

ÉMÉLIE DESROCHERS-TURGEON —

There Is a Breach in the Wall: Encountering Arctic Terrains

As I write from home, I wonder about the land that I occupy, Kanien'kehà:ka Territory/Tiohtià:ke/Montreal, and the land I travel through in my work, Anishnaabek, Omàmiwininiwag Territory/Ottawa. I go to the kitchen, each of my movements resounding in the distorted maple wood floor under my feet. In the lowest corner of the kitchen, where the floor is most crooked, my eyes catch a dark line: a narrow but deep breach in the wall. I have noticed how that gap grows in size every spring. I find myself hypnotized, as I often do, by the irregular rift path running diagonally on the wall like a river on a map. Through the paint and plaster, my mind wanders, drawn to the crevasse's abyss. I descend through the void, stumbling where the fissure cascades into steps, knocking against the weathered grout in between red bricks. I imagine these bricks in the 1910s, drying in a courtyard of the St-Lawrence Pressed Brick et Terracotta Ltd. in La Prairie. I imagine cats running along them in pursuit of rodents. In my voyage down the wall, I brush against the sediments of foraminifera, mollusks, and vertebrates in the brick shale, deposited by the glacier-made Champlain Sea 13,000 to 10,000 years ago. In my descent, the dusty air becomes dank as I reach the damp surface of rubble foundation walls. The air is fresh, humid; it smells like soil. The abyss widens. I hear echoes of saws cutting maple and pine trees and builders' shovels digging into farmland to quickly build homes for Portuguese, French, Jewish, and Greek settler families. Slowly, the rhythm of shovels scooping humus, till, silt, and clay dissipates; in its place I hear the rushing of water beneath my feet. Pulled by the cavity, I plunge headfirst into the stream and the current rapidly ejects me at the breach in my kitchen, where I turn on the tap and pour myself a glass of water.

What if the soil, through its movements and its impact on the built environment, was protesting? Could the soil's movements, alongside the failures of building foundations, illustrate a social attitude toward the land? Andrew Herscher and Ana María León remind us that "we—settlers and Indigenous people alike—live in a settler colonial present."^[1] Since invasion is a structure, not only an event, we inhabit and occupy Indigenous land, some of it forcibly taken, and some of it never ceded, each day.^[2] Is a short plunge into the void of my kitchen wall one small revelation of the chasm between me, a settler of French descent, and the land; between my apartment building and the Montreal podzolic soil and underground rivers; between Montrealer-settlers and the Kanienkehàka peoples, as well as the species and beings whose relationships were and are disrupted here? But I am not falling in gaps. The

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[1] Andrew Herscher and Ana María León, "Editorial," e-flux, special issue, *The Settler Colonial Present*, October 12, 2020, [link](#).

[2] Patrick Wolfe, "Settler Colonialism and the Elimination of the Native," *Journalism of Genocide Research* 8, vol. 4 (2006): 387–409.

building designed to hold me in space and time (as long as I pay the rent) is understood to be stable. It is also inevitably cracked, sinking more with each thawing season.

The gap in the wall is symptomatic of the inexcusable injustice in which potable water runs from my faucet while many First Nations still have drinking water advisories in their communities.[3] The gap in the wall reveals water's persistence, like a river refusing its canalization as settler colonial infrastructure.[4] When looking at the ground surface of our cities, what do earth's broken foundations tell us about the limits of how we understand soil? If foundations break mainly due to thawing, perhaps we should probe one of the most extreme frozen grounds: permafrost. Considering permafrost in the arctic as a colonially-framed marginal type of soil illustrates some of the limits and biases in the ways we understand the ground. When examining earth and ice movements in relation to architecture, what kinds of settler stories are contained between building and land? If arctic terrains are framed by a colonial spatial and temporal imaginary, then what settler colonial landscape literacy emerges in the encounter between terrain and building foundation? Terrains certainly aren't passive in this encounter but active agents contesting the settler colonial city.

