Ice and Granite: An Architecture for Yellowknife

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by

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Abstract

A significant portion of the built environment in Yellowknife, Northwest Territories, fails to suit the climactic, topographic and cultural location practically as well as poetically. This thesis posits that a greater understanding of a place should result in an architecture that is more appropriately suited to that place. An architecture which embraces Yellowknife, its climate, landscape and people, and is designed with a greater understanding of place can alleviate some of the negative aspects associated with living in the north. Part One of this thesis examines select local phenomena including the landscape, seasons, and social conditions in order to gain a deeper understanding of place. Part Two details a design for a community building with a theatre, observation gallery, and a sauna, for the city of Yellowknife.

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Fig. 1. *North America*, ©2007 Google ©2007 TerraMetrics, NASA

Fig. 2. *Yellowknife*, ©2007 Google ©2007 TerraMetrics, NASA Part One

Fig. 3. *The Web*, 2006, by the author

Arrival

It is mid afternoon in December, during the last ten minutes of the flight into Yellowknife.¹ Across the aisle a woman prepares for landing. She wears her parka and holds a pair of mittens as well as a muskrat hat in her hand. The airplane approaches the

¹ Yellowknife is located on the North shore of Great Slave Lake and the capital city of Canada's Northwest Territories. On the Canadian Shield, Yellowknife experiences a semi arid, sub arctic climate. Initially settled by gold miners in the 1930's today Yellowknife's population has grown to close to 20,000. As the territorial capital, Yellowknife enjoys recreational and cultural buildings and institutions that are usually not found in towns of comparable population.

city from the south crossing over Great Slave Lake. At this time of year the lake has only recently completely frozen over. On an overcast day like this, the ice is featureless, flat white, and even from this height it, extends to the horizon. The ice will cover the lake until the end of June.

The flight passes over countless islands before hitting the north shore of Great Slave Lake. Some of the islands are large and you might even see a cabin or a canvas tent on one. However, most are just big enough for a few scrag spruce trees or bare rocks for gulls to sit on. Once over the mainland, the airplane flies low. There may be a snowmobile trail linking lake to lake but there are no grids of farmland or satellite suburbs to indicate the approaching city. There is only the “labyrinthine web” of lakes and trees.² Then the runway suddenly appears and from the window across the aisle you can glimpse the red capped “head frame” of Con Mine.³

You exit the aircraft directly onto the tarmac. The air here is dry all year round, but it is especially so in the winter. As you descend from the airplane the sudden sharpness of the cold dry air stings your nostrils and makes your eyes water. The metal railing of the stairs is too cold to hold with bare hands. The locals walk slowly and

² Norberg-Schulz, Christian. Nightlands: Nordic Building, Cambridge: The MIT Press, 1996. P.43

³ Head frames are towers constructed housing the cables and machinery supporting the elevators that descend into the mine shaft. In Yellowknife, head frames mark the entrance to the mine and are some of the tallest structures in the area visible for many kilometers away. In the Yellowknife area there are several head frames, some remain from the earliest mining operations in the area while others are quite modern and recently were used in day to day mining operations. At this time none of the mines in the vicinity of Yellowknife are in production.

casually to the terminal to show that they are not bothered by the cold. Visitors snap a picture of their first moment in the north and then hurry to get inside the building.

The airport terminal is unremarkable, with grey and blue metal siding, an economical material. Passengers stand under the diorama of the polar bear and seal while awaiting their bags. The Japanese tourists gather around a guide who is holding a sign in foreign characters. As soon as their bags are collected they will get on a bus that will take them to their hotel. At the hotel they will be issued their identical red parkas, snow pants, and heavy winter boots. The terminal is bustling with passengers and those offering rides into town. Ten minutes after the bags are unloaded the airport will be deserted until the next flight comes in.

Fig. 4. *Dusk*, 2006, by the author

The City

There are two routes into the city from the Yellowknife airport. The Old Airport Road ironically takes you into the newest parts of Yellowknife. After the warehouses and car lots you pass the Wal-Mart, the McDonald's and the entrance to the new subdivisions. A straight speedy section with a rock cut and a tree planted meridian creates a buffer zone that separates the newer developments and the older downtown area. The road is busy

when commuters head into the city in the morning and leave in the evening. The road becomes the main street of the downtown core and it slows down where the parking and businesses start. The brief density of the downtown is about one block wide and four blocks long. The main street speeds up again as it starts downhill towards Old Town and Great Slave Lake. The long downhill is rolling and uneven from shifting frost heaves. This downhill with a fenced-in neighbourhood on one side and a large rock outcropping on the other side makes another in-between zone that exists neither as part of the downtown nor the Old Town.

The alternative route is the highway that circles around the edge of a lake and is the most direct route to the downtown core. You pass the power plant building and the visitors centre before the main strip of the city. The streets are covered with gravel instead of salt. The layer of compacted snow is splattered with greens, greys, blues and pinks from various mechanical fluids. The spit and spills on the sidewalks consist of many of the same colours.

