

‘WONDERFUL PRODUCTIONS OF THE FRIGID ZONE’: POLAR ICE AND CLIMATE CHANGE IN EARLY NINETEENTH-CENTURY BRITISH DISCOURSE

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ABSTRACT: In 1818 the British Admiralty launched an Arctic expedition. The immediate stimulus was recent reports from whalers of a significant decrease in polar ice, a condition interpreted by some natural philosophers as an indication of impending climate change. Such a warming would affect not only the Arctic but also the European climate, with profound consequences, possibly beneficial for British agriculture and commerce. These ideas were widespread but not uncontested. Polar ice appeared as a natural wonder that called for scientific attention, just as it appealed to the Romantic artists. This article investigates this British discourse at the threshold of modern climatology during the final phase of the Little Ice Age. It puts our current climate debates about the cryosphere, deep time and geoen지니어ing into historical perspective.

KEYWORDS: polar ice, climate change, the Arctic, William Scoresby Jr, Little Ice Age, cold

Pleydell Wilton was a Church of England chaplain in Gloucestershire. He also wrote poetry and collected some of his works in *Geology and Other Poems*, published in 1818. The timing was no coincidence: one of the longest poems in the volume is ‘The Polar Ice: Written at the time of the sailing of the northern expedition’. The expedition in question consisted of two parallel voyages of exploration. *Alexander* and *Isabella*, under Lieutenant Edward Parry and Commander John Ross, respectively, set sail in search of the Northwest Passage, whereas Captain David Buchan commanded *Dorothea* together with *Trent*, piloted by John Franklin, with the prospect of reaching the North Pole.

Wilton’s poem is supplied with extensive footnotes, including quotations from recent articles in scientific journals about the Arctic and the awe-inspiring polar ice. It evokes imagery of an almost otherworldly, truly sublime landscape. Wilton also communicated a theory of climate change. The sources he cited reported the considerable reduction in ice masses in the previous year, 1817, a condition that baffled whalers and scientists. These themes in Wilton’s poem mirror a contemporary British discourse about the Arctic, polar ice, cold, climate and geohistory. The following analysis investigates this discourse as a study in the history of ideas. How did explorers and natural philosophers conceptualise the Arctic environment and, more specifically, what ideas about climate were inferred from the observations on polar ice? Although the extreme

North was geographically far away, the Arctic concerned British intellectuals of various kinds and on many levels. The melting of the polar ice, Wilton and others speculated, might make the European climate milder and perhaps enable the vineyards of England to flourish once again, as in Roman times ([Wilton 1818](#): 84; [Porden 1818](#): 13; [Some remarks 1818](#): 281; c.f. [Leslie 1818](#): 22–23). Such beneficial agricultural conditions would mean economic profits that in turn could strengthen Great Britain's 'superiority among nations' – Wilton's poem is indeed a piece of nationalistic propaganda ([Wilton 1818](#): 84).

Wilton was not the only person whose fancy was spurred by the twin expeditions of 1818. Anne Eleanor Porden wrote *The Arctic Expeditions: A Poem* in the same vein, containing additional references to the reports of the polar ice. Icebergs of gigantic proportions, Porden wrote, had allegedly broken off and drifted southward. The cooling effect this had on Portugal and northern Africa was but temporary: in the long run, the reduction in polar ice would probably even out the Earth's temperatures to some extent, so that the Arctic regions might become habitable and the European climate warmer ([Porden 1818](#): 11–12). With reference to an article by Sir John Barrow – Second Secretary of the Admiralty and an energetic proponent of the 1818 expeditions – Porden communicated the idea of a turning point in the climatic history of Europe that would end four centuries of extreme cold, manifested in the impenetrable ice-masses of the Arctic, with frigorific effects on the subpolar continents ([Porden 1818](#): 5–6 and *passim*; on Barrow, see [Wheatley 2009](#)).

With their poems – passionate in tone, sensationalist in scope, serious in intent – Wilton and Porden intervened in a number of contexts. One was geopolitical, expressed in the overtly nationalistic and imperialistic themes in both poems. Another context was cultural. The year 1818 marked the threshold of a new era in British polar exploration, not only at sea but also in the sphere of narratives and images. Just as the North Pole exerted its influence on the needle, the Arctic functioned as a magnet to public interest. Travelogues from the polar regions were tremendously popular. The icy landscape with its sublime characteristics, and the cold, desolate North as a place where human physical and mental abilities were tested to their very limits, were themes that attracted artists of all kinds ([Carroll 2013](#); [Cavell 2017](#); [David 2000](#); [Lewis-Jones 2017](#); [Loomis 1977](#); [Potter 2007](#)). A third context concerned the natural world itself, or rather conceptions of the Arctic landscape. In Britain by that time, in 1818, there was a lively discourse about the polar regions, and several thinkers argued that understanding this frozen environment was central to knowledge of nature, in terms of both general meteorology and physics, and more specifically regarding the peculiarities of these icy landscapes. With the surprising reports of decreased polar ice, ideas of climate change became a recurring feature – and a topic of disparate opinions – in the literature treating the Arctic.

