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Cryosphere Aesthetics

—Emily Brady

Abstract: This essay proposes a mini-toolkit for ‘cryosphere aesthetics’: the conceptual foundations providing a guide for action for positive environmental change. The essay emphasizes the significance of global and intergenerational aesthetics since climate change means that we must take on board trans-spatial and trans-temporal phenomena and experiences. Also important is cultivating appreciative virtues such as wonder, receptivity, sensitivity, and humility. Given the connections between the earth’s systems and global governance and justice in a climate-changed world, this aesthetic-ethical stance should be accompanied by an awareness of “icy geopolitics.” That is, in thinking through how environmental aesthetics and ethics can support the protection of the cryosphere, understanding indigenous communities and nature-society relationships is very important.

Keywords: cryosphere aesthetics, environmental aesthetics, geopolitics, indigenous communities, aesthetic appreciation

Introduction

Human-induced global warming significantly affects the cryosphere - those parts of the earth formed by frozen water: frozen rivers and lakes, sea ice, ice sheets, ice caps, shelf ice, glaciers, snow, and permafrost.¹ These phenomena play a crucial role in our climate, and they are susceptible to changes from global warming. Glacial melt is occurring at an alarming rate, and icebergs are melting and calving much more quickly than scientists had predicted. These and other effects of climate change lead to sea-level rise, avalanches, and weather-related events that harm humans and nonhumans. As we witness change and loss to the cryosphere, aesthetics is important in illuminating and disclosing multisensory aesthetic qualities, meanings, and values of ice and snow.

Many parts of the cryosphere are inaccessible and uninhabitable, while others are home to humans and nonhuman communities. How can aesthetics illuminate various features of remote frozen places and capture more everyday aesthetic experiences of them? In this chapter, I formulate an environmental aesthetics of the cryosphere through a theory that I have called the “integrated aesthetic.” I aim to show the what, why, and how of cryosphere aesthetics by drawing on theoretical and other methods of aesthetics. To conclude the chapter, I offer a “mini-toolkit,” a resource for other disciplines, decision-making, and practice.

Why Explore the Cryosphere Aesthetically?

A richer and broader grasp of the cryosphere for the purposes of an aesthetic exploration must include the lived experience of communities inhabiting regions such as the Arctic,

Antarctica, Greenland, and other parts of the world. This chapter will focus mainly on the Circumpolar North and the environmental processes and changes related to aesthetic experience. There will be a range of nature-culture and nature-society relationships situated within ecologies constituted by a diversity of sea and land-based mammals, birds, plants, insects, and human inhabitants and visitors in these communities. These relationships shape cultural productions, such as literature, music, and the visual arts; however, the cryosphere's everyday and environmental non-artistic aesthetic qualities, meanings, and values will occupy my attention.

Why is the cryosphere a concern for aesthetics? So much of recent research on the cryosphere has highlighted what has been and is being lost. Fundamentally, the tools of aesthetics can help to capture the meanings and values of things, processes, relationships, and places that are being lost. Aestheticians have long been concerned with the historical change in the arts and the aesthetic and cultural values of things that have been lost.² To add to this, if one agrees that aesthetics features in meaningful nature-culture relationships, it can play a role in supporting the preservation, conservation, mitigation, and adaptation of cryosphere places concerning climate change. Philosophers have provided strong arguments showing how aesthetics can support environmentalism.³ Finally, the cryosphere is one of a handful of the earth's systems that deserve special attention due to the adverse effects of our rapidly warming world (others include, for example, marine systems and the atmosphere). These systems and the increasing impacts of climate change, such as drought, floods, desertification, wildfires, etc., have received little attention in aesthetics,⁴ and this chapter aims to make progress in addressing this gap.

How is the cryosphere special in this regard? The Arctic is heating up faster than any other part of the globe, and as a result, there has been a massive loss of sea ice.⁵ Climate change is both trans-spatial and trans-temporal. Being trans-spatial means that changes occurring in one part of the world affect other parts of the world and, here, the cryosphere plays a crucial role:

“Snow and ice reflect heat from the sun, helping to regulate our planet's temperature. Because polar regions are some of the most sensitive to climate shifts, the cryosphere may be one of the first places scientists can identify global changes in climate.”⁶

“The projected responses of the ocean and cryosphere to past and current human-induced greenhouse gas emissions and ongoing global warming include climate feedbacks, changes over decades to millennia that cannot be avoided, thresholds of abrupt change, and irreversibility.”⁷

