

A Fable of Lost Volumes

by

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Abstract

“A Fable of Lost Volumes” is a spatial investigation of scale, history, and experience in a unique industrial mining landscape that is slated for closure in the year 2022. The project explores memory, time, and landscape in the design of a future library and museum in post-extraction Flin-Flon, Manitoba. The work focuses and touches on a series of questions and themes, informed by ideas of the Anthropocene – namely how our landscapes are complex and interwoven with human and non-human relationships, economies, and ecologies – how we identify and construct meaningful associations with places and artifacts– how memory might become spatial – and a way to think through and experience a shared history.

This thesis uses a catalogue to comprehend the nature of artifacts and memory, allowing the production of a series of architectural moments to preserve the legacy of Flin Flon. The design project is an eco-tour of the Anthropocene that forms a dialogue between memory and the landscape, history and the human, deep time and lived experience.

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To Michèle, for being patient, I am deeply indebted and grateful for all the love, emotional support and the countless help you have given me. This thesis would not have been possible without you.

To my wonderful parents, Bijan and Nazanin, and my brother, Alipasha, for their unconditional love and exceptional support to complete this milestone. Thank you for pushing me this far.

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Glossary of Terms

<i>Artifact</i>	An object that exist in space and time and in the mind of the community it had an impact on. The artifact can only be understood by the people that shares it history or the people that seek its cultural and historical importance. It relates to one's identity.
<i>Experience</i>	Perceived as word of dual nature. It describes an event experienced in the past and also defines the knowledge acquired from observation or participation.
<i>Heritage</i>	An inherited object or a place that one chooses to conserve from the past. This act of conservation help to inform the identity of an individual and to forms a collective memory.
<i>Landscape</i>	An organic entity shaped by all of its living and non-living inhabitants. The term landscape, in contrary to " <i>environment</i> " or " <i>place</i> ," focuses on forms. It is perceived as a device that records all of its physical transformation through time.
<i>Narrative</i>	A sequence in space and time that necessitate a listener, a reader or a viewer. In architecture, a narrative communicates social and cultural insights through the design of spaces.
<i>Place</i>	A geographical location filled with meaning and bonded to identity and memory of an individual. A place relates to the history and the legacy of the people who have lived there.
<i>Sublime</i>	An architectural feature that relates to the immeasurable. The sublime is perceived through the the forms and the qualities of the landscape and the built environment. It speaks of the immense subtracted volumes and industrial constructions assisting spatial experiences.

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Figure 1. Concept Drawing. *An explorer entering a bottomless lake filled with ore.*

Introduction

Figure 2. Flin Flon Community Hall - 1940. *This is the closest building to the mining facility, illustrating a close relationship between the inhabitants and the mine.*



1. Robert Robson, "Manitoba's Resource Towns: The Twentieth Century Frontier," *Manitoba History* 16 (Autumn 1988), http://www.mhs.mb.ca/docs/mb_history/16/resource_towns.shtml

2. *Ibid.*

Since the 1950s, Canada has been a global leader in mining operations. The extraction of ore to produce zinc and copper contributed to the northward expansion of provinces such as Manitoba.¹ Gold was an unanticipated discovery of this extraction landscape. Manitoba's mining production has steadily increased in exploration and development. Mining industries are now a key contributor to the economy of the province where one hundred communities depend significantly on the process of minerals. These communities were established in concert with mining companies and were originally founded as isolated camps which eventually developed into urban spaces.² Today, the mining industry is collapsing due to the exhaustion of resources in the province. Many of these communities are becoming at risk of cultural and economic depletion, in a post-extraction world.

Mining is temporary, and once resources are exhausted, sites are left with scarred landscapes. These industrial marks located on post-mining sites begin to define the idea of the Anthropocene.

3. D.M. Lyon, "Flin Flon." The Canadian Encyclopedia. <https://www.thecanadianencyclopedia.ca/fr/article/flin-flon>

4. Eric Westhaver, "Hudbay's 777 mine, zinc plant in Flin Flon scheduled to close in April 2022," *Thompson Citizen*, January 7, 2020, <https://www.thompsoncitizen.net/news/nickel-belt/hudbay-s-777-mine-mill-zinc-plant-in-flin-flon-scheduled-to-close-in-april-2022-1.24047699>

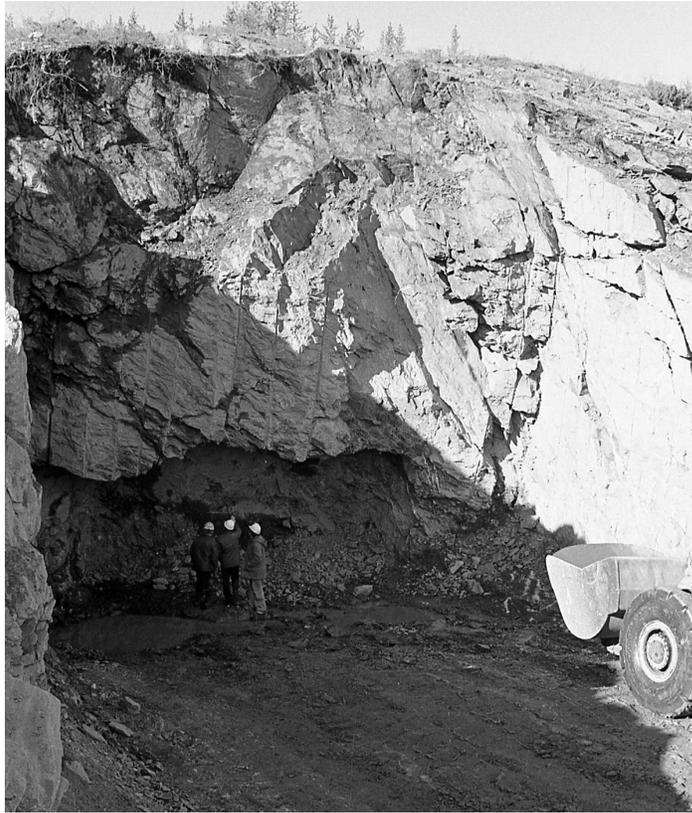
5. Ibid.

6. Ibid.

These sites often apprehend major transformations including underground structures and open pits, contrasting with the landscape and its surroundings. The site for this thesis is no different. Flin Flon is affected by the speed of the Anthropocene. The town is situated along the Manitoba and Saskatchewan border in a terrain of industrial production. It is the largest zinc refinery in Canada.³ Founded along the Hudson Bay railway, Flin Flon's mining industry will come to closure when the last mine - the 777 - ceases operations.⁴ Its sole remaining mine will terminate its operations in 2022, with significant effects on the livelihood of its inhabitants.⁵ Flin Flon has been radically transformed over the years; its community is inextricably reliant on mining activities. Mining work has been multi-generational for many residents as the heritage of the mining industry has contributed to the extraction of the landscape for a century.⁶ The fate of Flin Flon is now uncertain as resource extraction is coming to an end.

This thesis asks: What does it mean for a town that is no longer a town? How can Flin Flon justify its future? How can an architectural proposition – in towns like Flin Flon – engage with questions its identity and memory? This thesis explores how a post-industrial landscape can merge with recreational activities through an architectural re-imagination. The project is a response to the mine's closure as the site contains most of the memories held in the town, reuniting its history with its current identity. Its historical value, its heritage perceived by the community and its continuity solidify the argument for an intervention to preserve these memories and enrich the relationship between humans and their surroundings.

Figure 3. Trout Lake Mine Construction. *Trout Lake Mine* is situated in Manitoba, further North to Flin Flon. It shares similar geological properties.



7. Anna L. Tsing, Jennifer Deger, Alder S. Keleman and Feifei Zhou, "Introduction to Feral Atlas." Feral Atlas published by Stanford University Press. <https://feralatlans.supdigital.org/?cd=true&cbtext=introduction-to-feral-atlas>

8. Anna L. Tsing, Jennifer Deger, Alder S. Keleman and Feifei Zhou, "Terra Forma, Mapping Ruined Soils." Stanford University Press. <https://feralatlans.supdigital.org/?cd=true&rr=true&cdex=true&text=terra-forma-mapping-ruined-soils&cttype=essay>.

Two themes, discussed below, help envision a framework that positions the post-extraction site in relation to Flin Flon's history. The themes discussed in the project embrace the heritage of the town, perceived in a geological and human scale, informed by the idea of the Anthropocene and memory as a way to collect and archive industrial artifacts. The term Anthropocene is ambivalent in architecture as it characterizes the society's footprint of our time on the environment.⁷ These humans' transformations on the landscape have formed the collective memory of the region. Memory is organic: it fluctuates, shrinks and expands, but it also contains its own identity, produced through interconnections between humans and the environment.⁸ The Oxford English Dictionary defines the word memory as: "something remembered from

9. New Oxford American Dictionary. 3rd ed. Edited by Angus Stevenson and Christine A. Lindberg. (New York: Oxford University Press, 2015), s.v. "Memory."
https://www-oxfordreference-com.proxy.library.carleton.ca/view/10.1093/acref/9780195392883.001.0001/m_en_us1267090?rskey=Z2p7EU&result=52081

the past, a recollection, (as) the length of time over which people continue to remember a person or an event,” in this instance, a place.⁹ Additionally, this thesis explores how we might remember the gigantic. The project views the gigantic as the mining landscape and investigates the infrastructural opportunities of the abandoned mine – spaces, forms, voids, histories and qualities. The design project is a library of lost volumes. The title of this thesis, *A Fable of Lost Volumes*, is a phrase I employed for this work to describe a collection of artifacts found in an obsolete mining site. These artifacts are, in their own way, a kind of memorial sublime, and serve as historical icons for Flin Flon.

The project is a bridge between heritage and future touristic possibilities to help make a connection between the scale of the environment and the scale of the human body. The design is informed by the conceptual idea of addition and subtraction through two fundamental subjects as a method of designing a series of architectural interventions: (1) transitional space and (2) a point of destination. These subjects are important in this thesis as they structure the spatial experiences informing about the fragments of the existing mine, engaging with the ground and its volumes. While transitional spaces offer a passage from one space to another, as well as a continuous journey through a geological time, experience and discovery, destination space offers a place to rest and observe the gigantic. The interventions sit through space and time, intersecting between the natural environment and the extracted environment. Therefore, the project stands apart from the existing – and soon to be redundant – mining facilities.

PART 1

Themes of Research

Anthropocene

10. Phillip John Usher, *Exterranean: Extraction in the Humanist Anthropocene* (New York: Fordham University Press, 2019), ProQuest Ebook Central.

11. Sayre N. F., “The Politics of the Anthropogenic,” *Annual Review of Anthropology* 41(October 2012): 59, <https://doi-org.proxy.library.carleton.ca/10.1146/annurev-anthro-092611-145846>

12. Kenneth Hewitt, “Extraction Empire: Undermining the Systems, States, and Scales of Canada’s Global Resource Empire, 2017-1217 Edited by Pierre Bélanger, MIT Press, Cambridge, 2018, 800 Pp., Paperback, \$52.00 (ISBN 978-0262533829,” *The Canadian Geographer / Le Géographe Canadien* 64 (September 2020): e24, <https://doi-org.proxy.library.carleton.ca/10.1111/cag.12654>.

The term Anthropocene is derived from Greek. Its etymology “anthropo-” and “-cene” means human and new. It describes a geological epoch moving towards an era in complete control of the planet as humans are looking forward to industrial miracles, disrespecting ecological interdependencies. This is a time period in which the impacts on the planet are significantly enhanced by human actions. It is the reason we are experiencing the era of the Anthropocene – we are transforming the planet – mostly because we extract.¹⁰

The term “anthropogenic” was firstly introduced by the ecologist Tansley and is defined by The Politics of the Anthropogenic as the extent of human activities engendering an influence on nature.¹¹ The formation of the anthropogenic footprint in Canada began with the fur trade, gold rushes, railways, and the Hudson’s Bay Company and European settlements.¹² Over time, Canada has transformed its landscape through extraction. Often characterized by mining and other means of exploiting the natural resources, this ultimately led to the



Figure 4. Areal View of HBM&S Looking East Over Tailings Pond 1967

13. Ibid, e25.

14. Ibid.

15. Ibid.

creation of political and geographical boundaries and territorial treaties, consequently displacing and dispossessing Indigenous communities.¹³ As described by Pierre Bélanger in *Extraction Empire: Undermining the Systems, States, and Scales of Canada's Global Resource Empire, 2017-1217*, the process of extraction is linked to the spatial “separations of surface and subsurface rights” – the mineral rights – and its effects are interwoven with Indigenous people and the natural environment.¹⁴ In fact, Canada owns more than half of the mining worldwide as the country developed through trading conditions during territorial explorations and displacements, shaped by extraction with the emergence of the Anthropocene.¹⁵

Since its creation, Flin Flon sits at the centre of an Anthropocenic landscape that is perceived as remote and strange; the place where mining displays the scales of industrial extraction. This thesis measures the scale of the Anthropocene to comprehend the extent of human traces on the mining site, now extending out to the non-human infrastructural projects such as the underground. It is a process of collecting the extracted stuff, transported from below to above ground. A collection of information on the history, the ecology and the anthropology of a place begins to tell a larger story on the importance of industrial artifacts.¹⁶ The industrial artifacts can be viewed as standing in contrast with the natural surroundings, they are reminders of the heritage of the site, of all the people that lived there. They tell the story of the relationship between extraction and the ground. In Flin Flon, industrial artifacts act as markers to define the base of the Anthropocene. They are the landmark of the past, acting as a substitute for memory.

16. Anna L. Tsing, Jennifer Deger, Alder S. Keleman and Feifei Zhou, “Introduction to Feral Atlas.” Feral Atlas published by Stanford University Press, <https://ferlatlas.supdigital.org/?cd=true&cbdtxt=introduction-to-feral-atlas>.

17. Katherine Scott, "Archiving the Technosphere: A Bergsonian Manifesto Against Conservation in the Age of The Anthropocene," (Master thesis, The Bartlett, 2017), page 11, http://unit-21.com/wp-content/uploads/2017/06/File-02_katherine-Scott-A4.pdf.

18. *Ibid.*

In this thesis, human traces associate the history of the site and the mining artifacts to archive the built environment. This is particularly critical in the Anthropocene as the built environment acts as a catalogue for the archive of the industrial landscape, hence the gigantic.¹⁷ The industrial landscape of Flin Flon must be preserved as it is considered a valuable place for remembrance of the town's identity. Archiving the memory of the built environment allows for its transformation into a future library and a museum all at once, thus it preserves a significant part of human traces found on the transformed landscape.¹⁸ Ultimately, the importance of archiving engages with the heritage we are leaving behind for the future. The memory of the Anthropocene must be persevered for the next generations, and the ones still alive today, to remember the traces left on the built environment and experience the memories that formed the town.



Figure 5. Satellite image of Flin Flon in March 2014. *The zinc tailing and the open pit volume are clearly identifiable despite the amount of snow.*

Memory

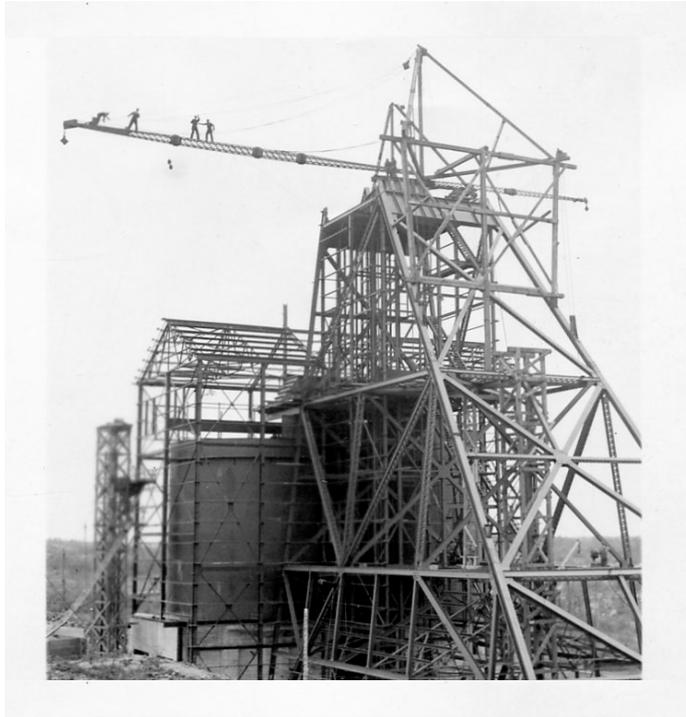


Figure 6. South Main Headframe Construction - 1939.

What is the link between memory and the landscape? Memories are dynamic. They change with time. They can be frozen in the ground and experienced through different time and space. Often, memories link with a place, becoming the basis of a recollection and a cultural observation.¹⁹ The notion of place is viewed in this thesis as a geographical region that holds traces of memory. As described by the Feral Atlas, the ground is an organism containing its own “matrix” and produced through a system of memory.²⁰ This system is shaped by the recollection of memories, developed either individually or collectively, and belongs to the inhabitants where human traces have formed the identity of a region.²¹ In his 2016 article *Heritage and Landscape of Memory: Commemorating the Fur Trade in Manitoba*, Robert Coutts describes the landscape as a sense of belonging, noting that: “Th[e]

19. Robert Coutts, “Heritage and the Landscape of memory: commemorating the fur trade in Manitoba,” *Manitoba History* 81 (Summer 2016): 7, https://link.gale.com/apps/doc/A465296731/AONE?u=ocul_carleton&sid=bookmark-AONE&xid=a95ae82b.

20. Anna L. Tsing, Jennifer Deger, Alder S. Keleman and Feifei Zhou, “Terra Forma, Mapping Ruined Soils.” Stanford University Press. <https://feralatlansupdigital.org/?cd=true&rr=true&cdex=true&txt=terra-forma-mapping-ruined-soils&ttype=essay>.

21. *Ibid.*

22. Robert Coutts, "Heritage and the Landscape of memory: commemorating the fur trade in Manitoba," *Manitoba History* 81 (Summer 2016): 8, https://link.gale.com/apps/doc/A465296731/AONE?u=ocul_carleton&sid=bookmark-AONE&xid=a95ae82b.

construction of identity through place, of social and cultural belonging, is usually produced through some form of shared past, and one that can be manipulated to promote a national and overarching heritage narrative."²² This explanation can be seen as a phenomenon of collective memory. In the context of resource-towns, a shared recollection is developed with past industrial activities, producing a common familiarity with the place. This collective memory exists among the inhabitants who have lived, worked, and experienced the dramatic shifts in the region. In this way, the landscape acts as a device to record and share the history of a place.

23. Marc Treib, *Spatial Recall: Memory in Architecture and Landscape* (London: Routledge, 2009), Taylor & Francis eBooks Complete.

The theme of memory is employed in this work to preserve the legacy of Flin Flon's mining industry in which the resource-town typology produces its social and cultural identity. The mining artifacts sit in the landscape as a physical reflection of the town's history where they can become part of a collective memory rather than standing as an abandoned mining project. The abandoned infrastructural site becomes a landmark in which its preservation illustrates the history of resource extraction that is no longer viable. Marc Treib describes, in *Spatial Recall: Memory in Architecture and Landscape*, the industrial artifact stands "... as a tangible evidence of the past, a collective memory externalized in individual buildings and collectively in cultural landscapes."²³ Therefore, the mining facility is preserved by contemplating the formation of the industrial landscape as a device of remembrance. Traces of memory then become a source for a library.

