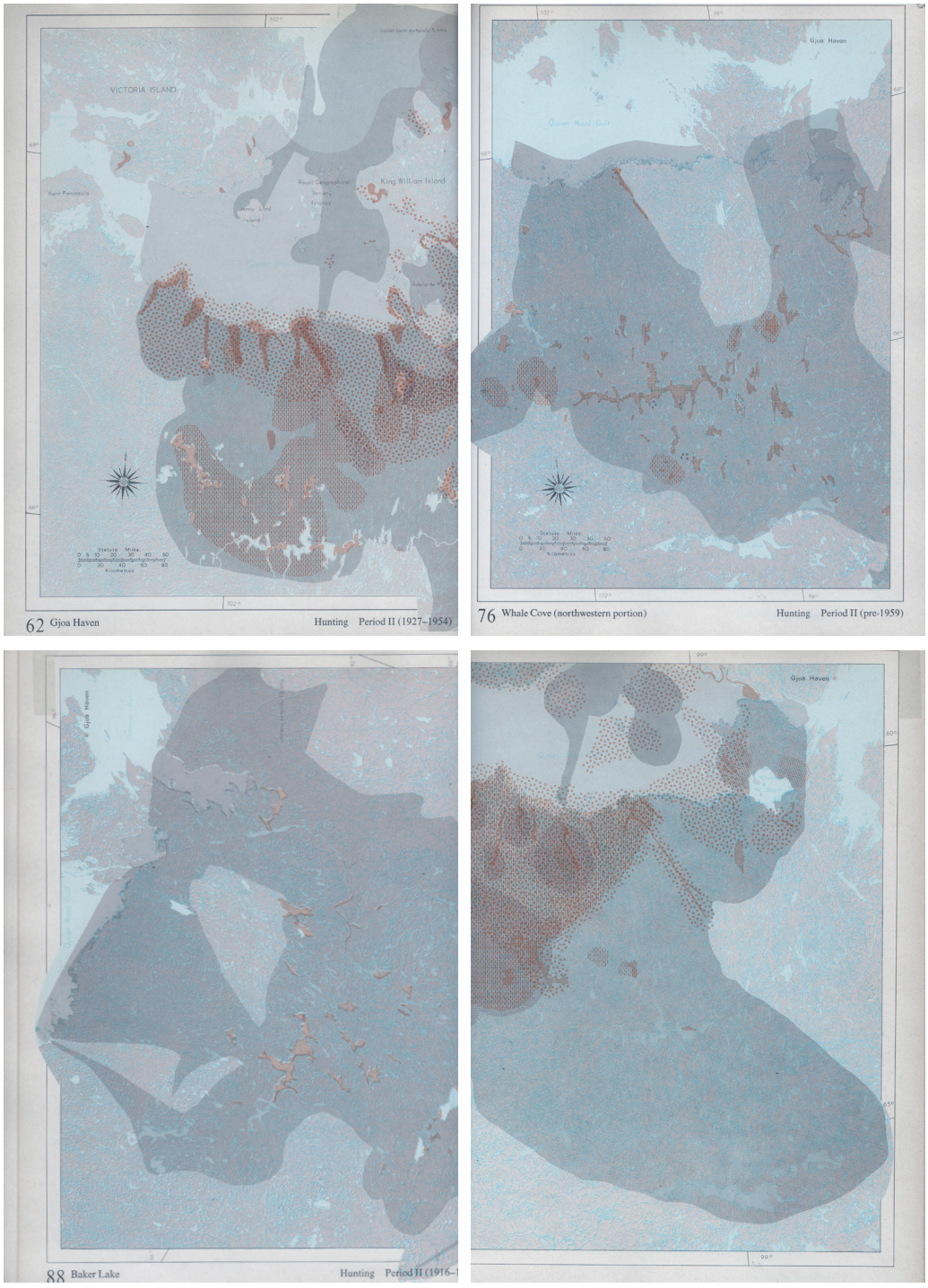

Fig.3.22 *ILUOP* maps showing game types hunted in the Ahiak based on Inuit accounts.
Source: Freeman, Milton, ed., *Inuit Land Use and Occupancy Project*, vol. 3 (Ottawa, ON: Dept. of Indian and Northern Affairs, 1976) maps 62, 76, 88 and 31.

Understanding people as integrated with the territory they occupy, the land and animals that sustain and the climate that surrounds is important. Land use and human shelter are integrated with the affordances of the environment. The information in the ILUOP maps:

> "touches one aspect of the environment, then another; an explanation leads from a description of animal habits, to aspects of the weather, to plants, to ice movements, to features of geography, and to theories of animal behaviour. All these things together give a picture of the natural environment as the Inuit know it, and they comprise another demonstration of occupancy, for a profound sense of commitment and hence of belonging."[45]

Rather than parceling and dividing the environment into 'silos' of understanding, the Inuit have long understood environmental components as foundationally interconnected. Deconstructing the systems that assign value to some and willfully ignore the value of others is crucial to reforming the colonial thinking that has dominated in Canada's Arctic, the same thinking that has created the parallel crises of climate, cultural oppression and overexploitation that threaten the region.

Nuna, the Inuktitut word for land as it stretches in all directions, is understood as the foundation for sustenance and happiness; it must therefore be respected and left undisturbed.[46] The land is not only spatially but temporally continuous, giving a sense of belonging as well as wellbeing. Understanding these values is core to re-perceiving holistic understandings of environment and environmental practices. Stepping through this land is to cross the paths of so many who stepped over it before. Even the cabins, with their foundations of stone set atop the gravelly peat and bedrock, are participants in a long story of animal and human occupation of that very terrain, perhaps using those very stones.

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[45] Hugh Brody, "Land Occupancy: Inuit Perceptions," in *Inuit Land Use and Occupancy Project: Volume 1*, ed. Milton Freeman, (Ottawa, ON: Dept. of Indian and Northern Affairs, 1976), 203.

[46] Eugene Y. Arima, "Views on Land Expressed in Inuit Oral Traditions," in *Inuit Land Use and Occupancy Project: Volume 2*, ed. Milton Freeman, vol. 2 (Ottawa, ON: Dept. of Indian and Northern Affairs, 1976), 217–19.

These are the things I reflect on, under the wash of blue skies and low evening sun, as a large Canadian flag is unfolded and zip-tied to a length of electrical conduit to be raised on the central navigation tower. My colleague climbs the powdery-white rungs of corroding aluminum to its top, the sharp pangs of the guy wires reverberating into the air. The conduit is fastened to the uppermost vertical of the tower and the flag unfurls as it catches in the light north wind. And with this, a bright red maple leaf is raised high into treeless skies at least 1500 kilometres north of the maple's range, in a place whose Inuit peoples had no word to describe it.

Fig.3.23 The predated caribou

THE CARIBOU SHELL

The snowmobile clatters over the rocky slopes, its skis hammering off each small boulder masked below the drifting snow and the note of its engine sounding out an erratic, staccato rhythm under the correspondingly erratic application of its throttle. With an exclamation from its driver to the passenger clinging on behind, the machine is steered off its heading and is idled down alongside a mess of red and white and brown. Stepping off the still-gargling snowmobile, the researchers stand in the midst of a disaster of bones and fur. Blood has stained the trampled snow surrounding the corpse of a lone caribou.

The caribou's empty ribcage and its two front limbs are splayed skyward from the north-south tracers of snow that have already begun to drift around it. Around it are overlaid hundreds of animal tracks: a directionless tangle of fox steps, the deep plodding tracks of wolves, the light impressions of glaucas gulls atop the newly drifted snow. Below them are more abstract compressions where two or more of those animals had fought, and a field of barely-there caribou tracks that have all but disappeared under the rest. Clearest atop these prints are the comparatively small tracks of a young, presumably curious caribou, and now the heavy oval footprints of two equally curious researchers and their accompanying machine.

The trajectories of tens if not hundreds of animals have converged at this single point over what could not have been more than two days. The snow, which drifts around the bones, machine and plastic boots just the same, is simply the slowest and most imperceptible actor in the altering succession of mouths and teeth which have emerged from the environment to devour the animal's remains. Only the soil laying below the surface will be slower and more exacting to draw each gnawed bone and crumpled strip of hair back out of orbit and into itself.

REPAIRING THE QAMUTIIK

North of the main cabin is a grey-trimmed structure, dating to 2010, dubbed the repair shed. It serves as a shelter for mechanical work and repairs, and a storage space for the large surface-drive motors that will emerge with the thaw. Outside, I stand holding the upended qamutiik as a researcher uses a hacksaw to remove the old polyurethane ski.

This is the longer of two qamutiiks at the station, and the older of the two. It was built two decades ago by a resident of Cambridge Bay who knew the method for lashing each cross piece to the runners, a longstanding Inuit design. The braided knots have never been redone. Hand-hewn runners have been worn down by years of use at the station. The old hardwood cross members are similarly rounded smooth. The whole thing is bleached grey by the arctic sun.

An incision is made just before each screw and the segment is pulled off with a grimace. The head of each screw has been worn down to its shank; a rusty set of slip-joint pliers are used to turn them out manually. We drill pilot holes in the newly cut polyurethane and countersink half the depth of the before running through the screws to affix them to the runner. Any screw whose drive has not ground down so much to be unusable is reused, something the researcher finds pleasing; like keeping an old machine running by cleaning, greasing and re-installing the original parts. Gripping the pair of carved caribou antlers that serve as cleats, we flip the qamutiik back upright in the snow. The sky holds clear and blue above us.

Fig.3.24 The qamutiik's caribou antler handle (top) and worn runners (below).

Fig.3.25 Axe and shovel used for cutting ice (above); ice blocks beside trench (below)

ON THE COLLECTION OF WATER

Taking up the polypropylene rope, the qamutiik is pulled down the slope south of the cabins to the lake. Beside me walks my colleague, a short-handled spade over their shoulder. We sink nearly to our knees through the drifts with each step towards the edge of the frozen lake. On the qamutiik is strapped an axe, a flat shovel, and a blue tarpaulin. We are set out again in search of cracks, those natural fault-lines in the solid mass of ice that is the lake. Towards the lake's centre, the snow cap yields to shallow reflecting pools of fresh meltwater. We wander slowly across the shimmering lake, heads towards our feet like herons searching slowly for a fish.

I am waved over to a two-inch-wide fracture in the ice that has been kicked free of snow. Positioning the axe thirty centimetres to the right of the fault, we take turns chipping at the ice with the axe. The sound echoes through the floor like we are knocking at the door of a deep blue unknown. With each stroke of the axe, the more and more of the tiny hairline fractures in the ice below connect along a forming line of what looks like subsurface lightning. After twenty or thirty knocks, it answers with a great hollow crack, and a block of ice separates from the sides. Reaching underneath from both ends, we lift the shard from the lake like a great, crystalline fish. The block is over a metre long, clear as glass, sunlight refracting off the ribbons and swirls of tiny trapped air bubbles locked inside. We kneel down again and repeat the careful action a little further along the fracture. Each piece we pull out reveals a deeper blue below.

We stack the ice together atop the qamutiik. Three to four of these blocks will be used each day to support life at the station. The blue tarpaulin is folded over the shimmering ice and tied down with a length of rope between the worn rails of the bed. Already

a fine coating of drift snow has begun filling into the crevasse from which they were removed. Not far away, the plot where we removed ice two days ago has been healed with a covering of snow hard enough to walk over. I scrape away the snow with my gloves to reveal the shattered trenches of ice, but they are soon recovered. Together, we haul the load back to the station.

Water, in this setting is a lifeblood that runs through territory. Because it is locked in a solid state, the collection of water forms the central human ritual which permits life at the station before melt in June of each year. The ice is stored in three outdoor coolers which, save for their exposed lids, are buried in snow against the main cabin's west wall. Each cooler is filled ritualistically, slotting in the irregular shapes of the blocks such that they interlock inside. I grab one of the larger shards that doesn't fit and bring it to the water reservoir inside.

The door opens with a cloud of steam. Inside is a swirl of people and a din of music and laughter. The air is warm and humid. I head for the large blue cistern at its centre, lift the old wooden cap and lower the shard of ice into the glassy water. One person takes the enamel cup from its hook, dips it into the cistern and ladles water into their drinking glass. The mug is passed to the cook who stands waiting to fill the blackened pot that will be used for that evening's supper.

