

ARCTIC ISLANDS, ARCHIVAL EXPOSURES

(On Jan Mayen, Bjørnøya, and Hopen islands)

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ABSTRACT: This article examines a selection of coastal sites on Jan Mayen, Bjørnøya, and Hopen, three remote Arctic islands, in an investigation of the material changes to these vulnerable environments over time. To engage with these changes, I journey through “geographies of knowledge” by mediating between historical photographic archives and contemporary site analysis. Based on recent fieldwork on these islands, I propose an extension of existing conceptual framings in landscape architecture site analysis to include perspectives and agencies of non-human actors/participants/objects and processes. This allows me to focus on the materiality and temporality of site analysis. My investigation provides insights into the types of changes that have occurred, whether natural and anthropogenic. It argues for the relevance of in-situ research in landscape studies that allows one to engage more affectively, critically, and interpretatively with landscape. Through descriptive and illustrative means, the inquiry extends beyond the boundaries of archival material to present situated, embodied, and relational knowledge and thereby renew our understanding of these coastal sites.

KEYWORDS: Arctic coastlines, history, photography, time, materiality, fieldwork, landscape, geographies of knowledge, Jan Mayen, Bjørnøya, Hopen.

I. Background and focus

Represented by a host of fierce sea monsters in 16th Century cartography, the Arctic has become the site of a very different kind of foreboding.¹ Having previously been construed as a mysterious, inhospitable, and largely unknown region, it now points towards unprecedented change in a very vulnerable environment. Although past and present representations mediate what the Arctic is or could be in very different ways, they certainly all stimulate the imagination. Today, the polar regions resemble large, icy Petri dishes under the scrutiny of scientists and politicians. These regions have been referred to as “barometers” or indicators of climate change because of the significant transformations that are increasingly evident there (Wehrmann, 2016). These changes, thus far, have included retreating glaciers, melting sea ice, thawing permafrost, migration of people, changes to eco-systems, and alterations in weather patterns. If we increase the magnification of the Petri dish, we observe numerous islands and archipelagoes in the Arctic region, three of which will be examined in this article.

¹ See Bonnet (2018) and Waters’ (2013) discussion of the *Carta Marina*, 1527-39.

The Norwegian Arctic islands of Jan Mayen, Bjørnøya, and Hopen are all showing the effects of a warming climate. Meteorological stations are located on all three islands. A comparison between the historical weather data and present-day weather observation records confirms significant changes to the climate in this region. It is the fragile edges of these islands that have proven to be particularly vulnerable and where notable physical and material change is evident. As a landscape architect researching the material and temporal changes of these Arctic coastal environments, I examined the practice of knowledge-making. Landscape architecture is a future-oriented profession; more often than not, it begins by considering the present before projecting ideas and designs into the future. However, as landscape historian John Dixon Hunt warns, “history impacts a site even before the designer makes his proposals for it” (2014: 16). He outlines the diverse and intertwining time frames within which the geology, topography, and climate of a given landscape are shaped and transformed.

In this article, I examine a selection of island coasts. I argue that in order to understand the changes that we see today, knowledge of the islands’ histories is necessary. Visiting these islands, it is easy to assume that changes-spurred by a warming climate are the main culprit that has caused destruction along these coasts. However, the consequences of the islands’ political history, notably during the Second World War, have played a significant role in what we encounter today. The material changes to these coastlines reveal disturbances of deep time geologies; the weathering of materials that were once alien to the islands such as timber, steel, concrete, and glass, and the gradual mixing and morphing of these materials, have generated new ecologies.

Therefore, as a starting point to this research, the history of the islands will be brought to the fore through the use of historical photographs. Early photographs of the islands were predominantly taken by scientists visiting them at different times from the late 19th to the mid-20th centuries. Through these various scientific lenses, a diverse and expansive photographic collection has been left behind. Five collections, located across Norway, were accessed for this study and will be elaborated on in Section IV. This historical context gives us insights into how the islands were used and what purposes they served. To assess how their coastlines have transformed over time, I visited the sites where the photographers had stood. Through the processing of these physical and material dimensions of the coasts, the experiential layer of fieldwork became a dynamic component of working in different knowledge-making environments. In my research, I draw on the different perspectives of my professional background as a practitioner, teacher, and researcher of landscape architecture. This influenced the mixed qualitative and interdisciplinary methods that I used (Brink et al, 2017; Lury et al, 2018). The study follows a sequence of ways of doing and knowing that were adapted to each site that I studied. The three Arctic islands I worked with were selected for a number of reasons. Prior to knowing their specificities, I knew that many heritage sites on these Arctic islands were increasingly under threat from climate-related phenomena (Barr and Chaplin, 2004). I wanted to know how these sites had evolved over time: what they had been used for, and why, and what they had become. Many Arctic islands have a rich scientific history, and the three islands that I selected were of particular interest as a number of meteorological stations had been established on them at different times.

I visited the island of Bjørnøya in 2017 as a preliminary pilot for this study to explore situated fieldwork with these coastal settings. I subsequently carried out three iterative studies on Bjørnøya, Jan Mayen, and Hopen in 2018. Each visit to the islands informed and improved the way I worked and collected information. The combination of working with

historical photograph archives and different fieldwork practices meant that many different methods were needed for this project. The study brings together photographic archival research, site observations through photography and field notes, and personal reflections on knowledge building as I traversed different sites of knowing. The work presented uses different rhetorical techniques, styles of writing, and forms of imaging as a response to the changing sites of knowing that I worked through.

II. Approaching an Arctic island site

To negotiate this transition between the history of Arctic island coasts and their present-day conditions, I argue for a relational approach to the analysis of these specific coastal landscapes. This relational approach opens a dialogue between object and subject, the tangible and the intangible, as well as the human and nonhuman. These relations expose the different temporal and spatial complexities that exist in the study of Arctic islands. There is an emerging body of work in island studies that expresses a “relational turn” in the way we research and study islands (Hayward, 2016; Pugh, 2018). One interesting example of a relational approach to islands via on-site experiences is the work of writer and cartographer Tim Robinson. Robinson developed intimate readings of the landscape in the Aran Islands off the west coast of Ireland through the merging of deep historical research, cartography, and personal writings (Wylie, 2012; Gange, 2019). In a similar vein, there are approaches applied in landscape architecture that incorporate the in-site experience of the designer into the design process.

One such approach is the notion of *trace concepts*, which was coined by the landscape architect Christophe Girot² in 1999. Briefly, the four concepts Girot proposes are:

- *Landing*, relating to the initial site reconnaissance and moves from the unknown to the known;
- *Grounding* referring to reading and understanding the site;
- *Finding* entailing the act of discovery, whether that is something physical on the site or an idea emerging;
- *Founding*, the synthesis of the previous three concepts where the designer brings something to the site.

The main merit of this approach is that the designer’s experience and intuition play a central role in the analysis of the site. The downside, in light of the Arctic island context that I work within, is two-fold. Firstly, these concepts are very much focused on an individual site with the assumption that it has a defined boundary. In an Arctic island context, the boundary cannot simply be a coastline that defines the island’s edge. Instead, the messiness of this ragged edge must be considered. Secondly, the concept may be considered as manifesting a very anthropocentric approach. Although it encourages the designer to consider the nonhuman, it is really the designer’s experiential reaction to the site that takes precedence.