Historical research on British polar exploration is extensive. In most cases, it takes the 1818 expedition as a starting point for investigations of the nineteenth century, with particular interest in the cultural and political impacts of the lost Franklin expedition of 1845. This vast body of research has primarily aimed at showing how narratives of the Arctic served ideological functions pertaining to, first, British nationalism and imperialism and, second, masculine heroism, which in turn supported the former (e.g. [Hill 2008](#); [Lewis-Jones 2017](#)). More specifically, scholars in this stream have convincingly shown how the aesthetic concept of the sublime was employed for these ideological purposes. This interest long dominated the research to such an extent that, in 2016, Benjamin Morgan urged historians to move beyond such interpretations and read the historical records less allegorically and more literally as information about nature itself: the polar landscape, its flora and fauna, the Arctic climate and so forth ([Morgan 2016](#)). The following investigation of polar ice and climate change essentially follows Morgan's suggested line of ecocritical enquiry beyond politics and gender. Moreover, the present article is distinguished chronologically from previous research in that it focuses on the early nineteenth century and traces discursive threads back to the previous century rather than forward to the Victorian era.

The analysis aims to advance our historical understanding of the Arctic and climate change. While some important studies pay attention to this interrelationship in this particular time and place ([Carroll 2013](#); [Johns-Putra 2015](#); [Zilberstein 2017](#)), this article will both highlight previously neglected or marginalised sources and explore the discourse in greater depth. Among these published sources are journal articles, encyclopaedia entries, books and, not least, the narrated observations of whaler William Scoresby Jr, a key figure who deserves more attention in polar historiography. In our present time, the cryosphere has come to the fore in the context of global warming and the climate crisis ([Radin and Kowal 2017](#)). Icebergs and polar glaciers have become potent symbols of the perilous situation ([Carey 2007](#)). This study will put this current awareness and symbolism into historical perspective, albeit implicitly. It connects both with the well-established study of climate history (for a thematic overview see [White, Pfister and Mauelshagen 2018](#)), and with the emergent interdisciplinary field called 'Ice Humanities' ([Dodds and Sörlin 2022](#)). The British discourse mapped and discussed here reflects an early realisation of the importance of understanding the intricate connections between polar ice and global climate. In different ways and to various extents, it also anticipated current ideas of planetary thinking, deep time conceptualisation and geoengineering.

Relentless cold

By 1818 the incentives for polar travel had gravitated towards scientific research alongside whaling – a business that had in fact been in decline for more than a century – and the prospect of establishing new trade routes. Apart from surveying Arctic flora and fauna and advancing geography and cartography, there was progress to be made in a number of areas, ranging from meteorology and astronomy to understanding terrestrial magnetism and the Earth's curvature at the poles. After centuries of exploration, the Arctic was still full of blank spaces on the maps, literally as well as figuratively. Pivotal to this new scientific endeavour was the 1773 expedition commanded by Constantine Phipps, who stated the importance of 'the promotion of natural knowledge' in his published journal ([Phipps 1774](#): 20; see also [Ejågesund 2008](#)). Almost half a century later, major questions remained unanswered. William Scoresby Jr, the most experienced whaler and Arctic scientist of his generation, included numerous tables, statistics, measurements and descriptions of natural phenomena in his much acclaimed *An Account of the Arctic Regions with a History and Description of the Whale Fishery* (1820) in order to meet this 'great deficiency of observation in the polar regions' ([Scoresby 1820](#): 396). Polar ice in all its forms, shapes and physical aspects appeared as a particularly elusive phenomenon. Scoresby's detailed reports on this were unparalleled at the time and therefore a recurring reference in the scientific literature. Another topic of interest concerned climate and, by extension, how the masses of polar ice might causally relate to climate.

