8 *Lenses of Transparency*

Optical Disjunctures Around Mining and the Future in Greenland's Nation-Building Project

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Transparency is a term inseparable from the idiom of sight and vision. The connotation is that being able to see through – to something true, authentic, and real – and being able to see clearly are necessary qualities of transparency, both as applied in this volume and as a sensory experience. It is a commonplace that for human beings the visual dominates all other senses, or at least that humans typically construct "sight-dominated cultures," although this is not an unvarying characteristic (see Hutmacher 2019). Historically speaking, anthropology may be a particularly visually dominated discipline (see Goody 2002); this is evident in the universal acclamation for an emphatic seeing-is-believing methodology, "participant observation," and the manner in which the visual is the central component in the ethnographic trope of arrival. While some anthropologists developing "the anthropology of the senses" claim "to have dethroned vision from the sovereign position it had allegedly held in the intellectual pantheon of the western world" (Ingold 2011: 316), the elaboration of transparency does not contest the domination of the visual for us humans or for the anthropologists in this volume, such as myself. We instead agree to travel down the road with the refined sensibility of seeing, analyzing, and critiquing transparency, as a social fact, and transparently, as our analytic parameter, in the worlds that we contributors have explored. I write about my attempts to see processes by which mining is initiated, the valuation of different minerals, and the manner in which mining and minerals are instrumental to nation-building in my periods of ethnographic observation in Greenland, which have been brief: a month in 2019, a month in 2021, and in between, remote research and communication dictated by the conditions of the pandemic. In this research, climate change, natural resource extraction economies, and nation-building are all on view, so to speak.

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I am not sure if, with respect to the topics I engage in this chapter, there is a definitive expression of what "seeing transparently" means for an outsider to Greenland, or what it might mean for an anthropologist. For that reason, I have opted to use the metaphor of different lenses. Lenses offer different visual perspectives from which to look into complex situations. In this article, the lenses focus upon four situations demarcated by: (1) the centuries of Danish colonization and ongoing coloniality; (2) more than four decades of advance toward the establishment of an independent nation in Greenland; (3) the development of gem mining involving both small-scale artisanal miners and resource extraction corporations; and (4) the globalized corporate push to mine rare earth elements that are central to the development of green technologies. In each case, transparency can be related to forms, levels, and mixtures of disclosure and nondisclosure by different interlocutors, which surface (or do not surface) in environmental studies and impact statements, corporate brochures, statements made and policies enacted by governments, and the critiques leveled by environmental organizations and small-scale miners.

I organize this chapter, then, keeping in mind the primacy of the visual as a project of transparency, recalling what we experience when we visit the optometrist and we are asked, as we look through different lenses that are exchanged and inserted into the strange machine in front of which we sit: Is the first lens or the second lens clearer? The third or the fourth? Arranged as elaborations of a sequence of lenses, I ask readers (and myself) which lenses make things clearer, and in what ways. In what follows, it should be clear as well that, notwithstanding the profound role of colonialism and its enduring aftermaths that suffuse each lens of transparency and opacity, the people of Greenland are not victims. They are not intrinsically vulnerable to a marauding modernity that by its very nature must corrode their identity, such that outsiders, like anthropologists or other scholars, can maintain a stance that understands what is going on in Greenland as describable by loaded terms such as "adaptation," whether that refers to climate change or to the politics of postcolonial transformations (see Nuttall 2010).

Lens One: Greenland's Colonial History and Trajectory Toward Independence

In twenty-first-century Greenland, the collective imaginary is dominated by the goal of nationhood via full political independence from the

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kingdom of Denmark. All of the political parties proclaim that goal, although they propose or assert varying timelines and caveats about how much of a relationship with Denmark might or should be maintained. The great majority of Greenlanders are indigenous Inuit people whose ancestors migrated from the northern reaches of what is now Canada and Alaska after 1200, and who are the successors to a host of other indigenous peoples who have inhabited the land since at least 2500 BCE. Greenland's lengthy relationship with Denmark is complex: Danes arrived on Greenland's shores in 1721, in search of the Norse colonies that had been settled by Icelandic farmers at the end of the tenth century. Unbeknownst to the Danes, who were very much motivated to find the Norse descendants to convert them from pre-Reformation Catholicism to Denmark's state religion of Lutheranism, those colonies had disappeared in the fourteenth and fifteenth centuries. The Danes instead converted the indigenous people, who are almost all Lutheran to this day; almost all have Danish surnames, many have some Danish ancestry, and Danish remains a dominant language (Rud 2017). In these ways, Greenland is both a Nordic country and a colonized territory attempting to become the independent country of an indigenous people (see Dahl 2005; Gad 2009; Mazza 2015).

