

CAPTURING GLACIERS

A History of Repeat Photography and Global Warming

DANI INKPEN

FOREWORD BY PAUL S. SUTTER

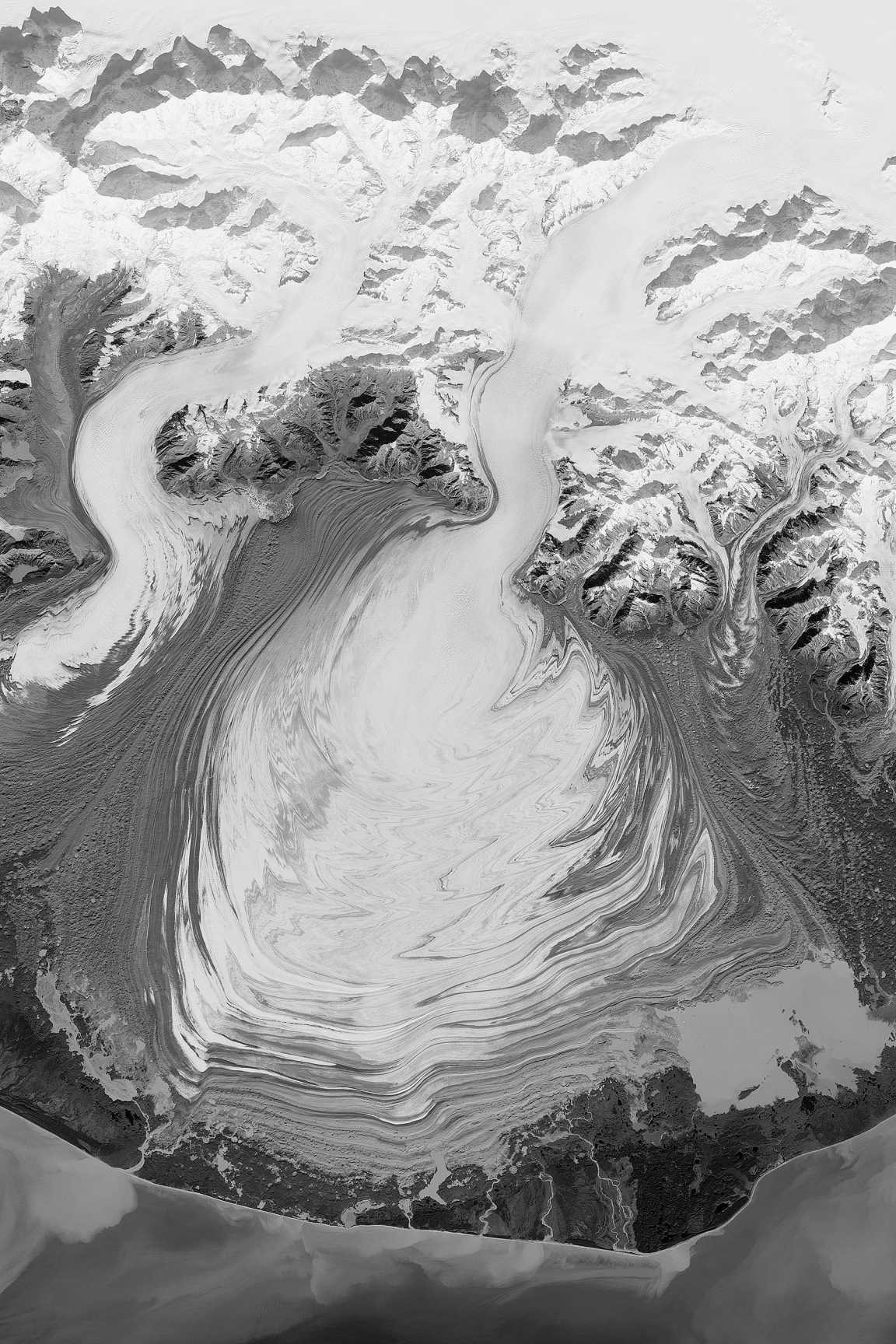


CAPTURING GLACIERS

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A History of Repeat Photography and Global Warming

DANI INKPEN

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CONCLUSION / *People and Glaciers*

I began researching and writing about glaciers because I wanted to get out of graduate school. In 2013 I was, as many others have been, frazzled and miserable during the first year of my doctorate program. I was far from home in a big, frenetic American city at an institution that made me feel constricted and uncertain. And it was hot! A summer in Boston would make hell feel cool.¹ I was a hair's breadth away from quitting school when chance intervened in the form of an off-hand comment from a professor: "If I could give graduate students one piece of advice, it would be: study what you love."² The rest of the conversation never made it to my ears. I was gone, immediately roving in my mind's eye over peaks and icefields. I could study glaciers, because what did I love more? I thought of *Chasing Ice*, which had just come to theaters and inspired in me a new concern for the fate of the cryosphere. The time lapse and repeat photographs told a compelling story. I thought of the Bow Glacier, and of the black-and-white photograph hanging in the lobby of Bow Lake Lodge. What was the story behind that image?

