North of the Arctic Circle

Ralph Erskine's Mid-20th Century Urban Planning and Design Projects in Kiruna and Svappavaara

Ann Maudsley

This chapter examines the imagined Arctic towns of Ralph Erskine (1914-2005), a British born and educated architect who, in 1939, started his own architectural office in Sweden. This chapter then explores Erskine's own theoretical and practical architectural, design and town planning visions for building communities in the north in the 1950s and 1960s. Focusing on Erskine's projects at a town planning scale in Kiruna and in the nearby town of Svappavaara, both in Sweden, the chapter studies the built environment elements and design of these places; planning and development processes for each project; and the outcomes in each location, as described by Erskine himself and by other sources (e.g. Egelius 1990). It draws upon evidence from primary and secondary material, much of which is from the collections of Erskine's architectural office held at ArkDes, Sweden's national center for architecture and design. The chapter asks: 'What are the fundamental elements of Erskine's ideal Arctic town; what factors have challenged the resilience and survival of built examples of these communities; and what can Erskine's planning visions teach us about contemporary resilience discourse and practice?' This chapter attempts to identify lessons learned from Erskine's approach to planning and design in Arctic and subarctic regions, with a particular focus on community and climate.

The Arctic Architect

In 1939, Ralph Erskine, a newly qualified architect with training in urban planning, left his native England to find work in Sweden (Egelius 1990: 7-8). As a pacifist, Sweden's neutrality on the brink of the Second World War was "certainly significant for his decision to start his career in Sweden" (ibid: 8). Erskine remarked that he "first came to Sweden at the end of the thirties to escape from English conservatism" (Erskine 1961: 161). With the Stockholm Exhibition of 1930, Sweden "had confirmed [...its] position at that time as a country that was building extensively using a

modern architecture" (Collymore 1994: 4). The "links with social questions, and the Swedish political insistence on creating a novel, less inequitable society, strongly attracted Erskine" (Egelius 1990: 7). Social and environmental commitment became a central focus of Erskine's architecture and urban planning.

After moving to Sweden, Erskine started building a career in architecture and planning, with several projects being located in the northern parts of Sweden. Early Erskine buildings in northern Sweden include the wooden Avasjö Chapel in Borgafjäll (1947) with Sören Wimmerström and Uffe Olrik. A year later he also worked on another project in Borgafjäll, a ski hotel (1948), with Aage Rosenvald, Lennart Bergström and John Staalehoef. This hotel was "designed to integrate into the landscape" (ibid: 209), with "[l]ong roof slopes [that] doubled as nursery ski slopes, until the snow built up to transform them into part of the mountain landscape." (Rowntree 1964) Meanwhile "[i]ndoors, the play of levels and planning of space was so imaginative that guests did not much mind when the weather kept them inside." (ibid) The hotel was "[b]uilt in material available or prepared locally: rough sawn timber, stone, brick, telephone poles" (Egelius 1990: 209). Another 'pioneering' northern project of Erskine's with Henrik Jais Nielsen, Bo Sundberg and Jörgen Andersen, was the shopping center in Luleå (1954-56). "The first indoor shopping centre in Sweden", with a mix of uses this "was intended as a town within a town but differs from American shopping centres in being planned for the bleak northern climate, close to the Arctic Circle" (ibid: 46). Here, "[t]he icy outdoor air was excluded by a curtain of heated air: inside there was an artificially warm oasis in the midst of a frozen town" and "circulation areas that were given many exterior qualities" (ibid: 46).

In the 1950s Erskine also began developing theoretical design and planning visions for northern cities and towns. These included a plan for central Kiruna with Peer-Ove Skånes (1955, unbuilt); and an Arctic Town that is an "ideal, climatically-suited community" (ibid: 211-212). His early architectural and urban design vision laid the groundwork for his plans for Arctic and subarctic towns for decades to come.

Erskine's focus was on the Arctic, and within it, "the Arctic zone proper consisting of polar sea and the partly glaciated islands […] where snow and ice never disappear, and the sub-Arctic[1] zone, a great circumpolar region stretching from the polar sea to well south of the tree line where it merges into the cold temperate zone" (Erskine 1960: 216). In the Arctic zone, both the climate and environment are harsh. There is "isolation, and continuously shifting boundaries between liquid and solid, between darkness and light" (Jull 2016: 214). Here, extreme cold, snow and wind dominate winter. In planning for these kinds of conditions, Erskine detailed

1 Although subarctic is now the commonly used spelling, I keep the spelling "sub-Arctic" where it appears in the original historical text.