Home-rule government in Greenland was established by the Danish state in 1979 and further strengthened by self-rule provisions that the Greenlandic population voted in favor of expanding in 2009. Denmark provides the Greenlandic government with a block grant of a little less than $550 million each year. That might not sound like much in US economic terms, but the total population of Greenland is only a little more than 56,000 people. The home-rule government established Greenland's nationhood. The official language is Greenlandic, in which the country's name is Kalaallit Nunaat. Its flag and many other aspects of sovereignty, both substantive and symbolic, have been determined by the home-rule government, which initially controlled everything except foreign relations, defense, currency matters, and the legal system. With self-rule in 2009, the Greenlandic government gained control over the legal system and some aspects of defense, and increasingly Greenland conducts its own foreign policy – with Iceland, Canada, the United States, and, perhaps most importantly, China. Independence, the Danish government has made clear, will mean the end of the block

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grant, which at the current time the Greenlandic government deploys as it sees fit (Sejersen 2015). Denmark is willing to phase out the block grant in stages as Greenland's economy becomes self-sufficient, and has specified how much the block grant will be reduced as Greenland's economy expands (Nuttall 2017; Rasmussen and Gjertsen 2018).

Throughout the history of indigenous peoples in Greenland, food has been produced through strategically honed mixtures of hunting land and sea mammals and fishing numerous species; therefore, unlike most any other emergent national identity and nationalism that I know of (Rud 2017), in Greenland the nascent nation-state is entirely divorced from an agrarian or agricultural imaginary.[1] At the same time, the contribution of local hunting and fishing to the daily diet of most Greenlanders has diminished drastically in relation to the central role of imported foods, and these two activities are very unlikely to ever produce the income needed to diminish Greenland's dependence on Denmark's block grant. For the political-economic class that rules the country, for whom, as Nuttall (2010) and Sejersen (2015) point out, anticipation about the future of Greenland is a subject of continuous debate, the shortest and surest route to self-sufficiency seems to be a resource economy based upon mining and fossil fuel extraction. Moreover, in Greenland, the development of an extractive economy is linked with an effort "to secure a collective safety net, a kind of livability for the future that involves an apparatus for redistribution, even if that is knitted at the expense of local resource practices and environmental integrity" (Hastrup and Lien 2020: xv). The fusion between an extractive economy and a welfare state society, which Hastrup and Lien call the "welfare frontiers" of Greenland and other parts of the Nordic countries, also brings together very different regimes of transparency – or a lack of transparency. Prior to 1979, decisions about extraction, and economic development as a whole, were entirely in the hands of the Danish colonial authorities – and, by virtue of their nondisclosure to Greenlanders, they were certainly not transparent (see Rud 2017). How much home-rule, self-rule, and the horizon toward full independence have addressed that opacity is explored in what follows.

[1] Martin Skydstrup, personal communication, 2019.

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Lens Two: A National Economy, Resource Extraction, Infrastructure, and the Technical Fix

Mining and large-scale industry are part and parcel of Greenland's colonial history and nation-building present. Since the nineteenth century, when Denmark closely controlled the economy, and into the twentieth, mining has appeared on Greenland's conceptual horizon both as a very real manifestation of colonial development and as an illusion or unrealizable dream of great wealth, which in the twenty-first century would be the basis for independence. In the case of the former, the mining of cryolite, a mineral that was essential to the purification of pure aluminum from mineral bauxite all over the world until a substitute was developed, was conducted in southern Greenland from 1854 until the deposit was exhausted in 1987. The essential contribution of Greenland to the industrial production of a key metal resource was therefore anything but an illusion. Yet resource and infrastructure megaprojects in Greenland often do not come to pass (see Nuttall 2010; 2012; 2017; Rasmussen and Gjertsen 2018), and, as Hastrup and Lien write, "Resource imaginaries, in other words, are not that easily realized, and sometimes are just that: imaginaries" (2020: xii).

