

Gyrfalcons to Germany: Herdemerten's expedition to west Greenland, 1938

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ABSTRACT. In the summer of 1938 the Hermann-Göring-Stiftung [Hermann Göring Foundation], located at the Reichsjägerhof Riddagshausen near Braunschweig, dispatched a two man expedition to west Greenland, primarily in order to capture gyrfalcons. Although nowhere stated in the expedition account, the aim appears to have been to acclimatise the birds to a German environment for the purpose of falconry. Five birds were captured and transported to Germany, four juveniles from a nest near Godhavn and an adult bird from near Ummannaq. After a brief sojourn at Riddagshausen the birds were transferred to Goldhöhe (Zlaté návrší) in the Riesengebirge (Krkonoše) as being a more appropriate environment. The results of the experiment and the fate of the birds are not stated in the expedition account. Secondary aims of the expedition were geological, meteorological and botanical investigations and bird banding.

Introduction

In 1934, on the initiative of the prime minister of the Free State of Braunschweig, Dietrich Klagge, and of the minister of finance and justice, Friedrich Alpers, work was started on building the Reichsjägerhof [Reich Hunting Lodge] at Riddagshausen near Braunschweig (Nickel 1992). Their aim was to gain the favour and influence of the Nazi leadership in Berlin, and especially that of Hermann Göring, head of the Luftwaffe, who was known to be passionately fond of hunting; the Reichsjägerhof was to function primarily as the locale for conferences of Gaujägermeister [regional hunt leaders] from across Germany, and for hunts for the Nazi leadership especially for Göring, as Reichsjägermeister. With these aims Klagge first established the Braunschweig hunting preserve and appointed Alpers as Gaujägermeister. The area set aside for the preserve was centred on the former Riddagshausen Monastery, whose buildings were integrated into the Reichsjägerhof, the design of the latter being that of architect Ernst Herzig. A pheasant rearing facility, a deer park and a falconry were set up nearby.

The main building of the Reichsjägerhof included Alpers' office and those of his support staff, conferences and teaching rooms, workshops and accommodation for visiting dignitaries including a private suite for Hermann Göring which, however, he never used. He did, however visit twice to host official hunts for foreign diplomats, once on 4 November, and again in November 1938 (Neumärker and Knopf 2007). The Reichsjägerhof was administered by the Hermann-Göring-Stiftung [Foundation], which was founded on 31 March 1935. Klagge officially presented the complex to Göring as a wedding gift on the occasion of the latter's marriage to actress Emmy Sonnemann. It was officially opened on 5 May 1935, and in his speech of thanks Göring coined the term 'Reichsjägerhof.'

Göring was an avid falconer, and this no doubt played a part in the decision to introduce gyrfalcons (*Falco*

rusticolus) to Riddagshausen. The first attempt by the Hermann-Göring-Stiftung was in the summer of 1937 when six juvenile birds taken from nests in Iceland were imported (Herdemerten 1939: 109). They did not appear to be thriving at the low elevation of Riddagshausen (around 95 m above sea level). Five of them were moved to higher elevations but all died, as did the one that was left at Riddagshausen.

Following this unsuccessful first attempt, in 1938 the Hermann-Göring-Stiftung financed an expedition to west Greenland, primarily to obtain a further number of gyrfalcons. A useful summary of the status and ecology of gyrfalcons in Greenland may be found in Burnham and Mattox (1984). The leader of the expedition was Kurt Herdemerten (1900–1952) (Fig. 1), a mining engineer who had participated in Alfred Wegener's expedition to Greenland in 1930–1931 (Wegener 1939). It was particularly his familiarity with explosives that qualified him for that expedition. By blowing up ice ridges he played a major role in creating a route for ponies and aerosleds on the Kamerujuk Gletsjer. He erected the wintering hut at West Station, and during the winter assisted in excavating a shaft in the ice beneath the hut for glaciological investigations. He also was responsible for all the blasting required for the seismic investigations made by Kurt Wölcken, both at the West Station and up to 120 km into the interior of the Greenland ice cap.

A second member of the 1938 expedition was Hans-Robert Knoespel (1915–1944) (Guspietsch 1945) (Fig. 2). Knoespel's passion for falconry had begun even before he left school. He was well-known in falconry and bird-banding circles, and was invited to join the staff of the Reichsjägerhof at Riddagshausen in 1937. In that year he was involved in ornithological expeditions to Finland, Scotland and Iceland. During the War Knoespel served as scientific leader on board the weather-ship *Sachsen* near Jan Mayen for three months in the spring of 1941 (Selinger, 2001; Dege 2004). Thereafter he was leader of two of Germany's clandestine arctic weather stations on



Fig. 1. Kurt Herdemerten.