"the exceptional costs of road building, maintenance and snow clearance, of laying drains and water mains at a depth of 3 m often in rock to protect against frost, as well as the discomfort of moving in an open windy community in the winter blizzards" (Erskine 1968a: 168). In contrast to winter when "the sun is always fairly low", summer is characterized by constant light (Erskine 1961: 162). Writing for CIAM '59 in Otterlo, Erskine argued that in "[c]orresponding to these light conditions, one has the task of using buildings to reflect the light in spring and to give shade in the summer – quite different from the way we think about buildings here." (ibid:162) As McGowan notes, Erskine's "sub-Arctic projects, especially his unrealized utopian projects for an 'Ideal Town' north of the Arctic Circle, have been canonized in architectural discourse as exemplars of an architecture that is truly regional in character and, moreover, ideally suited to the unique cultural – especially with regard to indigenous populations – and environmental habitats of Arctic and sub-Arctic environments" (2008: 241). Erskine gained the label of "Arctic Architect" (Rowntree 1964: 9; Egelius 1990: 67). This "alias has continued to dominate an understanding of Erskine and his work" (McGowan 2008: 241).

Resilient Utopias in Extreme (Cold) Climates and Environments

Planning and designing buildings, cities and societies that are resilient to external shocks and that are tailored to their particular environmental and climatic conditions is a key feature in several utopian projects. As early as 1516, Sir Thomas More wrote about "streets that are well designed […] for protection against wind" in his perfect society on the fantastical distant island, Utopia (2009 [1516]: 51). By the early 1800s, too, there was a fascination with creating ideal places in the north. For Charles Fourier, 60 degrees north and beyond represented a place for populating and cultivating (1996 [1808]). This 19th-century fascination with the north also aligned with the growth of the railway, which saw a boom in mass tourism driven by intrepid travel writers lured by the dramatic scenery and unfamiliar culture of the north (Hooker 1837; Lowe 1857; Stanford 1881). Writing approximately 125 years after Fourier, Le Corbusier suggested that Utopia could be found at 64.4 degrees parallel north (1967 [1933]). More recent utopian visions include "Rethinking the Bering Strait", an ecological and renewable system and structure for life proposed by OFF Architecture for the threshold between the Arctic and Pacific Oceans, Siberia and Alaska, with an envisaged completion date of 2070 (Klanten/Feireiss 2011). These examples suggest that there has been a fascination with climate and environment – and specifically the north – for more than five centuries.

A connection to the Arctic north is also characteristic of several 20th and 21st century domed science fiction type climatic utopias. Dubai Sunny Mountain Ski Dome is a 21st-century real-world example of a project, where an "Arctic experien-

ces" effect is emphasized, but within a weather-controlled structure in a climatically different place (Dubai Ski Dome 2018). While Dubai Sunny Mountain Ski Dome is yet to be constructed, a much smaller scale snow park, Ski Dubai, has already been built in the Mall of the Emirates. These visions of domed structures resemble science fiction type climatic utopias of the mid-20th century set in arid landscapes (Dorrian 2012). Such projects include Buckminster Fuller's geodesics, including the floating globes of his 'Cloud Nine' project (ca. 1960) with Shoji Sadao (ibid: 29). Frei Otto and Kenzō Tange similarly proposed a City in the Arctic (1971) of up to 40.000 inhabitants, with a city completely enclosed under a domed roof. In this example, a temperate latitude city is decoupled from the outside Arctic climate by means of mechanical and structural systems (Jull 2016).

The north and Arctic continue to exert a powerful influence on architectural imaginaries. The Arctic stands for nature "in its most pure, untouched, virginal and whitest state" (Dorrian 2012: 32). A territory rich in raw materials, it has been a place for exploitation and possibilities. Erskine himself described this space – particularly the subarctic – as a place of "isolation", an area that "was at the periphery of everything happening in the world" (Erskine 1961: 161). It was in this extreme environment that he proposed to "establish a habitat for a modern sub-arctic life" (ibid: 161).

Erskine's Ideal Arctic Town

Like his contemporaries Buckminster Fuller, Shoji Sadao, Frei Otto and Kenzō Tange, amongst others, Erskine explored the possibility of having northern towns with interior functions to enhance convenience and comfort in the context of extreme climatic conditions (Erskine 1961: 166). Erskine himself stated that "earlier it had seemed to me to be a possible solution for the high arctic", and had proposed, for example, indoor "planting with exotic vegetation – such as apple trees" (Erskine: 1960: 217). He later warned against the "science-fiction type solution which has appealed to many designers and engineers", that is, "the technical and economic solution […] to plan all dwellings and other functions within one compact, weather protected and well heated building […which] can have disastrous social and psychological consequences and […] become very expensive in the long term" (Erskine 1978: 6). He argued that covering "the whole city with a plastic bubble or something like that […] is wrong, for it has forgotten one important human factor and that is the question of the summer, the experience of it, the experience of the air and the direct sunlight" (Erskine 1961: 167). While planning for integrated indoor functions may allow for comfort and convenience, especially in the winter, important social and psychological relationships with nature are degraded. For these reasons, comfort and convenience should not be the exclusive target of the architect/planner:

Urban planning should recognize that a relationship to nature is important for the emotional, psychological and social well-being of city dwellers.