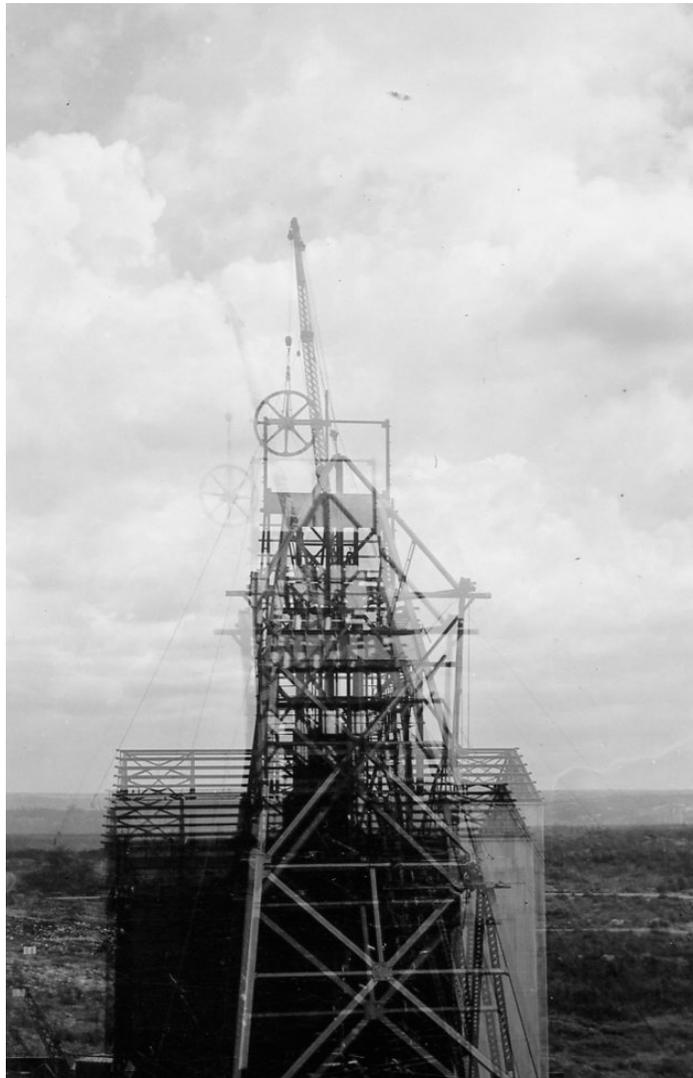


Figure 7. South Main Headframe Construction (Double Exposure) - 1939.

24. Christian Wicke, Stefan Berger, and Jana Golombek, *Industrial Heritage and Regional Identities* (London: Routledge, 2018), Taylor & Francis eBooks Complete.

25. *Ibid.*

As such, the industrial landscape serves as a place of memory for the inhabitants of their town. It acts as a source of identity as industrial activities contain a deep history.²⁴ In the context of post-industrial towns, the cultural shifts have been profound, yet there are many remnants of the past dispersed throughout the landscape. These fragments of artifact demonstrate the persistence of the working culture identity and its social significance even long after an industrial

company has terminated its operations.²⁵ In a region like Flin Flon, resource-towns might become ghost cities as resource extraction is impermanent. The industrial landscape eventually transforms into ruins, fragments of the past, telling the story of the people that once lived and work there. Ruins frequently suggest the end of a story, yet they can act as a memorial, an object that once recorded the past events of the landscape.²⁶ The dismissed industrial environment has the potential to be revived into a museum or a library – a kind of memorial – as its landscape contains most of the history of a geographical region.

26. Anna L. Tsing, Jennifer Deger, Alder S. Keleman and Feifei Zhou, "Terra Forma, Mapping Ruined Soils." Stanford University Press. <https://feralatlas.supdigital.org/?cd=true&rr=true&cdex=true&txt=terra-forma-mapping-ruined-soils&ttype=essay>.

PART 2

Historical Timeline

HISTORICAL TIMELINE FLIN FLON, MANITOBA, CANADA

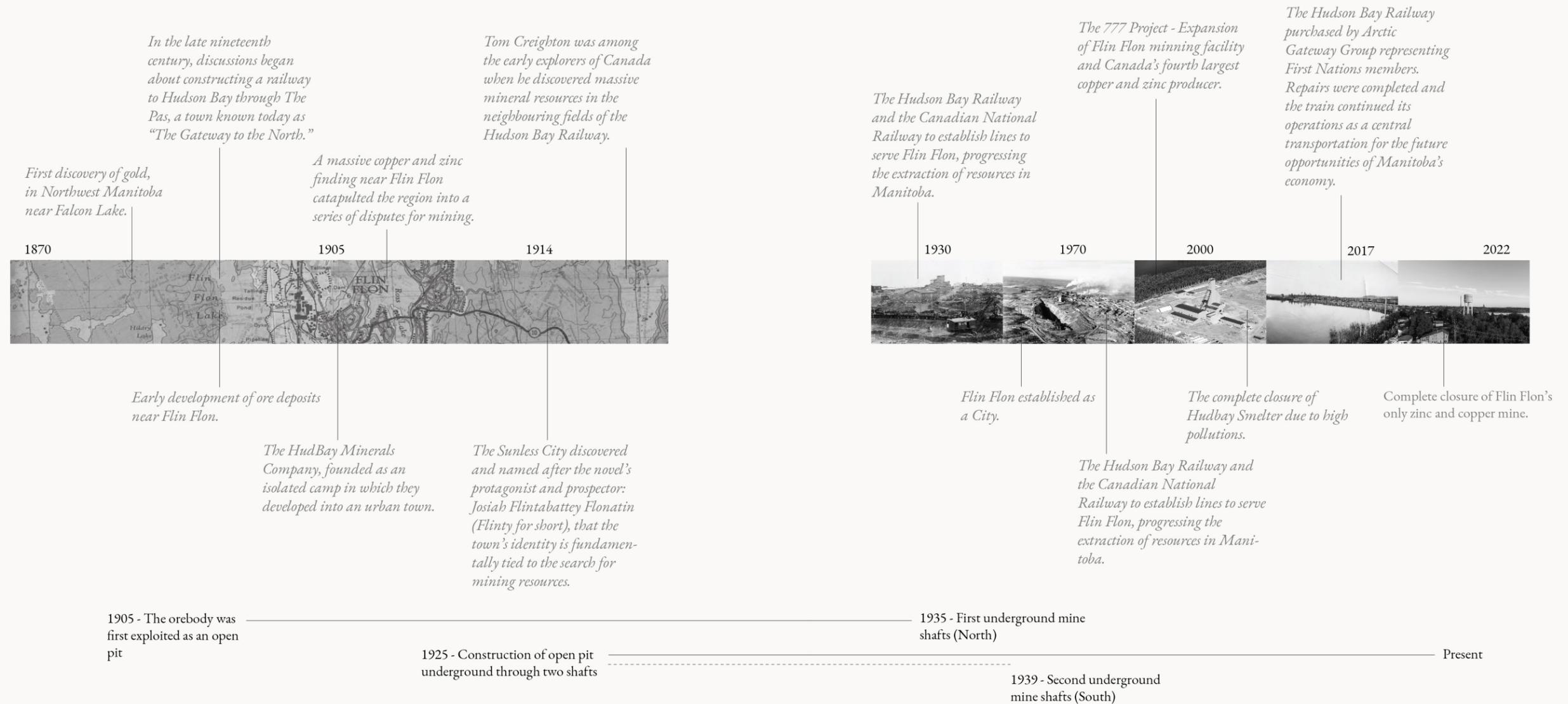


Figure 8. Historical Timeline.

The Sunless City

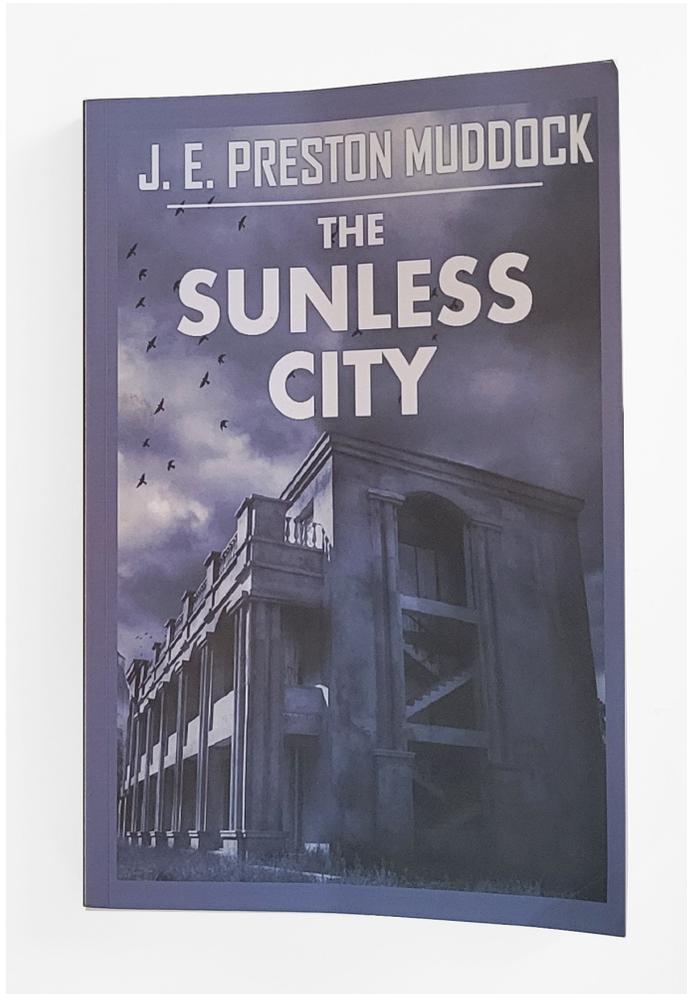


Figure 9. Photograph of the book *The Sunless City*, written by J. E. Preston Muddock.

27. J. E. Preston Muddock, *The Sunless City: From the Papers and Diaries of the Late Josiah Flintabbatey Flonatin* (Brandon: Leech Printing, 1905), 98-110.

Flin-Flon's history is tied to the science-fiction novel, *The Sunless City*, which describes an underground world – a hollow earth – filled with strange inhabitants, terror and wonder, wealth, and gold.²⁷ Taken from the name of the novel's protagonist and prospector, the town's identity is fundamentally tied to the search for mining resources, further emphasized by Manitoba's economic interests in resource extraction.

28. Hudson Bay Mining & Smelting Co., "The Story of Hudson Bay Mining & Smelting Co., Limited" Flin Flon Heritage Project, <http://flinflonheritageproject.com/wp-content/wppa-depot/pdfs/1004029%20The%20Story%20OP%20HBM&S%201980.pdf>.

29. J. E. Preston Muddock, *The Sunless City: From the Papers and Diaries of the Late Josiah Flintabbatey Flonatin* (Brandon: Leech Printing, 1905), 34.

30. Hudson Bay Mining & Smelting Co., "The Story of Hudson Bay Mining & Smelting Co., Limited" Flin Flon Heritage Project, <http://flinflonheritageproject.com/wp-content/wppa-depot/pdfs/1004029%20The%20Story%20OP%20HBM&S%201980.pdf>.

31. J. E. Preston Muddock, *The Sunless City: From the Papers and Diaries of the Late Josiah Flintabbatey Flonatin* (Brandon: Leech Printing, 1905), 49.

32. Eric Westhaver, "Hudbay's 777 mine, mill, zinc plant in Flin Flon scheduled to close in April 2022," *Thompson Citizen*, January 7, 2020, <https://www.thompsoncitizen.net/news/nickel-belt/hudbay-s-777-mine-mill-zinc-plant-in-flin-flon-scheduled-to-close-in-april-2022-1.24047699>

Tom Creighton was among the early explorers of Canada when he discovered massive mineral resources in the neighbouring fields of the Hudson Bay Railway.²⁸ The name "Flin Flon" was named after a character in J.E Preston Muddock's science fiction novel *The Sunless City*. Flintabbatey Flonatin was the protagonist who found a bottomless gold mine.²⁹ Tom Creighton read the novel a year prior to his discovery of ore, inspiring him in his exploration for minerals where he established the first mining camp.³⁰ As such, the Northern Manitoban town was prefaced by this narrative, written a decade earlier, shaping the morphology of the town from the fictional tales prior to Flin Flon's own creation.

The novel tells the story of a man who lost his business, leading him to travel by submarine through a bottomless lake in the Canadian North. During his exploration, the protagonist discovered an underground gold mine, with rivers flowing from the depths of an unknown lake, where Flintabbatey Flonatin accessed the gold city by his self-designed submarine.³¹ The novel frequently deconstructs the realities of the endless and desperate journeys for mineral wealth, which was echoed in real life: the HudBay Minerals Company conducted an exploration campaign in 2019 surrounding Flin Flon in search of additional mineral-bearing areas. The operation was unsuccessful and HudBay did not pursue further inquiries in the region due to insufficient funding.³²

Manitoba's Expansion

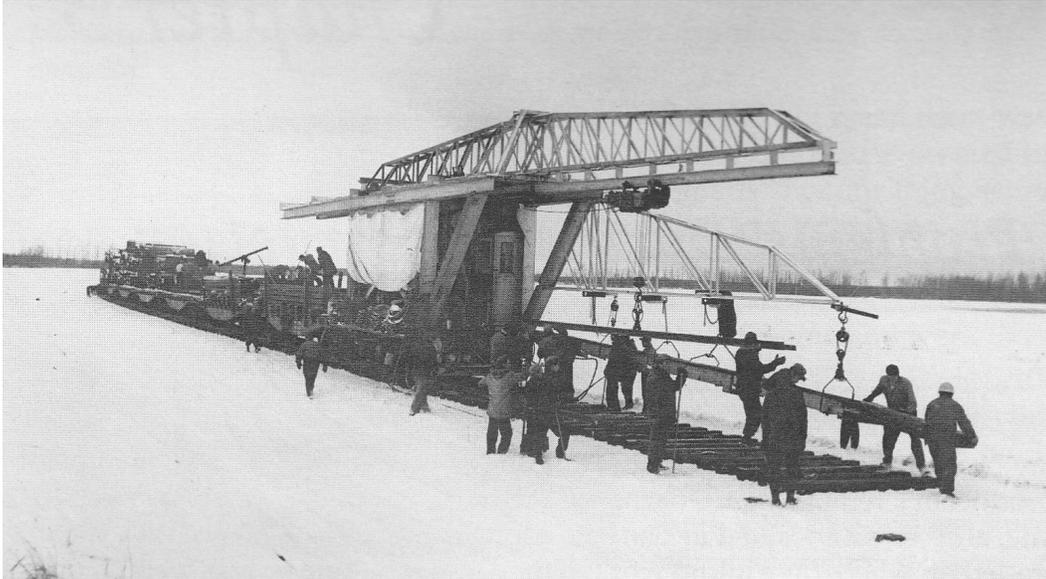


Figure 10. Track-laying machine on the HBR, winter 1928-1929. *In the early construction period of 1912-17, workers had to haul the heavy rail sections from the end of the finished track to the website.*

33. Flin Flon Reminder Staff, "It took blood, sweat and ambition How the railroad came to Flin Flon in 1928," *The Reminder*, June 22, 2012, <https://www.thereReminder.ca/local-news/it-took-blood-sweat-and-ambition-how-the-railroad-came-to-flin-flon-in-1928-4021519>

34. *Ibid.*

35. *Ibid.*

The Hudson Bay railway is key to the economic history of Canada. Mining was an important reason for the construction of the railway, opening mineral possibilities to early explorers in Northern Manitoba. In the late nineteenth century, discussions began about constructing a railway to Hudson Bay through The Pas, a town known today as "The Gateway to the North."³³ The new line was destined to forge a vital route between the South and North of the province, where villages were created alongside the Saskatchewan River and where The Pas ultimately developed into a trading core and steamship terminal.³⁴ The railway construction started in 1908 when the expanding lumber industry required the development of railroads branching from the Canadian central route to The Pas. A revived economic interest was felt in Manitoba for the supply of resources such as timber, minerals, and gold in 1912 when Northern Manitoba became officially part of the province.³⁵

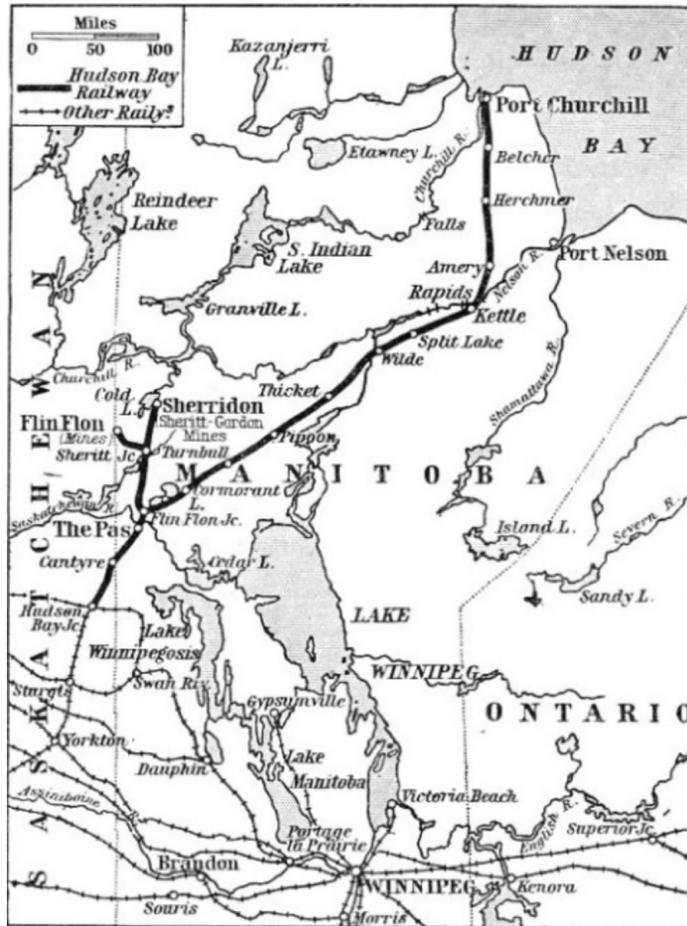


Figure 11. Map demonstrating the extent of the Hudson Bay Railway.

In 1915, a massive copper and zinc finding near Flin Flon catapulted the region into a series of disputes for mining rights.³⁶ The establishment of Mandy Mine near Flin Flon contributed to The Pas as a railway departure for mining and transportation in Northern Manitoba. A decade later, an agreement was signed between the provincial government, the Hudson Bay Railway and the Canadian National Railway to establish lines to serve Flin Flon, progressing the extraction of resources in Manitoba.³⁷ By 1930, the construction of the mining facility and the railway connecting to Flin Flon were completed.

36. Ibid.

37. Flin Flon Reminder Staff, "It took blood, sweat and ambition How the railroad came to Flin Flon in 1928," *The Reminder*, June 22, 2012, <https://www.there minder.ca/local-news/it-took-blood-sweat-and-ambition-how-the-railroad-came-to-flin-flon-in-1928-4021519>

38. "Hudson Bay Railway," Canada-Rail, <https://www.canada-rail.com/manitoba/railways/HB.html>

39. *Ibid.*

In 1997, Omnitrax took over the Hudson Bay railway from the Canadian National lines, connecting to several towns in Northern Manitoba.³⁸ A decade later, the branching railroads were closed when several floods damaged a majority of the lines. Local communities and the mining industry did not have access to the lines for over a year as Omnitrax could not afford the repairs. In 2018, a group made of Mississippi Rail Limited Partnership, representing First Nations members, and Fairfax Financial Holdings & AGT Limited Partnership purchased the railway.³⁹ Repairs were completed, and the train continued its operations as a central transportation corridor for the future opportunities of Manitoba's economy.