Massive resource extraction projects and the worlds of infrastructural construction that accompany them are discussed in technical terms worldwide; these are discourses that are explicitly ideological and political, linked to particular outcomes and visualizations of the future. In recent literature about the phenomenal economic and political power of the Gulf state monarchies, Günel, for example, has described "technical adjustments":

> Abu Dhabi's renewable energy and clean technology projects, such as Masdar City, have aimed to generate technical adjustments as a means for vaulting ahead to a future where humans will continue to enjoy technological complexity without interrogating existing social, political and economic relations . . . Technical adjustments, which are intended to maintain existing values while inventing new technology to address climate change and energy scarcity, operate in opposition to environmentalism. The hope is that technical adjustments will allow humans to extend their beliefs and perspectives into the future without requiring them to ask new moral and ethical questions and without developing new virtues. (Günel 2019:10–11)

Kanna (2011) described similar applications of technical adjustments in what must be called the fantastical development of the city

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of Dubai, under the rubric of neoliberal globalization, urbanist ideology, and the divas of global architectural design.[2]

Meanwhile, in Greenland, technical adjustments in the form of mega resource extraction and related infrastructure projects are also seen as a fix, but that strategy is not necessarily seen as enabling a wholescale sociopolitical inertia, as Günel suggested is the case in Abu Dhabi. The technical adjustment in Greenland renders independent nationhood possible, and facilitates the ascendance of an elite social class and its worldview and values over others; perhaps one might see the technical adjustment as enabling both something new (i.e., Greenlandic nationhood) and simultaneously the entrenchment of the new elite's values and ethics, as in the Gulf monarchies. On the subject of an enormous aluminum smelting complex that between 2007 and 2016 was intensively planned and designed to be built by the global hegemon Alcoa in the small town of Maniitsoq on Greenland's southwestern coast, Sejersen wrote:

> The technology complex in question (a smelter, two dams, electric transmission cables, etc.) carries with its large-scale systematic socio-technical nature and enormous potential. The astronomical economic investments that are required, its spatial and temporal consequences, and also the political expectations invested in the project gave it a certain momentum . . . The technology may thus reinforce a particular system of values and relations. (Sejersen 2015:111)

This project would have doubled Greenland's CO_2 emissions and its energy consumption. As part of the planning process, the Greenlandic government assessed the local hunting and fishing industries and the livelihoods they provide for Greenlandic communities. In that context, leading politicians proposed "re-educating" hunters and fishing people for new occupations associated with the aluminum complex (Sejersen

[2] The "technical adjustments" argument resonates with what Tania Li calls "rendering technical," with respect to the field of economic development. When development planners "identify an arena of intervention, bound it, dissect it, and devise corrective measures to produce desirable results" (Li 2007: 123), they render the problem or project "technical" and relieve themselves and the bureaucracies they serve of the need to analyze or even acknowledge systems of political, economic, and social inequality.

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2015: 124–125). Even without the intrusion of mega resource extraction and infrastructure projects, fishing and hunting in Greenland are already highly regulated by both national and international regimes that limit what can and cannot be caught and therefore consumed.

The processes of consultation by which the planning of the Maniitsoq aluminum complex was executed were intensely fraught; that is to say, they were far from transparent to the residents of Maniitsoq, and likely to the majority of Greenlanders, a characteristic that applies in the discussion of the development of mining projects more recently (see Nuttall 2013). Sejerson noted:

> In November 2010, the Greenlandic environmental organization, Avataq, accused the Greenlandic government of keeping the public in the dark about the human and environmental impacts of having an aluminum smelter. (Sejerson 2015: 178)

That accusation, which hinged on the primacy of the visual, provoked demands from the government for proof, which Avataq in turn provided.

In 2020, an article in *Arctic Today*, a self-described "Arctic business journal," declared:

> The idea of building a hydroelectric plant for industrial production near Maniitsoq was first broached more than a decade ago. Negotiations dragged on due to a disagreement over who should fund its construction, and, by 2016, the administration admitted that it had given up on striking a deal with Alcoa. (McGwin 2020)

Whether or not the lack of transparency, which here signals the government's nondisclosure about the effects of aluminum smelting, was the main reason the project did not manifest, the debate around the aluminum smelter nevertheless revealed how technical adjustments figured in the ways Greenland's government and political elite envisioned nationhood and what the Greenlandic people ought to be doing for work. There is, to be sure, the mirage-like character of large-scale resource extractive projects in the Arctic, which I referred to previously, but there is also the disjuncture between the "relative transparency of bureaucratic practices" (Hastrup and Lien 2020: xvii) in Nordic countries such as Greenland, on the one hand, and the calculus of profit-driven, behind-closed-doors corporate decision-making for a company like Alcoa, on the other.