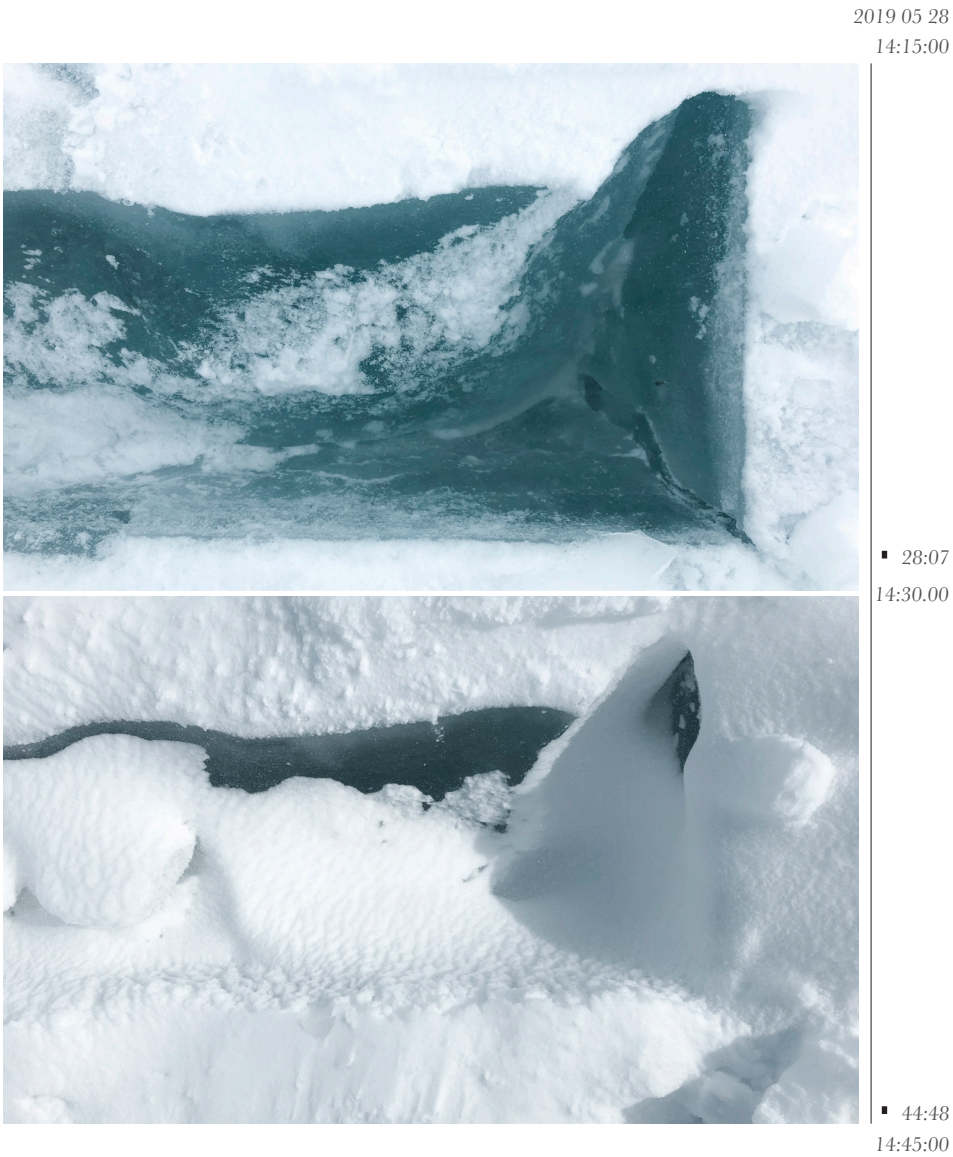
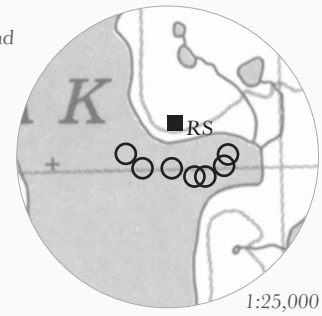


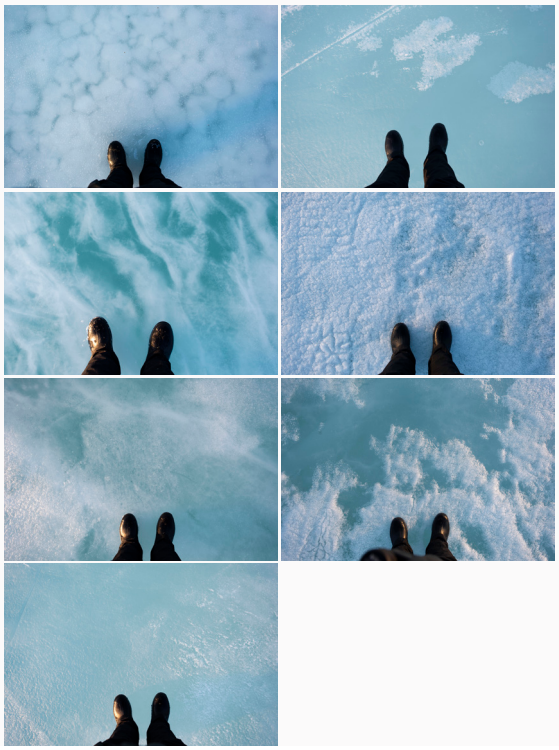
Fig.3.26 A cut in the ice fills with drifting snow
Two exposures at 1/250 sec., sixteen minutes apart

BOOTS OVER EXPOSED ICE

Date	*2019 06 03*
Lat/Long	*67° 14' --" N, 100° 15' --" W*
Distance	*50-200m from the station (RS)*
Duration	*15 min*
Exposures	*7*
Orientation	*looking down*
Trajectory	*walking around the bay in the evening light*



1:25,000



21:00:00

21:13:29

21:17:28

21:19:17

21:31:06

21:21:31

21:26:48

21:27:19

21:30

22:00:00

Fig.3.27 *Composite photograph of boots over exposed ice*

ON THE BEAR AND THE COOKSTOVE

The station in the morning is bright and cold. A thermometer reports a temperature of two degrees, but there is ice on the plywood floor. My breath swirls into the stagnant air and hangs there, frozen in space. Crouching to the floor, I click the foot lever at the base of the rusted iron stove to turn on the gas and dial the flow meter to 4 on the 6-point scale. Waste turbo fuel hisses unevenly in the gusts of cold air that rush down the stovepipe. I strike a match against the box of Red Bird's and light up a ball of newspaper, dropping it through the porthole in the front of the stove. Yellow flame yields to a dull orange as the stream of turbo ignites in a small ball of fire in the base of the stove. I place the burned-out match against the sill of the porthole and rest the glass window closed against it, allowing a thin suction of air to feed the fire inside.

My colleague swings open the cabin door, then knocks the snow off their feet against the frame. Removing neither their parka nor boots, they set about preparing breakfast. Onto the grill of the battered old cookstove is plonked a cast iron skillet, a kettle and an old metal lighter. The cookstove looks like it has been through a battle. The door to the oven is cobbled together from spare hardware, and everywhere its enameled facia is chipped and dented. Most ominously, two deep gashes have been pierced through the metal backplate. My colleague explains they originated from the jaws of a grizzly bear that ate its way through the wall and trashed the cabin's interior several years ago.

I try to imagine the small cabin in which I now stand, devoid of its usual crew of researchers, in the dusk of fall or winter. In winter, each cabin is donned with a defensive array of shutters; battered sheets of plywood thick with rusting nails are screwed into the window frames and over the doors. On the ground below each

aperture, another sheet, its nails turned skyward, is weighed to the ground with rocks. The station, for the majority of the year, is a defensive space, a space intended to be reserved for people against environmental actors and environmental forces. But the plywood walls of the room, which so readily accept permanent marker and thumbtacks, must also be impregnated with the smell of food.

Despite its appearances, the cabin in this context is actually no different from any other animal, and equally as vulnerable. What it gains through its fixed armaments and enormity are, time after time, undone by the determination of a bear. I can only imagine the contradiction, in the long shadows of the barely-rising sun, of the immense, hunched silhouette of the grizzly bear—*ursus arctos horribilius*—tearing at the exterior wall with its long non-retractile claws. The grizzly, with its poor eyesight but acute sense of smell, breaks through the cabin's east wall and pulls itself through the bunks and over the table. It roams the pitch-black interior of the cabin, overturning every object in its blind pursuit of food. The bear wrestles with the cookstove—the greatest intensification of all the smells—absolved in the massive act of flipping it over with its jaws.

While a human occupant in the station possesses the capacity to assert territory over a wide distance, by means of firearms or other deterrents, the architecture has in its own right no such ability. Its territory fluctuates with the consciousness of its occupants, and like a sleeping animal its territory shrinks with each seasonal night to no more than its own flesh and blood. There, in the dark winter day, the territory of the cabin shrinks into its walls, into its nails and wood framing, into its immediate, corporeal material. The bear gun hangs in the corner, inert.

I return to my book as my colleague stands within the swirling steam, the smell of pancakes permeating the cold air and plywood walls together.

> *The picture represents a Cape-Horner in a great hurricane; the half-foundered ship weltering there with its three dismantled masts alone visible; and an exasperated whale, purposing to spring clean over the craft, is in the enormous act of impaling himself upon the three mast-heads.*[47]

■

[47] Herman Melville, *Moby-Dick; or, the Whale*, chapter 35.

2019 06 01 — 09:55:10 — 2019 06 02

Lat/Long	67° 14’ 14.7” N, 100° 15’ 33.2” W
Orientation	looking west,
Company	none

Fig.3.28 The cookstove, with the jaw marks of a grizzly

2019 06 01 — 09:55:37 — 2019 06 02

Lat/Long	67° 14' 14.7" N, 100° 15' 33.2" W
Orientation	looking down
Company	none

Fig.3.29 The heating stove, with meltwater below

ON COLLECTING GEESE

Under the early morning sun, we step out across the thawing lake. Black and green boots sink into luminescent turquoise, sloshing over the slowly rolling ice, from one shallow pool to the next, out to the western islands. A colony of arctic ground squirrels monitor us from the shoreline, their yellow bodies stretched tall and small ears darting. With a sharp whistle they scurry into their burrows.

We climb the snowy shore of a small island to its crest. Here, the snow yields to windswept gravel, rose-pink in the sun of a cloudless sky. I rest my back against a boulder and unfold my binoculars as my colleague checks their firearm. Red plastic casings slip into the barrels with a low thud followed by the clink of the brass primer. It's a Russian-made over-under, one of a matching pair whose mate is at this moment being trekked east over a rocky esker for the same reason that brings this one here: the collection of geese. We orient our bodies south to face the migration. The sun rises high in the sky as the echoing calls of geese—white-fronted, cacklers, Ross geese and their larger snow goose counterparts—precede the arriving flocks. The beat of their wings ripple on the horizon, twisting up into the sky and then whiffling back down. Long lines of geese fly close to the ground, following the undulating topography as though bound to rail lines weaving along a mountain pass. Through the valleys, a crescendo of calls and beating wings vibrate the air, a dense sonorous refrain that builds with each passing minute. The groups of birds swell around us from the south, wave after wave in flight to our right and to our left in in lines far overhead, a multitude of animals and an accompanying multitude of calls. We sit motionless below the uproar,

watching the birds pass until one flock chances to ride the rise of the island up and directly overhead. Their wings slap the air above our heads. My colleague takes a shot. The flock dissipates almost as fast as the crack of sound, leaving a single goose folded and tumbling, and its mate backpedaling in place in the quieted air.

Collections are the means to an empirical end. A sample of both snow and Ross's geese are collected from the spring migration and studied for their bodily condition. This is part of a larger effort to the evaluate the health of the population and evaluate its effect on annual clutch size, nesting success and population productivity within the sanctuary.[48] As the breeding season is short, geese arrive to this still snow-covered region having accumulated fat and protein from foraging stops along their migratory routes. As the condition of the goose is phenologically interrelated with the health of its environment, such study reveals short- and long-term trends in habitat conditions. Variations in agricultural crops, rainfall and the accelerating onset of the arctic summer due to climate change are all factors affecting the bodily health of the goose.[49]

I run out to retrieve the downed snow goose into a hunting bag as its mate turns circles in the sky. For the next hour the animal continues, disoriented, endlessly moving from one island to the next and then back again.