The trans-spatial effects of higher temperatures include melting glaciers and the loss of ice sheets and icebergs, which can lead to sea-level rise, flooding, and loss of the places which provide habitation and food for ecological communities. These spatial effects occur within an intergenerational trans-temporal framework. That is, humans and non-humans are experiencing significant changes across their lifetimes, with future generations being left with the devastating effects of the anthropogenic causes of global warming. Considering this spatial and temporal context, aesthetic issues and questions are one of how climate change should already matter to us and will undoubtedly come to matter more with the potential loss of places of both cultural and natural beauty and ecological uniqueness. What should we think about the world we are both destroying and creating for future generations, in aesthetic terms?⁸

This project of developing cryosphere aesthetics will be grounded in a revised version of my environmental, aesthetic theory, the “integrated aesthetic.”⁹ As I see it, many aspects of the theory remain relevant: environmental, aesthetic experience is grounded in a human-environment relationship that integrates multisensory, sympathetic perceptual attention with emotion, imagination, knowledge, and narratives. Although the limits of space do not allow me to elaborate here, the theory also incorporates ideas about critical interpretation and an approach to aesthetic judgments defined through intersubjectivity.¹⁰ Given climate change and the context of the cryosphere, revision to the integrated aesthetic will incorporate ideas concerning intergenerational thinking, critical “descriptive aesthetics,” and global aesthetics. Considering my position as an author and the aesthetic situations that I discuss in this chapter, I should note that my interest in the cryosphere begins from the standpoint of Western and European philosophy and includes personal experience of ice and snow through the seasonal change in the US, Scotland, and Norway, with visits to the glaciers, Skaftafell (Iceland) and Plateau Rosa (Switzerland). My method is mainly conceptual, but I also draw upon examples and empirical sources to inform my discussion of the Arctic.

Relational, Multisensory Experience of the Cryosphere

What shapes aesthetic experiences of the cryosphere? Let me begin by emphasizing the relational foundation of the integrated aesthetic. This is especially important when discussing environmental aesthetics in an everyday context. Some theories of environmental aesthetics follow the contours of theories of environmental ethics, which emphasize the intrinsic value of wild places. The context of that valuing often configures the subject as appreciating nature in places that are not lived in on a day-to-day basis but instead visited, such as national parks and nature reserves. The integrated aesthetic is intended, instead, to apply to a broad range of environmental experiences, from more natural to more cultural environments.¹¹ My approach attempts to capture the breadth of aesthetic relations that arise through sensing, participating with, interacting with, and working in the environment, landscape, or place and places significant to the ways in which the environmental situation shapes the discovery of meaning and value. The seal hunter’s experience of ice and snow is shaped not only by actions that lead to a successful hunt, but they also take place within a relationship to place that is influenced by light and darkness, weather, seasonal changes, climatic change, and the aesthetic aspects of any particular situation. So, the integrated aesthetic encompasses those interactions which are developed into relationships on an everyday basis or across periods of time, for example, through visits to the same place.

The environmental, aesthetic experience begins in the senses and sympathetic attention. Sympathetic attention is a perception that is strongly focused on the qualities and meanings of some everyday happening, landscape, weather process, or ecological entity. Here, multisensory attention is directed outwards from the experiencing subject/s and toward features of things lying beyond the self. We can begin to give content to these features, on a theoretical level, through aesthetic concepts which identify visual, aural, tactile, olfactory, and even gustatory qualities of ice and snow: stark whites and greys; vivid blues of glaciers, icebergs, and the sky; aurora colors, curtains, and pulses in the night sky; crystalline shapes; the sounds of melting, shifting ice or the quiet of a snow-laden forest; the feeling of cold, wind, snow, ice on the body or underfoot; the clean smell and taste of snow; and so on.