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Lens Three: Competing Transparencies in Greenlandic Gem Mining

A ruby and pink sapphire mine, owned by the Norwegian-financed Greenland Ruby company, opened at Aappaluttoq in the southern part of Greenland's vast Sermersooq municipality in 2017. Greenland's ruby mine operates to produce gems, but also as a synecdoche: a part of the ongoing debate about mining and transparency, which effectually embodies the larger scenario. I would argue this case in two ways. First, the ruby mine as a new venture in resource extraction settles mining as a technical adjustment that supports the Greenlandic nation-building project. Second, Greenland's ruby mine offers an opportunity to showcase corporate transparency in the soft light of an Arctic Scandinavian setting, for a gemstone that from Myanmar to Mozambique (Brazeal 2026) carries the weight of nightmarish human rights catastrophes and ugly environmental degradation.

In their glossy pamphlets and website promotional materials, the Greenland Ruby company declares:

> Greenland Ruby gems are mined by adhering to the strict ethical, social, human rights and environmental laws and responsible practices. Transparency and traceability are extremely important aspects of our project. Gems come with a certificate or origin authorized and issued by the Government of Greenland. This certificate assures buyers these stones come from an ethical source. (Greenland 2017–2018: 74)

Moreover, the company claims that "10% of the mine's material is to stay in Greenland for tourist and local operators." During my 2019 fieldwork season, I asked shop owners who sold jewelry in Nuuk whether their inventory included Greenlandic rubies, either as loose stones or set in particular pieces. There was only one to be found. In fact, in Greenland Ruby's promotional materials, which one would expect to present the most favorable picture possible, it is at best quite unclear who has specified or will establish these "strict ethical, social, human rights and environmental law and responsible practices," or how the company is to be held accountable to those standards. Greenland Ruby's ideas about transparency are based, I would argue, primarily upon the traceability of the stones and legal frameworks mandating environmental policy, all in the context of an international corporate business framework of profitability. As we will see below,

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that kind of transparency contrasts sharply with a sector of small-scale, artisanal-type miners and gem polishers, who envision an autonomous and agentive role in bringing the stones from the ground to a marketplace that serves their local, Greenland-based set of interests (Brichet 2020).

The corporate domination of ruby mining in Greenland comes on the heels of fifteen years of contorted events and turnarounds, following the discovery of the deposit at Aappaluttoq by US geologist William Rohtert in 2005, at a time when ruby crystals, apparently quite a few of extremely high quality and potentially great value, could be picked up on or just below the surface. An extended struggle ensued in the pre-2009, pre-self-rule era. On the one hand, local residents claimed the right to gather and sell rubies as well as claiming to have had previous knowledge about them in that region; on the other hand, the first company to propose the mine, the Canadian-owned True North Gems, together with the Danish Bureau of Mines, actively repressed those locals' gathering activities through a series of arrests and temporary detentions, confiscating many of the finest-quality gems that had already been gathered.[3] In this battle, so-called historical stones – that is, valuable stones collected before the self-rule government's establishment of local laws and licensing in 2009 – were considered illegally mined, making current and past sales of such valuable stones mined before that date also illegal. True North Gems went bankrupt in 2016 following the scandals produced by these battles, but it was not long before the Greenland Ruby company was formed, and the same leases and permits were utilized to open the mine in 2017.

At the time Rohtert discovered the Aappaluttoq deposit in 2005, Greenlanders could apply for and receive licenses to take gems out of the country, to trade shows, and to sell them, under the 1999 Mineral Resources Act of Greenland, as administered by the Bureau of Minerals and Petroleum (BMP), which was still under Danish control. A local enthusiast group, the Greenland Stone Club, was regularly issued such export licenses. Ironically, Rohtert was one of the co-founders of True North Gems, the company with which the BMP colluded to restrict Greenlanders' ability to gather rubies and sell them, which later led to arrests, confiscations, and detentions.

[3] William Rohtert, personal communication, 2019–2021; Ilannguaq Lennert Olsen, personal communication, 2019.