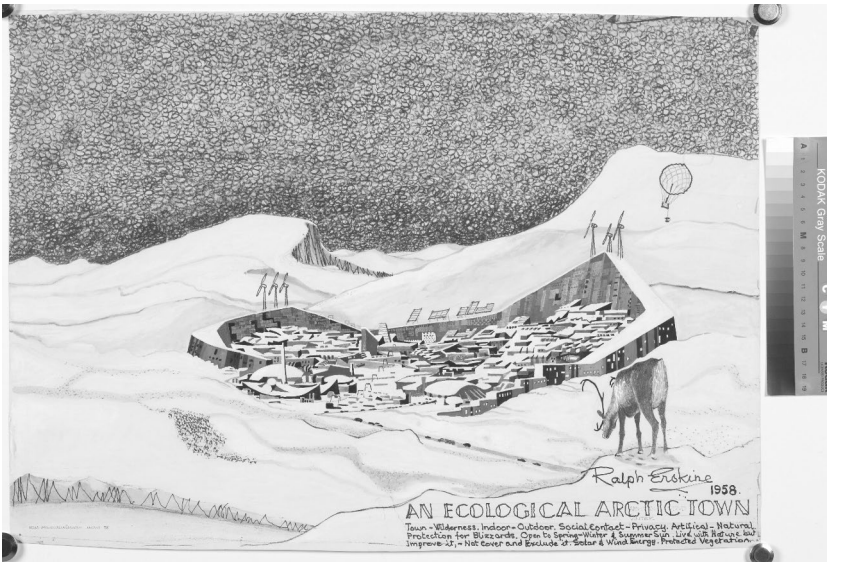
Erskine argued there should be "a grouping of many different functions under one roof for common shelter and warmth" (Anonymous from the Erskine ArkDes collections 1967: 127) and "well-heated and lit communications, piazzas and gardens, covered for bad weather" (Erskine 1960: 217). He also, though, advocated for human connection to the wilderness and outdoors. Erskine argued that "architecture must be adaptable to summer activities" (Anonymous from the Erskine ArkDes collections 1967: 127) and able to "open to spring and sunshine" (Erskine 1963a: 2; 1963c: 7); that formal planting must be complemented "with a view over the surrounding landscape, as there will be many indoor or underground workers"; and that "nature is the dominant, and the 'human' the exception" (Erskine 1960: 217).

Erskine also emphasized the function of buildings as climatic shelter, the importance of avoiding heat loss, allowing access to sunlight and protection from wind. Erskine argued that houses and towns in the north "should open like flowers to the sun of spring and summer but, also like flowers, turn their backs on the shadows and cold northern winds, offering sun-warmth and wind-protection to their terraces, gardens and streets" (Erskine 1968a: 167). His sketches (such as Fig. 1 below) show communities on slopes facing south surrounded by walled perimeters of the highest buildings, providing protection from wind and blizzards, whilst opening to the sun. Erskine saw perimeter walls and southern slopes as a source of heat saving during winter, and shade in the summer. He contrasted this orientation with north facing windows that "induce cold during winter and warmth during the midnight sun" (Anonymous from the Erskine ArkDes collections 1967: 130).

Erskine was also aware that the cost of building northern towns was "enormous", thus "should be based on technical rationalization and standardization" (1960: 217). His ideas were progressively modernist, using, among other strategies, industrialized methods in undeveloped areas. In response to climatic conditions, for example, Erskine argued that, "with modern techniques almost any degree of protection can be achieved" (1968a: 169). He used designs that would maximize efficiency, for example, modular prefabricated construction techniques; "aerodynamic forms" to prevent accumulation of snow on buildings; and separation of "pedestrian and mechanical traffic" to facilitate different types of snow clearing for these varying functions (ibid: 169-170).

Erskine's work also focused on people and communities (Erskine 1960: 217). Hemmersam remarks that Erskine's "practice was considered to have a particular cultural as well as social profile" (2016: 413). He wanted northern communities to allow for "personal freedom and privacy" (Erskine 1960: 217). Erskine also argued these communities "should be intensive […] with rich amenities and possibilities for varied activities" and "should […] be made more attractive and genuine than their equivalent in more southerly latitudes" (ibid: 217). He thought that one important

Figure 1: Ralph Erskine, An Ecological Arctic Town, 1958 (ArkDes collections, ARKM.1986-17-0362).



goal should be to facilitate more concentration, social interaction and human contact in these Arctic towns that were isolated from neighboring settlements by great distance and severe climatic conditions (ibid: 217).

Erskine also set out to create a new regionalism conditioned by the northern culture and climate. Regionalism "grew in strength and popularity during the post war period, often in opposition to what were seen as the homogenizing and globalizing tendencies of the International Style of modernism" (McGowan 2008: 242). It was "an approach to architecture that seeks to develop built form out of, and in response to, the traditions, needs and demands of a particular climate, locale, and culture" (ibid: 242). Northern towns, Erskine stated, "must become free of the 'colonial' attitude, and base their own culture on their own way of life" (1960: 217). He decided that new northern towns must "avoid imitating the 'home country's' culture" (Rowntree 1964: 9). Unlike the "usual when settlers move to a new country", "and attempt to recreate their old homes", Erskine argued that "in the sub-Arctic this can never be successful, and modern man […] must use his resources to arrive by analysis and synthesis at an indigenous culture" (1960: 217). While he "studied indigenous Inuit and Sámi buildings in the region" (Egelius 1990: 212), the indigenous culture Erskine speaks of here is a new "method of life – of modern life" in what he considered an "untried region" (1961: 162). In his "search for a contemporary

architectural 'grammar' for the Arctic", Erskine, "overwrites the presence of Arctic indigenous peoples" (McGowan 2010: 104).