Fig. 5. *Stone With Lichen*, 2006, by the author

Twin Pine Hill

Twin Pine Hill in the centre of the city is one of the largest and most used rocks of Yellowknife. It is so steep and smooth and from some directions it is impossible to climb. There is something immensely pleasurable about pressing your skin against the smooth warm granite. “In the north, life does not ensue on the piazza but in the house, and this entails that intimacy, and warmth are more important than representative

grandeur.”⁴ Instead of sitting on the piazza during pleasant weather, people in Yellowknife take a hike across one of these rocks or they go to their cabins in the bush. The hill is an unofficial park in the city. The hill is bounded by roads and there are a few buildings pressed up against it, but the hill itself has escaped development. The unbuilt disruption in the city fabric provided by the rock has created an ambiguous zone that marks the transition between the Old Town and the downtown.

From a window that overlooks Twin Pine hill one is able to observe various people that climb upon it. Once the snow has melted, it is not uncommon to see people climbing to the highest point for the view over the bay. Sometimes there is a group of people and they point and gesture, talking about the houseboats or maybe the island that has the howling dog teams on it. At other times it is maybe just a single person, sitting and pondering, and perhaps smoking a cigarette.

On a warm afternoon in the summer you may even observe a distinctive man. This man is difficult to see once he has settled into his spot on the rock. However, you might catch a glimpse of him as he hikes to his spot. This man likes to sit in the sun, take off his shirt and have a few beers. Always alone, and always with a pail of ice, he sits in a depression, out of the breeze absorbing the warmth of the sun. When you take a walk across the rock, and you see the cars drive by below, you cannot help but wonder how many people are staring at you from the twenty-story apartment building behind or the

⁴ Norberg-Schulz, Christian. Nightlands: Nordic Building, Cambridge: The MIT Press, 1996. P.22

houses below. Do the people in the float planes see you as they fly low on their approach to the bay?

There are no defined trails on Twin Pine Hill. Maybe this is because it is technically private property. Or maybe it is because it takes centuries of traffic to wear a path into granite. But there are ways across the rock and ways that take you onto the rock. To climb to the rock, you must try to stay on clear rock and out of the trees. The entire rock is covered with shards of glass from hundreds of shattered bottles. But in the trees it is mossy and in the spring you will get soakers. The spiders like to string their webs between trees and out of the breeze the mosquitoes are fierce. The squatters set up their makeshift tents in the trees. You find old mattresses, plywood, discarded clothing and decaying magazines in there. But the trees are only in the low areas, so you stay up high on the rock where it is easier to walk.

The winter is completely different: nobody climbs the rock in the winter. The snow covers up the paths and the wind makes it impossibly cold to sit around at the top of the hill, regardless of the outstanding view. The fox is the only thing that you will see on the hill in the winter. The fox and the ptarmigans that she is hunting.

Fig. 6. *Head Frame*, 2006, by the author

Head Frame

From almost anywhere in the city one is able to see two things: water and the Con Mine “head frame”. On the Canadian Shield, lakes and ponds are unavoidable. A large band of rock separates the Old Town from the downtown. Frame Lake separates the downtown from the newest section of the city. The distinctive blue of the water glimmers from the gaps between buildings or at the far end of a street. A trail system rings the nearby lakes. To escape the city and get out onto the land, a mere ten minute walk from virtually anywhere in the city brings one to the city limits. The head frame is a black, white, and red tower located at the southern edge of the city. By now the city has grown right up to the edge of the Con Mine property.

Flying over the mine site in the summer reveals just how close the blood red tailings pond is to the school and houses across the road. Head frames have become a symbol of Yellowknife. However, the head frame at the Con Mine doesn't look like the one on the city coat of arms. The Con Mine head frame is the tallest object in the area. The contrasting black and white with a bright red top lends it the qualities of a lighthouse. From out on Great Slave Lake it is a beacon indicating the entrance to Yellowknife Bay. From a hill top north of the city the head frame is the only evidence of human inhabitation.

Fig. 7. *The Range*, 2006, by the author

The Gold Range

The Gold Range, or the “Range”, an institution in Yellowknife, is a bar which has taken over an entire downtown street. When the gold mines were in operation, the Range was where the hard rock miners went on a Saturday night. The

street itself is busy, with lots of traffic and many shops. A group of teenagers mill around the mall entrance across the street. They smoke and spit while the mall security guard watches warily. Two doors down the street from the bar, a convenience store's heavy Plexiglas window is almost opaque from carvings, burns, and various stains and splashes. Next door, the housewares store has locked its painted plywood shutters for the night. Despite the somewhat shady reputation of the Gold Range it remains popular. It is mentioned in tour books and is one of the legendary sites of Yellowknife. The Range still has live bands, and open-mic jam sessions, and you will probably never hear top 40 played inside. Many would like to see the Range razed to the ground, but it is difficult to image Yellowknife without it.

This street is littered with cigarette butts. A man with no teeth and a missing hand smiles and asks you a question. You cannot comprehend a word he is saying but you understand he is asking for a cigarette. On a Sunday morning you will find broken glass and inevitably there will be a distinctive trail of blood on the packed snow. Following the drops you cannot help but try to reconstruct the scene in your head. Who was fighting? What happened where the trail stops? It is a bit like the fascination that causes people to gather around and stare at a car accident. Many who normally walk Range Road avoid it at night.

