

accept Canadian sovereignty over the various waterways of the Passage, Canada is vulnerable in the event of a rise in oil prices to the use of the Passage by tankers, with all the political and environmental dangers inherent in that. It is, in effect, a call to action: 'Canada must take steps immediately to ensure that she is not caught unawares on this subject. It is already quite late in the game' (page 5).

But this only covers the last section of the book, from pages 163 to 196. Before this there are two sections that seem more or less unconnected with the main thrust of the book save that they centre on aspects of the history of the Northwest Passage, and touch on a large number of others. These are Roald Amundsen's *Gjøa* expedition of 1903–06 and Henry Larsen's voyages through the passage in *St Roch* in 1940–42 and 1944. Moreover, and adding to the oddity of the book, these vary greatly in length. On Amundsen we have approximately 100 pages. On Larsen, whose activities were far more related to the putative point of the volume, namely the assertion of Canadian sovereignty, and whose story is a good deal more complex, we have only approximately 55 pages.

The section on the Amundsen expedition is fairly conventional. It starts with a chapter entitled 'The Silk Road and the Strait of Anian,' which is self-explanatory, and then continues with an account of the early life of Amundsen, leading up to the *Gjøa* expedition. This includes, of course, a treatment of the *Belgica* expedition. The account of *Gjøa* is also conventional but the author does stress that this was, in part, a scientific expedition, since Amundsen devoted great attention to magnetic studies during the course of it. This was because the expedition spent considerable time in the vicinity of the Magnetic North Pole. He also refers at length to the question of the relations between Amundsen's men and the local Inuit. He quotes (twice) Amundsen's comment that his 'sincerest wish' was 'that civilization may never reach them.' This was despite the fact that if Amundsen had really meant this, he would have removed himself and *Gjøa* from the harbour in which the meetings with the Inuit took place as soon as possible and not remained there for a second winter, during which a large group of Inuit settled in the vicinity of the ship. Moreover, he would not have taken Manni, a young Inuit from Gjoa Haven, with the aim of transporting him to Norway 'to receive an education.' In the event, the unfortunate Manni drowned in July 1906 while *Gjøa* was iced in at Herschel Island.

The section on Henry Larsen is informative. This reviewer is always surprised to be reminded that, when Larsen was confirmed as Captain of *St Roch*, he held the lowly rank of Constable in the RCMP, and was only promoted Corporal on 1 April 1929. The treatment of the great voyages of *St Roch* through the Northwest Passage under Larsen's command is probably the best part of the book. In particular, the account of the death of 'Frenchy' Chartrand and Larsen's great journey to summon Father Henri Pierre to officiate at his funeral is very interesting, and demonstrates, if demonstration were required, the

great leadership qualities shown by Larsen during his command of the vessel.

With the death of Larsen at 65 in 1964, then holding the rank of Superintendent, we are pitched straight into the politics of the twenty-first century, and the book descends into being a polemic.

There are four chapters on the threat to Canada posed by global warming and the opening up of a northern sea route through the islands of the north. These are unlikely to convey anything new to readers of *Polar Record*, but there are some interesting extracts from speeches made by politicians. Revealing the political agenda behind the book, there is also a 'Suggested Non-Inclusive List of Issues to Be Addressed in a Master Fundamental Plan under the proposed Canadian Northwest Passage Commission.' These include the development of an 'ironclad' legal case for Canadian Arctic sovereignty, the development of plans for the surveillance of the Passage, the procurement of icebreakers, and so forth.

Unfortunately, the book is littered with examples of poor style and proof reading. We have on page 37, for example, the fact that Amundsen 'lost no time' in issuing an order and, in the same sentence, that Ristvedt 'lost no time' in complying with it. On the next page, a sentence ends in a comma only to continue indented on the next line. On page 49, we have King William Island and Prince William Island in the same paragraph. Spitzbergen is Spitzbergen throughout, and, on page 101, we are informed that it is now Svalbard, except in the index where it becomes Sualberg. On the same page Bjørnøya becomes Bjfrnfy and in the notes on page 196, the Deutsche Seewarte Institute is the German Navel Observatory!