Moving to forms of aesthetic testimony or second-hand descriptions of aesthetic qualities, discussions of the Arctic often discuss explorer narratives.¹² John Muir's writings reflect a strong non-anthropocentric relationship with the places he explores, as he merges aesthetic, spiritual, and scientific observations. In his Tlingit-guided exploration of Glacier Bay in Alaska, John Muir (1915) recounts the aural qualities that he hears while climbing in the area:

“Hundreds of small rills and good-sized streams were falling into the lake from the glacier, singing in low tones, some of them pouring in sheer falls over blue cliffs from narrow ice valleys, some spouting from pipelike channels in the solid front of the glacier, others gurgling out of arched openings at the base. All these water-streams were riding on the parent ice stream, their voices joined in one grand anthem telling the wonders of their near and far-off fountains.”¹³

Stunning “basins of azure ice” are mentioned, too, alongside his descriptions of the brown, grey, and black colors of glacial rivers and mud. Moving forward in time, present Huna Tlingit people and visitors to Glacier Bay National Park experience a different landscape that is now characterized by extensive glacial retreat and a wider area of ice-free land and water.¹⁴

Moving eastwards to Greenland, Pete, a glaciologist, conveys the aesthetic aspects of camping and fieldwork on an elevated ice sheet there. Compared to his site in the Alps, the Greenland ice sheet is more remote and isolated, with the team being flown in and left to work for several weeks in the spring. Quite a wide range of weather and light conditions are experienced, with much colder temperatures than the Alps and more time in the tent to cope with the strong katabatic winds that occur at different times in the day. The sounds of these winds are ever-present and affect all aspects of living and working at the site.¹⁵

In the cryosphere, aesthetic qualities change and shift at different temporal registers. When one appreciates a place, the flight of a bird or other new things enter into our perceptual, multisensory field. There will be changes in light, wind, and temperature. Water freezes, and precipitation becomes ice, snow, frost, or fog. The change also occurs for the aesthetic valuer or community as their particular situation shifts from day to day, season to season, or generation to generation. While environmental aesthetics has always taken on board temporal changes on a small scale, climate change demands that we grapple with geological time frames and seek ways to envisage longer-term environmental change.¹⁶

Nobel Peace Prize nominee, Sheila Watt-Cloutier, who is an Inuk born in Kuujuaq, Nunavik, opens her memoir of growing up in Arctic Quebec with a moving account of her everyday experience of ice and snow:

“I would view the vast expanses of Arctic sky and feel the crunching of the snow and ice below me... I remember just as vividly the Arctic summer scenes that slipped by as I sat in the canoe on the way to our hunting and fishing grounds. The world was blue and white and rocky and defined by the things that had an immediate bearing on us—the people who helped and cared for us, the dogs that gave us their strength, the water, and the land that nurtured us.”¹⁷

Here, Watt-Cloutier describes a visceral connection to her environment and the kinship she experienced with all living beings and things around her. She contrasts this idyllic recollection with how Inuit life has developed, with snow machines and powerboats replacing dogs and

canoes creating new economic opportunities— but also the drastic effects of climate change: “The land that is such an important part of our spirit, our culture, and our physical and economic well-being is becoming an often unpredictable and precarious place for us.”¹⁸ Imagine how one’s aesthetic experience will change and how such precarity is felt amidst the melting ice, a greater presence of biting insects, and new, invasive species of plants which she describes.¹⁹ Changing weather patterns, conditions, and the changing appearance of the landscape present new challenges for navigation, hunting, and other activities.”²⁰ Sytukie Joamie, a resident of Iqaluit, observes weather changes and how they affect daily life: “It is getting more unpredictable as to what will happen; because the signs are misleading the Inuit who are used to weather that follows these signs.”²¹ These recollections and observations from Joamie, Watt-Cloutier, and Muir illustrate how the aesthetic qualities of the cryosphere are part of everyday and not so everyday experience.

Knowledge and Narratives of the Cryosphere

Some of our aesthetic responses are more immediate, with aesthetic qualities grabbing and holding our attention. In contrast, others begin with focused attention, which more consciously draws in various kinds of knowledge and narrative. The integrated aesthetic proposes a pluralistic understanding of the kinds of knowledge and narrative that shape aesthetic experience. In this respect and, in contrast to a leading environmental, aesthetic theory, “scientific cognitivism,”²² it shares features of other pluralistic non-cognitive theories such as we find in the philosophy of Yuriko Saito (2007) or Arnold Berleant (1992). Scientific cognitivism grounds aesthetic judgments in the familiar features of multisensory, environmental experience but with the added requirement of the natural sciences for grounding “appropriate” experience and judgment. While the intention is to ensure non-trivial or subjective aesthetic judgments that can lead to all kinds of problems concerning environmental protection, the theory has been the subject of criticism for the reductive, narrow perspective it defines. By contrast, many “non-cognitive” theories embrace a broader foundation of what does and should shape aesthetic responses and judgment.