The Streets

The commercial space on the corner is where one will find the businesses that won't be there six months from now. A superstitious person might conclude that this particular rentable space is bad luck. Maybe it is because sometimes the homeless sit on a nearby curb. There is certainly a lot of traffic on the street. The French bakery was the only place to get fresh bread in town, but they didn't even make it through one year. The ice cream parlour was great for the summer, but not surprisingly, the winter was a different story. The Filipino restaurant was the only place to get a curry and it seemed pretty popular but they didn't last for very long either.

Fig. 8. *Left-Overs*, 2006, by the author

Old Town

The Old Town is not Yellowknife's centre but in many ways it is its spirit. It was the location of the first settlement of Yellowknife. Located at the bottom of a hill from the downtown area, it is mostly built upon bare granite. The granite foundation of the neighbourhood means that everyone has a storage tank for the weekly delivery of water by truck. The granite around Yellowknife presents an issue that many building lots of the city must face. The rock does provide a solid footing where available and many buildings sit on columns simply anchored to the stone. Where the rock is uneven or where it drops drastically the columns become stilts with great distances between the

underside of the building and the ground. Sometimes the rock can become the floor of basement and you can hear the spring melt water trickle through. Buildings on sites clear of the granite float in the soil. Houses built upon permafrost require special precautions to prevent the thawing of the underlying soil. In the past, buildings that disturbed the frozen layer settled catastrophically in just a few years. There are a few examples in the city where the rock formations on the building site have been used advantageously. The St. Patrick's Catholic High School has an assembly space where the sloping granite makes up the seating area, bringing the landscape inside the building. More recent homes simply blast the rock away and level it flat.

The first buildings of Yellowknife were mere shacks and cabins built out of whatever available materials. Driven by scarcity and ingenuity, left-overs and scraps were put to other uses. The saying that "every part of the animal has a use" extends to the decoration of many of the old shacks which collect trophies of old toilets and saws. The buildings are like magnets drawing all the old bits of iron and steel from the city. The Old Town possesses a rich character like a patina that can only be attained through the gradual addition and accretion that can only occur spontaneously without plan.⁵ Some of the oldest shacks have no electricity or indoor plumbing while right next door there might be a mansion with an indoor swimming pool. There are bed and breakfasts, restaurants, government offices, and float plane bases. From the shore of the lake you may observe, snowmobiles, taxiing ski planes, a pickup truck, a cross country skier, and a dog sled; all at the same time.

⁵ Guy, Wayne R. "Architecture of Accretion" in *Canadian Architect*, June 2003. P30

Yellowknife will probably never create another neighbourhood like Old Town. The new developments in the city are equally the product of the boom and bust, resource-based, economy of the north. Today's development is completely different. For instance, the construction and expansion of the city is more strategically planned. The zoning and building codes of today, make the type of mixing that exists in the Old Town impossible. The result is subdivisions that are no different than what is found in any Canadian city. There are the same cul-de-sacs ringed by three bedroom homes complete with grass lawns.

Old Town was influenced greatly by scarcity and isolation. Materials were much harder to transport to Yellowknife before a road connected the settlement to the south. Therefore, in addition to what was shipped once a year by barge, local trees were used along with whatever else could be found. Additionally, many of the oldest buildings of Old Town were constructed by the same people who would be living in them or using them, leaving individuals to come up with their own solutions to things like orientation, organisation or how to deal with an uneven site. It was a place where everyone could do everything. Now, much of the new development is built at the same time with all the same materials sent by truck almost anytime of the year.

A community of houseboats on Yellowknife Bay embody some of the characteristics that make up Old Town. There are a few new houseboats constructed from scratch, but many float on recycled barges or barrels. Most of the houseboats are

painted bright colours, yellow with red trim or pink with bright orange. One or two of the houseboats are continuously under construction: siding one summer, a new roof the next. Anchored close to an island, these home owners pay no property tax to the city. They chop their own firewood and generate their own electricity. The house boater paddles to shore everyday until winter when they drive their cars across the ice right up to their frozen in house. The fall and the spring bring a challenge when the houseboat dwellers must scramble across the uncertain ice clinging to the side of a canoe.

The conditions that shaped Old Town are not entirely gone. The city dump is just as much a place of exchange as it a place of disposal. Yellowknife's dump is well organised and it is open to the public. Residents come to find materials for their projects or just to see what kind of good stuff they might find. Some people stock up on material for specific purposes, others stock up just in case. A columnist at the local newspaper writes a weekly update on what kind of finds were made that. From time to time the municipal council talks about liability and hazards, but so far the dump is still open.

Fig. 9. *Frost*, 2006, by the author

Cycles

On the really cold and particularly windy days, tears from his watering eyes freeze on contact with the air causing his eyelids to freeze shut with each blink. With the lash pinched between the thumb and forefinger the ice is thawed and lid can again open again. He returns his hand as quickly as possible to the warmth of the glove. Keeping his shoulders tightly hunched he forces his nose as deep as possible into the collar of his parka. This forces him to stare down at the ground in front of his feet because to look up

exposes his neck and releases trapped warm air. The brisk stride turns into a run; short, quick steps that require minimal arm movement. All that matters is getting to the destination. The next day a small piece of dead skin peels off the tip of the ear lobe that was left exposed.