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As reported on the Fair Jewellery Action website,[4] Rohtert was accused and charged with smuggling rubies out of Greenland in 2007, and detained by the police at the request of BMP. Earlier that year, he had been discharged from True North Gems after evaluating a large sample of rubies from Aappaluttoq and assigning them high wholesale values that were previously noted. Rohtert had also convinced True North Gems to fund gem prospecting, cutting, polishing, and jewelry design courses in Greenland, the first of their kind, which have had a ripple effect in the ensuing years as those who were trained in these classes in turn train friends and relatives.[5] His goal had been to create employment opportunities for Greenlanders, and to make it possible for Greenlanders to sell gems at the highest possible prices. Following his replacement as the project manager for Aappaluttoq, the gemstone cutting and polishing courses were discontinued and locals living near the deposit were informed, in spite of earlier assurances from BMP, that they were no longer allowed to prospect for rubies from either the exploitation or the exploration zones where True North Gems was operating. The rubies in True North Gems' possession were without explanation re-evaluated as much less valuable, which not coincidentally reduced the projected revenue from the mine and the tax contributions that could be expected to the Greenlandic economy. A resonant ordeal unfolded for Greenlanders Niles Madsen, Christian de Renouard, and Thue Noahsen, among others, all of whom had worked with Rohtert and had extant collections of valuable rubies and had tried to continue their gathering activities. BMP, in collusion with True North Gems, had these individuals banned from such activities and from selling any gemstones in Greenland or abroad.[6]

These events led to an international outcry and very bad press for the Greenlandic mining industry, and then to the founding of an activist group, the 16th August Union, named for the day a helicopter with armed police on board confronted Madsen at the site and banned his presence there. Subsequent and significant political and economic involvement and investment ensued, led by a fair trade organization, Fair Jewellery Action, based in Santa Fe, New Mexico. A petition

[4] https://fairjewelry.org/campaigns/
[5] William Rohtert, personal communication, 2019–2021.
[6] https://fairjewelry.org/campaigns/

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supporting the local people who had been banned and had had their rubies confiscated collected signatures from almost 5 percent of the Greenlandic population in less than three weeks. In 2009, the Greenland ombudsman reviewed the Madsen case and decided that BMP had acted inappropriately. That same year, Greenlanders voted to endorse self-rule, and the new government began drafting new policies that affect small-scale mining and the sale of gems.

For the rubies of Greenland and the possible benefits of rubies for Greenlanders and Greenland, this is not a story that necessarily ends negatively, at least not so far. Perhaps in the context of gem mining and transparency, there are only comparatively better or worse outcomes rather than outcomes that can be seen as unmitigatedly positive or negative. For example, the current conditions for ruby mining and for ruby miners in both Myanmar and Mozambique (Brazeal 2026) are by comparison very much more negative. In Greenland, while, as indicated, there are many reasons for skepticism with respect to the large-scale corporate mine run by Greenland Ruby and its pledges to conduct itself according to standards of social and environmental responsibility, small-scale miners such as Ilannguaq Lennert Olsen, whom I interviewed, express a certain degree of optimism that, in Greenland, the mining of gems could be conducted in such a way as to include small-scale miners. A few years ago, Fair Jewellery Action and the 16th August Union drafted a comprehensive report entitled *Creating a Prosperous and Inclusive Gem Industry in Greenland* (Lowe and Doyle 2013), with very specific and concrete policy recommendations that support what Ilannguaq is doing as president of the Nuuk Gemstone Guild (in Greenlandic, the Nuummi Ujaqqer Institute Peqatigiiffiat).

In a 2018 interview with the most widely read Greenlandic daily, *Sermitsiaq*, conducted by the newspaper's chief editor Poul Krarup, Ilannguaq noted that post-2009 positive legislation has in fact created a licensing system that facilitates small mining by Greenlanders in the areas where rubies have been found, although these areas exclude the concession zone granted by the Greenlandic government to the Greenland Ruby company (Krarup 2018). From our conversation, I concluded that what is still lacking is the human and technological infrastructure that could make finished products of raw rubies. "We must help each other to invest money in both extracting and polishing

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many of our different gemstones," Ilannguaq commented. "We Greenlanders are good with our hands. I believe also that many could easily learn to facet gemstones." Ilannguaq worries that the laws in Greenland still do not adequately protect small-scale Greenlandic miners, and eventually gem cutters and polishers from foreign investors will attempt to conclude agreements that create exclusive relationships of dependency with and monopoly control over Greenlandic "partners." One step in the direction that Ilannguaq and his guild support was the government's Ministry of Raw Materials drafting a "Country of Origin" certificate, for which, one may recall, Greenland Ruby appears to take credit in its promotional materials. Ilannguaq's organization is dedicated to substantive support for training and education for small-scale miners in the value-added industries of cutting, polishing, and ultimately jewelry design and manufacture. In my own interview with Ilannguaq in 2019, we imagined a situation in which Greenlanders mine rubies, Greenlanders polish and facet rubies, Greenlanders design and create jewelry with their rubies, and the rubies themselves are of such high quality that they are not subjected to the heat treatment that almost all corundum gems receive in Thailand, where the vast majority of stones are sent to be processed. The Greenlandic rubies we imagined would be the most valuable in the world. As Brichet (2020), writes, such an imaginary is already decades old.