The physicist and secretary of the Royal Society, David Brewster, presented a paper on 7 February 1820, later published as 'Observations on the mean temperature of the globe'. He called for more empirical studies of the subject and referred approvingly to Scoresby's reports; indeed, Brewster claimed that scientific records of temperature and other climatological parameters constituted a crucial motive for further polar exploration ([Brewster 1820](#): 207, 213–214). A similar argument was made by Bernhard O'Reilly, physician onboard an Arctic whaling ship in 1817. He wrote a 350-page travelogue in response to 'the absolute want of scientific information on the subject of northern climates' ([O'Reilly 1818](#): iii). Even though Brewster did not explicitly discuss the masses of ice and snow in the North, possible connections between climate and the Arctic were addressed again and again in natural philosophy in the decades around 1800. Theories differed and speculations abounded, but the common denominator was cold itself. Early modern natural philosophers viewed cold as one of nature's most taxing qualities to grasp. Difficult but also essential, because, as Francis Bacon had declared in the 1620s, heat and cold constituted nature's two main energies or forces. Robert Boyle took on the

challenge, and his pioneering *New Experiments and Observations touching Cold, or an Experimental History of Cold* (1665) was still an indispensable source in the early nineteenth century, one that Scoresby and others relied on (Rosengren 2023).

Boyle had conducted his experiments during a peak of what would later be termed the Little Ice Age, a period of intense cold and erratic weather events mirrored in the fairs on the frozen Thames and in cultural depictions of winter in landscape painting, poetry and plays (Fagan 2000). During the eighteenth century, British newspapers frequently reported on extreme cold. For example, in June 1795 the temperature in London plummeted to such low levels that the birds became numb and could not fly, 'being oppressed with the uncommon cold and density of the atmosphere', according to the *Morning Post*. 'In Covent-garden market', the article continues, 'the dealers in vegetables sat wrapped up in cloaks and great coats, as if they had mistaken a Midsummer's day in England for the regions of Spitzbergen!' (News 1795). The wording further shows that the Arctic – here, Spitzbergen – was by then part of the vernacular as a kind of proxy for all things related to severe winter conditions. When polar travellers told of the loss of ice in 1817, this news was received with the harsh 'year without summer', 1816, fresh in the memory (Behringer 2019; for local reports in the 1810s, see Veale and Endfield 2016). The situation was thus favourable for the kind of enthusiastic ideas of climate change – i.e. a turning point with the potential of warmer days ahead – expressed by Wilton and Porden.

Against this background, with its intellectual as well as practical dimensions, cold became a compelling object of scientific enquiry. In *Encyclopaedia; or, A Dictionary of Arts, Sciences, and Miscellaneous Literature* (1798), various strange effects are listed under the entry 'Cold': extreme cold can splinter trees, it can even make rocks crack. Frozen metal can cause blisters on the skin. Really cold air burns the lungs, and it kills cattle and pets. The article also connects the subject matter with climate. Ice absorbs heat, it is explained. Consequently, the large icebergs in the polar regions have the capacity to cool their surroundings. 'Indeed, where great quantities of ice are collected, it would seem to have a power like fire, both augmenting its own cold and that of the adjacent bodies' (Cold 1798: 137). This has been the case in Iceland, the article claims, where colossal icebergs from the Arctic have remained for years before melting away completely, producing this effect with dire consequences for human societies.

In sum, ideas about polar ice and climate in the British discourse at the time of the 1818 expeditions connects with both the history of science and the Little Ice Age in general, including its aesthetic manifestations, such as the poems by Wilton and Porden. It is now time to take a closer look at the conceptions

of polar ice, mediated mainly through Scoresby's reports, before turning to the debate about climate change in greater detail.

The enigmatic polar ice



Figure 1. John Ross – *A Remarkable Iceberg July 1818*.
<https://www.flickr.com/photos/britishlibrary/11004309725>

With Romanticism, the Arctic was established as the quintessential locus of sublime nature (Rix 2023a). This land of abundant snow, ice in the most astonishing shapes and overwhelming dimensions, intense cold, strange wildlife, the aurora borealis and other optical phenomena appeared as a land of wonder. Even the most sober, scientific travel reports included passages in which the authors expressed their emotional experience by means of aesthetic vocabulary and fanciful metaphors. In the early nineteenth century, this double-edged rhetoric had become a standard trait of polar travelogues. A review of the account of Ross and Parry from 1819 notes that, in this genre, ‘dry details of hydrography were enlivened by discussions and schemes almost bordering upon romance; and ... they were assailed by poetic theories of climate’ (Account 1819: 151). More than anything else, it was the ice that struck the

aesthetic sensibility and triggered scientific interest. Under the entry 'Cold' in *Encyclopaedia Britannica* 1818, the many shapes of polar ice are described as 'the grand productions of nature' ([Cold 1818](#): 259). This phenomenon constitutes 'one of the greatest curiosities in nature', according to *A Concise System of Geography* ([Vint 1800](#): 53).

