5 Where WMPs Meet 'up' and 'down': Exploration, Governance, and Infrastructures in the Polar Regions

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5.1 Introduction

The vast majority of people on the planet – and that includes historians, sociologists, and IR scholars like the authors of this volume– are pretty certainly only dimly, if at all, aware of the existence, let alone the exact location of, Franz-Josef-Land, Neuschwabenland (New Swabia), or the Executive Committee Range.[1] That would be understandable if these names designated rather small geomorphological features, known only locally. However, Franz-Josef-Land is an archipelago with 192 islands visible on every world map, with the largest island (Prinz-Georg-Land) about the size of Samoa. Neuschwabenland is about the size of Ukraine. And the Executive Committee Range consists of five rather distinct mountains, with the tallest reaching an altitude of about 14000ft. Certainly, the lack of knowledge or attention has something to do with the fact that no human being has ever lived permanently in, or even very close to, these areas. Temporary residents include military personnel (in the case of Franz-Josef-Land), researchers, mountaineers, and

1 This chapter was also written in the context of the DFG-funded research project 'The worldviews of ice: constructions of the Arctic at the science-policy interface.

tourists. No known designations of these places exist by any Indigenous population.

What all these places do share, however, is that they all form expressions of various aspects and phases of polar exploration which themselves can be seen to express distinct or overlapping worldmaking projects (WMPs).

Why turn to something as remote and seemingly marginal as the polar regions when studying worldmaking projects and the infrastructural nexus? Arguably the remoteness always translated, and continues to translate, into the polar regions being of rather marginal interest in the context of the disciplines involved in the present undertaking. However, this peripheral status has actually made these regions the object of quite a lot of interest when it comes to projecting the future of the world in the present – ranging from nineteenth century (and earlier) imaginations of what lies 'beyond' the 'ice barrier' to contemporary explorations of the role of those regions – as those globally most affected by it – in global warming.

The present chapter explores the intricate relation between the polar regions and WMPs in two related, if quite different directions:

First, it asks how WMPs overlap, particularly in their material-infrastructural manifestations, in the polar regions. This question is exploratory in the sense that polar regions probably have never played a central role in world politics (with the latter even broadly defined) – but nonetheless have never been completely exterior to it either, particularly when seen as part of completing the horizon of what the 'world' in geographical terms includes in the emerging world imaginaries of the nineteenth century.

Second, it asks whether there exists something like 'polar WMPs' in their own right. That question reflects that although the polar regions remain on the edges of world politics, they have definitely increased in importance. They certainly are on their way to center stage if considered through the prism of the importance of the (disappearing) cryosphere for living conditions on the planet.

In order address these questions, the next section will take a cursory look at the history of polar exploration and the associated dynamics of

naming places alluded to above (2.1). It will argue that the history of polar exploration from early on is also a history of infrastructural development that is inextricably intertwined with powerful imaginaries of pristine wilderness to be conquered (2.2). Such conquest takes place particularly in connection with, and under the name of, three specific worldmaking projects, namely the imperial, the nationalist/national-sovereign, and the internationalist-scientific/supranationalist (2.3). Another section will more extensively illustrate how this WMP/infrastructural nexus plays itself out in practical arrangements, challenges, and conflicts, using as examples Svalbard as well as Antarctic sovereignty/governance claims and infrastructural arrangements. The focus here will, however, be on Svalbard which –because of its very special status – serves as a prism through which this nexus can be observed (2.4.).

The next part will then explore the question of whether something like 'polar WMPs' exists. While the answer will be a tentative 'no', it is argued that it still is worthwhile asking this question, if only to explore possible dynamics and shapes of WMPs *in statu nascendi*, that is with a distinct look into the future. It will be argued that what can be witnessed in some discourses and practices that surround the Antarctic Treaty System (ATS) and the various framings and projections that go together with the notion of a 'Global Arctic' can at least partly be read as struggles for establishing – or at least increasing the influence over existing – WMPs. Exploring them might offer a glimpse to nascent WMPs shaping the future. Such nascent or possible WMPs do tend to refer to the particular status and associated infrastructures and infrastructural requirements as part of their rationale (3.1). In the Arctic, these references permeate discourses and become particularly visible when it comes to questions of port infrastructure, but also, for example, the challenges to the construction of buildings posed by permafrost thawing. In Antarctica they also appear in the shape of very concrete proposals of 'worldmaking' in the sense of ideas for effective geo-engineering, most notably to prevent the collapse of the West Antarctic Ice Sheet climatically or physically (e.g. installing underwater curtains to prevent ice loss) (3.2).

5.2 Overlapping at the poles? WMPs in the High North and Antarctica

5.2.1 On exploring and naming

Polar exploration, including the 'scramble for the Poles' in the Arctic and the Antarctic can certainly not be reduced to a facet of individual imperialist projects, or of a combined imperial WMP. With ideational predecessors in ancient mythology pertaining to the unknown North of known civilizations ('Ultimate Thule'), and with a quite long history of (seen, from a contemporary perspective, sometimes remarkably obscure) ideas of what lies within and beyond the barriers formed by impenetrable ice, living in, as well as making economic use of, the Arctic has histories that go far beyond those of imperialism and associated colonialism. For thousands of years, various peoples have lived in the Arctic. Later, Western exploration often was not spearheaded by 'real explorers', but by people and companies pursuing primarily economic objectives (e.g. whaling, fur trade, etc.). Against this background, the 'expedition' became an interesting cultural form within the cultures and practices of empire (cf. Thomas 2015), and it came to play a dominant role in histories of the polar regions as told by essentially imperial writings of the polar regions' history. Of course, expeditions always were only one part of that history, particularly when it comes to issues of colonial appropriation in the North American and Russian/Soviet Arctic. Nonetheless, much of the polar exploration organized as expeditions particularly in the nineteenth and early twentieth centuries in the name of empire and homeland never was simply about conquest and geopolitical interests, but many explorers invariably also were driven by a high degree of (scientific) curiosity. In that sense, as strange as this might sound, compared to many other places in the world, much of the colonial subjugation of Indigenous peoples in much of the Arctic seems to have happened not 'by design' under the primary aim to acquire exploitable, inhabited land, as it were, but as a kind of 'by-product' of polar exploration and territorial appropriation.

