Out of Control When I Turn My Power On

A Conduction of Architecture and Hydropower

from Bårjås to Hornstull

Sara Davin Omar

This text is dedicated
To all the teachers I had in architecture school

A. Älvräddarna association's map of the interventions on Julevädno.

Disclaimer

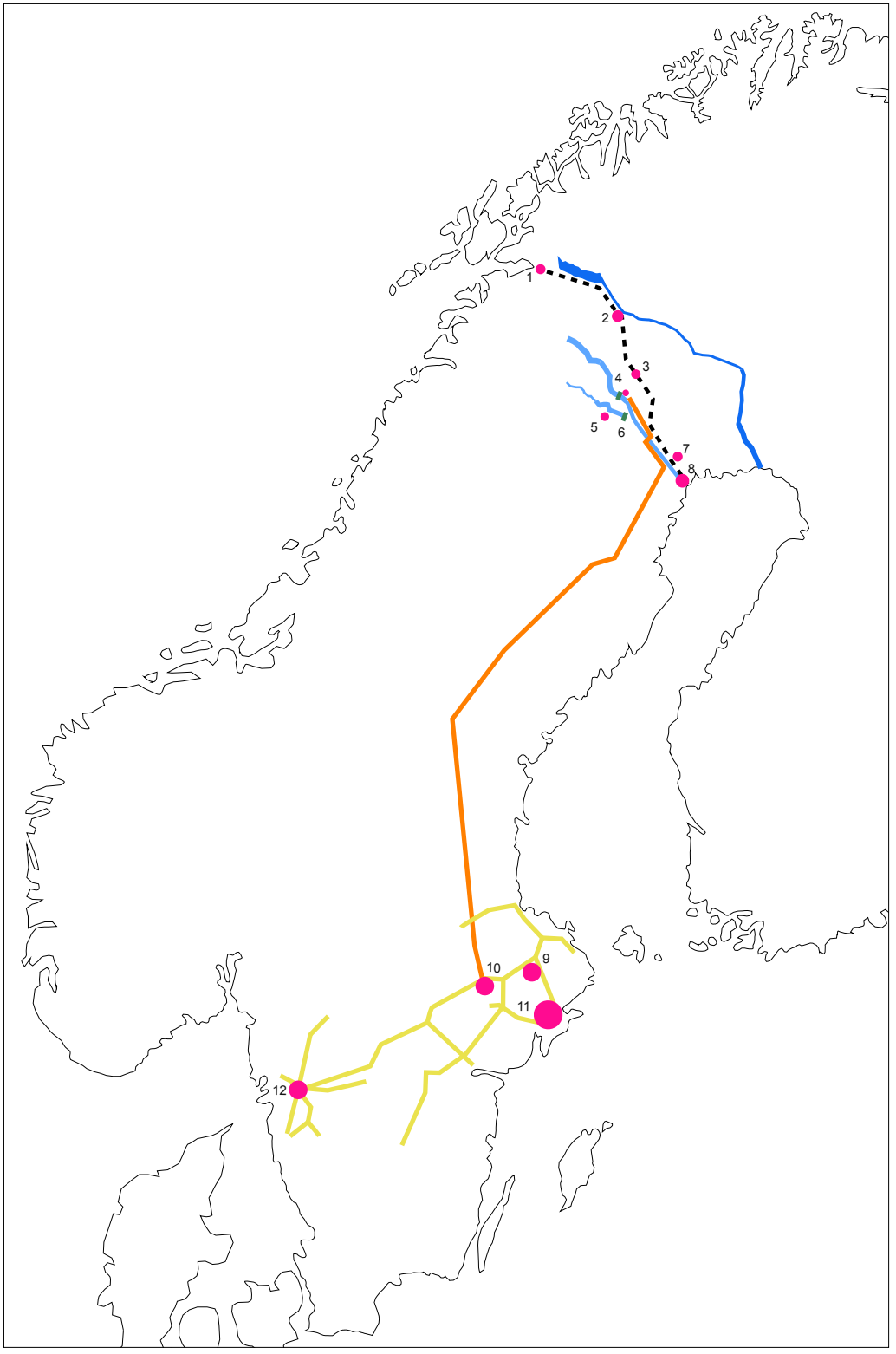
This compilation of texts is not an attempt to create a complete historiography of the relationship between hydropower, architecture and coloniality in Sweden. Instead, it is a reflection about the nation-state forcing some very distant sites into the same metabolic system through colonialism, and in turn how architecture manifests this spatially.

The use of ”Swedish” throughout the text refers to my will of investigating this relation within the Swedish nation state, rather than labeling the power plants on Julevädno as ”Swedish”.

The first time I encountered the majority of the sites I write about was at the Royal Library in Stockholm, through a variety of published material. I have visited them later on. My understanding of these places and the connections between them is therefore primarily influenced by the literature I have read and not by fieldwork.

Information about minorities and indigenous people of Scandinavia conveyed in the texts is not auto-experienced but comes from a range of scholars, notably Åsa Össbo, May-Britt Öhman, and Lennart Lundmark.

Table of contents



1. Áhkanjárga
Duortnoseatnu
2. Giron
Malmbanan
3. Jiellevárri
Julevädno
4. Bårjås
5. Jåhkåmåhkke
6. Letsi
7. Boden
8. Luleju
Northern trunk line
9. Uppsala
10. Västerås
11. Stockholm
12. Trollhättan
Centralblocket

Sites

In these texts, I have chosen to refer to rivers, villages, and cities with their Sámi names. Here follows a list with other translations.

Áhkanjárga (Northern Sámi); Narvik (Norwegian)

Duortnoseatnu (Northern Sámi); Tornionväylä (Meänkieli) Torne Älv (Swedish); Torne River (English)

Giron (Northern Sámi); Kiruna (Swedish); Kiiruna (Finnish)

Jiellevárri or Váhčir (Northern Sámi); Jiellevárre or Váhtjer (Lule Sámi); Jellivaara (Meänkieli); Jällivaara (Finnish); Gällivare (Swedish)

Julevädno (Lule Sámi); Lule älv (Swedish); Lule River (English)

Bårjås (Lule Sámi); Porjus (Swedish)

Jåhkåmåhkke (Lule Sámi); Dálvvadis (Northern Sámi); Johkamohkki or Jokimukka (Finnish); Jokkmokk (Swedish)

Luleju (Lule Sámi); Luleå (Swedish); Luulaja (Finnish)

1. Conduction The Importance of Bringing Together

I look up the etymology of the word conduction after a discussion with a friend,. I read:

conduction (n.)
1540s, ”a leading, guidance” (a sense now obsolete), from French *conduction* ”hire, renting,” and directly from Latin *conductionem* (nominative conductio), noun of action from past-participle stem of *conducere* ”to lead or bring together,” from assimilated form of com ”with, together” (see con-) + *ducere* ”to lead”.

Swedish exceptionalism has influenced my experience of growing up in Sweden. As Ylva Habel writes, Swedish exceptionalism can be understood as the mainstream discourse within Swedish society reverberating the conviction that the country has had no part in colonization and therefore is untouched by colonial and postcolonial dynamics. This identity, interlinked with conceptions of political innocence, has contributed to an unawareness of the complicities of the state.[1] In elementary school, I recall that Sweden was framed as a neutral country that officially had observed the longest continuing period of peace in the world. Sweden was a largely equal society, dedicating much effort to environmental issues as well as the well-being of the citizens regardless of gender, class, and ethnicity. Asylum policies were generous in relation to other countries. Having family members fleeing to Scandinavia as political refugees escaping Iraq's racialized and authoritarian oppression, I have always felt the indebtedness of their generation, knowing that my existence is directly derived from the former openness. Growing older, I have come to understand that this openness and also the government's solidarity vis-à-vis world-wide liberty movements can be understood as hypocritical in the light of what was and still is at stake in the northern parts of the Scandinavian peninsula.

[1] Habel, Ylva. "Challenging Swedish exceptionalism? Teaching while Black", in Kassie Freeman and Ethan Johnson, eds., *Education in the Black Diaspora: Perspectives, Challenges and Prospects,* (New York: Routledge, 2012), 99–122.

History only played a marginal role within the curriculum of the architecture program at the Royal Institute of Technology in Stockholm, but my peers and I were still trained to regard the canon of National romanticism, Swedish grace, and functionalism as moments of national pride. Most of the focus was however directed towards the supposed essence of the discipline: to channel one's individual creativity in designing beautiful buildings with an equal concern for form, function, structure, materiality, scale, light, color, and most importantly: the notion of space. Architecture was a result of the combination of these parameters only.

The organization of the curriculum implied a distinction between history, construction, and design. From this angle, the program was a product of the compartmentalization of knowledge into separate entities, as theorized in the 1991 book *We have never been Modern* by Bruno Latour. Having its roots in the Modern division between nature and society, this tendency contributed to a knowledge production largely resulting in monographs, publications on specific styles or buildings. Such a canon implies consequently an understanding of the world as a collection of isolated objects, as things-in-themselves. Latour suggests instead that the world is a compound of humans and hybrids which requires to be understood through a non-modern perspective that does not separate or isolate the complex socio-technical networks that we are entangled within.[2] Applying this way of thinking within the field of Swedish architectural knowledge production appears like an urgent task, exactly because practitioners, even engaging in historiography, seem to be obsessed with architecture as isolated objects and not as anthropological products influenced by the natural, the cultural, the technical, the political, the mythical, and the social.

[2] Latour, Bruno. *We Have Never Been Modern* (Cambridge, Mass: Harvard University Press, 1993), 1–6.

Influenced by Walter Mignolo's writings on decolonization within the domain of knowledge, I believe that decolonizing architecture can be a project of decolonizing the knowledge of architecture. Mignolo uses the puppet show as a metaphor for knowledge produced within a colonial matrix of power. In order to grasp the terms of the conversation, he writes, you would have to disengage from the illusion of the show and instead focus on the puppeteer, who is regulating what is being said. The domain of knowledge is essential within the colonial matrix of power since it occupies the level where the content of the dominating conversation is established. In this sense, decoloniality of knowledge involves changing the terms of the conversations.[3]

Sara Ahmed's *Towards a Queer Phenomenology* addresses orientation of objects and subjects in space, drawing on ideas by Maurice Merleau-Ponty that stated that the body is not "merely an object in the world" but "our point of view in the world".[4] Influenced by these writings, I want to contribute to a shift in the terms of the conversation from where I am oriented in space. Therefore, I am directing my attention to the country where I was raised, which of course never has been a neutral ground. Under the well-polished surface of Swedish exceptionalism pervading most institutions lies contradictingly the Swedish colonization of the Caribbean island of Saint Barthelemy, the Cape Coast Castle in modern-day Ghana, and also in the northernmost parts of the Scandinavian peninsula, native to the indigenous Sámi.

The Sámi is one of Sweden's officially recognized minorities, siding with Jews, Roma, Tornedalers, and Swedish Finns. For thousands of years, the Sámi lived along the coast, in the forests and on the mountains stretching between the northern parts of contemporary Norway, Finland, and Sweden, as well as northwestern Russia. With the rise of these nation-states, the Sámi were integrated to the different tax systems of each nation. In 1613, Russia, Denmark, and Sweden laid claim to the Finnmark area and the northernmost part of the Norwegian coast. As a result, the Sámi had to pay taxes to three countries for many years. From the 1650s, the Swedish state encouraged the creation of settlements in Lapland province, granting farmers tax exemption for fifteen years. Sámi rights to these lands were not respected. For many years, Sámi communities lived however in peace with the non-Sámi in their proximity and in the eighteenth century, the Sámi had an equally strong right to their territory as taxpaying farmers. In a border treaty from around 1750, the Sámi were granted significant rights in Norway by the Swedish and vice versa.[5] Onwards, both the Swedish and Norwegian state policies became more severe. During the nineteenth century, the Swedish Crown seized the Sámi territory, while the rest was distributed to settlers and mountain farmers. The Sámi policy was now characterized by direct racism and materialized in legislations such as the Same-skall-vara-Same-policy (Sámi-shall-remain-Sámi-policy).[6] Results of the different nation-states' interference on Sámi territory include assimi-

[3] Mignolo, Walter. "On Pluriversality and Multipolar World Order: Decoloniality after Decolonization; Dewesternization after the Cold War" in Bernd Reiter, red. *Constructing the pluriverse: the geopolitics of knowledge*. (Durham: Duke University Press, 2018)

[4] Ahmed, Sara. "Orientations: Toward a Queer Phenomenology" in *GLQ: A Journal of Lesbian and Gay Studies*, Volume 12, Number 4, (2006) 543-574.

[5] Lennart Lundmark, *The Sami: An indigenous People in Sweden.* (Stockholm: Ministry of Agriculture, Food and Consumer Affairs and the Sami Parliament, 2005), 10–14

lation in the shape of large-scale christianization and eradication of Sámi languages, land theft, displacement of people, and destruction of various ecosystems as a result of industrial expansion.