Mining Production

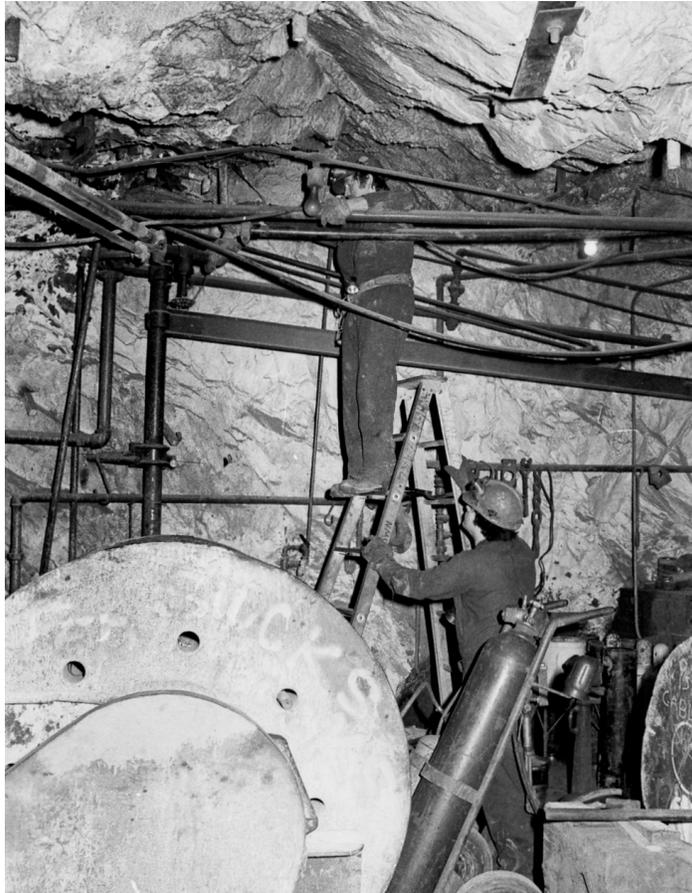


Figure 12. Miners working.

Since its establishment, Flin Flon has relied on the mining industry to support a strong provincial economy. Today, the region is almost entirely reliant on mining activities, with 25% of the population employed in the extraction industry. As mining has been multi-generational for Flin Flon's families for years, the imminent closure of the mine is especially concerning for families with long associated histories.⁴⁰

40. Canadian Mining Journal Staff, "A look at HudBay's history," *Canadian Mining Journal*, October 1, 2008, <https://www.canadianminingjournal.com/featured-article/a-look-at-hudbay-s-history/>.

World Wars I and II, and the Great Depression significantly impacted dependence on the mines. During this time, hundreds of impoverished and unemployed citizens sought Northern Manitoba as a refuge to flee from the severe



“Flin Flon mine now ranks as one of the largest in the world.”

- Flin Flon Miner, Vol. 5, No. 3.

Figure 13. Flin Flon Miner 1927 Development Issue. Page 01.
 Figure 14. Flin Flon Miner 1935 Development Issue. Page 02.
<http://flinflonheritageproject.com/wp-content/wppa-depot/pdfs/1011419%201935%20Development%20.pdf>

41. Will Steinburg, "High Stake and Hard Times: Herb Lake and Depression-Era Mining in Northern Manitoba," *Manitoba History* 68 (Autumn 2012), 17, https://link.gale.com/apps/doc/A296951900/AONE?u=ocul_carleton&sid=bookmark-AONE&xid=eddacaf5.

42. *Ibid.*, 18.

43. *Ibid.*, 24.

44. *Ibid.*, 18.

45. Robert Robson, "Manitoba's Resource Towns: The Twentieth Century Frontier," *Manitoba History* 16 (Autumn 1988), http://www.mhs.mb.ca/docs/mb_history/16/resourcetowns.shtml.

46. Canadian Mining Journal Staff, "A look at HudBay's history," *Canadian Mining Journal*, October 1, 2008, <https://www.canadianminingjournal.com/featured-article/a-look-at-hudbay-s-history/>.

47. Robert Robson, "Manitoba's Resource Towns: The Twentieth Century Frontier," *Manitoba History* 16 (Autumn 1988), http://www.mhs.mb.ca/docs/mb_history/16/resourcetowns.shtml.

economic disorders in the South.⁴¹ This period witnessed an unprecedented mining expansion in Manitoba's history where resource-towns, established in the North of the province, were part of the provincial development of natural resource extraction.⁴² Specialized large-scale mining facilities drove the rapid development of Manitoba. The mining activities necessitated advanced technologies to extract minerals and manufacture industrial equipment and agricultural machinery.⁴³

The mining industry expanded following the wars, as government interventions promoted economic development and increased the urban planning in the province. The government of Manitoba encouraged the creation of more provincial resource-towns, such as Flin Flon, in an attempt to adjust to the economic concerns and the complexities of developing the North.⁴⁴ The resource-town was described as a community that relied on extraction for its economic subsistence.⁴⁵ Flin Flon was initially referred to as a drill camp where planning solely followed the shape of the landscape and did not consist of organized or contemporary urban planning.

The construction of the mine was a critical issue as there were no utilities nor roads. Additionally, Flin Flon was located approximately 740 km North of Winnipeg, emphasizing the need for railway construction.⁴⁶ Nevertheless, the mine, mill, smelter, and a massive hydroelectric dam were constructed in 1928 as the province increasingly invested in resource extraction. Lack of infrastructure was a constant concern – not the least of which was the notable absence of sanitation services and smoke containment.⁴⁷



Figure 15. Open pit.

48. Canadian Mining Journal Staff, "A look at HudBay's history," *Canadian Mining Journal*, October 1, 2008, <https://www.canadianminingjournal.com/featured-article/a-look-at-hudbay-s-history/>.

49. Ibid.

The Flin Flon mine began with 16 million tonnes of extracted minerals, mainly through the open pit. A year following the mine's inauguration, the South tunnel was created and remained active until 1992, resulting in the combined production of approximately 63 million tonnes of ore in the shaft's history.⁴⁸ Throughout its history, the Greenstone belts surrounding Flin Flon have been a rich supply of ore for mining companies where 80 km of truck and rail network linked 25 mines following the establishment of the first mine a century earlier.⁴⁹ The metallurgic facility neighbouring Flin Flon reflects the mining industry as a critical component for the town's economic survival.

Closure of the Mine

HUDBAY

Closure date set for April 2022

Exploration near Flin Flon cut entirely, falling zinc, copper markets blamed

ERIC WESTHAVER
Reporter

Hudbay has confirmed plans to shut down 777 mine and the Flin Flon mill, zinc plant and oxygen plant in April 2022. The company will also end exploration spending around Flin Flon this year.

In a business update published Jan. 6 by Hudbay Manitoba Business Unit vice-president Rob Assabgui, the company confirmed that most Flin Flon operations will either be closed outright or placed on care and maintenance in 2022.

The last publicly released closure date for 777 and Flin Flon operations stated a shutdown would take place in the second quarter of 2022 and the company would explore other options to keep the zinc plant facility open.

Assabgui and the company cited lower zinc and copper prices as a contributing reason for moving up the date.

The development program for Hudbay's highly touted 1911 project near Snow Lake has been deferred. In a business update for employees in October, Assabgui said the company could possibly extend the life of the zinc plant until 2025 if the 1001 deposit was fast-tracked into production.

With that fast-tracking no longer in the cards, the likelihood of an extension for the zinc plant currently is slim.

"The zinc plant is designed to sustain a throughput of nominal 220,000 tonnes of concentrate per annum. With only Lalor ore, there would not be sufficient concentrate to operate the zinc plant once 777 mine closes," reads the update, which also states that increasing Lalor production or purchasing concentrate to maintain operations at the zinc plant is not viable right now.

"Copper and zinc prices have been depressed for some time now, and the future price environment remains uncertain. With current metal prices, we simply are not generating sufficient revenue today to fund all of the sustaining capital and growth projects in the Manitoba Business Unit," said Assabgui in the update.

According to the update, the current plan for Flin Flon facilities is to shut down 777 permanently along with the zinc plant and oxygen plant. The Hudbay mill and tailings facility will be placed on care and maintenance.

Hudbay estimates the size of the company's future workforce in Manitoba will be around 800 people, including company workers taking on duties in drilling and development at Lalor currently done by contractors.

The company estimates that around 240 Flin Flon employees could retire from Hudbay between January 2020 and the expected operations closure date.

"We should all be proud of the success we've had in Manitoba in 2019 - the 777 Mine performed well, Lalor production ramped up to 6500 tonnes per day, the surface plants processed all of the metals produced from the mines, and our exploration team discovered a new deposit in Snow Lake. While copper and zinc prices haven't worked in our favour recently, we are hopeful they will soon recover and we will be able to advance other growth initiatives in the region when the time is right," said Assabgui in the letter.

During 2019, Hudbay carried out an exploration program around Flin Flon and northwestern Manitoba, seeking out any other sites of mineral potential. After drilling several targets near Moose Lake and Goose Lake south of Flin Flon, the company deemed those targets "unsuccessful in locating any new deposits."

Exploration

In the same update, Hudbay stated the company does not plan to explore further in or around Flin Flon in 2020, citing insufficient funding.

Instead of exploring close to Flin Flon, the heart of the company's exploration budget will be centred around 1911 and other possibilities in the Snow Lake region.

Jobs

The changes involving Flin Flon are part of a shift in the company's future plans. Around 1,400 employees work for Hudbay throughout Manitoba right now. In a statement issued to the Reminder, a spokesperson for the company said the future workforce of Hudbay is expected to

For over 70 years, the paper of record for Flin Flon, Creighton, Denare Beach & Area | Published every Wednesday Ext. 1946

Figure 16. The Reminder 2020. Page 1.

Mining is a cultural icon in Flin Flon. The mining facility and the landscape share an intimate relationship where the rocky hill terrain is given over to ore extraction. The HudBay Minerals Company has been extracting and refining zinc for over nine decades.⁵⁰ Mining activity is a critical contributor to the town's economy. However, a depleted ore deposit will mean the termination of mining operations in Flin Flon set in April 2022, with the concurrent cessation of the mill and zinc plant. HudBay did not report any infrastructural plan for the future of the town but will rather invest in a new mining project and keep digging for more minerals in Snow Lake – a neighbouring town.⁵¹ This thesis is positioned at this transition point – when the future of Flin Flon is uncertain.

In the face of uncertainty, the exhausted landscape stands out as a unique setting to bring new opportunities into an ecological, cultural, and touristic destination. With the emergence of the eco-tourism industry, design interventions will generate new ideas of reviving the former mining site. This could bring a unique opportunity for both the citizens and the tourists

50. Hudson Bay Mining & Smelting Co., "The Story of Hudson Bay Mining & Smelting Co., Limited" Flin Flon Heritage Project, <http://flinflonheritageproject.com/wp-content/wppa-depot/pdfs/1004029%20The%20Story%20OP%20HBM&S%201980.pdf>.

51. Brett Pearson et al., "Technical Report 777 Mine, Flin Flon, Manitoba, Canada," Hudbay Minerals Inc., October 2012, https://s23.q4cdn.com/405985100/files/doc_downloads/tech_reports/canada/777-Technical-Report_v001_u7756t.pdf

to gain a deep understanding of the ecological and cultural heritage linked with the industrial artifacts and its people. Stefan Berger refers in *Industrial Heritage and Regional Identities* to the concept of industrial heritage as emerging within the tourism industry.⁵² The landscape becomes a landmark for the local population as it enlarges the post-industrial mine into a heritage project sustaining the local economy through tourism. He continues to describe that, in a context of post-industrial landscape, the heritage of a town becomes a device for its identity.⁵³ The remaining artifacts of industry are transformed into a touristic opportunity for future generations of a region. Moreover, not only the landscape offers a place to archive and experience the industrial footprint, but it additionally displays the cultural narratives of the town. This notion of industrial heritage begins to tell a story about the lost volumes leftover by years of mining activity in Flin Flon.

52. Christian Wicke, Stefan Berger, and Jana Golombek, *Industrial Heritage and Regional Identities* (London: Routledge, 2018), Taylor & Francis eBooks Complete.

53. Ibid.

Eco-Tourism

54. Bengt Sahlberg et al., *Going North: Peripheral Tourism in Canada and Sweden*, (Ostersund: European Tourism Research Institute, 2001), 79, <https://www.diva-portal.org/smash/get/diva2:220876/FULLTEXT01.pdf>

Throughout its history, Manitoba has been recognized as an influential province in industrial manufacturing and extraction. Nevertheless, eco-tourism emerges from the major industries of the province and offers a new way of exploration and wonders as resource extraction began to decline.⁵⁴ The train along the Hudson Bay Railway has the possibilities to become a prominent transportation method for the eco-tourist as it offers a distinctive travel experience, passing through vulnerable landscapes. The railway moves through many different terrains: mining, forestry, manufacturing, and agricultural landscapes, many of which are concealed from the tourist's eyes. Passenger could trains travel between the shifting landscapes of industrial production and bucolic scenery.

Eco-tourism – as a different way of seeing – and with its entanglement in multiple landscapes, ecosystems, and cultural heritage, has grown exponentially in the recent decades, helping to encourage a renewed understanding of specific areas. In fact, in the study *Going North: Peripheral Tourism in Canada and Sweden*, Melander defined tourism as being part of an emerging culture called the “experience society,” in which people are constantly looking for new places to discover.⁵⁵ This phenomenon is expected to become a leading industry of our time, diversifying, and enhancing local economies.

55. Ibid.

Flin Flon's heritage has been tied to the mining industry, resource-extraction, and has contributed to the view of the landscape as an economic commodity. Eco-tourism is crucial to the future economic development of remote communities as it provides a potentially productive alternative. It expands

56. Ibid.

local and global awareness of a site while emphasizing an environmental stewardship of that experience.⁵⁶ It can operate as a museum – highlighting history and past cultural practices. Eco-tourism, as a growing industry, can play a critical role in the careful relationship between guests and hosts, human and our environment, the past and the present.

Figure 17. Eco-tourist kayaking in one of the numerous lakes surrounding Flin Flon.



Figure 18. Eco-tourist hiking on the rocky landscape of Flin Flon.



Figure 19. Eco-tourist fishing in one of the several lakes known for their high rich biodiversity.



PART 3
Archives

A Catalogue of Cultural Fragments

The closing of the sole remaining mine in Flin Flon risks the loss of the city's collective heritage as well as the collapse of its economy. The thesis proposes an intervention to engage these two challenges by designing a device for a shared memory as a way to recognize and acknowledge Flin Flon's past, while also encouraging a different future. The work employs a catalogue to comprehend the nature of artifacts to remember, allowing the production of a design that will carry the selected cultural fragments into spatial experiences.

The following catalogue is a collection of drawings, text, and archived images of six unique subjects that capture the significant moments in time, the ones that still echo in the collective memory of Flin Flon and the surrounding region. This process explores the town's history and its artifacts – from infrastructure to architecture – as a way to form the historical narratives of the town and to understand the fullness of its cultural past.



Figur 20. Tom Creighton with Original Claim Post.

The Exploration

Northern Manitoba welcomed a few different camps at the beginning of ore exploration. Succeeding one another, these sites followed the shape of the landscape and the visions of mining investors.⁵⁷ The lucrative ore dictated where to establish a camp. Tom Creighton installed the first wooden post made of tamarack – a small tree from the larch’s family – at the current largest ore facility in Manitoba, where Flin Flon is established. The mining prospector claimed his discovery with a large piece of wood, now conserved in the museum of Flin Flon.⁵⁸

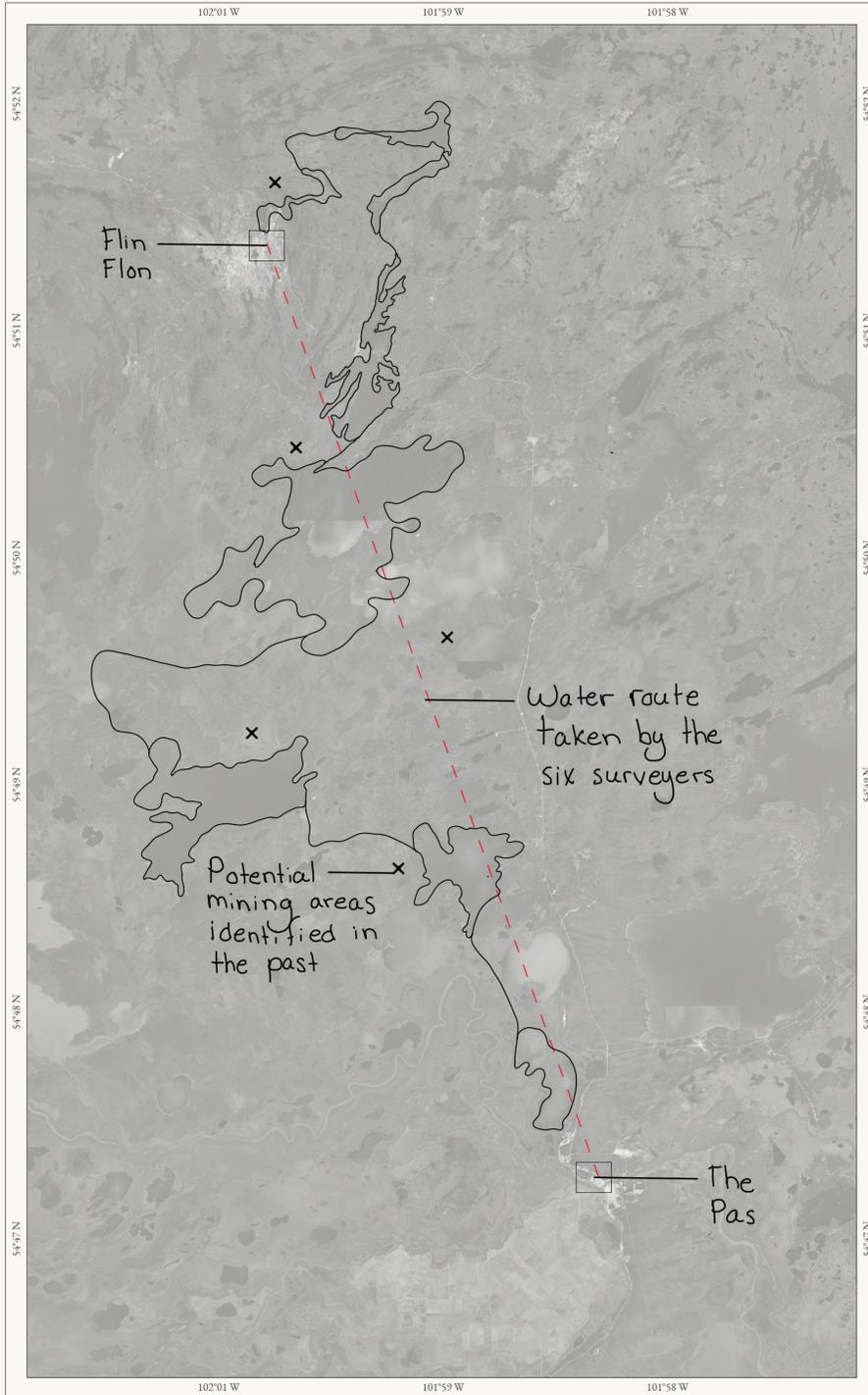
The tamarack begins to engage with the ground as a first mining gesture. It speaks of the introduction to the anthropogenic subterranean in Flin Flon. The tamarack is perceived as the bridge between the untouched natural environment and the extracted environment, connecting past and present times.