Building in the Arctic

In the 1940s and 1950s Erskine had already designed several buildings in northern Sweden and by the late 1950s and early 1960s he also had the opportunity to put his visions for northern towns into actual development plans. These commissions included projects in Kiruna (1959-1965) and in the nearby town of Svappavaara (1960s), both in Sweden. These areas were architectural and planning test cases for the advancements of the Swedish welfare state, and the bureaucrats and policymakers who made up the machinery of the welfare state were receptive to the theories for Arctic planning advocated by Erskine. Erskine noted that "experience in community planning in remote and northerly climates is by no means superfluous knowledge [...] as climatic extremes, whether hot or cold, wet or dry, have basically the same theoretical solution" (Burnett 1975). This idea of Erskine's aligns to contemporary resilience thinking. Both suggest, that planning can be adapted across different settings and build on learnings from other cases. The next section of this chapter traces Erskine's ideas for planning and designing in northern climates, and also interrogates the outcome of these projects in reality.

Kiruna

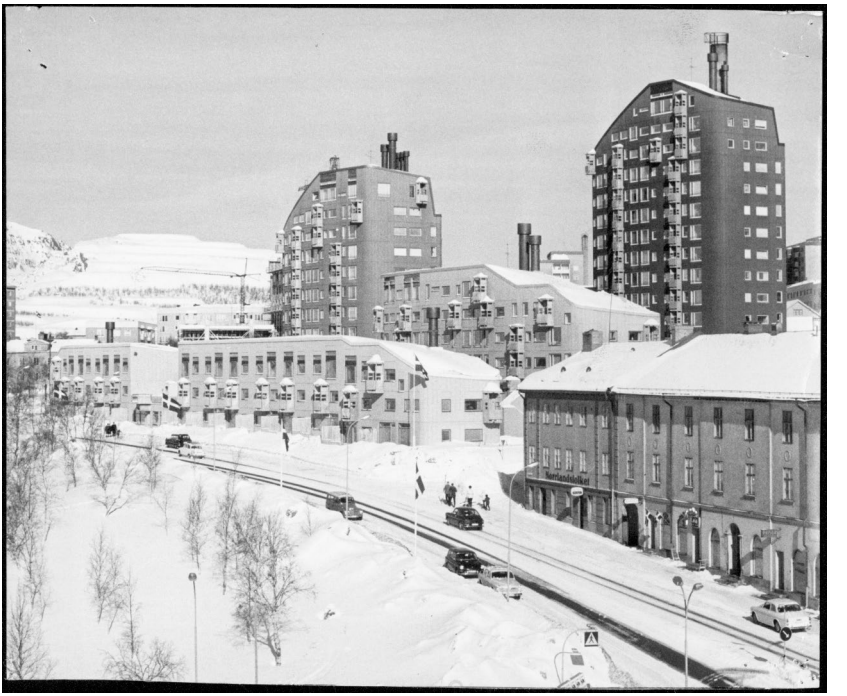
After working on concept proposals for Arctic town planning; plans for a total reconstruction of Kiruna town center in the 1950s (which remains unbuilt); and a housing scheme in Kiruna with Yngve Fredriksen (1955, built), Erskine with Peer-Ove Skånes, won a contract for a new quarter within central Kiruna. Kiruna, a town in northern Sweden, is built around the extraction of iron ore by the state-owned mining company Luossavaara-Kiirunavaara Aktiebolag (LKAB). While the client for the project was Kiruna HSB housing cooperative, it was widely recognized that LKAB would also play a leading role in decision-making: LKAB "besides dominating the labour market also in reality decides on the welfare, housing and service levels of the entire community" (Egelius 1990: 74). Because of LKAB's influence on the planning and construction process, Kiruna was inherently tied to the boom-bust cycle of the extractive industry at this location: As demand for iron ore ebbed and flowed, funding for town services and facilities followed similar trends. For Erskine, this whole project, including the preliminary study for Kiruna center, "was an attempt to create plans and structures which were specifically suited to meeting the life and needs of the people who live in a subarctic situation" (Erskine

n.d.b: 3). Here, the people are broadly "Kiruna dwellers" (Erskine 1968: 168). Erskine "suggested a continuous run of buildings, where people could move outdoors in wind protected sunny streets, or indoors in enclosed and heated walkways", which would also house ducts for services and infrastructure, to allow for easier access, than under streets (Erskine n.d.b: 1).