The mall is widely used as a warm short cut across the block. There are few franchise chains, and most of the stores inside are one of a kind. There is a flower shop, a store devoted to selling only baseball caps, a music store, some clothing stores, and several shops selling paintings, carvings, coats and other northern crafts. It is a warm enough place that people can stop and talk when they run into somebody they know. However, there is nowhere to sit down, for not buying and not moving is considered loitering. The mall security keeps a close watch and do not hesitate to move people along. There is also the question of what to do with ones' coat. The zipper can be undone to let in fresh air and a hat or scarf can be removed. Eventually, if one remains indoors, the coat will become too hot. One will begin to sweat and overheat. Then the coat must be removed and carried around. Ones hands are full, hats and single mittens are dropped and left behind. How many half pairs of mittens and gloves sit in the bottoms of bins and baskets at home? There is no heated truly public space in Yellowknife.

Fig. 10. *Ice Road*, 2006, by the author

Boom and Bust

Yellowknife grows in short bursts. Gold was discovered: gas was discovered: and diamonds were discovered. People arrive faster than proper accommodations can be constructed. The rise in population brings a rise in jobs, a rise in rents, and a rise in available drugs. Many opportunists have no intention of staying for long. They remain just long enough to make some cash, gain some experience, and have some adventures. However, the cliché story in Yellowknife is about the ones who intended to really only come for a year or two but are still in town twenty years later with families, careers, and

homes. Temporary, or at least transportable, trailer homes make up entire permanent neighbourhoods. Much of what has been constructed in the city was designed by people not from Yellowknife. The winter is changed into a completely negative experience. The landscape and climate are things to be shut-out and overcome. When the market is booming and when most people are buying, a trailer is the best many can afford. Single, transient workers do not put down roots and affordability and convenience are the top priorities.

The north has always been a land of travellers and explorers. They came first following game and then later to stake territory. The endless lakes and rivers are still used today as transportation infrastructure. It is easier to travel across a lake or along a river, either solid or liquid, than hiking through the trees and deep snow. The diamond mines north of Yellowknife rely heavily on a winter road that is largely comprised of lakes linked by portages. The only road connecting Yellowknife to the rest of the world bridges the Mackenzie River by ferry or by solid ice. The freeze up and spring thaw render the highway temporarily impassable reminding Yellowknifer's how much they rely on the outside world for fuel and fresh groceries. The bush planes that opened up the north would have been useless without the unlimited lakes of the region to use as landing sites. The bush planes are continuously in service, hopping from lake to lake, delivering people and supplies. The area is filled with camps for exploration, working and for recreation. The airplanes switch from pontoons to skis depending on the season.

The bush pilot only recently earned his full commercial license. When there is a slow day at the camp he starts up the Cessna and repeatedly takes off and lands while one of the camp hands films it all. Later, at home he reviews the tape to scrutinize his technique. Bush pilots used to enjoy a certain mystique and respect. Today, in this town, the pilot finds it is the helicopter pilots who get all the women at the bar.

Being so far out of the way mean that visiting entertainers are uncommon special events. Once in awhile a band will make their way up to the city and put on a show at the arena. Despite the poor acoustics and regardless of whether or not they are fans of the music, people will show up because it is an event. Throughout the year theatre groups put on productions, as well as the high school drama programs. The main theatre performance space in Yellowknife is in the high school.

Fig. 11. *Light Study*, 2007, by the author

Microcosm/Macrocosm

The granite shield of the area becomes a scaleless matrix that extends infinitely.⁶ The cracks and fissures become lakes and creeks, the various mosses and lichens stands of birch and forests of spruce. There is even a species known as map lichen. The rock reads almost the same from one meter in height as it does from one kilometre in height. The satellite and the magnifying glass reveal the same pattern. Taking the traced pattern

⁶ Norberg-Schulz, Christian. Nightlands: Nordic Building, Cambridge: The MIT Press, 1996. P.43

from a portion of granite I made a cut out from heavy paper. By making a few subtle bends and manipulating the light, I could create photographs that reveal the lakes and outcroppings of the Yellowknife landscape.

Fig. 12. *Sunset*, 2006, by the author

Light

The landscape is distinctive, but the distinguishing feature of the North is the light. The extremes between the winter and summer light, as well as the entire range in

between create a constantly changing quality of light in the North. Corresponding with each variation of light is a different mood. Therefore, the northern landscape is inherently a place of moods and emotion through light conditions. In the uncertain light senses other than sight become important.⁷

Before the darkness of the winter comes the greyness of fall. By the end of August one will find a thin layer of ice over puddles in the morning. After a few frosty nights it is ideal for picking cranberries that cover the forest floor in good patches. The wild berries are bright red and tiny compared to frozen ones found in the freezer at the grocery store. The plant grows close to the ground like a mat with green leaves smaller than the fruit. When the clouds part, the lakes become a very cold blue ringed by dead, bright yellow grasses. The birch leaves, which have turned a golden colour, are quickly blown to the ground. Everything is bright and sharp in the autumn sun. However, most days will be overcast and everything will be dull browns and greys, as the temperature drops. The ponds and lakes begin to freeze over; people get out there toques and gloves. The unfortunate ptarmigans will turn bright white, becoming easy prey, while they wait for the first snowfall for camouflage.