57. Robert Robson, “Manitoba’s Resource Towns: The Twentieth Century Frontier,” *Manitoba History* 16 (Autumn 1988), http://www.mhs.mb.ca/docs/mb_history/16/resourcetowns.shtml.

58. “Flin Flon Lake Ore Body Claim Post.” Narrative Threads: Crafting the Canadian Quilt. https://www.narrativethreads.ca/explorer-explore/flin_flon_lake_ore_body_claim_post.html

EARLY ORE EXPLORATION FLIN FLON, MANITOBA, CANADA

Production Date:
20-Jun-22
Version 1.0



- 1915: Early Explorers - 1923: Ground Surveying

Canada discovered massive mineral resources in the neighbouring fields of the Hudson Bay Railway.

Early explorers of Canada discovered massive mineral resources in the neighbouring fields of the Hudson Bay Railway.

6 surveyors made their way from The Pas to Flin Flon by boat. The mine was selected as a temporary supply station while the crew was working on the lake to examine and map potential mining areas.

LEGEND

-  Location of the following towns:
The Pas & Flin Flon
-  Path taken to navigate from The Pas to Flin Flon
-  Lakes and canals that was used by the surveyors to reach Flin Flon
-  Explored mining areas
- 

Image Date : 02 July 2021
Satellite Date : 2014
Source : Google Earth Pro
Image Number : 01
Resolution : 4800 x 3326
Copyright : Image 2021 CNES/ Airbus

Coordinate System: WGS 1984 UTM Zone 14
Datum: WGS 1984

This catalogue illustrates a satellite image from Google Earth, complemented with a digital topographic mapping in Manitoba and annotation of either past or existing conditions. The catalogue is to be read in conjunction with the descriptive text and the archived pictures.

MAP OF
MANITOBA
Contact Information: A Fable of Lost Volumes
www.afableoflostvolumes.com

Figure 21. Early Ore Exploration. Flin Flon, Manitoba, Canada

Figure 22. Flin Flon Camp Also Known As The Tent Town 1928.
<http://flinflonheritageproject.com/search-results/?lang=en&vt=1&wppa-cover=0&wppa-album=0&wppa-occur=1&wppa-searchstring=camp&wppa-page=7>



The Camp

The construction of the railway further enabled the implementation of the first established drill camp.⁵⁹ The settlement was mainly composed of refugees migrating from Southern Canada, escaping from economic disturbance and hoping to find a place to work.⁶⁰ Most of the mining artifacts were found at this time.

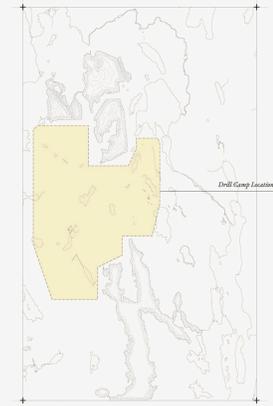
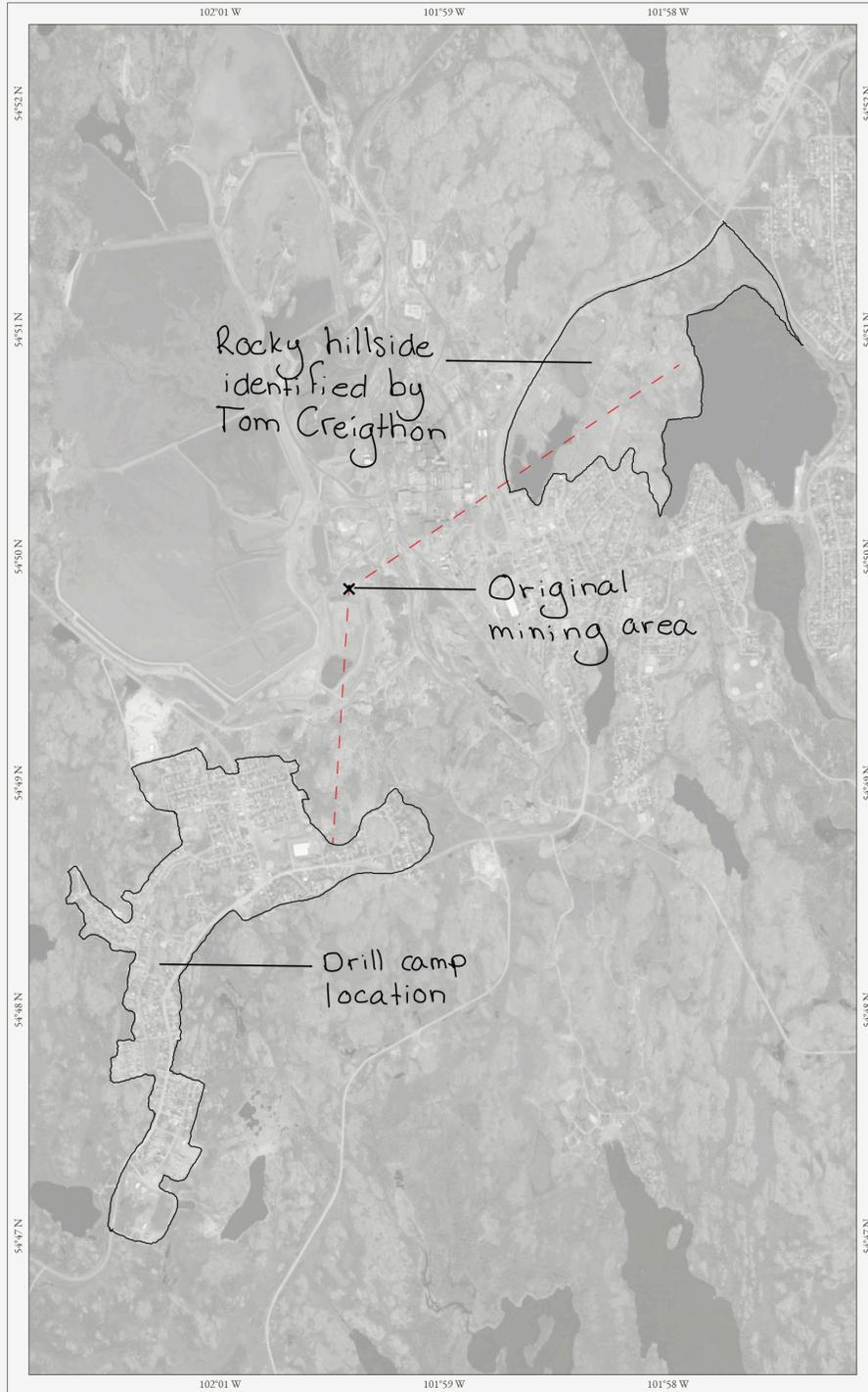
The artifacts were found in the drill camp and the open mining pit. These physical objects are selected from archived photographs as they contain the historical and cultural fragments of Flin Flon. The mining objects were vital to endure the advancements of mining where the drill camp officially became a town.

59. Harold A. Innis, "The Hudson Bay Railway," *Geographical Review* 20 (January 1930), 3, <https://doi.org/10.2307/209124>

60. Will Steinburg, "High Stake and Hard Times: Herb Lake and Depression-Era Mining in Northern Manitoba," *Manitoba History* 68 (Autumn 2012), 17, https://link.gale.com/apps/doc/A296951900/AONE?u=ocul_carleton&sid=bookmark-AONE&cid=eddacaf5.

DRILL CAMP FLIN FLON, MANITOBA, CANADA

Production Date:
20-Jun-22
Version 1.0



 - 1910: Drill Camp
 Founded by Tom Creighton, a mining prospector who also gave the name Flin Flon to the town.

 - 1940: Expansion
 Infrastructures mainly developed in small towns around Flin Flon.

LEGEND

-  Key point location of the mining facility, refer to annotation on satellite image
-  Connection between significant locations
-  Outlines of significant location, refer to annotation on satellite image



Image Date : 02 July 2021
 Satellite Date : 2014
 Source : Google Earth Pro
 Image Number : 01
 Resolution : 4800 × 3326
 Copyright : Image 2021 CNES/ Airbus

Coordinate System: WGS 1984 UTM Zone 14
 Datum: WGS 1984

This catalogue illustrates a satellite image from Google Earth, complemented with a digital topographic mapping in Manitoba and annotation of either past or existing conditions. The catalogue is to be read in conjunction with the descriptive text and the archived pictures.

MAP OF
MANITOBA
 Contact Information: A Fable of Lost Volumes
www.afableoflostvolumes.com

Figure 23. Drill Camp. Flin Flon, Manitoba, Canada

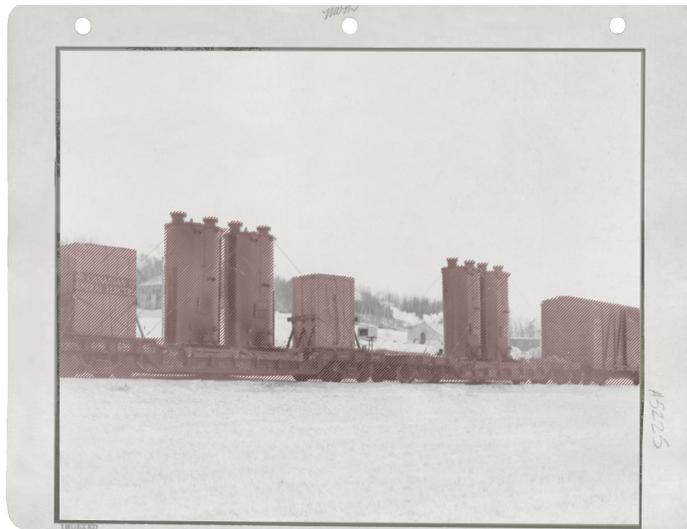


Figure 24. Transformers On Train At Mile 86.
<http://flinflonheritageproject.com/albumlist/wppaspec/oc1/cv0/ab67/pt4495>

The Railway

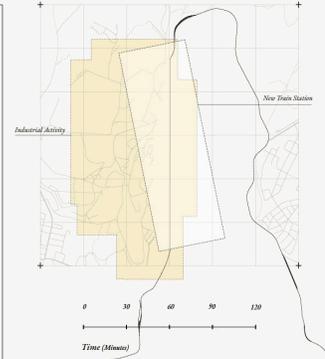
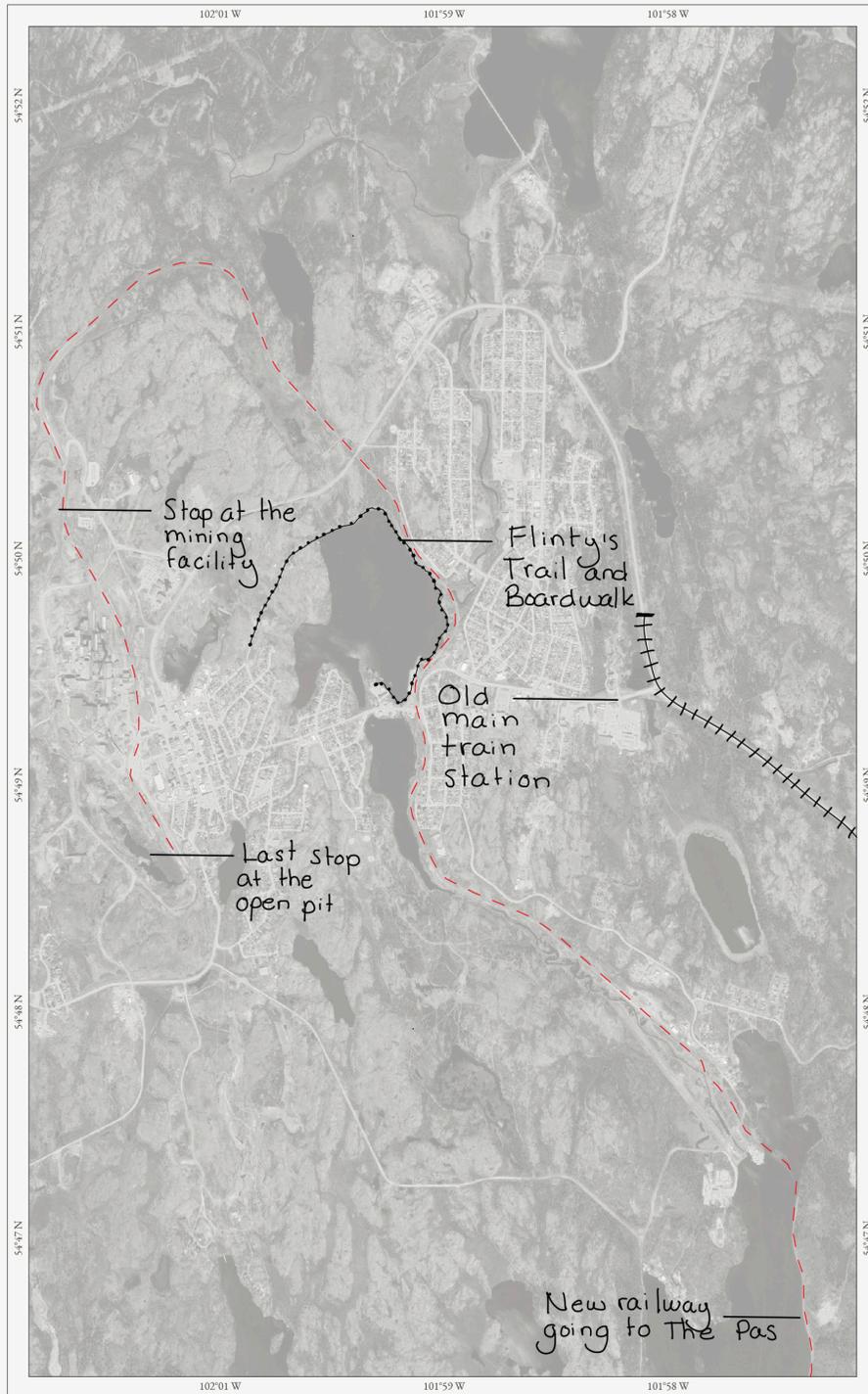
The railway acts as a continuous infrastructure beyond the mining site. It begins to inform the sequence of memories, producing spaces of travelling and containment through the lens of time, beginning at the point of departure to the arrival.

The construction of the railway was influential in the establishment of Flin Flon. The trains mainly carried minerals, water, or logs where the train station and the mining facility were intimately connected.⁶¹ The industrial composition of the train exemplifies the historical relationship between the mine and the railway. The trains coming to Flin Flon can have the possibilities to fluctuate between the transportation of extracted resources and the eco-tourists visiting the town for its scenic landscapes.

61. Harold A. Innis, "The Hudson Bay Railway," *Geographical Review* 20 (January 1930), 16.
<https://doi.org/10.2307/209124>

THE RAILWAY FLIN FLON, MANITOBA, CANADA

Production Date:
20-Jun-22
Version 1.0



- 1908: Construction of The Old Railway

Construction initiated from the Pas. The railway acts as a continuous infrastructure beyond the mining site and the construction of the railway was influential in the establishment of Flin Flon.

- 1999: Construction of The New Railway

The new railway was influential in the establishment of Flin Flon. The trains mainly carried minerals, water, or logs where the train station and the mining facility were intimately connected.

Today, the trains coming to Flin Flon are tense between the transportation of extracted resources and eco-tourists visiting the town for its scenic landscapes.

LEGEND

- ✕ Key point location of the mining facility, refer to annotation on satellite image
- Connection between significant locations
- ||||| Location of the old railway
- Location of hiking trail and boardwalk
- ⬆️ North Arrow

Image Date : 02 July 2021
Satellite Date : 2014
Source : Google Earth Pro
Image Number : 01
Resolution : 4800 × 3326
Copyright : Image 2021 CNES/ Airbus

Coordinate System: WGS 1984 UTM Zone 14
Datum: WGS 1984

This catalogue illustrates a satellite image from Google Earth, complemented with a digital topographic mapping in Manitoba and annotation of either past or existing conditions. The catalogue is to be read in conjunction with the descriptive text and the archived pictures.

MAP OF
MANITOBA
Contact Information: A Fable of Lost Volumes
www.afableoflostvolumes.com

Figure 25. The Railway. Flin Flon, Manitoba, Canada

Figure 26. The Mining Shaft
<https://www.winnipegfreepress.com/business/nervous-times-up-north-391375101.html>



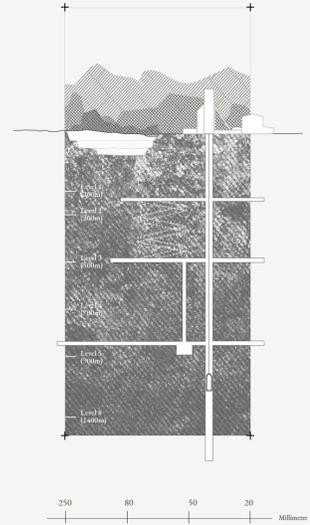
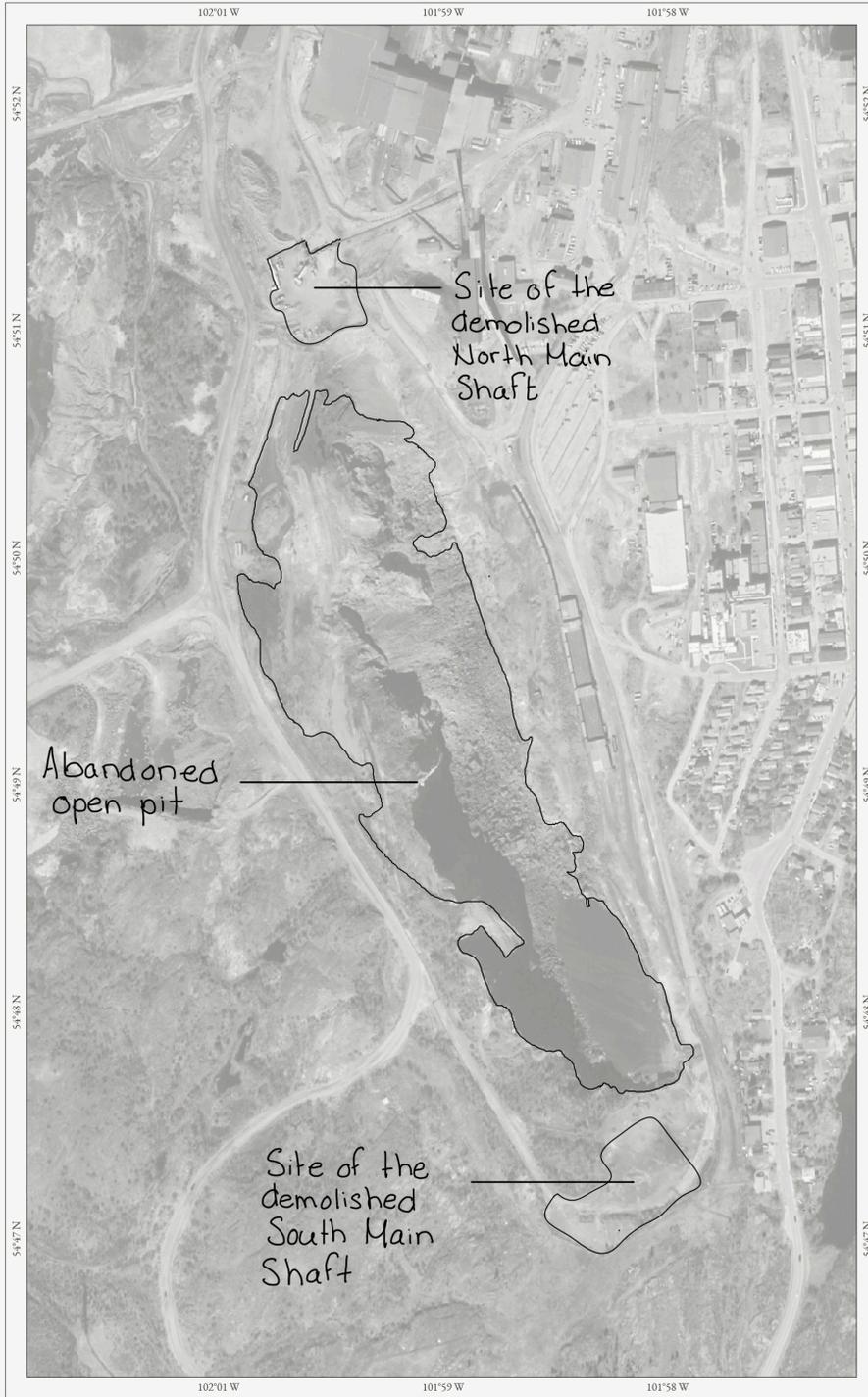
The Underground

The traces of the last mining shaft speak of the ground and its sectional qualities. The nature of mineral deposits determined the way the landscape was carved for its extraction. The excavation of the tunnels required ground surveying, enabling a sensory experience of the soil's texture. The seismometer recorded the ground and its forces. It can acknowledge the transformation of the earth – the explosion of dynamite that formed the mining shaft for example.⁶² The seismometer allows us to “record” an act of transformation. The explosive device forces an auditory memory to the witness. In addition, the underground network formed by its explosive creation engages with the questions of lights and darkness. One might remember the experience of being clustered in a tunnel without natural daylight where the sound of tools fills the space.