Fig. 2. Hans-Robert Knoespe with one of the captured gyrfalcons.

Spitsbergen: Operation 'Knoespe' on Lilliehöökfjorden, off Krossfjorden during the winter of 1941–1942 (Fig. 3), and Operation 'Kreuzritter' on Liefdefjorden during the winter of 1943–1944. He died on 30 June 1944, when he was investigating an explosive charge that had hung fire and exploded unexpectedly (Selinger 2001; Dege 2004).

A third member of Herdemerten's west Greenland expedition (who, however, operated completely independently) was Dr. K. Magerstedt whose interest was in the incidence of tuberculosis among the Inuit. He travelled north with the Danish trading vessel as far as Thule, taking blood samples from the local inhabitants (*Polar Record* 1939).

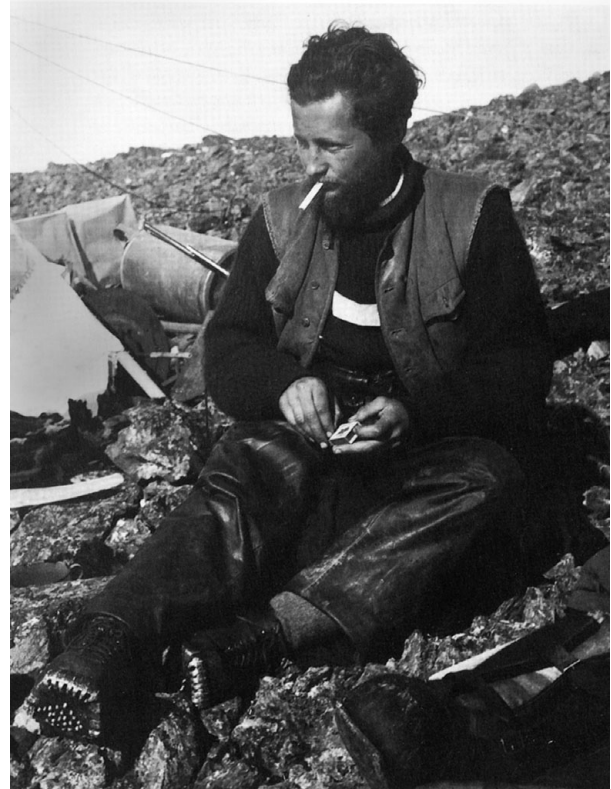


Fig. 3. Hans-Robert Knoespe, while leader of 'Operation Knoespe' Spitsbergen, summer 1942.

The expedition

The area of operation of the exhibition is illustrated in Map 1. After three very hectic weeks of preparation, all three men sailed from Copenhagen on board the Danish vessel *Gertrud Rask* (Captain Westman) on 20 May 1938 and reached Egedesminde (Aasiaat) on 5 June (Herdemerten 1939). They were warmly welcomed by the bestyrer [government administrator] Axel Malmquist, whom Herdemerten had last seen when he departed from Greenland at the end of the Wegener expedition in 1931. By pre-arrangement the motorboat *Ane-Marie* was to be placed at the expedition's disposal, but it would not be available for a few days. In the interim Malmquist provided Herdemerten with a small, open motorboat. Taking advantage of this offer Herdemerten and Knoespe made a short trip eastwards to the out settlement of Ak-unnaaq; here they were told of a falcon's nest not far from the coast, but they soon established that it was the nest of a pair of peregrine falcons (*Falco peregrinus*). Continuing east, at Ikamiut they took aboard a Greenlander to act as pilot for exploring Sydostbugten, the southeast corner of Diskobugt. Having pitched camp on a small island, Qeqertasugsuuk, they used it as a base over the next few days to search for falcon nests in the Naternak area. Having dropped their pilot at Ikamiut, on the way back to Egedesminde they ran through the narrow passage of Langesund, rather than skirting the outside of the skerries and islands. On 23 June Malmquist handed over the promised boat, *Ane-Marie*, for the duration of the



Map 1. Area of operations of the expedition.

expedition, along with her crew of four Greenlanders. It was made clear to Herdemerten, however, that the crew would expect to return to Egedesminde approximately every four weeks, in part to see their families, but also, in part, to go hunting.