Yellowknife is below the Arctic Circle so that there are never periods of 24 hour darkness or light. However, in December the sun does not rise until after 10:00a.m. and then it sets shortly after 3:00p.m.⁸ At this time of year the light comes at a low, flat

⁷ Norberg-Schulz. *Nightlands: Nordic Building*, Cambridge: The MIT Press, 1996. P.2,3

⁸ Time and Date AS / Steffen Thorsen. 1995-2007. "Sunrise and Sunset in Yellowknife". Aug. 23, 07 < <http://www.timeanddate.com/worldclock/astronomy.html?n=678>>.

angle. On cloudy days, the sun shines briefly while setting as it passes below the level of the clouds and the horizon. The low angled light highlights the trees across the bay and causes them to glow red. This sun, for a brief minute or two, penetrates deeply into buildings on a nearly horizontal trajectory. The light is blinding and despite the preciousness of sunlight in the middle of the winter, closing the blinds seems like an option. The angled ceiling of the high school foyer takes advantage of this light by catching these rays and reflecting them downwards inside the building.

The winter sun is so weak that it provides little sense of warmth to the skin. Overcast days feel warmer than the clear days, especially at night. The sharpness of the stars and the aurora borealis somehow enhance the cold. The cloud cover is like a blanket that holds warmth close to the city. The reverse is true in the summer, when the clouds create a cooling shadow. The length and trial of the season makes it seem the oldest of the seasons, as well as the last of the seasons.⁹ For many the world shrinks to their office and the living room and of course their bed. Before the onset of winter many of the bird species migrate south. The ducks, robins and gulls leave the ptarmigans and the ravens behind for warmed abundance elsewhere. Other creatures hibernate and sleep away the dark months.

⁹ Bachelard, Gaston. The Poetics of Space, trans. Maria Jolas. Boston: Beacon Press, 1994 ed. P. 41

Fig. 13. *Main Street*, 2006, by the author

Cold

It is close to four in the afternoon. It is dark and his legs burn because he thought snow pants would look dumb. Clenching and unclenching his fists inside of his mitts, he tries to keep his fingers warm. The pickup trucks on the street emit pinging sounds from the gravel they throw up. A trail of vapour and exhaust hangs behind after the cars pass. A layer of hard, shiny, compacted snow coats the sidewalk. Down the middle of the road

are four strips, the width of a tire that remains clear. His footsteps squeak against the snow at a pitch that corresponds to the temperature. The colder the day, the higher the pitch of the crushing snow.

To warm up he heads into the coffee shop which is beneath one of the downtown towers. The cafe roasts its own beans and gives them names like Wolf's Breath and Bush Pilot's Blend. However, the names are unreadable because the temperature change has fogged over his glasses completely. In this situation he can wipe the lenses with the bottom of his shirt, wave the glasses around allowing the rushing air to warm the lenses, or just leave the glasses on and hope that the warmth from his face thaws the lenses. The lenses always thaw from the centre outwards. Perhaps the frame holds the cold longer than the lens material. The same thing happens when he breathes on the glasses outdoors, or when he tries to warm his nose under his scarf. Finally, when enough of the lens is clear he approaches the counter to place his order.

Fig. 14. *Aurora*, 2006, by the author

Aurora

There is a certain intimacy to the winter season. The darkness shrinks the world. The full moon reflecting off the snow and ice casts shadows. The dogs howl in the winter night, but only seem to bark in the summer. It takes the coldest heart of winter to

fully appreciate the snugness of home. “When the shelter is sure, the storm is good”¹⁰. There is a stillness during winter that does not exist in the other seasons. The aurora borealis are an almost nightly occurrence. The light from the city interferes with everything in the night sky and buses take the Japanese tourists out onto the frozen lake for optimal viewing. Most often the lights are unremarkable. They shift slowly in a shade of green that can once in awhile be difficult to discern from a cloud. But when the aurora fill the sky and ripple with pinks, and blues they are mesmerizing. The story is that the aurora are the spirits of the deceased, either dancing or playing a ball game in the sky. Whistling at the aurora agitates and annoys the spirits, provoking them to come lower and lower until the lights sweep beneath you dooming you to fall into infinity. The combination of lively aurora overhead with the howling of the dogs sends shivers down the spine.

The cold weather forces Yellowknifers indoors. Travelling anywhere takes planning and preparation; whether it is checking the weather report to see if long underwear are required, or warming the car engine, it takes extra effort to get out of the house. The perpetual twilight and darkness mask the passage of time.

¹⁰ Henri Bosco in The Poetics of Space by Gaston Bachelard p.39

Fig. 15. *Snow*, 2007, by the author

Snow

It is not until the spring, when the sun climbs higher in the sky, before it begins to feel warm on the skin again. The reflection of the snow necessitates sunglasses and sunscreen. Spring is the best time of the year to enjoy wintertime activities before the snow melts. Then suddenly, it only takes a day or two and the snow disappears. The sound of running water is everywhere. Birds arrive from thousands of kilometres away.

The summer is bright with an excess of light. People emerge from their homes and get outdoors. When it is light 24 hours a day traditionally one worked and remained active until they felt tired enough to sleep. Bedroom windows are covered with tinfoil.