Needless to say, the story regarding the Antarctic is quite different, with the first confirmed sighting of the continent probably having oc-

curred only in 1820 and with no traces of any history of even temporal previous human habitation to be found there. Without an Indigenous settlement, whaling here as well went along with the exploration of the Antarctic continent at its fringes (the first person to set foot on the continent probably was a sealer shortly after it was first sighted; the only semi-permanent settlements before research stations on the mainland where whaling stations on islands, notably Grytviken on South Georgia (est. 1902).

Still, soon enough both the Artic as well as Antarctica, despite their vastly different background – zone of human activity and inhabitation for millennia around a central, ice-covered ocean on the one hand, a massive ice-covered continent about which little to nothing is known until well into the nineteenth century, one the other hand – would find themselves as objects of overlapping worldmaking projects, namely an imperialist, a nationalist, but also an internationalist-scientific one (International Polar Years) (see 2.3 below).[2]

As everywhere else on the planet, naming places, as well as changing the names of places, is an ongoing cultural practice deeply interlaced with power relations. While basically most of these practices in the Arctic can be subsumed in a story in which many Indigenous denominations were replaced by ones given by explorers and geographers, often designating in the name of monarch, homeland, nation, empire, or a specific person (often the said explorers and geographers), the situation is remarkably different and unique in the Antarctic with no existing denominations by any Indigenous population.[3]

In Antarctica, the full spectrum of the types of designations mentioned can be found with, for example, the last German Emperor giving

2 The term 'internationalist-scientific' here already refers to the specifics of the empirical case at hand. It is of course perfectly possible to have an internationalist WMP without any particular focus on science.

3 Needless to say, the exceptions in the Arctic are those areas with no Indigenous population, notably Svalbard and Franz-Josef-Land. The reconstruction and collection of Indigenous place names comes under the name of 'toponomy' and there exist a range of projects in this respect; for the case of the Canadian Arctic, see Porter et al. 2024.

his name to Wilhelm II Coast; a part of Southwestern Germany godfathering New Schwabenland; the discovering U.S. explorer Lincoln Ellsworth naming the American Highland after his homeland; the famous explorer Sir Ernest Shackleton giving his name to quite a number of geographically quite distant places: the Shackleton Coast, the Shackleton Range and the Shackleton Ice Shelf; the Executive Committee of the United States Antarctic Service giving its (admittedly not very inspiring name) to the Executive Committee Range.

What is remarkable in relation to the toponomy (the naming of places) in Antarctica, however, is the maze of naming and how this already directly reflects different overlapping episodes of exploring and naming Antarctica. As a rule, with many exceptions, naming in Antarctica reflects claims of control or sovereignty over Antarctic territory. Up to the present day, the claimant states reserve the right to name places in the territory over which they claim sovereignty (in the UK, for example, this is done by the Antarctic Place-names Committee for the British Antarctic Territory). The 'exceptions' here are varied, however. On the one hand, place names are kept for many places for which only historical claims exist (as in the case of Germany, cf. 'Neuschwabenland). On the other hand, names are given to (already named or unnamed places) in languages other than those of the claimant states by countries with no sovereignty claims in Antarctica at all (e.g., by the Bulgarian Antarctic Place-names Commission) – or, as in the case of the U.S., by states that have a big role in Antarctica and share a language with one or more of the claimant states, but with no sovereignty claims of themselves.[4]

4 For a detailed reflection on the intricacies of Antarctic nomenclature, see Alberts 1995 – but with no reflection whatsoever about the possibility that naming could be anything but a national task. The Scientific Committee on Antarctic Research (SCAR) maintains a comprehensive compilation of about 40000 names that correspond to approximately half that number of features (The 'SCAR Composite Gazzetter of Antarctica'; https://data.aad.gov.au/aadc/gaz/scar/). Long-term international harmonization was one of the main rationales behind the establishment of SCAR's Geographical Information Committee (SCAGI), that was founded as recently as 2006.

These observations alone remind us that the naming of places is never a pure or 'value-free', scientific exercise. It is not even merely a reflection of competing claims over sovereignty, as in the case of the Antarctic. Rather, it is the result of a mélange of numerous political constellations, cultural practices, and scientific observations (for the Arctic see Wråkberg 2002).

5.2.2 Infrastructural conquest and imaginaries

This is not the place for developing the full story of the toponomy of the polar regions. The story needed to be addressed, however, in order to develop one specific part of the argument. While, in an historical empirical sense, the toponomy of most parts of the inhabited Arctic followed the conventional story of the colonial replacement of Indigenous toponomy (with some more recent re-replacements) and can thus be considered ingredient practices of an imperialist worldmaking project, the toponomy of Antarctica (and of some places in the Arctic with no Indigenous population, most notably Svalbard and Franz-Josef Land) lays open how different worldmaking projects overlap and interact through corresponding imaginaries. In this respect, naming places only forms the most obvious and visible, semantic level of such imaginaries. Fiction, narratives, visual representations (through maps, photos, films, paintings, etc.), form additional ingredients here (cf. Albert 2023 for the case of Svalbard). Imaginaries of what something 'is' are part and parcel of its making and remaking, as well as contesting that 'something' (cf. Steinberg et al. 2015).

While all of this is true for basically any region in the world, I would argue that physical infrastructures (as well as, to some degree, built environments – only think of the representational power of the igloo in children's books) play a particularly important role in the polar regions, mainly because of the stark and visible contrast to the imaginary of 'pristine wilderness'. In such an environment, the explorer explores, and sometimes 'conquers', but he (far more rarely: she – before, that is, some only historically fairly recent shifts in polar research in this

respect) – usually doesn't leave much behind, save possibly a flag, a cairn, a depot, or, for that matter, a shipwreck or a dead body.[5]

After their explorations have concluded, explorers tend to leave the imagined pristine wilderness, but infrastructures stay as a marked contrast. An introductory essay to a photographic art book that pictures a vast array of (military, commercial, research) sensing infrastructures in the Arctic (Sailer 2021) remarks:

'Sensing infrastructures installed in the Arctic join a long history of attempts at capturing the far north – from centuries-old myths and fantastical maps that encircled the region long before anyone set eyes on it, to fraught polar expeditions at the turn of the twentieth century that triggered an international race to conquer the North Pole. Where nations in these early days relied on planting flagpoles into the ice to mark their dominance over the region, today they rely on parabolic radar dishes, servers and data storage facilities, fields of antennas, automated surveillance systems, meteorological stations, floating research platforms, and unmanned aircraft to do the same' (Kirschner 2021: 27).