[3] Kerry Black, "Tip of the Iceberg: The True State of Drinking Water Advisories in First Nations," *The Conversation*, May 3, 2021, [link](#).

[4] See the 1942 map by Aristide Beaugrand-Champagne showing the many streams and rivers that once flowed in Montreal, before the arrival of Europeans in the Americas. "Montreal's Lost Rivers—What Maps Can (and Can't) Tell Us," *Spacing Montreal*, October 29, 2009, [link](#).



Kangiqtugaapik, Baffin Island, Nunavut, August 29, 2015. Courtesy of the author.

Settler Colonial Earth-Writing

BEFORE TRANSFORMING A SUPPORT INTO A COLUMN, A ROOF INTO A TYMPANUM, BEFORE PLACING STONE ON STONE, MAN PLACED A STONE ON THE GROUND TO RECOGNIZE A SITE IN THE MIDST OF AN UNKNOWN UNIVERSE, IN ORDER TO TAKE ACCOUNT OF IT AND MODIFY IT.[5]

[5] Vittorio Gregotti, "Lecture at the New York Architectural League," Section A., no. 1. Montreal: February/March 1983.

As late architect Vittorio Gregotti underlines in his telling of architecture's origin, the very first act of building is to *place* a stone to *displace* soil.[6] His statement positions the "site" before architecture as an "unknown universe." For architecture to occur, some form of appropriation and displacement of land must take place. For Edward Said, the relationship between imperialism and land is fundamental: "imperialism means thinking about, settling on, and controlling land that [one] does not possess." [7] While imperialism and colonialism exert control from an imperial center, settler colonialism attends to an ongoing project of capital accumulation that masks that seizure of land under other names.[8] Architecture, often operating under the terms of progress and improvement, participates in such practices to control the land and solidify the boundaries of empire.

Settler colonialism here is explored as a social formation: as an imaginary, an attitude, and an orientation that practices taking, fixing, and apportioning.[9] Architecture represents the materialization of such social formation through the ways it normalizes the occupation of land—what can be called "settler colonial earth-writing"—through paving, irrigating, leveling, cutting, digging, extracting, displacing, and securing grounds. Architecture enshrines occupation by its highly literal presence on terrains where existing relationships are materially disrupted. As Heather Davis and Zoe Todd write, settler colonialism "is a severing of relations between humans and the soil, between plants and animals, between minerals and our bones." [10]

Settler colonial earth-writing does not only operate materially. Settlers developed complex fictions to erase Indigenous peoples' rights to their land under their own legal systems and worldviews, appropriating Indigenous territory under the legal doctrine of *terra nullius*. These fictions dehumanized Indigenous communities in order to reconcile the colonial imaginary of empty land and the embodied experience of settlement.[11] The spatial descriptions that emerge from these stories reflect the spatial illiteracy of colonists who, without their customary units to "measure" the land, disregarded foreign soil as a complex materiality brimming with cultural history. Emilie Cameron argues that settler representations of the arctic continuously nourish a sense of settlers as innocent witnesses to the suffering of northern Indigenous peoples in order to secure northern resource extraction and land claims.[12] Per Cameron, these settler stories or fictions matter in the sense that they are relational and material ordering practices that characterize settlers' relationship to people and land.[13]

The soil itself is a major medium through which these complex fictions manifest. In Dubravka Sekulić, Milica Tomić, and Philipp Sattler's account of soil as an archive, "colonial practices, having spread across territories and soils, and once confined to the colonial context, continue to inform our ideas of minerals, species, race, and gender, permeating our behavior, institutions, and imaginary to the present day." [14] On Turtle Island, one enduring colonial fiction is that of the pristine "north." Sherill Grace notes how numerous disciplines have been mesmerized by the "north" and how it has inspired countless authors.[15] Robert Kroetsch writes: "[t]o write is, in some metaphoric sense, to go North. To go North is, in some metaphoric sense, to write." [16] His consideration of the "north" and the act of writing as a mutual metaphor is strong in the colonial imagination. Comparing the white page to a

[6] Gregotti, "Lecture at the New York Architectural League."

