Tour of the exhibition «Greenland 1912»
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Greenland 1912

In 1912, the Swiss climate researcher Alfred de Quervain crosses Greenland. The dangerous undertaking is a success, thanks to his team's Alpine experience and the knowledge of the local Inuit population. The much-publicised expedition comes amid the colonial race for dominance in the Arctic. It leads to scientific findings that are still important to present-day Swiss climate research.

Climate anxiety

In the 19th century Switzerland's glaciers reach their maximum extent, projecting far down into the valleys. By the middle of the century, there is evidence that the 'Little Ice Age' is coming to an end, but people's deep-seated fears of further glacier incursions remain. Switzerland's fledgling Federal State therefore resolves to pursue climate research.

Polar fever

The 19th century sees the start of a race to lay claim to the polar regions. The last 'white specks' on the map of the world are to be expunged and important sea routes opened up. In 1847 John Franklin fails in his quest to find the Northwest Passage. 1888 sees Fridtjof Nansen cross southern Greenland, and in 1908–09 Frederick Cook and Robert Peary argue about who got to the North Pole first, while in 1911 Roald Amundsen becomes the first to reach the South Pole. The public at large are gripped by 'polar fever'.

Alfred de Quervain

Alfred de Quervain (1879–1927) qualifies as a university lecturer in meteorology in Strasbourg and works at the Swiss Central Meteorological Office. A member of the Swiss Glacier Commission, he measures the flow velocity of the Grindelwald Glacier using an instrument he developed himself. De Quervain is the initiator of the High Altitude Research Station Jungfraujoch.

Requirements for the expedition

De Quervain spends several years planning his trip to Greenland. There is no shortage of candidates for his expedition party: de Quervain is deluged with unsolicited applications. There are many who dream of becoming a polar hero. De Quervain later writes that he selected only applicants from Switzerland: people who brought with them 'a love of the

high mountains and familiarity with snow and glaciers'. Drawing an analogy between the Swiss glacier environment and the Greenland ice, de Quervain promotes the idea of Switzerland as a nation of polar explorers.

Funding

A polar expedition is expensive. Initially, de Quervain hopes to receive government backing. His application to the Federal Council, however, is rejected. The Neue Zürcher Zeitung steps into the breach. Its publishers know that the general public are captivated by the race to the Arctic. This also prompts sports firms and food manufacturers to sponsor the expedition.

While Switzerland's neighbours provide large sums of money to support polar expeditions, the Federal Council turns down de Quervain's relatively modest request for funding.

The Neue Zürcher Zeitung pays the lion's share of the expedition costs – and secures exclusive reporting rights in return.

Suited to both tropics and cold climes: the Bernese Alpine Milk Company supplies the expedition with tins of condensed milk.

Transporting equipment, apparatus and kayaks to Copenhagen costs money.

L'amministrazione coloniale sa che la simbologia svizzera in Groenlandia viene utilizzata a scopi di commercializzazione, senza alcuna pretesa territoriale.

I funzionari dell'amministrazione coloniale forniscono agli Svizzeri, in Groenlandia, derrate alimentari e apparecchiature in provenienza dalla Danimarca.

Per potere negoziare, de Quervain impara il danese e qualche parola di groenlandese. Dizionario danesetedesco, libro di testo groenlandese.

Relations with the Danes

The Swiss use houses, ships, supply depots and the research station belonging to the Danish colonial administration on the coasts of Greenland. In return, the Danes profit from the Swiss party's scientific and mountaineering expertise, which is to give them a headstart in the race for the Arctic. The Danes even accept de Quervain symbolically marking Danish territory as Swiss.

The Swiss use a theodolite to measure air currents in Greenland, gathering data with a view to a potential crossing of the Arctic by airship.

The Swiss bring to Greenland their mountaineering experience and a knowledge of glaciology that the Danish lowlanders lack. They therefore prove to be ideal partners when surveying still unexplored areas of Greenland.

British and German polar explorers build expedition ships with government money. De Quervain travels on a Danish ship, to make the expedition affordable.

De Quervain labels a previously unknown region of Greenland 'Schweizerland' ('Swissland'), a common practice of colonial territorial appropriation.

The colonial administration understands that Swiss symbolism in Greenland is for marketing purposes only, and will not give rise to any territorial claims.

Colonial officials arrange for food and apparatus to be delivered from Denmark to Greenland for the Swiss.

To facilitate negotiations, de Quervain learns Danish and some rudimentary Greenlandic. German-Danish dictionary, Greenlandic text book.

The Inutis

The steamer crossing from Copenhagen over the stormy North Atlantic Ocean to the west coast of Greenland takes two weeks. There the expedition team encounter the indigenous population, who are members of the Inuit ethnic group and occupy the ice-free coastal regions of the island. De Quervain and his men learn from the Inuit the skills they need to get around in the snow, ice and water and survive in the inhospitable environment of Greenland.

The Inuit lifestyle

The coastal areas of Greenland have been a Danish colony since the late 18th century. The native Inuit, a people of hunters and fishers, engage in trade with the Danes and have been largely converted to Christianity. De Quervain describes a society whose culture is increasingly under threat from western modernity. He is fascinated by the Inuit's traditional lifestyle and praises their patience, friendliness and 'social virtues'.

In order to find the best hunting and fishing grounds, the Inuit move along the coast in small groups, with their dogs, sleds and boats. They live in earth or stone houses or tents, and increasingly in wooden houses.