This book is proof that glaciers can inspire strong feelings of love and attachment, even from far away. Early glaciologists seeking accessible and compelling evidence of global warming had plenty of reasons to turn to repeat glacier photographs. And repeat glacier photographs are generally a pretty good record of landscape change over time. Yet the choices scientists make about what to use as evidence impacts how the phenomenon in question is understood. Visualizations affect how we see the world, making certain aspects visible and rendering others

unseen. The historian's science lives on a two-way street: not only do the social, cultural, and political influence the mundane doing of science, the practice of science has social, cultural, and political effects. This was certainly the case for repeat glacier photography. Largely set aside after the Second World War, it returned at the turn of the twenty-first century. Glaciologists circled back to an older form of evidence that seemed to offer new value in light of climate change denial. Those who have turned to repeat glacier photographs as evidence of global warming seek witnesses that cannot be tarnished by political muck and can serve as self-reporting instruments of global change. Glaciers—remote, pristine, detached—fit the bill. Through the visual record generated in the nineteenth and twentieth centuries, repeat photographs seem to speak for themselves and also for global warming. But in precisely those characteristics, which appeared to place them above and beyond the all-too-human, lay seeds of contention.

Glaciologists sought straightforward, unobjectionable evidence. What they got was a complicated type of visual representation with a checkered history. The iconography of ice came with undesirable consequences that were rooted in the history of repeat glacier photography. Some of these the glaciologists foresaw, some they did not. Repeat photographs oversimplified crucial scientific details about glaciers. They also reduced the problem of global warming to one of a distant, unpeopled wilderness, a misrepresentation that is both incorrect and harmful. The limits of repeat glacier photographs as icons of global warming were scientific and political.

Scientific Limits

The return to repeat glacier photography as evidence of global warming was grounded in the idea that seeing is believing. But is it, really? Qualitative representations like repeat photographs cannot tell you *why* glaciers are receding. This was precisely the critique of geophysical glaciologists like Robert Sharp. And they were not wrong. When Tad Pfeffer picked up former vice president Al Gore's book, *An Inconvenient Truth*, in 2006, he was startled by a photograph of the Columbia Glacier's dramatic recession, presented as evidence of global warming. As had been predicted by Austin Post, between 1980 and 2005 the Columbia had retreated 10 km—a considerable distance involving enormous volumes of ice. Pfeffer had

spent much of his career studying the Columbia's dynamics. He knew the reasons for its retreat better than anyone, and in 2006 he knew it was not a simple case of retreat in response to global warming. The long-standing research program begun by Meier and Post and carried on by Pfeffer had shown that tidewater glaciers advance and retreat due to interactions between internal ice dynamics and the topography of the glacier's bed *combined with* climatic factors. Climate was only one of the variables involved in the Columbia's rapid and drastic retreat—the shape of its bed, its connection to the sea bottom, and internal pressures and tensions all played pivotal roles. Six years later, scientists determined that the Columbia's retreat had indeed been triggered when global warming destabilized the position of the terminus, setting off a chain reaction of complex dynamics. In 2006 this was not known. To the best of Pfeffer's knowledge at that time, the glacier's retreat could not be simply attributed to global warming.

Pfeffer had been a consultant for Gore's team, explaining the difficulties involved in extracting an anthropogenic climate signal from the Columbia's recession. Yet, there it was in that immensely popular book, testifying as evidence of global warming, exemplifying and reinforcing the equation: melting glaciers = global warming. But in this case, repeat glacier photography hid complex realities known to scientists. Pfeffer worried that when Al Gore, an "ally with a loud voice" but no technical training, used the Columbia as an example of human-induced glacier recession, "anybody who actually knows what is going on can challenge that easily and, you know, reduce his credibility—and of course this was done."³ Indeed, people in the know—and people not in the know but ready to pounce on any misstep taken by climate activists like Gore—did just that. Gore's claims about glaciers have been gleefully attacked by scabrous online trolls and global warming denialists.⁴ This potential for setting up "straw men" to knock down with bad arguments is precisely what scholars like Mark Carey caution is the danger of using the iconography of ice.⁵ Indeed, one group of glaciologists noted in 2015, "images of retreating glaciers have become widely publicized illustrations of anthropogenic climate change [yet] the lagged response of glacier extents to climate change complicates the attribution of the observed changes to any particular cause."⁶ In other words, we don't know enough about the physics of ice to make bold claims about the effects of climate based simply on pictures. This could easily have come from the pen of Robert Sharp. Geophysical glaciology's