The book is well presented with useful maps and illustrations, and there is a reproduction on the cover of a wonderful painting by Lauritz Haaland entitled 'Gjøa sailing the Northwest Passage.' However, in conception it is fundamentally flawed. The connection between Amundsen's voyage and the current and future threats to the Canadian north is tenuous, and, as a result, the book lacks focus. It could be a history of Amundsen's and Larsen's voyages or it could be an analysis of the current political situation with regard to the seaway, but it can hardly be both. One concludes that the editorial process adopted by the publishers is inefficient both with regard to concept and execution. The book should not have been allowed to reach the public in its present state. (Ian R. Stone, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

ENDING IN ICE: THE REVOLUTIONARY IDEA AND TRAGIC EXPEDITION OF ALFRED WEGENER. Roger M. McCoy. 2006. Oxford: Oxford University Press. xii + 194 p, illustrated, hard cover. ISBN 0-19-518857-8. £17.99.
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This is an unusual book, being, as it is, two separate but related stories connected by the presence of one

man: Alfred Wegener. The book is in part a biography of Wegener, a remarkable German meteorologist and scientific thinker, with special emphasis on his final Greenland expedition of 1930–31, on which he died during a winter trek on the high, barren icecap. The other part of the book is essentially a history of the development of the theory of plate tectonics and the earlier, less-sophisticated hypothesis of continental drift, particularly as set out by Wegener in the second and third decades of the twentieth century.

Born in 1880, Wegener's undergraduate education emphasised astronomy, but he thereafter shifted disciplines, training in meteorology, like his older brother Kurt, and then extending his work to climatology. In 1906, he joined Ludwig Mylius-Erichsen's *Danmark Expedition* (1906–08) to Greenland as the meteorologist. Tragically, Mylius-Erichsen and two others died during an extended winter excursion away from their base camp. After beginning his academic career lecturing at the University of Marburg, Wegener made a second trip to Greenland in 1912–13 as a member of Johan Peter Koch's expedition, also taking along one of his students, Johannes Georgi. Throughout this period, Wegener's research interests prompted him to focus on what geological, geodetic, geophysical, and palaeontological data could indicate about past climates. He made extensive studies in these fields, and his continual theorising about the evidence he accumulated led him to write *Die Entstehung der Kontinente und Ozeane* (Wegener 1915), in which he first outlined his theory of continental drift.

His audacious proposal that continents moved laterally made Wegener a figure well-known in the scientific community, although not always in a positive sense. As has frequently been the case through the centuries when a new and shockingly different hypothesis has been advanced, the majority of the scientific community ranged from sceptical to downright hostile, with criticism being made both professionally and personally. Perhaps the most scathing of the lot were a series of geologists and geophysicists — such as the British geologist Philip Lake and R.T. Chamberlin of the University of Chicago — who clearly resented Wegener's intrusion into fields they regarded as their own. Intriguingly, for those with Antarctic interests, it is notable that one of the most open-minded scientists regarding Wegener's theories was W.A.J.M. van Waterschoot van der Gracht, the one-time government geologist of The Netherlands, whose brother Joseph participated in the second voyage of *Aurora* during Douglas Mawson's Australasian Antarctic Expedition (1911–14). Despite continuing criticism of his theories, during the next 15 years Wegener's book was re-released in a series of updated editions, and he was named professor in the Department of Geophysics and Meteorology at the University of Graz.

In 1928, at the instigation of Professor Wilhelm Meinardus of the University of Göttingen, Wegener was invited to lead an expedition to Greenland to make measurements of the thickness of the icecap using a new

seismic method. Wegener felt that this was his last chance to go back to Greenland and execute his own plan for an extensive investigation of the Greenland icecap, and he expanded the scope of the research to include a variety of glacial, geodetic, and atmospheric measurements as well as to make year-long, daily meteorological observations at three stations, on the west coast, east coast, and centre of the icecap. The *Notgemeinschaft der Deutschen Wissenschaft* (Emergency Aid Committee for German Science), founded after the First World War to provide funding to struggling scientists, agreed to finance the expedition.