² Girot’s approach is widely used and taught in landscape pedagogy (see Herrington, 2019). The concept was born out of an observation that “a site project has all too often been reduced to systematic and quantitative formulas for analysing the site from a distance” (Girot, 1999: 65).

In his essay 'The Lure of the Island', Godfrey Baldacchino provides a rich description of the shore as "a dynamic interface" where "histories and ecosystems collide"; he presents the shore as an environment that is in constant movement and continually shifting, depositing, and eroding material (2012: 59). A shore necessitates descriptions and engagements that are different from our understandings of land, as a more stable entity, and the sea, as a more fluid and unpredictable medium. Working in such distinct environments, it was important for me to consider the complex interconnection of time frames – from the geologic timescales in which the islands emerged to the ephemerality of the weather conditions affecting the experience of fieldwork. Guided by the overarching knowledge that a climate emergency is actively playing out on these islands, my study operated on a local level to assess site-specific conditions, characteristics, and contexts. This level of detailed analysis, I argue, is necessary to truly uncover the realities and complexities of what is happening to the islands now. In other words, they must be viewed in a number of spatial and temporal dimensions.

Consequently, the remainder of this article is structured as follows. Section III offers an overview of the imaginaries and realities of Arctic islands. It briefly traces how the Arctic has been imagined pictorially and textually over time. The representation and discourse surrounding these islands have always been very much centred on science and politics. The section proceeds to outline the problematics of the scientifically driven representations of the Arctic. Rather than attach fixed characterisations to the islands, it reasserts that islands, like all landscapes, are always in a process of becoming. It argues that to understand the present a retrospective reading of these coasts is required.

In Section IV, I read the rich histories of these islands to contextualise the changes that have occurred over time whilst the more visual and tangible layers are exposed through photography. The history of the coasts is activated through historical and contemporary photography. I utilise a selection of these archival photographs and compare them to contemporary photographs that were taken during my visits to the islands in 2018. The experiential layer is woven in through this process as I move between the historical archive and the contemporary site.

In the Section V, my journeys to the islands are linked to what Doreen Massey (2011) refers to as "geographies of knowledge", where knowledge produced in the indoor setting of the photographic archive expands and deepens as it transfers to the island sites. The study is not exclusively about the embodied experience of the researcher in the field but reaches out to the nonhuman objects of the photographs as it moves through these geographic sites. In turn, perception of the coasts is transformed through this tempo-spatial journeying. The encounters with the historical photographic archive, the people working at the meteorological stations, and the coastal sites themselves are all described as different geographies of knowledge that lend themselves to building a new understanding of the present islands.

IV. Being and becoming: Arctic island imaginaries

The Arctic has never failed to fascinate and unsettle Western perceptions of the far North. Steinberg, Tasch and Gerhardt use the term *imaginaries* to describe "ideas of what the Arctic is, and what it can be" (2015: 6). These imaginaries, however, are always

transforming, as is evident when we consider how the Arctic has been illustrated and described. The infamous *Carta Marina* from the 16th Century provided a wild display of fearsome sea monsters emerging from the seas of a largely unknown region (Figure 1). Books and diaries from early polar expeditions also convey colourful accounts. The Marquess of Dufferin, for example, described English Bay in Spitsbergen as a place where “no atom of vegetation gave token to the earth’s vitality... I suppose in scarcely any other part of the world is this appearance of deadness so strikingly exhibited” (1856: np). Some decades later, Hjalmar Johansen, accompanying Fridtjof Nansen to the far reaches of the Arctic, reflected that it would “have been most interesting to be able to bring home with us the voice of this generally silent desert of ice, groaning in anger, as it seemed, because mankind had ventured to force their way into it to lay bare its hidden secrets” (1899: 65).



Figure 1 - The 1530 *Carta Marina* depicting the Arctic as a largely unmapped region full of perilous sea creatures threatening the voyager’s northward pursuits. (Source: https://en.wikipedia.org/wiki/Carta_marina)

The detailed, situated accounts of the Arctic give great insights into the thoughts of the early travellers and explorers as we get a sense of the stark and unfamiliar environments they found themselves in. Their accounts also contributed to the “popular framing of the Arctic as a place of extremes, a last frontier with pristine but dangerous nature...” (Wormbs, 2018: 5). If we fast-forward to today’s Arctic scenario, we must question whether our imaginaries have really changed all that much. Climate reports describe the Arctic as a region undergoing unprecedented warming, which has resulted in a fractured and

increasingly fluid environment. Our imaginaries, as a result, have shifted to a preoccupation with ecology, tourism, oil and gas exploitations, political territorial claims, etc. (Schimanski and Spring, 2010). The underlying feeling of unknown futures, however, has been retained, albeit in a different guise.

Knowledge about the Arctic is nowadays conveyed largely through scientific/cartographic representations. Geographer Denis Cosgrove expresses concern over a disconnect that exists between human experience and the maps illustrating statistical information. He extends these concerns to our use of Google Earth, which gives “a strong illusion of real presence that simultaneously distances us from the animate world” (2008: 29). On the one hand, we have increasingly precise maps; on the other, there is a groundlessness in these statistical media. Architect Alessandra Ponte adds that these technologies lead to “the almost total suppression of the materiality of the cartographic representation” (2017: 209). In a related manner, Tim Robinson’s aforementioned consideration of time and space shows a deep understanding that the landscape is in continual motion and in a process of *becoming*. In the Arctic, where the landscapes and oceans are experiencing flux and fluidity, I looked beyond the map and instead strove for situated readings of the three Norwegian islands. The research conducted on these islands became a multi-spatial, time-travelling journey where knowledge of specific sites thickened in sense and meaning. However, it thereby also raised questions on the future imaginaries for these vulnerable coastal edges.



Figure 2 - The 1696 *Terra Artiche* map of the Arctic region. Source: © Norwegian Polar Institute

In accounts of 19th and 20th Century Arctic exploration, the islands of Jan Mayen and Bjørnøya are mentioned, as is Hopen, though to a lesser extent. The early maps point towards ill-defined blobs suggesting some landmass existed at these approximate locations (Figure 2). But over time, as explorers, hunters, and geologists became more acquainted with the islands; cartographies were gradually and meticulously plotted. The three islands in question are remotely scattered across the High Arctic³ between the latitudes of 72°N and 76°N (Figure 3). Unlike other Arctic regions at similar latitudes, none of the islands has permanent residents. In fact, temporary habitation has been the norm throughout the past 400 years in this region of the Norwegian Arctic. The islands have experienced waves of different visitors over the centuries who have occupied the coasts by establishing huts and stations.