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[48] "Nunavut Wildlife Research Permit Application for Waterfowl Ecosystem Research" (Nunavut Impact Review Board, February 18, 2014), 2, https://www.nirb.ca/portal/dms/script/dms_download.php?fileid=250834&application-id=123590&sessionid=4ad5hv5cmfdq0ubgcar52ummm0.

[49] Government of Canada, "Long-Term Research Examines Population Changes in Arctic Breeding Geese," *Science Behind the Scenes* (blog), n.d., accessed August 15, 2019, https://www.science.gc.ca/eic/site/063.nsf/eng/97560.html.

GEESE IN FLIGHT

Date	2019 06 01 - 2019 06 06
Lat/Long	67° 1-’ --” N, 100° 1-’ --” W
Distance	0-3km from the station
Duration	5 days
Exposures	16
Orientation	looking up
Trajectory	while walking the terrain to the north of the station

2019 06 01

12:15:30
12:16:20

2019 06 02

17:31:00
17:50:12
18:01:17
21:30:00

2019 06 03

20:33:10
20:40:19
21:06:88

2019 06 04

13:07:15
13:08:28
17:30:38
17:36:20
17:40:24
18:09:44

2019 06 05

14:20:01

2019 06 06

Fig.3.30 Composite photograph of *geese in flight*

In the spring, 200,000 individual Ross's geese arrive with a roughly equal number of snow geese.[50] The surrounding wetlands will host globally significant populations of Tundra Swans, Greater White-fronted geese, Cackling geese, Pintails, King Eiders and both Pacific and Atlantic Brant geese.[51] A total of nearly one million geese will make the colony at Karrak Lake the second largest nesting population in the world.[52] From the upper reaches of Boreal Forest, herds of caribou will trod north along the shores of Karrak lake to their calving grounds. Behind them will emerge the grizzly bears, called to the northern extent of their range by the promise of protein-rich goose eggs.

[50] *Kellett and Alisauskas, "Arctic Ecosystem Research in the Ahiak - Queen Maud Gulf Migratory Bird Sanctuary Annual Report," 4.*

[51] *"Ahiak (Queen Maud Gulf) Migratory Bird Sanctuary Management Plan [Proposed]," 15.*

[52] *Government of Canada, "Long-Term Research Examines Population Changes in Arctic Breeding Geese."*

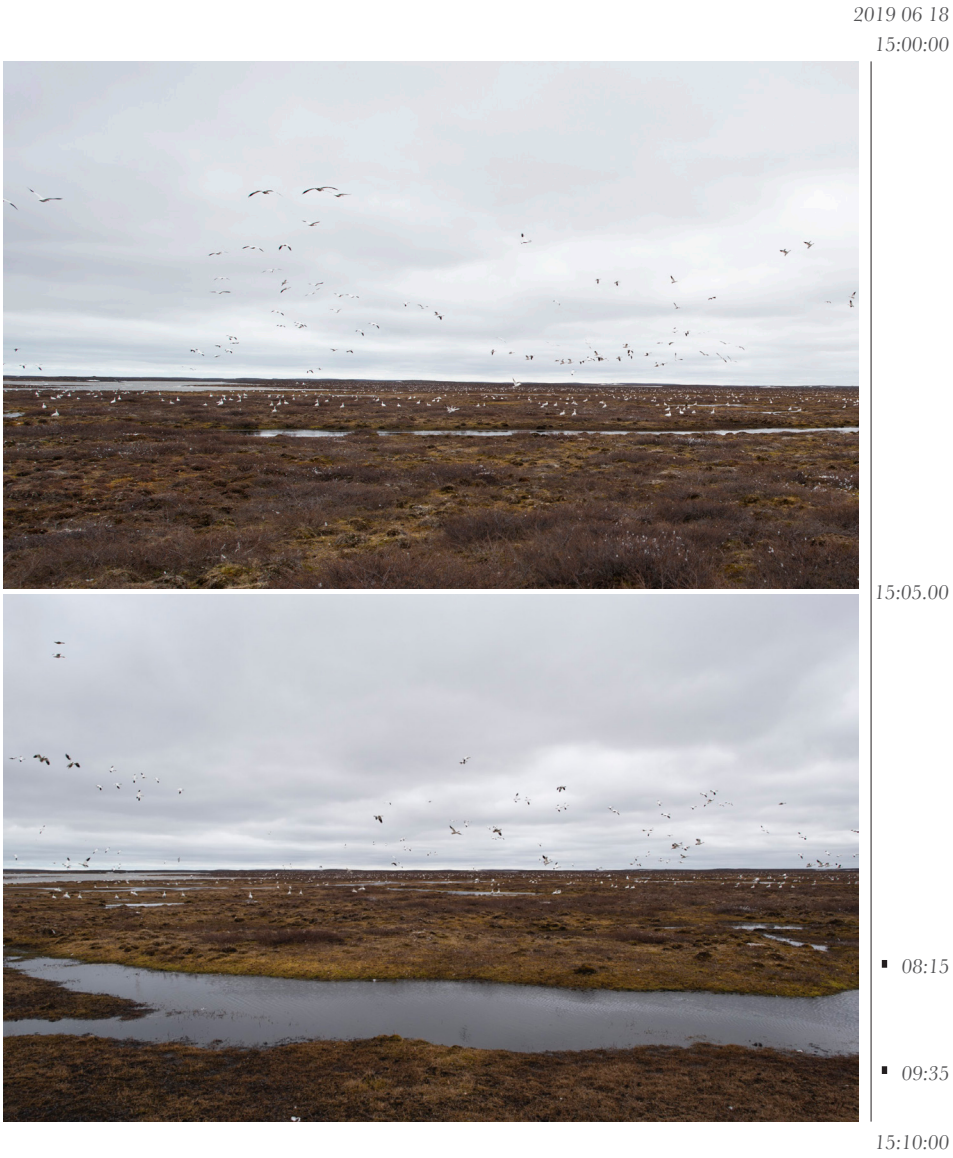


Fig.3.31 Geese in flight over thawing wetlands
Two exposures at 1/250 sec., 80 seconds apart

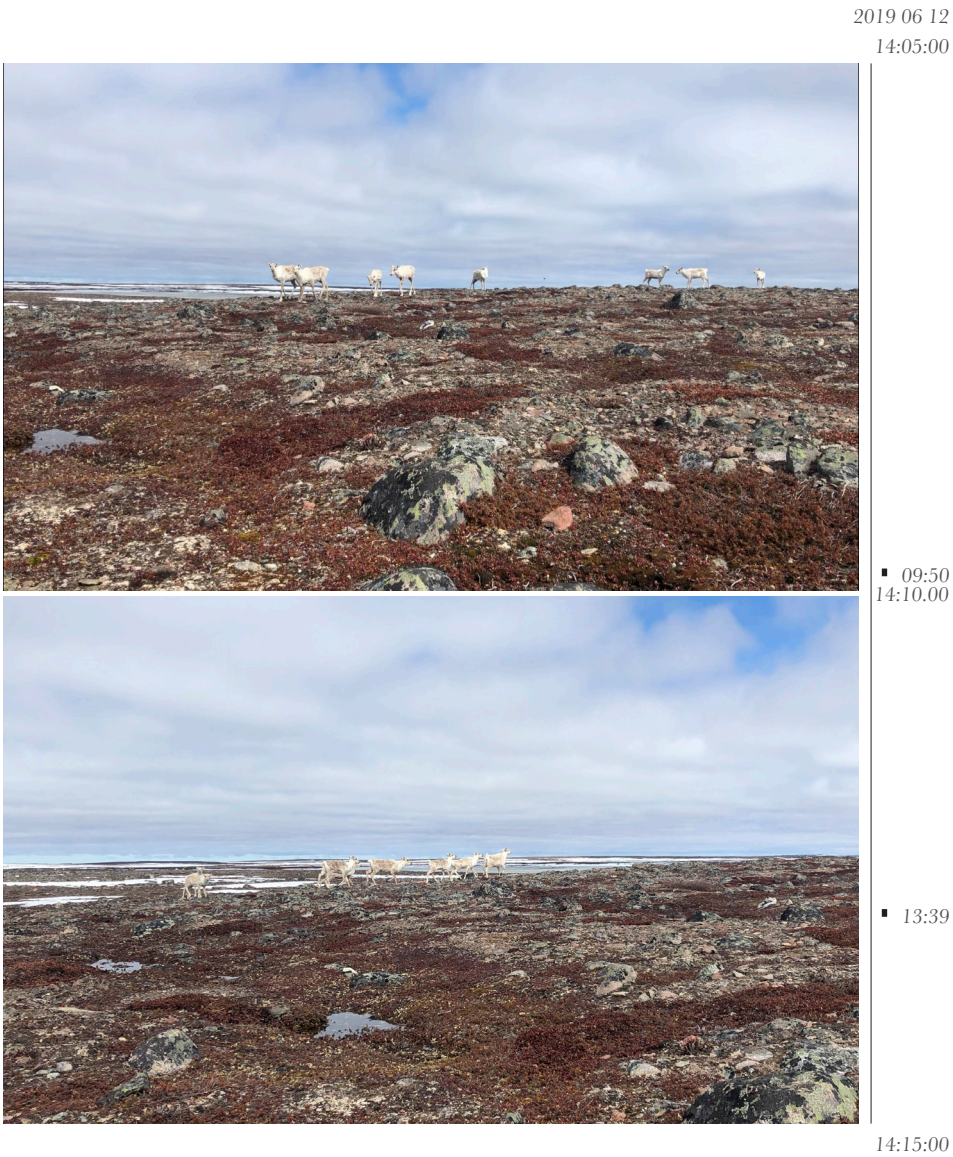
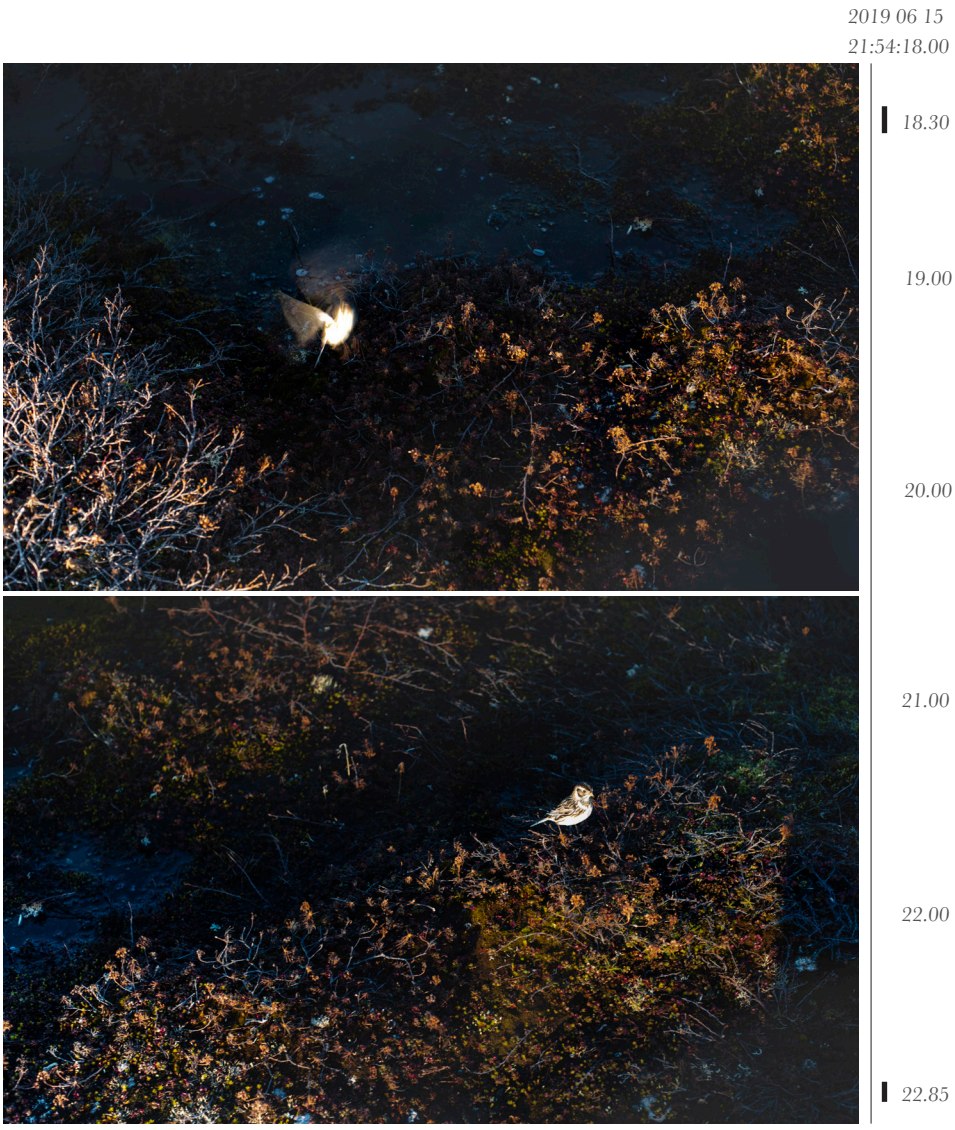


Fig.3.32 *Caribou grazing on sedge*
Two exposures at 1/500 sec., three minutes apart

CARIBOU IN WOLF'S TERRITORY

Surrounding us, the hilltops are dark and barren. Behind the outcrops of boulders and whale-back slabs of bedrock that line the southern edges of the hills crest lie high plateaus of black peat. Patches of dark brown, grey and green mosses and lichen project through the snowpack. Even in the frigid air, the wavering signature of emanating heat is visible rising from the exposed peat. A small herd of caribou skirt the hillside, their grey silhouettes barely visible against the snowy sky. Closer, in the valley below, a caribou darts nervously back and forth, awaiting the too-slow progression of its newborn fawn over the snow-filled trenches and thawing drainages. We freeze atop the hill, holding still. This is the territory of the wolf, and we are imposters. The female caribou is frightened, urging its calf forward, but it is not scared of us—it is terrified of what we might be. The caribou is terrified of the wolf.