Despite the limited materials available to make utensils and clothing, the Inuit are perfectly adapted to the extremely harsh natural conditions.

Technology transfer

De Quervain and his companions learn from the indigenous population how to drive dog sleds and use kayaks, and the best diet for survival in the icy cold. They wear

Inuit clothing and sealskin boots, and learn how to repair them. It is said that a Danish expedition some years previously had come to grief because their boots split and their feet froze.

A new source of income

Seal and whale oil, used as lamp oil and a lubricant, is one of the Inuit's most important trading products. But electrification and the rise of the oil industry lead to a sharp decline in global demand. Expeditions become an additional source of income for the Inuit, who sell them sleds, dogs, clothing, kayaks, wood carvings, utensils and services.

Crossing the inland ice

On 21 June 1912 the Swiss expedition party bids farewell to the Inuit on the western edge of the inland ice. For the next six weeks, they will have to fend entirely for themselves. On 13 July they pass the highest point, at 2,500 metres, and raise the Swiss flag. Just five days later, they catch sight of the eastern coastal mountain range. With great difficulty they find the life-saving supply depot. Swapping their dog sleds for kayaks, they reach a small Greenlandic settlement on 1 August.

The members of the expedition party

The expedition consists of two groups. One crosses the island from the west coast to the east, returning from there to Switzerland in autumn 1912. The other remains on the west coast and spends the winter there, carrying out numerous measurements, including extensive studies of the glaciers.

A theatre stage for heroes

Mysterious, beautiful and yet terrible: de Quervain describes the Arctic as an exotic and sublime world that makes the most extreme demands on those who visit it. The polar region thus becomes a new stage for heroic new actors distinguished by their courage and manliness.

> The adventure story forms the focal point of NZZ reporting, feeding the desire for Swiss involvement in discovering the world.
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> De Quervain records his impressions of Greenland in diaries. They are written in the typical style of the polar literature genre: before embarking on his expedition, he studied the books of other polar heroes and is imbued with their colonial narrative.

Scientific measurements

Scientific measurements are the main task of the expedition. Every member of the

party is an excellent scientist who systematically collects and meticulously records data every day. They analyse the weather and the climate, the glaciers and the geology, topography and geography. Today, the data allow the evolution of the climate to be traced over a long period, and are thus still of use to science.

The great melt

Today, Greenland is central to climate research. Following in de Quervain's wake, Swiss institutions based locally investigate the influence of climate warming. Greenland's ice landscape reacts in measurable ways to fluctuations in climate and is therefore a key indicator of future developments. The conclusion is that Greenland's ice sheet – the world's second-largest fresh water reserve and permanently frozen surface – is melting as temperatures rise, while the many glaciers are becoming shorter and flowing more quickly into the sea.

Swiss research in the ice

Swiss science plays a leading role in ice core research. It is fundamental to our understanding of the global climate system and changes in it. Ice cores drilled at great depth reveal how the Earth system responded to climate changes in the past. The information obtained can be used to create forecasts of how our planet will react to the warming that is happening today.

The Swiss Camp research station lies on the inland ice in western Greenland, not far from the starting point of de Quervain's crossing. It has been investigating the movements and melting processes of the gigantic Greenland ice sheet for more than 30 years.

Opened in 2015, the international research station EGRIP investigates the dynamics of one of Greenland's largest ice streams. The ice core is drilled down to a depth of 2.5 km, supplying information about changes in climate over the last 100,000 years.

Melting glaciers in Switzerland

The melting of Greenland's massive ice sheet will have long-term global consequences, which will also affect Switzerland. Even in a best-case scenario, whereby global CO2 emissions fall to zero by 2050, only around 40 per cent of the volume of Swiss glaciers would be saved by 2100. In the worst case, every glacier in Switzerland below 4,000 metres would disappear entirely by 2100.

The Rhône Glacier is one of the best-known and best-studied glaciers in Switzerland. As early as 1874, the first accurate map was created. The glacier's tongue is dwindling fast.

Until the beginning of the 20th century, the Rhône Glacier extended beyond the steep slope as far as the Gletsch valley at around 1,800 m. The glacier has been shrinking steadily since then.

Glaciers are one of the best natural indicators of climate and are key to the observation of climate change. Since 2000 the tongue of the Great Aletsch glacier, the longest ice stream in the Alps, has retreated by about one kilometer.

By the summer of 2022, Swiss glaciers were melting at a record rate. The Vadret da Morteratsch (Morteratsch Glacier) – the largest glacier in the Upper Engadine – has receded by 2 kilometres since 1880.

Geotextiles can reduce the melting of snow and ice by between 50 and 70 per cent. Often the covering of glaciers serves commercial interests.
The white sheets placed over the glacier reflect sunlight and thereby protect the underlying layers of snow and ice from heat and ultraviolet radiation. This slows down the melting process.

Expedition 2 degrees*

Climate change is probably the most complex problem that humanity has to solve. And the internationally agreed two-degree target is just as complex. Expedition 2 degrees helps to understand what it means if the earth warms by an average of 2 degrees. Equipped with 3D glasses, visitors embark on “Expedition 2 degrees”: in a virtual world around the Great Aletsch Glacier, they experience the effects of the temperature increase in the Alpine environment in an interactive and emotional way. They travel through time and space and see the Aletsch region through the eyes of their grandparents as well as future generations.

* Expedition 2 Grad is a research and communication project of the Universities of Fribourg and Zurich, the Knowledge Visualization department of the Zurich University of the Arts and was supported by SNF Agora and other partners.