When the process that led to a ruby mine in Greenland began, it very much seemed like the companies involved operated opaquely, making claims about high ethical standards and traceability which were, at best, difficult to substantiate, but which nevertheless made for good public relations. But the development of legible standards in the legal frameworks of Greenland's self-rule government has advanced, a development that may not be perfect but does demarcate traceability and the conditions of extraction. The changes are complex. By 2021, Greenland Ruby had opened a store in the Nuuk Center, the city's prestigious shopping emporium, where one could purchase loose stones and also jewelry designed and produced by Greenlander artisanal jewelers. To what extent these developments responded to the experiences and interventions of Ilannguaq, Fair Jewellery Action, and the 16th August Union is not evident. In 2023, Ilannguaq was hired by the government of Greenland's Ministry of Natural Resources (formerly the BMP), and his intention is to transform the laws

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regulating small miners.[7] At the same time, a recent public publication by Greenland Ruby repeats the same obfuscations regarding the history of ruby mining in Greenland and the same unsubstantiated claims about transparency (Henning 2023: 48–49). More seriously, the Greenlandic daily *Sermitsiaq* reported in 2022 that Greenland Ruby was $100 million in debt and had yielded only $10 million in sales since production started at Aappaluttoq.[8] In 2023, the mine shut down (McLemore 2023), and in 2024, Greenland Ruby put the mine up for sale (Jeffay 2024).

To repeat Hastrup and Lien's wry observation, "Resource imaginaries, in other words, are not that easily realized, and sometimes are just that: imaginaries" (2020: xii). At the same time, the role played by Greenlandic miners and their allies like Rohtert from the beginning of the Greenlandic ruby industry to the current moment of uncertainty has interjected a demand for and a version of a kind of transparency that contrasts with that of the corporate entity and creates an unstable dynamism between the two. In the mining of rare earth elements that I discuss next, the confrontation with transparency is more stark and the stakes much higher.

Lens Four: The Opaque Worlds of the REE Economy

Not far from Aappaluttoq, and located in the far south Kujalleq municipality, sharply debated megaprojects center around two deposits of rare earth elements (REEs) that are closely located to one another: Kvanefjeld (in Greenlandic Kuannersuit), next to the town of Narsaq; and the Tanbreez mine Kringlerne, or Killavaat Alannguatin in Greenlandic, which is near the larger town of Qaqortoq.

The global market for REEs is highly constrained by China's stranglehold over both the mining and the refining of these strategic elements; China produces up to 90 percent of REEs (Gronholt-Pedersen and Onstad 2021). There is certainly a drive, led by the US and the EU, to break or at least evade the Chinese monopoly on these high-value metals. The planned mines at Kvanefjeld and Tanbreez would exploit extensive, very high-quality deposits of REEs, which

[7] William Rohtert, personal communication, 2019–2021.
[8] "Røde rubiner I rødt: Gigantisk underskud I minekoncern [Red Rubies in the Red: Gigantic Deficit in the Mining Group]," *Sermitsiaq*, August 20, 2022.

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"the US Geological Survey says are the world's biggest undeveloped deposits of rare earth metals" (Gronholt-Pedersen and Skydsgaard 2021). Greenland Minerals and Energy (GME), an Australian-registered company, which is developing Kvanefjeld, describes the proposed mine as "a large-scale rare earth project with the potential to become the most significant western world producer of critical rare earths."[9] The four largest shareholders in GME are Citicorp, J. P. Morgan Australia, HSBC Australia, and Leshan Shenghe Rare Earth of China, each of which has purchased a stake between 11.3 percent and 14.3 percent. Tanbreez Mining Greenland is owned by an Australian company which is itself a subsidiary of Westrip Holdings Ltd in the UK (Hansen and Johnstone 2019).