E A R T H / A R C H I T E C T U R E

Fig.4.1 A songbird defending its hidden nest
Top exposure at 1/45 sec, lower at 1/60 sec.
Four seconds apart.

THE MELT

In the cold spring rain, arctic terns dive down to drink from the water-filled cracks in the ice. They flit over the ponding lake, over the half-frozen rivers that carve their way through the peat. Arcing up into the sky, they fly curiously above two tall figures and their idled snowmobile. The machine is stuck in the too-soft ice of a shallow riverbed, its skis angled skyward, straddling the hole unnaturally. The smart white stripes of its running boards disappear below the surface of the water, the small red running light at its rear flickering below the slosh of icy water. One person reaches below the surface of the water to lock the submerged cargo basket in their arms, heaving up while the other, standing in the river next to the machine, leans forward at the handlebars. The snowmobile's track churns through the slushy water, the splashes of icy water steaming off its hood. Blue smoke drifts from underneath.

Later I stand on the front porch of the main cabin, the swollen wooden planks are slippery like oil. I pull off the dripping socks and pour the water out of my boots. Bare feet press into the icy slime. The sun hangs at its highest azimuth, appearing as a white halo blooming through the fine mist. All around are the dripping and clicking sounds made by the settling snow cover. Winds from the south average 5 kilometres per hour, with 40% cloud cover. I will remember it for later.

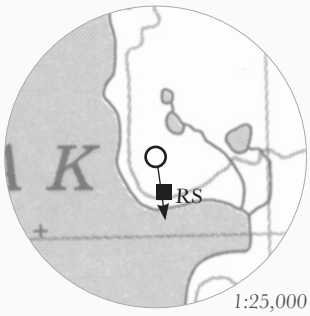
The snow does not melt as I expected. I had imagined that as it melted there would be a slow recollection of all the tracks, footprints, everything frozen and coming to the surface like fossils. Instead, the entire composition turns to metre deep slush. Its stories and struggles and pathways are suspended in water, waiting to be shattered on contact. The stories bleed into the ground below and saturate it, making it soft and

muddy. The weight of my body is enough to push the subsurface water to the surface in a low cloud of fog, as though a breath.

The landscape emerges through the snow in different forms. Heavy black swaths of bedrock emerge like whale backs through the snow. Their skin of lichen is soft and grips like rubber. The rock feels warm and moist, even in the cold blowing snow. The windward side of the ridges are covered in boulders, jagged shapes with slightly rounded corners. Further down the ridge the boulders yield to gravel. Wet sedge pierces through the thin icy cover, showing the tiny frozen stems and flowers of last year. The sedge lends a dark coppery brown, almost red stain on the otherwise black and white landscape. Its leaves are dry, frail and tough. The soil below is pregnant with water, soft even while most of the land around it remains locked under a metre of pack ice and snow. Caribou watch me idly and then run down across the plain.

RESEARCH STATION IN RECEDING SNOW

Date	2019 06 02-19
Lat/Long	67° 14’ 17.8” N, 100° 15’ 39.3” W
Distance	100 m from the station
Duration	3 weeks
Exposures	17
Orientation	looking south
Trajectory	towards the station in the thaw



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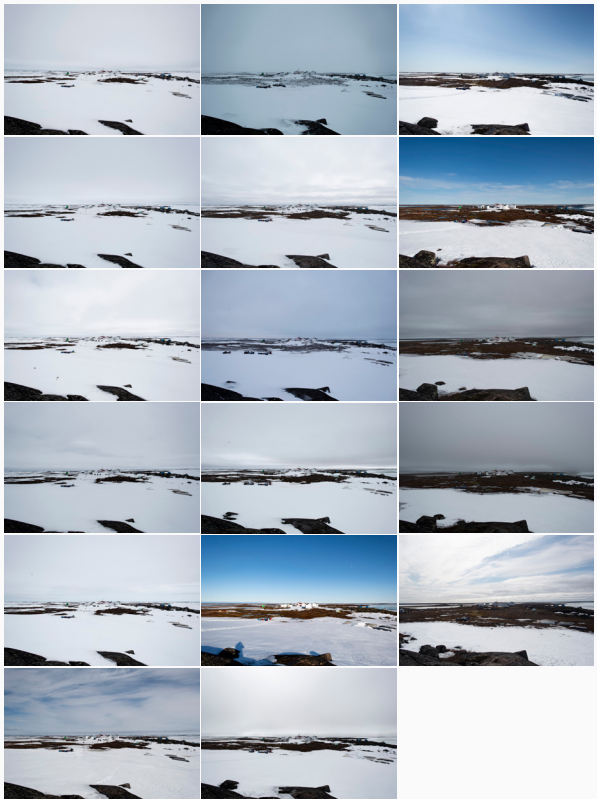


2019 06 01

2019 06 02

2019 06 02

2019 06 03

2019 06 04

2019 06 04

2019 06 05

2019 06 07

2019 06 07

2019 06 11

2019 06 11

2019 06 12

2019 06 12

2019 06 13

2019 06 14

2019 06 15

2019 06 16

2019 06 19

2019 07 01

Fig.4.2 *Composite photograph looking to the station from the north*

SHORELINE IN RECEDING SNOW

Date	2019 06 02-19
Lat/Long	67° 14’ 17.8” N, 100° 15’ 39.3” W
Distance	100 m from the station
Duration	3 weeks
Exposures	18
Orientation	looking north
Trajectory	towards the shore as it emerges

1:25,000

2019 06 01
2019 06 01
2019 06 02
2019 06 02
2019 06 03
2019 06 04
2019 06 04
2019 06 05
2019 06 07
2019 06 07
2019 06 11
2019 06 11
2019 06 12
2019 06 12
2019 06 13
2019 06 14
2019 06 15
2019 06 16
2019 06 19
2019 07 01

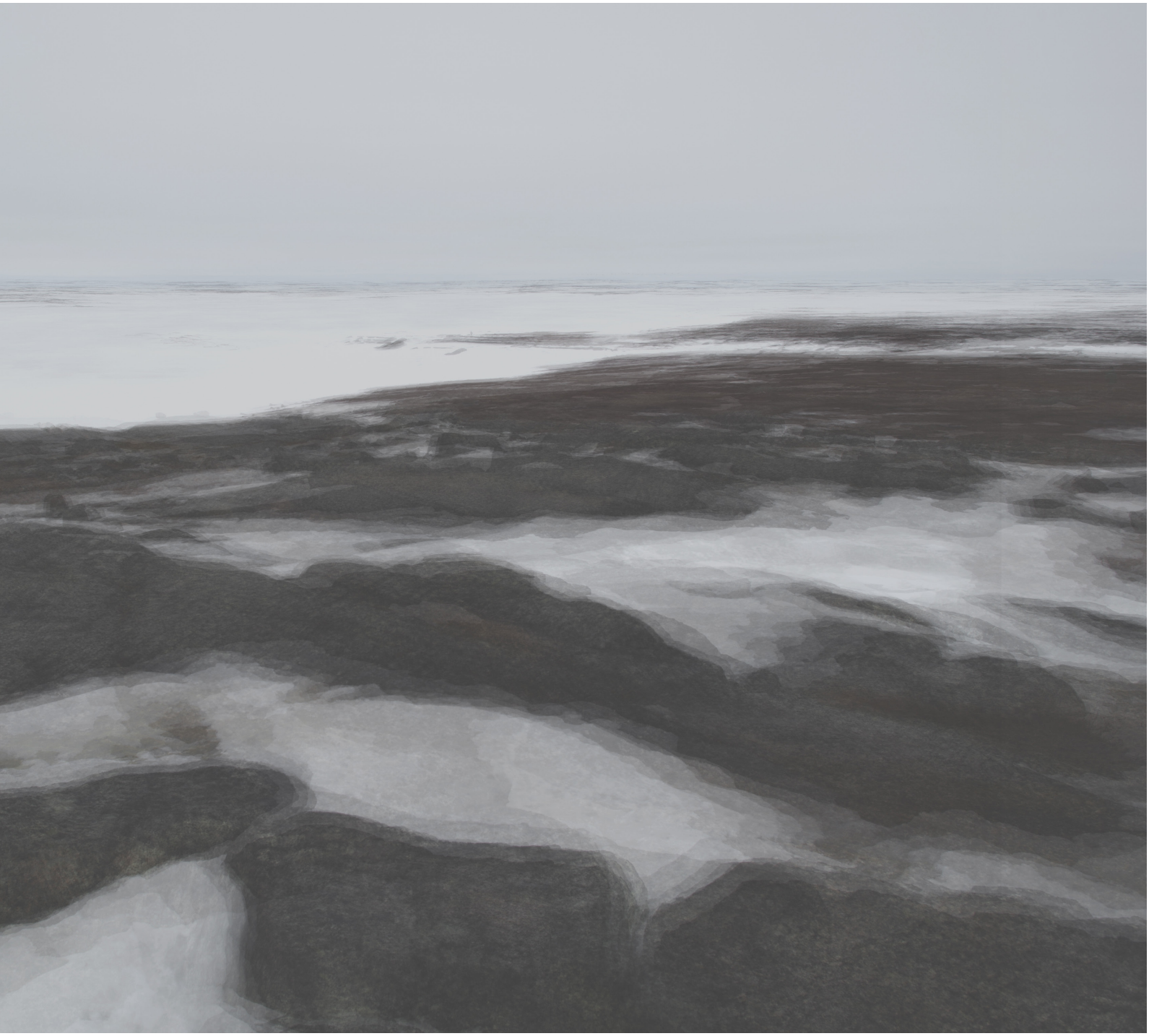


Fig.4.3 *Composite photograph looking over the island's emerging shore*

MAIN CABIN, EAST FACADE

Date	2019 05 17 - 2019 06 19
Lat/Long	67° 14’ 14.7” N, 100° 15’ 33.2” W
Distance	10 m from the station
Duration	5 weeks
Exposures	6
Orientation	looking east
Trajectory	towards the station
	emerging

2019 05 01

2019 05 17

2019 05 23

2019 05 30

2019 06 01

2019 06 02

2019 06 11

2019 06 19

2019 07 01

Fig.4.4 *Composite photograph of the main cabin's east facade*

THE SINKING STATION

A pickaxe is rammed into the thick yellowing ice conjoining a line of rusting fuel barrels. The wet snow slides from below my feet as I move along the line, shovelling the shards of wet, muddy ice. Icy rain streaks through the grey air and soaks into our coats and pants. As each drum is freed, we kneel behind it and push it up the snowy slope from the depression where they were cached. The 205L drums are stamped from Ikaluktutiak and tagged as Jet A-1: turbo fuel. The fuel cache will permit summer helicopter operations from the station in the summer. I crouch against a barrel, shoulder against its rusting steel base and feet struggling for a footing in the slush as my colleague wrestles the top end towards him. Melting water drains off the barrel, soaking immediately through our gloves. Our hands clench against the rim, lifting the drum up on end and then pushing it over centre, gravity finally taking its part to flip it out from the pit and onto the waiting qamutiik. It crushes down between the soggy wooden ribs, the last of three full drums that now rest on the overburdened wooden sled. A plume of blue smoke pours out from below the snowmobile's track as its engine cranks loudly against the clutch, finally pulling the qamutiik into motion and upwards towards the station. The line of smoke lingers over the ground, the rain refusing its rise into the air.