From this perspective, hydroelectric power plants are one of many physical materializations of the Swedish colonization of Sápmi. From where I stand now, this statement appears as evident, but is not at all present in the mainstream consciousness. While expressing this, I want to acknowledge the influence that the work of Åsa Össbo and May-Britt Öhman have had on my process of reaching this conclusion. Focussing on the juridical framework that allowed the construction of hydropower plants on Julevädno, Össbo's dissertation[7] has been fundamental. So has several of Öhman's texts, focussing on hydropower from perspectives of technoscience, gender and indigeniousity.[8] However, this seems to be a controversial topic. In the history curriculum of elementary schools, the word colonization is still only used in relation to European imperialism vis-à-vis other continents.[9]

As a non-Sámi person living in Stockholm, I am not directly affected by the presence of the hydropower plants in my quotidian life. However, as a subject marked by Swedish exceptionalism and the understanding of architecture as "things-in-themselves" I argue that raising the question of coloniality in relation to the power plants on Julevädno is a project that does concern me. As a member of the Kurdish diaspora, I also might perceive this issue extra lucidly, as I was raised in a context permeated by the consciousness of what being divided between four oppressive nation-states can mean for a people. This issue also appears very topical with the contemporary promises of hydropower as a "green" source of electricity and as a means to reduce import of Russian energy as a result of the country's war on Ukraine. Therefore, I intend to shift the terms of the conversation within my own context by starting from the assertion that the architecture of hydropower on Sámi territory can be understood as colonizing devices.

Despite being transmissioned by physical networks stretching over the whole country, into Norway, and to the European Union through Finland and Denmark, electricity's omnipresence has made it invisible. As Brian Larkin writes in *The Politics and Poetics of Infrastructure*, such networks cannot be theorized in terms of the object alone because of its systemic operation, since a network implicates a multitude of sites. These systems encapsulate objects but are also the relation between them, enabling the movement of matter. Everything from a power line to the headquarters of a power company exists as forms separate from their technical functioning, and require to be addressed as semiotic and aesthetic instruments oriented to specific destinations. Larkin means that placing the system at the core offers a synthetic perspective rather than focussing on technology as such.[10]

A conductor is an object or type of material that allows the flow of electric current in one or more directions and conduction is the movement of electrical particles through a transmission medium. Both words are derived from the Latin word *condūcō* meaning to lead, bring or draw together; as-

[6] Lundmark, Lennart. *Stulet land: svensk makt på samisk mark.* (Stockholm: Ordfront, 2010), 175, 177, 214.

Earlier, the used term was "L*pp-skall-vara-l*pp". As l*pp is considered a derogatory term, "Sámi" is used instead.

[7] Össbo, Åsa. *Nya vatten, dunkla speglingar: industriell kolonialism genom svensk vattenkraftutbyggnad i renskötselområdet 1910-1968.* Skrifter från Centrum för samisk forskning 19. (Umeå: Institutionen för idé- och samhällsstudier, Umeå universitet, 2014).

[8] See for example: Öhman, May-Britt. "Vattenregleringar på liv och död i Lule älv - Postkoloniala och feministiska teknovetenskapliga perspektiv". in *Uppsala mitt i Sápmi: Rapport från ett symposium arrangerat av Föreningen för samiskrelaterad forskning i Uppsala, Upplandsmuseet 4–5 maj 2011* / [ed] Håkan Tunón, Märit Frändén, Carl-Gösta Ojala, May-Britt Öhman, (Uppsala: Naptek, Centrum för biologisk mångfald, 2012) 28–34.

[9] "Kursplan Historia". Skolverket.

[10] Larkin, Brian. "The Politics and Poetics of Infrastructure". In *Annual Review of Anthropology 42*, nr 1, (2013). 327–43.

semble, connect and unite. Apart from its meaning related to interconnectivity and movement of matter, condūcō also bears a meaning related to governance, since it also is etymologically linked to *dūcō* meaning to guide, to command, to conduct, as well as the word dux, meaning leader in the political sense of the term.[11] The etymology of the word becomes instrumental when operating within a domain of compartmentalized knowledge as it engenders a reading of objects as conductors. In this case, it discloses some of the connections brought about by the emergence of hydropower as well as the guiding principles, or ideologies, behind it.

Conduction within a system can be represented in a circuit diagram. This collection of essays is meant to operate exactly as such a device. In this series, I will contemplate a small portion of themes that in different ways relate to architecture and hydropower in Sweden. I will do so by looking at it as a long site of interconnected socio-technical phenomena zigzagging over various locations, related to objects, events, and subjects, but also ideologies that helped shape them, since every infrastructure is carried by an "apparatus of governmentality".[12] Jumping between scales, locations, and temporalities, the principles of the circuit diagram are used in order to visualize a genealogy of conduction within the colonizing apparatus of hydroelectricity. Hidden under Swedish exceptionalism and as a consequence of the universalizing force of urbanization and colonization, a narrative about the questionable foundations of a welfare-state unfolds ─ as in profoundly asymmetric relationships between territories and subjects ─ indispensable for the growth of the capital-intensive, congested realm of Stockholm, and consequently the locus of my own existence.

[11] The nickname of the Italian Fascist leader Benito Mussolini was "Il Duce", meaning "the leader".

[12] Foucault, Michel. *The Birth of Biopolitics: Lectures at the Collège de France 1978–1979*. (New York: Picador, 2010), 70.

2. Paint a Vulgar Picture
Three Mainstream Perceptions of Hydropower

B. *Melodier vid älven* (”Melodies by the River”) by Sven X:et Erixson from 1936.

I stand in the bright gallery looking closely at a large painting picturing a forest landscape that is divided by a river. On a cliff, the mythological character Näcken plays the violin in solitude. Wooden scaffolding and the trees of the forest heap up behind him. On the left side of the creature, flowers are blossoming and a shepherd plays on a horn to gather their animals. By the river bank, a small concrete hydropower plant gently spits out water into the stream. I take a step back in order to contemplate what I see.

The use of water as a source of power is not a phenomenon restricted to the twentieth century. Watermills and water wheels were used as early as the twelfth century BCE in both Greece and China and in 4000 BCE in the region around the Fertile Crescent.[1] However, as with most practices during industrialization, the great amplitude of the systems of the twentieth century was new to the earth.

As Lasse Brunnström writes in *estetik & ingenjörskonst* ("aesthetics & engineering"), especially the power plants on the Niagara Falls would set the standards for both Swedish and European hydropower construction around the turn of the century. In this peak of the machine age, the perception of hydropower was almost unequivocally positive and the criticism of the expansion very gentle. With an increasingly complicated and immense scale, the power plants were understood as wonders of engineering. Built in concrete, steel, and stone these would be able to halt, direct, and let the water flow, generating power and accelerating modernity by sustaining industries and households. As late as in the 1950s, parallels were drawn between the development of power plants on Julevädno and the construction of the pyramids of the Pharaohs.[2] Without much discussion in Parliament, an area of the national park Storsjöfallet was removed in order to allow for the construction of the Suorva regulatory basin, originally consisting of seven interconnected lakes.[3] Even movements focussing on environmental protection emphasized that economic development must be prioritized. Instead, the importance of the aesthetics of the new works and their adaptation to the landscape was promoted. At the Academy of Fine Arts, an exhibition was even organized where power plants from a large number of countries were displayed.[4]

Aside from the admiration of the new magnitude and complexity, there existed also an understanding of these systems as innocent and almost naturalistic. The 1935 painting *Melodier vid älven* ("Melodies by the river") by Sven X:et Erixson reverberates this romantic view of hydropower. Produced as a contribution to the art competition for Gothenburg concert hall, the painting depicts the plant as a minor intervention on a river whose water uninterruptedly flows downstream. The painting represents hydropower activities on the rivers as an effortless, neutral and therefore innocent practice, comparable to the agrarian use of the landscape embodied by the shepherd and their animals on the other side of the river.

In the essay *Vattenregleringar på liv och död i Lule älv - Postkoloniala och feministiska teknovetenskapliga perspektiv* ("Life and Death Water regulations on Lule River - Postcolonial and Feminist Technoscientific perspectives") May-Britt Öhman questions exactly this image. Examining a photography published on the website of the Swedish power company Vattenfall almost ninety years after Erixson painted Melodier vid älven, Öhman writes:

[1] Hill, Donald. *A History of Engineering in Classical and Medieval Times.* (New York: Routledge, 2013)163–164.

[2] Brunnström, Lasse. *Estetik & ingenjörskonst: den svenska vattenkraftens arkitekturhistoria*. (Stockholm: Riksantikvarieämbetet, 2001), 35.

[3] Össbo, Åsa. *Nya vatten, dunkla speglingar: industriell kolonialism genom svensk vattenkraftutbyggnad i renskötselområdet 1910-1968.* Skrifter från Centrum för samisk forskning 19. (Umeå: Institutionen för idé- och samhällsstudier, Umeå universitet, 2014), 85.

[4] Brunnström, Lasse. *Estetik & ingenjörskonst: den svenska vattenkraftens arkitekturhistoria.* (Stockholm: Riksantikvarieämbetet, 2001), 35.

"The picture shows a part of a hydropower plant, an open sluice, and flowing water. This image of a continuous water flow is a particular story about hydropower that depicts it as innocent, as if it did not damage the river with a specific intention. I mean that this story can be questioned by showing pictures of how it looks most of the time when electricity is produced. That is to say that the stream is gone. The riverbed is empty. The water is led through tunnels (the dominating design in Sweden), and the riverbed lies drained for several kilometers before the water emerges again […]

Another co-occurring representation of the production of electricity through hydropower is the one where only a few stakeholders are involved. In illustrations of hydropower, both in photographs and sketches that are supposed to explain the principles of hydropower, a small selection of stakeholders are often represented. Often pictured are the water, the sun, the hydropower plant (if situated above ground), electric cables, dam walls and a bit of the surrounding landscape. I mean that this representation must be questioned and challenged, […] because the involved stakeholders who influence the production of electricity, and its representation, and the ones who are affected by the water regulations, are seldom the same people. If all involved stakeholders instead are portrayed together with their different power positions in relation to their feelings about hydropower, another picture will emerge."[5]

[5] Öhman, May-Britt. "Vattenregleringar på liv och död i Lule älv - Postkoloniala och feministiska teknovetenskapliga perspektiv". in *Uppsala mitt i Sápmi: Rapport från ett symposium arrangerat av Föreningen för samiskrelaterad forskning i Uppsala, Upplandsmuseet 4–5 maj 2011* / [ed] Håkan Tunón, Märit Frändén, Carl-Gösta Ojala, May-Britt Öhman, (Uppsala: Naptek, Centrum för biologisk mångfald, 2012), 28–34.

As a consequence of the rising critique of fossil fuel in the last decades of the twentieth century, maybe starting with the oil crisis of the 1970s, hydropower has come to be understood as environmentally advantageous compared to other sources of energy. Framing a product or practice as the lesser of two evils constitutes one of the so-called "seven sins of greenwashing",[5] and is often a core argument accentuated by power companies and political stakeholders. Mirrored by the power company Vattenfall, the advantages and disadvantages of hydropower are listed as follows on their website as follows:

[5] According to UL Solutions, greenwashing is the act of misleading consumers regarding the environmental practices of a company or the environmental benefits of a product or service.

"Advantages of hydropower
Does not emit any greenhouse gasses or other emissions during operation
Water will not run out, hydropower is a renewable energy source
Water is a free resource, unlike coal and oil, for example
In operation, the hydroelectric plant produces no residues that need to be disposed of
Water can be stored in the dams, so that electricity production can be regulated as needed

Disadvantages of hydropower
- Hydropower plants have a major impact on the landscape and affect the ecosystems of the watercourses concerned"
Large-scale hydropower plants are not being constructed any longer in Sweden, probably because Julevädno and many of the most powerful rivers already have been exploited to the fullest. The understanding of hydropower is however still largely characterized by these three positive and somewhat dichotomous views, which all perpetuate an unmodified relation to and uncritical position vis-à-vis electricity.[6]

[6] "Vattenkraft". Vattenfall.

Large-scale hydropower plants are not being constructed any longer in Sweden, probably because Julevädno and many of the most powerful rivers already have been exploited to the fullest. The understanding of hydropower is however still largely characterized by these three positivist and somewhat dichotomous views, which all perpetuate an uncritical position vis-à-vis electricity.

A couple of days have passed since my gallery visit. I am back in front of my computer, staring at a photograph of Erixson's painting. For some reason, I find the presence of Näcken rather strange. I read more about the water spirit in a dictionary. Apparently, he was thought to embody the dangers associated with water. Then I notice that below him, workers excavate the soil and the rock on which he is seated. Did Erixson imply that the expansion of hydropower plants would initiate a control of the water through mechanization, that prior to industrialization was ruled by folkloric Näcken? Probably this is just my interpretation. I close the tab and think that now is the time to paint the real, vulgar picture instead.

3. With A Little Help From His Friends Herman Lundborg, Hjalmar Lundbohm and Industrial Colonization in Sápmi

I am reading an article by Herman Lundborg published in Ord & Bild in the 1920s."An influx of Swedes from the coast or from the south is taking place unabated", the text begins. The text evolves into a racist piece celebrating the extraction of iron ore, cutting of timber, and exploitation of rivers on territories inhabited by the Sámi. Mirroring his racist ideas about the natives of the region, Lundborg then declares that a territorial struggle has begun, that eventually will lead to a complete annexation of the territory by the Swedes.[1]

[1] Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* (Stockholm: Norstedts, 2015), 320–321.

Herman Lundborg was neither a politician nor an industrialist, but a physician, psychologist, and geneticist that promoted racial biology. Lundborg did not introduce racial biology in Sweden. Already in the mid nineteenth century, anatomist Anders Retzius had started to measure the skulls of different peoples, in turn influenced by the Swedish botanist, zoologist, taxonomist, and physician Carl von Linné. As founder and head of *Statens institut för rasbiologi* ("the State Institute for Racial Biology") from 1922-1935, Lundborg however became the protagonist who truly institutionalized racial biology in the country.