62. D. J. White et al., "Seismic Exploration within the Flin Flon VMS Mining Camp, Manitoba, Canada," *Exploration: '07: Exploration in the New Millennium, Decennial Conference Proceedings*, September 2017, <http://www.dmecc.ca/ex07-dvd/E07/pdfs/117.pdf>

THE UNDERGROUND FLIN FLON, MANITOBA, CANADA

Production Date:
20-Jun-22
Version 1.0



Cu 29 Zn 30 Au 79 Ag 47
Copper Zinc Gold Silver

LEGEND

- ✕ Key point location of the mining facility, refer to annotation on satellite image
- Outlines of significant location, refer to annotation on satellite image



Image Date : 02 July 2021
Satellite Date : 2014
Source : Google Earth Pro
Image Number : 01
Resolution : 4800 × 3326
Copyright : Image 2021 CNES/ Airbus

Coordinate System: WGS 1984 UTM Zone 14
Datum: WGS 1984

This catalogue illustrates a satellite image from Google Earth, complemented with a digital topographic mapping in Manitoba and annotation of either past or existing conditions. The catalogue is to be read in conjunction with the descriptive text and the archived pictures.

Contact Information: A Fable of Lost Volumes
www.afableoflostvolumes.com

Figure 27. The Underground. Flin Flon, Manitoba, Canada



Figure 28. 150 ton blast, Open Pit, Sept 13, 1933.
<http://flinflonheritageproject.com/search-results/>

The Biodiversity

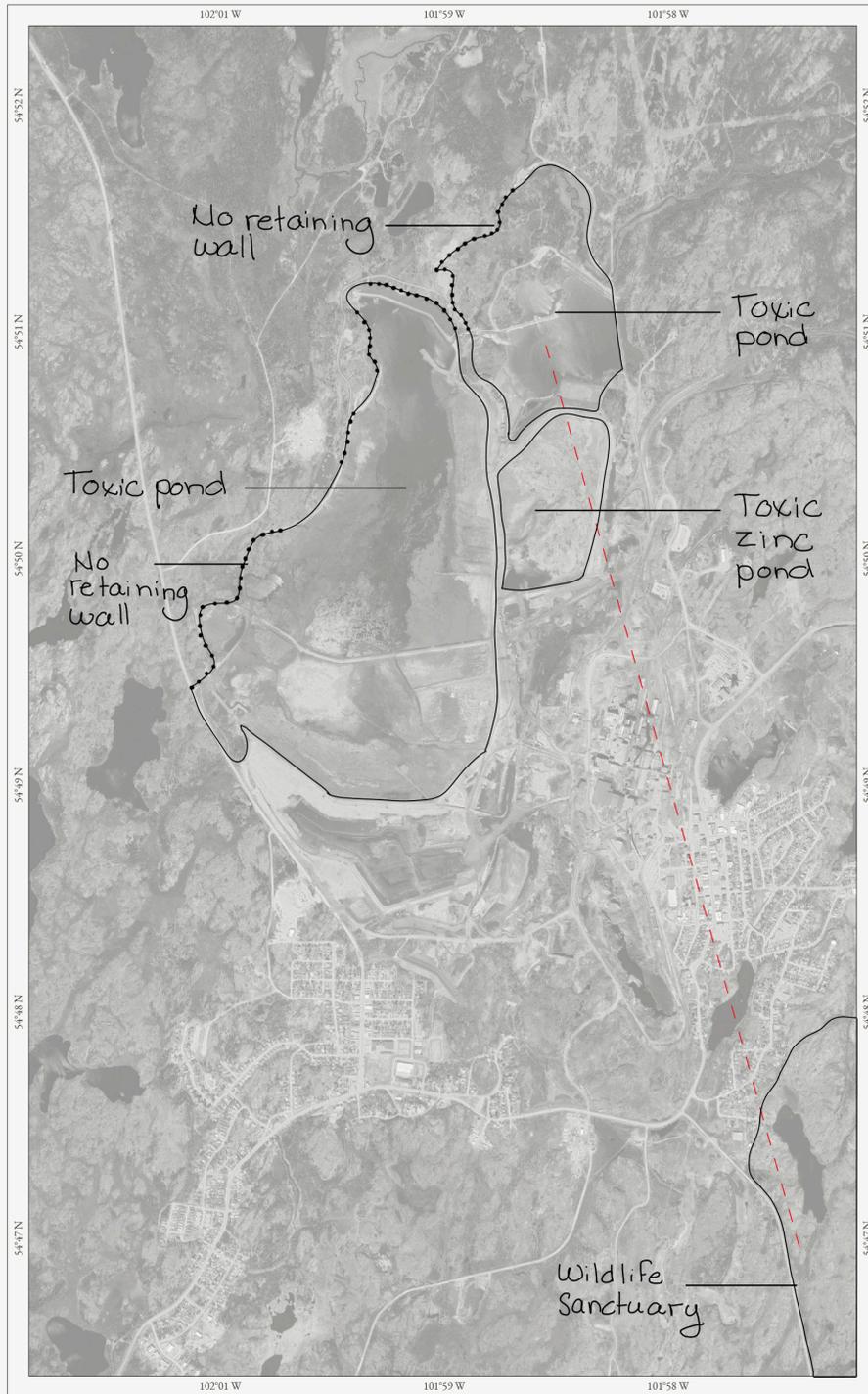
The tailing in Flin Flon Lake occurred in the past less than a kilometre from the wildlife life sanctuary. The pond is filled and mixed with mineral waste caused by nine decades of extraction.⁶³ Now shifting in the ground, it begins to reveal the impact of mining activities and the toxicity of the soil on the animal chain through time.⁶⁴ The notion of time is incorporated into this catalogue by identifying the fauna and flora's lifespan and how they relate to the soil. The soil reflects what is happening immediately underneath it. It suggests that the non-human and potentially mining facility connects to a broader landscape beyond human and extraction.

63. "Flin Flon Tailing Impoundment System." BCG Engineering Inc. https://bgcengineering.ca/mining_flin_flon.html

64. Olugbenga J. Owojori and Steven D. Siciliano, "The potentiation of zinc toxicity by soil moisture in a boreal forest ecosystem," *Environmental Toxicology and Chemistry* 34 (March 2015), 606, <https://doi-org.proxy.library.carleton.ca/10.1002/etc.2846>

BIODIVERSITY FLIN FLON, MANITOBA, CANADA

Production Date:
20-Jun-22
Version 1.0



			
Blueberry <i>Vaccinium</i>	Cranberry <i>Vaccinium</i>	Labrador T <i>Rhododendron</i>	Black Poplar <i>Populus nigra</i>
Ecology Fractinsectivora	Ecology Fractinsectivora	Ecology Ericaceae	Life Span 200 years
Time : June - August Size : 10 - 15 cm	Time : September Size : 5 - 20 cm	Time : May - July Size : up to 1 cm diameter	Size : 30 meter 90 m diameter

LEGEND

-  Key point location of the mining facility, refer to annotation on satellite image
-  Connection between significant locations
-  Outlines of significant location, refer to annotation on satellite image
-  Location without any retaining wall for the toxic pond
- 

Image Date : 02 July 2021
Satellite Date : 2014
Source : Google Earth Pro
Image Number : 01
Resolution : 4800 x 3326
Copyright : Image 2021 CNES/ Airbus

Coordinate System: WGS 1984 UTM Zone 14
Datum: WGS 1984

This catalogue illustrates a satellite image from Google Earth, complemented with a digital topographic mapping in Manitoba and annotation of either past or existing conditions. The catalogue is to be read in conjunction with the descriptive text and the archived pictures.

**MAP OF
MANITOBA**
Contact Information: A Fable of Lost Volumes
www.afableoflostvolumes.com

Figure 29. Biodiversity. Flin Flon, Manitoba, Canada

Figure 30. The chimney smelter in operation.
<http://winnipegacc.org/FlinFlon50s/flinflon50soriginal.html>



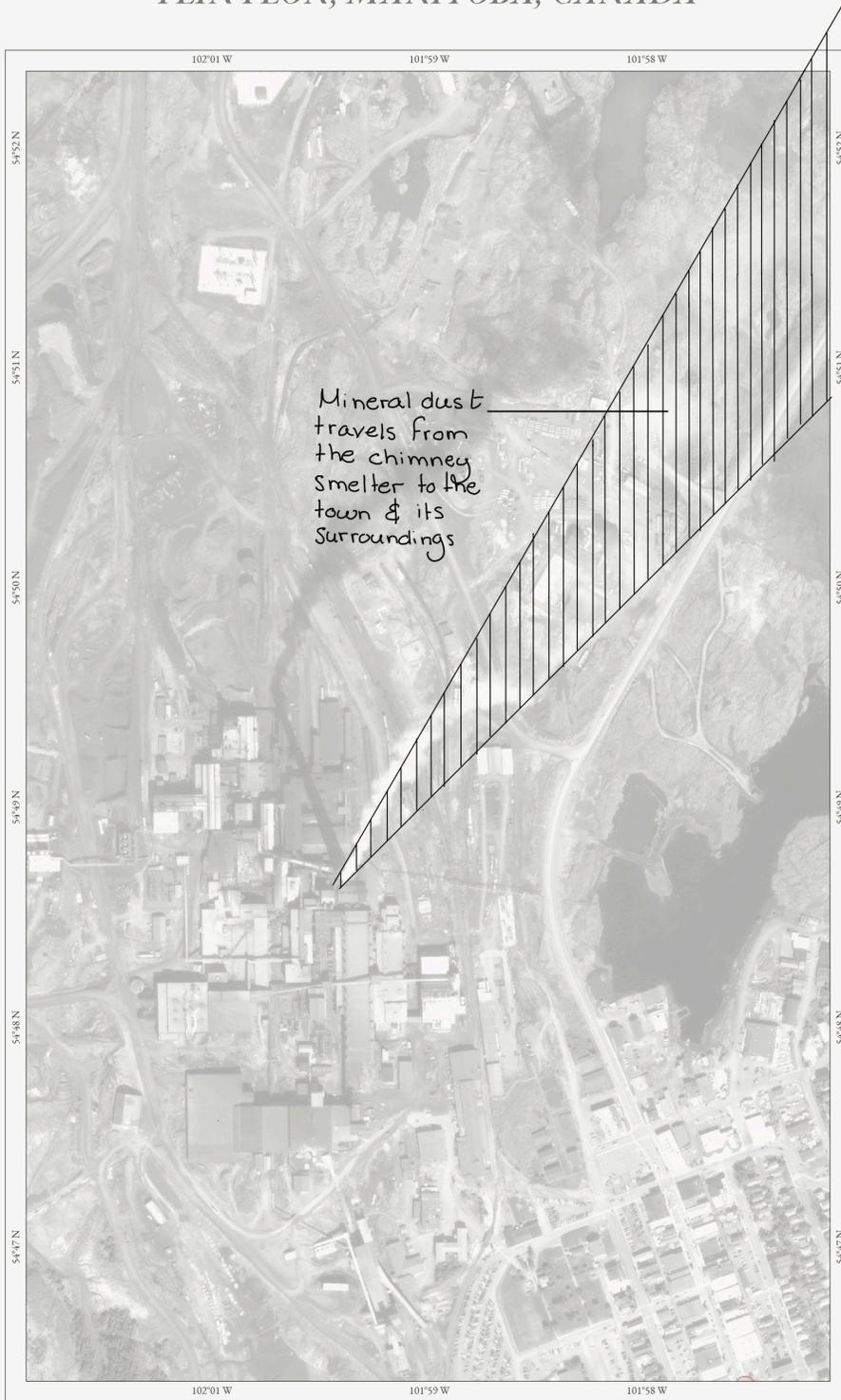
The Toxic Dust

Since the formation of the town, Flin Flon is most commonly known for its industrial production. From the process of extraction to manufacturing, mining creates a large amount of atmospheric pollution mostly concentrated in the chimney smelter.⁶⁵ This process reveals the invisible traces through dust – travelling within the smoke. The notion of dust is mainly the passage of time, it speaks of the inhabitants' lifestyles and their activities; it unfolds significant information on the history and the identity of a place, it tells the story of the town. This catalogue shows dust will still remain. It is part of the ground and the built environment.

65. P. M. Outridge et al., "Comparison of mercury and zinc profiles in peat and lake sediment archives with historical changes in emissions from the Flin Flon metal smelter, Manitoba, Canada," *Science of the Total Environment* 409 (January 2011), 561, <https://doi.org/10.1016/j.scitotenv.2010.10.041>

TOXIC DUST FLIN FLON, MANITOBA, CANADA

Production Date:
20-Jun-22
Version 1.0



From the process of extraction to manufacturing, mining creates a big amount of atmospheric pollution mostly concentrated in the chimney smelter. Chimney smelter among the houses, causing sanitary and pollution issues.

The Second Tallest Smokestack In Canada

LEGEND

— Outlines of significant toxic mineral dust, refer to annotation on satellite image



Image Date : 02 July 2021
Satellite Date : 2014
Source : Google Earth Pro
Image Number : 01
Resolution : 4800 x 3326
Copyright : Image 2021 CNES/ Airbus

Coordinate System: WGS 1984 UTM Zone 14
Datum: WGS 1984

This catalogue illustrates a satellite image from Google Earth, complemented with a digital topographic mapping in Manitoba and annotation of either past or existing conditions. The catalogue is to be read in conjunction with the descriptive text and the archived pictures.

MAP OF
MANITOBA
Contact Information: A Fable of Lost Volumes
www.afableoflostvolumes.com

Figure 31. Toxic Dust. Flin Flon, Manitoba, Canada

PART 4

Intervention

Physical Context

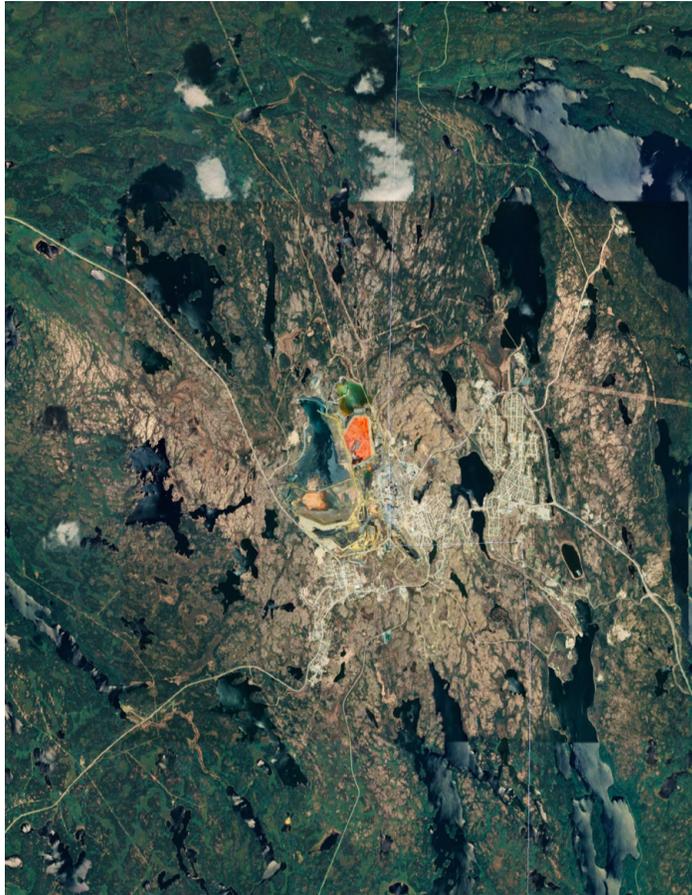


Figure 32. Satellite image of Flin Flon in May 2021. *The exposed rock is located in most of the area without vegetation. The ponds and the landscape are clearly contrasting with the surroundings.*

66. D.M. Lyon, "Flin Flon." The Canadian Encyclopedia. <https://www.thecanadianencyclopedia.ca/en/article/flin-flon>

67. "Community Profile." City of Flin Flon. <https://www.cityofflinflon.ca/p/community-profile>

68. Ibid.

Flin Flon was officially recognized as a town in 1970. It is part of the Northern region of Manitoba, only 2 km² is shared with Saskatchewan.⁶⁶ Most of the region is composed of wilderness and includes small towns like The Pas and Thompson, the largest city of Northern Manitoba. Flin Flon is located on a volcanic belt formed 1.9 billion years ago by underwater eruptions. These eruptions combined with iced periods formed the rocky landscape of the town.⁶⁷ The belt is now the foundation of a wide range of ore-based minerals. Nearly half of the 250 km belt is formed of metals with 40 km wide of exposed terrain.⁶⁸ The ground itself is what shaped Flin Flon as a resource-town.



Figure 33. Site exploration: View of the rocky landscape, picture taken from YouTube video published on October 2020.



Figure 34. Site exploration: View of residential housing located on the edge of Ross Lake Cliff and adjacent to the mining facility, picture taken from YouTube video published on October 2020.

The Flin Flon mine is the largest excavation site, sharing its deposits in both provinces. The facility additionally relies on the railway to capitalize on mine, smelter, and hydroelectric power plants. The Flin Flon mining landscape includes numerous extraction projects and is considered a significant extraction site throughout its history. Mandy Mine, situated 6 km away from the town, was the first copper mine established in 1915. After its closure, ore-based minerals were extracted through an open pit, a project later abandoned to build the underground mine through the North Main and South Main shafts in the mid-1930s.⁶⁹

69. Canadian Mining Journal Staff, "A look at HudBay's history," *Canadian Mining Journal*, October 1, 2008, <https://www.canadianminingjournal.com/featured-article/a-look-at-hudbay-s-history/>.