As the snow recedes, the cabins seem more and more out of place. While in winter they stood in almost noble isolation, they now appear scattered as haphazardly as the boulders that have emerged from the snow around them. Their tired colonial forms teeter atop loose foundations of stone, their peeling paint stained dark with the rain. Around them emerge other hidden objects. Long unusable boats sit upside-down among their successors in the mud, overgrown swells of moss growing up over their

Fig.4.5 *Digging out the cache of helicopter fuel*

Fig.4.6 *Draining water from around the cabins to the lake*

Fig.4.7 A decommissioned boat labeled as the Terror

Fig.4.8 Running the water intake tube to the lake

gunwales. The melt reveals in hand-painted lettering *TERROR* on a broken bow. With them emerge the lopsided propane tanks, spare metal conduit, rubber tubes, and stacks of lumber offcuts that are by-products of the buildings we occupy, and the materials we use to support this occupation. With no economical means of moving them away, they lay scattered and decaying and sinking, slowly being reclaimed into the tundra. The artifacts are almost sympathetic to the human condition, becoming swallowed by the earth in slow motion. Materiality, in the words of Henri Bergson, "begets oblivion."[1]

Finishing with the barrels, we walk back towards the main cabin to find the summer reservoir opened. A long black tube has been unfurled out to a hole dug through the snow at the lake's edge. The gasoline generator has been set up partway down the hill and fixed to a small water pump that will move water up to the main cabin.

Inside, I fill one of the small turquoise melamine bowls with granola and canned milk and slurp it down. I can see water weep across the sills and down the inside walls from below the slush-clogged windows. On the west side, water flows over the wooden frame from below a loosely fitted replacement pane of plexiglass. On the east side, a slow-moving river drains out from under the plywood interior wall, moving across the floor to form red-stained pools. By afternoon, the creep of water has stretched half the width of the cabin, some eight feet from the blackened plywood wall where it originated from. One of the researchers finally dons a faded green jacket and suggests we search for the leak.

We stand facing the east facade in the still-driving rain. I push a finger against the horizontal seam between two plywood sheets and it bleeds with water. This was the panel broken through by the bear two years ago. Its entrance must still be behind there somewhere, accepting the rain through the insulation and out onto the floor. We find a length of spare wooden trim from behind the skidoo shed and nail it above the seam, plumbing tape squished between the strip and the exterior wall. It will last well enough until next year. Measures like these uphold an only barely attained interiority.

■

[1] Henri Bergson, *Matter and Memory,* trans. Nancy M. Paul and W. Scott Palmer (New York, N.Y: Zone Books, 1988), 198.

ON DRAINAGE

The cabins here have been constructed on the gravelly peat deposits between two wide exposures of bedrock. The steps from the front porch, previously obscured in their entirety by hard pack snow drifts, now descend several feet down onto the gravelly soil. In this small topographical dip, stone pile foundations lift the floor joists off the earth at the corners and midspan. And it is into this small dip which, sprung from below the melting snowpack and up from the thawing soil, a multitude of miniature rivers now flow.

Drainage is perhaps the most destructive and fraught endeavors to which humans are compelled to undertake. Yet it to this which my comrades set about. In the spring, what once needed to be chopped with great effort from the lake in solid form occurs in such abundance that it needs to be diverted. It represents a struggle for territory against the permeating force of the environment. My mind is drawn to Susan Glickman's depiction of Margaret Atwood's *The Progressive Insanities of a Pioneer*, wherein a pioneer proclaims themselves the centre, imposing themselves with shovels in a massive assertion of identity.[2] I recall the farm lot my grandfather owns in Southern Ontario, where the obstinate memory of a drained stream is registered in the dip between two plains of otherwise ideal crop land. Below the impression lies a network of tiling, steel culverts and concrete drop-inlets. And yet each spring the small dip floods anyway, weaving its way over the land it was supposed to have by now forgotten, flowing around one artificial rock berm and then another, and then another, flaunting the increasingly

[2] Susan Glickman, *The Picturesque and the Sublime: A Poetics of the Canadian Landscape* (Montreal, QC: McGill-Queen's University Press, 1998), 141.

complex attempts that have been implemented over the years to subdue it. What gives the land life simultaneously makes it so problematic for human territory and architecture; the water renders the soil unstable, unusable, unpredictable.

So, armed with shovels, they set about carving space for the water to move down the embankment and through the snow drifts that still conceal the boundary between lake and the island. The muddy streams pour water into the lake, and a black plastic tube pulls it back up again.

REPAPERING THE TABLE

Presently, the dining table is cleared, and a tube of adhesive vinyl procured. Its frayed edging is cut off and the black and white floral surface peeled from the plywood sheet below. With a millworker's attention to detail, a flowery blue vinyl is rolled out and meticulously smoothed of creases and bubbles. New duct tape is measured and squared at the ends before being applied with a ruler around the perimeter as a shiny new trim.

These actions together could be understood to constitute a form of tenure; the table has been territorialized by the people who scraped it clean each day before sitting down to read. This territorialisation of the table does not constitute control, as in a colonial notion of land ownership, but instead territorializes through stewardship and occupation. Anthropologist Tim Ingold writes that "in connection with the concept of land tenure, one cannot appropriate that within which one's being is wholly contained."[3] That is to say, if the station's interior can be understood as an environment, then inside that environment can occur processes of reterritorialization (and deterritorialization) without the accompanying division of 'property.' These territories shift with occupation but can be tied to a physical manifestation of that occupation. A particular chair might become the territory of a particular person, or a workbench might become the territory of a team of people. However, unlike colonial modes of spatial ownership, this occupation occurs independent of any central authorization and is instead agreed upon between the occupants using a system of respectful negotiation. This ownership also exists without abstract boundaries. Rather than the division of *space* (where the emphasis is placed at the edges), what is most important here is the intensified centre.

■

[3] Tim Ingold, *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill* (New York, N.Y: Routledge, 2002), 64, referencing Ingold, *The appropriation of nature: essays on human ecology and social relations.* (Manchester: Manchester University Press, 1986), 133.

MODIFYING THE BUNK

To one side of the narrow galley circulation space of the toolshed is a wall-height shelving unit, containing a range of standardized hardware. To the other, over a blackened work bench, is hung a wild array of battered tools. I pull down an Imperial tape measure and a rusting hand saw, with the intention of fashioning a modification to my sleeping quarter of the bunkhouse.

I brush away the lightly falling snow from a wide sheet of dark plywood pulled from behind the smoke shed. An old door, the scrap piece comprises two plywood veneers glued to a two-inch wood frame and filled with a sheet of rigid insulation. I saw the door in half, pull a handful of old wood screws and an electric drill from the shelf and walk out to the bunkhouse.

The panel fits between the lower plywood bunk where I sleep and the bottom of the upper bunk. The simple installation insulates from the cold blast of air that pierces the interior each time the door is opened, but also quiets the thump of feet climbing the ladder to the top bunk. To the inside I screw a small offcut of lumber for a bookshelf. Walking outside the cabin, I remove the few reinforcing screws that projected through the wall by my head and press chewing gum into the holes to keep the water from seeping in.

LIVING STATION, NORTH CABIN

From the porch, a blue sky of early summer is filled with the calls of geese and the beating of wings. They skirmish around their nests in the high morning sun, light flashing off their feathers, voices crying out all at once. The migration moves on the horizon like the waves of a mirage radiating up from the earth. A pair of songbirds chase one another between the buildings; the first pauses for a moment on the ridgelines for the other to catch up and then they disappear in a chatter. The sounds from the surrounding birds condense in a cacophonous array that comes from everywhere at once, surrounding the tiny buildings.

Inside the Main Cabin the uproar is echoed. For the final two weeks of my stay in the Ahiak, a helicopter is hired from Québec to fly to the further reaches of the goose colony. The focus of the researchers is turned outward, and the Main Cabin swells with the things they need to leave it. The cabin is a calamity so full of moving people that the walls disappear in the blur. Paper maps are scrawled over, pinned up, folded and torn and taped back together. Contents of daypacks are poured out onto the table, stocked and re-stuffed. The water reservoir is drained into water bottles. Test chimes of a dozen handheld radios echo across the room as they sync with the station's receiver. No place is free of movement—a veritable din of rushing bodies mixing and moving. Eruptions of steam billow up from the stove, where a fast lunch for fifteen boils in an immense stew pot. The dish towels that hang over me catch my shoulder like bodies, and the tiny bone carvings spin overhead like birds under the thick grey cloud cover of the sagging ceiling. The air is wet and heavy. The station has become a living thing, breathing and creaking and sweating. We press around the wallpapered dining table to eat, crowding shoulder to shoulder.

I pack my daypack into the small storage compartment below the helicopter's tail, and board into the narrow facing seats of its passenger compartment with four colleagues to be dropped in pairs in various locations on the tundra. With an otherworldly whine, the turbine whips up to speed and we climb into the sky.

The helicopter drops us in a shimmering field north of the terminal moraine. Our boots splash down in the blue water and I pull our bags from the hold below the deafening whirl of the rotors over my head. I duck out below them and with a thumbs up from the pilot, the machine lifts off and turns south towards the station. The beat of the air from its rotors fades slowly until no sound is left but that of the warm south breeze. The grassy flatlands extend to the horizon to the north, disappearing in a wavering mirage of pink clay and blue sky. We walk south through the sparse tussocks of grass to the heave of grey rock hills stretch from east to west like a long concrete wall.

From the level plain, the terminal moraine rises as a complex mixture of shattered bedrock, tall drumlins of glacial till and raised kettle lakes pressed between rocky shores. The moraine traces the extent of a lesser advance of the Laurentide ice sheet as it momentarily reversed its stuttered recession south. The rock is jet black and covered with deep striae. Over its crest is a jumbled upland terrain of rock and lichen and hard packed snow drifts that arc between their sudden inflections. White caps crash on the rocks of the elevated, ice-bottomed lakes. Ahead, the outflow of the Karrak River falls through an eroded valley in the otherwise continuous moraine, its turbid water crashing over a series of rapids as it washes north towards the Queen Maud Gulf.

Set above the river on its western shore is a small building: the north cabin. Situated about 16 kilometres downstream from the main research station, this cabin is opened later in the field season. Once the helicopter departs, the only means of reaching this region of the goose colony is by boat or by foot; too long a journey to make without an overnight stay. Inside is a set of bunks, a table and a bear gun. For now, its interior rests in a darkened torpor behind a set of nailed plywood bear-guards. Like the main cabin, a patchwork of plywood offcuts nailed to its exterior evidence the past failures of those measures.