Buildings that have been designed to hold heat in and seal out the outdoors become stuffy and hot.

The seasons are the constants that mark the passage of time. “We can never be sure what the day will bring. But we know that spring will come, and we greet it as an explanation.”¹¹ In terms of indicating when to wake up and when to go to sleep, daylight is not reliable. During extremes of the season, 10a.m. is only slightly different from 10p.m. The natural inclination during the winter darkness is to sleep, and the summer is the time for activity. Life relies on a foreign and abstract system of time for guidance on when to eat, sleep and work. Some claim that no matter how light or dark they can sleep without any difficulty. There is a story of man who worked on a barge on the Mackenzie River. To avoid the disruptive midnight sun the barge worker went to a storage room without windows to take a nap. The man awoke days later.

¹¹ Norberg-Schulz, Christian. Nightlands: Nordic Building, Cambridge: The MIT Press, 1996. P.6

Fig. 16. *Forest Fire*, 2006, by the author

Fire

The long days of summer also bring smoke. The tinder dry boreal forest is ignited by the lightening from summer thunderstorms. The forest fires tens of kilometres away and hundreds of kilometres away send smoke to fill the city so thick that the far side of the bay is lost. The sun filters through the red haze casting eerie and strange shadows. The smell of burning wood irritates the eyes but it also reminds one of the pleasing warmth of a campfire or a woodstove. The warmth of a summer day with the strong smell of smoke is exciting, a hint of danger and the power of nature. Water bombers fly out of the city daily. The aircraft fly in a straight line formation towards the distant horizon.

Fig. 17. *Labrador Tea*, 2006, by the author

Ground

The ground is covered with moss, every plant has green leaves. The forest smells like Labrador tea¹², spruce sap, or sweet from willows. It is best to travel along the exposed granite whenever possible. The rest of the ground is likely spongy and wet. The breeze disappears, and the mosquitoes swarm in. Pushing through the thick brush with increasing urgency dry branches scrape exposed flesh. The squishing moss gives a

¹² Labrador Tea (*Rhododendron groenlandicum*) is a highly aromatic, low shrub that grows in the peaty soil of the woods. Labrador Tea can be brewed to make a fragrant tea with some medicinal qualities.

soaker and threatens to roll an ankle. The wanderer emerges onto the roadway sweaty and swatting. He hurries to find some wind where he can scratch the itching bites.

Part Two

Fig. 18. *Site Exploration*

The Site

An analysis of aerial images of Yellowknife also reveals areas of the city where the landscape has created areas of sparse development. These interruptions of rock and lake also coincided with shifts in the urban fabric, representing separate stages of the city's settlement. Three of these threshold conditions were identified as sites for the thesis design project.

The first site located next to Great Slave Lake was for a bird blind for the observation of birds that temporarily settle in the bay during their annual migration. The site located along the recreational trail system was another observation shelter, this time shielding observers from the wind while they watched aurora borealis. The final site was a rock outcropping in the downtown area that was to have a cut through it producing a lantern (see Fig. 18).

As the project progressed, I initially kept these three sites with the intention of having a building with a distinct program for each location. With three different sites the project could stimulate and contribute to more areas of the city and potentially affect more residents. However, as the project developed it became clear that the separate programs reinforced and supported each other as a single building.

Fig. 19. *Site Plan*

The site next to Great Slave Lake was settled on for the final project located nearly halfway between Old Town and downtown Yellowknife. Although Twin Pine Hill is not public property it is widely used as such. The hill is a quintessential part of Yellowknife and clearly holds great significance for inhabitants of the city. The site for the proposed building project lays directly next to the granite of Twin Pine Hill, between the rock and Great Slave Lake, a threshold between granite and water, two great landscape events that are also major components of the landscape matrix. Here, the rock

from the hill plunges steeply into the earth, leaving the remainder of the land, before the lake flat and sandy. A gravel road runs along the eastern edge of the site next to the lake.

This site was once the location of a small group of trailer homes, but is now cleared, except for a municipal pump house, a neighbourhood recycling bin, and a small park with trees and a swing set. Across the road is another city park, the access to a winter ice road, a few houses, and a low, flat marshy area populated by willow trees.

At nearly any time of the day all year round, there is a car or truck pulled into the park across the road. Often it is simply people coming to eat their lunch or dinner with a view of the lake. At other times, it could be someone letting their dogs run loose on the lake for exercise or maybe a couple kissing at the romantic look out. The beginning of the winter ice road across the bay to Dettah passes directly through the middle of this park.¹³

¹³ Dettah is a small aboriginal community across the bay from Yellowknife. There is a year round road that circumnavigates Yellowknife Bay. However, a winter time ice road is much more direct and turns a twenty minute drive into a five minute drive.

Fig. 20. *Massing Model in Site*

Proposed Building

Twin Pine Hill is well used by Yellowknife's and it should remain open, free of development in order for it to remain available to the public. Therefore, the proposed building anchors itself to the hill but avoids constructing directly on the hill. The architecture should become an extension of the rock and the landscape, building "into the

landscape” as architect Mario Botta puts it.¹⁴ Also by connecting a significant cultural, community building to the hill it will perhaps influence further development on the hill encouraging a greater evaluation of the site.