critiques of repeat photographs as ambiguous and not-very-reliable portrayals of glacier responses to climatic change still hold. Repeat glacier photographs do not simply speak for themselves.

Icons reduce complex phenomena into potent, charismatic visual representations. Their power is in association. Once an association is established, icons may stand for a feature of the world without accurately representing it. Consider red dragons: they are iconic images of Wales, but few people today expect to find one there. Generally, repeat photographs of retracting glacier tongues stand for global warming because they represent an important feature of it: glacier recession. But, as the foregoing has demonstrated, glacier dynamics are complex and many factors impinge on their ebb and flow. In some cases, global warming has caused glaciers to gain mass, though this is unlikely a long-term trend. None of this is captured in the simple visual association that melting glaciers equals global warming. Repeat glacier photographs as icons of global warming can be inaccurate and even misleading, as was the Gore team's use of the Columbia. Knowing what we know now about their bumptious history among those who study glaciers, we can appreciate Pfeffer's concerns, rooted in historically grounded values of the profession.

Cultural Limits

When glaciologists were casting about for public-facing forms of evidence, the history of glacier study made it more likely that they would gravitate toward one type of evidence—repeat photography—than others. There was already a large body of photographic work from glacier naturalists upon which to build. Those predecessors' photographs were more than just tourist snapshots (though they were sometimes that too): they were visual data with station locations and descriptions of how they were produced. Motivated by research agendas specific to their time, the photographs were nevertheless future-oriented, taken with the hope that someone would re-create them. It is small wonder they were taken up again. Given this precedent, repeat photographs seem a likely choice. Consider a counterfactual alternative. When glaciologists sought public-facing forms of evidence, acoustical recordings of calving events were a less likely option because there was little precedent for such work in the previous history of glacier study.

There was no body of prior work to rely on for comparison. What came before mattered for what came after. History matters.

Twentieth-century repeat glacier photographers were like archivists: they sought to create materials that would be useful in the future. Like archivists must, they did so with imperfect knowledge of what the future may need, armed only with their contemporary notions about what matters. Choices about what are significant today, made in real-life scenarios of finite resources, social priorities, and political pressures, shape and constrain what future historians will be able to know about the past. Similarly, glacier naturalists shaped what was possible for future iterations of repeat glacier photography.

Glacier naturalists were mostly confined to glacier termini. This was the area that piqued their curiosity and was most accessible, so the photographs they took focused on the end points of glaciers. They sought to understand glaciers as natural objects retreating from ice ages, and portrayed the ice alone in the frame. The emphasis on imposing glacier fronts and the dearth of human traces slotted these images snugly into a wilderness aesthetic. They recalled the sublime and the magisterial wild. All photographs shape how we see things, but the specifics of how repeat glacier photographs winnowed understandings of glaciers and global warming were rooted in the history of glacier study. They were rooted in how glacier naturalists perceived the landscape. The Rockies were Mary Vaux's wilderness retreat from Philadelphia's high society. Harry Fielding Reid, Ralph Tarr, and Bill Field, following John Muir, pictured the glaciers of coastal Alaska as a land reborn, possessing only geological history. Re-creating their photographs, frame for frame, nearly one hundred years later, reinforced ideas about glaciers as wilderness landscapes.