As a non-cognitive approach, the integrated aesthetic does not exclude scientific knowledge; instead, its conception of knowledge is broader. By adopting critical pluralism, it is possible to fold in, alongside the natural sciences (glaciology, atmospheric science), indigenous and traditional ecological knowledge, and the range of perspectives— stories, folklore, myths, and cosmologies— to assist in aesthetically characterizing the cryosphere. As this volume shows, the field of aesthetics is enriched by global perspectives, but such perspectives are also fitting when it comes to considering the wide-ranging impacts of climate change. To enrich and, to some extent, ground this approach, I draw from Berleant’s idea of “descriptive aesthetics” or “accounts of art and aesthetic experience that may be partly narrative, partly phenomenological, partly evocative, and sometimes even revelatory” found “most often as parts of other kinds of writing— novels, poems, nature writing, criticism, philosophical aesthetics.”²³ The benefits of drawing upon descriptive aesthetics include the ways in which such accounts can serve to draw attention to aesthetic qualities and lead to more “vivid aesthetic encounters.” Alongside other philosophers, I also argue that pluralistic perspectives work better to capture the many stories about place, ecologies, and the lived experience of the environment.²⁴

Bringing these ideas into conversation with cryosphere aesthetics, it is likely that descriptive aesthetics will have a larger role to play if we are to capture the aesthetic qualities,

meanings, and values of what's been lost, what's changing, and what lies ahead for future generations. Here, the arts can play an important role, and I offer two cases from the art practice of Devora Neumark²⁵ to illustrate the environmental and everyday aesthetics of the cryosphere. Currently based in Iqaluit, the Eastern Arctic capital city of Nunavut in Inuit Nunangat (homeland of the Inuit), their performance art project, *Instructions for Being Ice and Snow* (2018), gathered together Iqaluit high school students in which they “spoke of their first-hand knowledge and family traditions....focused on the lighting of the qulliq (traditional Inuit oil lamp) while giving thanks to the ecosystem that sustained life in the north for millennia. The event continued with explorations of/in the snow, poetry recitation, throat singing, the sharing of freshly cooked caribou stew & tea.”²⁶ Their project brought together an Inuit community to reconnect culturally, aesthetically, and intergenerationally with the place.

More recently, *Letters to the Ice* “is a public project that invites people from around the world to engage directly with the grim reality that global ice loss is currently catching up to the worst-case scenario predictions.”²⁷ Here is one letter from the project:

“Ice is—For me, ice is something good. I will relate to one of our communities: we believe that God resided in the ice in one of our mountains—in Mt. Kenya, where the ice was, where the first man and the first woman were created. So, I feel like ice is a kind of a god, is kind of a nature. It controls the world—like destiny. It's connected—if you see the ice in the north pole, when it melts the sea rises. It controls everything. So, ice, I feel like, for me, it's God. It's water. It's life. It's healing. It quenches your thirst. It's something really, really, really powerful.

From a conversation with John Titi Namai, Nairobi, Kenya, April 18, 2021.”

The letters in this project, communicated through a web-based platform, describe firsthand experience of the qualities, meanings, and emotional attachments to ice experienced by authors writing from quite different places and perspectives. They provide individual narratives and forms of aesthetic testimony which enrich our understanding of the cryosphere and reveal a shared sense of loss.

Emotions and Imagination in the Cryosphere

John Titi Namai's letter illustrates the affective dimension of aesthetic experiences of environment and place. The role of emotions is central to many aesthetic theories, including the integrated aesthetic. When it comes to the cryosphere, imagine the range of emotions and feelings that will be part of aesthetic experiences—wonder, fascination, admiration, shock, fear, amazement, respect, awe. With the massive loss of ice and its effects on life on earth, I would also point to intergenerational emotions, or emotions felt in response to witnessing aesthetic losses over time, past and projected into the future. For example, uncertainty, grief, mourning, and guilt in the face of drastic changes name just a few emotions which may form part of aesthetic responses.

Pete, during a personal interview (2021), describes some of the emotions he felt during his fieldwork in the Canadian Arctic: “trepidation, fear, and genuine concern for one's safety.” Referring to the John Evans glacier on the east side of Ellesmere Island (an uninhabited region where there is no nomadic hunting), he spoke about the “feeling of privilege for being able to experience the place, an honor to have the opportunity” and “you'd die” if you didn't respect

dangers of the environment. Pete's feelings about the place convey a sense of respect rather than a sense of dominating the landscape, the latter theme being one which has become a stereotype of explorer narratives of the Circumpolar North. He also mentioned how he had imagined early explorers to the area and the deep respect held for them, given the present-day challenges of the place.