With the slight correction that in the 'early days' mentioned, the planting of flagpoles was often done more in the name of the monarch rather than in the name of the nation, the quote hints at the defining role of infrastructure for the characterization of the polar regions as places that are somehow not wilderness, but at least half-controlled by human presence mediated through infrastructures that come in the form of radar stations, research stations, meteorological stations, military bases, etc. The difference between the Arctic and the Antarctic is quite pronounced in this respect, with infrastructures in the latter case almost solely existing for research purposes. What is important to

5 That being said, probably little has captured people's imagination as part of the reproduction of polar imaginaries more than the Franklin and Shackleton expeditions: the whereabouts of Franklin's grave and the two ships of the Franklin expeditions that disappeared in 1848. While the former still remains to be found, the latter two were discovered (*HMS Erebus* in 2014 and *HMS Terror* in 2016; Shackleton's famed *Endurance* reappeared in 2022).

observe is that arguably infrastructures provide the most visible external representation of the infrastructural 'puncturing' of the pure and pristine wilderness and whiteness, and this is completely irrespective of whether these infrastructures have human beings present on a permanent or seasonal basis, or are visited for maintenance purposes only. Urban landscapes, settlements, or architectural aspects rarely feature in this respect. This is not to say that these were not important subjects, to which indeed quite a lot of study and discussion is being devoted to. Rather, it is to say that they rarely feature in what are more or less global representations of the polar regions. When, so the argument here, the polar regions are addressed by, and through infrastructures also 'marked' as integrated into worldmaking projects, then the 'worldmaking' is literally quite disinterested in the local and its infrastructures – be those power stations for local energy supply, be those (mostly missing) sewage systems.

5.2.3 Worldmaking projects at the poles: imperialism, nationalism, inter-/supranationalism

Imaginaries of the polar regions do not exist isolated from other imaginaries. Particularly in relation to nation-states they are interwoven with other imaginaries of nation, empire, the world, etc. This link is particularly visible in relation to a number of countries with traditionally strong narratives of being 'polar' nations (cf. Sörlin 2013), but possibly also embedded in geopolitical imaginaries of states that are, in terms of geographical distance, partly within, or adjacent to, the polar regions (cf. Wehrmann 2018), or states that are actually geographically quite far away (and, like China, define themselves as a 'near Arctic state' – cf. Dams et al. 2020; or states that play a seemingly outsize role in Antarctic politics, as for a long time for example Malaysia did).

In the case of the polar regions, and particularly the Arctic, imaginaries here come with quite a lot of historical baggage when it comes to projections and imaginations. These range from ancient projections of an 'ultimate Thule' in the North; to the idea, prominent even in the British Admiralty up until late in the nineteenth century, that beyond the

Northern ice barrier might lie a tropical sea (cf. Fleming 2000); to conspiracy theories that argue that the German Nazi elites survive in hiding in an underground base in Neuschwabenland in Antarctica (cf. Baldauf 2015). While few today think Greenland's shores ripe for the development of tropical beach resorts just yet,[6] or maintain that Nazis hide near the South Pole, the polar regions resonate as regions upon which all kinds of things can be projected.[7] This, I would argue, makes them ideal for being included in worldmaking projects as resonating projections, assuming, in line with our understanding of what constitutes such projects, that such projections form part and parcel of their worldwide extension.

The important thing here is that the polar regions are not isolated entities, in which then the logics of different worldmaking projects would somehow be 'applied' in an isolated fashion. Rather, given the global ambition and reach that defines worldmaking projects, the polar regions would need to be seen as forming part and parcel of these projects. They might not really ever have played a central role, but attest to the fact that worldmaking does include an image of '*Restlosigkeit*' (cf. Krajewski 2006), meaning no part of the world should be left as a 'rest' outside.

Worldmaking projects influence, are reflected in, and play themselves out in a range of such imaginaries. How imaginaries are created, reproduced, changed, and contested rests on a vast variety of different means – political, economic, artistic, mundane, etc. (cf. Albert et al. 2024). The practices involved will certainly never only be infrastructural – but infrastructures are required, and they certainly leave a

6 The exception possibly having been Donald Trump when in in summer 2019 he proposed to purchase Greenland from Denmark. With his pressing the issue again in 2025 it became rather clear, however, that his motive for incorporating Greenland into the U.S. was, in that case, not driven primarily by plans on real estate development.

7 Asked about his most bizarre professional experiences in this respect, a guide in the Arctic once told me about a client who insisted to be taken to a latitude of 100 degrees North. Upon being pointed to the fact that it was impossible to venture north of the North Pole at 90° North, he maintained that this was indeed possible, but that unnamed forces took great effort to ensure that the remaining 10 degrees were carefully hidden from public view!

visible mark, even if the visible physical-technical manifestations are always only one, but indispensable, part of infrastructures, which, for example, also include provisions for their use, access, or even questions of preservation as technological heritage.

But why and how are the polar regions parts of worldmaking projects? Which projects? I would argue that the polar regions have been, and continue to be, included into an imperialist, a nationalist, and an internationalist worldmaking project respectively. They also are a showcase for how such different, and partially competing, worldmaking projects can overlap in their ordering function, and how this overlap, as well as the connections and competition entailed therein, is both expressed in, as well as enabled by, infrastructures.

The polar regions have been, and continue to be, shaped by three worldmaking projects which have addressed and included them in various ways and to varying degrees. There is, and continues be at work:

(1) An *imperialist* worldmaking project. This is simply due to the fact that the initial 'discovery' and exploration of the polar regions, save for some preceding commercial activities (particularly whaling), by non-Indigenous actors (in the Arctic case, with no Indigenous population having existed in Antarctica) was mostly done by empires and in the name of imperial expansion, through claiming land, naming, and subjugating existing populations (although it remains debatable whether the claim to unpopulated territories really should be counted as 'colonialism'; cf. Mancilla and Roberts 2024).