Not surprisingly, then, William Scoresby Jr devoted more than a hundred pages to the polar ice in his *An Account of the Arctic Regions*, a monumental work in two volumes. The publication of *An Account* in 1820 confirmed Scoresby's authority on the subject. It is 'by far the most accurate and satisfactory account that has ever been given to the public, of the varied peculiarities of the Arctic regions', wrote the reviewer for the *Edinburgh Monthly Review* ([An Account 1820](#): 628). Scoresby made his first trip to the Arctic when he was only ten years old, onboard a whaler of which his father was captain. From the age of thirteen, Scoresby Jr went on polar journeys almost every summer for two consecutive decades. During the winters, he studied chemistry and natural philosophy at the University of Edinburgh. He thus made a transition from whaler to scientist, which was highly unusual at the time ([Bravo 2006](#)). Scoresby's vast experience as a polar explorer opened doors to the learned community. He was in contact with Joseph Banks and Humphrey Davy and, after the publication of his magnum opus, he visited Paris where he met George Cuvier, Alexander von Humboldt, Joseph Louis Gay-Lussac and others of the scientific elite ([McConnell 1986](#): 258; [Stamp and Stamp 1976](#): 102–03).

It was with a work on polar ice that Scoresby made his scientific debut. This extensive paper was read on four occasions at the Wernerian Society in Edinburgh between December 1814 and March 1815 ([Jackson 2008](#): xx). The text was later published in its entirety or in parts in several journals, and it was also translated into French and German. In footnotes to his poem, Wilton cited long passages from one of these articles, which appeared in *Journal of Science and the Arts* in 1818 – an indication of the reach of Scoresby's observations and of the dissemination of the polar imaginary in contemporary culture. In meticulous and systematic fashion, using improved instruments, Scoresby developed his observations of Arctic nature and presented several papers. The topics ranged from the peculiar colour of the sea water to the crystalline shapes of snow and the gravity of ice. In more-or-less revised form, these studies were then incorporated in *An Account* (for a list of Scoresby's published articles, see [McConnell 1986](#)).

Scoresby opened his 1814–1815 paper by describing to the British readership the almost unimaginable environment of the polar region: 'a country where every object is strikingly singular, or highly magnificent. The atmosphere, the land, and the ocean, each exhibit remarkable or sublime appearances' ([Scoresby 1815/1818](#): 261). What fascinated him the most in this landscape

was the ice. Since it appears in such ‘great abundance and variety’, Scoresby named, described and classified these forms in a quasi-Linnean fashion, distinguishing among eighteen types including field, floe, drift-ice, brash-ice, sludge, pack, patch, tongue, land-ice, etc (Scoresby 1820: 225). Most of these terms, Scoresby explained, had long been used by whalers. An almost identical list was presented by Ross in his travelogue from the 1818 expedition onboard *Isabella* and *Alexander* (Ross 1819: xxxv–xxxvi). A lexicon of polar terms was thus being communicated to a large British readership that had no first-hand experience of the Arctic in all its otherness.

The polar ice displayed visually striking shapes that often appeared as if they were works of art or architecture (e.g. Scoresby 1820: 98). The ice also generated peculiar visual effects in combination with the Arctic light, such as the iceblink, a bright light appearing near the horizon resulting from the reflection of light off an icefield below (383–95). In Scoresby’s description, it is one of several examples illustrating the diverse colours the ice can render in this environment: a palate ranging from emerald and azure to pure white and yellowish, greyish and opaque shades. Beneath the water surface the ice could look almost black. The colour depended partly on whether the water was saline or fresh, a fundamental difference to which Scoresby devoted particular attention in his studies (230–33 and passim). Saltwater ice was lighter and somewhat elastic, he explained, whereas freshwater ice was hard and brittle, like glass or crystal. The latter could in fact be used as a convex lens to produce fire. Scoresby and his crew found it fascinating that the sun beams refracted through such an ice lens could be burning hot while the ice remained cold and did not melt (232).

One manifestation of ice unique to the polar landscape was the iceberg, a kind of subclass of varied shapes, sizes and colours (Scoresby 1820: 250–62 and passim). Icebergs could be smooth and compact or perforated with holes and caves; they could be solid or include rivulets and small lakes. Scoresby and others used the term iceberg for the large glaciers between mountains that terminated in a perpendicular front straight into the sea. The floating icebergs, also called ice-islands or floating-mountains, were understood to be huge blocks of ice that had detached from a glacier at this front, either through sheer gravitational pull or because water running inside the glacier had created cracks. When this water froze it would expand with great energy. No travel report from the Arctic omitted detailed and vivid descriptions of the icebergs, with their display of immense natural forces in action. Scoresby, who usually refrained from poetic language and hyperbole, was no exception. Even for him, the birth of an iceberg as it detached from a glacier and plunged into the water, the rotation of an iceberg or the collision of two icebergs were simply overwhelming scenes to behold:

The majestic unvaried movement of the ice, – the singular noise with which it was accompanied, – the tremendous power exerted, – and the wonderful effects produced, were calculated to excite sensations of novelty and grandeur, in the mind of even the most careless spectator! ([Scoresby 1820](#): 250)

A long time after such an event, when the iceberg seemed to have settled in the water, movements and sounds continued inside the ice: 'a noise resembling that of complicated machinery, or distant thunder' ([Scoresby 1820](#): 249).