Moving from the Arctic and to the Haut Glacier d'Arolla in the Alps, Pete described his experience of fieldwork there in 1989 and 1990. Feelings of elation, wonder, and excitement on the glacier, being with his fellow colleagues, working together on the glacier, staying in, and getting to know the communities nearby all contributed to memories of the place formed over an extended period of time. But on a more recent visit to the area in 2015 and seeing, firsthand, how the glacier had retreated, he felt shocked, loss, sadness, and frustration: "it's like visiting a dying relative who is wasting away."²⁸ As a mark of respect and to raise awareness, glaciologists and others have been holding funerals, for example, for the Icelandic Okjökull glacier, which was declared dead in 2014. Unlike the dramatic spectacles often shown in films such as *Chasing Ice*, author Andri Snær Magnason writes that "a dying glacier is actually no more dramatic than the normal changes of the spring season. Ice melts in the heat and the sun, forming streams that frolic and splash. In fact, a dying glacier is more a sad, frail sight, disappearing quietly."²⁹ The emotions felt in the face of ice loss are shaped not only by present perception but also by memories and imagination.³⁰ Memories and past accounts of landscapes provide individual and community recollections or empirical baselines which assist in understanding environmental change and the work needed for mitigation and adaptation.

With respect to the role of imagination in aesthetic experience, the integrated aesthetic incorporates ways in which this activity amplifies what is given in perception and functions to envisage changes to landscape and ecologies. Imagination offers deeper engagement than our perceptual resources alone through visualizing and the inventive leaps that produce entirely new standpoints. Multisensory imaginings of places now and into the future can assist in grasping aesthetic features of environmental change – features that are very much part of the relationships with the place which sustain human and nonhuman communities. Imaginatively stepping into the shoes of future generations can help us to grasp what we are leaving to them and, perhaps, motivate change for the good. Furthermore, now and into the future, much of our knowledge of the cryosphere is and will be iterative rather than definitive. As we work through different possible scenarios, whether this occurs through writing climate fiction or the pursuit of climate science, imagination has a significant part to play.

Developing Critical Descriptive Aesthetics

Above, I noted some of the benefits of descriptive aesthetics: how it can function to draw attention to aesthetic qualities, capture aesthetic experiences of things that are being lost, and draw in global perspectives. The meanings and values of environmental aesthetics come through first-hand experience but also through forms of aesthetic testimony or second-hand accounts. The latter is especially relevant if we are to approach aesthetics intergenerationally. What will future generations of humans have to hand when trying to grasp what's been lost, aesthetically speaking? How are we— and people in the future— to adjudicate among various narratives, arts, and empirical accounts? Are all cases of descriptive aesthetics equally valuable? I have emphasized the importance of pluralism in the integrated aesthetic; however, pluralism is critical, which is to say that some cases of descriptive aesthetics can fail us and should be set aside.

What shape might such failures take? The limits of space allow me to offer just a few ideas. Generally, we can file such failures under climate change reductionism. When it comes to glaciology, based on my research for this chapter and my interview with Pete, scientific representations, for example, remote sensing/Landsat, virtual environments and models, and so on, provide only one component of the knowledge that shapes our aesthetic grasp of the cryosphere. Working in the field provides a place-based, visceral experience developed relationally over shorter or longer periods of time. Forms of cultural production can also be reductive, as we find in the “glacier-ruins narrative,” which “tends to overlook the existing state of a glacier and/or glacier systems and speaks instead of imagined states of loss.”³¹ This calls for the critical examination of disaster narratives, such as the presentation of the “horrifying beauty of glacial loss” in *Chasing Ice* and other films, which aestheticize loss rather than providing positive tools for addressing climate change.³²

There will also be reductionism when it comes to capturing the everyday lived experience of the cryosphere. How am I positioned as a southerner in relation to the Arctic to capture the experiences of people living in the North? In this chapter, I have presented a plurality of sources in order to convey aesthetic experiences of ice and snow. By providing alternative narratives, this approach can move aesthetics beyond narrower, uncritical romantic narratives and show the distinctiveness of place and relationships with place. Romanticizing the Arctic can lead us away from valuing nature on its own terms. For example, the polar bear has come to symbolize the effects of climate change on arctic ecologies; instead of sentimentalizing or anthropomorphizing this mammal, aesthetic appreciation ought to be shaped by a range of indigenous and scientific accounts. In this respect, I would emphasize that when appreciation involves the exercise of sympathetic attention and perception centered on the aesthetic phenomena in question, we are more likely to be drawn to their actual qualities and meanings.³³ Descriptive aesthetics, and imagination, too, need not carry with them self-indulgent or trivializing forms of appreciation.³⁴