[7] Edward W. Said, *Culture and Imperialism* (New York: Vintage Books, 1993), 7.

[8] Audra Simpson, "Whither Settler Colonialism?" *Settler Colonial Studies* 6, no. 4, (October 2016): 3.

[9] Simpson, "Whither Settler Colonialism?," 5.

[10] Heather Davis and Zoe Todd, "On the Importance of a Date, or Decolonizing the Anthropocene," *ACME: An International Journal for Critical Geographies* 16, no. 4 (2017): 770.

[11] Patrick Wolfe, *Settler Colonialism and the Transformation of Anthropology: The Politics and Poetics of an Ethnographic Event*, Writing Past Colonialism Series (London; New York: Cassell, 1999).

[12] Emilie Cameron, *Far off Metal River: Inuit Lands, Settler Stories, and the Making of the Contemporary Arctic* (Vancouver: University of British Columbia Press, 2016), 9.

[13] See Cameron's analysis of the Bloody Falls massacre settler story. Cameron, *Far off Metal River*, 12.

[14] Dubravka Sekulić, Milica Tomić, Philipp Sattler, "Digging Up the Past: Soil as Archive," *The Architectural Review* 1468 (February 2020): 18.

[15] Grace Sherill, *Canada and the Idea of North* (Montreal and Kingston: McGill-Queen's University Press, 2001), 21.

[16] Robert Kroetsch, *A Likely Story: The Writing Like*

virgin space, a *terra nullia*, to write upon, suggests that the “north” is waiting to be written. Geopoetic space *par excellence*, the “north,” proves fertile for the imaginations and fantasies of architects, engineers, and planners.

(Red Deer: Alberta, Red Deer College Press, 1995), 14.



Flattening of the road in Kangiqstugaapik, Baffin Island, Nunavut. Courtesy of the author.

Settler stories often include descriptions of arctic landscapes as desolate, homogenous, empty, arid, barren, where the masculine and the heroic encounter the extremes. Arctic landscapes exist beyond spaces of custom and habit; they are profoundly exterior, marked by an otherness, the exo of exotic. The issue is that settler colonial earth-writing not only considers northern landscapes as barren instead of as a plentiful environment for humans and more-than-humans but also as a static ice desert instead of a land that is shifting. To build in this shifting land, writes Kat Kovalcikis, is to build amidst “the dynamic human and non-human forces acting upon the ground and building.” [17] These dynamic forces are at odds with settler colonial settlements and architectural desires for certainty and stability.

[17] Kat Kovalcik, “Touching the Land,” *The Site Magazine* 36 (2016), [link](#).

Permafrost Time

In the circumpolar north, a significant obstacle to engineering and construction is permafrost. As a category of ground, permafrost is scientifically defined as “frozen for two or more years... usually [forming] in bedrock, sand, or gravel.” [18] Ice-rich permafrost, full of waiting water, is mostly found in silt and clay soils and varies in thickness, up to hundreds of meters in some locations. [19] The ground must cool enough in winter to avoid complete summer thaw, leaving a frozen layer that lasts all year. Above the permafrost, there is a layer that freezes and thaws each year called the active layer. [20] That layer is understood as the ground system that modulates the flow, retention, and absorption of water in a given area. One of the main reasons why frozen

[18] Department of Environment, *A Homeowner’s Guide to Permafrost in Nunavut, Keep Your House on Solid Ground* (Canada: Government of Nunavut, 2013), 2.

[19] In Montreal for instance, the frost line (the depth to which frost penetrates the earth) is approximately five feet. Department of Environment, *A Homeowner’s Guide to Permafrost in Nunavut*, 2.