The highly wrought wilderness aesthetic of repeat glacier photographs has inspired some, like myself, to care about global warming for the sake of these beautiful places. It also placed glacier photographs within a familiar Western visual tradition that came with a built-in politics of nature's authority. But, as environmental historians have been saying since the 1990s, there are problems with "wilderness." Wilderness offers a limited picture of nature, one of distant, uninhabited landscapes as a salve for corrupted modernity. "True" nature, says wilderness, is found in faraway, seemingly empty lands, untouched by human activity. A preoccupation with wilderness, historians caution, diverts our attention from mundane nature and devalues the mixed landscapes in which most

of us abide.⁷ While it may inspire concern, it is less successful when it comes to spurring action. Repeat glacier photographs portray glaciers as tragic victims in a global crisis. These are declensionist narratives, where decline is a forgone conclusion.⁸ They fail to forge intellectual, emotional, and practical links between concern about global warming and how we act in the places we live—and also how we experience global warming. While it is unreasonable to ask glaciologists to represent all aspects of global warming, it is important to recognize the limits of their representations. Repeat glacier photographs do not tell you how large-scale forces that frame how we live our lives, like global capitalism, commodity markets, infrastructures, and the consumer practices of a throw-away society, shape global warming and constrain what we can do about it. They don't tell you the causes or who is to blame. They also don't say much about the human consequences and how to manage them.

Representations of wilderness are also often inaccurate and contribute to long-standing misrepresentations of land. In North America, seemingly empty and sublime wildernesses are always someone's ancestral or present-day homeland. Picturing them as uninhabited suggests that people were not or are not there, which contributes to the erasure of Indigenous presence, past and present. If global warming, like pollution, is yet another twist in long histories of colonialism, depicting it as a problem for wildernesses that are actually someone's homelands furthers the displacement and structural erasure it relied upon to begin with.⁹

Repeat glacier photographs are doubly problematic in this regard—in what they depict and how they were made. Their production historically relied upon and contributed to the displacement of Indigenous people. The Vauxes' photographs helped displace and erase the Îyahê Nakoda (Stoney Nakoda), Tsuut'ina, Kainai, Pikuni, Niitsitapiksi, and Métis Peoples from what became Canada's Rocky Mountain national parks. Photographs taken by Field, Post, and others, following in the tradition of Muir's Alaska photographs, portrayed the southeastern corner of the state as a final frontier for explorers, scientists, and settlers, not the home of the Tlingit, Dené, Eyak, Sugpiaq, Aluutiq, and others for generations uncounted. Today's repeat photographs are direct descendants of these photographs. Through their format and lineage, problematic cultural assumptions of their forebears have been smuggled into current environmental discourses.

It would be unfair to place all of this on the shoulders of glaciologists who were simply using the tools at their disposal to address a pressing problem they

encountered. At the turn of the twenty-first century it seemed many nonscientists did not believe global warming was a real threat even though photographs of receding ice seemed to say unequivocally that it was. Certainly, glaciologists did not intend for their photographs to have negative consequences for how people perceive global warming and glacialized lands. Yet the meaning of an image is not only to be found in the intentions of its maker, but also in the interpretations of beholders. The point is not to assign blame. Nor is it to suggest glaciologists ought to stop taking repeat photographs; they indeed serve useful documentary purposes. Rather, the point is to stress that visuals, even of ostensibly bare ice, have histories and politics. Repeat photographs may have helped counter the politics of global warming denial, but they were enmeshed in historically generated politics of nature, land, home, and colonialism.

Glacier photographs do not speak for themselves; even within a relatively short span, repeat glacier photographs have meant different things. They have served as evidence of ice ages, glacier physics, global warming, and sometimes not much at all; they have conveyed ideas about wilderness, nature, and global warming. Glaciers are stubbornly, unavoidably polyvocal. This is why we need many hands, eyes, ears, voices, and minds working toward understanding glaciers and global warming; this is why we need humanists. Global warming and the ways it gets represented are not simply problems of nature; they are also problems of history and of politics.¹⁰ Ice, Sverker Sörlin has observed, has become historical.¹¹ Something as seemingly straightforward as repeat glacier photography has been entangled with other historical processes in sometimes surprising, looping ways. What they meant to the photographers, and how they were produced and used, were imbricated with shifting ideas of scientific evidence, colonial development of parks and wilderness areas, geopolitical anxieties, and the politics of industry-backed science denial. This multistranded story highlights the strengths and weaknesses of glacier photographs: under what conditions they can be considered persuasive and where their limits lie. Such contours only become visible when we think historically about representations of global warming.

Repeat glacier photographs oversimplify the problem by making it seem that there is only one way of picturing glaciers: as vanishing wilderness areas facing a global catastrophe, knowable by natural science alone. Yet the winding history of their production allows us to better understand why they have the kind of meaning

they do. This history shows that part of the problem is rooted in their making but also that resources for thoughtful, critical engagement with them can be found within that same history. Far from reinforcing simplistic dichotomies of pros and cons or believers versus skeptics, this history shows us that there are many ways to understand repeat glacier photographs, and that (for sometimes good reason) they haven't always been valued as a form of evidence for learning about glaciers. It helps us appreciate the contingency of picturing glaciers and global warming this way. Perhaps it could be otherwise?

