

Nils Adolf Erik Nordenskiöld (1832-1901)

In the shallow Queen Maud Gulf a series of small islands, named by Amundsen during his Northwest Passage voyage, commemorate the arctic exploits of a remarkable Finnish-Swede, Nils Adolf Erik Nordenskiöld. Though best known for his epic voyage in the *Vega*, which went through the Northeast Passage and circumnavigated Asia and Europe in 1878-80, Nordenskiöld had other bases for fame, including eight other trips to the Arctic.

Born in 1832 to a scientific family, he left his native Finland in 1857 to return to his ancestral Sweden, partly because of his political views relating to Finnish freedom from Russia. During his graduation banquet, he asked for a toast to Finland's future, contrasting the freedom sought and that enjoyed during the days of Swedish rule and the Russian controls on free speech and a free press. Though only mildly nationalist, this youthful student enthusiasm later prevented him from attending his parents' funerals and accepting the newly created chair of geology and mineralogy at Helsingfors University, his alma mater.

His father's involvement as chief of the mining administration in Finland assisted him in his early voyages. In 1853-54 he had travelled with his father to the Urals, observing and conducting mining experiments. After his resettlement in Sweden, he became associated with the Caroline Institute and then the Museum of Natural History in Stockholm.

The early expeditions were directed to the Arctic off the coast of Europe. The purpose of the first one, conducted with Otto Torell, a student of Svend Lovén, the Swedish pioneer in arctic research, was to study the glaciation and geology of Spitzbergen. Relying on his father's reputation, Nordenskiöld raised the money permitting him to accompany the expedition in 1858. Aboard a fishing vessel, the *Frithof*, the men studied the bird population around Bear Island

(midway to Spitzbergen) and investigated the glacial valleys around Isfjord on the west coast of south Spitzbergen, finding fossilized flora in sandstone, carboniferous rocks, and botanical and zoological specimens. The ten-week expedition was a success and led to a new expedition in 1861, sponsored partly by the heir to the Swedish throne.

Nordenskiöld chose scientists from throughout Scandinavia, many of whom would accompany him on later voyages, indicating a sense of loyalty and admiration for his sea sense and scientific abilities. In West Spitzbergen they carried out four trips across the ice and shores, identifying flora and landmarks: the result was the first geological map of any arctic region. Vegetation from southern latitudes helped to reveal the presence of currents in the arctic seas.

The idea of using the Svalbard archipelago to launch an expedition to the North Pole had been developing in Sweden. In 1864 Nordenskiöld was appointed scientist in charge of a Swedish survey as part of an international effort to determine the planet's shape. He was accompanied by Dunér, an astronomer, and Malmberg, a zoologist. With cramped quarters on the *Axel Thorsden*, a strengthened former gun boat, the three scientists studied and photographed flora and geology on Bear Island and then landed on West Spitzbergen to study geology, palaeontology, zoology and botany.

The next expedition, backed by many Göteborg businessmen such as Oscar Dickson (a principal sponsor in subsequent voyages), was four years later aboard the postal steamer *Sofia*. The seven scientists aboard carried extra supplies, including concentrated lemon juice to combat scurvy, in case the expedition was forced to winter in the area. After the ship reached a record 81°42'N, currents and ice did not allow passage to Greenland or north of Spitzbergen. However the expedition brought back specimens of flora, insects, fossils and the ocean floor.

By 1869 Nordenskiöld had begun plans to attempt a dash across the polar icecap from Spitzbergen to the North Pole and back. Again Dickson financed much of this expedition, spurring government aid as well. To determine whether the domesticated reindeer or the Greenland dog would be most suitable in the dash to the Pole, in 1870 Nordenskiöld sailed for Greenland to study the availability and fitness of dogs, while others on the expedition looked at vegetation, fossil plants and examples of marine life. Plans were also made to explore inland, something attempted by Edward Whymper in 1867. With two Greenlanders, Nordenskiöld and a companion set off, reaching 675 m altitude and 50 km inland.

The scientists noted dust and brown algae on the cap. The expedition had its greatest success in gathering specimens, including meteorites from along the coast. As well as the nature of glaciers, icebergs and the cap, Nordenskiöld was interested in the geology and was fascinated with the archaeological sites of native Greenlanders.

Three years later an attempt was made to reach the Pole, after a winter spent making meteorological and magnetic observations, as well as studies of stratigraphy, geology and animal life. Nordenskiöld himself spent the winter writing a history of Swedish science. Businessmen supported the voyage in the hopes of exploiting recently discovered phosphorous deposits. Ice prevented the expedition from reaching



Nordenskiöld, 1880: the "*Vega*" photograph. Reprinted with permission from Kish, *North-east Passage*.

the original destination, and a storm scattered the reindeer to be used in the trek to the Pole. With the failure of an outside relief expedition to reach the men, 67 men had to do with supplies for 25 in a prefabricated hut. A scientific high-energy diet had been devised for the trip, which included Scandinavian cloudberry brought to ward off the ever-present dangers of scurvy.