Only one block of the whole Kiruna scheme – the Kvarteret Ortdrivaren (1959-1965) with housing, office and community uses (Collymore 1994) – was "so built that it reminds of the original concept" (Erskine n.d.b: 1). This block, Erskine remarked "has for me been of great interest to design and execute" (ibid). However, his proposal for Kiruna was amended constantly, following discussions with representatives of the town (Egelius 1990: 77). Erskine remarked "the unfamiliarity of the vision I gave" (Erskine 1968: 168) and "the force of tradition and lack of familiarity with new ideas […] led to the construction of the city along habitual lines" (Erskine n.d.c: 22) and "on its original street pattern and with a largely 'traditional' structure" (Erskine n.d.b: 1). The local partners were resistant to Erskine's new architectural and design strategies, and continual compromises ultimately led to an essentially conventional plan.

The ensemble of buildings constructed at Ortdrivaren (Fig. 2) were clearly marked by Erskine's theoretical ideas, but they also departed from his visions in important ways. In Architectural Design, in March 1967, it was noted the "Kiruna development represents a less doctrinaire interpretation of these ideas" (Anonymous from the Erskine ArkDes collections 1967: 131). A link to the outdoor environment was maintained. The site was intensely developed and totally occupied by a series of buildings containing a mix of uses (Erskine n.d.b; c). These included housing, offices, shops, car parking, play areas, and a church (Erskine n.d.b; c; 1968b). The buildings rise above a garage covering the whole block as a series of terraces. These terraces were provided with winter and summer play space, and sunny, wind protected balconies and seating space, with a view (Erskine n.d.b; c). A naturally lit and heated passage was built to connect the playground, shops and apartments (Erskine n.d.c). This and other outdoor stairs were also designed to allow for protection against snow and blizzards (Erskine n.d.b; c). Meanwhile, rounded corners of the buildings were designed to reduce cooling effects making them more economical (Egelius 1990). The church "was built for a very low cost, has the simplest of materials and finishes and a similar construction to that of the flats" (Erskine n.d.b: 3). The characteristics of Ortdrivaren described here are reflective of Erskine's theoretical ideas for building in northern towns. While the highest buildings were placed to the north, and lowest buildings are to the south, so that "the site becomes a grandstand facing the view, the summer warmth, and the return of winter-sun" (Erskine n.d.b: 2), there was no walled perimeter building facing south, opening up to the sun like a flower, while protecting the community from winds – an idea that had been central to Erskine's vision.

Figure 2: Börje Rönnberg, Ortdrivaren housing exterior (ArkDes collections, ARKM.1986-122-2148).



In his accounts of developing Ortdrivaren, Erskine paints an endearing picture of a warm, active and livable group of buildings (Erskine n.d.b; c; 1968b). Other reports also suggest the development had a positive impact on the community (Egelius 1990). Erskine has been praised for exciting architecture (Wrethagen 1985) and designing a fine place where people could thrive (Nordmark 1975). Similarly, the buildings have been described as lively residential places, with careful detailing and fine formal affiliation to the cityscape (Hård af Segerstad 1969). When interviewed decades after the construction of the project, some residents reported that living there – particularly in one of the high-rise buildings – was amazing (Rosell 1984).

In his design for Kiruna, Erskine was described as "completely and unpredictably original" (Anonymous from the Erskine ArkDes collections 1963: 305). One newspaper reported that it was perhaps Kiruna's most debated architecture project, a revolutionary artwork, by an architect who had never lived in Kiruna (Anonymous from the Erskine ArkDes collections 1972). The buildings were painted yellow,

red and brown to represent the midnight sun and the earth, and there were also references to mining in the design details (Nyström 2017). Erskine thought Ortdrivaren's "warm tonalities" "pleasurably contrast with a countryside which remains in winter conditions for so long" (Erskine n.d.c: 22). Erskine also claimed that he "tried to create a complete formation which might entice children to use their own fantasy and find their own forms of play, hide and seek and adventures" (Erskine n.d.b: 2). He used concrete, which he thought was attractive, but also because he thought children would hurt themselves less on it (Ulvskog 1974).

While many liked Erskine's design, others thought it looked terrible (Barck 1973). Criticism against Erskine's design was focused on aesthetics, color and material. People found it difficult to accept housing that looked like Erskine's Ortdrivaren buildings (Anonymous from the Erskine ArkDes collections 1977). It is unclear why, but conservatism, stubbornness and the amount of concrete are cited as possible reasons for the dissatisfaction of some residents (ibid). Ragnar Malmström, a former leader of municipal politics in Kiruna, felt Ortdrivaren ruined the cityscape (Wallström 1978). Erskine's buildings also gained nicknames, initially as a joke amongst the locals in response to the "strange architect" who designed them (Anonymous from the Erskine ArkDes collections 1977: 34). Some of these names referenced the color of the buildings, some of which had been painted snus/tobacco brown (ibid: 34). The concrete materiality was another point of criticism for the project. Residents campaigned against the concrete play areas, and for safe play spaces (Anonymous from the Erskine ArkDes collections 1974; Ulvskog 1974). There was so much concrete used in the balconies of one of the buildings, nicknamed Snusdosan (snuff box), it was joked that there was enough to facilitate the construction of several other high-rise buildings (Unknown source from the ArkDes collections n.d.). Though there was criticism, the area became more accepted as it developed (Anonymous from the Erskine ArkDes collections 1965), though the nicknames of the buildings remain.