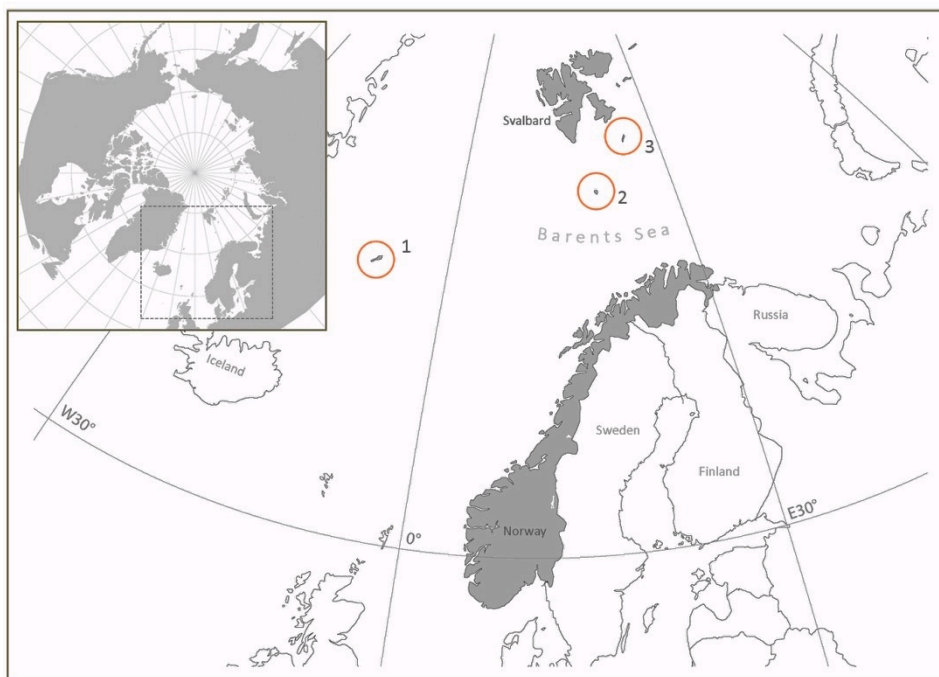


Figure 3: Map illustrating the location of the three Norwegian Arctic islands of 1) Jan Mayen; 2) Bjørnøya, and 3) Hopen, which lie to the west and north of mainland Norway.

There is a meteorological station on each of the islands. Additionally, on Jan Mayen there is a Norwegian Defence Force base (*forsvaret*). The only inhabitants of the islands - meteorologists, military personnel, cooks - work at these outposts for six months at a time. Researchers make short trips to the islands, particularly during the summer months, when the days are long and outdoor working conditions are optimal. The meteorological stations have been in operation for around one hundred years, allowing present-day researchers a good overview of climatic trends.

³ The High Arctic may be described as the northernmost part of the Arctic. For definitions of the Arctic, see, among others, Barr and Chaplin (2004) and Grønnestad (2016).

The meteorological data collected at these stations confirms that the islands are currently experiencing warmer seasons in line with general trends witnessed in the Arctic (Holmén, 2018; Kovacs and Bjørge, 2018). The reduction and retreat of sea ice, caused by rising temperatures, has meant that the coastlines of the islands have become more vulnerable to the full ferocity of storms with no ice for protection (Fang et al, 2018). This has hastened the action of coastal erosion, which has already damaged and continues to pose threats to the buildings, infrastructures, and heritage sites. With the physical destruction evident on the islands and the scientific confirmation of climate change from the meteorological stations, the specifics of these material changes over time warrant further investigation.

In landscape architecture, it is common practice to examine chronologies of maps linked to the particular site of interest to see how it has developed over time and expertise and skills in dealing with visual media are well developed. However, spending time examining the history of a site is not regarded as a priority by many practitioners. Landscape historian John Dixon Hunt (2014) has written extensively on the importance of reading the history of a site through its many and varied time frames, which include the scales within which geological, topographical, and cultural change takes place. It is easy to picture the geological and topographical character of remote Arctic islands because of their increasing presence on television and the Internet. The cultural layers that go beyond the contemporary are more difficult to imagine as it is easy to assume that these islands, due to their remoteness, were devoid of life. However, “the Arctic has felt the footsteps of men along most of its shores... even though the prints may not immediately be visible to the trained eye” (Barr, 2004: 18).

To engage with the history of the three islands, I principally worked with photography in an attempt to allow the past to inform the present. Prior to visiting the islands, I spent time researching historical photograph collections. The purpose of looking at these photographs was to examine what the coastlines of the three selected islands had been like in the past, how and why people had engaged with them, and what remains of their histories today. The consequences of these histories impinge on our current perceptions and experience of the islands and establish a reality against which future imaginaries can unfold.

IV. Histories, photos, and archives



Figure 4 - Geological exposures and human activity on the islands of (left-right) Jan Mayen, Bjørnøya, and Hopen. (Sources - left to right - Norwegian Polar Institute, Svalbard Museum and Svalbard Museum.

Bjørnøya, Hopen, and Jan Mayen have a rich collection of historical photographs dating back as far as the 1870s. Through this research, I engaged with five historical photograph

collections that are held in the archives of Svalbard Museum, the Norwegian National Library, Tromsø Museum, as well as the Norwegian Meteorological Institute in Oslo and Tromsø and the Norwegian Polar Institute. The historical photographs in these archives depict how people have lived differently on the islands for decades and provide insights into how the coasts have been used and modified over time (Figure 4).

The photographic archives at Svalbard Museum, the Norwegian National Library, Tromsø Museum, and the Norwegian Polar Institute have been catalogued and digitised and are publicly available online. Each of the digital photographic databases provides different interfaces. The collection from the Meteorological Institute is less formalised. At the main office in Oslo, part of the collection has been digitised.⁴ At the Meteorological Institute in Tromsø, an analogue system is in place where ring-binder photograph albums are labelled with the names of the islands. The folders that I had access to amounted to eight albums. It is difficult to know exactly how many historical photographs exist in the above institutions, mainly because many of the photographs are vaguely and, very often, incorrectly categorised, but they amount to at least a couple of thousand.

The first significant group of photographs produced in the early 20th Century was mainly taken by visitors who were sent to survey the islands and examine their geology. Unfortunately, a great number of the historical photographs from this period have unnamed photographers. However, some names repeatedly mentioned include Gunnar Horn (a petroleum geologist), Thor Askheim (a surveyor), Johannes Lid (a botanist), and Paul Berge (a photographer who joined geologist Adolf Hoel). This period in Arctic history, the early 1900s, was a time when visitors to the islands were primarily seeking out the natural resources for potential extraction. A small number of historical photographs have been printed in books describing the history and geography of Jan Mayen, Bjørnøya, and Hopen,⁵ but the vast majority remains in the archives.

The photographs from this period are formal in character. Images of the scientists show clean, well-dressed gentlemen sometimes posing with their cumbersome scientific equipment. There are glimpses of other people on the islands, too. For example, from 1916-25, a mining village on Bjørnøya called Tunheim was in full operation. A large number of photographs exist from this period across the archives. There are photographs of the men working in the coal mines. Some of the photographs are very casual, showing the men with their hands in their pockets and looking grimly at the camera. Other photographs show the miners at work, their weary, blackened faces lit by the flash of the camera.