[20] W. E. Sladen, *Permafrost; Geological Survey of Canada*, Open File 6727, 1 sheet, 2011, doi: 10.4095/288000.

lands are such a design challenge to planners, engineers, and contractors is that freezing causes an upward movement of the ground while thawing causes a downward movement.[21] Because permafrost comprises frozen water with a small proportion of soil particles, it is not quite a frozen mass of land.[22] When it thaws, it has minimal compressive capacity.

Terra, the Latin word for “terrain,” is related to the Latin *tersa*, which means “dry ground.”[23] Like its linguistic designation, land’s visual representation, dry and controlled, tends to be defined in opposition to water. Indeed, land surveyors tend to avoid work in wet terrain, and the reading and drawing of lines in surveys and in architectural representations involves a depiction of a neat and fixed boundary between land and water—when water isn’t precipitating and permeating surfaces, soil and air. Dilip da Cunha’s *The Invention of Rivers* explores water as a colonized terrain by describing how maps and representations of water have produced a material literacy dominated by land. Da Cunha suggests framing rivers as a human invention—rather than an a priori found in nature. The boundaries of what we call rivers are analogous to the boundedness that settler colonialism requires. Da Cunha’s proposition means imagining a world without waterways, where the ground is a ubiquitous wetness—a rain terrain whose porosities and constant fluctuations blur the very notion of boundaries.[24] Following Da Cunha, I refuse the dry and wet dichotomy and instead imagine permafrost as a gradient of wetnesses, as muddied ices, as crystallized soils. The very construction of permafrost as a category frames it as a colonized terrain, limiting our understanding of the soil’s dynamic processes as an ever-shifting condition. Ice is a shapeshifter and state-shifter that transcends our understanding and our models of space and time.

Permafrost is also tied to a wide range of effects upon the environment, including the geomorphology, biogeochemical fluxes, tundra plant and animal ecology, and the functioning of lakes, rivers, and coastal marine ecosystems.[25] Our models of space and time, particularly the ways in which we atomize disciplines and ecological processes, further entrench the division between humans and the land and all the relationships that constitute soil. When we think of permafrost in a language that reflects our values, our models of space, I am reminded of Robin Wall Kimmerer’s wish for a grammar that recognizes and advances the world’s animacy.[26] Anthropologist Julie Cruikshank writes on the intangible connections between glaciers and recent human history—how oral traditions and languages are repositories of knowledge. She notes that English is rich in nouns but lacking verb forms that include movement and action in the non-human. For example, in the Athapaskan language, there is no distinction between animate and inanimate subjects.[27] In contrast, the word *permafrost* suggests a grammar of inertness and temporal endurance.

This temporal and spatial imaginary composes a settler colonial territorial literacy that exemplifies some of the limits and biases in the ways we understand soil. In discussing arctic ice, Jen Rose Smith’s brilliant “critical racial history of ice” illuminates how arctic spaces and arctic Indigenous peoples have been “racialized and rendered migrant” in order to create and maintain what she calls “temperate-normativity.”[28] The concept of “temperate-normativity” centers sedentary settlements as the “right way” to civilization, thus radicalizing dwellers of frozen geographies and normalizing temperate geographies.[29] Frozen ground has been deemed inferior—an impediment to

[21] National Research Council Canada, *Glossary of Permafrost and Related Ground-Ice Terms*, RW01, 1988.

[22] Christine Harries, “The Future of Building Foundations in the Canadian North,” *Building Tomorrow’s Society* (June 13, 2018), 1.

[23] David Leatherbarrow, *Topographical Stories: Studies in Landscape and Architecture*, Penn Studies in Landscape Architecture (Philadelphia: University of Pennsylvania Press, 2004), 115.

[24] Zoe Todd, Ozayr Saloojee, Johan Voodouw, Émélie Desrochers-Turgeon, “Fluid Boundaries—Water, Water, Everywhere,” *Lapsus Lima*, [link](#).