It was Scoresby's contention that the icebergs on land were growing in size, in spite of the relative summer warmth. The growth by precipitation and meltwater that froze once the temperature dropped exceeded the effects of melting. From this, Scoresby concluded that the increase over time was perpetual ([Scoresby 1820](#): 108). The land ice not only grew vertically but horizontally as well, so that tongues or plates of ice extended into the sea, eventually breaking off from the main body and floating away. This resulted in another form of iceberg: fields (nowadays called shelf ice) that may be so large as to produce conditions similar to the glaciers in the fjords (225–26, c.f. Scoresby [1815/1818](#): 263–64). Under certain circumstances, primarily shelter from winds and strong sea currents, polar ice could then become a self-generating phenomenon. For Scoresby, this opened up a deep time perspective. 'For if we can conceive', he asked rhetorically,

from the fore-mentioned process of the enlargement of fields by the addition of the annually deposited humidity, that a few years may be sufficient for the production of considerable fields of ice, what might be the effect of fifty or sixty centuries, affording an annual increase? ([Scoresby 1820](#): 261)

One idea that Scoresby inferred from this was that 'a continent of ice mountains may exist in regions near the Pole, yet unexplored, the nucleus of which may be *as ancient as the earth itself*, and its increase derived from the sea and atmosphere combined' ([Scoresby 1820](#): 319, my emphasis). This is also one of several instances where Scoresby intervened in the widely debated question of whether the North Pole was surrounded by open sea or not, and consequently whether it could be reached by sail or land travel ([Martin 1988](#)). Scoresby was not the only one for whom the Arctic evoked deep time speculations. John Laing was a surgeon onboard a whaler under Scoresby Sr in 1806 and 1807. In his travelogue, published in 1815, he wrote of Spitsbergen:

The entire face of the country exhibits a wild, dreary landscape, of amazingly high sharp-pointed mountains, some of which rear their summits above the clouds, and are capt with strata of snow, probably coeval with the creation of the world. ([Laing 1815](#): 74)

Laing also pondered over the immense polar glaciers, 'the most astonishing of all the natural phenomena of this country', which in 'size and magnificence'

by far superseded the glaciers of the Alps ([Laing 1815](#): 75). With his scientific habitus, Scoresby also discussed the different manifestations of polar ice in relation to one another, claiming that ‘icebergs are probably formed of more solid ice than glaciers; but in every other respect they are very similar’ ([Scoresby 1820](#): 107). This difference was not insignificant, though, since the fixed icebergs ‘are as permanent as the rocks on which they rest’ (108). As with several other of Scoresby’s theories of the polar glaciers, this latter conjecture was contested in *The Edinburgh Philosophical Journal* by Thomas A. Latta, who served as physician on Scoresby’s expedition in 1818. Based on his own excursions on the glaciers of Spitsbergen, Latta also raised questions regarding Scoresby’s ideas about the crevasses and the shape of icebergs. Scoresby replied with a short and rather dismissive text, to which Latta in turn responded with another extensive article on the subject of ice and climate on Spitsbergen ([Latta 1820](#); [1827](#); [Scoresby 1827](#)).

The controversy between the two men illustrates the many uncertainties that scientists faced in the early nineteenth century before the establishment of modern glaciology by Louis Agassiz, Jean de Charpentier and others. While these new theories, developed in tandem with geology, did advance Arctic science, it was not self-evident how to extrapolate observations from the Alps to the extreme conditions of the polar regions. When Frederick William Beechey published his account of the 1818 expedition – he travelled onboard *Trent* under Franklin – as late as 1843, he was able to include such theories. Beechey contended that, even though the same laws of physics applied, the results nevertheless differed, ‘for in the arctic regions all ordinary sources of fresh water are locked up by the iron hand of perpetual frost’ ([Beechey 1843](#): 150). The crevasses on the polar glaciers may indicate the kind of movement that Agassiz had proposed, Beechey considered. However, he added, ‘it is hardly possible to imagine a power capable of moving so large a body, firmly united at its base, as it must be, by perpetual frost to the ground’ (153). The extreme manifestations of the Arctic nature appeared as a veritable barrier to scientific understanding.

Climate change or coincidence?