Fig.4.9 *North Cabin showing bear deterrent boards in place*

THE NORTH CABIN

Components (A-D):

- *A. Sleeping bunks*
- *B. Dining table*
- *C. Bear gun*
- *D. Window guards*
- *E. Bear boards*

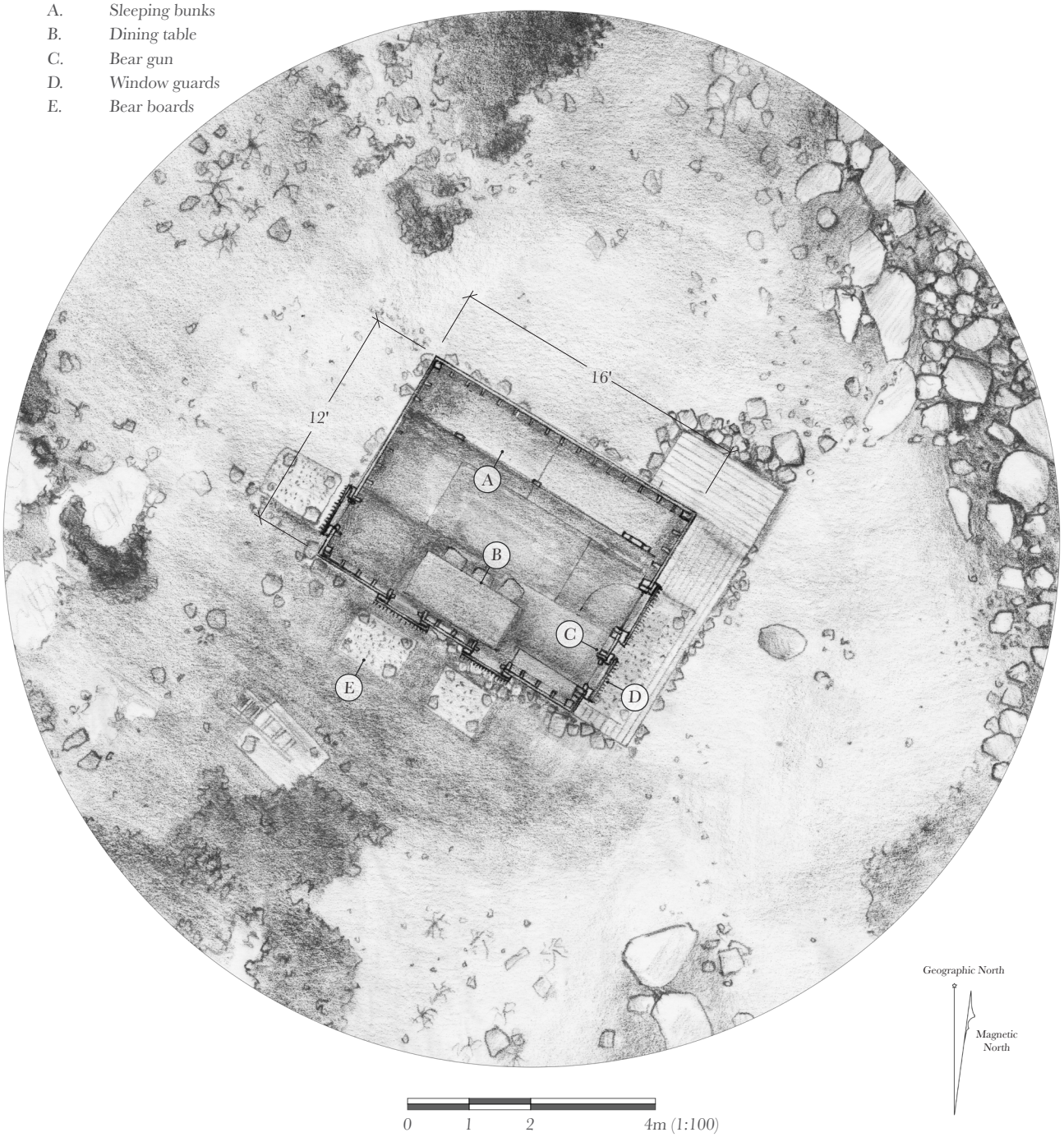


Fig.4.10 *North Cabin in plan*

We walk onwards into the stretching lowlands, the lands and skies alive with the beat of wings. The geese rise into the sky ahead and fall back down to their nests behind us. Against the massive face of a glacial erratic lost in the otherwise level uplands, lunch is eaten under the immense blue sky and the swirling waterfowl. Young caribou approach credulously, and then chase each other over the flat expanse to where the plateau falls down to the lake.

We cross down the snow drifts to the vibrant aqua of the frozen lake. We step gingerly onto the lake, with its dark rocks melted through the ice bottom like meteors. The water flows up to my knees around the rubber waders, perfectly clear. We follow the underwater tracks of the caribou, walking up the softly sloping rise where the ice has separated from the bottom. What was once a covering of snow has fused together with the ice in the thaw, and its structure crunches underfoot like salt. We cross the massive flats of ice to its eastern shore. The force of the wind has pulled the floe of ice from the shore. We walk out on the breaking strands of ice that sway in the water flooding over the shoreline. Through the shallow pools are revealed entire benthic ecosystems, shimmering in a jaw-dropping array of colour. Below the surface the sharp reds of broken rock compounds the deep green of immense growths of peat-moss. Among them dance glass-like shards of ice that sparkle in the sunlight. I splash down onto a rock and jump to the shore.

> *Ever and anon, as the old craft deep dived into the green seas, and sent the shivering frost all over her.*[4]

■

[4] Herman Melville, *Moby-Dick; or, the Whale*, chapter 22.

Fig.4.11 *Ice and flooded ground*

2019 06 16 — 15:08:46 — 2019 06 17

Lat/Long	*67° 14' 14.7" N, 100° 15' 33.2" W*
Distance	*0.00 km from the station (RS)*
Orientation	*looking southwest*
Trajectory	*heading out,*
Company	*with three researchers*
Situation	*a stiff south wind*
	pushes the rain
	up from the bay
	and all around us

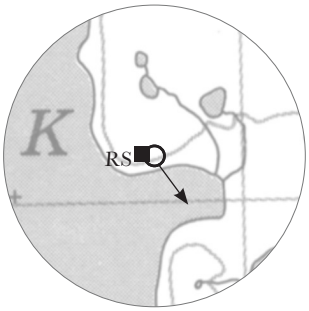


Fig.4.12 *The flat-bottomed boat anchored at the station*

ON BOATING

From the repair shed are pulled the long, shallow-drive outboards. Each engine requires three people to lift it. A mangled oar slotted below the mount is taken by the first two, and a third lifts the end of the prop shaft to carry the engine out across the tundra to the boats waiting on the snow-covered shore. Stumbling awkwardly, we cross the thawing tundra to where a number of hulls have been flipped upward from their upside-down wintering place. The outboard is lowered onto the transom and we tighten the heavy ¾" nuts that secure the mount to the hull. I run through another checklist:

Before the first trip of the season:

Remove and replace the spark plugs.

Grease prop shafts (and re-grease every few days thereafter)

Securely fasten the engine to the transom.

Install the drain plug and inspect rivets, resealing any visible holes.

Change the oil, fuel filter and air filter. Stow reserve fuel and oil below the rear seat.

Stow two oars inside the hull alongside the seats, if there are seats.

Prepare safety and first aid kits to include: heaving line, a fire extinguisher, three flares, a bear banger, first aid kit, lights, and a bailer.

ON VARIOUS DENSITIES

Cold summer rain presses into the tundra and everything else. Inside the skidoo shed, a small windowless cabin tucked against the northwest wall of the main cabin, rows of musty float coats[5] line the walls. Oars, paddles and lengths of rope hang from the exposed ceiling joists. The building, dating to 1999, is appropriately known by the researchers as 'the swamp.' The plywood floor is saturated with water, and stained grey and black with mud. It's unclear whether the mud has been laid down from above with the passage of so many wet boots and garments, or from below, where its floor joists are set only several centimetres above the waterlogged peat of the gravelly bedrock depression. Sitting just outside on the slick bedrock is a gutted Polaris Indy Lite, the 'parts' snowmobile that is pulled from this shed only for the few weeks of the year when the lake thaws enough to warrant access to the boating equipment.

Old red float coats are pulled over parkas and hip waders with difficulty, while the deadened patter of rain vibrates through the rolled asphalt roof and plywood sheathing overhead. Beyond the large shed door, the rain clicks and pops and clatters off everything else. The shed and its jumbled, moisture-soaked contents are not only the objects, or the tools needed for boating, they are in some way the act of boating itself. Inside the four water-soaked walls and leaking shed door is an entire world that is almost absorbed into a lake—nothing quite liquid but nothing solid. It is a swamp both in title and in its bodily entanglement with water; it is becoming water.

[5] *The float coat is a personal floatation device with full length arms and a hood.*

Down the hill from the shed to the lake, a land anchor is retrieved from a glossy thicket of dwarf willow, and the rough polypropylene rode line untangled from the bramble. Water stains through the coats as the soaked rope is folded from hand to hand, and then tossed over the bow of the flat-bottomed boat. The motor is tilted out of the snow and the boat is pushed out through the lake edge. Meltwater from the land has flooded three or more feet of clear water above the still bottom-frozen ice, but between land and water is a wide margin of deep slush. It's not clear where land ends and the lake begins. Boots slip through the melting snow and slush and water together. At a sensory level they blend without distinction. The driver rips the cord back and the motor kicks coughing into life, propeller shredding through the slush-filled water and accelerating the boat forward out from the station and around the point.

Below the boat unrolls a canvas of turquoise, blue, yellow, green and orange all at the same time. The swirls of colour are staggeringly beautiful, to see from above for the first time. The ice undulates below the boat, bloated islands of ice lifting like giant white whalebacks from the bottom. In their fractured, water-logged structures are still perceptible the tracks and traces from winter passed. A maze of deep caribou tracks, the sum of their meandering winter migration north, have been flattened as craters into the remaining crust of ice. Together with the intersecting ribbons of snow machine tracks they run up over the sloping ice and then arc back down below the surface of the water. The hull of the boat slaps over the choppy surface, winding between the lifted ice.

As ice lifts from the bottom, leads open up between the windswept floes. The boat is steered through the leads in the ice until, reaching a dead end, it is rammed up and over the ice floe with a surge of water and slush. Green boots splash onto the surface and hands grip the gunwales as the boat is heaved, 'portaged' as it's known, over the ice to the next fractured lead of open water. Atop the floe, meltwater creates elevated pools, themselves small lakes in a landscape of snow floating atop a lake. Scale here is so easily lost. The ice crushes under the straining boots, just barely solid enough to not give way. The navigable paths between shifting ice change by the hour, and by the day, caught in a state of flux between the pull of the wind and the flow of the water.

The boat draws up to Karrak Lake's northern shore through the rain: a scene of grey water and red coats. There seems to be no real lake edge. Instead, a wide debris field of broken ice ebbs forward and back between rocks that gradually yield to a rising terrain. Hopping off the gunwales, the ice disintegrates before legs and boat together in a cloud of suspended, pencil-shaped shards known as frazil ice.

The term frazil is of unknown etymology save for an apparent Canadian usage of the French *fraisil,* meaning coal dust, or cinders.[6] It describes a phenomenon wherein water, supercooled below the freezing point but too turbulent to freeze, forms into small, randomly oriented crystals so dense that they remain suspended inside the medium of the water itself.[7] In the oceans, vast expanses of frazil ice are referred to as grease ice, as the small subsurface particles refract light randomly in the same way a slick of grease might if it were released into the water. The shards swirling below the surface solidify instantaneously and break apart again, almost freezing each peak of wave interference between the boat and the boots and the surrounding ice. All around, the crystals are a whirling liquid-becoming-solid, taken up between the forces of the wind and the ice floe, between the heat of the sun and the grainy permafrost lakebed, between the cold hull of the boat and warmth of the body through the boots, caught in the midst of transformation in the wide *milieu* of the water. The crystals form and reform, breaking apart and fusing together, on a scale of reality too small to be visually perceived. It is nevertheless perceived directly, sensorially. Simon O'Sullivan posits that "we are involved in molecular processes that go on 'beyond' our subjectivity. Indeed, we 'are' these processes."[8] Just as there is no void between the water and the crystals of forming and dissolving frazil ice, there is no separation between the hull of the boat or the boots and that medium they are pushing through. The hull becoming ice, and my warmth becoming water.

■

6 "Frazil, n.," in *OED Online* (Oxford University Press, December 2019), https://www-oed-com.proxy.lib.uwaterloo.ca/view/Entry/74341?redirectedFrom=frazil&. OED Online. December 2019. Oxford University Press.

7 "Report on Frazil Ice," Working Group on Thermal Regimes (International Association for Hydraulic Research, August 1994), 3–9, https://usace.contentdm.oclc.org/digital/api/collection/p266001coll1/id/6061/download.

8 Simon O'Sullivan, *Art Encounters Deleuze and Guattari: Thought beyond Representation* (New York, N.Y: Palgrave MacMillan, 2012), 50.

Fig.4.13 *Ice along the north shore*

WALKING OVER THAWING GROUND

Three pairs of hands press against the slippery metal gunwale as the boat is pushed towards the dark rise of earth ahead. Water swells before the flat-bottom bow and breaks over the peat shore, the earth and water swirling together, liquefying black. The sound of the boots splashing through freezing water turns to a deadened sloshing through melting snow, then a labored sucking through the mud. Feet sink into the earth, and footprints fill with water behind them. Geese lift off the terrain ahead of us and climb into the air, their white and grey bodies merging with the swirl of low clouds overhead. The surface they leave behind is a brambly mosaic of dark peat and bleaching polygonal permafrost heaves, cratered with uncountable pools of water. The ground rises slowly to a rocky ground moraine[9] ahead, with thin braided seepages of water flowing down from one pool to the next and finally draining into the icy lake behind us. As the raucous beat of goose wings dissipates, we are left surrounded by the clicks and drips of water moving around us. Air bubbles burst on the surface of the pool of groundwater that emerges below the weight of my body.