Otherwise

There are as many ways of representing global warming as there are manifestations of it. Scientists, humanists, artists, and everyday activists are exploring multiple options to improve how we picture and think about global warming, too many to detail here.¹² Besides, this is a book about glaciers. Receding glaciers must be part of our conversation about global warming. Glaciers provide critical freshwater resources for many of us, and they support work of all kinds, from the labor of engineers at hydroelectric plants to ice cave tour guides. They also sustain life for plants and other critters. And they are themselves lively. Scientists are only just beginning to understand them as ecosystems, home to microbes, insects, and algae.¹³ None of this is visible from repeat photographs of wild, isolated glacier fronts. Yet, repeat glacier photography need not be a matter of wilderness. Glacierized lands have been peopled throughout the history of photography, and there are precedents for re-creating scenes that capture ongoing and changing entanglements between humans and ice. In the 1930s Martín Chambi (Jiménez), one of Peru's first Indigenous photographers, captured scenes of the Andean festival of Qoyllur Rit'i (Snow Star). This is a syncretic ritual merging pre-Columbian and Catholic beliefs in a high-altitude search for miracles and sanctity. Participants sing and dance their way up the Sinakara Valley in the Colquepunko Mountains. A select group of masked male dancers called ukukus ("tricksters of the glacier," according to American Peruvian artist Vincente Rivella) retrieve pieces of sacred ice from glaciers at the valley's head. Ukukus must be cunning to avoid falling into crevasses or being taken by one of the condenados, the evil spirits condemned, like Sisyphus, to perpetually carry boulders of ice up the glacier. The "Lord's Ice"



FIGURE 25 *Peregrino en Qoillur Rit'i, Oncongate*, 1934. Photo by Martín Chambi.
Courtesy of the Martín Chambi Photographic Archive, Cusco-Peru. 2018.



FIGURE 26 *La Cordillera Colquepunku, Peru*, 2004. Photo
by Eirik Johnson. Courtesy of Eirik Johnson.

(it belongs to both Christ and the Lord of Qoyllur Rit'i) is then brought down to the city of Cusco and distributed among the faithful in time to coincide with the feast of Corpus Christi.¹⁴ In the ritual of Qoyllur Rit'i, ice is quite literally transmogrified into an icon.

Chambi's photograph *Peregrino en Qoyllur Rit'i* (*Pilgrim at Qoyllur Rit'i*) (1930s) (fig. 25) captures a man in a woven poncho and cap sitting on a promontory above the crowds and campfires below, gazing contemplatively into the distance. Over seventy years later New York-based artist Eirik Johnson took a photograph echoing Chambi's (fig. 26). Johnson's photograph is framed from a similar perspective as Chambi's, looking up the valley toward the ice from a high vantage, with both pilgrims and glaciers appearing further away. The celebrants, tiny figures against a dry montane landscape, appear ant-like. Lacking the contemplative human subject, and with the glaciers clearly withdrawn, Johnson's photograph elicits nostalgia and loss. Yet it is not a lament for lost wilderness. The festivalgoers are still there, as are the glaciers, though diminished. The photograph thus evokes resilience and continuity in the face of overwhelming odds, placing people adamantly among their glaciers, even as the latter recede. The combination of change and obdurate constancy suggests an element of solastalgia—a grieving for home transformed.¹⁵ Certainly, this repeat pair goes beyond using photographs to show *that* global warming is happening, reinforcing the dichotomy of us-them camps of believers and skeptics. They show a specific way in which ice is entangled in people's lives and what the lessening of that ice might mean to them. They demonstrate that glaciers are natural and cultural, and we need the contributions of many types of investigators to help us see the complex ways our lives are tied, unevenly to the yet-undisclosed fates of mountain glaciers.

When I first met the Bow Glacier in 2003, I could not have predicted that our meeting would weave into a meandering (sometimes tortuous) decade of researching and writing about glacier representations. What I experienced then as a liberating wilderness now appears as a place of deep history, continual change, and diverse human and other-than-human entanglements. A place where glaciers have said many different things to many different folks. It has made me care for them as crossroads and archives for an array of perspectives and experiences. Now when I see a portrait of ice I wonder: What did the photographer see when peering through the lens? What did the glacier see?