Scoresby devoted several paragraphs to questions relating to climate. A large piece of ice functions like a cooling unit, and the extensive ice cover in the polar region also has the effect of equalising the temperature. This means that it is not necessarily colder the farther north one travels. Consequently, it might be as cold on Spitsbergen as at the North Pole, or even colder, depending on the quantity of ice. This, Scoresby asserted, was why every proposed model for calculating how the Earth’s temperature is distributed across latitudes had

failed ([Scoresby 1820](#): 353–54). The polar ice seemed to create a complicating factor. To assist the natural philosophers in this matter, Scoresby measured and collated notes in elaborate tables: his forty-page Appendix 1 to *An Account of the Arctic Regions* consists of 656 measurements made on 242 days over nine years. Furthermore, in the polar regions, the temperature can drop faster than anywhere else on Earth. When the cold settles rapidly, the body cannot acclimatise: the skin becomes dry, the lips crack, breathing causes a burning sensation in the chest and it becomes difficult to speak. The breath freezes and creates a layer of frost in the cabins. These 'morbid effects of a low temperature' are one reason why conducting research in the polar regions is such a daunting task (338). It is also another aspect of the Arctic environment that distinguishes it from familiar lands: even though there had been severe winters back home, the Arctic cold was 'so different from any thing experienced in Britain', Scoresby informed his readers (338).

Scoresby was aware that the science of climate, including atmosphereology and meteorology, was 'in a state of rapid improvement' but was still 'in its infancy' ([Scoresby 1820](#): 345). He mentioned Humboldt, Franklin and Hutton as important figures in this field of study, and he referred to the entry on 'Climate' in *Encyclopaedia Britannica* 1818 as 'an admirable article' (72). Scoresby's own contributions were not insignificant, even though he left the theoretical conclusions based on his empirical observations to others, which he explicitly admitted (395). Many whalers had reported the diminished ice fields in 1817, but it was the words of Scoresby that had the most noticeable impact. His estimation of a 2,000-square-league reduction circulated in the scientific journals and was forwarded in a formal letter from Joseph Banks to the First Lord of the Admiralty in promoting an expedition. The letter stated:

a considerable change of climate, inexplicable at present to us, must have taken place in the circumpolar regions by which the severity of the cold, that has for centuries past enclosed the seas in the high northern latitudes in an impenetrable barrier of ice, has been, during the last two years, greatly abated. (quoted by [Jackson 2009](#): xxix)

As this letter shows, the ice conditions in the Arctic were linked to climate on a macro level, representing an idea of such cultural magnitude as to find its way into the poems of Wilton and Porden. The conception of a major climate change that had taken place some four centuries earlier, resulting in both immense quantities of polar ice and low temperatures on the European continent, was widespread in British discourse. For the natural philosophers, such a climate change was an enticing problem, and even more enigmatic, against this background, was the recent sudden loss of ice – 'inexplicable at the present', as Banks put it. A basis for the ideas about climate in this context was a semantic shift that had taken place during the eighteenth century. 'Climate' used to

denote a geographic unit and was also imbued with ideas about human character and passions ([Mauelshagen 2018](#)). Elements of this early denotation still informed the British encyclopaedias at the turn of the century, but climate was now mainly employed as a concept relating to temperature, weather patterns, air humidity, etc.

Consequently, ‘climate change’ took on a new meaning. An 1812 example comes from *Omniana, or Horae otiosiores*, a journal produced by the poets Robert Southey and Samuel Taylor Coleridge. Under the heading ‘Change of Climate’, they claimed that the British climate had become colder in recent years. Two indications of this were a reduced swallow population and a delay by a month of the herring fishery off the east coast. The article touched on the possibility that natural disasters such as earthquakes and volcanic eruptions might cause climate change. Another suggested explanation was the import of foreign plants, which exerted a transformative effect on British ecosystems (a word not used in the article), but the authors argued against this theory ([Southey and Coleridge 1812](#)). Regarding volcanoes as a possible driver of climate change, there was no consensus in the scientific community and it was only marginally addressed. John Leslie, Scottish physicist and mathematician known for his research into heat and ice, argued decidedly against such a theory ([Leslie 1818](#): 8). Striking to the modern reader is that the 1815 eruption of Tambora in Indonesia was virtually ignored in speculations about polar ice in the late 1810s.