Over time, the quantity of the photographs increased and the content began to differ, too. From around the 1950s onwards, there are more photographs that depict how the people at the meteorological stations lived. Photographs of the meteorologists conducting their work, for instance launching weather balloons outside the stations, increasingly appear. Activities involving visitors to the islands are also present. The arrival of boats at the islands was evidently an event that warranted taking a photo: from a blip on the horizon to the gradual presence of new people and supplies, it inevitably caused a stir of excitement. Other scientists made short visits to the islands to conduct fieldwork pertaining to ornithology, geology, heritage, cartography, seismology (on Jan Mayen) etc. Over time, more leisurely accounts were added to the archives, such as the meteorologists playing

⁴ These files may only be viewed during an arranged visit to the Norwegian Meteorological Institute.

⁵ Historical photographs appear in books about Jan Mayen (Barr, 1991), Bjørnøya (Kjelldahl, 1973), and Hopen (Søreide, 1994).

with polar bear cubs, while others show fishing, hiking, and skiing activities. With regard to the visitors and inhabitants of these islands, one could argue that very little has changed as today's interests are also largely scientific. While the search for natural resources in the early part of the 20th Century was terrestrial, today the vast seas surrounding the islands have attracted much interest from the petrochemical industry with new surveys constantly being expanded and updated.

The first step in dealing with this large and diverse photographic archive was to select relevant images that displayed the coast. This meant discarding all photographs taken inside buildings or cabins and many that were taken in the inland areas of the islands. This process greatly reduced the number of photographs to work with. Following on from this, I printed the selected photographs onto A4 paper to examine the resolution quality, the format of the photograph, and the angle of view. Choosing photographs that provided a generous width of coastline, I reduced my selection to ten photographs for each of the three islands. These were re-printed and placed into individual A4 plastic sheets that I took with me on my fieldwork.⁶ Systemising all of the photographs to A4 format suited my needs for outdoor fieldwork. It allowed the smaller photographs to be enlarged so that details could be examined, which eased the process of re-photographing the places where the original photographs had been taken.

Prior to my travels, I familiarised myself with the islands by closely studying maps and aerial photographs to get a sense of the topography and the types of coastlines that existed on each island. Engaging with the photographs and maps was my first encounter with the islands. The historical photographs fuelled my island imaginaries as I could scrutinise images of past constructions and past human activity while beginning to anticipate contemporary realities. My knowledge of the islands was starting to develop and inform a new sense of site-specificity through the details of the interaction between the people and the three coastal places as well as the built and natural topographies.

V. Shifting geographies of knowledge: From the cabinet to the island outpost

Examining archives in isolation leads to a certain abstraction. This abstraction generates information but also represents "a loss, an abstraction from the complexity and richness of use, a loss of context" (Sekula, 2003: 444). Each historical photograph in the archives that I explored had been removed from its original context. In this study, I embed archival material back into the site in an attempt to release and expose the rich dynamics at play between past and present, indoor and outdoor. In a personal account, human geographer Gillian Rose describes her experience and engagement with historical photographs in different contexts – a museum archive and her own study room, where she interacts very differently with the material (Rose, 2000). Writing about the museum, she describes the formality and stability of the space, which resulted in a tension between her and the historical photographs. Recounting her experiences in the study room, conversely, she describes the historical photographs as becoming part of herself. Her embodied experience of working in different contexts and the materiality of these spaces affected her interpretation of the photographs.

⁶ Printing all of the varied photographs onto the same format (A4) and same paper felt a little crass as an entire material layer belonging to the original print was removed in this process. Of course, the digitisation process generally leads to this problem.

This awareness of working in different contexts chimes with Massey's discussion of fieldwork. Distinguishing between "the cabinet" and "the field", she associates the former with a study or laboratory and the latter with outdoor exploration. Crudely put, "the field" indicates immersion and "the cabinet" distance. These contexts are "spatialities of knowledge-production" or "geographies of knowledge" (Massey, 2011). Massey stresses that both locations are very much connected and not isolated from one another. The transfer from one geography of knowledge to another brings with it different conditions to work in. The indoor environment where I examined the historical photographs was quiet and had a thermostat to ensure a comfortable temperature to work in. "Out in the field, however, in real life and real-time, the researcher has to deal with the endless number of interconnected phenomena that are all in uncontrollable motion" (Rekittke, 2015: 57). This heightened awareness of what is happening to the photographs as they transfer from one geography to another changes the way in which the photograph itself and the context to which it belongs – and belonged – are interpreted.

During my fieldwork excursions to the islands, I stayed at the meteorological stations. Through my historical archive work, I had imagined and expected to land in more unfamiliar territory. I had envisaged a more basic form of life in these remote outposts and had attached a sense of hardship to the idea of living here. In reality, the way of life there was more hospitable with photographs, maps, and enormous bear hides adorning the walls of the stations. There were aerial photographs of the stations and, more noticeably, group portraits of the different teams that had worked at the stations, spanning several decades. I was also introduced to a large collection of photo albums that had accrued over the years. Unlike with the historical photographs that I had become accustomed to in the various museums and institutions, looking at these was more akin to viewing a family album. Each album was labelled by season and year for each group that had worked at the station. The pictures were predominantly of the people there celebrating birthdays, Easter, and Christmas alongside activities such as fishing, hiking, skiing, etc. Already I was experiencing a contemporary version of what I had seen in my historical archives. Although the activities of the meteorologists had changed very little, there was now a less formal air to the photographs.

It took many months to prepare a visit to each of the Arctic islands. I travelled to the islands with the Norwegian Coastguard. This involved many days at sea. For example, it took three days to travel from mainland Norway to the island of Jan Mayen. For my trip to Bjørnøya and Hopen, I flew from Oslo to Longyearbyen in Svalbard, where I met the Norwegian Coastguard, and from there we sailed to the islands. On my arrival at each island, I met with the staff of the meteorological stations and discussed the historical photographs with them. All of the photographs plus a map of the island were placed on a table in an effort to establish where the photographs were likely to have been taken. Unfortunately, some of the places in the photographs that I had chosen prior to travelling to the island could no longer be selected as sites to visit because of accessibility issues, or they could not be reached in the time frame that I had for my fieldwork. Spending time with experts at the meteorological stations to discuss the contexts from which the historical photographs had originated gave me new perspectives on the sites. It sparked discussion and concern about the changes that had been happening along the coasts in recent years. The knowledge that I had gained through my desktop or "cabinet" research was starting to become more specific, local, and real from the moment I arrived on the islands.

For Massey (2011), “discovery/construction/transformation” takes place when the researcher enters “the field”. She makes a convincing case that the field is not waiting to be discovered. Instead, it has already been previously constructed and it is the aim of the researcher to reformulate this construction in order to open up new ideas. Rather than the unknown, the space entered by the researcher is more akin to the not-yet-understood (Massey, 2011). Transferring across these different sites of knowledge, from the first site (the archive) to the second site (the meteorological station), was already creating a renewed sense of what to expect from the third site: the location of the historical photograph.