(2) A nationalist/*nation-state sovereignty* worldmaking project. This is expressed in the practice of claiming all or parts of the polar regions as part of sovereign state territory, or at least as part of states' Exclusive Economic Zones (EEZ) under UNCLOS (with the sole exception of the relatively small area that would remain as High Seas in the Arctic Ocean if all filed continental shelf delimitation claims were accepted).

(3) An *internationalist* worldmaking project, which seeks to treat (parts of the) polar regions as expressions of international collaboration, spaces removed from global conflict dynamics (cf. the discourses on Arctic 'exceptionalism', e.g. Lackenbauer/Dean 2021). In legal terms, this internationalism is at least to some degrees expressed in both the

Antarctic Treaty with its 'freezing' of sovereignty claims, as well in the special usage rights granted to signatory states other than the sovereign in the Svalbard Treaty.

Needless to say, all these three worldmaking projects overlap to various degrees and in changing ways over time, and part of this variation is expressed in how they rely on, as well as underpin, infrastructural evolution.

5.2.4 The rift zones of the WMP/infrastructural nexus

The polar regions are full of all kinds of infrastructure, with a marked difference as to their number and variety. The Antarctic continent is relatively 'simple' in this respect. 'Old' infrastructure of archeological interest is sparse, limited so some huts/remnants of old expeditions (no old whaling infrastructure exists on the continent itself, the most prominent probably being Grytviken on South Georgia), whereas it is to be found scattered all around the Arctic (and that does not pertain to any kind of 'lived-in' infrastructure of Indigenous populations). Otherwise, almost all of infrastructure in Antarctica serves research, as well as to a limited (but increasing) degree touristic purposes. The only possible exception to this is the Chilean Presidente Eduardo Frei base on the Antarctic Peninsula, which exhibits all characteristics of a permanent small settlement (including school, hospital, and supermarket).

In contrast, there is nothing in terms of (technical and communications) infrastructure that does not in exist in the Arctic (bearing in mind that much of the land *is* permanently inhabited state territory). There are research stations, ports, military installations, submarine cables, etc. Military infrastructure as well as port infrastructure probably are the most eye-catching features in this respect. In particular the sensory equipment for detecting missiles and aircraft that were erected during the Cold War (e.g. the North American Distant Early Warning Line) came to symbolize the importance of the Arctic in the East-West conflict in the past. Ports (in their present or envisaged states) being of a far less spectacular kind, but over the past years having featured very prominently in discourses on the future of Arctic shipping under the condition

of disappearing summer ice, particularly in the Northwestern Passage and along the Northern Sea Route.

How do these infrastructures connect to and how are they embedded in relation to the worldmaking projects mentioned? In one sense, the answer is quite easy, if one took legal ownership of infrastructures as a starting point: most infrastructures belong to someone – if not a state actor, then an actor legally registered in a sovereign state. Thus, at least in the Arctic, one could plausibly claim an almost absolute dominance by a nation-state worldmaking project. However, it is not the easy cases that are of interest here, but those where arguably rifts between the different worldmaking projects become visible at the infrastructural nexus.

The case and the politics of research presence on Svalbard are particularly pertinent when it comes to demonstrate how different worldmaking projects result, and overlay in, infrastructures. In order to illustrate this, it seems worthwhile to recall a few of the particularities of the place: First, Svalbard is covered by the Svalbard Treaty, signed in 1920 (coming into effect a few years later). While the Svalbard Treaty grants full sovereignty over the archipelago to Norway, it also grants a number of rights to the citizens of signatory states[8]. Briefly put, the main provision of relevance here is the beginning of Article 3 of the Treaty, which stipulates.

'The nationals of all the High Contracting Parties shall have equal liberty of access and entry for any reason or object whatever to the waters, fjords and ports of the territories specified in Article 1; subject to the observance of local laws and regulations, they may carry on there without impediment all maritime, industrial, mining and commercial operations on a footing of absolute equality.'

8 This point needs to be emphasized: Svalbard is a part of Norway and under full Norwegian sovereignty. However, this sovereignty is bestowed by other state through an international treaty. It is an open debate on whether this treaty remains the constitutive source of that sovereignty, or whether that has been superseded by both the UN Charter and customary international law; cf. Rossi 2015.

Research activities are not explicitly mentioned in the Treaty. However, they are obviously also not excluded, given the broad definition of 'whatever reason or object whatever'. The only limiting factor here are the 'local laws and regulations', meaning that some activities in some places can be prohibited or restricted notably for environmental or safety reasons.

To understand how WMPs and infrastructure connect and sometimes lead to frictions in Svalbard, Ny-Ålesund is a particularly interesting (and hotly debated) case in point. Ny-Ålesund is (or 'was') one of the few larger permanent settlements on Svalbard. In addition to the larger former mining (turned into tourism and research) town of Longyearbyen as the largest settlement (with a population of a little more than 2000 people, although without a few exceptions most only live there for a number of years), only Barentsburg remains as a small mining town (with a 2024 population somewhere in the region of 400 people). Ny-Ålesund also was a mining town, but mining activities ceased in 1963 (after a huge mining accident). However, it was not completely abandoned as a settlement, but slowly re-purposed as, and growing into, a research settlement. It is now a town that hosts numerous research facilities/stations, with a stable small (double-digit number) year-round population of technical, administrative and research staff, that significantly increases over the summer months (lower three-figure number).[9] This re-purposing stands in distinct contrast to the Soviet/Russian-populated mining town of Pyramiden, with a peak population of around 1000 people, that was abandoned in 2000 as a permanent settlement (after mining ceased two years earlier), and that as a 'ghost town' tourist destination only has regained a very small number of permanent resi-

9 It should be noted that over the summer months there is also a significant amount of people visiting during the day by cruise ship or boat, but unlike in Longyearbyen there is no tourism infrastructure in Ny-Ålesund (i.e publicly accessible accommodation, shops, lodging, guiding services).

dents working in that sector for hosting day tourists over the past couple of years (but see below on Russia's initiative to re-settle).[10]

Because of the rights of use granted under the Svalbard Treaty, as well as because of the established transport, housing, and laboratory, Ny-Ålesund houses most of the Arctic research outfits of non-Arctic states (on Svalbard itself, there also exist a very small number of others that are not in Ny-Ålesund). The important point now, however, is that the Ny-Ålesund facilities are completely owned by Norway, and nowadays managed by the Norwegian Polar Research Institute.[11] This means that strictly speaking there exists no 'Chinese' station, no 'UK' station, and no 'French-German' station, etc., in the same sense as these do exist most notably in Antarctica. Rather, all these stations depend on leasing arrangements which national research outfits conclude with, and under the conditions set by, the 'landlord'. It is exactly this situation with research infrastructure which has led to, and continues to lead to, quite some commotion that directly expressed the clash of worldmaking projects.