Regardless of the causes, centuries of low temperatures posed concrete problems to manage. Banks engaged in horticulture and in a lecture 1805 he addressed the need to adapt plants in Britain to the ‘ungenial springs, the chilly summer, and the rigorous winters’ that had occurred for some time ([Banks 1820](#): 21). The idea of an emerging pattern due to the British climate getting colder was firmly established in the early nineteenth century. One of the articles that Wilton relied on was ‘Some remarks on the deterioration of the climate of Britain, with an attempt to point out its cause’. It was published in *Journal of Science and the Arts* in the same volume as Scoresby’s paper on polar ice. This editorial makes the double claim of both long-term change and a more recent temperature drop. The latter was backed up by ‘the most irresistible evidence’: the springs were delayed, the summers had become shorter and these seasons were colder and more humid ([Some remarks 1818](#): 281). There used to be a time when vineyards flourished in Britain, but growing grapes was no longer possible and, in the future, the production of cider might face the same destiny – a ‘really melancholy’ scenario to imagine (282).

The mean temperature was dropping throughout the Northern Hemisphere, the article argued, supported by information from travellers. The glaciers in the Alps were expanding: indeed, ‘the accumulation of ice and snow is very

sensibly increasing' ([Some remarks](#) 282). The vicinity of Mont Blanc might even become inaccessible to travellers. The climate change that had begun 400 years previously had possibly trapped a colony of settlers in Greenland behind a barrier of ice, and since these masses of polar ice were the root cause of the cold climate at home, the future looked dire, because 'if the same causes continue to act, [it] is equally threatening to our at present more fortunate neighbours upon the continent of Europe' (286; on the Greenland colony, see [Rix 2023b](#)). With reference to the reports from the Arctic in 1817, the author was nevertheless optimistic. The 'year without summer' in 1816 might actually signal a change for the better. The article speculated that this year's cold was the result of large icebergs that currents and winds had transported southwards, with a frigorific effect on subpolar countries. A much larger quantity of ice than usual had broken off, so the cause of the recent cold in Europe was actually the beginning of a warming of the Arctic. In other words, the state of the polar ice could be interpreted as both cause and effect: a warmer Arctic caused lower temperature farther south, a transient condition that would pass with the melting of the floating icebergs. This was the theory that ignited the visions of Wilton and Porden of warmer days ahead.

Not everyone subscribed to these ideas of climate change. One divergent voice was that of John Leslie. In 1818, *Edinburgh Review* published an over fifty-page article by him on the subject.¹ It was framed as a review of five books about the Arctic printed the same year, but the text unfolded to present a broader critical examination. Leslie was writing against the grain when it came to the information about the polar ice in recent years. He maintained that reports of the diminished ice sheet were 'greatly exaggerated' and lamented that they 'have given occasion to much loose reasoning, to wild and random conjectures, and visionary declamation' ([Leslie 1818](#): 5). Accurately assessing such information would require a climate science taking both historical records and a planetary perspective into account. Only when we fully understand the laws governing 1) heat coming from the sun, 2) heat radiating from within the Earth and 3) the transmission of heat in the atmosphere, and how these three forces intercorrelate, could we truly understand global climate. Leslie was convinced that 'the economy of Nature' held these three factors in balance (9). The recent melting of polar ice, Leslie argued, was not nearly enough to influence the climate much farther south. With reference to a mathematical model proposed by Pierre-Simon Laplace, it would take 220 years to lower the earth's temperature one single degree (21). 'As long as ice remains to thaw, or water to freeze', Leslie concluded,

1. The article was published anonymously but the authorship has been established by historian Janice Cavell ([2008](#): 64, 257 n.52).

the temperature of the atmosphere can never vary beyond certain limits. Such is the harmony of the system; and all experience and observation forbid us to believe it to be subject to any radical change. Some years may chance to form more ice than others, or to melt more away; but it were idle to expect any thing like a general or permanent disruption of the glacial crust which binds the regions of the North. ([Leslie 1818](#): 19)

This did not mean that change could not occur at all. Leslie presented a long list of deviations in temperature plus extreme weather events from the fifth century onwards. From this historical perspective, the recent anomalies diminished in importance: ‘On glancing over these slight notices, it is obvious that no material change has taken place for the last thousand years in the climate of Europe’ ([Leslie 1818](#): 30). True climate change would appear in ‘vast cycles’, and to understand these we would need further advancement in science, meteorology in particular (30). But when it came to the Arctic, Leslie was adamant in his conviction that ‘we certainly can perceive no decided symptoms of any general or progressive tendency towards a dissolution of the Polar ice’ (34). Leslie was not the only sceptic in this discourse, albeit arguably the most thorough and energetic. An editorial in *Journal of Science and the Arts*, published only a few days before the four ships set sail in 1818, downplayed the reports from the previous year and noted that the reduction in polar ice could very well be coincidental and not an indication of advancing climate change ([Expedition 1818](#)). As was the case with the polar ice, climate and climate change were contested areas in early nineteenth-century British discourse.