Maja Hagerman has written extensively on Lundborg's life. She brings to light that the mandate from the state did not emphasize an extra focus on the northernmost part of Scandinavia. However, Lundborg, born in Värmland and later native to Uppsala, had a strong personal interest in the region. Since his youth, he had visited Lapland, which is the Swedish name of the northernmost province of the country but also the heart of Sápmi, on at least twenty occasions. The objective was to "study" the Sámi people, considered pathologically "different" from the "Germanic Swedes". His interest grew so dominant that he later on would be criticized for spending too great a part of the budget on studies of the people of the region. It was exactly in the train on the way to such an excursion in 1914 that he met Hjalmar Lundbohm for the first time.[2]

By the time of their encounter in the train, Hjalmar Lundbohm was already an influential entrepreneur in the field of mining. He had started to study geology at a time when it was known that iron ore existed in the mountains of the northernmost parts of the nation-state. However, issues related to techniques of extraction and infrastructure had kept mining on a small scale. This would change with technical inventions of the 1870s and the inauguration of the railway *Malmbanan* ("the Ore-line"). Employed as a state geologist, Lundbohm visited the region above the polar circle for the first time in 1889 to participate in the investigation of the mountains Luossavaara and Kiirunavaara. After doing iron ore findings, mining company LKAB was founded one year later. Soon he was appointed site manager and later head manager of LKAB's mining operations in Giron, the town that was constructed around the mine. Giron was established in the areas of two Sámi villages where people spoke Meänkieli, Finnish, and Sámi. The mountain Haukivaara, where the town was built, was important calving land for the Gabná *sameby*,[3] used during the spring migration with the reindeer. The establishment caused major problems for reindeer herding, but also for the resident Tornedalers in Jukkasjärvi and Kurravaara nearby.[4]

In 1907, the state became a shareholder of the company which meant that Lundbohm's authority increased even more. His leadership involved dealing with various social issues and one that came to concern him particularly was the situation of the Sámi, aware of the problems that the mine and the railway created especially for the reindeer-herding population.

[2] Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* (Stockholm: Norstedts, 2015), 76, 80, 205.

[3] A sameby is both an economic association and a specific geographical area, where its members are entitled to engage in reindeer husbandry. In certain parts of this area, they are also entitled to fishing and hunting. The reindeer herding entitlement is founded on the concept of "ancient claims", i.e. that they have hunted, fished and used the reindeer pasture since time immemorial. The rules governing the sameby's are regulated in the Reindeer Husbandry Act. See "Samebyar". Sametinget.

[4] Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* (Stockholm: Norstedts, 2015), 76–77.

The mine manager kept in touch with Lundborg after their first encounter in 1914. He suggested contributing to the financing of Herman's surveys, offering 1500 SEK, today equivalent to around 75,000 SEK. Now friends, the two continued their letter correspondence. Later on that same year, Lundborg sent his paper *Rasbiologi och rashygien* ("Racial Biology and Racial Hygiene") to Lundbohm, who replied that he was greatly interested in the topic and believed that his work was of importance for the treatment and solution of "the Norrland Question".[5]

Their common interest in Sápmi was not an isolated phenomenon. Rather, it can be read together with the growing expansional and recreational interest in Norrland among the city-based elites. Referring to methodological issues regarding the management of natural resources, what was referred to as "the Norrland Question" became an important topic in economic and political debates around the turn of the century.[6] As one of three lands covering sixty percent of the country, Norrland became a subject of agricultural and industrial colonization, and according to Peter Forsgren "as a projection surface for Modern dreams". When timber, mining, and power industries transformed the territories, the dominant discourse was centered around the idea of a "wild" nature being replaced by a "higher" stage of civilization. At the same time, the older view of Norrland was recurrent, both in exoticism and in visions of an expanded agriculture. It was both understood as an industrial treasure trove and as a land of utopian nature.[7]

The understanding of Norrland as an "empty" land awaiting urbanization implied within this debate, was probably enhanced by the fact that it partly was inhabited by Sámi groups. Having lived in the region for thousands of years, the hold of the central power over the Sámi was however cemented by the establishment of the Sámi-shall-remain-Sámi-policy, a legislation that was heavily influenced by racist ideas within the nation states of Sweden and Norway. Emerging in the late nineteenth century, the policy was meant to preserve an exotic image of Sámi culture according to scholar Lennart Lundmark. The state advocated traditional dress and intensive reindeer husbandry for the Sámi, requiring families to follow the herds as nomads. Sedentary Sámi who engaged in small-scale farming within the territories above *Odlingsgränsen* ("the Cultivation Boundary") were not allowed to keep their newly constructed buildings.[8] The legislation was instrumental in excluding people of Sámi descent from urbanized areas and sedentarism above the cultivation boundary. The goal of the policy was for the Sámi to remain an exotic feature of the north, and therefore landless within the legislative system of the nation.[9] Hjalmar Lundborg was one out of many who advocated for the policy in the public debate.[10]

After more donations from different individuals from the Swedish bourgeoisie, including Lundbohm again, Herman Lundborg was appointed director and professor at Statens Institut för Rasbiologi in 1922 after several years of lobbying. Following an official decision by the parliament and the

[5] Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* (Stockholm: Norstedts, 2015), 320–321.

[6] Persson, Curt V. *Hjalmar Lundbohm: ledare, samhällsbyggare och kulturmecenat.* (Gammelstad: Älven Kultur, 2018), 74.

[7] Forsgren, Peter. *Norrland som koloni och utopi: Olof Högbergs Den stora vreden, Ludvig Nordströms Petter Svensks historia och berättelsen om Sverige.* (Göteborg: Makadam, 2015), 28.

[8] Lundmark, Lennart. *Stulet land: svensk makt på samisk mark*. (Stockholm: Ordfront, 2010) 175–177.

[9] Lennart Lundmark, 2005, The Sami: An indigenous People in Sweden. (Stockholm: Ministry of Agriculture, Food and Consumer Affairs and the Sami Parliament) 10–14

[10] Persson, Curt V. *Hjalmar Lundbohm: ledare, samhällsbyggare och kulturmecenat.* (Gammelstad: Älven Kultur, 2018), 31–66.

King's blessing, the institute could now "explore" the biological characteristics and genetics of the Swedish people. The "research" that aimed for the "strong race" to outlast "the socially underprivileged" was carried out through excursions to establishments such as schools and regiments in different parts of the country. Every individual was assigned a form, on which the institute's staff noted their name, family background, social status, and parental origin. On the back side, data regarding physical features such as nose height, "hull", eye color, hair color, and body hair was collected.[11]

In *Oönskade i folkhemmet* ("The undesirable of folkhemmet") Gunnar Broberg and Mattias Tydén describe that the major framework for racial biology to grow in Sweden was the evolution from an agrarian to an industrial and urban society at the turn of the nineteenth century, in which the political concept of *folkhemmet* ("the People's Home") came to play a decisive role. Simultaneous to the promises of Social-Democratic politicians regarding modernization, equity and social mobility through a strong welfare network which were important components of the folkhemmet idea, a collective sense of national weakness was reigning, which partly was due to the great migration of peasants and workers from Sweden to the United States from around 1850 to 1920. As a result of the rapid urbanization and industrialization, academics predicted that the deteriorating "quality" of the population posed a great threat to the capitalist machine. In this context, where the state apparatus also increasingly came to act within a "rational" biopolitical framework, racial hygiene became a solution to "desires for a return to past values and also demands for change towards an industrial utopia."[12]

Only one year after the creation of the institute, it received less funding than the previous year. As a consequence, Lundborg threatened to resign and asked friends for economic support. Hjalmar Lundbohm answered that he would try to raise some money to help rescue the institute but that he could not give any promises. The institute managed to survive for some fifteen more years, much as a consequence of the rise of the sterilization question as a tool to control the population. Upset, Lundborg finally retired in 1935, motivating the decay of the institute with antisemitic arguments. He was succeeded by Gunnar Dahlberg, a physician who was explicitly against the race concept, but led unethical experiments on people suffering from mental disorders. The institute was renamed in 1958.[13]

The friendship between Herman Lundborg and Hjalmar Lundbohm illustrates the shared ideological ground between protagonists of racial biology and industrial colonization of Sámi territory. As an ideological tool to achieve socio-political goals and not a science, racial biology seems to have fuelled industrialization and therefore urbanization in this region. To push semi-nomadic people of Sámi origin further north left the land up for grabs for the farmstead settlers and in the name of the "greater good", industrial settlers such as Hjalmar Lundbohm's state-owned LKAB could exploit the territory undisturbed.

[11] Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* (Stockholm: Norstedts, 2015), 199-201.

[12] Broberg, Gunnar, and Mattias Tydén. *Oönskade i folkhemmet: rashygien och sterilisering i Sverige.* (Stockholm: Dialogos, 2005), 15–19.

[13] Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* (Stockholm: Norstedts, 2015), 220–222.

4. No Church in the Wild
National Romanticism and Rationalism as Colonizing Devices in Bårjås

C. The switchgear building in Bårjås around the time of the inauguration.

I read an article of the newspaper Dagens Nyheter on my computer. “February 8 1915 marks an important day in the history of Upper Norrland. We are on the verge of completing a remarkable masterpiece, which rises in the middle of the wilderness as a magnificent monument to Swedish enterprise, Swedish engineering and Swedish deeds. [...] Over the centuries, the silent, mighty waters of Lulejaure[1] have broken here against the cliffs of the Porjus Falls. Its giant power will now be forced into the turbines of the power station, to be transformed into electrical energy and thus to be put to the service of useful work. May the works endure, for the benefit of our fatherland [...].”[2]

[1] Here, the name Lulejaure is used to designate Julevädno (Lule River).

[2] “Porjusanläggningarnas invigning: Kraftcentralen uppe i ödemarken satt igång på konungens signal.” in *Dagens Nyheter,* 9 February, 1915. 4.

After a Parliament decision in 1906 ruling that the government should construct a hydropower plant in Trollhättan eighty kilometers north of Gothenburg, the Swedish state entered into the arena of hydropower. The Bårjås plant would be the second in the row of what would be called the "Swedish national power stations", a number of large, costly and technically advanced manifestations of the power of the state.[3] The plant was inaugurated on a cold morning in 1915. With a great audience including mining company LKAB's manager Hjalmar Lundbohm, the new dam was filled with water from the river Julevädno on the command of representatives from the government. Made up of two rivers─the Little and the Great─Julevädno confluences around the village Vuollerim, after originating from the mountain Sulitelma. The river was historically an important traffic-way between the Norwegian Sea and the Gulf of Bothnia,[4] something that would change during the twentieth century.

The group continued the inauguration by walking towards the red brick building housing the switchgear.[5] Here, the ceremony proceeded with its main act: an electric siren launched by king Gustaf V pressing a button at the Royal Castle in Stockholm, marking the moment of switching on the machinery. The following day, the press reported from the inauguration using messianic terms, nicknaming the building "the cathedral of the wilderness", reverberating the progress-positivist zeitgeist among the elite on both sides of the left-right political spectrum.[6] However, everyone was not fully enthusiastic about the opening ceremony. The former owner of the surrounding land, Erik Abraham Olofsson Rim, abstained from participating.[7]

In the light of the readiness of World War I, voices were raised urging for an increase of domestically generated electrical power in Sweden. Already in 1899, the King appointed an investigation of the feasibility of using domestic sources of power to operate the state railways. Led by an engineer from the company ASEA, the investigation presented in 1902 showed that *Kungliga Järnvägsstyrelsen* ("the Royal Railway Board") could eliminate foreign coal dependence by using domestic sources of power. In addition, the power stations that were built would generate electricity for the industry and farms along the railways. One of the first tasks of the newly founded *Kungliga Vattenfallsstyrelsen* ("the Royal Waterfall Board") was consequently to secure an electric source for the railway line connecting the iron ore mine fields of LKAB in Giron and Jiellevárre to the ports of Áhkanjárga and Luleju. [8]

Locating the ideal site for such a plant, the choice lay between Vakkokoski on Duortnoseatnu and Bårjås on Julevädno. The hydrography of Julevädno made expansion possible both upstream and downstream to a larger extent than along Duortnoseatnu. Also, Bårjås was located in the "wilderness" affecting "almost no" stakeholders, according to the board, unlike the cultivated shores of the end of Duortnoseatnu bordering Finland. Following the dominating approach valorizing the agrarian industry over reindeer herding, the choice finally lay on Bårjås.[9]

[3] Brunnström, Lasse. *Estetik & ingenjörskonst: den svenska vattenkraftens arkitekturhistoria.* (Stockholm: Riksantikvarieämbetet, 2001), 115.

[4] Fjällström, Phebe. "Humanekologiskt system i Lule älvdal – fjällbygd, skogsbygd, kustbygd", in Baudou (ed.) *Att leva vid älven – Åtta forskare om människor och resurser i Lule älvdal.* (Bjästa: CEWE-Förlaget, 1996), 79–110.

[5] A switchgear is an apparatus used for switching, controlling and protecting the electrical circuits and equipments.

[6] Borgquist,Waldemar, Albert Westerlind, Ivan Öfverholm. *Porjus kraftverk och riksgränsbanans elektrifiering.* (Svenska vattenkraftföreningens publikationer, 1915), 3.