[25] Vincent Warwick F., Mickaël Lemay, and Michel Allard, “Arctic Permafrost Landscapes in Transition: Towards an Integrated Earth System Approach,” *Arctic Science* 3, (2017): 33, [dx.doi.org/10.1139/as-2016-0027](https://doi.org/10.1139/as-2016-0027).

[26] Robin Wall Kimmerer, *Braiding Sweetgrass. Indigenous Wisdom, Scientific Knowledge and the Teachings of Plants* (Minneapolis, MN: Milkweed Editions, 2013), 48.

[27] Julie Cruikshank, *Do Glaciers Listen? Local Knowledge, Colonial Encounters, and Social Imagination* (Vancouver: Seattle: UBC Press; University of Washington Press, 2005), 1.

[28] Jen Rose Smith, “‘Exceeding Beringia’: Upending universal human events and wayward transits in Arctic spaces,” *Society and Space* 39, no. 1 (2020), 14.

[29] Smith, “‘Exceeding Beringia’: 161.

progress—because it is hostile to settler building practices.

While frozen landscapes might be framed as a marginal and inferior type of soil, in northern Inuit communities, sea ice is considered essential for traveling, hunting, and fishing, thus providing food, tools, and clothing. In Kangi-tugaapik on Baffin Island, the month of September, *Akullirut* is known as the “waiting season.” Hunters hunt ptarmigan and narwhal in open waters; people pick what remains of blackberries, blueberries, and heather while waiting for the ice to form. A “multi-year” sea ice arrives carried by currents from the north, indicating that the freeze-up season is underway. *Tusaqtuut*, the name for November, means “new time.” The sea’s freezing connotes a time of renewal because Inuit traditionally could travel more easily on sea ice in the winter than on the tundra in the summer. That meant that people were reunited, the news would arrive, and hunting would commence.[30]

[30] Shari Fox Gearheard et al., eds. *The Meaning of Ice: People and Sea Ice in Three Arctic Communities* (Hanover, NH: International Polar Institute Press, 2013), 16–17.

NOT ONLY I REFER TO THE SEA ICE AS A BEAUTIFUL GARDEN. MUCH OF OUR LIFE DEPENDS ON WHAT OUR GARDEN PROVIDES. I GREW UP HUNTING THE MARINE MAMMALS, AND THIS TIME OF YEAR (DECEMBER) I ESPECIALLY ENJOYED HUNTING FOR SEALS BY SETTING NETS UNDER THE ICE. I USED TO GO OUT WITH MY DOG TEAM EARLY IN THE MORNING AND WHATEVER I CAUGHT FED MY FAMILY AND THE DOGS...[31]

[31] Wesley Aiken, 2008, retired whaling captain from Barrow, Alaska, in Shari Fox Gearheard et al., *The Meaning of Ice*, xxxiii.

When considering Indigenous temporalities, Mark Rifkin offers a useful critique of an approach to time as an abstract, universal, homogenous measure of movement.[32] Settlers’ denial of Indigenous temporal sovereignty displaces Indigenous temporal orientations.[33] He suggests thinking about temporality as plural, as a possible copresence of varied ways of living time. The current scientific construction of permafrost and other icy landscapes is based upon settler temporalities that ignore, deny, re-order, or assault Inuit temporalities. Permafrost is understood as something to be “tamed” like other idealized soil categories, but its temporality escapes the scientific and colonial imagination of containment and certainty.



A gravel pad to level the ground by the Clyde River Health Centre. Courtesy of the author.