Hopes in vain

Arctic science and theories of climate did not begin with the expedition of 1818 and the reports of polar ice that preceded it, but these events gave the discourse mapped here considerable momentum and fuelled the dissemination of the polar imaginary in the broader culture in Britain, illustrated here by the poems of Wilton and Porden. There were several forerunners. One is the book from 1806 by John Williams entitled *The Climate of Great Britain; or Remarks on the Change it has undergone, particularly within the last Fifty Years*. Although Williams’s focus was on domestic agriculture, he stressed the wider importance – ‘the health of Mankind’ – of an improved understanding of the elusive climate ([Williams 1806](#): v). No less ambitious but with greater authority, Erasmus Darwin treated the subject in *The Botanic Garden* (1791). With reference to articles in *Philosophical Transactions* and to Boyle’s experiments, Darwin subscribed to the idea that the alpine glaciers as well as the masses of ice in the Arctic were growing. Darwin unequivocally stressed

the correlation with the British climate: 'we cannot doubt but that the northern ice is the principal source of the coldness of our winters, and that it is brought hither by the regions of air blowing from the north' ([Darwin 1791](#): 51). Furthermore, Darwin proposed that these forces ought to be mastered for the benefit of civilisation. If a method were developed, he speculated, to transport icebergs from the Arctic to southern regions, the advantages would be twofold: 'the tropic countries would be much cooled by their solution, and our winters in this latitude would be rendered much milder for perhaps a century or two, till the masses of ice became again enormous' (51). Such ideas about geoengineering *avant la lettre*, as it were, also featured in the discourse some decades later. The aforementioned article in *Omniana* from 1812 explicitly referred to Darwin's proposal, and added another method, namely, to erect electric mills all over the country to supply electricity to the atmosphere and thus affect the weather. Similar thoughts about electricity as a key factor in weather – and, by extension, climate control – were expressed at length by Williams ([1806](#): 343–58).

Williams and Darwin may illustrate that the far-reaching discourse about polar ice and climate around 1818 was a culmination, not a starting point. Various theories of climate change had been suggested throughout the early modern period. With the unfolding of the scientific revolution from the seventeenth century onwards, these theories gradually downplayed theological explanations in favour of natural or anthropogenic causes ([Fagan 2000](#); [Gilson 2015](#); [Parker 2017](#): 7–15). New ideas paved the way for an emerging subfield of natural philosophy later to be labelled climatology. Input ranged from regional observations to grand theories of the Earth. The most influential thinker with a planetary perspective was arguably Georges-Louis Leclerc Buffon. In *Epochs of Nature* (1778) Buffon presented a theory of continuous global cooling. It took 60,000 years for the Earth to reach a temperature in which humans could thrive, Buffon argued, but we are probably at the end phase of this climatic optimum. Indicators of this was, first, the growth of the Alpine glaciers and, second, the polar ice at Spitsbergen and Greenland, which was larger than a century ago ([Buffon 2018](#): 168–175). Although Buffon briefly referred to Phipps and other explorers his planetary conception was founded on experimental science and theoretical physics.

In the early nineteenth century, climate theories could draw from new observations of the polar ice – 'these wonderful productions of the Frigid Zone', in the words of Scoresby ([1820](#): 252). As this article has shown, extrapolations from these observations were tentative and contested, and at the same time infused with radical claims. Not only was global climate considered a notoriously complex issue, it was 'commonly treated in a very loose manner', stated *Encyclopaedia Britannica* in 1818 ([Climate 1818](#): 177). This

encyclopaedia entry refers briefly to the theories of Alexander von Humboldt, whose newly presented concept of isotherms was also highlighted by Brewster in ‘Observations on the Mean Temperature of the Globe’ ([Brewster 1818–1823](#)). The theories of Humboldt established the basis of modern climatology ([Mauelshagen 2018](#)), and not long thereafter groundbreaking progress was made in the understanding of glaciers by Louis Agassiz, Ignaz Venetz and others. Venetz gave new input to conceptions of the Earth’s large expanses of ice and thus to the Arctic environment, which the travelogue of Beechey exemplifies. Consequently, the premises for scientific discussions of climate and polar ice changed a few decades into the nineteenth century.

The animated discussions mapped here, ignited by reports of reduced ice in 1817, petered out rather quickly. However, some of the ideas lived on – for example, the idea of a lost colony trapped behind a barrier of Arctic ice ([Rix 2023b](#)). The high expectations of Wilton, Porden and others came to an anticlimactic end when the twin expeditions of 1818 returned to England. No Northwest Passage had been found. The North Pole had not been reached. And perhaps more importantly, the ice had not continued to melt away but was back to normal. In hindsight, the conditions of 1817 appeared as an inexplicable anomaly, just as Leslie – and Scoresby ([1820](#): 264) – had suspected. In the Far North as well as at home, the cold remained during the last decades of the Little Ice Age.

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