[7] Forsgren, Nils. Porjus. *Pionjärverket i ödemarken.* (Porjus arkivkommitte and Vattenfall, 1982), 20, 32.

[8] "Elektrifierad järnväg i 100 år" Vattenfall.

[9] Forsgren, Nils. *Porjus. Pionjärverket i ödemarken*. (Porjus arkivkommitte and Vattenfall. 1982), 46.

In 1910, the Swedish Parliament gave its approval for the Bårjås construction that would become the world's first hydropower plant with an underground machine hall.[10] The red brick building became the symbol of the project. The National Romantic "church" designed by architect Erik Josephson was visually dominating with its scale, type, and material, but represented only a small part of the interventions of the project. The complex also included an underground machine room housing the turbines, a great system of dams, and a labyrinth of sewage systems.

Before the construction, Bårjås was a village without any railway- or road infrastructure. The perceived need to rapidly initiate the construction made the engineers decide that the material needed for the early phases must be carried to the site by foot.[11] Already one year after the approval in the parliament, the Royal Waterfall Board had carried out considerable transformations of the surroundings, including the construction of a reserve power station, a suspension bridge, and blasting and concrete casting for the dams. Soon, also a temporary worker's settlement was standing on the ground of the village and a fifty-four-kilometer railway would connect Bårjås with Jiellevárre. By the time of the inauguration, the village had transformed to a company town under the influence of the state through Kungliga Vattenfallsstyrlsen, and to a certain degree Kungliga Järnvägsstyrelsen. The demography changed; now an influx of industrial workers, the majority with non-Sámi descent, settled in the town.[12]

The rationalist dam design was technically advanced for its time and became pioneering in its handling of the water. Apart from the eye-catching brick building, three different types of dams had been constructed on the lake. By the time of the finalization of the complex in 1915, the construction had resulted in 34,000 m^3 of earth being excavated, 19,800 m^3 of blasted rock, 101,600 m^3 of earth filling, and 11,000 m^3 of stone filling. A total of 267,000 m^3 of matter had been added and taken away.[13]

Eric Josephson was honored by the Prime Minister during the inauguration speech. He was not a protagonist of the Swedish architectural scene, but acquired numerous prestigious projects within the banking-, military-, and industrial sector throughout his career, for instance the first national power plant in Trollhättan. The project was understood as a national task of high importance, much more than what today might be interpreted as an ordinary state-run facility. It was constructed during a time when Sweden's union with Norway had recently broken and many migrated to the USA as a means of escaping poverty.[14]

As the second national power station-project, the Bårjås plant was considered as an equally important task. The so-called "church", "temple" or "cathedral" enveloping the switchgear was an L-shaped building of imposing size, signaling an institutional legacy, especially when situated in a village of small wooden houses. Twisting smithery by Olga Lanner was integrated into the colored glass sheets of the windows, reinforcing the building as something alien to its surroundings. A circular window and some ornaments on the shorter northern facade form a crucifix. Long and

[10] Ibid. 50.

[11] Ibid. 50.

[12] Össbo, Åsa. "Hydropower company sites: a study of Swedish settler colonialism". in *Settler Colonial Studies,* DOI. (2022), 9–11.

[13] Borgquist,Waldemar, Albert Westerlind, Ivan Öfverholm. *Porjus kraftverk och riksgränsbanans elektrifiering.* (Svenska vattenkraftföreningens publikationer. 1915), 34.

[14] Brunnström, Lasse. *Estetik & ingenjörskonst: den svenska vattenkraftens arkitekturhistoria.* (Stockholm: Riksantikvarieämbetet, 2001), 147.

narrow windows pierce the thick walls, and the central staircase materializes in something resembling a bell-tower overtopping the pitched roof in dark green wood. A golden crown, a symbol of the Swedish monarchy, marks the presence of the state on the tip of the tower.

Not only the size of the building, but also its material ─ brick ─ was new around here. The idea of the "Swedish values" of brick had been growing since the end of the nineteenth century, much because of the lobbyism of protagonists of National Romanticism. Hand-pressed brick was considered as a symbol of "organic" and "Swedish" architecture, especially when combined with timber and applied in simple, "primitive"-looking forms. Contradictingly enough, important references were Italian brick structures considered especially "proud, noble, and manly" by influential architects such as Torben Grut.[15] Borrowed from Ellen Key's publication, the motto of the National Romantic movement in the Nordic nation-states undergoing urbanization and rapid industrialization was "beauty for all". It became a strong impetus for the movement and implied the belief in a consensus of beauty that would form a "better" society. This aesthetic was embodied by the idea of what Barbara Miller Lane calls a "true Nordic monumentality" based on the vernacular of prehistoric graves, peasant cottages, Vasa castles as well as the idealization of the culture of the "worker-peasants".[16]

Notwithstanding the assertions of Kungliga Vattenfallsstyrelsen, the area around Bårjås was not a no man's land. It was the locus of a two-household village constructed in 1833 and also used as reindeer pasture and migration route for the Sirkas and Sörkaitum *sameby*.[17] As brought up in Åsa Össbo's *Nya Vatten, Dunkla Speglingar* ("New Waters, Dark Reflections"), the legislative process of approving but also conceiving the project was consistently unjust since it excluded the members of the two sameby's, while the land owners of the village, one of its inhabitants, sold the rights to the river to Kungliga Vattenfallsstyrelsen in 1909. The Sámi did however not own the land, but were "granted" to use it by the Crown, since Bårjås was situated above *Odlingsgränsen* ("the cultivation boundary"), an administrative boundary conceived to regulate the westly expansion of agriculture into reindeer herding areas. The fact that the state saw itself as a protector of Sámi rights in relation to third parties, but not in relation to situations when the state itself stood against the Sámi, meant that the parliaments' decision sufficed to initiate the construction. When the manorial court inspected the construction site in 1911, fishing-, foresting,- and floatation experts assisted, but there was no presence of any representatives from the affected sameby. In the investigation by Kungliga Vattenfallsstyrelsen, the impact on fishing in the upper Porjusselet lake was considered to be "certainly minor", even though reindeer herders had fishing rights along the river. The establishment of the complex led to an increased pressure on the resources in their area, illustrated by the increase in the number of hunting and fishing leases. In 1918, Sirkas member Petter Ivarsson Tuolja reported that the usual reindeer migration route towards the

[15] Lane, Barbara Miller. *National romanticism and modern architecture in Germany and the Scandinavian countries. Modern architecture and cultural identity.* (Cambridge; New York: Cambridge University Press, 2000), 173.

[16] Ibid. 6–8, 163.

[17] A sameby is both an economic association and a specific geographical area, where its members are entitled to engage in reindeer husbandry. In certain parts of this area, they are also entitled to fishing and hunting. The reindeer herding entitlement is founded on the concept of "ancient claims", i.e. that they have hunted, fished and used the reindeer pasture since time immemorial. The rules governing the sameby's are regulated in the Reindeer Husbandry Act. See: "Samebyar" Sametinget.

Bårjås mountain that trespassed the village of Bårjås was closed.[18]

The brick building of the power plant in Barjås was never "a church" in the "wild". The surroundings had been inhabited for many years by nomadic groups and at least since 1833 by sedentary settlers.[19] The first physical connections that the complex generated was consequently the roads and later the railway to Jiellevárre, further connecting Bårjås to the rest of the country. The construction of the complex consolidated the state's hold over the territory and its subjects, being the first physical construction by the state to interfere with the industry of reindeer husbandry as well as fishing upstreams on Julevädno. Therefore it can be understood as the first step towards a totally industrialized water course that would occur eventually. Its construction initiated the process of a break in the economic dynamics of the river valley, transforming it from operating within a partly nomadic, partly agrarian logic to being interwoven within a capitalist, biopolitical logic, achieved through industrial settler colonialism.

The mantra of the protagonists of National romanticism was to reverberate the Nordic vernacular, but in Bårjås, the construction of the power plant resulted in the opposite. In this area, brick had not been used historically, since many Sámi were half-nomadizing, implying that structures often were light and in decomposable materials as wood, moss, and bark. Applying brick in such a context meant nothing but a creation of a fake vernacular, which implicated an alienation from local traditions towards a homogenizing "Nordic" style. With its presence, the brick building and the other interventions on the landscape stand as monuments for the confluence of rationalism, National Romanticism and industrial settler colonialism on Sámi territory. From this perspective, the power plant was a colonizing device, both regarding its socio-economic and aesthetic implications.

Bårjås would become well-known from north to south, not only among engineers and politicians. In a passage of the manifesto for functionalist architecture *acceptera*, the authors bring up Bårjås as one of the most important sites of Modern industry as long as sixteen years after the construction was finished.[20] At the inauguration, speakers expressed their wish for the power plant to endure over time, and this would be the case, as the station is still running. Throughout the century, several extensions of the building were being made, and in the 1970s, the whole complex was renewed by the addition of an underground central that would dislocate all activities from the 1915 brick building. Now considered a cultural heritage, it was converted into a museum.

[18] Össbo, Åsa. *Nya vatten, dunkla speglingar: industriell kolonialism genom svensk vattenkraftutbyggnad i renskötselområdet 1910-1968.* Skrifter från Centrum för samisk forskning 19. (Umeå: Institutionen för idé- och samhällsstudier, Umeå universitet, 2014), 34, 74, 77.

[19] Forsgren, Nils. *Porjus. Pionjärverket i ödemarken.* (Stockholm: Porjus arkivkommittté, 1982), 13.

[20] Asplund, Erik Gunnar, red. *acceptera*. (Stockholm: Tiden, 1980) 23.

5. Blinded By the Lights
Sigurd Lewerentz's Signs and Electrical Light as Propaganda

D. The festivity area of the Stockholm exhibition with the publicity mast in the center.

I am walking around a creek in Stockholm called Djurgårdsbrunnsviken. It was here that the Stockholm exhibition was held between May and September 1930. When I arrive in front of where the festivity area was located, I stop and imagine the advertising mast rising eighty meters over my head: a lightweight steel construction with a cross section measuring three by three meters. I can see its neon signs lighting up the dark. The reflections of the logos of Mazetti, Läkerol, and Philips are shimmering in the water.

Together with his former colleague Torsten Stubelius, Sigurd Lewerentz had designed lighting armature for industrial companies such as ASEA before the end of the 1920s. With an increasingly entrepreneurial mindset and great interest in technical development, Lewerenz now also started to design commercial lighting armature within the framework of the new company Ab Stockholm Ljusreklam, co-founded with Claës Krueger.[1]

Compared to other countries in Europe, both rural and urban areas in Sweden were electrified early. From the turn of the twentieth century, the flares of the gas and oil lamps were successively replaced by the steady rays of the lightbulb. In *Ut ur Mörkre*t ("Out of the Darkness"), Jan Garnert describes how electricity early became a synonym to modernity and increased comfort in Sweden that was positively charged also symbolically.[2]

At the 1928 exhibition *Ljuset i människans tjänst* ("Light in the Service of Mankind"), products by Ab Stockholm Ljusreklam made an early appearance. Resembling a fair rather than an art exhibition, it was meant to introduce the masses to different types of lighting products.[3] Despite this it was installed in an art gallery, at Liljevalchs in Stockholm, collectively organized by *Tekniska Museet* and various interest organizations. Visitors were firstly introduced to a brief history of illumination, followed by a series of set pieces in which principles of "rationally" installed electric lighting were illustrated in "true" environments. Products from various lightsource- and armature manufacturers, including ASEA and Svenska AB Philips, were used to display lighting considered properly adapted to use, coherent with the color of the walls, and well-placed within the room. After a series of different interior surroundings, visitors were guided towards the main oeuvre *Vinkelgatan*, ("the Angle Street"), a miniature of a commercial street with illuminated shop fronts, moving light signs, and luminescent street numbers.[4] It was here, on one of the miniature roofs, that Lewerentz's and Krueger's neon sign forming the word *Ljusreklam* ("Light publicity") was featured.

One year after the opening of Ljuset i Människans tjänst, the office- and storage complex of Svenska AB Philips, a market-leading manufacturer of electric lighting for domestic interiors, facades, commercial environments, and publicity signs, stood finished in Vasastaden in Stockholm. As highlighted in the book *Sigurd Lewerentz: Architect of Death and Life*, the Philips complex was particularly associated with the modern life of the capital, representing a new type of industrial architecture. The complex consisted of three major volumes, whereas two faced the street Gävlegatan and one stretched towards the inside of the block, framing a courtyard.[5] The light radiating from the slim capital letters of the neon tubes were the only explicit ornamentation. The words Philips, *armatur*, *lampor*, and radio were attached to the facade in between the rows of identical windows. Electrical light was now a motif in itself, so powerful that it had outconquered the neoclassical ornaments of Lewerentz's 1920s buildings.

The interdependence and merging between electrical products and func-

[1] Lewerentz, Sigurd, Kieran Long, Johan Örn, Mikael Andersson, och ArkDes, red. *Sigurd Lewerentz: Architect of Death and Life.* Översatt av Anna Paterson. (Zürich: Park Books, 2021) 699, 701.

[2] Garnert, Jan. *Ut ur mörkret: ljusets och belysningens kulturhistoria*. (Lund: Historiska Media, 2016), 93, 94.

[3] Ibid. 93–94.

[4] Ingenjörsvetenskapsakademien and Svenska föreningen för ljuskultur. *Ljuset i människans tjänst: belysningsteknisk utställning i Liljevalchs konsthall september 1928.* (Stockholm, 1928).