After a preliminary reconnaissance in 1929, the expedition left for Greenland in April 1930. Almost immediately, unforeseen problems developed, as sea ice blocked the location where the supplies for the western and central bases were to be unloaded. By the time the materials had reached solid ground, the expedition was almost six weeks behind its planned timetable. Due to a variety of reasons, including unexpectedly low temperatures, unfavourable travelling conditions, and mechanical problems with the motor sledges — which had been too heavily relied upon — the establishment of Eismitte, the base on the icecap, fell even further behind schedule. Wegener — with the tragedy of Mylius-Erichsen lurking in the back of his mind — had determined that no sledge trips with dogs would be made after mid-September to Eismitte (Wegener 1933), but Georgi and Ernst Sorge, manning that base, indicated that they would not remain through the winter if they did not have more supplies than those that had reached them. Against his better judgement, and own directives, in late September Wegener set out for Eismitte, some 400 km (250 miles) away. The journey was beset with problems, as 12 of the 13 Greenlander drivers refused to complete the journey and turned back early; Wegener's only German companion, Fritz Loewe, suffered from terribly frostbitten feet; they passed the broken-down motor sledges; the terrible weather and snow conditions made a trip that earlier in the season had taken only 12 days last more than five weeks; and with only three men continuing to the base, they fell far short on the supplies they had hoped to deliver. When Wegener arrived at Eismitte on 29 October, it was far too late safely to try a return journey to the coast, but he left Loewe to recover with Georgi and Sorge and began his return with the one remaining Greenlander, Rasmus Villumsen. They both perished in the terrible conditions of the icecap.

Approximately half of *Ending in ice* is dedicated to this expedition and its aftermath, and the author raises a number of significant issues about the causes of the disaster. Chief among them, he indicates, were an over-reliance upon the motor sledges, which failed; a lack of effort to communicate via radios, although they had been brought out with the expedition supplies; miscommunications between Wegener and various expedition members; and unexpectedly harsh weather and ice conditions. However, disappointingly, the book does not delve into a number of other issues raised in an important article in this journal by

Cornelia Lüdecke (2000). In fact, that article and many of the primary documents and other sources referenced in it are never cited or acknowledged in this book. This is highly unfortunate, because the article thoroughly addressed key issues that really should be considered in a full-length work on Wegener and the expedition, and the lack of their inclusion raises questions about the comprehensiveness of the research that went into the book.

Among the most important issues dealt with by Lüdecke but not significantly addressed in the current volume is the role played by the Notgemeinschaft. Wegener had hoped to use aircraft to establish Eismitte, but the idea was quashed by the funding body due to its cost. Later, when a search for Wegener was organised, the Notgemeinschaft vetoed the use of aircraft — including those of Gino Watkins, which were already being used on the Greenland icecap — on the grounds that ‘the reputation and success of the expedition [would] be endangered.’ The Notgemeinschaft determined that if no aircraft were used in the search, the public would assume it was impossible to use them and would not blame the organisation (Lüdecke 2000: 146).

It proved to be Georgi who was the scapegoat for the tragedy, and although both this book and Lüdecke’s paper concur that he was unfairly sacrificed to save other reputations, the paper also drew attention to several important issues relating to Georgi that the current book lets lie. *Ending in ice* presents Georgi, as well as the other members of the expedition, as united in their admiration and support of Wegener. Lüdecke, however, showed that Georgi had become essentially a rival of Wegener. Georgi had proposed his own expedition, but his plan had been incorporated into Wegener’s, making Georgi his subordinate. Georgi’s dissatisfaction showed itself in behaviour, according to Lüdecke, that led to quarrels with Loewe, who insisted on never serving under the former after the training expedition in 1929. Wegener, unfortunately, did not take this situation seriously, although it ‘should have been a warning for Wegener to take notice of Georgi’s self-centred and uncooperative manner’ (Lüdecke 2000: 150). Nowhere was this more significantly demonstrated than in Georgi’s insistence on setting Eismitte at a distance of 400 km (250 miles) from the west base rather than the 300 km (190 miles) preferred by Wegener. That might have made all the difference.