Generally, cooperation in situ between the various institutions and projects runs smoothly. Practical coordination matters on the ground are handled by the Ny-Ålesund Science Managers Committee (NySMAC) committee, in which representatives of all national science missions conducting work in Ny-Ålesund are present. While thus there exist few conflicts in the daily running of scientific business, and the biggest pressure on the settlement is arguably overtourism by daytime visitors

10 Svea is a special case in this respect: a long-time mining settlement (although for quite some time without a permanent population but with daily or weekly 'commuters' from Longyearbyen), that actually hosted the most productive coal mine in Svalbard, Svea was closed in 2020. Over a course of three years *all* infrastructure was removed, which needs to be read at least partly not as an (extremely costly) exercise out of primary concern for the environment, but also as a proactive measure for preventing continued use of the site by other actors (perfectly permissible under the provisions of the Svalbard Treaty).

11 The land on which Ny-Ålesund stands is owned by Kings Bay AS, a 100% state-owned company, that organizes all practical issues, whereas the Norwegian Polar Institute oversees research activities.

(from cruise ships) over the summer, there have been repeated discussions on issues of *naming* that can be seen to express the very practical instantiation of a nationalist worldmaking project on the ground.

As alluded to above, basically everyone has a right to conduct research on Svalbard. It is worth noting, however, that clearly Article 1 of the Svalbard Treaty cited above does not convey this right to signatory states or their institutions, but to the 'nationals' of these states. This means that the right pertains to individual citizens, not states. This very clearly is a situation that cannot be reconciled with popular perceptions that Svalbard would somehow form some kind of 'international' space, where sovereignty would somehow be 'shared'.[12] There exist many popular perceptions of this kind (see Østhagen 2024), but no serious legal interpretation that would dispute the very clear fact that the Svalbard Treaty fully acknowledges Norwegian sovereignty. That being said, the provisions of the Treaty that grant citizens of other states quite special rights on (a part of the) sovereign territory of another state (in addition to, most notably, human rights in principle held by everyone everywhere) *do* underpin what might seem like an ongoing ping pong game in which, so to speak, the extent of the 'specialness' and the 'elasticity' of sovereignty are tested, on the one hand, and in which, on the other hand, the Norwegian government is quite eager to factually and symbolically assert its sovereignty (and, in the case of Longyearbyen, the 'Norwegianness' of the place; cf. Pedersen 2017). As mentioned before, this does lead to little or no friction in the daily running of affairs in Ny-Ålesund. But it does lead to a range of ongoing disputes on *naming* the relevant infrastructures and associated symbols. Thus, there exists a regular exchange of (more or less formal) letters that bemoan the naming of certain research facilities partly operated (but always *within* the overall infrastructural premises of Kings Bay AS) by nationally based

12 One could argue that, in a sense, 'internationalism' falls somewhat short of what is being observed here, and that in fact what is going on is something that somehow transcends the international in the direction of transnational cosmopolitanism. I owe this point to Tobias Werron.

institutes as national research facilities:[13] 'the entrance to a wooden barrack of cultural heritage status in Ny Ny-Ålesund, Svalbard, was decorated with two lions from solid marble. The building, previously known as *Ungkarsheimen* ('the bachelor home'), had just been leased by the Chinese Arctic and Antarctic Administration (CAA) and was being transformed into the 'Chinese Yellow River Arctic Station' (Pedersen 2021: 1–2); or: 'A tiny hut, leased by the University of Groningen to support the monitoring of barnacle geese in the summer months, became "'The Netherlands Arctic Station in Spitsbergen" decorated with wooden shoes, flags, and other symbols' (ibid.: 2). It would be easy to dismiss all of this as extremely uninteresting and marginal, no more or less important than, say, putting up a national flag or symbols of your country of origin or citizenship in your office even if you work for a university located in another country. And indeed, neither the Chinese, nor the Dutch, nor anyone else doing research in Ny-Ålesund has ever claimed ownership of parts of the land or even sovereignty rights. Thus, some Norwegian reactions might seem to exhibit uptightness more than anything else. However, it would be very wrong to easily dismiss these things, as they are played out quite seriously through adaptations of Norwegian policies and resulting reactions particularly from other national science organizations/managers (see Hansen/Moe 2024).[14] Given that they are seemingly marginal and nonetheless frequently a subject of marking dissonances can also exactly be read in the opposite direction,

13 See https://nyalesundresearch.no/nysmac/.

14 The entire issue flared up in November 2024, demonstrating the fine line between disputes on principled issues (sovereignty) and very localized events: in order to celebrate the twentieth anniversary of the Chinese 'station' in Ny-Ålesund, a group of visitors turned up and posed in front of the entrance with its (in)famous two dragon statues, with one woman parading around in military camouflage uniform. The outrage duly followed and pertained to implicit Chinese claims represented through this action (and the violation of the provision not to have military personnel in Svalbard). But then, a neutral look at the picture showing the parading woman could also be seen to reveal nothing but an eccentric, nationalist-enthusiastic participant in the outing rather than a serious 'showing of flag'; cf. Eriksen et al. 2024.

namely that here a clash of far more general ordering principles within or between worldmaking projects show themselves. These are ongoing, real or imagined, contestations not about a lion figure or a wooden shoe in the snow, but about in which context a place is imagined to *exist*.[15]

These 'rows' about the naming of research infrastructure demonstrate, at a minimum, frictions that arise *within* the context of a nationalist worldmaking project, that entails open, or at least latent, conflicts over territorially defined sovereignty. At most, they signify a friction between a nationalist and an internationalist worldmaking project, when the latter is asserted in the name of international science collaboration that should simply not be too much concerned with sovereignty issues.