When it comes to the lived experience of human and nonhuman inhabitants of the Arctic, avoiding failure in our aesthetic responses will rest upon (at least) engaging with places, people, and ecologies on their own terms and resisting the projection of disaster narratives. Instead, we can work toward framing aesthetic experience in a more balanced way, being cognizant of climate mediation and adaptation. Although much has been lost, we should remember that aesthetic engagement also occurs through the frames of empowerment, resilience, and hope.

Conclusion: A Mini-toolkit for Cryosphere Aesthetics

As an environmental philosopher, my role is to lay the conceptual foundations which provide a guide or source for decision-making and action for positive change. To this end, and by bringing the ideas of this chapter together with a few new ones (in order to look ahead), I would like to provide a “mini-toolkit” for articulating the environmental aesthetics of the cryosphere.

I have offered a revised theory of the integrated aesthetic with the senses, perception, knowledge, emotions, and imagination folded in. I emphasize the significance of global and intergenerational aesthetics because climate change means that we must take on board trans-spatial and trans-temporal phenomena and experiences. I have pointed to the relationship between aesthetics and environmental ethics, and I would add to this the relevance of cultivating appreciative virtues such as wonder, receptivity, sensitivity, and humility. Given the connections between the earth’s systems and global governance and justice in a climate-changed world, this aesthetic-ethical stance should be accompanied by an awareness of “icy geopolitics.”³⁵ That is, in

thinking through how environmental aesthetics and ethics can support the protection of the cryosphere, understanding the indigenous communities and nature-society relationships is very important. My argument for descriptive aesthetics proposed the inclusion of various sources, which, in practice, can be brought in through collaboration among disciplines, researchers, community-based researchers, and narrative-based policy development.³⁶ Such collaborations have been underway for some time, for example, through the endeavors of art-sci projects and the emerging cross-disciplinary areas of the arctic and polar humanities. With this toolkit to hand, I hope that a better understanding of the role of aesthetics in the lived experience of the cryosphere will be possible.

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Bibliography

- Berleant, Arnold. *Aesthetics of Environment*. Philadelphia: Temple University Press, 1992.
- Brady, Emily. "Aesthetic Value, Ethics and Climate Change." *Environmental Values* 23, no. 5 (2014): 551–70. <https://doi.org/doi.org/10.3197/096327114x13947900181112>.
- Brady, Emily. *Aesthetics of the Natural Environment*. Edinburgh: Edinburgh University Press, 2003.
- Brady, Emily. "Global Climate Change and Aesthetics." *Environmental Values* 31, no. 1 (2022): 27–46. <https://doi.org/10.3197/096327121X16141642287683>.
- Brady, Emily, Brook Isis, and Jonathan Prior. *Between Nature and Culture: The Aesthetics of Modified Environment*. London: Rowman and Littlefield International, 2018.
- Carlson, Allen. *Aesthetics and the Environment: The Appreciation of Nature, Art and Architecture*. New York: Routledge, 2000.
- Carlson, Allen, and Sheila Lintott. *Nature, Aesthetics, and Environmentalism: From Beauty to Duty*. New York: Columbia University Press, 2008.
- Dodds, Klaus. "Geopolitics and Ice Humanities: Elemental, Metaphorical and Volumetric Reverberations." *Geopolitics* 26, no. 4 (2021): 1–29. <https://doi.org/10.1080/14650045.2019.1697240>.
- Hepburn, Ronald W. *The Reach of the Aesthetic*. Farnham: Ashgate, 2001.
- Heyd, Thomas. "Aesthetic Appreciation and the Many Stories About Nature." *The British Journal of Aesthetics* 41, no. 2 (2001): 125–37.
- Hunn, Eugene S, Darryll R. Johnson, Priscilla N. Russell, and Thomas F. Thornton. "Huna Tlingit Traditional Environmental Knowledge, Conservation, and the Management of a 'Wilderness' Park." *Current Anthropology* 44, no. S5 (2003): S79–103. <https://doi.org/10.1086/377666>.
- Intergovernmental Panel on Climate Change. "Summary for Policymakers." Edited by Hans-Otto Pörtner, Deborah C. Robert, Valerie Masson-Delmotte, Panmao Zhai, Melinda Tignor, Elvira Poloczanska, Katja Mintenbeck, et al. IPCC Special Report on the Ocean and Cryosphere in a Changing Climate, 2019. <https://www.ipcc.ch/srocc/chapter/summary-for-policymakers/>.
- Jackson, M. "Glaciers and Climate Change: Narratives of Ruined Futures." *WIREs Climate Change* 6 (2015): 479–92. <https://doi.org/10.1002/wcc.351>.
- Korsmeyer, Carolyn. *Things: In Touch with the Past*. Oxford: Oxford University Press, 2019.
- Lopez, Barry. *Arctic Dreams: Imagination and Desire in a Northern Landscape*. London: Harvill Press, 1986.
- Magnason, Andri Snær. "Farewell to the White Giants." Translated by Lytton Smith. *Words without Borders Magazine*, October 2020. <https://www.wordswithoutborders.org/article/october-2020-climate-farewell-to-the-white-giants-andri-magnason-Ly>.
- Mikkonen, Jukka. "Knowledge, Imagination, and Stories in the Aesthetic Experience of Forests." *Estetika: The Central European Journal of Aesthetics* 55, no. 1 (2018): 3–24. <https://doi.org/doi.org/10.33134/eeja.168>.
- Muir, John. *Travels in Alaska*. Boston & New York: Houghton Mifflin, 1915.
- Neumark, Devora. "Instructions of Being Ice and Snow." Devora Neumark, 2018. <http://devoraneumark.com/works/being-ice-snow/>.