[5] Lewerentz, Sigurd, Kieran Long, Johan Örn, Mikael Andersson, och ArkDes, red. *Sigurd Lewerentz: Architect of Death and Life.* (Zürich: Park Books, 2021), 101.

E. The facade of the Philips building along Gävlegatan.

tionalist architecture (is the neon sign or the interior lamp an architectural ornament, an electrical product, or both?) was of course not only a Swedish phenomenon. State-of-the-art armatures were important components of the functionalist architecture that was on the rise worldwide. In *The Architecture of the Well-Tempered Environment*, Reyner Banham addresses exactly how the abundance of light, together with large areas of different sorts of transparent or translucent material, would "reverse established visual modes by which architecture was perceived by the human eye". A consequence of the breakthrough of electrical lighting would be that the "true nature" of the new architecture only could be perceived after dark, when artificial light illuminated the streets through the increasingly larger windows.[6]

Invited by organizers *Svenska slöjdföreningen* ("Swedish craft association") and the City of Stockholm, Gunnar Asplund and Sigurd Lewerentz were the responsible architects for the Stockholm Exhibition of 1930. Often pointed out as the introduction of functionalist architecture to the Swedish scene, electrical light played an important role in the various pavilions and structures, notably through the publicity mast designed by Lewerentz that could be seen from many parts of the city. It is not known exactly where the electricity used in the exhibition originated. Yet, in the beginning of the 1930s, the techniques of long-distance electrical transmission still restricted the metabolic relationships of electricity consumption to a regional scale: the power consumed in the capital was mainly

[6] Banham, Reyner. *The architecture of the well-tempered environment.* 2nd ed. (Chicago: University of Chicago Press, 1984), 70.

originating from gas-and steam plants in the vicinity of Stockholm and from hydropower plants in the provinces of Uppland, Södermanland and Västmanland.

In the Swedish functionalist manifesto *acceptera* from 1931 co-written by several including Gunnar Asplund, the authors implicitly urged architects to respond to an electrified society when comparing the new urban "A-Europe" of horsepower to the old, rural "B-Europe".[7] Regarding accepting the zeitgeist, they write:

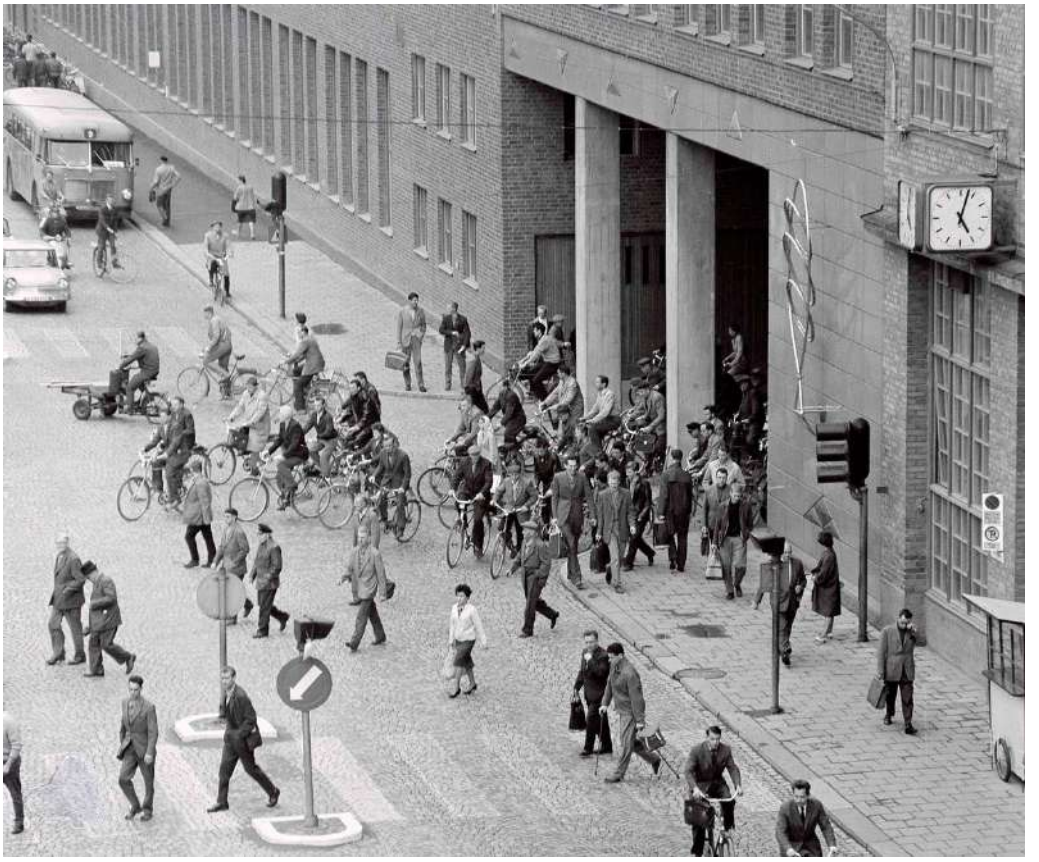
[7] Asplund, Erik Gunnar, red. *acceptera*. (Stockholm: Tiden, 1980), 15–23.

"We cannot tiptoe backward away from our own era. Nor can we skip past what troubles and confuses us into a utopian future. We can only look reality in the eye and accept it to be able to master it"

From this angle, Lewerentz's signs illustrate how functionalist architecture in Sweden contributed in making electrical light part of the technical but also cultural zeitgeist. The signs can be understood as bewitching, propagandist tools, materializing an acceptance of what "reality" had to offer. There might be no direct causality between the two phenomena, but the electrical light of functionalist architecture developed during the same time as the early hydropower plants. The following decades would offer a proliferation of power plants on the rivers of the north, as well as an interconnected transmission grid stretching over the whole nation-state.

A December afternoon, I am crossing Sveavägen at the office complex where Sigurd Lewerentz and Torsten Stubelius relocated in 1927. Above the store of a multinational sports brand, a large billboard is integrated to the curved neoclassical facade. People with shopping bags rush indifferently in front of the sign, now flashing in yellow and white. I get dizzy and continue forward.

6. Touching From a Distance, Further All the Time Nationwide Electrical Transmission and ASEA in Västerås



F. Lunch break at the Mimer factory in 1961.

When reading about the industrial history of Västerås, I stumble upon a text depicting life in and around ASEA's Mimer Workshop in the 1940s and 1950s. Around the shift changes, the workers at the electrical engineering company would flow in and out of the factory. Andersson, the grumpy doorkeeper, would stand between two brick columns framing the gate. He controlled everyone moving in and out of the factory so meticulously that a long line was created, in turn forcing the car drivers of the city to avoid the street.[1]

[1] Bååth, Sören. "Mimer - ett kvarter och en ASEA verkstad". Industrihistoriska föreningen i Västerås. (2005).

After experiments on electrical lighting, the corporation ASEA would proceed by producing equipment for power transmission, alternating current technique, and electrical motors to clients of important amplitude. After being founded in Stockholm in 1883, ASEA relocated to Västerås shortly before 1900. During this time, Västerås was still a small town with around 8000 inhabitants. However, the board saw that the hydrography of the town, with a creek running through it, enabled an efficient power supply to the future factory. The city's "excellent" geographic location in between cities as Arboga, Örebro and Stockholm also contributed to the choice.[2]

The increasing demand of ASEA's products in the beginning of the 1900s led to the accumulation of profits, materialized in new buildings on plots next to the railway tracks of Västerås central station. In what would develop into a continuous urban block, the Mimer Workshop and the Ottar office were constructed between 1911-1915. 113 meters long, the Mimer workshop embodies Taylorist ideas on efficiency in manufacturing that were promoted by the company leader. The narrow building made up of an iron skeleton covered in brick was divided into four floors. With a row of columns in the middle, the factory offered good lighting conditions, and practical positioning of the machinery. The production was organized on the four floors with the largest machines in the ground floor and the last for the production of the small relays.[3] In the press, the factory building was celebrated, among others by Torsten Stubelius and Gregor Paulsson,[4] as rationally conceived and monumental, which were labels that the company wanted to apply to its products as well as to their image. The building was designed by Erik Hahr who was the city architect of Västerås 1909-1936. For both him and the president of the company, the rival company AEG and their emblematic turbine hall in Berlin became important references, not only for production planning but also for the design of the factory.[5]

The very same year as the Mimer Workshop was inaugurated, ASEA delivered water turbines and control panels in Carrara marble to the new hydropower plant in Bårjås.[6] This would not be the only relation the company would have with *Kungliga Vattenfallsstyrelsen* ("The Royal Waterfall Board") over the years. The growth of ASEA during the beginning of the century was directly linked to the expansion of hydropower, with Kungliga Vattenfallsstyrelsen as the most important stakeholder in the nation. ASEA advanced in the inventions on transmission technology through long-standing collaborations with the Board, illustrating the importance of cooperation between state and industry in this field.[7]

The historian of technology Thomas P. Hughes argues that great technical systems often emerge as autonomous systems with widely varying standards, evolving into an increasingly global network.[8] The electrical grid in Sweden emerged exactly as a small series of independent networks. By the beginning of the 1930s, there existed numerous private-owned systems along with two extensive regional systems owned by Kungliga Vattenfallsstyrelsen: Trollhättan and Älvkarleby. These two were connected with

[2] Åkerman, Johan. *Ett elektriskt halvsekel : översikt över ASEAs utveckling 1883-1933*. (Väserås: ASEA. 1933) 53–54.

[3] Brunnström, Lisa. *The rational factory: on the roots of modernist architecture*. (Umeå, Sweden: Dokuma, 1990) 168, 171.

[4] Ibid. 175.

[5] Ahlberg, Anna. "Industrialismens samhällsbyggande i Västerås Stad - från 1800-talets slut till 1900-talets början" (Kulturmiljöenheten - Länsstyrelsen Västmanlands län, 2004), 20.

[6] ASEA. *ASEA 1883-1948.* (Västerås: Allmänna svenska elektriska AB. 1955), 151.

[7] Össbo, Åsa. *Nya vatten, dunkla speglingar: industriell kolonialism genom svensk vattenkraftutbyggnad i renskötselområdet 1910-1968*. Skrifter från Centrum för samisk forskning 19. (Umeå: Institutionen för idé- och samhällsstudier, Umeå universitet, 2014), 106.

[8] Hughes, Thomas P. *Networks of Power: Electrification in Western Society, 1880–1930.* (Maryland: Baltimore: Johns Hopkins Univ. Press. 1993) 330.

TEKNISK TIDSKRIFT

VÄG- OCH VATTENBYGGNADSKONST
HUSBYGGNADSTEKNIK

REDAKTÖR: RICHARD SMEDBERG

HÄFTE 1 — UTGIVEN AV SVENSKA TEKNOLOGFÖRENINGEN — 27 JAN. 1940

INNEHÅLL: Kraftledningsbygget Porjus—Västerås, av arbetschefen K. F. Trägårdh. — En anordning för provning av vattentäthet direkt på den färdiga betongkonstruktionen, av civilingenjör Viktor Sjödin. — Utredningar. — Föreningar. — Meddelanden. — Bokanmälan. — Tidskrifter. — Författningssamling.

Kraftledningsbygget Porjus—Västerås.

Av arbetschefen K. F. TRÄGÅRDH, Stockholm, LSTF.[1]

Orientering.

Omkring årsskiftet 1936—37, då norra stamlinjen praktiskt taget var färdigbyggd från Porjus till Stadsforsen, hade emellertid förutsättningarna för det återstående bygget förändrats. Detta skall jag icke närmare gå in på utan endast konstatera, att det beslöts, att spänningen på delen Stadsforsen—Västerås skulle höjas till 220 kV. Härigenom underlättades också en samverkan med Krångede a.-b.,

Fig. 1. Vattenfallsstyrelsens stam- och primärledningar hösten 1934.

1

1 Utdrag ur föredrag i VV-avdelningen 1939 11/12.

G. Aricle by Trägårdh, K.F. "Kraftledningsbygget Porjus - Västerås". In *Teknisk Tidskrift - Väg- och vattenbyggnadskonst Husbyggnadsteknik*.

a record voltage via Västerås in 1921 which was situated in between the towns, forming what came to be known as *Centralblocket* ("the Central Block"). By this time, there were still fifteen largely independent transmission networks in Sweden,[9] but this would soon change.

In the 1930s, the government decided to define a comprehensive rationale for the electrical transmission networks in the country, and in 1936, the Head of the Ministry of Trade appointed civil engineer Axel Granholm to lead this investigation. Granholm's team concluded that the guiding principles behind the national grid must focus on exploiting the hydrographic differences between the northern and southern parts of the country. A long-distance and large-scale electricity transmission from the surplus areas in the north to the areas of the consumers in the south was judged necessary, as there were inadequate possibilities for a self-sufficient power network in the south.[10]

Bårjås already sustained the machinery of the mines as well as its railway in the region, and in conjunction with Granholm's conclusions on the rationale of the distribution, the surplus was now to be directed further south. In 1929, a connection was set up with Boden, situated 180 kilome-

[9] "Ett stamnät blir till". Vattenfall.