The REEs comprise a complex of seventeen distinct elements with widely varying, essential uses in key technological applications. Among them, neodymium, a prime component of the Kvanefjeld deposit, is used to produce the magnets used in wind energy technologies that are central to sustainable energy production globally; neodymium iron boron magnets are the strongest magnets known and a critical component not only in green energy technologies and fuel efficiency, but also in the miniaturization of electronic devices. Gearless wind turbines use approximately 200–300 kilograms of this element, hybrid cars like the Prius use 1 kilogram, and MRI scanning machines require 1–3 tons of neodymium. The Tanbreez deposit's REE array is comprised mainly of "lanthanum and cerium – relatively plentiful metals used in telescope lenses and auto catalysts to cut emissions. About a fifth would be yttrium, which is in demand for lasers and the superconductors used in quantum computing" (Gronholt-Pedersen and Onstad 2021).

But neodymium and other REEs are not the only elements that would be purified from the Kvanefjeld mine. The deposit at Kvanefjeld contains not an insignificant amount of uranium ore, perhaps 20 percent of the total ore body; once purified, this can be used in power plants or in the production of nuclear weapons. As early as 1955, the Danish Atomic Energy Commission had identified uranium at the Kvanefjeld deposit, and Danish scientists had conducted technical studies relating to extracting uranium at Kvanefjeld; these studies continued for almost thirty years. Work on the Kvanefjeld deposit was abandoned in 1983 after the Danish government

[9] See https://etransmin.com/kvanefjeld-project/

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established what has been called a "zero tolerance policy" with respect to uranium and other radioactive materials, which affected all three countries in the Danish realm (Denmark, Greenland, and the Faroe Islands). In 2013, following extensive re-study of the Kvanefjeld deposit and already in the era of enormously increased demand for REEs for wind turbines and other uses, the Greenlandic parliament voted to remove the ban on uranium mining, independently and distinctly from the rest of the Danish realm, clearing the way for the exploitation of the Kvanefjeld deposit, which has been debated in Greenland ever since.

GME claims:

> Environmental impact studies have been completed which show the project does not create significant issues for the local environment or residents of nearby communities. Extensive radiation studies show the increase in radiation exposure caused by the project is negligible. The level [sic] of dust generated by the project are very low and well below European standards.[10]

Many residents of the immediately adjacent town of Narsaq fear the extensive tailings, both radioactive and toxic rare earth residue, that the mine will produce, as scholars have reported for almost a decade (see Hansen and Johnstone 2019; Nuttall 2012; 2013; 2017). As early as 2013, Nuttall described the GME consultation process and corporate transparency as lacking substantive public participation, decision-making, and involvement in formal regulatory processes, which led to distrust of officially sanctioned assessments of social and environmental impact. In 2019, and as a result of ethnographic interviewing in and around the Narsaq and Qaqortoq communities, Hansen and Johnstone reiterated:

> The decision-making processes [with regard to both Kvanefjeld and Tanbreez] were found lacking by our interviewees in many respects, in particular as regards the time taken and the exchange of information … the alarm caused by risk can create an atmosphere of powerlessness and paralysis among citizens. This points to the need for strategic planning and support to communities at the early exploration stages. (Hansen and Johnstone 2019: 8)

In other words, GME's assertion of transparency with respect to the central concern about radioactive contamination caused by the mining

[10] See https://etransmin.com/esg-sustainability/

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and extraction of uranium ore was highly contested by the adjacent resident communities.

The fact that a uranium mine has even been considered feasible in a part of the Nordic Arctic, in countries where equality, livability, and the benign role of the state seem to be taken for granted, underscores the challenges inherent in what Hastrup and Lien have called the "resource frontiers" of this region:

> On the one hand, [the resource frontier] indicates that configurations of resourcefulness involve practices of exploiting, controlling, and even colonizing land seen as somehow peripheral, uninhabited, up for grabs, exploitable from elsewhere and in need of pioneering development and resource transfer. Hence the notion of "frontier." On the other hand, "welfare frontiers" point to efforts to advance and realize particular democratic visions of good living conditions for all legitimate citizen-subjects, even in regions seen by state authorities as marginal in one way or another. (Hastrup and Lien 2020: vii)

An Althusserian Marxist approach to such a situation (Althusser 2006) might reasonably consider the values and stated intentions of the welfare state in Greenland as part of the ideological state apparatus that works to obscure, or render opaque, the actual exploitation of resources and labor, which is the primary role and mechanism of the capitalist class in any capitalist country. This does not imply that either the Greenlandic government, in envisioning national independence as hinging on the technical adjustments of resource exploitation, or the Danish government, in insisting that Greenlanders pay their way to that independence, is intentionally, not to mention maliciously, deceiving Greenlanders – either specifically in Kujalleq or in the whole country. I would not, however, doubt that implication with respect to the corporate entities that are ready to develop Kvanefjeld and Tanbreez – or any other corporate mining venture, for that matter. For them, I would suggest, the welfare state component of the welfare frontier in Greenland is part of the specific conditions they need to work with in order to exploit the resource they want to extract; different conditions prevail elsewhere, but in each case, the corporation's goal remains the same. (See Maguire [2020] for a similar argument with respect to aluminum smelting and geothermal energy in Iceland.) The tense and intense differences between the intentions of the state and those of the corporations, particularly over the anxiety-