The proposed project is a community building containing a theatre, a gallery for sky watching, and a sauna bath. The theatre provides a venue for the community of various musicians and performance groups of Yellowknife. Creating and performing make an event; giving Yellowknifer’s something to do, breaking up the monotony of the colder months. In addition to entertainment, the theatre is place of cultural production and mental stimulation. “Only a living culture, at once faithful to its origins and ready for creativity on the levels of art, literature, philosophy, and spirituality, is capable of sustaining the encounter of other cultures”.¹⁵ The observation gallery showcases the aurora borealis which draw tourists to Yellowknife from around the world and are distinctive experience in the city. Further, the gallery provides a warm place for Yellowknifer’s to meet outside of a bar or the mall. The gallery is a wintertime piazza at a more intimate scale. Finally, the sauna is for bodily comfort and individual relaxation, providing relief from the cold and an environment for deep introspection and thought.

¹⁴ Frampton, Kenneth. *Towards a Critical Regionalism: Six Points for an Architecture of Resistance*, in Labour, Work, and Architecture: Collected Essays on Architecture and Design, New York: Phaidon Press Inc., 2002. P.86

¹⁵ Ricoeur, Paul. History and Truth, Trans. Charles A. Kelby, (Northwestern University Studies in Phenomenology and Existential Philosophy, Gen. Ed. John Wild) Evanston: University Press, 1965. P. 283

A long cast in place concrete wall running south to north anchors the building to the granite. Formwork from the casting will leave imperfections and wood texture to reflect the character of the granite's aged face. This wall creates a void between itself and the rock face generating a more intimate space focused on the site.

Fig. 21. *Entrance Plan*

The entrance of the proposed building leads into a transition space that is dim and cave like. The open room is the size of the theatre above and forested with concrete

columns. An open gap between the outer concrete wall and the building above permits light during the day. A large fire place lights the space in the winter when it is lit and forms the north wall of the room. A concrete bearing wall forms the south wall of the room and the exposed rock of Twin Pine Hill creates the final enclosing wall. In spring, melting snow running off Twin Pine Hill will collect in the pool under the theatre. The shadows of this space are enhanced by reflections from a pool within, like the gold inlay of Japanese laquerware.¹⁶ The concrete, granite, and liquid surfaces produce echoes and pronounce the sounds of water running down the hill and through the rock. The space is filled with the smell of wood smoke and raw granite and lichen. In the winter, the reflections are replaced by the dynamic shadows cast by the fire. The space is intended to be cool and a gradual transition from the outdoors with only a fire place to provide heat. The winter cold freezes the pool providing a bridge to a set of stairs cut into the granite face of the hill. These stairs are the winter entrance to the theatre and gallery above. In the summertime, when the pool is liquid, a separate set of stairs is available that run just behind the concrete outer wall. The summer entrance fills with drifting snow during the winter.

¹⁶ Tanizaki, Jun'ichirō. In Praise of Shadows, Trans. Thomas J. Harper and Edward G. Seidensticker, London: Jonathan Cape, 1991. P.

Fig. 22. *Theatre Section*

Theatre

Ascending the rock stairs one arrives at the upper level of the building where the performance space and the gallery are located. The southwest corner of the building, where the winter stairs end, cuts into the slope of Twin Pine Hill. Cutting into the rock anchors the building to the site and brings some of the landscape into the theatre. The winter, as well as the summer stairs land at a lobby area on the second floor. The lobby serves the performance space as well as the gallery. There is a coat check, washrooms and access to a café for refreshments. The theatre space is in the middle of the slab with the stage at the north end. Behind the stage are rooms for performers, some storage, and a workshop area.

Fig. 23. *Gallery Section Detail*

Gallery

Clipped onto the second level, at the southeast corner of the building facing towards the darkness of the open lake, is the night sky observation gallery. The rock of Twin Pine Hill provides a natural shield against light from the city. The absence of physical barriers on the lake side of the site provides the building with optimal viewing conditions of the aurora borealis. After an indoor performance in the theatre, patrons can

lounge as they take in the performance of the night sky. The gallery facing east and south is a warm place where the public can observe the aurora for longer periods of time. The gallery is open to the public and it is equally for locals as it is for tourists. It is intended for the gallery to remain open and accessible after the theatre is closed and locked. It is dark in order to minimize reflections on the large floor to ceiling windows. The back wall of the gallery contains coat hooks and shelves so that patrons may remove their outdoor wear and not be forced to carry it around. Built in seating encourages people to linger and chat while they observe the night sky.

The rooftop of the proposed building is accessible as an extension of Twin Pine Hill. A ramp from the hill behind the building connects directly to the roof providing access without entering the building. Alternately, the roof is accessible via the enclosed, ramping, observation gallery. The roof is a continuation of the municipal parks in front of the building. The sky watching gallery below is primarily for wintertime use while the roof above is for the summer. It is a place to enjoy the breeze and sun. An area that functions as a stage is situated so that the evening and afternoon sun is behind the audience. The surface is sloped to take maximum advantage of the sun and the curtain tower is located to the north so as not to cast a shadow on the roof and to block the prevailing northern wind.

