

for supervising the two detachments that sailed down the Lena from there and east and west from the mouth of that river.

Bown further states (p. 80) that the end result was a “rough chart of the coast.” In reality the result was a remarkably detailed map, produced in 1746, and covering the entire Arctic coast of Russia and Siberia (with the exception of the north coast of Chukotka), as well as Kamchatka, the Kuril Islands, and the south coasts of many of the Aleutian Islands and of parts of the Alaskan mainland. A reproduction of this map may be found in Belov (1956). It is worth noting that in the case of North America, the only parts of the Arctic that had been mapped by that date, with any degree of detail at all, were Hudson Bay, Hudson Strait, Foxe Channel, and the southeastern coast of Baffin Island.

Bown’s failure to recognize the full scope of the Great Northern Expedition does not detract from the value of his descriptions of Bering’s own trans-Pacific voyage, however. This book will appeal to a general readership, but also to students of Arctic history and specialist Arctic historians.

#### REFERENCE

Belov, M.I. 1956. Arkticheskoye moreplavaniye s drevneishikh vremen do serediny XIX veka. Istoriya otkrytiya i osvoyeniya Severnogo morskogo puti, tom I [Arctic navigation from the most ancient times until the middle of the 19th century: The history of the discovery and development of the Northern Sea Route, Vol. 1]. Moscow: Izdatel’stvo “Morskoy Transport.”

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**POLARIS: THE CHIEF SCIENTIST’S RECOLLECTIONS OF THE AMERICAN NORTH POLE EXPEDITION, 1871–73.** By EMIL BESSELS. Edited and translated by WILLIAM BARR. Calgary, Alberta: Arctic Institute of North America and University of Calgary Press, 2016. Northern Lights Series No. 19. ISBN: 978-1-55238-875-4. Translated from the German: Die Amerikanische Nordpol-Expedition (Leipzig: Verlag von Wilhelm Engelmann, 1879). xxvii + 608 p., maps, illus., bib., notes, index. Softbound. Cdn and US\$44.95. Also available in PDF and ePub formats.

The true story of the fateful voyage of *Polaris*, commanded by the American explorer Charles Francis Hall in 1871, remains one of the most extraordinary tales in Arctic history. Emil Bessels, an aspiring young German naturalist

and physician, served as chief scientist and medical officer for the expedition. *Polaris: The Chief Scientist’s Recollections of the American North Pole Expedition*, edited and translated by William Barr, provides the first English translation of Bessels’ original German-language narrative and as such is a welcome addition to Arctic literature and to the history of that expedition.

In the spring of 1871, after a prolonged lobbying effort, Hall persuaded the U.S. Government to fund a polar expedition with the stated objective of reaching the North Pole through Smith Sound. Although President Ulysses S. Grant had sufficient confidence in Hall to grant him command of the expedition, Hall’s experience had been limited to traveling by land with a few Inuit companions, journeys that differed significantly from the large-scale naval and scientific expedition contemplated for *Polaris*. The expedition departed New York on 29 June 1871, but by the time *Polaris* had reached Greenland, relations between Hall and his scientific corps, headed by Bessels, had seriously deteriorated. A heated verbal dispute between Hall and Bessels was only quelled by intervention of Captain H.K. Davenport, commander of the supply steamship U.S.S. *Congress* accompanying the expedition as far as Qeqertarsuaq (Godhavn).

Nevertheless, under favorable ice conditions, *Polaris* achieved a record high latitude by ship and made for winter quarters in Polaris Bay on the North Greenland coast in September 1871. On 24 October 1871, Hall returned from a sledge journey and almost immediately took ill. He was dead under suspicious circumstances two weeks later, during which time he had been under Bessels’ constant care. After Hall’s death, Sydney Budington, the sailing master, assumed command. The following spring, unsuccessful attempts were made to the north by boat and by sledge parties. Thereafter, *Polaris* was directed southward and became nipped in the ice. During a storm, while 19 persons, including George Tyson, assistant navigator, were on the ice, *Polaris* broke free of its fastenings and disappeared in the storm. Tyson and the crewmembers spent a harrowing six months on an ice floe drifting southward before being rescued. Those remaining on the vessel, including Bessels and Budington, ultimately abandoned *Polaris* after reaching Port Foulke and were also rescued.

Other than Tyson’s account of the expedition and his six months on the ice floe, published in 1874, no other first-hand English language account of the *Polaris* expedition has been available. Thus, Barr’s translation of Bessels’ account serves to provide additional information regarding the expedition and a point of view previously unavailable. Since the exhumation of Hall’s body in 1968 and the discovery that Hall had ingested high levels of arsenic within the last two weeks of his life, Bessels has been the primary suspect in the murder of Hall, so his version of events is particularly relevant.