70. Brett Pearson et al., "Technical Report 777 Mine, Flin Flon, Manitoba, Canada," Hudbay Minerals Inc., October 2012, https://s23.q4cdn.com/405985100/files/doc_downloads/tech_reports/canada/777-Technical-Report_v001_u7756t.pdf

71. Ibid.

72. Bengt Sahlberg et al., *Going North: Peripheral Tourism in Canada and Sweden*, (Ostersund: European Tourism Research Institute, 2001), 92, <https://www.diva-portal.org/smash/get/diva2:220876/FULLTEXT01.pdf>

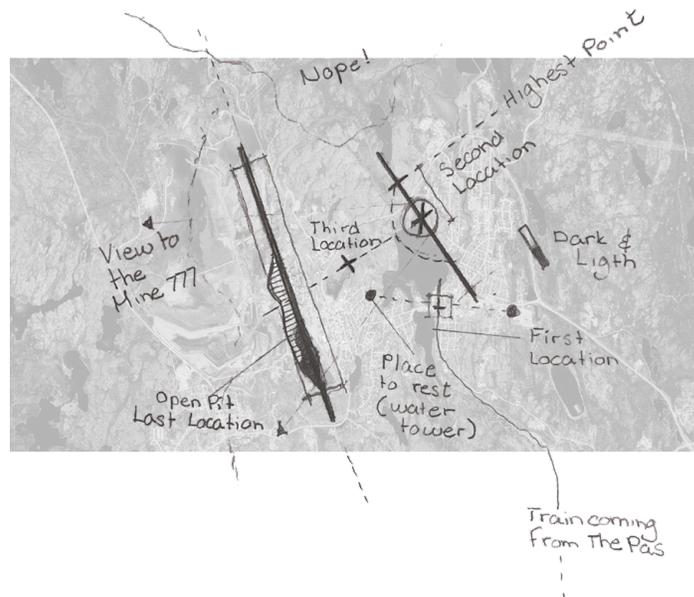
73. Brett Pearson et al., "Technical Report 777 Mine, Flin Flon, Manitoba, Canada," Hudbay Minerals Inc., October 2012, https://s23.q4cdn.com/405985100/files/doc_downloads/tech_reports/canada/777-Technical-Report_v001_u7756t.pdf

Flin Flon has seven redundant mines with only one active mine remaining. Mine 777, the only operating mine is located 1 kilometre north of Flin Flon and is divided into two topographic depressions – the North and the South zones.⁷⁰ It is adjacent to the commercial main street, located 335 meters above the sea level of the Boreal Shield Ecozone. The ecozone is mainly shaped by the coniferous trees in the Boreal Forest of the National Parks of Manitoba, an area famous for touristic attractions.⁷¹⁻⁷² The landscape is marked by the topographic elevations of the open pit and punctured by several tunnels formed 1.5 kilometres below ground. The mine shaft connects the tunnels and reaches up to 1 kilometre in the subterranean spaces.⁷³ Each level is retained by rebars and structural components via an internal ramp giving access to the underground levels.

The town features various abandoned sites, and the old mining shafts in the North and South are the most recognizable for their historical value and their contrasting form with the surrounding area. The mining site covers approximately 6 km², bound by the Hudson Bay Railway to the North, the historic and commercial part of the town to the East, and the wildlife sanctuary to the South. Today, most of the old mining facility has been demolished where only its traces remain. The underground – the open pit – has become an overlooked man-made landscape where the natural environment is slowly taking over.

Experiencing the Site

Figure 35. Schematic site proposal.



The thesis explores the mining landscape as the site for an architectural investigation where visitors encounter an architectural experience through the scales, speeds and intensities of the Anthropocene. The investigation of the landscape provides new insights on the ways that the added interventions and the subtracted environment are related. This exploration does not only depend on understanding the mining site as a whole, but also on recognizing how the identity of the inhabitants relates to this specific place. This comprehension is crucial as places are linked to experiences that exist in memories forming the collective memory. The site contains many narratives addressed through proposed architectural interventions to revive the sense of place and identity. The interventions are distributed across Flin Flon – the town, the landscape, the amenities and the mine are the main locations used for positioning the proposed design. Hence, Flin Flon becomes the museum for A Fable of Lost Volumes.

A schematic site proposal was created to communicate the key components and connections between the surroundings and the interventions. The project comprises of a series of architectural interventions located across Flin Flon. The visitors – the inhabitants and the eco-tourists – begin their journey at the town’s main intersection called “The Gateway”. The site plan illustrates a proposed location for a new train station at the current main intersection. The train station will reinforce the current “gateway,” currently employed to define the entrance of the town. This is where the first site is located, across the railway and in front of the train station. Once mining activities terminate, the train will become obsolete. Hence, I propose revitalizing the usage of the train for eco-tourists coming to Flin Flon from The Pas. This site is additionally adjacent to the beginning of the Flinty’s Trail and Boardwalk. The visitors approach the second location from the existing trail, where they encounter a continuous sewer box made of wood. Flin Flon is in fact the only place in the world to have its sewage above ground as the town sits on thick bedrock, displaying its strange landscape.⁷⁴ The next intervention is situated on the highest point of the town at the current lookout location. The site of the intervention includes the re-utilization of the existing hiking pathway, ultimately leading the visitors to observe the mining landscape. This site displays the broader surroundings of Flin Flon by temporarily withdrawing the visitor from the town. The existing trail continues to the historical and commercial area of Flin Flon. This area is adjacent to the mining facility where visitors transition towards the mining site by walk to reach the last intervention – the open pit – located at the end of the facility.

74. “Sewer Boxes.” City of Flin Flon.
<https://www.cityofflinflon.ca/t/tourism/sewer-boxes>

As visiting Flin Flon was impossible for this thesis year, the selected locations were based on a historical research and site analysis from Google Earth Pro images and YouTube videos. These videos were recorded either by drone, overlooking the landscape, or by tourists exploring the surroundings. The following describes the locations positioned between the interventions and selected from the built environment:

- The railway: Throughout its history, the railway has been used to carry ore-based minerals. With the closure of the Mine 777, its function will eventually be fully converted into a means of transportation for the tourist.
- The hiking trail: Situated on the rocky hillside overlooking Ross Lake, this part of the landscape is defined as the highest point, making it the most prominent feature of the natural environment. The evident rocky landscape that formed this distinctive hill shape had a significant role in the discovery of ore in Flin Flon. Nevertheless, its shape and scale were critical components in current times for the construction of a hiking path and a boardwalk.
- The sewer box: The above ground water lines were initially constructed in the time of the drill camp where the wooden casings served as the first sidewalks. These sidewalks are still fully functional today and can be found in several locations across Flin Flon, notably along the trail.

- The historical and commercial area: This part of Flin Flon received the initial amenities of the drill camp. Nonetheless, it is the place where the inhabitants convene today for their daily tasks, regardless of the mining activities.
- The mining facility: The scale of extraction begins to blur the distinction between the human and mining environments. Thus, the abandoned building still preserves the past narratives of the miners, discovered by the visitors while reaching the ultimate destination.

Site Location 01



Figure 36. Site exploration: View of the proposed location for the new train station and for the first intervention, picture taken from YouTube video published on April 2021.

Transition - Location 01 to Location 02



Figure 37. Flinty's Boardwalk. Site exploration: View of the existing trail, acting as a transition where the second intervention is located.

Site Location 02



Figure 38. Site exploration: View of the existing trail where the third intervention is positioned, picture taken from YouTube video published on October 2020.

Site Location 03



Figure 39. Site exploration: View of the historical and commercial area to located a secondary program, picture taken from YouTube video published on September 2020.

Site Location 04



Figure 40. Site exploration: View of the mining facility where the last intervention is positioned, picture taken from YouTube video published on April 2021.

Location 01 to Location 04



Figure 41. Flin Flon Sewer Boxes Site exploration: View of the sewer box above the ground and going through the town.



Project Description

Ideas of addition and subtraction were important conceptual and formal strategies. The traces, and the voids left play an important role in remembering a place and a space. The lost volumes of the mine become a platform for addition - new programs, artifacts, histories and encounters. The ground is in itself a memory - its emptiness a void to be filled. The idea of addition is translated through experiences as it implies the act of recollection and remembrance. The library of memories - the Fable of Lost Volumes - challenges the notion of extraction, by using the mining landscape as a repository of experience. This back-and-forth allows for new relationships to form in addition to recognizing the cultural and historical ones that have existed in Flin-Flon. A different kind of relationship between the human and the environment is created as a result. Observing the historical context of the mine, visitors are confronted by past and present. The mining landscape is both a site and an architectural backdrop/armature. The design adds program into the surrounding landscape, transforming it into something familiar and new at the same time. The added programs will start to narrate the memory of Flin Flon to allow the production of a series of architectural moments. This new program can be interpreted into two fundamental architectural subjects: transitional space and a point of destination.

The work uses transitional spaces as a movement through time, characterized as a link between two distinct spaces. This transition is experienced through wonder and discovery, existing between the surface and subsurface – the mining world and the human environment. The visitor engages between the body and the mind through the scales of the body and the

environment and positioned between two worlds – mining and human – where the transitional space allows for the experience of the in-between. This transition is a key component for the visitor's experience as it connects the points of destination. These destination points are employed in the thesis as small interventions to experience and observe the landscape and the mining world. These interventions contain a certain duality as they intent to, not only display the extraction in the Anthropocene, but also evoke the identity of the town and preserve its memory. The points of destination express this duality by employing a specific function that is linked to the transition from above to below ground, ultimately conveying the story of Flin Flon.

A Fable of Lost Volumes



Figure 42. Site plan demonstration the interventions and secondary programs.

A Fable of Lost Volumes is imagined in the year of 2030 - a decade after the mine closure. It carries the visitors through a series of four speculative micro-interventions, illustrated by narrative drawings: (1) Gateway, (2) Memorial Path, (3) Observatory, and (4) Library of Artefacts. The visitors can additionally rest and eat at the designated secondary programs: the café and the resting pods. These interventions are positioned to engage with the town and the landscape. In order, the narrative drawings represent the visitor's experience at the first-person – myself as the main actor of the story – experiencing the intensities of the Anthropocene. Each intervention is represented by collected photographs and drawings that describes the architectural moments. The drawings tell the story of an eco-tourist coming to Flin Flon and discovering the strange mining world.

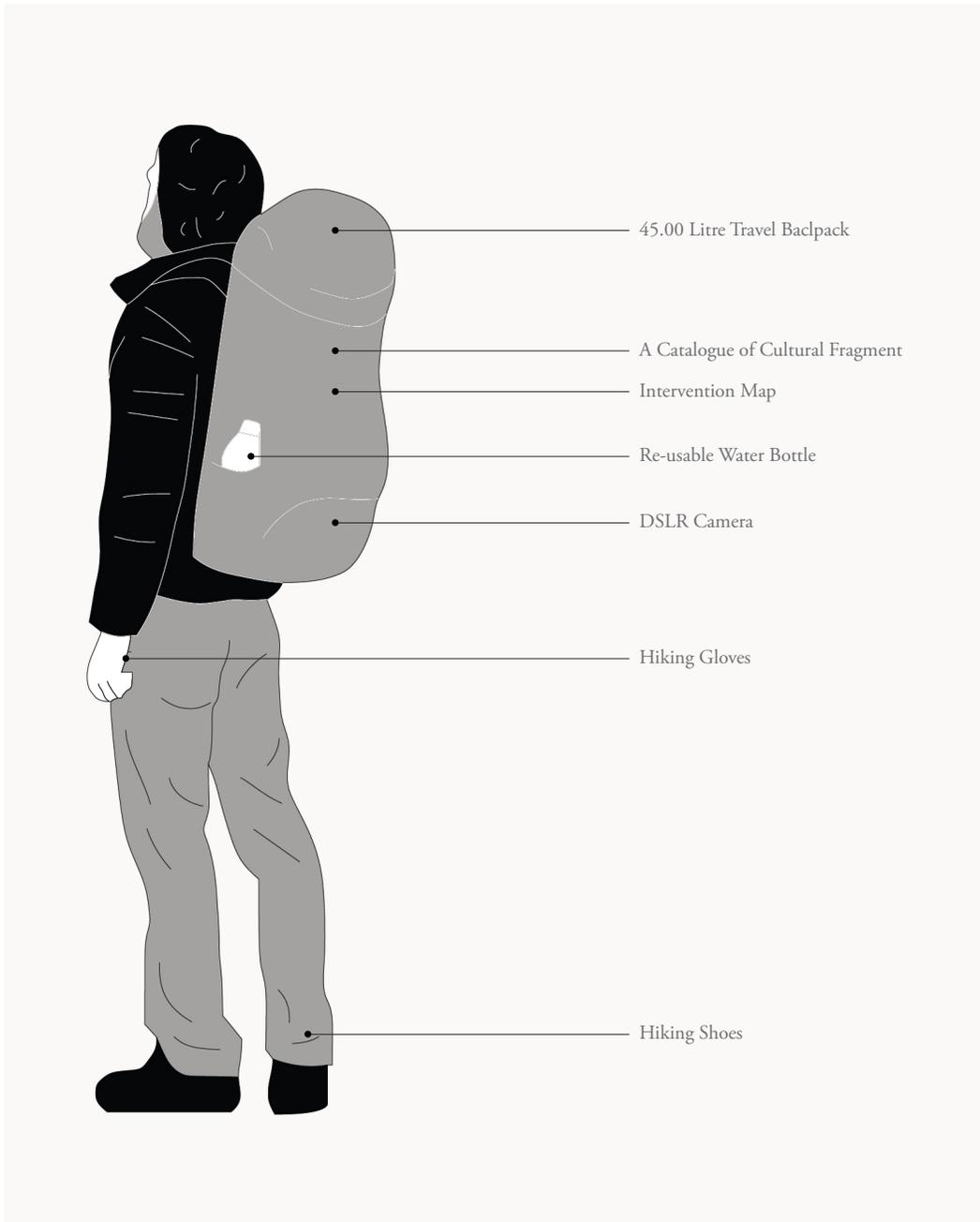


Figure 43. Actor of the drawing narratives.

Gateway



Figure 44. Actor's view from the train station.

Est. 2022. At the time of the closure
Occupancy: 4 visitors
Arrival: 08:00 a.m.

The first intervention is positioned as a transitional entrance between the human world and the scarred landscape – the Anthropocene. As a gateway, the design aims to move the visitors from one space to another, to the mining world, through a deep underground reaching the bottom of the intervention. The gateway, as the first intervention conceived for the museum, introduces extraction through materiality. Copper cladding is noticeable from the surface highlighting the metaphor of entering a world founded on ore-based mineral.

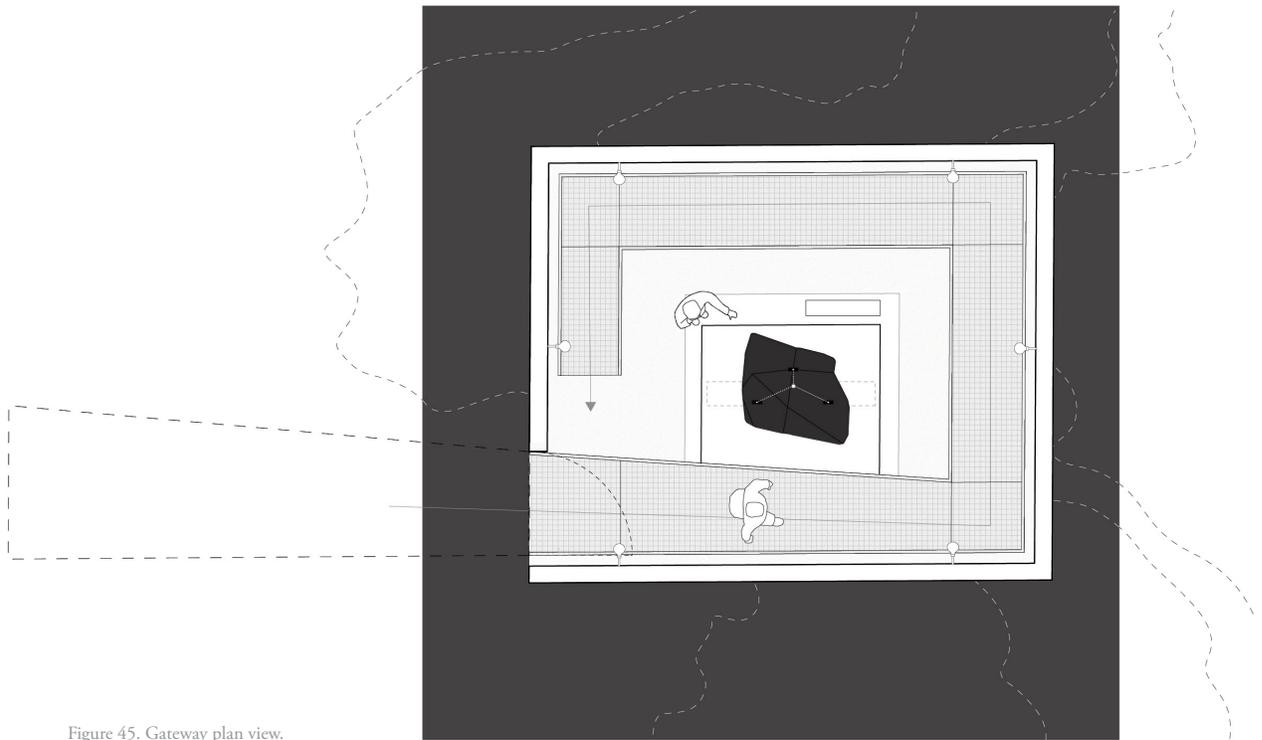


Figure 45. Gateway plan view.

Rare Earth Mineral

The program tells the story of the first significant orebody discovered in Flin Flon. A preserved fragment of the ground containing ore-based mineral is positioned at the bottom of the intervention where a ramp takes down the visitor on an elevated platform. This rock, named Rare Earth Mineral, was preserved by Flin Flon as it speaks of the town's heritage. This fragment is hung by three tall cables, supported by the roof structure resembling a headframe wood construction. The rock is held between the ground and the top of the structure, referring to the act of extraction.