Soil and Displacement

Kangiqtugaapik, on the northeast coast of Baffin Island in Nunavut, was considered by Inuit an ideal campsite because of the 478-meter-high Black Bluff Hill that sheltered the area from the dominant winds.[34] In 1923, trading posts established the hamlet of Clyde River on that site and several Inuit families from Kimmirut, Cape Dorset, Iqaluit, and Pangnirtung were subsequently relocated there by the trading companies to increase the local population.[35] In 1953, Canada also moved Inuit families from Inukjuak (northern Quebec) and Pond Inlet (Baffin Island) to Grise Fjord and Ellesmere Island, although neither were traditionally inhabited by Inuit. This unjustified displacement, using Inuit as chess pieces in a geopolitical game, served to assert Canada's sovereignty over the Arctic Archipelago's northern islands, territorial claims that were deemed uncertain during the Cold War.

In Clyde River during the 1960s, government programs for education, health care, and eventually housing emerged under the umbrella of "welfare," pressuring Inuit to abandon their semi-nomadic lifestyle and settle into the hamlet. The houses were mostly built of scrap wood, canvas, and sod and other discarded materials from the Hudson Bay Company trading post and the Long Range Navigation station (LORAN). However, the settlement site of Kangiqtugaapik is considered unfit for expansion. Indeed, the site's proximity to the Black Bluff Hill, whose waters drain to the settlement's soil composed mainly of silt, fine sand mixed with clay, and gravel make it wet and unstable during the melt season.[36] In 1967, based on a soil analysis, a Toronto-based engineering firm declared that the site has become "uncontrollable" and pressured moving the hamlet to the west shore of Patricia Bay.

[32] Mark Rifkin, *Beyond Settler Time: Temporal Sovereignty and Indigenous Self-Determination* (Durham, NC: Duke University Press, 2017), 2.

[33] Rifkin, *Beyond Settler Time*, 16.

[34] Which translates as "a nice little inlet." *Qikiqtani Inuit Association, Qikiqtani Truth Commission: Community Histories 1950–1975, Clyde River* (Toronto: Inhabit Media, 2013), 9, [link](#).

[35] These trading companies were the short-lived Sabellum Trading and Gold Company (at Cape Henry Kater) and the Hudson's Bay Company. See, *Qikiqtani Inuit Association, Qikiqtani Truth Commission*.



Sled dog site, first settlement of Kangiqtugaapik (Clyde River) sheltered by the Black Bluff. Courtesy of the author.

Poverty, overcrowding, shortage, and disrepair are only a few of the housing legacies of settler colonialism. While the western site has offered the Kangiqtugaapingmiut community more space to expand, it also consists of unstable, discontinuous permafrost that resists Western building conventions. Kangiqtugaapingmiut also argue that this second town site is more exposed to dominant winds that wear buildings away. The history of community displacement had a violent impact on people’s social, cultural, and economic relationships to the land.[37] The choice of a dryer and more stable terrain was motivated by a desire for certainty, reflecting the top-down settler colonial planning processes in the arctic for which the ground resisted through shifting and unsettling buildings.

[36] Qikiqtani Inuit Association, *Qikiqtani Truth Commission*, 11.

Foundations within Uncertain Grounds

The climate crisis and the accelerated melting of arctic ice are the results of both the global cryosphere climate system and local engineering activities. Indeed, engineered landscapes and built environments affect the soil in terms of snow accumulation, sunlight absorption, and the fluxes of heat, water, and gases.[38] In turn, those effects on the soil pose an immense set of challenges for “maintaining the integrity of northern landscapes, ecosystems, and infrastructure.”[39] While water and ice in the soil cause shifting, settling, and movement of housing foundations, houses in Nunavut are designed with an implicit expectation that ground and permafrost will remain stable and, therefore, that the house will not move.[40] But of course, permafrost is thawing, and homes move as the saturated active layer becomes thicker and ice in the ground changes in volume.[41] Such a phenomenon leads to doors that don’t close, floors that slope, walls that crack, and, eventually, to more severe structural problems: building systems that fail, water infiltration, mold, and so on. [42] Traditionally, northern Indigenous dwellings avoided these issues by sitting lightly on the land.[43]

[37] Interestingly, the initial settlement on the eastern shore is still home for the community’s sled dogs, a remaining tether to a traditional way of life based on travelling and harvesting the land.