[10] Granholm, Axel. *Rationellt utformande av rikets elektriska stamlinjenät : utredning*. (Stockholm: Svenska vattenkraftföreningens publikationer. 1937), 2–9.

ters southeast of Bårjås. Among others, the distribution network of Centralblocket within which Västerås was connected still required additional power. Since there was still a considerable surplus generated in Bårjås, Kungliga Vattenfallsstyrelsen then requested funding for a power line from Bårjås across Stadsforsen on Indalsälven to Västerås, which would form the northern trunk line. In 1938, the new power line was operating,[11] supported by an amalgam of timber- and iron rods and running more than 1000 kilometers.

As nationwide interconnectivity was steadily developing, ASEA proceeded to manufacture many of Sweden's hydropower generators in and around Västerås. ASEA's business continued to increase in profit and the premises had now expanded on three out of four sides of the 150 meter Mimer industrial block, creating continuous facades facing three streets. In the 1930s, the new workshop Arvidverkstaden was constructed on a neighboring plot. ASEA would be Västerås' largest workplace in terms of occupied area and number of employees for almost a hundred years, contributing to the demographic increase that the town saw during the first decades of the twentieth century. After only thirty years of presence, the inhabitants had increased by 300 percent. ASEA contributed to Västerås' growth to a middle-sized city and to the establishment of a class of wage-laborers, even recruiting workers from Italy from 1947 and onwards.[12] Today, Västerås' urban core consists of numerous ASEA buildings labeled as heritage sites, that not only can be associated with the industrial colonialism that occurred in places such as around the Julevädno.

The iron sculpture *Aseaströmmen* ("the ASEA-stream") on *Stora torget* ("the Big Square") pictures workers bicycling one after the other, underlining the congestion that the existence of the corporation would create in Västerås. As the crowd flowed in and out of the factories over the decades, the transmission of electricity, but also the trade with Kungliga Vattenfallsstyrelsen made Julevädno touch Västerås from a distance, a touch that would sustain the industry of the city.

[11] Forsgren, Nils. *Den effektfulla älven - Stänk från Luleälvens kraftfulla historia.* (Luleå: Vattenfall. 1989), 62.

[12] El Mahdi, Josef. " Alla har sin egen berättelse om hur de kom hit på helgen och började arbeta på måndagen". *Svenska Dagbladet*. 2008-10-12

7. Still Not Loving Polis
Vattenfall Headquarters and the "Metabolic rift"

H. Vattenfallsstyrelsens office complex in Råcksta, Vällingby district.

I walk along the streets Kirunagatan, Jämtlandsgatan and finally Östersundsgatan. The high-rise complex that once used to house the employees of the state's hydropower authority is now before me, reflecting the gray color of the sky. The following day, I arrive at the organization's new office building just in time for the lunch break. Evenemangsgatan is crowded by cars and people in suits. The tall, greenish building casts shade over the street.

Most commodities consumed within the cities of the nineteenth and twentieth century did nor originate from the city itself. This increasingly long-distance exchange was described by Karl Marx as creating an "irreparable rift" in the labor process and material exchange between humans and nature. This exchange that dispossesses the soil of its composing matter is crucial in understanding how capitalist relations through long-distance trade created an antagonistic separation between city and countryside. For Marx, it was part of the development of capitalism that "the soil is to be a marketable commodity, and the exploitation of the soil is to be carried on according to the common commercial laws". Based on Marx's writings, the "metabolic rift" concept was theorized by John Bellamy Foster in 1999.[1] Developing the thinking of Marx and Bellamy Foster, environmental historian Jason W. Moore argues that the town–country division of labor does not produce a metabolic rift but constitutes the metabolic rift itself.[2]

As shown by the concept, the material flows that sustain the contemporary city are not natural. Until the seventeenth century, cities' resource-dependency upon surrounding countryside, and technological limitations to production and extraction prevented extensive urbanization. Early urban centers were on the contrary bioregionally defined and had relatively light footprints. However, with the rise of capitalism, cities expanded in size and population as a result of a rationale that organized the material exchange of food, fuel, fibers and waste in a system that exploited territories increasingly farther away. Capitalist society disrupted the spatial barriers of the "nature-imposed conditions of sustainability." [3]

This perspective asserts that the *polis* [4] as an architectural entity is unnatural, since its metabolism is. In *Architecture and Utopia: Design and Capitalist Development*, Manfredo Tafuri counters Enlightenment presuppositions regarding the "natural" origin of the city by exactly framing it as a creation fully dictated by capitalist logics, structuring the movements of people and commodities by reducing frictions.[5]

The concept of the metabolic rift was theorized as a reflection of the relation between humans and the soil, but it can also be extended to reflect on humans and water, more specifically in understanding the asymmetrical relationships of capital and power created by the immaterial movement of electricity emerging from rivers. As the main locus of accumulation of financial capital generated on Julevädno, the city of Stockholm is an integral component in the infrastructural system of hydropower in Sweden.

The precursor of the state owned power company *Vattenfall* ("Waterfall"), *Kungliga vattenfallssyrelsen* ("The Royal Waterfall Board"), was founded in 1909 with an office in a large apartment in a palace in Stockholm. Located some hundred meters north of the Royal Castle and other representative buildings of the Crown and the aristocracy, it was situated on the site of the seventeenth century cartesian expansion outside the island of Stadsholmen, the historical core of Stockholm. In the 1950s, the palace functioned as the center of the organization that had spread across nume-

[1] Foster, John Bellamy. *Marx's Ecology: Materialism and Nature. (*New York: Monthly Review Press, 2000), ix, 141–142, 156.

[2] Moore, Jason W. "Transcending the Metabolic Rift: Towards a Theory of Crises in the Capitalist World-Ecology" in *Journal of Peasant Studies* 7 (1 (2011), 1–46.

[3] Ibid. 1–46.

[4] The word "polis" πόλις means city, state, or citizen in Greek.

[5] Tafuri, Manfredo. *Architecture and Utopia: Design and Capitalist Development*. (Cambridge, Mass.: MIT Press, 1996), 4–5.

rous locations in the city. To facilitate the work, the idea of a purpose built office complex for the authority was brought about. In the middle of the decade, the decision was made to concentrate all divisions of the organization on farmland in Råcksta just south of Vällingby, around ten kilometers northwest of the city center.[6]

The choice of locating the headquarters on a vacant lot next to a farm is indicative of the positivism embedded in the idea of Vällingby district in the 1950s and 1960s. As one of the most comprehensive materializations of what later would be referred to as *ABC-staden* ("the ABC-town),[6] the neighborhood scheme presented in *Stockholm generalplan* ("Stockholm masterplan"), but also Vällingby as a physical site, became a symbol of the advancements of the Welfare state under Social democracy.[7] In 1956, Swedish Social democratic politician and later prime minister Olof Palme even moved here with his family.

The scheme was developed under the leadership of architect Sven Markelius from the end of the 1940s. The idea of autonomy was integral in the conception of ABC-staden as this new type of suburb was designed to counter the characteristics of the typical dormitory city. Relating to function, this was reflected by the presence of blue- and white collar workplaces within the urban nucleus of services, commerce, and housing, which differed from Stockholms' earlier planning strategies. Relating to form, neighborhoods were isolated from each other by meadows, wooded areas, bodies of water, and hills. The result was a rather porous urban structure consisting of finite cores, lined up one after the other and interconnected by the subway, as in the pearls of a necklace. Also the mere toponymy is indicative of the aspirations of the planners. The land of the new suburb was the site of an old farmer settlement mentioned as Bällingaby in written sources already in 1315. Roughly referring to the people living on a dike and *by* ("village"),[8] the choice of keeping the name reflects the idea of the suburb as a self-referential entity.

It was in this urban setting that the authority's new office building would be constructed. Commissioned as a mundane yet spacious compound requiring a minimum of maintenance, the complex consisted of three high-rise volumes separated according to function with the administration in the middle, electrical engineering in the east, and the construction department in the west. The repetition of small, identical office rooms produced homogenous facades stretching up to sixteen floors above the ground, forming the backdrop of the metropolitan life of the many employees, but also passengers of the subway at Råcksta station. By the time of its inauguration in 1964, the complex was northern Europe's largest office building with a total of 75,000 m^2 and up to 3000 employees.[9]

Approximately fifty years after the construction of the headquarters in Råcksta, it was time for the organization to move again, this time to a complex in the new neighborhood Arenastaden. In conjunction with the neoliberal wave of the 1990s, the authority had been privatized and re-

[6] ABC is an abbreviation of *arbete* ("labor"), *bostad* ("housing"), *centrum* ("center").

[7] Rudberg, Eva. *Sven Markelius, arkitekt.* (Stockholm: Arkitektur förlag, 1989), 156–158

[8] Sax, Ulrika. Vällingby - ett levande drama. (Stockholm:-Stockholmia förlag, 2016)

[9] Wikström, Björn, Vattenfalls kulturarvskommittée. *Vattenfall i Råcksta: glimtar från ett halvt sekel*. (Stockholm: Vattenfalls kulturarvskommitté, 2012), 12.

branded as Vattenfall. The Arenastaden project was initiated in the post-industrial 2000s, when municipalities of the metropolitan area of Stockholm launched expansion projects on formerly logistic and industrial zones. For economic reasons, little industrial production seemed to fit into the new image of life in the metropolis. Activities of the first and secondary sector, noisy and smelly, had successively been outsourced from the cities all over Western Europe. Through the processes of gentrification and densification, "undesirable" vacant land that formerly housed spaces for industries and logistics would be "revitalized". Stockholm was now to expand from within, "bridging" the fragmented urban patchwork inherited from the Modernist expansion from the 1940s-1960s. As many other of the post-industrial neighborhoods of Stockholm,[10] stakeholders wanted Arenastaden to be associated with wealth and congestion of services, activities, and people (and in this particular case with sports, as Sweden's new national arena for football was assigned a piece of land here). This is again reflected by the toponymy: in contrast to Vällingby, Arenastaden's name directly refers to the city as such, as it translates to "the Arena City".

Facing the largest shopping mall in the Nordic countries, the slabs of Vattenfall's 2012 office building are wrapped by green and black glass in a checkered pattern, giving the building "a modern and light impression". The volume of the building consists of four merged bodies, "derived from the four elements". This is reflected in the interior where each volume is coded after a color; fire is represented by orange, earth represented by green, and air and water in different shades of blue.[11] In *The Brick and the Balloon: Architecture, Idealism and Land Speculation*, Fredric Jameson defines architecture of financial capital as enclosed skin volumes that illustrate late capitalist abstraction, in the way it dematerialized without signifying spirituality in any traditional way: "breaking down the apparent mass, density, weight" into an "extreme isometric space".[12] In 2018, Vattenfall listed existing bonds on Nasdaq Stockholm, after many years only being active at the London stock exchange.

Autonomy was important within the concept of ABC-staden in Vällingby. However, looking at employment, the presence of Vattenfallsstyrelsen points out that autonomy existed mostly in relation to the city center and not to the rest of the territory, as a great part of the working-spaces of the suburb existed as a consequence of the exploitation of the rivers of the north. Regardless if realized as a Modernist authority building in a middle class suburb or as a neoliberal complex for finance capital in a post-industrial district, the headquarters illustrate that the exploitation of Sápmi can be seen in the expansion of Stockholm. To read Vattenfalls' headquarters as unnatural objects entangled within the states' exploitation of Sámi rivers deflates the romanticized understanding of autonomy within ABC-staden as well as the congestion of Arenastaden. The two complexes stand as landmarks for the mechanisms of the centralized and ethnonationalist state that exploit Sápmi and redirect the profits to the polis.

[10] Hammarby Sjöstad, Norra Djurgårdsstaden, Hagastaden, and Barkabystaden are examples where *stad* or *staden* ("city") or ("*the city*") make up the neighborhood name.

[11] "Vattenfall - En prisad byggnad - Miljövänlig från topp till tå" Fabege.

[12] Jameson Fredric. "The Brick And The Balloon: Architecture, Idealism And Land Speculation" in *The cultural turn: selected writings on the postmodern, 1983-1998.* (London; New York: Verso, 1998), 186.

8. Every Teardrop Belongs to Vattenfall The Artificial Water Flow in Jåhkåmåhkke

I. Northern Europe's longest dried riverbed starts at the power plant in Letsi.

We arrive in a car, driving downhill. Suddenly, a vast, dark cliff is appearing. When we look left, a linear formation of rocks extends into the fog, as far as the eye can see. As I walk on the slippery rocks where Julevädno used to flow, I think of the machine room somewhere 136 meters below me. In this very minute, is the water flowing down there or is it retained by the dam? I look up. The landscape is completely still.

In *Industrialization of Rivers: A Water System Approach to Hydropower Development*, Eva Jakobsson describes Julevädno as a mechanically controlled stair of water.[1] As a large technological system, it includes physical artifacts such as turbogenerators, transformers, and transmission lines. The water of the river is not flowing peacefully. Contrarily, the flow is controlled by the company *Vattenfall* (”Waterfall”) via sixteen different dams, where ten are situated within Jåhkåmåhkke municipality. The power plant in Bårjås was the first one to be built, followed by the dam in Suorva in 1920. In the years after World War II, the expansion accelerated. Harsprånget power plant was inaugurated in 1950 and then followed by Liggá in 1954 (reopened in 1982); Missevarre in 1962; Laxede in 1962; Letsi in 1967; Seitevare in 1967; Porsi in 1970; Parki in 1970; Vietas in 1971; Boden in 1972; Akkats in 1973 (reopened in 2014); Vittjärv in 1974; Randi in 1976; and finally Ritsem in 1978.[2]

[1] Jakobsson, Eva. ”Industrialization of Rivers: A water system approach to hydropower development”. in *Know Techn Pol 14*, (2002), 41–56.