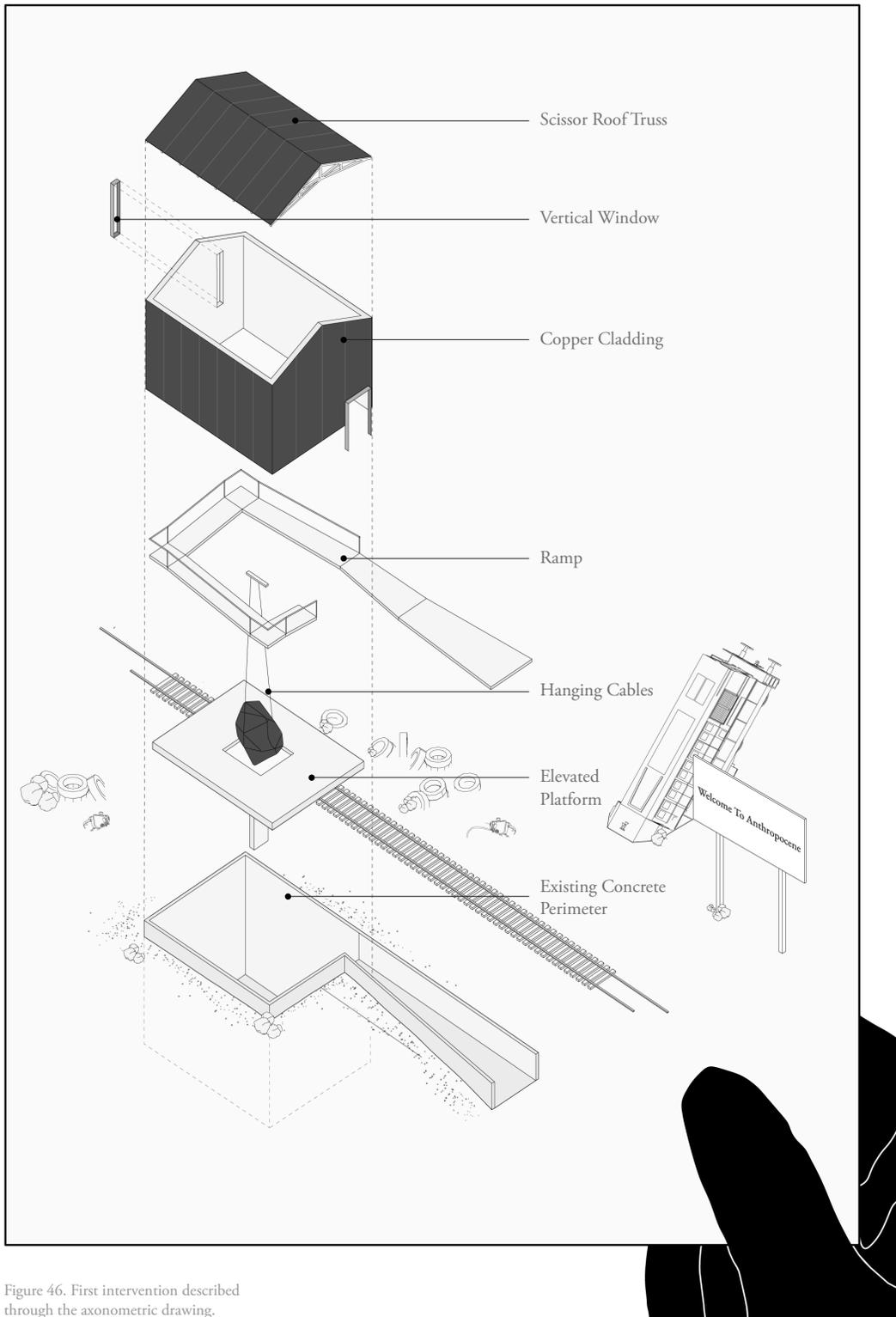


Figure 46. First intervention described through the axonometric drawing.

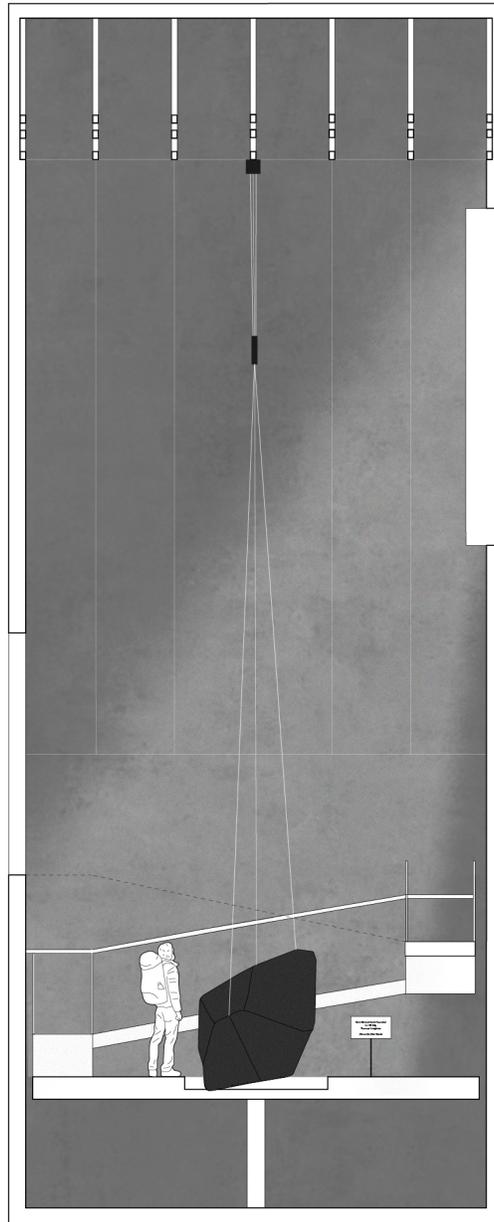


Figure 47. Section view.

Dark and Light

The position of the vertical window transports the light that travels to the underground. The light then reveals the rock within a tall and narrow dark space.

Memorial Path



Figure 48. Actor's view of the memorial path.

Est. 2024
Arrival: 08:30 a.m.

The second intervention is called memorial path and displays sections of the Anthropocene, through time, and in accordance with the mineral extraction in Flin Flon. The memorial path is situated on the existing hiking boardwalk where small posts are distributed on the landscape to display the intensities and scales of the past extraction. Each post has a base of copper cladding to represent the amount of ore remaining in Flin Flon through its history. The posts illustrate the decades of mining in the town and, as the copper cladding declines, more section of the ground gets revealed.

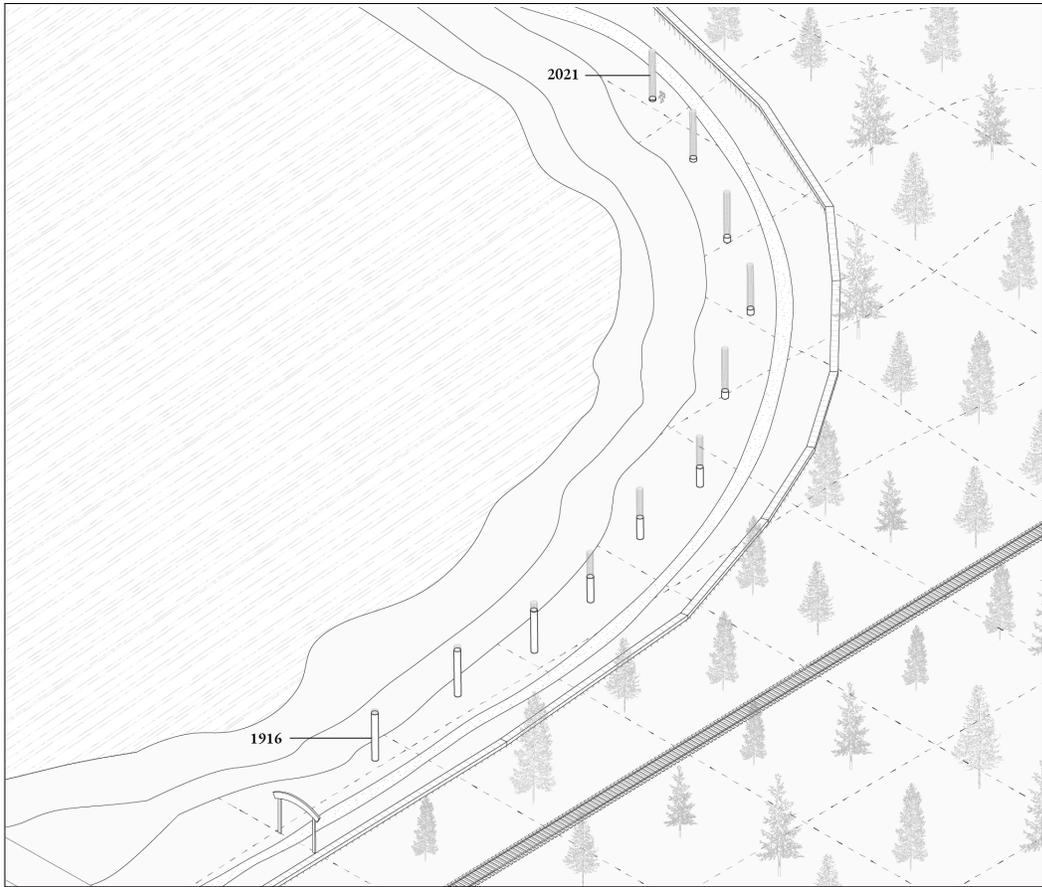


Figure 49. Axonometric drawing of the memorial path in relation to the hiking boardwalk.

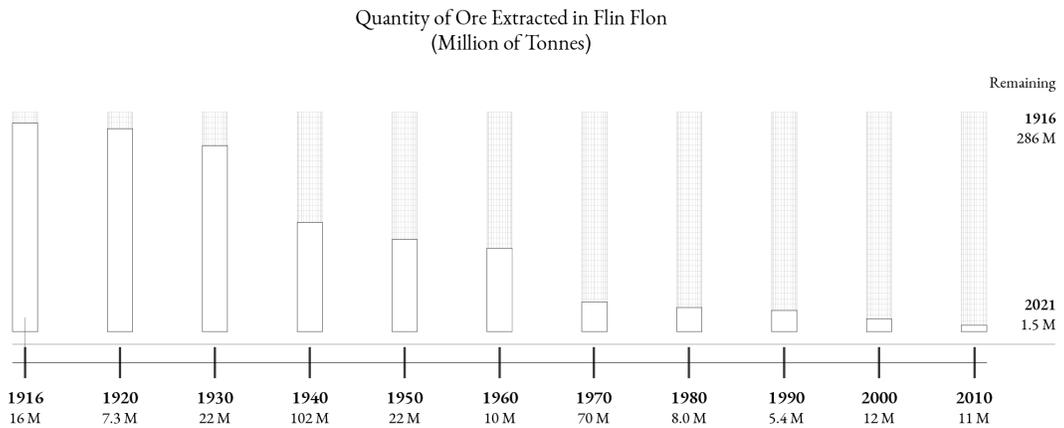


Figure 50. Copper declining, portion of the grown increasing, as the decades pass by.

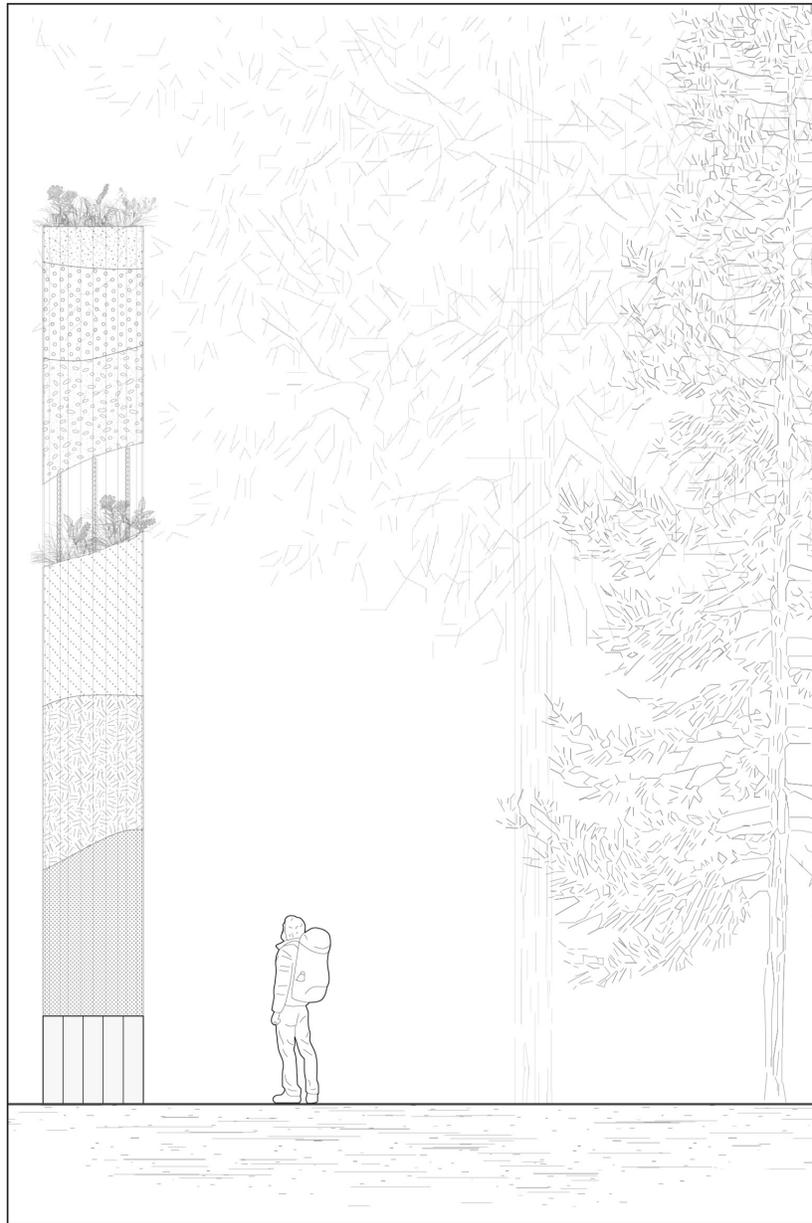


Figure 51.
Section view of
the post

Section of the Anthropocene

This drawing represents the scale of the post on the hiking path. Each layer of the ground illustrates a section of the Anthropocene, increasing as we move forward in time. The visitor can observe which part of the biodiversity was mostly affected in the history of extraction in Flin Flon.

Observatory



Figure 52. Actor's view of the observatory.

Est. 2025

Occupancy: 2 visitors

Arrival: 12:00 p.m.

The observatory was developed into two different viewing positions, looking at the chimney smelter and at the toxic ponds. The first viewing frame tells the story of the important relationship of the site with the surroundings. From here, the visitors witness the gigantic without entering it. After this stop, the further the visitor travels, the more impact of the transformed landscape can be seen. The first space of the observatory is made of a long ramp acting as a dark portal that goes further into the ground to illustrate the miner's world. At this moment, the visitor stands in-between two worlds, human and mining.

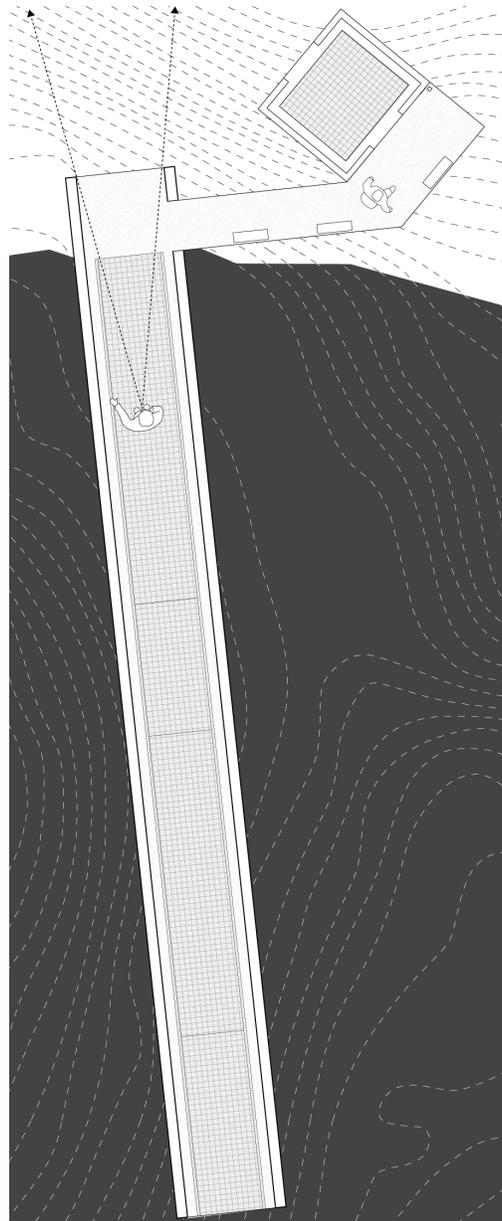


Figure 53. Observatory plan View.

The Ramp

The more the visitor progress into the observatory, the more impact on the landscape can be seen. At the end of the ramp, the second largest chimney smelter of Canada is introduced to the visitors.

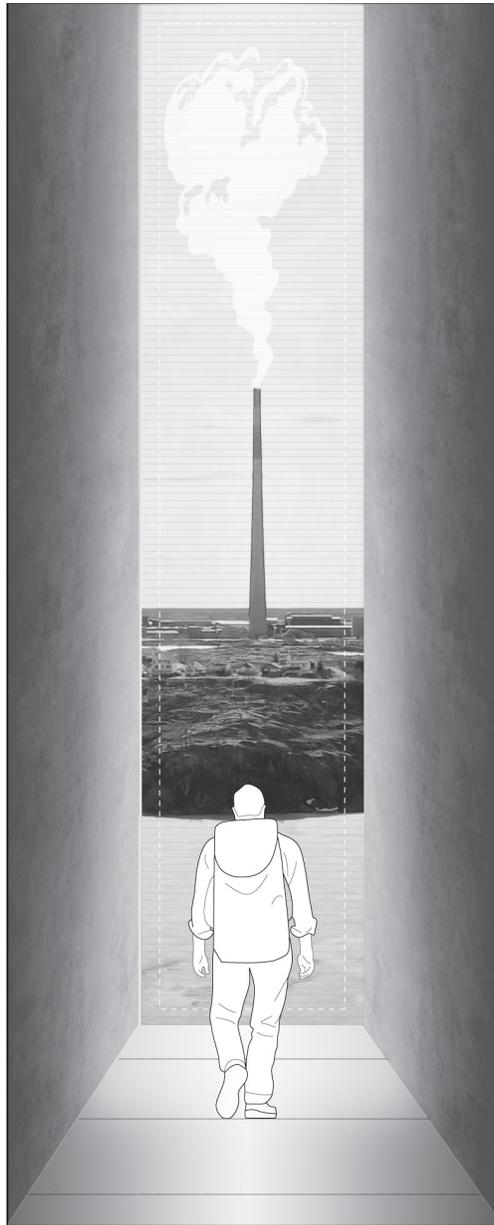


Figure 54. Vignette from Observatory.

The View

The intervention frames the smelter as a metaphor of dust, displaying the passage of time. It speaks of the inhabitant's lifestyle and their activities. It tells the story of the town.

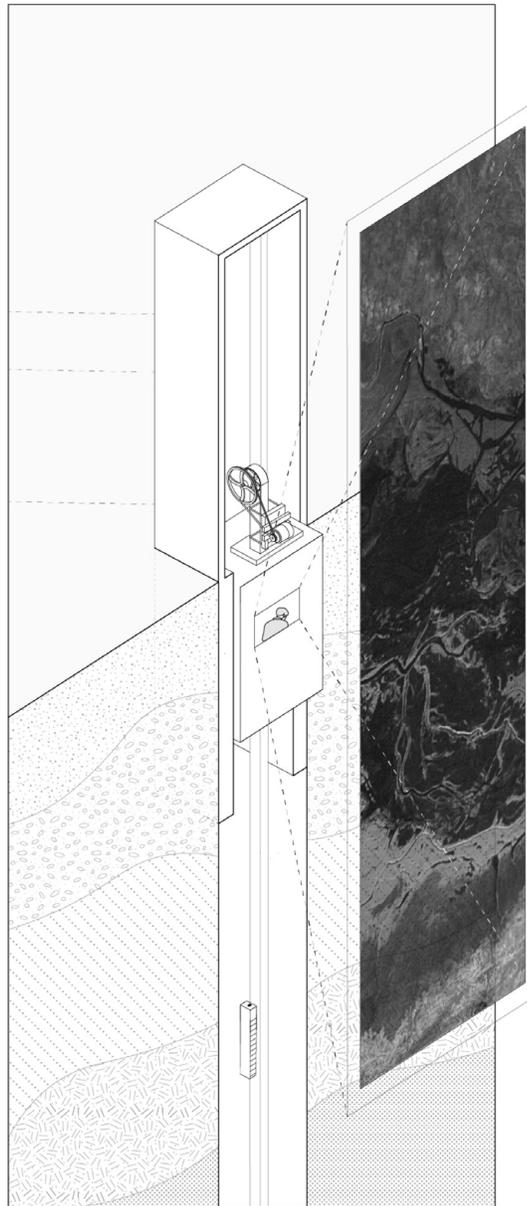


Figure 55. Axonometric section.