Another significant issue regarding Georgi that was not addressed in the book was his recalculation of provisions. After Wegener departed, Georgi recounted the supplies held at Eismitte, and documented that there was enough food to last five men until the middle of June 1931 (Georgi 1938: 255). Georgi did not ‘publish this information until 1938, in the fifth expanded edition of his book *Im Eis vergraben*. Had the correct figures been known before his return trip, Wegener might have stayed at Eismitte. Today, it makes one wonder how Georgi could have miscalculated such an essential figure’ (Lüdecke 2000: 150).

The final part of the book is the story of the development in the years following the Second World War of the understanding of plate tectonics. Although these advances were not directly attributable to Wegener’s theories, they did confirm that some of his basic premises — if not his specific details — showed remarkable foresight and intuition.

Ending in ice is attractively presented, and its photographs, maps, and diagrams are of great value to the reader. However, it is rather disappointing that a publisher with the high standards of Oxford University Press should allow a book to appear with such an apparent lack of editorial oversight. Certain statements of fact are repeated several times throughout the book, in a way that makes one feel that the author thinks readers cannot remember what they have been told. Similarly, the first names of characters in the book are mentioned over and over in a most-annoying fashion. The book also lacks consistency in line editing, as perhaps most clearly shown by the indecision as whether or not to capitalise ‘Earth’ — despite it being a proper name. This reaches its most inconclusive situation on page 22, when it is used twice in one sentence, both capitalised and not!

There is a final point that is perhaps of particular interest to readers of *Polar Record*. In mentioning a conference held at the Royal Geographical Society in 1923 — at which Wegener was harshly criticised for his theories — the author refers to ‘A Mr Debenham’ who actually expressed some appreciation for Wegener’s bold concepts (pages 34–35). This was, of course, Frank Debenham, a member of Robert Falcon Scott’s last expedition, the primary influence in the founding of the Scott Polar Research Institute, a key figure in the development of the Department of Geography at Cambridge, and a geologist and geographer of international repute. Such unfamiliarity with Debenham again raised questions about both the author’s background knowledge of polar science and the completeness of his research into this work.

Despite any reservations, however, it should be stated that this book is, overall, a very enjoyable read. Moreover, it is certainly true that, as its author wishes, it stands as an excellent tribute to a man who has received all-too-little attention in the English-language world for his polar and scientific achievements and theories. (Beau Riffenburgh, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

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AFTERLANDS: A NOVEL. Steven Heighton. 2006. Boston and New York: Houghton Mifflin. 406 p, illustrated, hard cover. ISBN: 0-618-13934-6. \$US25.00. doi:10.1017/S0032247407006845

Polar exploration narratives have inspired their fair share of novels, poems, and plays, particularly in the last few decades. The ‘race’ for the South Pole alone has generated an ongoing series of historical novels that blend documented event with creative extrapolation — Norwegian Kare Holt’s *Kappløpet*, translated into English as *The race* (1976), and Beryl Bainbridge’s *Birthdays* (1991) are among the best known. These narratives explore contrasting, sometimes conflicting, interpretations of events, moving between different characters and points of view. By taking this approach, creative writers can short-circuit ongoing factual debates, highlighting possible subtexts behind official accounts, imagining the internal thoughts of key players, or providing the voice of marginalised or silenced participants. Even ships’ cats can have a revealing perspective on events, as Caroline Alexander so winningly demonstrated in *Mrs Chippy’s last expedition* (1997). Steven Heighton’s *Afterlands* is one of the most recent, and certainly one of the finest, contributions to the rapidly growing genre of the polar historical novel.