While such a diagnosis would seem to lack any reference to any kind of 'imperialist' worldmaking project, the argument can be made for this to be present in this context as well, particularly becoming visible in the aftermath of Russia's invasion of Ukraine. Russia has no research presence in Ny-Ålesund, not requiring the local infrastructures that particularly non-Arctic states need, given its own vast swathes of Arctic territory. Even the Russian settlement of Barentsburg never has played any noteworthy research role. All that, at least rhetorically, changed, when in October 2023 (timed to coincide with the Svalbard Science Conference taking place in Oslo), Russia announced that it planned to re-activate Pyramiden and establish a science Center there (see Nilsen 2023). The intention, in this context, is however not merely to establish a Russian out-

15 An interesting 'side show' in all of this is the by now strict Norwegian policy of excluding anything but the natural sciences from Ny-Ålesund (the exception being research on local cultural heritage sites). Some critical voices suspect this is to prevent social scientists, known for asking critical questions, sniffing around the place. The Norwegian argument is that resources are scarce and social scientists need not be in place there (an argument which is a non-starter if the research was exactly *on* natural science and the conditions in the place). Funnily, quite some social scientists lurk around (but only if they find a national institute to assign them a natural science task in a natural science project) – and the only ones to officially complain about the situation are the Chinese, with their renowned Arctic social science research efforts (with apologies for the hint of sarcasm here).

fit with the accompanying infrastructure (neither much needed in the context of Russian polar research, nor probably financially much viable given the state of Russia's war-drained finances[16]). The announcement included an invitation to other states, particularly also China and India, to join in using the Russian infrastructure in Pyramiden for their own research purposes. On a practical level this might seem to be a measure to circumvent the Norwegian policies regarding the use of Ny-Ålesund (again: notably for other countries, not for Russia). However, on a quite more profound and fundamental level, it can only be read as an active assertion of geopolitical interests, drawing Svalbard further into what since the invasion of Ukraine openly appears as an imperialist project on the Russian side. This does, not least expressed in the idea to have China set up shop in Pyramiden, not only reflect a single imperialist project, but needs to be seen as part and parcel of an imperialist worldmaking project. Svalbard, of course, is only a microcosm in this respect. Although having a very peculiar status, it resides in the 'larger' geopolitical picture, a picture that depicts the overlap and clash between nationalist and imperialist worldmaking projects; a nationalist one, with not openly, but at least symbolically competing sovereignty claims and a remaining adherence to 'playing by the rules' (notably thus far in the highly contentious as well as consequential issue of continental shelf delimitation, where everyone still seems to abide by the authority of UNCLOS, duly filing claims with the Commission on the Limits of the Continental Shelf), and an imperialist one, in which the world should be divided up into imperial zones of influence, by taking specific measures such as the one described, by investing in port infrastructure along the Northwestern Passage and the Northern Route, or by proclaiming itself, in the case of China, a 'near-Arctic state'. And, indeed, on a more abstract level, one could also see imperial zones of influence logics to lie behind the Arctic Council's emphasis on international cooperation under the condition

16 At the point of writing, almost two years after Russia's announcement, anecdotal evidence thus far shows nothing in terms of activity on the ground in this respect in Pyramiden.

of deliberately excluding non-Arctic states from the inner circle of decision-making.

Obviously, the situation in Antarctica is quite different in many respects, comparable only in terms of the fact that worldmaking projects and their infrastructural underpinnings and manifestations overlap and compete here to various degrees. The most remarkable thing, however, is that probably nowhere else in the world does this overlap become so *visible*. Starting with a view on but a common map of the continent in any atlas, one will immediately be confronted with an imperialist worldmaking project, namely the territorial claims on large swathes of the continent by Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom – literally 'frozen' by the Antarctic Treaty, but also visibly existing, and even leading to contemporary episodes of conflict (such as when for example it is claimed that the 'freezing' of claims by the Antarctic Treaty might pertain to the land, but not the corresponding Exclusive Economic Zone).

Like the Svalbard Treaty, the Antarctic Treaty provides for a de-militarization. *Unlike* the Svalbard Treaty, the Antarctic Treaty does not convey any sovereignty to any state. Regarding the issue of research infrastructure, the picture then emerges as a little different in comparison to the Svalbard setting. There exists an important legal provision in the Antarctic Treaty with political-practical consequences for research infrastructure directly.

Article IX.2 stipulates that:

> 'Each Contracting Party which has become a party to the present Treaty by accession under Article XIII shall be entitled to appoint representatives to participate in the meetings referred to in paragraph 1 of the present Article, during such time as that Contracting Party demonstrates its interest in Antarctica by conducting substantial scientific research activity there, such as the establishment of a scientific station or the dispatch of a scientific expedition.'

This basically means that participating in decision-making in the context of the Antarctic Treaty is dependent on conducting 'substantial scientific

research activity' there. Although, obviously, what 'substantial' entails might be quite open for interpretation, the examples given then point in the direction of what is taken to count: it is not research 'on', but research 'there' (meaning extensive research relying solely on satellite imagery probably would not count, nor the establishment of a learned association dealing with Antarctica but located somewhere else). Given that sole expeditions for scientific purposes without any reliance on local infrastructure (i.e. stations and airfields) are nowadays rather impractical and basically non-existent, it is the 'establishment of a scientific station' that counts. Certainly, there exist no scientific stations in Antarctica that do not do scientific research. However, what the provision of the Treaty basically means is that research structures there to a significant degree also exist because of states' wish to participate in Antarctic Treaty decision-making (this has, incidentally, led to quite a second-hand market for Antarctic research stations, with less affluent countries taking over decommissioned ones from countries with a larger research funding and the capacity to build new stations).