- NOAA. “What Is the Cryosphere?” National Ocean Service, January 11, 2022.
<https://oceanservice.noaa.gov/facts/cryosphere.html>.
- Pete. 2021. Interview.
- Stewart, Duncan C., and Taylor N. Johnson. “Complicating Aesthetic Environmentalism: Four Criticisms of Aesthetic Motivations for Environmental Action.” *The Journal of Aesthetics and Art Criticism* 76, no. 4 (2018): 441–51.
<https://doi.org/10.1111/jaac.12600>.
- The Municipal Corporation of the City of Iqaluit. “Iqaluit Sustainable Community Plan,” 2014.
https://www.iqaluit.ca/sites/default/files/iqaluit_sustainable_community_plan.pdf.
- Wadham, Jemma. *Ice Rivers*. Princeton: Princeton University Press, 2021.
- Watt-Cloutier, Sheila. *The Right to Be Cold*. Minneapolis: University of Minnesota Press, 2018.

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- ¹ NOAA, “What Is the Cryosphere?” (National Ocean Service website, January 11, 2022), <https://oceanservice.noaa.gov/facts/cryosphere.html>.
- ² Carolyn Korsmeyer, *Things: In Touch with the Past* (Oxford: Oxford University Press, 2019).
- ³ Allen Carlson and Sheila Lintott, *Nature, Aesthetics, and Environmentalism: From Beauty to Duty* (New York: Columbia University Press, 2008); Emily Brady, Brook Isis, and Jonathan Prior, *Between Nature and Culture: The Aesthetics of Modified Environment*. (London: Rowman and Littlefield International, 2018).
- ⁴ Emily Brady, “Aesthetic Value, Ethics and Climate Change,” *Environmental Values* 23, no. 5 (2014), <https://doi.org/doi.org/10.3197/096327114x13947900181112>; Emily Brady, “Global Climate Change and Aesthetics,” *Environmental Values* 31, no. 1 (2022): <https://doi.org/10.3197/096327121X16141642287683>.
- ⁵ NASA (2022) provides graphics to illustrate this loss: “Arctic Sea ice reaches its minimum each September. September Arctic sea ice is now declining at a rate of 13.1 percent per decade, relative to the 1981 to 2010 average.”
- ⁶ NOAA, “What Is the Cryosphere?”
- ⁷ Intergovernmental Panel on Climate Change, “Summary for Policymakers,” ed. Hans-Otto Pörtner et al. (IPCC Special Report on the Ocean and Cryosphere in a Changing Climate, 2019), <https://www.ipcc.ch/srocc/chapter/summary-for-policymakers/>.
- ⁸ Brady, “Aesthetic Value, Ethics and Climate Change”; Brady, “Global Climate Change and Aesthetics.”
- ⁹ Emily Brady, *Aesthetics of the Natural Environment* (Edinburgh: Edinburgh University Press, 2003).
- ¹⁰ Brady.
- ¹¹ Brady; Brady, Isis, and Prior, *Between Nature and Culture: The Aesthetics of Modified Environment*.
- ¹² Barry Lopez, *Arctic Dreams: Imagination and Desire in a Northern Landscape* (London: Harvill Press, 1986).
- ¹³ John Muir, *Travels in Alaska* (Boston & New York: Houghton Mifflin, 1915), 107.
- ¹⁴ Eugene S Hunn et al., “Huna Tlingit Traditional Environmental Knowledge, Conservation, and the Management of a ‘Wilderness’ Park,” *Current Anthropology* 44, no. S5 (2003), <https://doi.org/10.1086/377666>.