Whatever the competing and shifting perceptions of the Kiruna project have been over more than six decades, it is also critical to note that Erskine's planned visions for Kiruna were only partially realized. Furthermore, Ortdrivaren is set to be demolished as part of the moving of the town three kilometers to the east to allow for the expansion of the adjoining iron ore mine (the planning for which began in 2004). While some buildings and areas in Kiruna have been deemed to have heritage value worth preserving and moving, Ortdrivaren, a national cultural heritage landmark (Norrbottens län 2010 [1997]), will be lost, though some parts of the building, such as the balconies, may be able to be relocated (Lövgren 2018). This is even though it is "an important part of Kiruna's modern architectural heritage" (Nyström 2017). By January 2017, the real estate subsidiary of LKAB, LKAB Fastigheter, had expropriated Ortdrivaren from the buildings' tenant association as part of the transformation of Kiruna (Lindblad 2017). Arild Storeide, chairman of the

buildings' tenant association noted that although over 90 per cent of homeowners decided to sell, they were not completely satisfied with the agreement (Palmäki 2016). In the coming years, residents from Ortdrivaren will need to relocate. These processes bring into question the resilience and sustainability of imagined town plans, urban areas and their communities when these are placed into conflict with powerful interests, in this case, the mining industry. The ability of Ortdrivaren and its community to adapt to change has been undermined by the processes surrounding the expanding extraction of iron ore adjoining the town. The current value of iron ore is so high that the continued extraction of this raw material and the moving of Kiruna has been warranted economically. This is at the cost of other factors, including the architectural and historical significance of buildings like Ortdrivaren, and the community and social networks that exist there.

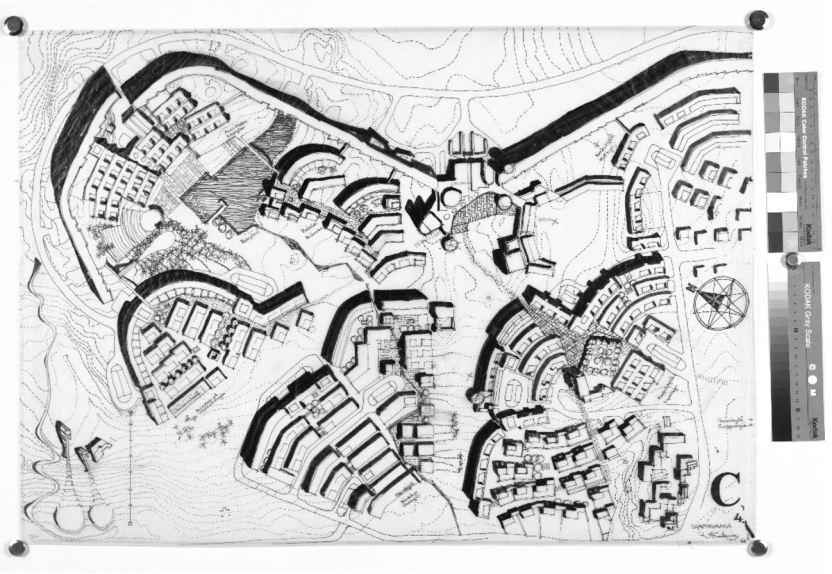
Svappavaara

Another plan Erskine worked on, again with Peer-Ove Skånes as well as Aage Rosenvold, was for new development in Svappavaara, an existing village of 400 residents, 45 kilometers south east of the central city of Kiruna. Initially, Erskine's project for an ideal Arctic town at Svappavaara was simpler than at Kiruna, and developed out of a limited competition between invited architects (Egelius 1990). Erskine's entry, entitled, Ansikte mot söder (Facing the South), shared first prize with two other proposals, though eventually received the final commission (Egelius 1990; Djärv 1994). The competition was arranged by Kiruna Kommun (Kiruna City) and LKAB in 1961 to address the proposed expansion of the town as a result of iron ore exploitation close by. The Svappavaara proposal also represents a more doctrinaire and straightforward interpretation of Erskine's Arctic philosophy than his plan for Kiruna (Anonymous from the Erskine ArkDes collections 1967; Egelius 1990).

Erskine's plan for the Svappavaara ideal Arctic town was in strict accordance with his theories. Fig. 3 below shows a detailed section of Erskine's vision for the center of Svappavaara. A long three-story block of flats would be located on a hilltop, which would act as a shield against northern winds, and would face south to maximize exposure to the sun (Anonymous from the Erskine ArkDes collections 1969a; Egelius 1977). In front of the building, on the southern slope of the hill and facing the sun, Erskine sketched clusters of terraced housing, single family dwellings, shops, a hotel, restaurant, sport and leisure facilities, a school, new community center, and other services, while also allowing room for the original village (Anonymous from the Erskine ArkDes collections n.d.a; 1969b; Erskine 1963b; Egelius 1977). Different uses were to be linked by warmed, wind, rain and snow protected connections, and a sunlit interior street that would act as a meeting place

(Anonymous from the Erskine ArkDes collections 1969b; Erskine 1968c). Buildings were to be prefabricated to a large extent (Egelius 1977). Svappavaara was planned by Erskine to be a warm, protected, friendly, lively and well-connected community with varied services to mitigate the effects of spatial isolation (Anonymous from the Erskine ArkDes collections n.d.b).