VI. Embodying island coasts

When I found the locations where the historical photographs had been taken. I recorded my experience and thoughts in a notebook in the form of fieldwork notes. The following descriptions are excerpts from my fieldwork notes that reflect on three historical photographs and the sites where they were taken.

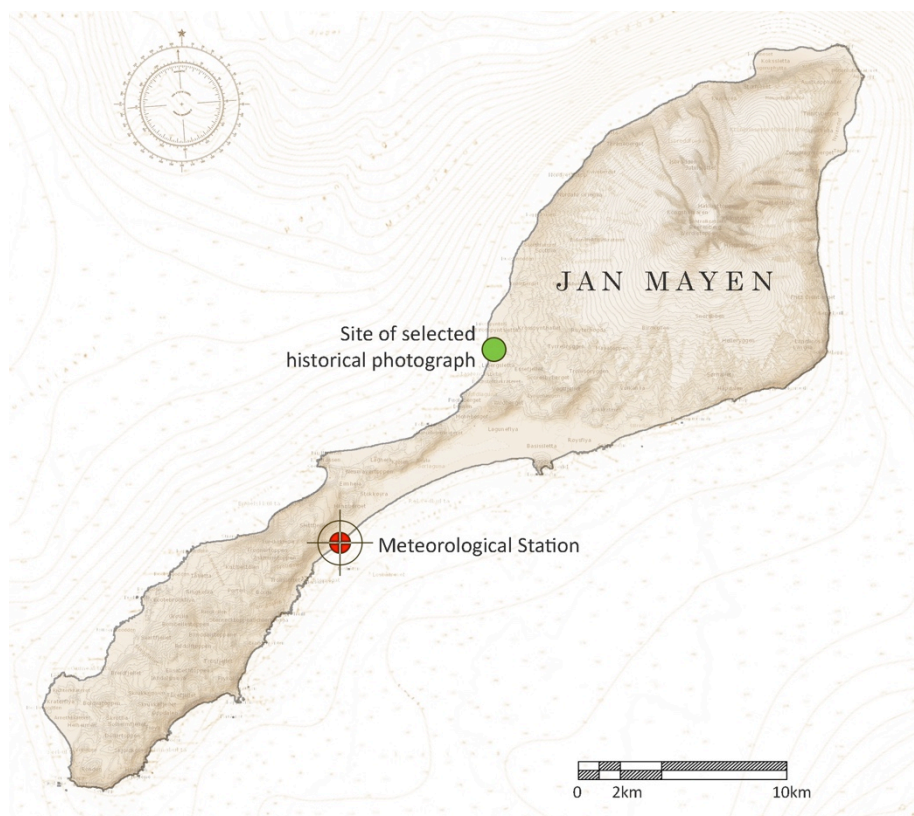


Figure 5 - Map of Jan Mayen indicating the location of the meteorological station and the site where the photographs, fieldwork notes, and sketches were taken, written, and drawn. (Developed by the author from base maps provided by Geonorge and the Norwegian Polar Institute.)

I am very fortunate to have a guide from the meteorological station accompany me on my visit to the western part of Jan Mayen. I am eager to see the former weather station, Gamle Metten, perched above Nordlaguna. When we arrive at the station, I am pleasantly surprised to see most of the buildings intact although severely weathered by the wind, sun, rain, and everything that the weather can throw at this exposed clifftop site. It is very breezy and cool as we look at the expansive volcanic beach below. As we approach a tall wooden structure on the cliff edge the ground suddenly drops to the beach below with large boulders piled up at the base. My colleague informs me that the wooden structure was constructed for the weather station to winch goods from the beach. We carefully navigate our way down the unstable slope to the beach, where I begin to scout around for the same location as my predecessor, Kaare Z. Lundquist, in 1949. The weather is much calmer on the beach and the sea appears as a glassy glaze. Looking up at the wooden structure is overwhelming – the scene before me is almost unrecognisable in the historical photograph in my hand. From this view, massive chunks of the coast have been chewed away by the sea. I record my location at 71° 0'44.41"N; 8°27'53.38"W. Studying the historical photograph again – the buildings, driftwood, people that enlivened this place were long gone. The sea had successfully removed their traces. How long would the wooden structure that resembled a beacon remain standing, I wondered?⁷ (Fieldwork notes, 7th August 2018.)

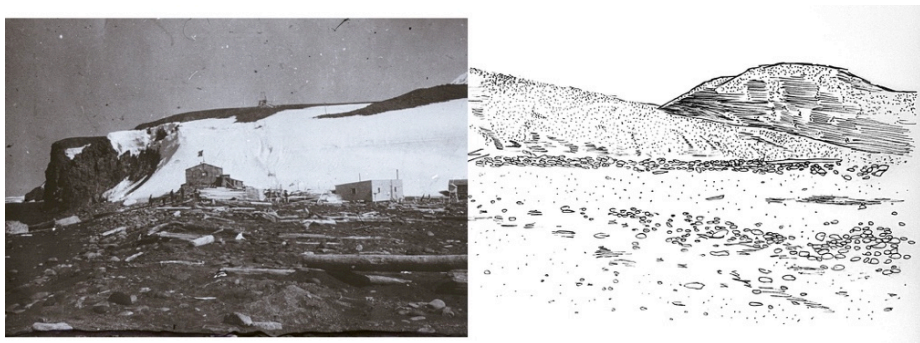


Figure 6 - Illustration combining the historic photograph of Gamle Metten (top of hill) on Jan Mayen with a sketch I made during fieldwork. Left, photograph by Kaare Z. Lundquist (1949), Norwegian Polar Institute; right, sketch by Eimear Tynan (7th August 2018).

⁷ Gamle Metten, the old meteorological station located on the west side of Jan Mayen, was in operation from 1949 to 1962.



Figure 7 – Author’s photographs illustrating how the Gamle Metten site appeared in 2018. Left, photograph taken from the same location as the historical photograph in Figure 6 (above); right: three small photographs showing details of the material composition of the site, where there is a mix of vegetation, volcanic rock, and plastic debris that has washed ashore, almost imitating the forms of the rocks around it.



Figure 8 - Map of Bjørnøya indicating the location of the meteorological station and the site where the photographs, fieldwork notes, and sketches were produced. (Developed by the author from base maps provided by Geonorge and the Norwegian Polar Institute.)

Standing N74° 28.971' and E019° 11.075 according to my trusted GPS gadget, I don't attempt to step any closer to the cliff edge. I am quite sure, but not certain, that my predecessor who took the photograph was standing on a cliff edge that has since collapsed into the sea below. There is a light breeze from the east, which reassures me that I won't blow off this perilous edge. As I look out to sea, the water is a plane of blue calm but it still manages to brew up some loud waves that crash upon the crumbling cliffs. I stand here contemplating the striking absence of the harbour, the ship, the miners, the toil of everyday life that was surely tough on this desolate part of the island. The ground collapsing into the sea catches my attention as I wander around this site, skirting the large rocks that appear to be firmly stuck in the ground, embedded in fine, firm clay. Some of these rocks have shattered into horizontal and vertical patterns, presumably from the constant seasonal freeze-thaw action in these Arctic conditions. Near the harbour itself, strips of sun-bleached timber illuminate the blackened ground of the chipped coal deposits. And then, a collection of tubular geologic cores lie broken and cracked in a small pile reminding me of Robert Smithson's Non-Site collection of rocks.⁸ Even though I am fully present in the site, there is a feeling of non-site within me as I imagine I have stepped into a collapsed and broken-down archive that overwhelms me – I am here but at the same time I am anywhere but here!⁹ (Fieldwork notes, 28th August 2018.)