[38] The potential release of globally significant amounts of carbon via Arctic soil processes. Edward A. G. Schuur et al., “Climate Change and the Permafrost Carbon Feedback,” *Nature*, no. 520, (April 2015): 171–179.

[39] Warwick F. Vincent, Mickaël Lemay, and Michel Allard, “Arctic Permafrost Landscapes in Transition: Towards an Integrated Earth System Approach,” *Arctic Science* 3 (2017): 53.

[40] Department of Environment, *A Homeowner’s Guide to Permafrost in Nunavut, Keep Your House on Solid Ground* (Canada: Government of Nunavut, 2013), 2.

[41] Department of Environment. *A Homeowner’s Guide to Permafrost in Nunavut*, 3.

[42] Department of Environment. *A Homeowner’s Guide to Permafrost in Nunavut*, 4.

[43] Lola Sheppard and Mason White, *Many Norths: Spatial Practice in a Polar Territory* (New York: Actar Publishers, 2017), 184.



Foundation from left to right: thermo-syphon, steel footing under wood beam, adjustable wood cribs. Courtesy of the author.

An array of strategies has been developed to prevent the ground’s thawing, from insulation under the slab to thermosyphons.[44] Thermosyphons are passive cooling devices that, employing pressured heat exchange, draw out the heat from below the building.[45] Commonly, steel piles are driven into the

permafrost to support buildings, drilled at least two times deeper than the active layer's thickness.[46] Piles move by creeping (moving down) or frost-jacking (moving up) as permafrost warms or as the active layer gets thicker.[47] A less costly alternative is the use of adjustable screw jacks, sitting 2 feet above the ground on wooden planks or a thick gravel pad, preventing the building's heat from descending into the soil. The space under the house allows the wind to dry excesses of water and disperse the snow to avoid accumulation, which would naturally insulate the soil.[48] The screw jacks can technically be adjusted to level the house, distributing stress on the structure. However, in practice they are not always adjusted when the appropriate equipment is absent. The foundations made by the Kangiqtugaapingmiut for their cabins, workshops, and sheds—also called “wood cribs”—generally consist of a stack of wood, parts of which are added as needed to level up the cabin. They are effective because residents can regularly adjust the foundations with simple tools. Buildings tend to be close to the ground, proximate to but not quite kissing the topography of the site. Some foundations are even made like qamutiik: attached with ropes. [49] They do not require hardware and can be disassembled and reused. They are therefore flexible and adapt better to the ground's fluctuating conditions.

Building foundation strategies can be seen as settler colonial earth-writing because they articulate architecture's material relationship to frozen grounds. The concern for increasing the longevity of buildings runs alongside the conservation approach to permafrost. There is an inherent paradox in seeking certainty and stability where terrestrial conditions are changing dramatically. Perhaps the land is *literally* refusing colonial spatial and material practices. The permafrost might be reminding us that to hold us in space and time, buildings and their inhabitants must be in reciprocal relationships with the world. When describing an Indigenous conception of “Place-Thought,” Vanessa Watts argues that Anishinaabe and Haudenosaunee cosmology locate agency in a “place,” while the Western canon finds agency in human beings.[50] For Inuit, *nuna* is the Inuktitut word for “land” and means a holistic, extensive concept that relates to living things in a web of interconnections to their environment. [51]



[44] CSA Group, “Thermosyphon Foundations for Buildings in Permafrost regions,” Standard Council of Canada, 2015, [link](#).

[45] Igor Holubec, “Flat Loop Thermosyphon Foundations in Warm Permafrost,” Prepared for Government of the NT Asset Management Division Public Works and Services and Climate Change Vulnerability Assessment Canadian Council of Professional Engineers, 2008, i.

[46] Sheppard and White, *Many Norths*, 187.