Figure 3: Ralph Erskine, Svappavaara Centrum (center), 1964, from the ArkDes collections, ARKM.1986-17-0923-01.



As with his plan for Kiruna, Erskine's proposal for Svappavaara was only partially realized. "All that materialized" were some "disconnected bits" (Anonymous from the Erskine ArkDes collections 1969b). Some colorful, hypermodern owner-occupied housing was placed on the southern terrace, and a 197 meter long housing complex for LKAB workers, called Ormen Långe (the Long Snake), was also built (Anonymous from the Erskine ArkDes collections 1964a; b;Egelius 1977). The vast majority of the town was, however, not built according to Erskine's proposal (Wall 1973; Haugdal 2015). In addition to the residential buildings, one public building – a school – was built. Not only did the school fail, on its own, to address Erskine's goal of creating a richly serviced Arctic town, the school was designed and built by a local architect who largely ignored Erskine's goal of creating connections between different uses (Wettergren/Strömdahl 1970; Egelius 1977a). Ormen Långe is isolated

from the rest of the town, while the owner-occupied housing is grouped apart from the existing town. The internal street of Ormen Långe was gravely mismanaged, had no color, plants or meeting places with seats, only locked doors and concrete (Anonymous from the Erskine ArkDes collections n.d.b; Egelius 1977). Svappavaara became "bare, cold and desolate" and in reality, Erskine's ideal community turned out as a normal suburb, lacking any sort of cultural facilities (ibid). In 2009 a decision was also made to demolish Ormen Långe, and today around only half the original building remains (Sternlund 2010).

The failure of Erskine's scheme in Svappavaara, was not solely the responsibility of the architect. Erskine thought the plan would have worked if the construction had proceeded along his proposed lines. He himself later voiced discontent in the housing conditions, which, he argued, would have been more pleasant if Kiruna City had followed his plan (Rantatalo n.d.). Erskine had hoped to provide a high service standard and special environmental conditions to compensate for adverse climate conditions, and social isolation (Wettergren/Strömdahl 1970). Erskine felt that "the high costs of providing an efficient, well equipped and attractive community structure for people […] is […] an equally obvious operational cost" as "building a long railway in order to transport ore from an isolated mine" which was "accepted without question as one of the unavoidable operational costs" (Unknown source from the ArkDes Collections n.d.). LKAB and Kiruna City did not have the same view though: Due in part to reduced demand for iron ore beginning with the global oil crisis (Egelius 1977), LKAB no longer needed as many workers, and was unwilling to fund the project to completion (Wall 1973). With just under 1000 inhabitants, the community was too small to support a commercial district and social or cultural facilities; nor could it be effectively integrated into Kiruna City due to financial constraints (Egelius 1977). The costs of fulfilling Erskine's plans for a social and ecological development were rejected, while those serving profit motive were paid. By the early 1970s there was a high turnover of residents (Rantatalo n.d.) and due to the proximity of Kiruna, many mine workers preferred to live there and commute to their jobs (Anonymous from the Erskine ArkDes collections 1970). Erskine's Svappavaara project was the result of growing mining activity in the North and stood as a strong symbol of industry and boom times in the local community. It was dramatically impacted by the economic downturn and subsequent shift away from an extractive economy in the decades that followed (Haugdal 2015). Building a sustainable livable community that is resilient in the face of the everyday extremes of Arctic life requires a stable investment stream and an integrated planning vision. Today Svappavaara's population is 400 people (SCB (Statistics Sweden) 2019).

Erskine was not solely responsible for the shortcomings of Svappavaara, its failure to achieve sustainable population growth, or an adequate supply of social and cultural resources. Contemporaries did, however, rightly consider that Erskine was responsible for the mishandling of communal facilities and over-dimensioning re-

lative to the size of the community (Egelius 1977). His plan has been criticized for being romantic (Wettergren/Strömdahl 1970; Egelius 1977). It is also believed that he must have known that his imagined plan would never be completed, particularly since the danger of unstable funding streams was highlighted in the statement concluding the competition statement (ibid). Erskine was aware that some people might choose to commute from Kiruna where there were more services, rather than live in modern Svappavaara (1963b). Furthermore, perhaps Erskine should have assumed that people would choose a more established city, which might have led him to make more conservative projections about the scale of planned construction As one critic observed, Erskine should have recognized that, with developments in mining equipment, fewer employees would be required in the future than he projected (Anonymous from the Erskine ArkDes collections n.d.a.).