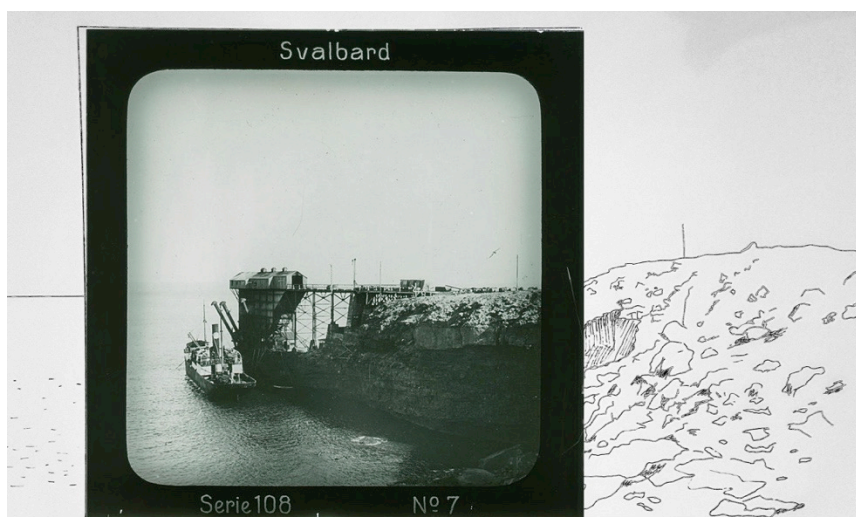


Figure 9 - Left: Photograph by unknown photographer (c1920-1930), Svalbard Museum; right: author's sketch (28th August 2018).

⁸ See Pantaleon (nd) for discussion.

⁹ Prior to visiting Bjørnøya, I learned that approximately 100 years ago the short-lived mining village of Tunheim was in operation. A wooden harbour with a concrete base was constructed to facilitate the export of coal from the mine that was intentionally destroyed by British forces during the Second World War, along with the village, to prevent Germany from using the site as an Arctic base.



Figure 10 – Author’s photographs illustrating how the site appeared in 2018. Left, photograph taken from the same location as the historical photograph; right: three small photographs showing details of the material composition of the site. The former railway track linking the mine to the harbour is in a rusted state today with derelict carriages still standing on the tracks. There is also evidence of geologic cores that now remain open.



Figure 11 - Map of Hopen indicating the location of the meteorological station. The site where the photographs, fieldwork notes, and sketches were taken, written, and drawn is adjacent to the station. (Developed by the author from base maps provided by Geonorge and the Norwegian Polar Institute.)

My final day on Hopen. There has been fog on the island all morning but finally, the sun came through so I could continue my repeat-photography exercises and sound recordings. The fog prevented me from working outdoors in the morning so I drank plenty of coffee and finally got to talk with some of the meteorologists, the cook, and the maintenance crew who were visiting the island to tend to the weather instruments and computer systems. One of the technicians told me that in 2010 they had been able to drive the tractor in front of the weather station but that the ground has since become too unstable and dangerous. It is evident that the coastline in front of the station is undergoing a lot of erosion. Apparently, 1.5m of this stretch of coastline have been eroded in the past two years – incredible. Some infrastructures such as the helipad have been rebuilt several metres inland from the coast. The reason for the erosion is echoed by everyone I talk to here – less sea ice to protect the coast from heavy seas. It is sad to imagine this island physically crumbling at such a speed. The historical photographs that I have selected from the archives to bring with me here show a very snowy, icy, desolate island. Instead, I am now standing in a grey-brown landscape, listening to the squawking birds by the nearby cliffs and trying to comprehend all the vulnerabilities that climate change is inflicting on this little, beautiful island.¹⁰ (Fieldwork notes, 20th August 2018)

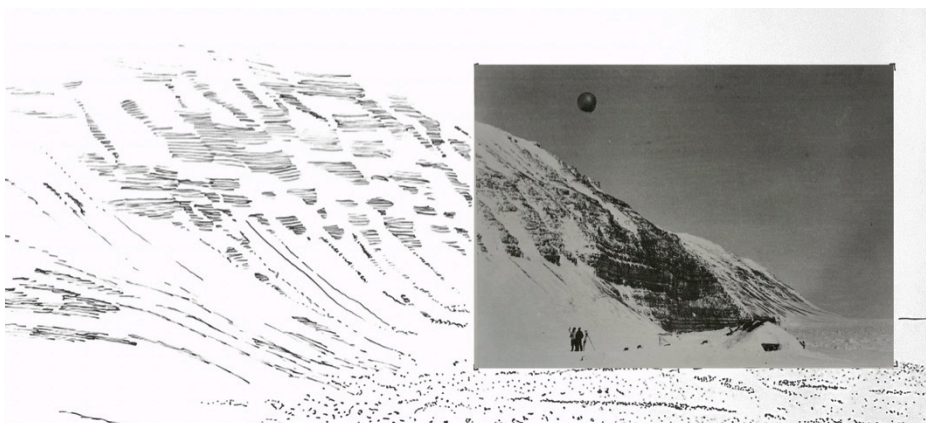


Figure 12 – Left, author's sketch of the site in 2018; right, photograph by unknown photographer (c1930-1940), Svalbard Museum.

¹⁰ The historic photograph shows a weather balloon launch at a German weather and radio station that was operated on the island from 1940 to 1945. No trace of the station is visible today, only small pieces of driftwood are scattered on the raised beach.



Figure 13 – Author’s photographs illustrating how the site appears in 2018. Left, photograph taken from the same location as the historical photograph; right, three small photographs show details of the material composition of the site.

My third geography of knowledge allowed me to finally return the historical photographs to their original contexts. In reality, what I encountered barely resembled the earlier compositions. The human layer that added such a strong presence to the historical photographs had disappeared. The exoticism that had fuelled my ideas of what these places would be like was dimmed. I was saddened a little by the destroyed scenes I encountered. The silence and calm of the black-and-white photographs were prisms that, when I was physically present on site, opened up into spectrums of green, blue, grey, and brown, with squawking seabirds providing the soundtrack to these scenes. The construction materials that had once formed the human layer lay strewn across two of the sites and had become part of the island. Their original use as building materials appeared alien to the island in the historical photographs. Now, the lichen, mosses, grasses, and guano had begun to embed these materials into the island.