- ¹⁵ Pete, Zoom interview with author, May 13, 2021.
- ¹⁶ Brady, “Aesthetic Value, Ethics and Climate Change”; Brady, “Global Climate Change and Aesthetics.”
- ¹⁷ Sheila Watt-Cloutier, *The Right to Be Cold* (Minneapolis: University of Minnesota Press, 2018), xvii.
- ¹⁸ Watt-Cloutier xix.
- ¹⁹ Watt-Cloutier, 210.
- ²⁰ Watt-Cloutier, 202.
- ²¹ The Municipal Corporation of the City of Iqaluit, “Iqaluit Sustainable Community Plan,” 2014, https://www.iqaluit.ca/sites/default/files/iqaluit_sustainable_community_plan.pdf, 25.
- ²² Allen Carlson, *Aesthetics and the Environment: The Appreciation of Nature, Art and Architecture* (New York: Routledge, 2000).
- ²³ Arnold Berleant, *Aesthetics of Environment* (Philadelphia: Temple University Press, 1992): 26.
- ²⁴ Thomas Heyd, “Aesthetic Appreciation and the Many Stories About Nature,” *The British Journal of Aesthetics* 41, no. 2 (2001): 125–37; Jukka Mikkonen, “Knowledge, Imagination, and Stories in the Aesthetic Experience of Forests,” *Estetika: The Central European Journal of Aesthetics* 55, no. 1 (2018), <https://doi.org/doi.org/10.33134/eeja.168>.
- ²⁵ Neumark are an Interdisciplinary Artist-Researcher, Yale-certified Climate Change Adaptation Practitioner, and Arctic Winter College Fellow 2021. “Letters from the Ice” expands out from their original project, “Letters to the Water” (Neumark 2015)
- ²⁶ Devora Neumark, “Instructions of Being Ice and Snow” (Devora Neumark website, 2018), <http://devoraneumark.com/works/being-ice-snow/>.
- ²⁷ Devora Neumark, Zoom interview with author, May 15, 2021.
- ²⁸ Pete, Zoom interview with author, May 13, 2021.
- ²⁹ Andri Snær Magnason, “Farewell to the White Giants,” trans. Lytton Smith, *Word without Borders Magazine*, October 2020, <https://www.wordswithoutborders.org/article/october-2020-climate-farewell-to-the-white-giants-andri-magnason-Ly>.
- ³⁰ Jemma Wadham, *Ice Rivers* (Princeton: Princeton University Press, 2021).
- ³¹ M. Jackson, “Glaciers and Climate Change: Narratives of Ruined Futures,” *WIREs Climate Change* 6 (2015), <https://doi.org/10.1002/wcc.351>, 479.

³² Duncan C. Stewart and Taylor N. Johnson, “Complicating Aesthetic Environmentalism: Four Criticisms of Aesthetic Motivations for Environmental Action,” *The Journal of Aesthetics and Art Criticism* 76, no. 4 (2018), <https://doi.org/10.1111/jaac.12600>, 446.

³³ Brady, *Aesthetics of the Natural Environment*.

³⁴ Berleant, *Aesthetics of Environment*; Ronald W Hepburn, *The Reach of the Aesthetic* (Farnham: Ashgate, 2001), 5.

³⁵ Klaus Dodds, “Geopolitics and Ice Humanities: Elemental, Metaphorical and Volumetric Reverberations,” *Geopolitics* 26, no. 4 (2021), <https://doi.org/10.1080/14650045.2019.1697240>.

³⁶ Devora Neumark, Zoom Interview with author, May 15, 2021.