Another problem impacting the project was the lack of public consultation. Though Erskine had suggested open planning meetings and collaboration, these were never implemented (Unknown source from the ArkDes Collections n.d.). Local inhabitants bitterly criticized the alienation of the public in the decision-making processes (ibid). Workers in particular felt exploited as a result of planning taking place above them (Egelius 1977). The physical separation of workers' housing from the existing town center and other new construction worsened community cohesion as well as communication between workers and management (ibid). Though it is difficult to isolate the influence of Erskine's scheme, it was thought to be instrumental in igniting a LKAB strike that took place between 1969 and 1970 (ibid). Learning from his experiences with the Svappavaara project, Erskine made public participation an important element in his later projects, for example, the Arctic township at Resolute Bay, Canada (1973). Resilience theory does, in some cases, talk about learning, evolution, and adaptation as a core part of resilience. The communities Erskine planned in Kiruna and Svappavaara have largely shown not to be resilient, impacted by booms and busts in the iron ore extraction industry at these locations. However, principles of planning for extreme climates have themselves demonstrated resilience; learning from failures, adapting to new environmental, economic, social and political arrangements, and surviving setbacks of various kinds.

Learnings from Erskine

In his vision for the Arctic and subarctic, Erskine imagined vibrant, well-connected communities that were designed to withstand the extreme climatic and environmental characteristics of this northerly latitude. Some of the thinking introduced in his theoretical and practical schemes for Arctic cities continue to have broad relevance for energy conservation in the context of the energy crisis. Erskine, for

example, used passive building form and function to maximize solar gain and provide protection from wind, rain and snow (Erskine 1980; Egelius 1977; 1990). While Erskine's schemes were designed with regard to the environment, it is worth remembering that his Kiruna and Svappavaara projects were ultimately connected to extraction of resources and development of greenfield land. In part for this reason, some have criticized Erskine for having a colonial attitude that viewed the north as an empty space with no culture (Birk 2012; McGowan 2008). Erskine himself specifically wrote that "[i]n the sub-arctic zone there is an enormous quantity of space, but no established culture" (1961: 161). As McGowan points out, "the underlying logic of Erskine's 'Arctic Architecture' seems to script the North as a carte blanche playground for modern architects – as if the native populations of the Arctic vanished without a trace" (2010: 103). Furthermore, McGowan notes Erskine, often worked for the Swedish government at "a time of heightened colonialism in Sápmi" land (2008: 249). Erskine's own remarks confirm this colonial attitude (Erskine 1961; Unknown source from the ArkDes Collections n.d.). Erskine's visions for Arctic communities and the practical application of these, raises questions about who they were supposed to be ideal for.

Erskine's Arctic proposals reflect historical plans for ideal settlements in extreme (cold) climates and environments, as well as contemporary and emerging plans for growth and development. Erskine may not have used the rhetoric of resilience, but his plans shared many of the same goals of contemporary resilience discourse (see, for example, Walker/Salt 2012). His model cities were designed to build community cohesion, create a rich institutional reservoir and, most importantly in extremely cold Arctic environments, allow the system to adapt to the regular disturbances associated with extreme environments.

Erskine focused on "how to establish and maintain the presence of 'new settlers' in the Arctic regions" (McGowan 2010: 100). His work fits into a line of thinking that extends more than 100 years. In its beginnings, the settlement of Kiruna (founded in 1900) by architect Per Olof Hallman "was built to a plan, as a model society" (Bucht 1997: 63) and was designed "to adapt to the harsh sub-arctic inland climate" (Keshavarz/Lindstedt/Stenqvist 2013: 57). In the 21st century, the transformation of Kiruna provides an opportunity to "create a sustainable model city", and for Kiruna to "transform itself into a more socially and economically sustainable city", as is suggested by White Arkitekter (n.d.), who with Ghilardi + Hellsten Arkitekter, is responsible for the 2013 masterplan for Kiruna's phased relocation by 2033 – the winning entry of an international competition. This latest masterplan for Kiruna echoes the historical visions for Kiruna including Erskine's Arctic plans, proposing a model city – socially and environmentally – that addresses the extreme climate at this location.

Erskine has been a celebrated 'Arctic Architect', and authoritative figure on planning and designing buildings and cities north of the Arctic Circle, and he con-

tributed to this discussion throughout his decades long career. His plans for the ideal Arctic town, in the cases of Kiruna and Svappavaara remain, however, only partially realized. Furthermore, half of Ormen Långe has been demolished and Ortdrivaren faces the same fate in coming years. These projects show the complexity of building resilient communities within isolated extreme climates and environments in northern regions. The challenge is to be able to provide a high standard of services for living and connection to nature (to ensure social and psychological well-being), while also ensuring economically and environmentally efficiency. The Kiruna and Svappavaara cases also further reflect the challenges of strategic and master planning. Imagined visions for an ideal future are combined with tangible ever evolving social, cultural, political, economic and environmental factors. The United Nations, through their Sustainable Development Goals, advocates for multi-stakeholder and public-private partnerships as a tool for achieving sustainable development (2015). The cases presented here in Kiruna and Svappavaara support this view. They explicitly highlight that extractive industries tied to potentially short-term boom-bust market cycles are unreliable partners for resilient planning. For resilient and sustainable planning and development there must be a focus on farther horizons; the interests of community cohesion; and the integrity of human-non-human relations needs to be placed first.

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