In Antarctica, the underlying worldmaking project, represented through territorial claims (of Argentina, Australia, Chile, France, New Zealand, Norway, and the United Kingdom), is imperialist. However, a case could be made that at least the U.S. and Russia (or formerly the Soviet Union) have always also participated in Antarctic politics through the logics of an imperialist worldmaking project, even without putting forward sovereignty claims of their own.[17] It particularly overlaps with a strong internationalist worldmaking project that, strongly intertwined with Cold War geopolitical constellations, was expressed in the International Geophysical Year 1957–8 that provided part of the raison d'être for the emergence of the Antarctic Treaty and that still strongly

17 A case could be made that the US has a particularly privileged and noteworthy position in this respect, given the fact that the only Antarctic Specially Managed Area under the Antarctic Treaty that contains research facilities is ASMA-5 Amundsen Scott South Pole Station, meaning an area of about 27000 square kilometers that is a specifically designated area of collective interest, but under the de facto control of but one country (i.e. the US).

permeates Antarctic research infrastructure: while the single-nation station remains the rule, there exist strong cooperative links between individual stations (most notably when it comes to the establishment, maintenance, and operation of airfields on the ice). However, and in quite notable contrast to Earth's orbit, unlike the International Space Station, there never existed an International Antarctic Research Station. (cf. Hemmings 2011). Looking at the current situation, there seems to exist an emerging dynamic of trying to push an internationalist logic with the, thus far, probably largest coordinated effort for establishing and linking research efforts and infrastructure for combining data collection and integration ('Antarctica International Science & Infrastructure for Synchronous Observation' cf. www.antarctic-insync.org). Such a dynamic could, in terms of it also serving as a counter-dynamic to an imperialist worldmaking project, also be seen to constitute one of the rationales behind the initiative to have another International Polar Year 2032–33 (see below).

5.3 Polar Worldmaking Projects?

The previous section has quite elaborately pointed out how different worldmaking projects play themselves out in the polar regions, zooming in on the rather particular – if not at all marginal – case of research infrastructures. One could, in short, argue that the subject of the argument has been the impact of worldmaking projects in specific regions, as well as in specific functional realms. Such a view would be to short-sighted, however. Worldmaking projects thrive on, and are reproduced (and in that process also affected) by their manifestations. They must not be understood as a fixed ideational and/or power-figurational static ensemble that simply would be 'imposed' on something.

It is in this sense that the present section explores a related, but somewhat different question, namely, whether one could actually detect some worldmaking projects in the making that might take in relation to the poles. While this might appear to be a quite far-fetched question at first, it does take its inspiration from the observation that WMPs

not only exist in fully developed and structurally effective, but also in more aspirational forms. Such worldmaking projects *in statu nascendi* are obviously not directly en route to displacing those worldmaking projects with deep structural sediments in world politics, such as the imperialist, the nationalist, or the internationalist WMPs. However, and without allowing any prediction on the pathways of future evolution, they interact with those WMPs in various ways, establishing mutual – if asymmetric – pathways of influence. The present section will briefly explore these pathways: firstly, in relation to the discourse particularly on the 'Global Arctic'; secondly, in relation to some possible infrastructural manifestations in this respect.

5.3.1 Struggles for establishing WMPs at the poles

Why should one even start thinking that something like a 'polar' worldmaking project exists? Paraphrasing George Mallory's famous answer on why he wanted to climb Mt. Everest ('Because it is there'), one could say that the simple rationale for doing so is because it has repeatedly been uttered as a possibility.

The most visible utterances in relation to the Arctic in this respect pertain to the (often linked) notions of a 'Global Arctic' as well as some kind of 'Arctic Exceptionalism'. The latter is a narrative that could be seen to be directly aimed at (and against) the conflictive effects of imperialist and nationalist worldmaking projects: at its core, it is the claim that despite geopolitical tensions even among players involved in the Arctic, these players have been getting along pretty well and in a cooperating spirit in all matters pertaining to the Arctic. Cooperating in the Arctic aligns these players in a cooperative spirit, disentangles them from the logics of other worldmaking projects and could thus, in projection, be considered the nucleus of some kind of internationalist worldmaking project. While the narrative of Arctic exceptionalism is a little more complicated than this very simplifying depiction, it nonetheless gained overall traction in the years following the Russian annexation of Crimea in 2014, and was completely shattered with the Russian invasion of Ukraine in 2022. However, it would seem premature to write it off

completely, particularly if the Arctic, and particularly through the route of scientific collaboration, turned out to be one of the first areas of a possible re-launch of Russian-Western cooperation (see also below on the 2032–3 IPY).

While the discourse on the 'Global Arctic' is quite differentiated, it contains an acknowledgment that particularly in geo-strategic terms the Arctic always played an important role during the Cold War, but that since then it has moved from forming an important second stage to a global main stage both reflecting as well as influencing the evolution of planetary systems particularly in terms of climate change (cf. Finger/Rekvig 2022). The Arctic is the fastest-warming part of the planet, the disappearance of summer ice even in the central Arctic Ocean is only a couple of years away. Global feedback effects of warming and ice melt will be tremendous (e.g. in case of the breakdown of the North Atlantic Current/'Gulf Stream') and potentially catastrophic (release of methane bound in permafrost). That situation alone would seem to legitimate to see a *focus on* the Arctic as necessary for establishing a worldmaking project.

It seems that Antarctica maybe always have had this function of serving as something on which imaginaries (of pristine nature, an area 'untouched' by sovereignty, etc.) could be projected, presenting itself as an alternative to reigning global orders. However, the explicit discourse on this has never become as focused as the one on the 'Global Arctic'. Indeed, the more scattered nature of that discourse might legitimately raise the question of whether such things as polar WMPs are really there, if only in a very marginal form, or whether all this is mainly about the Arctic, and much less about Antarctica?

The main argument for seeing polar WMPs as existing at least *in statu nascendi*, without any prospect of prediction of the ever moving beyond that state, simply lies in the fact that a discourse on them has been established. That is not a lot, but it is more than nothing. That it really is not a lot, and that the polar regions are prime addressees of other WMPs, is attested by the fact that during the writing of this chapter Greenland forcefully entered the arena of world politics with the elected US President not precluding to take it by force. The other 'straw' on which to pinch

polar WMPs is that one can see a focused concentration of infrastructure in this respect.