We walk the shoreline east, across small dark drainages and wide, sandy rivers. Plumes of silt erupt from the riverbeds with each step and billow downstream. We wade through the swiftly flowing water towards the thin outline of the North Tower, set atop a distant esker. The esker, a flat-topped linear deposit of pink gravel, rolls over the surrounding terrain like a winding highway. A herd of caribou in their dark brown

[9] *A ground moraine is a gently rolling region of subglacial till.*

summer coats run before us—a single male, four females and at least five immature individuals. They turn a circle around us as we step through the greening plateau, and then resume their trajectory north.

Slowly, the lichen heath subsides to the gravel uplands. Sandpipers around us, darting from one projecting boulder to the next as we crest the wide top of the esker. Shallow drainages in the till partition the surface into polygons of uniform gravel. Each drainage is lined with a plethora of mosses and lichens, themselves miniature riverbeds carved into the gravel river bottom of what would have once been one of many ice-walled tunnels carrying water from below the glaciers and north into the Queen Maud Gulf. To the south, the esker follows a long slow arc to the horizon, towards its border with Karrak Lake. But we follow it north, where it slopes slowly down to a confused end. We walk the narrowing gravel top out to the salient—a curving spur of gravel winding down into a surrounding lowland. I stand at the end of the jetty, where the pink stone is subsumed into the blue-black oil slick of the bog. I've no idea how many years of slow-growing mosses and lichens, stunted birch and grass, and animals too, must have died and rotted away to form every inch of mud around my feet. And all of it flooding around the stone-milled foundations of the ice sheet that flowed north from here into the Arctic Ocean. Stepping down into the earth, feet sinking down in the mud—to stand here is to be made small in the immense geography of time. I walk north off the spit, following the flow of the water on its long, unknowable path to the shores of the Queen Maud Gulf, where it pours out over the sea ice and drains down into the ocean.

We stop at one goose nest after another, pushing aside the concealing sod to update record sheets with the newly laid eggs. Pairs of geese soar overhead, all calling to each other as they perform successive passes overhead. At each nest we kneel in the mossy peat and turn over each warm egg in our hands, measuring it and marking it. We hold them up to the sky and note the ever-darkening embryo forming inside, then place them back together in their feather-lined nest bowl. Reaching forward, we pull its cover of birch and moss back over the eggs, concealing them from the glaucous gull that has arrived among the pandemonium of geese. We walk a few paces, kneel at the next nest and do the same. During the weeks of nesting surveys we have performed, the process has become almost a ritual of uncovering and recovering. For cumulative hours we

crouch in the tundra, our knees set on the cold bedrock or mired in the swampy peat or sunk in the thawing snow.

Between each survey plot, we cross endless varieties of terrain. None are clearly categorical, except perhaps very broadly, but kneeling down I come to understand that each is a blend of the other. There is always a little pink gravel in the bog, or moss between the crevices of bedrock, or clay below the willows. Over and under and around it all runs water. We wade through pools shimmering in the midday sun, wading over swaths of underwater ice, over the iron-rich swales and through bright-green mossy glens.

Our route meanders from one survey plot to the next as the wisps of clouds soar overhead, condensing into bright white cliffs and spreading into valleys of blue-gray. Tailing the south winds, the clouds begin to gather steadily. Bright streaks on the leading edge of the front hide the enormity of the cloud bank, which darkens the horizon and whose bulkhead surges thousands of metres into the stratosphere. The cloud bank towers on the horizon like an armada, pressing towards us with a stiffening wind.

With the clouds the rain returns, and we prepare to return to the boat. Gear is stowed and the GPS is set for the lake edge where the boat sits pulled ashore. A cold rain begins to fall from the clouds as we navigate west between small lakes and short drumlins. Geese huddle over their eggs to keep them dry from the coming storm. We trudge slowly under the lowering clouds, over boulder fields and dark swaths of erratic-strewn bedrock. Crossing through the still-snow covered margin of a small pond, we wade out through the water, hopping from one clay-rich heave of permafrost to the next.

The boat comes into view over a final rise, and we slip down the hillside through the quickly filling pools. I pull the water-laden float coat over my parka and wade into the lake with the boat, jumping aboard with a final push. The engine rattles to life, and with a churning entry of the propeller into the icy water we pull into the lake for the long trip back to the station.

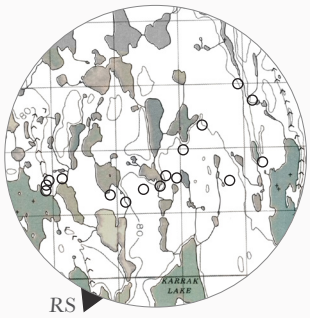
■

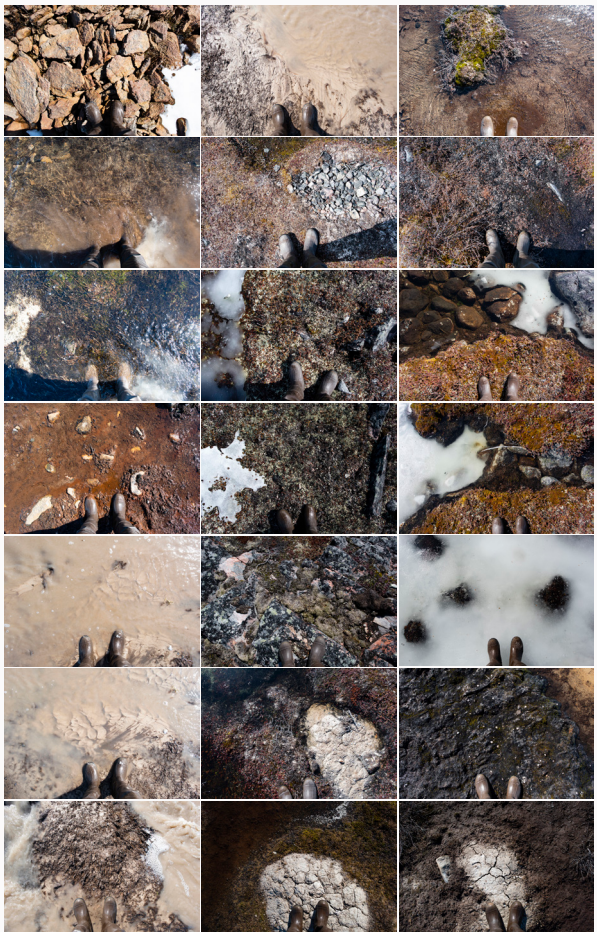
Fig.4.14 *Esker sinking into bog oil*

Fig.4.15 *Goose nest in tundra*

BOOTS OVER THAWING GROUND

Date	2019 06 14
Lat/Long	67° 00’ 00.0” N, 100° 00’ 00.0” W
Distance	5-10 km from the station
Duration	5 hours
Exposures	21
Orientation	looking down
Trajectory	east, then west





12:00:00
12:16:05
12:38:35
12:39:02
13:00
13:07:43
14:00
14:39:59
14:41:11
14:29:50
14:52:10
14:54:40
15:00
15:04:12
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16:34:43
17:00:00

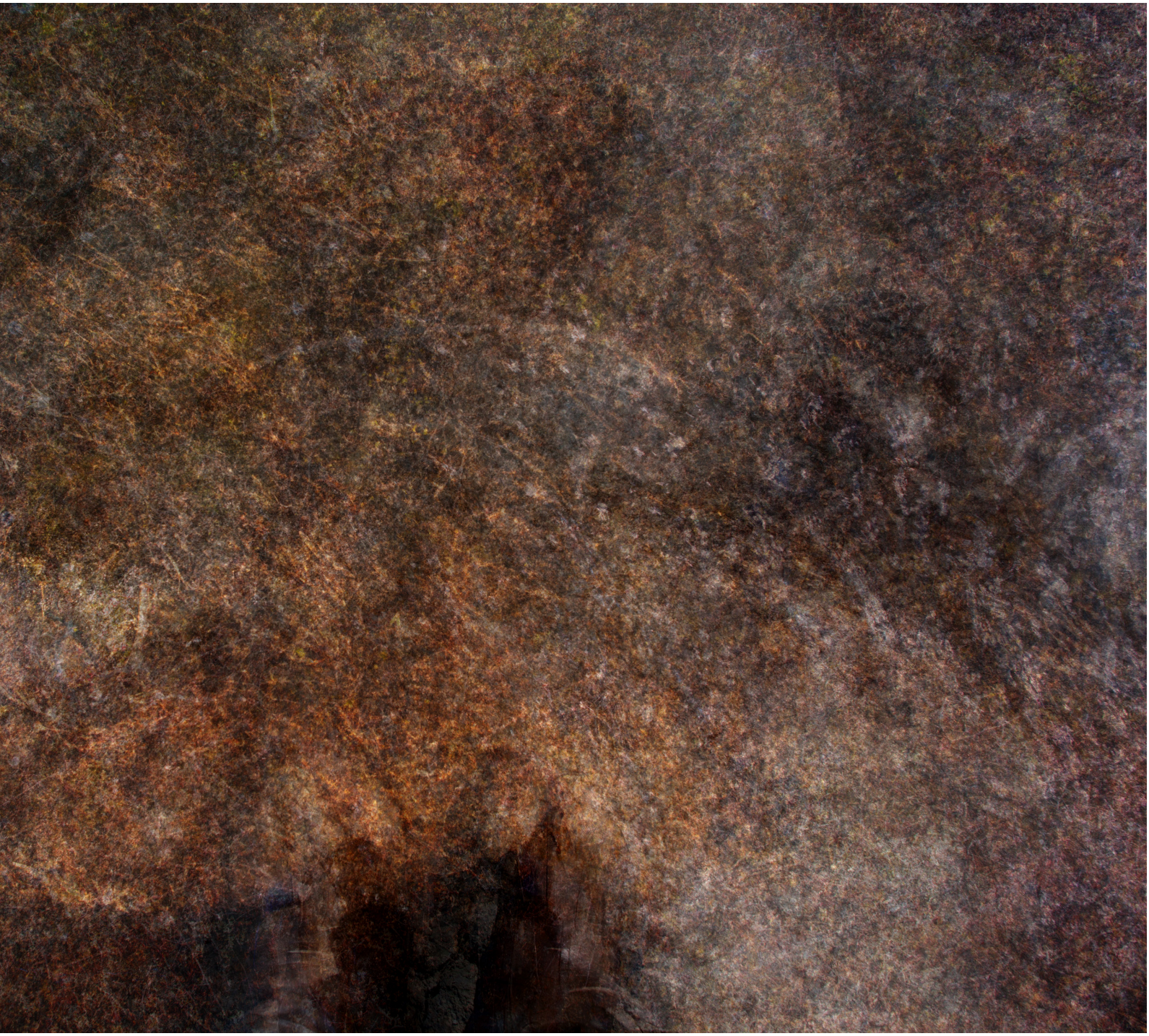

Fig.4.16 *Composite photograph looking down to the thawing ground*

ADAPTING ARCHITECTURE

The low banks of grey rain clouds that move up from the south frequently bring with them the end of a day of work. Completing nest surveys in normal conditions does not displace the parent geese for long enough to affect their eggs, but such disturbance with exposure to rain severely affects nest survival. The arrival of rain therefore stops progress of the nest surveys, and the last completed survey is marked to be continued by the next team, on the next day of good weather. Such environmental variability is built into the research schedule.