[2] ”Vattenfalls kraftverk”. Vattenfall.

According to the non-governmental organization Älvräddarna, Julevädno is a site where the natural habitats of freshwater species have changed due to the change in the water flow. Not only are the reindeer trespassing routes disturbed, but the dams constitute barriers for the migrating fish, who are often injured or killed when passing through the turbines. In a debate article from 2021, limnologist Stellan Hamrin and biologist Siri Lundström, members of Älvräddarna, write that:

”Vattenfall [...] has so far not addressed any of its environmental debt or fulfilled promises made to the local population since its expansion in the 20th century. Wild salmon is gone, but remnants of Natura 2000 species[3] such as otters, river pearl mussels, and sea eagles remain. [...]

The Lule River was probably the richest salmon stock in Europe before the development. Salmon weighing 30 kilos were caught and Uppsala University was built on the income from salmon. Before the expansion, around 10 million new salmon were produced in the river every year.

Through Nationell prövningsplan för vattenkraften, the government has exempted as much of the hydropower as possible from EU environmental requirements. Centerpartiet has recently proposed further loosening in the Water Directive, and wants to prevent the promised restoration of the major rivers.[...]

In Sweden, our most degraded environment apart from the Baltic Sea is the rivers that have been exploited and not yet restored. A wide range of species are extinct or partially eliminated and many Natura 2000 sites and species are affected. Stora Sjöfallet with several falls and cataracts is gone and salmon is only found in farms, where it is gradually being genetically destroyed and degraded by a lack of thiamine.[...]

Our elected officials must make decisions that benefit people, the environment and future generations. Hydropower, like all other environmentally damaging activities, should bear its own costs[...]. It should not be borne by rural areas and by the Sami, who have already suffered enough. Restored rivers with world-class salmon fishing and based on the rights of the Sami are a matter of course, generating far more social benefit to the river valleys than today’s hydropower.”[4]

[3] Natura 2000 is a network of valuable natural areas containing species or habitats considered to be of special conservation interest from a European perspective. See: ”Natura 2000-områden”.

[4] Hamrin, Stellan, Siri Lundström, ”Regeringens hantering av EU:s Vattendirektiv är otidsenlig” ”*Altinget”* (2021).

Also humans become victims when the natural water flow of the river is altered. With a personal story from Suorva dam, May-Britt Öhman illustrates that the coloniality embedded in the artificial water flows is a

question of public safety, resulting in one to two fatal injuries per year.

"When I arrived at Ritsem at the Suorva Dam at the top of the Lule River in July 2008, I found myself in the middle of an ongoing tragedy. Two men, with roots in the area and reindeer-owning Sami, had just two months earlier fallen into the wake outside the summer camp of one of the men. With no quick rescue available - the nearest rescue helicopter is based in Gällivare - and the water so cold that no one can survive more than a few minutes, both deceased. The large wake, which forms every winter in an area where many people move across the ice of the Suorva Dam, is the result of water being released from the power station in Ritsem. The Suorva dam is itself the largest dam in northern Europe, and was constructed in four stages from 1919 to 1972. The regulation level up and down is now 30 meters. The two parts of the Lule River, the Big Lule River and the Little Lule River, are also regulated downstream, with fifteen dams and power stations. Today, the river is a staircase of water reservoirs, separated by kilometers of dry riverbed. With its installed capacity of 4,350 MW and an average annual production of nearly 14 TWh, the Lule River generates more than ten percent of the electricity produced in Sweden.[...]

When I later spoke to people in the area, it became clear that this event was not unusual. It was one in a series of many tragedies that have occurred here since the regulations of the 1940s. Many people, from the local population, have died on the treacherous ice of the regulated Lule River dams. Even in summer, the Suorva dam - which has become an inland sea where there used to be seven smaller mountain lakes - is dangerous for the population and visitors. On the large surface of the water, the winds pick up speed quickly, which can happen suddenly when you are in the middle of the large dam and have a long way to solid ground."[5]

[5] Öhman, May-Britt, M. Palo, E-L Thunqvist. "Public Participation, Human Security and Public Safety Around Dams In Sweden: A Case Study of The Regulated Ume and Lule Rivers." in *Safety Science Monitor*. Issue 2 (2016)

Despite this development where people die as a result of the altered water flows, the Ministry of Economic Affairs excused Vattenfall from financing the emergency services in the villages of Bårjås and Vuollerim in 2022 arguing that the company has no social responsibility. Costing 2,4 million SEK yearly, Vattenfall had sponsored this service for many years but now, inhabitants of the two villages will have to wait for an average twenty-six minutes in case of an emergency.[6] Meanwhile, the power plants on the river generate multi-billion profits to Vattenfall yearly, and also to the state in the form of property tax. As brought up in Expressen, Vattenfall's management team consisting of thirteen people is the most well-paid of any state-owned company with a yearly remuneration reaching 103 million SEK, all in line with the guidelines for state-owned companies.[7]

[6] Nyberg, Micke. " Vattenfall slutar betala – brandkårer i Porjus och Vuollerim läggs ned" *SVT Norrbotten.* (2021).

[7] Syrén, Michael. "Superlönen för Vattenfalls ledningsgrupp: 103 miljoner" *Expressen*. (2022).

The dried riverbed in Letsi, stretching seventeen kilometers, is northern Europe's longest and is a violent example of the altered water flows of Julevädno. Despite this, *Vattenkraftens miljöfond* ("The Environmental Fund of Hydropower"), financing environmental measures relative to the industry, rejected the municipality's project application for Letsi and Julevädno. Ruled by Vattenfall, environmental measures on Julevädno would affect the energy outcome negatively and therefore Letsi river bed has to remain dry. Instead, the fund will finance green adaptation on power plants more southwards.

The so-called green energy from Julevädno constitutes around 10 percent of all electricity originating from the Swedish nation-state yearly.

Through this energy, the territory of Julevädno is completely entangled within the biopolitical machine of the Swedish nation-state. Throughout the twentieth century, Vattenfall transformed its territory to one of the industrial backyards of the nation. Letsi is one of these sites. Comfortably situated more than 900 kilometers away from Bårjås, the buzzing noise from the high-voltage transmission poles cannot be heard in Stockholm. The waterless landscapes are out of sight, and no one notices the disappearance of the salmon. No one has heard about the people who were expropriated from their land. And no one here knows the humans deceased on the river.

During a visit to the Bårjås power plant, when we are standing inside one of the turbines in the old machine hall, my friend asks:
– Did any workers die during the construction of this power plant?
– Yes, but only eleven people, the last one in the 1980s, answers the guide, an ex-employee of Vattenfall.

9. Out of Control When I Turn My Power On Electricity and Miljonprogrammet

J. A switcher in my home in Hornstull.

An ordinary morning in Hornstull, Stockholm. The scaffold outside the window blocks the daylight which would otherwise stream into the small apartment. The building hoist moves vertically up the facade on the other side of my block, a building from 1968. Click. My hand on the switcher and the small apartment is bathed in light. I move slowly towards the coffee machine, connecting the cable to the power. Suddenly the whole apartment turns dark. Did I forget to pay the bill? What is going on?

In 1938, journalist Ludvig Nordström traveled over Swedish in order to get a comprehensive understanding of the housing condition among workers of both the agrarian and industrial sectors. The coverage, named *Lort-Sverig*e ("Sweden of Dirt"), engendered a debate on the shortcomings of the housing of the working class. Already in the introduction of the text, Nordström however declares his objective with the study, which is not purely charitable.

"[...] Sweden has dirt within its borders, too much dirt to be tolerated calmly, and [...] this dirt should be removed as soon as possible, and this not only for the sake of national prestige but, what is far more important, for the sake of national efficiency. We cannot afford to have so much dirt in the national machinery."[1]

[1] Nordström, Ludvig. *Lort-Sverige.* (Stockholm: Kooperativa förbundets bokförlag, 1938), 11.

With this coverage present in the consciousness of the nation, the political concept of *folkhemmet* ("the people's home") grew increasingly important for social democracy. Historian Yvonne Hirdman has pointed out that the concept, sometimes referred to as the poetic name of the Swedish Welfare-state, was introduced around the same time as the discourse of the social democrats shifted from focussing on the couple of labor and capital to the labor and the home, redirecting the discourse away from the factory. Hirdman argues that these programs were permeated by an "ideological density" implying a utopian belief in the possibility of rationally planning society to create the greatest possible happiness and the least possible unhappiness, as a means to an end of social harmony. In this project, the new comfortable home emerged as a great opportunity in all the different groups of the labor movement.[2] If Sweden should become a productive, capital-generating machine with as many "happy" people as possible, it could not allow as much dirt in its apparatus, as Ludvig Nordström had put it.

[2] Hirdman, Yvonne. *Att lägga livet till rätta: studier i Svensk folkhemspolitik.* 2nd ed. (Stockholm: Carlssons, 2018) 10–11, 92–93.

Rekordåren ("the Record years") was a strong period in the Swedish economy running in parallel with the reigning of folkhemmet. After maintaining "neutrality" during both world wars, Sweden entered the 1950s with industrial and demographic advantages. Sustained by an increased export of automobiles, heavy machinery, electronics, and weapons, the income per capita increased by 2000 percent along with a steady urbanization. Aside from the advantages of "non-alignment", the cheap access to petrol and Swedish-produced electricity were important in the strong accumulation of economic wealth during this time.[3] The development of the electric power industry as well as the transmission grid in the 1950s were central to the modernization of society as a whole and contributed to advancements in other domains of the technological arena depending on electricity.

[5] Schön, Lennart. *En modern svensk ekonomisk historia: tillväxt och omvandling under två sekel.* Stockholm: SNS förlag, 2000. pp. 363, 386-387.

The culmination point of both the rekordåren period and the folkhemmet concept coincided with *Miljonprogrammet* ("the Million Program"), a public housing program materialized in the construction of one million housing units between 1965-1974. The program was adopted at the congress of the Social Democratic Party in 1964 and meant that the Parliament would grant for loans for 100,000 housing units yearly during

this period.[4] The housing shortage was particularly alarming in the large and medium-sized cities, locus of both the secondary and tertiary sectors. Therefore, the housing blocks of Miljonprogrammet were mostly configured in greater neighborhoods, in turn incorporated to these cities.

Building one million housing units for a nation with eight million inhabitants was possible through major governmental investments in research with the goal to maximize speed, efficiency, and standardization in construction. Presented in publications such as *God Bostad* ("Good Housing") and *Svensk Byggnorm* ("Swedish Construction Norm"), the results became blueprints for new "rational" ways of building, implying a great consumption of electricity. The use of prefabricated concrete panels changed the facades of the cities and represented a step towards automatization that would accelerate the construction phase. Until today, industry is the largest consumer of power in the country.

Also the inside of the singular housing unit, the locus of the folkhemmet utopia, would change within the framework of Miljonprogrammet. Compared to many apartments constructed around the turn of the century, the comfort was now elevated. The interiors were equipped with centralized heating systems, pairing every window with a radiator that blended into the white wall. The standards of the kitchens, with freezers and refrigerators but no pantry or immediate kitchen garden, were designed for mid-twentieth-century "semi-industrialized food", a must when women were expected to engage in wage labor. Shock proof wall sockets became now crucial points of direction in every apartment, distributed according to the standard; on each side of the imagined spot of the parents' double bed, above kitchen sinks, or in proximity to the bathroom cabinets. In turn, all of these were connected to the switchgear box, mostly placed in the hallway. Razors, mixers, reading lamps, hair dryers, televisions, whips, irons, phones, ceiling lamps, and food processors could now be used anywhere within the walls of the home.

As a product of the economic boom with an abundance of Swedish electricity, Miljonprogrammet brought many people away from the dirt of the overcrowded dwellings of Lort-Sverige, and was therefore instrumental in forming the working class into efficient workers within the "national machinery". Both the construction of these neighborhoods and the mode of life implied by them are based on a specific territorial logic that is everything but symmetrical. On the level of electricity but also other material exchanges, the contemporary housing units mask the metabolic dependencies between producer and consumer, city and countryside, the center and what can be framed as the rear of the welfare state. These units can be understood as "well-tempered",[6] comfortable conductors, making up one of the millions of end stations of the circuit. Sometimes, depending on the power supplier, the circuit leads back to power plants on Sámi territory.

[4] Bonniers lexikon, band 13 (Stockholm: Bonniers Förlag, 1996), 49.

[5] Mack, Jennifer. "Flying people meet flying panels" in Pedro Ignacio Alonso, Hugo Palmarola, and ArkDes, red. *Flying Panels: Flying Panels How Concrete Panels Changed the World*. (Berlin: DOM publishers, 2019), 88.

[6] This word refers to Reyner Banham's book *The architecture of the well-tempered environment*. 2nd ed. (Chicago: University of Chicago Press,1984).

Due to a signal error I am late when I get off the crowded subway. A street vendor obtrusively blocks me on my way to Clas Ohlson. “With this deal you get cheap ─ and green power. We have student reduction”.

Finally at home, I look around my apartment. I see a Philips light bulb inside one of IKEA’s cheapest lamps hanging from the white ceiling. A shiny radiator under the wide window. A router under the bed. A buzzing sound from the freezer. I realize that I do not know how to live without these appliances.With a little unease, I put my hand on the switcher again.