5.3.2 The infrastructural making of polar WMPs

The International Geophysical Year (IGY) of 1957–8 is often seen as providing a major boost for international research collaboration in the polar regions, and particularly in Antarctica. This boost pertains to both an increasing attention towards the polar regions in various research agendas, but also more generally to 'the emergence of a global sense of geoscience, embedded as it is in transnational scientific organizations and competing national interests' (Launius et al. 2010: 3). The latter part of that quote, however, already points towards an inherent tension in the 'internationalist' agenda of the IGY as well as in all subsequent International Polar Years (IPYs). While to a large extent indeed driven by scientific curiosity, it might be just one bit too much to describe the IGY purely as a '[t]riumph of "apolitical" science' (Belanger 2010) in Antarctica. Research primarily was filtered through and organized by national research bodies and funding agencies, and research stations were primarily national ones, despite all kinds of cooperation.

It remains to be seen, and skepticism is warranted in this respect, whether the planned IPY 2032–3 will lead to significant changes in either the channeling or even the coordination of research funding through national institutions. Nonetheless, already in the planning phase, one of the most remarkable things about the 2032–2 IPY is a remarkable focus on research infrastructures. It would be overdoing things to say that truly international structures are emerging in this respect, given their continued reliance on primarily national funding agencies, but the logistics as well as the coordinated operation seem to become more internationalized, with an awareness of the need to harmonize national and international funding and funding strategies (cf. IASC 2024: 44–45). Examples here include the major trans-Arctic communication cables that serve research purposes (ibid.: 31–32), or the major harmonized data collection effort of the Insync project in Antarctica already referred to above.

Trans-Arctic communication cables in this respect also highlight the importance of polar infrastructure for *global* purposes. This, on the one hand, refers to these very cables and related projects, as well as, on the other hand, to infrastructure related to shipping. In both respects, it needs to be noted that for a long time there has existed a noteworthy gap between imaginaries of polar worldmaking in the sense of drawing up plans for quite ambitious-sounding infrastructure projects, on the one side, and the realization of those plans, on the other side.

Regarding cables, there has been no lack of projects for Arctic (undersea) cables, both for the purposes of increasing internet access for Arctic communities, as well as for purposes that are decidedly 'global', such as facilitating high-speed trading between North American and Asian financial markets through trans-Arctic cables. However, most of these projects thus far have dropped dead for various reasons, creating a noteworthy gap between ambition and realization thus far (see, for example, Middleton/Rønning 2022).

The situation seems to look quite different when it comes to another area of broadly Arctic global cyber infrastructure, namely the construction of large server farms in the context of the massive built-up of such infrastructures in the course of the massive increase of demand for server capacity worldwide. With 'Arctic' here conceived more broadly in terms of climate and temperature in order to include the Nordic countries, this area of infrastructure construction seems to flourish. Building large server farms in cooler environments is intended to bring down the energy consumption of server farms due to less demanding cooling requirements (see Upham et al. 2023). Constructing them in areas with a good availability of renewable energies contributes to the (at least partial) 'greening' of such extremely energy-consuming technologies (for a programmatic sales statement, see Christensen et al. 2018).

Despite a long and extensive discourse about the future of Arctic shipping due to the prospect of rapidly, and permanently, disappearing summer sea ice, the infrastructural consequences of anticipated dynamics regarding the polar re-routing of ship traffic seem to be more limited, if visible. For the time being, the possibility of annually, and

locally shifting ice/pack conditions seems to prohibit reliable planning regarding the use of the Northern route and the Northwest Passage, or require quite costly icebreaker assistance. Notable projects notwithstanding, such as the development of Nome into the U.S.'s first Arctic deep-water port, port infrastructure development seems more incremental, reflecting the thus far mostly regional relevance of trans-Arctic shipping. It is to be expected that significant change, while foreseeable, only will take place if the central Arctic Ocean becomes reliably ice-free during the summer months, presenting a significant alternative to the Panama Canal route. However, such a development would in turn not require significant (port) infrastructure development in the region itself.

While not 'big' in terms of actual visibility, there arguably also exist 'symbolic' infrastructures in the Arctic that underscore its global relevance: the prime example that comes to mind here would seem to be the Global Seed Vault in Svalbard. Built as a global archive for all kinds of seeds to be preserved under permanent freezing conditions (but plagued by permafrost thawing issues), the vault has become an iconic marker used in a variety of depictions (in spy movies, novels, etc.).

Antarctica is far more marginal in respect to actually existing infrastructure. However, things might be changing in this respect. On the one hand, there are now first serious discussions about linking Antarctica to the virtual world by laying an undersea cable. On the other hand, and far more important in its immediately visible global implications, are a range of massive geo-engineering proposals in order to, most notably, try to stem the collapse of the West Antarctic ice sheet (e.g. undersea 'curtains' to stem the flow of ice into to the sea; cf. Naughten et al. 2023; also Flamm/Shibata 2025). Another notable development in terms of research infrastructure seems to be developing in the context of planning for a 2032 International Polar Year, which emphasizes the need for a wide-ranging integration of research infrastructures (not going so far as to propose, most notably, an international research station, however).

5.4 Conclusion

In the context of the present volume, the present chapter has had both an illustrative as well as an exploratory character. Its illustrative part demonstrated how WMPs play themselves out in the polar regions. The WMPs referred to here were the 'classical' ones competing for the formation of order in world politics, that is an internationalist, an imperialist, and a nationalist one. The more exploratory part follows the path of 'nascent' WMPs, asking how the regions in focus might themselves follow the nuclei of emerging WMPs. The purpose here, however, was not to postulate a sharp divide between 'classical' and 'nascent' WMPs, but to demonstrate how these are interwoven (and if a reminder of how they are was needed, it was provided by the new Greenland ambitions by the US president that were aired while this chapter was drafted). Most importantly, however, the chapter has sought to trace how WMPs interact through, and are in turn supported by, infrastructures and their development. In the polar regions, just as everywhere else, there is no 'worldmaking' in world politics that would not be expressed through infrastructures.

In case one follows the argument that something like 'polar' WMPs, even in nucleus form, might seem like an (albeit distant and literally remote) possibility, then a next step might be to wonder whether what we witness in the polar regions might not resemble something that at its core represents and anti-imperialist drive. As such, that would possibly offer a distinct imaginary of world ordering that leaves behind those that seek to re-ground contemporary world politics firmly in imaginaries of the nineteenth century.