Despite these conditions, useful meteorological data was obtained. Nordenskiöld was struck by the halos created by ice fog, which "appeared almost constantly, but of variable brightness and extent . . . and they did not consist of circles but of beautiful curves of very various forms, which to a certain extent also underwent variation in their relative position" (Leslie, 1879:224). In April to June 1873 a group crossed over 100 km in search of the Pole.

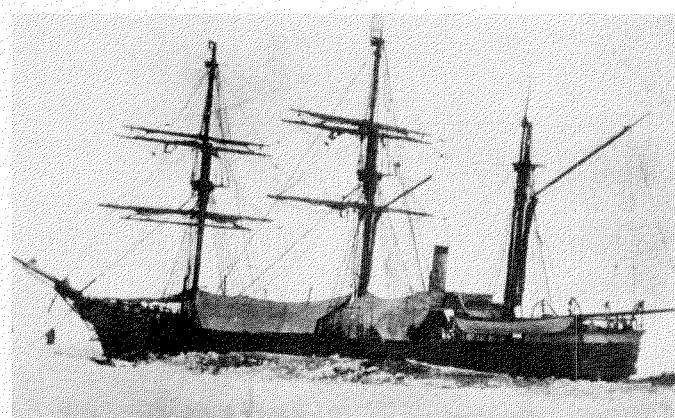
Already there was a new plan to navigate the Northeast Passage. Nordenskiöld studied Norwegian fishermen's logs and conditions in the critical Kara Sea. In 1875, aboard the *Proven*, he travelled past Nova Zemlya into the Kara Sea, reaching the mouth of the Yenisey, where he and four companions travelled up river in a small boat, the *Alexander*. They studied the vegetation, customs of the Samovoyed and Khanty, and economic possibilities of the region. After reaching the Great Siberian Trail, they were able to get to Moscow and St. Petersburg in late 1875.

Within two years, the expedition of the *Vega* became a reality. Dickson provided early finances, and Louis Palander, a companion of the 1868 and 1872-73 expeditions, was appointed commander of a cosmopolitan crew of 30. Special clothing was developed and records of previous voyages were scrupulously studied. In July 1878 the *Vega* left Göteborg, joined later by three ships that provided supplies for parts of the voyage. The critical Cape Chelyuskin at the Taymyr Peninsula, "the most desolate place I have ever seen in the Arctic," was passed on 19 August. The vegetation was "as if many of the plants . . . had attempted to migrate further north but on reaching the sea had stopped, unable to go further, unwilling to turn back." Nordenskiöld also described optical illusions, such as an ice floe appearing as mountainous land, stressing the role played by fog.

Eight days later the ship neared the Lena delta. Ice slowed the progress, and by the beginning of October the *Vega* would be wintered in, a day's sailing west of open water in the Bering Strait. Moored to an ice island, the ship served as headquarters for research through the winter, especially the study of Chukchi customs, dwellings and tools and the flora in the area.

Christmas was celebrated in great style. Palander's diary noted the coming of spring: on 6 July he wrote "flowers are popping up every day." On 18 July the ship was "free" and by 20 July she had reached the Bering Sea. After stopping at Bering Island, the voyage proceeded to Yokohama for repairs and resupplies. From there it proceeded past Singapore, the Suez Canal and to Italy, where the only casualty occurred, a broken arm, when an adoring public crushed the men. Past Gibraltar, though the English Channel, with fêtes on the way, the ship arrived in Stockholm 24 April 1880 to a triumphal return.

There was one more expedition. In 1883 aboard the *Sofia* Nordenskiöld sailed for Greenland, accompanied by two Lapps. Sailing north to Disko Island, the three men landed



Vega in winter quarters, on Siberian coast, 1878-79. Photograph by L. Palander. Reprinted with permission from Kish, *North-east Passage*.

and began to cross the ice cap while the ship travelled to Cape York gathering specimens. The Lapps (Sami) reached 1970 m some 250 km inland, proving the ice cap extended across Greenland.

For his efforts, Nordenskiöld received many awards and honours. After the 1868 expedition, the Royal Geographical Society in London awarded him the Founder's Medal. In addition he received the Roquette Medal from the Paris Geographical Society and a decoration from the king of Italy. After the trip down the Yenisey, he was named Corresponding Member of the French Academy, replacing the late Dr. Livingston. His adopted country bestowed on him its highest honour, the Grand Cross of the North Star.

Nordenskiöld settled down to the life of an administrator of the Natural History Museum and that of a country squire, writing a *Facsimile Atlas* and a history of early charts and sailing, consulting with the Russian government and Australians on Antarctica. He was influential in Nansen's crossing of Greenland and André's attempt to fly a balloon across the polar cap. One son explored Spitzbergen as well as the southwest United States, another son, Erland, studied Patagonia, while a nephew, Otto, was both an arctic and Antarctic explorer. In 1899 Nordenskiöld presented a petition to the tsar to reinstitute the Finnish constitution. Illness struck in the summer of 1901 and he died 2 August, short of his 69th birthday.

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