Figure 24. *Sauna Plan*

Sauna

When cold, the human body tenses its muscles and shivers to vibrate and generate heat. When warm, the muscles relax, and in order to keep cool the body sweats removing toxins. The sauna has a precedent in northern countries. Particularly in Finland where the sauna has existed for thousands of years and is an integral part of the Finnish identity. Not only are saunas physically relaxing and pleasurable, especially in the winter when it is cold, and can even become a type of spiritual experience. Native North American sweat lodges are a type of sauna that is practiced more as a method of healing physical ailments as well as psychological troubles and a way to reach reconciliation, as well as a way to communicate with the cosmos.¹⁷

¹⁷ Bucko, Raymond. A. The Lakota Ritual of the Sweat Lodge: History and Contemporary Practice. Lincoln: University of Nebraska Press, 1998. P.4

Traditionally, the sauna was constructed at the edge of the homestead clearing as close as possible to the forest.¹⁸ The sauna in the proposed building also physically stands apart from the rest of the construction, yet remains attached by the outer wall. The sauna is entered via a pathway running along the inside of the concrete outer wall accessed from the main reception area of the building. The sauna is divided into a dry zone for changing, a wet zone for showering and lounging, and the hot area of the actual sauna bath. The layered zones fulfil the practical needs of changing and practical preparation for the bath; they also distance the bathers from the outside world. Further, the exit from these the zones allows one to physically cool down, before redress, as well as give bathers a chance to decompress and prepare for the return to their daily lives.

The dry zone is primarily for changing and the storing of ones clothing. This area of the sauna is bright, allowing plenty of daylight into the room. Having removed ones outdoor clothes and left the changing room, they enter the wet zone. The wet zone mediates between the dry changing area and the actual saunas. There are showers for cooling down and cleaning off as well as seating for lounging between rounds in the heat of the sauna. The wet room is warm enough to remain comfortable in a bathrobe or less. The floor is tile with wood sections.

¹⁸ Edelsward, L.M. Sauna as Symbol: Society and Culture in Finland, Series XI, Anthropology and Sociology, Vol. 53. New York: Peter Lang, 1991. P.6

Fig. 25. *Sauna Study*

The actual saunas aligned in a row which are roughly 3m by 5m and intended for more intimate groups. They may be shared by strangers, a family, or a small group of friends. To get to the individual saunas, bathers must pass outdoors across a bridge spanning a pool that separates the saunas from the wet lounging area. There are stairs into the outdoor pools so that bathers may cool in the pool between rounds in the sauna. Earlier in the winter, bathers may break through the layer of ice on the pool, or they can use drifting snow when the ice is too thick. Every sauna is provided with a pail to bring water as well as wood for stoking the stoves inside.

The heat in the sauna actually radiates from stones heated by woodstoves. There is a density to the heat. The sauna is dark and heavy, an intimate and sensual space with wood making every surface. The sauna may be deeply introspective and personal or highly social and bonding. The close, hot room of the sauna contrasts with the wide open landscape outdoors. Alternating between the extremes of hot and cold, inside and outside

is an important step of the sauna experience. It is stimulating and reviving, a confirmation of life.

After the sauna, bathers return to the wet lounge where they may relax for a period and continue conversations with their fellow bathers. They may share a snack or refreshments. If they desire, bathers can rinse in the shower then proceed back to the dry room. Once re-clothed the bathers complete their return to daily life and exit the sauna.

Conclusion

Yellowknife is not the easiest place to live. The city does experience long, and at times, unpleasant periods of cold, dark winter. However, the city of Yellowknife is vibrant with a rich and complex character. Describing and observing familiar places and events has led to recollections of details forgotten as well as discoveries of phenomena which had previously escaped notice.

It is problematic when a winter climate becomes the sole condition for architectural speculation. In creating buildings that shut out the winter above all else, the human occupants that the architecture is designed to protect are often forgotten or ignored. If one has never gone for a hike over one of the bare granite hills of the city, or observed those who lounge on them for hours, they can not imagine them as anything but barren and hard, covered with scratchy, twisted trees. Through the complete negation of the climate, this architecture also negates the landscape, both of which are defining characteristics of the place.

A greater understanding of a place should result in an architecture that is more appropriately suited to that place. For example, when looking at the territorial courthouse downtown, nothing about the building reveals any indication of the near nightly occurrence of aurora borealis. Through the blasting and clearing of the undulating granite, homes in Yellowknife's newest subdivisions also destroy evidence of any

connection to the landscape. How can a resident of Yellowknife dwell poetically as large parts of the city deny the conditions inherent to the place? In the design of the proposed building, I hoped to incorporate the seasons and the changing landscape into the project. Accepting their conditions and using them in an advantageous manner rather than fighting them. The building will also take advantage of phenomena that are unique to the city, such as the aurora borealis and the granite rock of Twin Pine Hill. Thereby characteristics Yellowknife can become contributors to the sense of place and identity rather than undesirable and unavoidable facts of life.

It is my belief that an architecture that accepts and integrates with the place where it is built affects the community. Key to designing such architecture is deep understanding of the place, achieved through careful observation and description of local people, events, history, landscape, as well as climate.

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Appendix

Ground Floor Plan

Second Floor Plan

Longitudinal Section

Cross Section