Anthropologist Peter Bates writes that Arctic ecological research proceeds through a process of reaction and adaptation.[10] Research of the nesting Ross's and snow goose nests follows a highly organized structure, but one that can only be undertaken opportunistically. Bates writes that in typical arctic research, "'The plan' seemed to trail along in the wake of [environmental forces], shifting in response to actions taken rather than dictating them."[11]

This continual strategy of adaptation is not limited only to research activities; it applies equally to the research equipment and the research station. The machines and structures used in this environment are continually tangling with the forces of that environment. They are continually overcoming or succumbing to the forces of the cold, wind, precipitation and, as we have seen, even other animals. The old snowmobiles, though they are over twenty years old, are preferred to newer machines regardless

[10] Peter Bates, "Inuit and Scientific Philosophies about Planning, Prediction, and Uncertainty," *Arctic Anthropology* 44, no. 2 (January 1, 2007): 95.
[11] Bates, 95.

of their reliability because they can be so simply repaired. The rocks that puncture the hulls of the boats are patched with sheet metal and glue. The exposed plywood surface of the cabins accept sharpie, nails and perhaps also accept decay. The wooden ceiling joists accept that someone will have an idea for something which they will pursue, armed with scrap 2x4s and screws that are two inches too long—whether that something be art or a clothing rack.

We can see that the potential for such alteration "is equally a fact of the environment and a fact of behavior. It is both physical and psychical, yet neither;"[12] the capacity for environmental adaptation is a real part of the environment. At the research station, architecture is not a sculpture or a style, but an occupied, living, evolving thing. It not only needs to be endlessly repairable, but it *needs* to be endlessly repaired. Like the replacement ski of the qamutiik which the fox biologist affixed ritualistically with its original screws, or the carefully laid vinyl tabletop, the architecture is always being subjected to forces of destruction or decay (the are de-territorialized, from the perspective of the human) and are continually being remade (re-territorialized). In this way, the tenure between the people and their built environment is continually asserted. It changes over a duration, as well as with its inhabitants, forming a kind of habitat deeply interrelating the people both to the architecture and to their environment.

In the introduction to Cache's book *Earth Moves*, translator Anne Boyman writes that "a territory is not the immobile closed space of "the context" to which a building must be mimetically adjusted; and the relation of architecture to territory is not that of a complete plan or organized system. Rather architecture is "the art of the frame," and the "architectural" in things is how they are framed."[13] This holds even if the frame is not perfectly enclosed…it accounts room for decay, change and porosity. In the words of Deleuze and Guattari, "the house does not shelter us from cosmic forces; at most it filters and selects them. […] But equally, the most baleful forces can come in through the half-open or closed door."[14] The cabins are continually becoming, the human territory being continually reasserted, before being pushed back by the wind, or the water, or the bear. Then, they are reterritorialized all over again.

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[12] James J. Gibson, *The Ecological Approach to Visual Perception* (Boston, MA: Houghton Mifflin, 1979), 121.
[13] Anne Boyman in the Translator's Preface of Bernard Cache, *Earth Moves: The Furnishing of Territories*, ed. Michael Speaks, trans. Anne Boyman, Writing Architecture (Cambridge, MA: MIT Press, 1995)., x.
[14] Deleuze and Guattari, *What Is Philosophy?*, 182.

"To perceive is to be aware of the surfaces of the environment and of oneself in it. The interchange between hidden and unhidden surfaces is essential to this awareness. These are existing surfaces; they are specified at some points of observation. Perceiving gets wider and finer and longer and richer and fuller as the observer explores the environment. [...] Note how this definition includes within perception a part of memory, expectation, knowledge, and meaning."

James J. Gibson, *The Ecological Approach to Visual Perception* (Boston, MA: Houghton Mifflin, 1979), 255.

SUBMERGENCE

In the evening the folding dining table is cleared for a ping pong tournament. The game is doubles, using 6 ¼" cast iron pans as pallets and a correspondingly blackened ping pong ball. The ball bounces back and forth across the newly wallpapered tabletop. Low 10 o'clock sunlight and the flickering glow of candles bathe a room filled with laughter and play. My empty bottle of Ontario whisky sits among the others, translucent wax falling down across the label. The flame wavers in the push and pull of moving bodies. Tiny bone carving mobiles and dream catchers spin overhead and the stove hisses in the background, boiling that old blue-fleck enamel pot. Crosby, Stills & Nash's 'Judy Blue Eyes' rattles out of the dented speaker. From the north window, a thick beam of sunlight cuts horizontally through the cabin and sets the inside south wall alight. Where it hits the inside of the south window, it reflects back across the table in front of where I stand, so that if I reach up my hand it is basked in north and south sunlight simultaneously. The light surges and flutters on the wall, dimming and flickering.

With night the west wind falters. Outside, the full moon emerges heavy and flattened from the southern plains, just as the sun burns through the last span of air that separates it from its northern horizon. These two celestial spheres are for this moment connected by a straight line that passes right through me. The sun settles at its lowest point in the sky to the north while the full moon pulls up from the horizon exactly due south. They hover over their horizons, exactly opposite each other. The space between them is charged and oppressively silent—crystalline and trembling. Not even the air dares to breathe. This is the moment when night turns to morning, that strange hanging instant between sunrise and sunset.

Pulled toward the water, I descend the hill to the emerging lake. Sun illuminates the mist around my feet as I move from rock to rock over the deep slush at the margin of the lake, following the rode anchor line down to the flat-bottomed boat that sits atop the watery ice. Boots echo off the dull grey hull. Socks stick inside them as I pull them off my feet and sit down beside the large motor on the stern thwart. I change down into my shorts, legs dangling off the transom into the turquoise water. Then, slip slowly off the transom and into the lake. A foot of water tops the false bottom, and my feet plunge down through the dense slush of ice crystals until I am submerged up to my waist and standing. Expecting to find rock, I instead feel a perfectly smooth bottom of ice. The ice feels warm below my bare feet, smooth and slippery and unseen. I see with my feet, stretching my toes outward. The slow undulation of the ice slopes slowly down from there, deeper and deeper. A narrow underwater crack runs ahead, passing first below my right foot and after a few steps below my left, as I wade through the ice filled water. I wonder if I may have followed that line before, and if I may have knelt down beside it, carefully chiseling it with an axe.

At the centre of the small bay, the water laps against my chest and shoulders. Turning back, a sky filled with gold and pink glows over the station. The small flag atop the main cabin catches enough wind to flap slowly; down here at the surface the air is still and silent. Obscured by the hills, the sun tosses its light to the moon, and the moon bounces it back to me. The ripples of freezing water surround me, turning black in the dimming light. I dunk my head below the surface for a long second, and then emerge.

I dry off on the front porch, my tingling toes squishing into the slippery floorboards of the front porch. The last time I felt the boards like this was after pulling the snowmobile from the thawing river. I remember standing in the turbid water, struggling to free the old machine…that gargling, smoking cohesion of the industrial processes of mining, drilling, shipping, refinement and manufacture that confluence to produce it, struggling against its environment, and I struggling with it. Today the boards feel warm and soft below my feet. Swinging open the cabin's front door, the heat from the central stove pours out around me. Inside is dark and comforting. The electricity is off, and the only sound is the shuffling of book pages and muted clatter of the boiling kettle. The swirling steam of a kettle has never brought me such happiness. I dive back, for a time, into the end of my book:

> *Now small fowls flew screaming over the yet yawning gulf; a sullen white surf beat against its steep sides; then all collapsed, and the great shroud of the sea rolled on as it rolled five thousand years ago.* [15]

People offer their goodnights as they filter out from the cabin to their tents and bunks. I am the last person to leave. I extinguish the stove and pull on a sweater, then my boots. The night sky is pink and blue. The earth is silent. I walk out past the bunkhouse to the craggy hill beyond it, moss soft below my feet. Reaching the rocky crest, I sit down beside a boulder and take in the arctic night. Bird songs echo over the hills. A thousand small patches of water dapple the greening lowlands, gleaming together with the winding lake in the light. The sun blooms in my eyes. Later on, it will fill me with joy to find it bloomed in the lens just the same.

Tomorrow the helicopter will arrive, then depart, and I with it.

[15] Herman Melville, *Moby-Dick; or, the Whale*, chapter 135.

EPILOGUE

EPILOGUE

Pausing, a small wave of cool water swells around my feet. The ripples of fine, yellow sand below the surface reform around the current that accelerates around me. I can feel the surface subside under my weight, and the fine sandy silt presses out from below me. Looking up, a low evening sun glints golden over the gentle crests of the waves in the bay. Canada geese migrate south in a line overhead, high in the dimming blue sky like a stroke of black pen. A following gust of south wind presses around my body. A moment later it rustles the leaves of the poplars on the shoreline behind me.

These are the shores of Georgian Bay in autumn, the bay in central Ontario around which I spent my entire childhood until moving away for school and for work. Four months have passed since I boarded a helicopter to cross the still-frozen Queen Maud Gulf to Ikaluktutiak, then a mid-range turbo-prop plane connecting through Yellowknife to Edmonton, and finally a twinjet aircraft to arrive in the thick, diesel-choked air of a summer day in Toronto. Standing here, watching the gradual migration of geese heading south, I experience the closing of a seasonal cycle. The eggs I held in my hands in the Ahiak will have hatched, were they not predated. The goslings will have fledged, if they did not succumb to the elements. They will have followed their flyways south, if they found enough food to forage along the way. This cycle and its many links is one of many cycles that is being set into variation by climate change. The arctic environment is warming faster than any other part of Canada,[1] but the effects of warming climate trends are also beginning to emerge here.[2]

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[1] Elizabeth Bush and Donald S. Lemmen, *Canada's Changing Climate Report.* (Ottawa, ON: Government of Canada, *2019), 132, 152.*

[2] *Bush and Lemmen, 208, 227.*

In designing the shelters that support human life in our northern climate, the architectural profession has a responsibility to lead the way in reforming the way we conceive of our built environment, and the larger environments they become a part of. However, the overarching approach to this problem largely pursues more 'sustainable' ways of doing what we are already doing. What we see in practical terms is usually an onus on 'adding performance.' The flaw in this thinking is that it assumes our existing ways of living and building as a datum line from which new designs are built. Such thinking is self-referential, and the consequences are self-reinforcing.

Instead of building on a broken framework, what is actually needed is a dismantling. We need to question the foundations of our relationship as humans to our environment. Questioning this relationship begins, as it has in this thesis, with questioning what we see and cannot see. It is, at its most basic, a question of re-perception. Earlier, we visited Brian Massumi's illustration of the woodworker setting out to make a table. That account begins with the recognition that the skilled woodworker "does not indiscriminately plow into [the wood] with the plane [but is] conscious of the grain and is directed by it."[3] Though it might be possible to create a table while planing against the grain, overcoming the forces of the wood would prove immensely more difficult than had we learned the various qualities of our material and their potential to affect and be affected. Instead of refining an incorrect technique, we need to re-perceive our material—the environment—as well as how we engage with it.

The lumber and plywood cabins at Karrak Lake are far from glamorous precedents for arctic architecture. But among their many failings are produced entirely unexpected synchronies with their environment. From the electricity that runs out with the onset of night to the water source that has to be chipped from the lake ice, the shortfalls of the station accentuate interrelations that are often far removed in Southern Canada. Its failings in many ways make affective encounter between its inhabitants and the environment unavoidable. In the massive counterplays of force that are exchanged between the buildings and the arctic weather, the buildings become like subway cars creaking around their occupants. In the driving rain they become permeable like the water-filled earth that surrounds them. In the duration of Inuit occupation,

[3] Brian Massumi, *A User's Guide to Capitalism and Schizophrenia: Deviations from Deleuze and Guattari,* (Cambridge, MA: MIT Press, 1992), 10.

they become colonial ruins; in the duration of the glaciers they become nothing but a backwards movement of stone. In their winter hibernation, they become almost animal.

In this environment, any colonial or anthropocentric misconceptions are challenged, bringing to the forefront the complex entanglements of forces and actors that occur between the buildings we inhabit, the environments that surround them, and ourselves. Instead, we can see a great 'putting into variation.' The buildings are subdued by the force of their environments, but are nonetheless continually rebuilt, continually re-territorialized. Without this yearly influx of people to maintain it, the cabins would surely yield to the forces of the wind, snow and marauding bear. It is thus the people themselves who, through maintaining the structures, wrestle as much with the wind as the building. They become drawn into the negotiation of tangled force, and thus become interrelated actors. They begin and maintain a dialogue with the environment and build up an interconnectedness with them.

The product of those entanglements, as I came to understand firsthand during even such a short duration spent in the Ahiak, is a change in the way we perceive our relationship with our environment and the living beings we share it with. I come to understand that perhaps the greatest qualities of this speck on a map do not derive from the environment itself, but from our encounter with it: an encounter that unfolds through action over a specific duration set within even larger durations, encounter that is less about things than how those things change, encounter that might only be experienced by an individual but that overwhelms in the immensity of a single moment.

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