The Shaft

The second viewing frame, the shaft, cuts through the ground, allowing to visually engage on one side with the layers of the earth, and on the other side, with the saturated colours of the toxic ponds visible at the horizon.

Library of Artifact

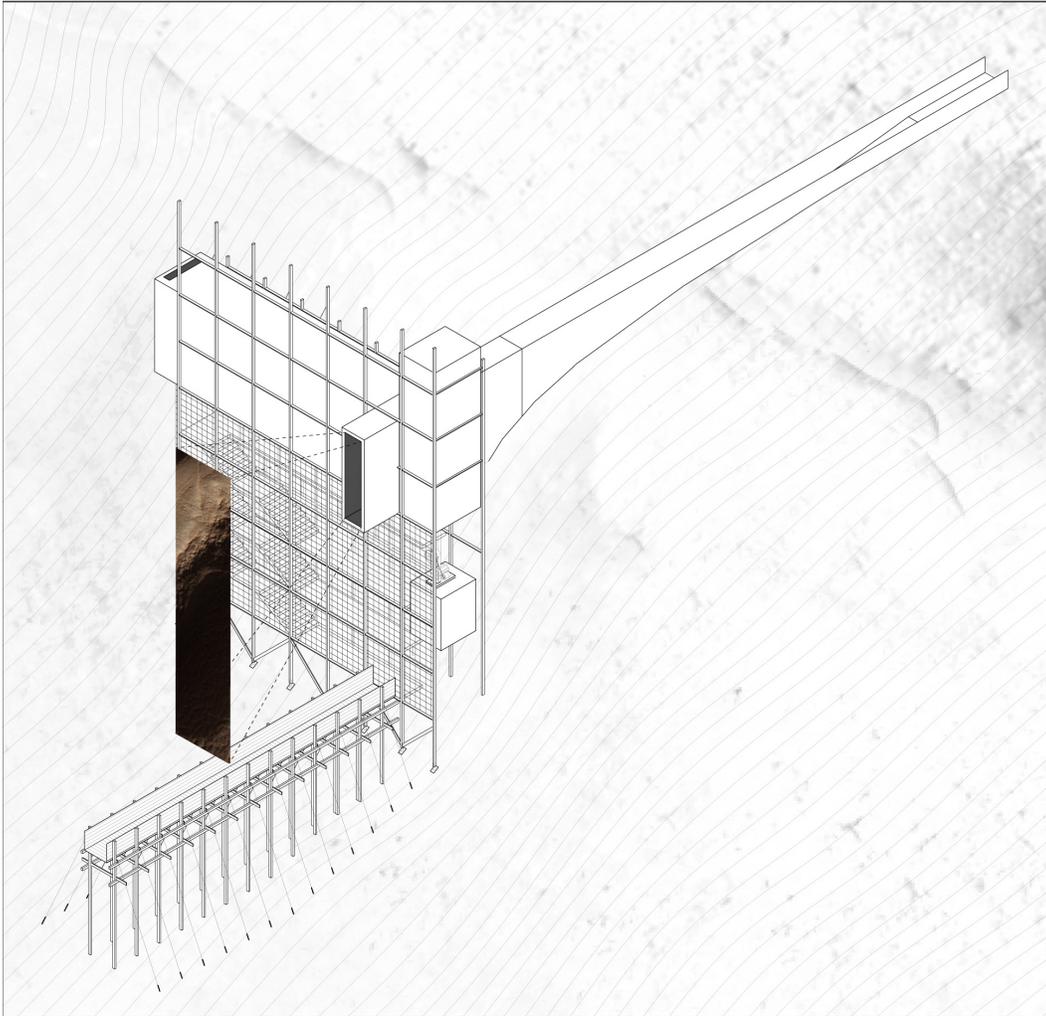


Figure 56. Axonometric view of the library of artifact.

Est. 2029

Occupancy: 6 visitors

Arrival: The following day

As an important final phase of the design, the last intervention tells the story of the deep void – the open pit – that remained behind. From here, the visitors enter the library of artifacts through a ramp leading them to the underground where the added intervention fills the subtracted volume. The visitors begin to sense and experience the scale of the past ore extraction. At this point, the visitors find themselves standing deeply into the gigantic, where they gain a deeper understanding of the scarred industrial landscape.

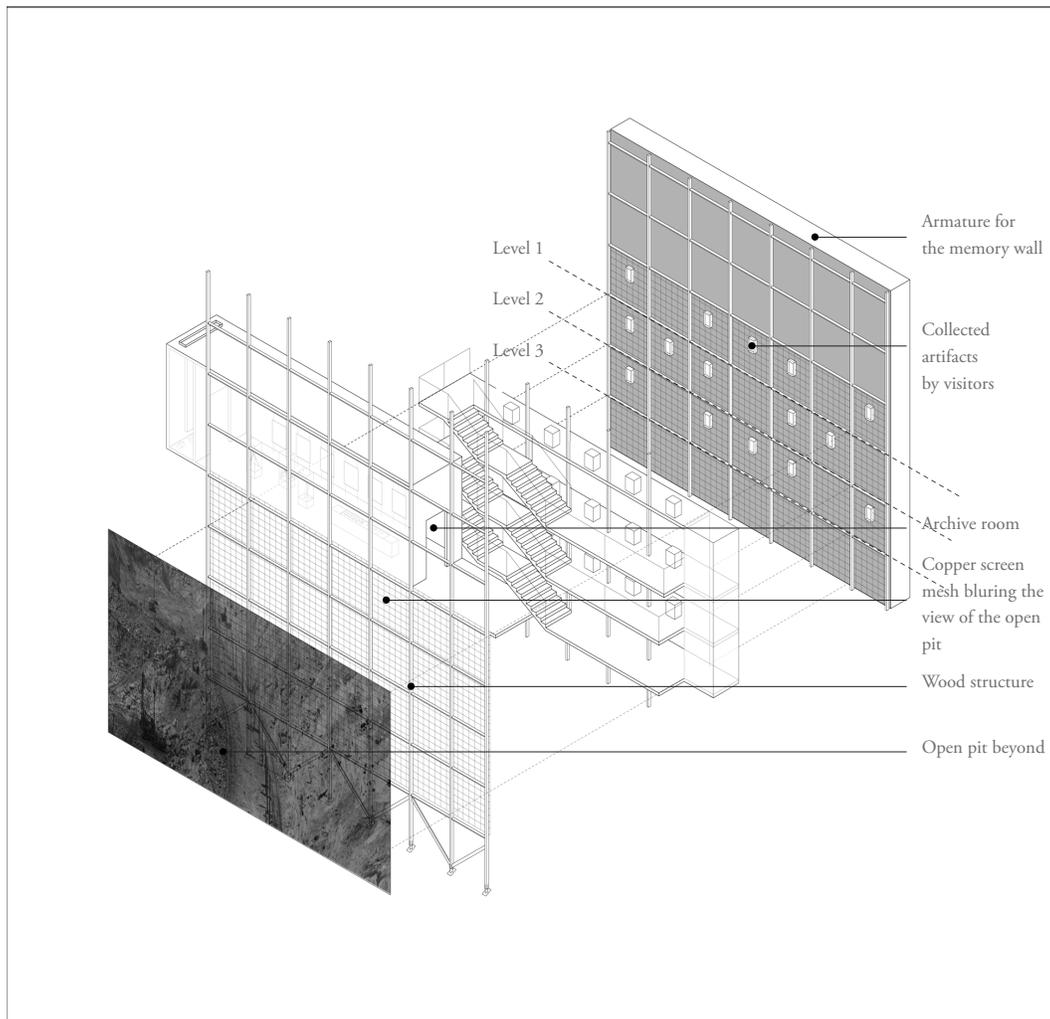


Figure 57. Axonometric view of the memory wall.

This intervention is designed through a vertical volume consisting of observation points, showcasing the massive view of the open pit. It also consists of the library of industrial artifact, of the memory wall, where visitors can collect and archive their own artifacts, and lastly, of a platform where visitors stand in the scarred landscape. The cladding memory wall was developed as an observing screen mesh that allows the visitors to sense the past lived experience of Flin Flon. It begins to act as a metaphor for memory by blurring the view of the mine while transiting down through the wall. The structural system developed for the memory wall speaks of the tamarack as a first mining gesture, overlapping between extraction and the residual scars below. The wall constrains the visitor where they can bring objects of the landscape, collected through their journey and where they add them to the library of artifacts.



Figure 58. Axonometric view inside the library of artifact.

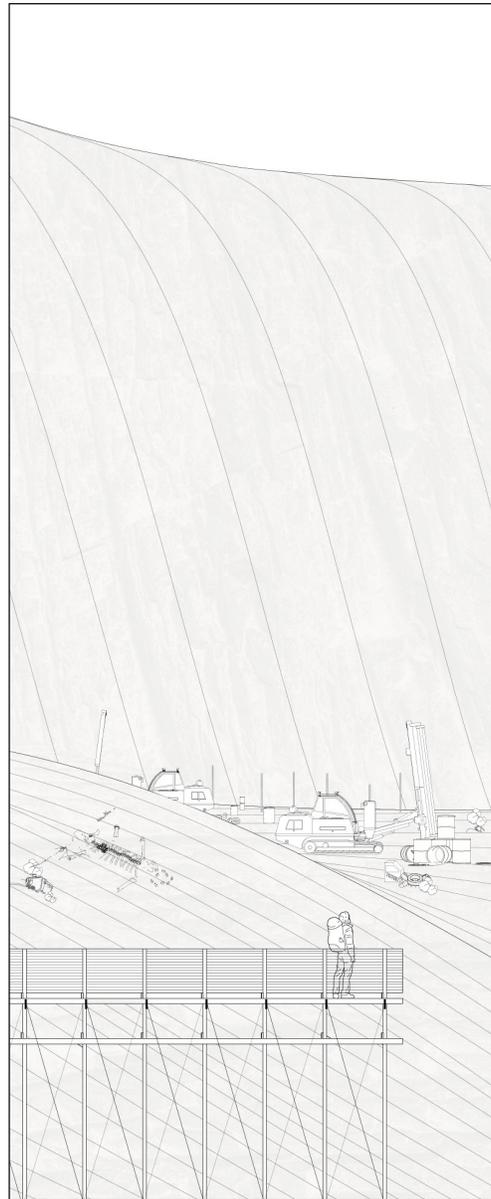


Figure 59. Vignette of the actor in relation to the mining landscape.

The Platform

As visitors progress down the library of artifact, they arrive on an elevated platform. At this moment, the visitor has clear vision of the scale of the Anthropocene and the mining activities recorded by the landscape through the marks left on the rock.

Conclusion

This thesis studied the themes of the Anthropocene and memory as a way to develop a recreational design that would respond to the mine's closure. Although, the Anthropocene and extraction are not aspects of our humanity perceived as positive, their memory should still be preserved as it takes part in our history. In a town like Flin Flon, the Anthropocene is the foundation of their identity, and once mining is over, the question begs itself: what will happen to the heritage of the town in the context of a post-industrial landscape. As the thesis aims to preserve the memory of Flin Flon, narrative drawings were used to convey an imaginative discourse on the experiences of the eco-tour of the Anthropocene.

I initially began to produce a series of catalogue to define the basis of the Anthropocene in Flin Flon. The catalogue was based on actual information from archived images and historical articles. The images illustrated in the catalogue are evidence of the process of extraction that occurred in the town over the past century. This part of the catalogue was crucial as it connects the important moments in time that formed a collective memory to the mining industry. Other elements, such as informative drawings, were added to the catalogue to provide more details of the impact of extraction in the region.

In the sub-chapter A Fable of Lost Volumes, the drawings act as an introduction to a speculative design fiction. To achieve this objective, I used mixed mediums of drawing and photographs to represent, for instance, what would an eco-tourist observe prior to entering the strange world of Flin Flon. On the other hand, the architectural drawings – plan, sections,

axonometric drawings and vignettes – aim to represent how the design interacts with the ground and how the spaces were architecturally crafted. This series of drawing narrates how the protagonist circulates in the interventions and illustrates spaces of light and darkness to represent the preserved experience of the miner's world.

Discovering Flin Flon by the means of narrative was a learning method to challenge issues of continuity, extraction and heritage. All of which questions a scarred mining landscape, revealing culture, memory and identity. This process of drawing was an opportunity to bring hope between past and present in Flin Flon by telling more stories to the Anthropocene.

Bibliography

Books:

Muddock, J. E. Preston. *The Sunless City: From the Papers and Diaries of the Late Josiah Flintabbatey Flonatin*. Brandon: Leech Printing, 1905.

Sahlberg, Bengt et al. *Going North: Peripheral Tourism in Canada and Sweden*. (Ostersund: European Tourism Research Institute, 2001).
<https://www.diva-portal.org/smash/get/diva2:220876/FULLTEXT01.pdf>

Treib, Marc. *Spatial Recall: Memory in Architecture and Landscape*. (London: Routledge, 2009). Taylor & Francis eBooks Complete.

Usher, Phillip John. *Exterranean: Extraction in the Humanist Anthropocene*. (New York: Fordham University Press, 2019). ProQuest Ebook Central.

Wicke, Christian, Berger, Stefan and Golombek, Jana. *Industrial Heritage and Regional Identities*. (London: Routledge, 2018). Taylor & Francis eBooks Complete.

Dictionaries and Encyclopedias:

D.M. Lyon. *The Canadian Encyclopedia Online*, s.v. "Flin Flon."
<https://www.thecanadianencyclopedia.ca/fr/article/flin-flon>

New Oxford American Dictionary. 3rd ed. Edited by Angus Stevenson and Christine A. Lindberg. (New York: Oxford University Press, 2015), s.v. "Memory."
https://www-oxfordreference-com.proxy.library.carleton.ca/view/10.1093/acref/9780195392883.001.0001/m-en_us1267090?rskey=Z2p7EU&result=52081.

Journal Articles:

- Coutts, Robert. "Heritage and the Landscape of memory: commemorating the fur trade in Manitoba." *Manitoba History* 81 (Summer 2016): 7-15.
https://link.gale.com/apps/doc/A465296731/AONE?u=ocul_carleton&sid=bookmark-AONE&xid=a95ae82b.
- Hewitt, Kenneth, "Extraction Empire: Undermining the Systems, States, and Scales of Canada's Global Resource Empire, 2017-1217 Edited by Pierre Bélanger, MIT Press, Cambridge, 2018, 800 Pp., Paperback, \$52.00 (ISBN 978-0262533829." *The Canadian Geographer / Le Géographe Canadien* 64 (September 2020): e24-e26.
<https://doi-org.proxy.library.carleton.ca/10.1111/cag.12654>.
- Innis, Harold A. "The Hudson Bay Railway," *Geographical Review* 20 (January 1930): 1-30.
<https://doi.org/10.2307/209124>
- N. F., Sayre. "The Politics of the Anthropogenic." *Annual Review of Anthropology* 41 (October 2012): 57-70.
<https://doi-org.proxy.library.carleton.ca/10.1146/annurev-anthro-092611-145846>
- Outridge, P. M. et al. "Comparison of mercury and zinc profiles in peat and lake sediment archives with historical changes in emissions from the Flin Flon metal smelter, Manitoba, Canada." *Science of the Total Environment* 409 (January 2011), 548-563.
<https://doi.org/10.1016/j.scitotenv.2010.10.041>
- Owojori, Olugbenga J., and Siciliano, Steven D. "The potentiation of zinc toxicity by soil moisture in a boreal forest ecosystem." *Environmental Toxicology and Chemistry* 34 (March 2015): 600-607.
<https://doi-org.proxy.library.carleton.ca/10.1002/etc.2846>

Robson, Robert. "Manitoba's Resource Towns: The Twentieth Century Frontier." *Manitoba History* 16 (Autumn 1988).
http://www.mhs.mb.ca/docs/mb_history/16/resourcetowns.shtml.

Steinburg, Will. "High Stake and Hard Times: Herb Lake and Depression-Era Mining in Northern Manitoba." *Manitoba History* 68 (Autumn 2012): 17-27.
https://link.gale.com/apps/doc/A296951900/AONE?u=ocul_carleton&sid=bookmark-AONE&xid=eddacaf5.

Newspaper Articles:

Canadian Mining Journal Staff. "A look at HudBay's history." *Canadian Mining Journal*, October 1, 2008.
<https://www.canadianminingjournal.com/featured-article/a-look-at-hudbay-s-history/>.

Flin Flon Reminder Staff. "It took blood, sweat and ambition How the railroad came to Flin Flon in 1928." *The Reminder*, June 22, 2012.
<https://www.thereReminder.ca/local-news/it-took-blood-sweat-and-ambition-how-the-railroad-came-to-flin-flon-in-1928-4021519>

Westhaver, Eric. "Hudbay's 777 mine, mill, zinc plant in Flin Flon scheduled to close in April 2022." *Thompson Citizen*, January 7, 2020.
<https://www.thompsoncitizen.net/news/nickel-belt/hudbay-s-777-mine-mill-zinc-plant-in-flin-flon-scheduled-to-close-in-april-2022-1.24047699>

Thesis and Dissertations:

Scott, Katherine. "Archiving the Technosphere: A Bergsonian Manifesto Against Conservation in the Age of The Anthropocene." Master thesis, The Bartlett, 2017.
http://fileunit-21.com/wp-content/uploads/2017/06/File-02_katherine-Scott-A4.pdf

Web Documents:

Hudson Bay Mining & Smelting Co. *The Story of Hudson Bay Mining & Smelting Co., Limited*. (Flin Flon: Flin Flon Heritage Project)

<http://flinflonheritageproject.com/wp-content/wppa-depot/pdfs/1004029%20The%20Story%20Of%20HBM&S%201980.pdf>.

Pearson, Brett et al. *Technical Report 777 Mine, Flin Flon, Manitoba, Canada*. (Toronto: Hudbay Minerals Inc., October 2012)

https://s23.q4cdn.com/405985100/files/doc_downloads/tech_reports/canada/777-Technical-Report_v001_u7756t.pdf

White, D. J. et al. *Seismic Exploration within the Flin Flon VMS Mining Camp, Manitoba, Canada*. (Toronto: Exploration: '07: Exploration in the New Millennium, Decennial Conference Proceedings, September 2017)

<http://www.dmec.ca/ex07-dvd/E07/pdfs/117.pdf>

Web Pages:

"Community Profile." City of Flin Flon.

<https://www.cityofflinflon.ca/p/community-profilenarrat>

"Flin Flon Lake Ore Body Claim Post." Narrative Threads: Crafting the Canadian Quilt.

<https://www.narrativethreads.ca/explorer-explore/flin-flon-lake-ore-body-claim-post.html>

"Flin Flon Tailing Impoundment System." BCG Engineering Inc.

https://bgcengineering.ca/mining_flin_flon.html

"Hudson Bay Railway." Canada-Rail.

<https://www.canada-rail.com/manitoba/railways/ HB.html>

"Sewer Boxes." City of Flin Flon.

<https://www.cityofflinflon.ca/t/tourism/sewer-boxes>

Tsing, Anna L., Deger, Jennifer, Keleman, Alder S., and Zhou Feifei. "Introduction to Feral Atlas." Feral Atlas published by Stanford University Press.
<https://feralatlas.supdigital.org/?cd=true&bdtext=introduction-to-feral-atlas>.

Tsing, Anna L., Deger, Jennifer, Keleman, Alder S., and Zhou Feifei. "Terra Forma, Mapping Ruined Soils." Stanford University Press.
<https://feralatlas.supdigital.org/?cd=true&rr=true&cdex=true&text=terra-forma-mapping-ruined-soils&ttype=essay>