[47] Department of Environment, *A Homeowner's Guide to Permafrost in Nunavut*, 4.

[48] Christine Harries, “The Future of Building Foundations in the Canadian North,” *Building Tomorrow's Society* (June 13, 2018), 1, [link](#).

[49] Qamutiik is the Inuktitut word for sleds designed to travel on snow and ice, built using traditional Inuit design techniques.

[50] Vanessa Watts, “Indigenous place-thought and agency among humans and nonhumans (First Woman

Qamutiik in Kangiqtugaapik, Baffin Island, Nunavut. Courtesy of the author.

Expendable Terrains

IN ORDER TO SURVIVE FROM THE LAND, YOU HAVE TO PROTECT IT. THE LAND IS SO IMPORTANT FOR US TO SURVIVE AND LIVE ON; THAT'S WHY WE TREAT IT AS PART OF OURSELVES.[52]

Like the sap of a maple tree, one might imagine the ground's expandable significance as it is thawing and freezing, pregnant with life and meaning. Concerns for the climate crisis force us to consider glaciers and ice differently, no longer as "frozen, safely distant, and largely inert." [53] As scientific knowledge has been privileged to monitor shifting cryospheric landscapes, Inuit have shared valuable knowledge concerning ice and the climate crisis. [54] Settlers bear a responsibility to not only listen to these forms of knowledge but also to follow Indigenous leadership.

While current architecture and engineering practices are intended to master permafrost and to resist cryoturbation, the problem of poor housing conditions in northern communities remains urgent and unresolved. [55] The failures of settler colonial capitalism, racism, neglect, underfunding, and corruption are exacerbated by the fact that building in the northern landscapes is challenging and expensive precisely because these methods are meant for different terrains. Tracing settler colonial earth-writing in the arctic and the construction of permafrost as a category of soil reveals the "ground" as the site of encounter between settlers, land, and Indigenous peoples.

Back to my apartment, back to the breach in the wall, the annual thawing of the soil is a reminder of the shortcoming of our temporal imaginaries and colonial literacies of the land. My street is paved over the ground's surface, containing it under sand, gravel, concrete, and asphalt whose cracks have become part of Montreal's landscape: bedecked in thousands of orange cones. The constant repairs are a stubborn attempt at silencing the land's movement, but as they say, "*sous les pavés la plage*"—beneath the pavement, the beach!—to dream of a city of liberation. [56] The crumbled streets, the breached wall, and the sinking building are signs of land's deep time: not a passive land but one that resists its occupation by shifting, moving, talking, writing.

and Sky Woman go on a European world tour!)," *Decolonization: Indigeneity, Education & Society* 2, no. 1 (2013): 21.

[51] George Wenzel, "From TEK to IQ: Inuit Qaujimaqatunqit and Inuit Cultural Ecology," *Arctic Anthropology* 41, no. 2 (2004): 239–251.

[52] Mariano Aupilaaijuk, as quoted in Suzanne Evaloardjuk, Peter Irniq, Uriash Puqignak, and David Serkoak, "The Land," in *Uqalurai: An Oral History of Nunavut*, edited by Bennett John and Rowley Susan (Montreal: McGill-Queen's University Press, 2004), 118.

[53] Julie Cruikshank, *Do Glaciers Listen? Local Knowledge, Colonial Encounters, and Social Imagination* (Vancouver; Seattle: UBC Press; University of Washington Press, 2005), 6.

[54] Department of Environment, "Upagiaqtavut Setting the Course, Climate Change Impacts and Adaptation in Nunavut" (Iqaluit: Government of Nunavut, 2010), 13, [link](#).

[55] Nunavut Housing Corporation, "Nunavut Housing Corporation's Appearance before the Standing Senate Committee on Aboriginal Peoples," March 23, 2016, [link](#).

[56] Slogan from the May 1968 protest movement in France, coined by the student Bernard Cousin.