Afterlands centres on the *Polaris* expedition led by Charles Francis Hall, which set out for the North Pole in 1871. The expedition went awry in myriad ways, not least the death — possibly the murder — of its leader. Hall sickened and died after returning from a sledging trip; the cause of his death — he claimed he had been poisoned — has exercised researchers ever since. This episode, however, is mentioned only glancingly in Heighton’s narrative. *Afterlands* concentrates on later events, when a group of 19 of the ship’s company became stranded on an ice floe near Ellesmere Island after an aborted attempt to abandon ship during a storm. As a group, they were marked by their heterogeneity: two Americans (one white and one black), two Inuit couples and their five children, an Englishman, five Germans, a Swede, and a Dane. With no sign of *Polaris*, these castaways were forced to make their home on the drifting floe, living on their very limited supplies and anything the two Inuit men could catch, until they were rescued six months later off the coast of Labrador.

Heighton focuses on the internecine dynamics of power, desire, loyalty, and suspicion that characterize the multi-national group. The white American, George Tyson, is technically in command, but faces mutiny from several increasingly militant and nationalistic German-speakers, who have managed to bring firearms from the ship and strong-arm the other Europeans into supporting them. The

Inuit contingent are powerful due to their indispensable knowledge and skills, but are vulnerable to the convenient prejudices of the rest of the group (‘We may well discover that the natives are naturally *adapted* to starvations of this sort. . .and should therefore actually receive a lesser ration than we.’ [page 90]). The narrative oscillates between the points of view of three characters: Tyson; Tukulito (or ‘Hannah’), the expedition’s Inuit interpreter; and German immigrant Roland Kruger, caught between his dislike of his selfish, jingoistic countrymen, his hostility toward the self-righteous Tyson, and his growing feelings for Tukulito. Heighton keeps readerly sympathies constantly shifting; like the occupants of the ice floe, the reader is always wondering whom to side with and whose perspective to trust, until the only reliable knowledge is that any present surmises will shortly be replaced. The reader is left feeling that the jury is still — and always will be — out on all involved. As historical figures, they now live in the unstable ‘afterlands’ of others’ interpretations.

This sense of ambiguity is fostered by the complex, multi-layered narrative structure. *Afterlands* comprises not only the central narrative, focalised through three different lenses, but also extensive extracts from Tyson’s account of the expedition, *Arctic experiences* (1874), and snippets of his field notes (sometimes quoted verbatim, sometimes slightly altered); images from Tyson’s book and contemporary broadsides; a map of the floe’s drift; epigraphs from Conrad, Melville, Turgenev, and others; and Heighton’s own prose-poems reflecting on his inconclusive search for historical traces of his subjects. This makes the novel sound overly busy, if not rather tediously postmodern; but somehow it all manages to work. The brief autobiographical asides, which could be annoyingly self-aware in other hands, have a disarming frankness and simple beauty. But most striking is Heighton’s wonderful control of the narrative voice as it moves between and within different consciousnesses, providing the sense of assurance and narrative momentum needed to withstand the accumulated weight of the novel’s paraphernalia. Textual layering and self-reflexivity notwithstanding, *Afterlands* is an entirely engrossing read.

As its title intimates, *Afterlands* is not just an attempt to imagine the experiences of the marooned group on the ice-floe; Heighton also extrapolates the three characters’ remaining stories. He frames the central narrative with incidents from their later, sparsely documented, lives: we see Kruger’s desperation provoked by Tyson’s book, which cast the former in a villainous role; Tyson’s own anxieties and regrets as his brief flicker of fame dies away; Tukulito’s mixed feelings as her 10-year-old daughter Punnie, a musical prodigy, plays Mendelssohn before a charmed but condescending crowd. As the novel continues, Kruger’s story dominates; the last quarter, which concentrates on his experiences in a Mexico over-run by militia, takes on a picaresque feel. This section, although constantly re-contextualising Kruger’s Arctic experiences, feels overly long, detracting from the coherence of the narrative. The story could have finished a