Massey refers to the transformations that occur during the fieldwork process. There is obviously a gap in knowledge as to what happened to these sites over time, and I am left to speculate and interpret what is before me. Questions arise as to what changes have occurred between the historic and contemporary scenes, and for what reason. Conceptually, this is like having two similar dots on a page and imagining what kind of line or squiggle will connect them (Ingold, 2007). My way of joining these dots involved walking to the selected coastal sites from my base at the meteorological station. Walking allowed me time to become familiar with the materials around me. On Jan Mayen, it felt a little strange to walk on volcanic stone and sand, where the crunching sounds beneath my feet were very different from those on the other two islands. On Bjørnøya, the journey to the site meant walking along a meandering cliff top for several hours. Going to these sites, I took many photographs to record the journey, and when I reached my destination, I also sketched the scenes that I witnessed. Sketching involved close observation and gathering details of the materials around me. These methods allowed me to gain specific, local knowledge of these sections of the island coasts.

VII. Discussion

The process of moving from cabinet to field extended the temporal and spatial conventions of fieldwork in landscape architecture by combining different sites of knowledge. I will now review the four main categories with which the work may be analysed and appraised.

1) *Journeys through sites of knowledge.* Rather than begin the analysis of these Arctic coastal sites through the conventions of working in a bounded outdoor environment, I started the process as a desktop enquiry into the historical photographs. I used these photographs to mobilise and catalyse the building of new knowledge that could inform the present and help me envisage the future of the island coasts. This established how sections of the coasts had once been used and for what purpose. It required integrating the images with specific readings of the islands' histories. As I journeyed to the next site of knowledge with the historical photographs, contemporary readings of the site were gained through informal dialogue with staff from the meteorological stations. Here, a new layer of knowledge regarding the realities of the coastlines started to unfold as they shared their opinions on how the coasts had changed. Finally, the last site of knowledge involved the immersion of the researcher and the historical photographs in the specific coastal sites. Here, the realities of the material changes to these coasts were observed in situ. The very apparent differences and similarities between past and present could be assessed.

2) *Marking and mark-making.* In this study, I attempted to go beyond the anthropocentric approach that is more usually adopted in landscape architecture fieldwork. I developed a parallel awareness of how I was approaching and entering each site and how the sites themselves impacted on my experience there. This approach resonates with a study conducted by geographer Kathryn Yusoff (2007)¹¹ in which she refers to *marking* as not only physical markings on the landscape but also imprints on people's memories. The analysis of the historical photographs reveals how previous users marked these coastlines through the addition of built structures relating to their particular activities. From some of the initial photographs encountered in the archive, such as those of the miners on Bjørnøya, we can gain a sense of the hardships that were endured as the Arctic environment in turn marked these men. Nicola Whyte introduces time into this discourse on marking. She dismisses the notion of reading time chronologically and suggests that the messiness and chaos of time be embraced because a clear distinction between past and present does not exist when people are constantly engaging with the past in different ways. She proceeds to argue that the movement of people in the landscape involves marking and claiming (Whyte, 2015). This was certainly the case during fieldwork practice on these islands – there was continual interaction with (and distance from) different temporalities as I moved myself and the photographs through different geographies.

3) *Human and nonhuman interactions.* To extend this notion of *marking*, I would like to address contemporary readings of how the historical photographs were marked and of how I was marked by both the photographs and the realities of the site. The historical photographs were marked as they were held down with rocks, a GPS device, or my foot as I tried to align the historical view with my contemporary vision. The photograph scrunched and folded under these materials as it resisted the gusts of wind trying to dislodge it (Figure 10). I felt the photograph and the site made their markings on me as my imaginaries of the site's history were juxtaposed with the stark realities of the island coasts that largely revealed destruction and decay. The materials that I encountered in my fieldwork have inscribed their own stories in the landscape (Figures 7, 10, and 13). As humans have

¹¹ Yusoff's study involved the reading of a selection of historical photographs from an early Antarctic expedition. In it, she refers to "the anxieties of representation that emerge from the interplay between mark making and being marked, and the marks that fall beyond this visual register" (2007: 211).

retreated from these parts of the coasts, nature has advanced to colonise what they left behind. Rather than regard these decaying materials as the remains of something that once was, however, we should consider them as something that is always *becoming* and interacts with the agencies of a changing environment. In addition, as my fieldwork has shown, these materials greatly affect the experience of the space itself. As a researcher encountering decay, erosion, and – quite differently from what I had expected – deposition, I attached new meanings to the sites as they transformed from space to place (see Tuan, 1977). These meanings may be personal, but they open up a larger discussion on the specifics of changing Arctic islands.

4) *Past to future imaginaries*. Apart from the nonhuman objects that are grounded in the site, the nonhuman dimensions of climate change must be considered. The knowledge of a warming Arctic has great significance in how we can anticipate change along these island coasts. On all three islands, I was informed of the increasing threats of sea erosion to the coastal edges. The historical photographs from Jan Mayen and Bjørnøya, compared to today's situation, clarified the destructive power of sea erosion battering the coasts. As the land gradually tumbles into the ocean, the built constructions hasten in their decay. However, there is also a story that speaks of deposition rather than erosion in an increasingly warmer Arctic. Mosses, lichens, and low-growing plants have new opportunities to establish themselves more extensively in these warmer environments. We may assume that the bare, stony earth that currently dominates the islands will gradually give way to a greener veneer.

There is an interesting intersection of different temporalities in the situation just described. The slow geologic emergence that produced the islands is being chipped away at by the seasonal occurrences of storms. The cumulative effect of shifting weather patterns and conditions such as freeze/thaw processes speed up this process of geologic disintegration. Meanwhile, the human layer evident in the built structures that we can still see functioned for as long as the people on the islands needed them. Their abandonment and destruction have given way for new ecologies to establish themselves and the temporality associated with vegetation becomes a new condition to engage with.

VII. Conclusion

The Arctic is under the watchful eye of researchers, scientists, and politicians in the face of global warming. The speed of climate change in these vulnerable environments is unsettling. While the changes are understood on a regional scale, and largely through a scientific lens, this study has paid particular attention to the specificities of such changes on three selected Arctic islands. In order to grasp the types of changes that are occurring along the coasts of these islands, it engaged with time, space, and materiality. Time plays a crucial role in the understanding of what is encountered on the islands today. Learning about their former users and the different political milieus that prevailed at different times helps us understand the material remnants that are visible today. Without a retrospective reading of these coasts, it is very difficult to differentiate between natural and anthropogenic changes. It is therefore necessary to engage with different temporalities for a more comprehensive reading. This demanded a site-specific undertaking with mixed methods, including qualitative and transdisciplinary inquiries.

Through this site-specific way of knowing, an approach interrelating time, space, and materiality emerged. The different aspects of this approach were categorised as follows: 1)

journeys through sites of knowledge, 2) marking and mark-making, 3) human and nonhuman interactions, and 4) past to future imaginaries. It emphasised the temporal and spatial aspects of the Arctic islands through engagement with historical materials, documents, and photographs. In the journeys from the archives to the three island coasts, the agencies that have shaped them in the past and present became ever more apparent.