Bibliography

Literature

Ahmed, Sara. *Queer phenomenology: orientations, objects, others*. Durham: Duke University Press, 2006.

Alonso, Pedro Ignacio, Hugo Palmarola, ArkDes, ed. *Flying Panels: Flying Panels How Concrete Panels Changed the World: Published to Accompany the Exhibition "Flying Panels: How Concrete Panels Changed the World",* ArkDes - The Swedish Centre for Architecture and Design, Berlin: DOM publishers, 2019.

ASEA. *ASEA 1883-1948*. Västerås : Allmänna svenska elektriska AB. 1955.

Asplund, Erik Gunnar, [ed]. *acceptera*. Stockholm: Tiden, 1930.

Banham, Reyner. *The architecture of the well-tempered environment*. 2nd ed. Chicago: University of Chicago Press, 1984.

Bonniers lexikon, band 13. Stockholm: Bonniers Förlag, 1996.

Broberg, Gunnar, Mattias Tydén. *Oönskade i folkhemmet: rashygien och sterilisering i Sverige*. Stockholm: Dialogos, 2005.

Brunnström, Lasse. *Estetik & ingenjörskonst: den svenska vattenkraftens arkitekturhistoria.* Stockholm: Riksantikvarieämbetet, 2001.

Brunnström, Lisa. *Den rationella fabriken: om funktionalismens rötter.* Umeå, Sweden: Dokuma, 1990.

Erlandson-Hammargren, Erik. *Från alpromantik till hembygdsromantik: natursynen i Sverige från 1885 till 1915, speglad i Svenska Turistföreningens årsskrifter och Nils Holgerssons underbara resa genom Sverige.* Hedemora: Gidlund, 2006.

Forsgren, Nils, Porjus arkivkommitté, Statens vattenfallsverk, Region Norrbotten. *Den effektfulla älven: stänk från Luleälvens kraftfulla historia.* Luleå:Vattenfall Norrbotten. 1989.

Forsgren, Peter. *Norrland som koloni och utopi: Olof Högbergs Den stora vreden, Ludvig Nordströms Petter Svensks historia och berättelsen om Sverige.* Göteborg: Makadam, 2015.

Foster, John Bellamy. *Marx's ecology: materialism and nature.* New York: Monthly Review Press, 2000.

Foucault, Michel, Michel Senellart. *The Birth of Biopolitics: Lectures at the Collège de France, 1978-79.* Basingstoke; New York: Palgrave Macmillan, 2008.

Garnert, Jan. *Ut ur mörkret: ljusets och belysningens kulturhistoria.*

Lund: Historiska Media, 2016.

Hagerman, Maja. *Käraste Herman: rasbiologen Herman Lundborgs gåta.* Stockholm: Norstedts, 2015.

Hanås, Bertil. *Industriminnen: nedtecknade av några veteraner: ASEA-Präntarna.* Västerås: Teknikinfo. 2000.

Hill, Donald. *A History of Engineering in Classical and Medieval Times.* New York: Routledge, 2013.

Hirdman, Yvonne. *Att lägga livet till rätta: studier i Svensk folkhemspolitik.* Andra upplagan. Stockholm: Carlssons, 2018.

Hughes TP. *Networks of Power: Electrification in Western Society, 1880–1930.* Baltimore, Maryland: Johns Hopkins Univ. Press. 1993.

Jakobsson, Eva. *Industrialisering av älvar: Studier kring svensk vattenkraftutbyggnad 1900–1918.* Historiska institutionen, Univ., Göteborg 1996.

Jameson, Fredric. *The cultural turn: selected writings on the postmodern, 1983-1998.* London; New York: Verso, 1998.

Kuoljok, Sunna. *Samernas historia.* Kiruna: Sametinget, 1998.

Lane, Barbara Miller. *National romanticism and modern architecture in Germany and the Scandinavian countries. Modern architecture and cultural identity.* Cambridge; New York: Cambridge University Press, 2000.

Latour, Bruno. *We Have Never Been Modern. Cambridge*. Mass: Harvard University Press, 1993.

Lewerentz, Sigurd, Kieran Long, Johan Örn, Mikael Andersson, ArkDes, red. *Sigurd Lewerentz: Architect of Death and Life*. Zürich: Park Books, 2021.

Lundgren, Lars J. *Staten och naturen: naturskyddspolitik i Sverige 1869-1935.* Brottby: Kassandra, 2009.

Lundmark, Lennart. ”The Sami: An indigenous People in Sweden”. Stockholm: Ministry of Agriculture, Food and Consumer Affairs and the Sami Parliament, 2005.

Lundmark, Lennart. *Stulet land: svensk makt på samisk mark.* Ny utg. Ordfront POD. Stockholm: Ordfront, 2010.

Nordström, Ludvig. *Lort-Sverige.* Stockholm: Kooperativa förbundets bokförlag, 1938

Persson, Curt V. *Hjalmar Lundbohm: ledare, samhällsbyggare och kulturmecenat.* Gammelstad: Älven Kultur, 2018.

Rudberg, Eva. *Sven Markelius, arkitekt.* Stockholm: Arkitektur förlag, 1989.

Sax, Ulrika. *Vällingby - ett levande drama.* Stockholm: Stockholmia förlag, 2016.
Schön, Lennart. *En modern svensk ekonomisk historia: tillväxt och omvandling under två sekel*. Stockholm: SNS Förlag, 2000.

Spade, Bengt. *De Svenska vattenkraftverken: teknik under hundra år.* Stockholm: Riksantikvarieämbetet, 1999.

Westerlind, Borgquist, Ivan Öfverholm. *Porjus kraftverk och riksgränsbanans elektrifiering*, Stockholm: 1915.

Wikström, Björn och Vattenfalls kulturarvskommitté. *Vattenfall i Råcksta: Glimtar från ett halvt sekel.* Stockholm: Vattenfalls kulturarvskommitté, 2012.

Åkerman, Johan. *Ett elektriskt halvsekel : översikt över ASEAs utveckling 1883-1933.* Väserås: ASEA, 1933.

Articles, publications

Ahlberg, Anna. *Industrialismens samhällsbyggande i Västerås Stad - från 1800-talets slut till 1900-talets början.* Kulturmiljöenheten - Länsstyrelsen Västmanlands län. 2004.

Habel, Ylva ”Challenging Swedish exceptionalism? Teaching while Black”, in Kassie Freeman, Ethan Johnson, eds., *Education in the Black Diaspora: Perspectives, Challenges and Prospects,* Routledge, 2012. 99–122.

Larkin, Brian. ”The Politics and Poetics of Infrastructure”, *Review of Anthropology* 2013 42:1, 327–343.

Mignolo, Walter D., William H. Wannamaker, ”Global Coloniality and the World Disorder Decoloniality after Decolonization and Dewesternization after the Cold War.” Center for Global Studies and the Humanities, Duke University.

Moore, Jason W . ”Transcending the Metabolic Rift: Towards a Theory of Crises in the Capitalist World-Ecology”. (2011) *Journal of Peasant Studies*. 7 (1): 1–46

Ingenjörsvetenskapsakademien and Svenska föreningen för ljuskultur “Ljuset i människans tjänst : belysningsteknisk utställning i Liljevalchs konsthall september 1928”. Stockholm. 1928.

Öhman, May-Britt. “Vattenregleringar på liv och död i Lule älv - Postkoloniala och feministiska teknovetenskapliga perspektiv”. in *Uppsala mitt i Sápmi: Rapport från ett symposium arrangerat av Föreningen för samiskrelaterad forskning i Uppsala, Upplandsmuseet 4–5 maj 2011,* in Håkan Tunón, Märit Frändén, Carl-Gösta Ojala, May-Britt Öhman, eds,. Uppsala: Naptek, Centrum för biologisk mångfald, 2012, 28–34.

Öhman, May-Britt, M Palo, E-L Thunqvist, ”Public Participation, Human Security and Public Safety around dams in Sweden: A Case Study of

the Regulated Ume and Lule Rivers" in *Safety Science Monitor,* Issue 2, 2016. Article 8.

Össbo, Åsa. Hydropower company sites: a study of Swedish settler colonialism, in *Settler Colonial Studies,* DOI:, 2022.

Össbo, Åsa. *Nya vatten, dunkla speglingar: industriell kolonialism genom svensk vattenkraftutbyggnad i renskötselområdet 1910-1968*. Skrifter från Centrum för samisk forskning 19. Umeå: Institutionen för idé- och samhällsstudier, Umeå universitet, 2014.

[unknown author] "Porjusanläggningarnas invigning: Kraftcentralen uppe i ödemarken satt igång på konungens signal." in *Dagens Nyheter,* 9 February, 1915, 4.

Internet sources

Bååth, Sören. "Mimer - ett kvarter och en ASEA verkstad". 2005. https://www.hembygd.se/industristaden/mimer-ett-kvarter-och-en-asea-verkstad

El Mahdi, Josef. "Alla har sin egen berättelse om hur de kom hit på helgen och började arbeta på måndagen". *Svenska Dagbladet*. 2008-10-12. https://www.svd.se/a/a7ca0a0e-94ae-329f-b238-93a73bf76126/alla-har-sin-egen-berattelse-om-hur-de-kom-hit-pa-helgen-och-borjade-arbeta-pa-mandagen

Hamrin, Stellan, Siri Lundström. "Regeringens hantering av EU:s Vattendirektiv är otidsenlig". Altinget (2021). https://www.altinget.se/artikel/regeringens-hantering-av-eus-vattendirektiv-ar-otidsenlig

"Elektrifierad järnväg i 100 år". Vattenfall. Accessed: January 29, 2023. https://historia.vattenfall.se/stories/en-ny-vardag-med-el/elektrifierad-jarnvag-i-100-ar?_t_id=Xdqg6tP0FATt8dWiHas15Q%3d%3d&_t_uuid=qQCPkZ0TQiWFa9zI5m6xOg&_t_q=malmbanan&_t_tags=language%3asv%2csiteid%3a36b

"Ett stamnät blir till". Vattenfall. Accessed: May 11, 2022. https://historia.vattenfall.se/stories/hela-sverige-blir-elektriskt/ett-stamnat-blir-till

"Kursplan Historia". Skolverket. Accessed January 31, 2023. https://www.skolverket.se/undervisning/grundskolan/laroplan-och-kursplaner-for-grundskolan/laroplan-lgr22-for-grundskolan-samt-for-forskoleklassen-och-fritidshemmet?url=-996270488%2Fcompulsorycw%2Fjsp%2Fsubject.htm%3FsubjectCode%3DGRGRHIS01%26tos%3Dgr&sv.url=12.5dfee44715d35a5cdfa219f

"Natura 2000-områden". Naturvårdsverket. Accessed: May 16, 2022. https://www.naturvardsverket.se/amnesomraden/skyddad-natur/olika-former-av-naturskydd/natura-2000-omraden/

Nyberg, Micke. "Vattenfall slutar betala – brandkårer i Porjus och Vuollerim läggs ned" SVT Norrbotten. (2021) https://www.svt.se/nyheter/lokalt/norrbotten/vattenfall-slutar-betala-brandkarer-i-porjus-och-vuolle-

rim-laggs-ned

”Samebyar” Samtetinget. Accessed: May 16, 2022. https://www.sametinget.se/samebyar.

Syrén, Michael. ”Superlönen för Vattenfalls ledningsgrupp: 103 miljoner” (2022) Expressen. https://www.expressen.se/nyheter/superlonen-for-vattenfalls-ledningsgrupp-103-miljoner/

“Vattenfall - En prisad byggnad - Miljövänlig från topp till tå” Fabege. Accessed: May 11, 2022. https://www.fabege.se/kundcase/vattenfall/

”Vattenkraft”. Vattenfall. Accessed: January 29, 2023. https://www.vattenfall.se/elavtal/energikallor/vattenkraft/

Illustrations

A. Courtesy of Älvräddarna.
B. Melodier vid Älven.1936 Sven X:et Erixson. Xetmuseet, Tumba.
C. Photo: Ida Wilhelmina Kyrö Wälimaa. 1915. Tekniska museet.
D. Photo: C. G. Rosenberg. 1930. Arkitektur- och designcentrum
E. Photo: Unknown. 1929. Arkitektur- och designcentrum
F. Photo: Bertil Forsén. 1961. Västerås stadsarkiv
G. Aricle by Trägårdh, K.F. “Kraftledningsbygget Porjus - Västerås”. In *Teknisk Tidskrift - Väg- och vattenbyggnadskonst Husbyggnadsteknik*. Jan 1940. (Stockholm: Svenska teknologföreningen,1940), 1–7.
H. Photo: Oscar Bladh. 1962. Spårvägsmuseet
I. Photo: Sara Davin Omar. 2022.
J. Photo: Sara Davin Omar. 2021.

Songs in the order they appear in the chapter titles

Paint a Vulgar Picture – The Smiths
With a Little Help From My Friends – Joe Cocker
No Church in the Wild – Jay-Z, Kanye West ft. Frank Ocean and The-Dream
Blinded By the Lights – The Streets
Transmission – Joy Division
Still D.R.E – Dr. Dre ft. Snoop Dogg
Every Teardrop is a Waterfall – Coldplay
Electric – Leila K

Advisors: Alessandro Petti and Marie-Louise Richards
Translation and proofreading: Sara Davin Omar
Printed in February 2023 at the Royal Institute of Art in Stockholm

Thank you to everyone who was and is a part of this process, you know who you are <3