Bessels’ narrative adds context to the expedition in many respects, but on perhaps the most important issue, the circumstances of the death of Hall, it is unfortunately

tightlipped. In one page, Bessels recounts the rapid deterioration of Hall's health and his death following his return from the sledge journey, ultimately concluding that the unfortunate Hall had suffered a stroke. Bessels' narrative sheds no additional light on the mysterious circumstances of Hall's death or who may have been implicated in that death if it was murder. As for his personal feelings toward Hall, Bessels' narrative only infrequently questions Hall's skills as leader, and he is guarded in his comments, making only isolated criticisms. Bessels found Hall "weak" in simply accepting Budington's opinion that farther northward progress in *Polaris* was not possible (p. 143). When Hall concluded that *Polaris* should abandon the push to the north, Bessels confided that "the success of the expedition [was] sacrificed to the whim of an individual" (p. 149). Although these unflattering comments about his commander reflect Bessels' disappointment, nothing would suggest that murder was contemplated. Similarly, Bessels makes no mention of any verbal disagreements he had with Hall.

In contrast to his restrained opinions in regard to his fellow participants, Bessels' descriptions of the natural world around him were far more unreserved and revealing. He was an astute observer, and his narrative reflects his inquisitive nature and the breadth of his scientific knowledge. Within each chapter, his narrative interweaves scientific details and descriptions of everything from birds, mammals, flora, and peoples, to extensive commentary even on geology and glaciology. Bessels also supplied a 115-page appendix to the narrative of physical observations (which constituted an extract from the longer, separate volume of physical observations published in English in 1874). Bessels intended to publish his natural history and ethnographic observations in a second volume of scientific observations, but the U.S. Government never provided the funding, so this narrative serves as the only record of those observations. Interestingly, notwithstanding the enmity between Bessels and Hall, the death of Hall and the disaster that struck *Polaris*, the narrative reflects Bessels' faithful continuation of his scientific responsibilities with a 19th century wit and humor that runs through the narrative.

Bessels also provides additional details about the wintering at Port Foulke, to which Tyson was not a witness. Importantly, this aspect of the narrative demonstrates that Bessels was obsessed with making a name for himself in geographical discovery, and it contradicts the notion that Bessels simply wished to return home after Hall's death. Following the separation of the *Polaris* crew and the ship's wintering at Port Foulke, Bessels attempted to organize another attempt by sledge, with several Inuit to assist, to achieve a farthest north and perhaps even best the highest latitude achieved by the British Arctic Expedition of 1875–76. The trip ended in bitter disappointment, as the sledge party failed to reach as far north as *Polaris* Bay, the seat of their previous winter quarters; however, the attempt speaks to Bessels' single-minded determination for geographical achievement.

William Barr's informative introduction provides the background to the *Polaris* expedition, its principal actors, and, just as importantly, the broader historical context within which the *Polaris* expedition was set. At that time, the pursuit of science and a spirit of nationalism motivated European and American nations to actively enter the polar arena, hoping to make new scientific discoveries and leave their own geographic mark in the far North. The extensive notes for each chapter also serve to provide background to Bessels' comments and references and place them in their proper 19th century context.

Perhaps the most intriguing aspect of William Barr's translation is the epilogue, which includes the publication of tantalizingly new information regarding a possible motive for Hall's murder by Bessels. Correspondence recently identified by Arctic historian Russell Potter suggests that immediately before the departure of *Polaris* from New York, Hall and Bessels were both vying for the affection of Miss Vinnie Ream, an attractive young singer. Hall, in the company of Bessels, visited Miss Ream on several occasions while in New York, and both appear to have been captivated by her. The infatuated Bessels sent an affectionate letter to her at the time of departure, while at the same time, Miss Ream was sending friendly letters, gifts, and a flag to Hall. Could a love interest have been the motive for Bessels to murder Hall? Perhaps more facts will be uncovered to answer that question.

In summary, William Barr's translation should appeal to those with more than a passing interest in Arctic history and to those seeking more details about the *Polaris* expedition and its naturalist and scientist, Emil Bessels.

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**GEOCRYOLOGY: CHARACTERISTICS AND USE OF FROZEN GROUND AND PERMAFROST LANDFORMS.** By STUART A. HARRIS, ANATOLI BROUCHKOV and CHENG GUODONG. Boca Raton, Florida: CRC Press, 2018. ISBN 978-1-138-05416-5. xliii + 765 p., maps, b&w and colour illus., references, subject index. Hardbound. US\$229.95. Also available as an ebook.

With increased development of resources in cold regions of the world, these remote areas that witness recent climate warming receive growing attention by the public and by governments with territories located at high latitudes or at high elevations. Information on their natural environment is much needed in order to address issues associated with life and work in the frigid domain. The book by Harris, Brouchkov, and Cheng provides pertinent information for such needs. Geocryology, which is the main title of the book, is defined as the study of the effects of sub-zero temperatures on the surface layers of the Earth's crust (p. 1). The book is divided into three parts that reflect