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ridden possibility of radioactive contamination and the use of uranium mined in Greenland in the production of nuclear weapons – by the United States or China – came to a boil in 2021 when snap parliamentary elections were called, precisely over whether the Kvanefjeld mine would finally receive approval to begin excavation. The Inuit Ataqatigiit (IA) party, which strongly opposes Kvanefjeld, while still leaving the door open for the Tanbreez project, won 37 percent of the vote; the Siumut party, which previously controlled the government, won only 29 percent. IA led the new coalition government, in which the welfare side of the welfare frontier in South Greenland has received new emphasis, and – for the moment at least – the transparency of a state's commitment to welfare gains has taken priority over the formulae of and for corporate transparency (see Neuman 2021). As of 2023, the Greenland Ministry of Natural Resources formally terminated all contracts for the Kvanefjeld mine (Ianucci 2023); the Greenland government was sued for $11.5 billion (Hartmann et al. 2024). In 2024, ownership of the Tanbreez mine was in transition, but operations had still not started (Bye 2024).

Concluding Thoughts: Materiality, Transparency in the Era of Climate Change, and Nation-Building

In closing, I draw attention to the difficulties surrounding my deployment of "transparency" via the metaphor of lenses that this chapter has employed, and also reflect on the contrast between the materials that I have focused upon.

Greenland's geographical and political adjacency to Scandinavia makes for a situation in which mining corporations are held accountable in ways that are not as demanding in other locations, such as ruby-mining regions in Mozambique or Myanmar. What is visible in my recounting of the history of ruby mining in Greenland is the deployment of the rhetorics of transparency by Greenland Ruby, for example, in addressing the demand for accountability. Yet the small-scale ruby miners seek a transparency that is not only about satisfying the discerning tastes of gem-buying consumers, and not even only about creating space for noncorporate kinds of mining, gem processing, and jewelry design, but, I would argue, also about these miners' sense of belonging and inclusion in the emergent Greenlandic nation.

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That point turns our attention to the aspirations of the political class that is planning Greenland's political independence, and how resource extraction plays a central role in that process. With respect to REE extraction, that class – and the Greenlandic government as a whole – is accountable to the Greenlandic electorate in a country where elections do matter. That accountability highlights demands for information transparency around a substantive menu of environmental dangers that are posed by the very process of mining REEs, their transport, and the insinuation of uranium and radioactivity into all of these processes.

The ontological differences between the materials under discussion and on view – rubies and neodymium most notably – remain striking. These are natural materials, in a sense, but no less produced, no less manufactured, yet still agentive as entities. Faceted or polished rubies are all about visibility, about the explicit adornment of the body and the performance of adornment in a broad optic, about subjective qualities such as color, on exhibition in the brightest or most favorable possible light. By contrast, the presence of purified REEs such as neodymium is always opaque: not conspiratorially hidden but systemically behind the scenes, ensconced within the machines they make possible, never visible except as effects – profoundly powerful effects.

Rubies thus proclaim their presence through their exaggerated visibility, and each one is judged unique and individual, but such a treatment of rubies also obscures their origins – not necessarily in a geographical sense, since stated provenance deeply affects the calculation of their value, but certainly to cloak the relationships of labor exploitation, colonial and neocolonial control, and environmental destruction. Neodymium, yttrium and the other REEs are always invisible, and because their prices are standardized by purity and weight, their materiality is made generic: like for all metals, as an industrially produced mass, any one piece is equivalent to any other piece as long as weight and purity are equivalent, notwithstanding demands to render such generic materials "ethically produced" as well.

As Raymond Williams so saliently observed, all of these commodities, all of these phenomena – sight itself – are produced under a system of class domination:

> [This] thus constitutes a sense of reality for most people in the society, a sense of absolute because experienced reality beyond which it is very difficult for

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most members of the society to move, in most areas of their lives. It is, that is to say, in the strongest sense a "culture" which has also to be seen as the lived domination and subordination of particular classes. (Williams 1977: 110)

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