Earlier, I referred to Baldacchino's description of shores as evocative spaces whose dynamic, interstitial, and liminal qualities allow for new imaginaries to arise (2012: 59). In my relational approach, I became a reader of and active participant in the environment of these island shores. I claim that it is by extending our understanding of the islands' spatial and temporal dimensions that we can engage more affectively and critically with the human and nonhuman agencies of change that have moulded them. Some of them tangible, others intangible, these agencies are active participants in shaping what the islands were, what they are now, and what they may become.

BIBLIOGRAPHY

Baldacchino, G (2012) 'The Lure of the island: A spatial analysis of power relations', *Journal of Marine and Island Cultures* v2n1: 55–62

Barr, S (1991) *Jan Mayen Norges utpost i vest: øyas historie gjennom 1500 år*, Oslo: Schibsted, Norsk Polarinstitut.

Barr, S (2004) 'Polar Monuments and Sites: An Introduction' in Barr, S and Chaplin, P (eds) *Cultural Heritage in the Arctic and Antarctic Regions, Monuments and Sites*, Lørenskog, Norway: ICOMOS IPHC: 18–23

Barr, S and Chaplin, P (eds)(2004) *Cultural heritage in the Arctic and Antarctic regions. Monuments and Sites*, Lørenskog, Norway: ICOMOS IPHC

Bonnet, A (2018) *Beyond the Map: Unruly Enclaves, Ghostly Places, Emerging Lands and Our Search for New Utopias*, Chicago: University of Chicago Press

Brink, A van den, Bruns, D, Tobi, H and Bell, S (eds) (2017) *Research in Landscape Architecture: Methods and Methodology*, Abingdon: Routledge

Cosgrove, D (2008) 'Images and Imagination in 20th Century Environmentalism: From the Sierras to the Poles' in Yusoff, K (ed) *Bipolar*, London: The Arts Catalyst: 10–31

Dixon Hunt, J (2014) *Historical Ground: the Role of History in Contemporary Landscape Architecture*, Abingdon: Routledge

Fang, Z, Freeman, P, Field, C and Mach, K (2018) 'Reduced sea ice protection period increases storm exposure in Kivalina, Alaska', *Arctic Science* v4n4: 525–537

Gange, D (2019) 'Time, Space and Islands: Why Geographers Drive the Temporal Agenda' *Past & Present* v243 n1: 299–312

Giot, C (1999) 'Four Trace Concepts in Landscape Architecture', in Corner, J (ed) *Recovering Landscape*, New York: Princeton Architectural Press: 58–67

Grønnestad, K (2016) 'What Is the Arctic?', *Barents Watch*: <https://www.barentswatch.no/en/articles/Hva-er-Arktis/> - accessed 1st May 2018

Hayward, P (2016) 'Towards an expanded concept of Island Studies' *Shima* v10 n1: 1–7

Herrington, S (2019) A Phenomenological Method for the Landscape Studio, in Jørgensen, K, Karadeniz, N, Mertens, E and Stiles, R (ed) *Teaching Landscape: The Studio Experience* (first edition), Abingdon: Routledge, Taylor & Francis Group: 80–94

Holmén, J (ed)(2018) *Fram Forum 2018, Theme: Oceans*, Tromsø: Fram Center

Ingold, T (2007) *Lines: A brief history*, New York: Routledge

Johansen, H (1899/2019) *With Nansen in the North - A Record of the Fram Expedition in 1893–96* (translated by Brækstad, H.L) (reprint), Franklin: Franklin Classics

Kjelldahl, D (1973) *Bjørnøya: På Utpost i Ishavet*, Oslo: Grøndahl

Kovacs, K and Bjørge, A (2018) 'Stark warning from scientists that climate change already has severe impacts on marine mammals at Svalbard', Norwegian Polar Institute: <http://www.npolar.no/en/news/2018/10-30-klimaendringer-rammer-marine-pattedyr.html> - accessed 28th November 2018

Lury, C, Fenshan, R, Heller-Nicholas, A et al (eds) (2018) *Routledge Handbook of Interdisciplinary Research Methods*, London: Routledge

Massey, D (2011) 'Imagining the field' in Pryke, M, Rose, G and Whatmore, S (eds) *Using Social Theory*, London: SAGE Publications Ltd: 72–88

Pantaleon (nd) 'Theory of Non-Sites, by Robert Smithson (1968)': <http://www.multiplo6.com/theory-of-non-sites-by-robert-smithson-1968/> - accessed 5th February 2020

Ponte, A (2017) 'Mapping in the age of Electronic Shadows' in Girot, C and Imhof, D (eds) *Thinking the Contemporary Landscape*, New York: Princeton Architectural Press

Pugh, J (2018) 'Relationality and island studies in the Anthropocene' *Island Studies Journal* v13 n2: 93–110

Rekittke, J (2015) 'Mandatory fieldwork', in Girot, C and Hurkxkens, I (eds) *Field Instruments of Design*, Zürich: gta Verlag: 56–67

Rose, G (2000) 'Practising photography: an archive, a study, some photographs and a researcher', *Journal of Historical Geography* v26 n4: 555–571

Schimanski, J and Spring, U (2010) 'A Black Rectangle Labelled "Polar Night": Imagining the Arctic after the Austro-Hungarian Expedition of 1872–1874', in Ryall, A, Schimanski, J and Wærp, H (eds) *Arctic Discourses*, Newcastle upon Tyne: Cambridge Scholars Publishing: 19–42

Sekula, A (2003) 'Reading an Archive: Photography between labour and capital', in Wells, L (ed) *The Photography Reader*, London: Routledge: 443-452

Søreide, O (1994) *Hopen: Ishavsøy og Meteorologisk Stasjon*, Øystese: Friske Tankar A.S.

Steinberg, P, Tasch, J and Gerhardt, H (2015) *Contesting the Arctic*, London: I.B. Tauris

The Marquess of Dufferin (1856/2007) *Letters from High Latitudes* (reprint), Fairford: The Echo Library

Tuan, Y-F (1977) *Space and Place: The Perspective of Experience*, Minneapolis: University of Minnesota Press

Waters, H (2013) 'The Enchanting Sea Monsters on Medieval Maps', *Smithsonian Magazine*: <https://www.smithsonianmag.com/science-nature/the-enchanting-sea-monsters-on-medieval-maps-1805646/> - accessed 31st October 2019

Wehrmann, D (2016) 'The Polar Regions as "barometers" in the Anthropocene: Towards a New Significance of Non-state Actors in International Cooperation?' *The Polar Journal* v8 n2: 379-397

Whyte, N (2015) 'Senses of place, Senses of time: Landscape History from a British perspective', *Landscape Research* v40 n8: 925-938

Wormbs, N (2018) 'Introduction: Back to the Futures of an Uncertain Arctic', in Wormbs, N (ed) *Competing Arctic Futures: Historical and Contemporary Perspectives*, Cham: Palgrave Macmillan: 1-18

Wylie, J (2012) 'Dwelling and displacement: Tim Robinson and the questions of landscape' *Cultural Geographies* v19 n3: 365-383

Yusoff, K (2007) 'Antarctic Exposure: Archives of the Feeling Body' *Cultural Geographies* v14: 211-233