On that same day *Ane-Marie*, a 25 year old vessel, impregnated with the overpowering smell of rancid walrus blubber and prone to frequent mechanical breakdowns, transported Herdemerten and Knoespel north to Godhavn (Qeqertarsuaq). There they were warmly welcomed by

Governor Rosendahl and also visited the radio station where they made the acquaintance of the radio operator and weather observer Holten-Møller. The latter knew of an occupied gyrfalcon nest a short distance east of the settlement. Following his instructions the Germans spotted first one and then a second gyrfalcon on a cliff, some 120 m above the sea. The Greenlanders with them were persuaded, with some difficulty, not to fire at them. The nest was soon located, and it was decided to set up a camp and carry out long term monitoring of this nest. Knoespel undertook this task and kept the nest under observation for five weeks, until the time came to capture the fledged juveniles from the nest. This site was designated Station I.

Meanwhile, starting on 26 June, Herdemerten was to have continued northwards on board *Ane-Marie*. But unfortunately, problems with the clutch rendered her engine useless, and this necessitated her being towed north to Qullissaatt, on the Vaigat, on the northeast coast of Disko. This would take several days, and in the meantime Herdemerten was able to spend two further days helping Knoespel become organised to watch the nest and to attempt to capture adult birds. Herdemerten then proceeded north on board the government ship *Disko*.

An underground coal mine operated at Qullissaatt, providing coal for various Greenland settlements. While *Ane-Marie* was being repaired, Herdemerten was the guest of the mine manager, Giesing, with whom he enjoyed discussions on the local geology. *Ane-Marie* was able to continue her northward journey on the night of 30 June, continuing northwestwards down the Vaigat. She rounded the Nugsuuaq Halvø successfully, but then strong winds and heavy seas forced her to take shelter at Niaqornat on the north coast of that peninsula. While taking a walk ashore Herdemerten was intrigued to find several Greenlandic graves, revealed by skulls and bones lying under rock slabs.

Once the wind and seas had calmed *Ane-Marie* was able to get under way again, despite thick fog and the numerous icebergs calved from the extremely prolific Qarajaq Isbrae at the head of the fiord, barely 50 km to the east. Just before they reached Uummannaq in the early hours of the morning, the sun dispersed the fog to reveal both the settlement and the spectacular mountain that gives the settlement its name. The boat made fast at the pier at 4 a.m. Here, too Herdemerten was welcomed by old friends from his previous visits in 1930–1931, addressing him by the nickname he had been given on that occasion, Jakunguaq.

On 4 July *Ane-Marie* continued north to Ukkusissaat, the home of Rasmus Villumsen, the Greenlander who, along with Alfred Wegener, had died on the ice cap while trying to return from the station Eismitte to the West Station in November 1930 (Wegener 1939; Georgi 1935). Herdemerten installed a plaque, with inscriptions in Greenlandic and German, to Villumsen's memory on the wall of the school house at Ukkusissaat.

From there Herdemerten continued up Kamerujuk Fiord to its head where the Kamerujuk Gletsjer de-

bouches. After a survey of the position of the ice front, to compare with the measurements made seven years previously, he then proceeded up that glacier to the Scheideck Nunatak and the West Station of the Wegener expedition. He had a little difficulty in finding the hut, since it was entirely drifted over with snow, and he had stepped on the roof before realizing it. He found that two of the windows had been broken, and that the entire hut was completely filled with snow.

On his way back down the glacier he gave serious thought to a new site for the station and to the optimal logistics for possibly renewing the work of the Wegener expedition in the future. He decided that for the ascent of the glacier the best solution would be a combination of lorries with chains for the lowest part, helicopters for the steepest part, and tracked vehicles for the ice cap. In fact such a renewal of Wegener's work never occurred.

Herdemerten's next objective was to check some of the falcon nesting sites recorded in the Uummannaq area by Bertelsen earlier (Bertelsen 1923). On the island of Akudlek, east of Storø he found that a gyrfalcon eyrie reported by Bertelsen was now occupied by peregrine falcons. Encountering a large nesting colony of Arctic terns (*Sterna paradisaea*) on the small island of Augoilagtuq Qeqertat, at the mouth of Sermerdlit Fiord on the north side of Drygalski Halvø (the most northerly such colony of which Herdemerten was aware) he made a mental note to return later to carry out some banding.

The next destination was Marrait Bugt on the south side of Drygalski Halvø where Bertelsen had recorded two gyrfalcon nests. After calling briefly at the settlement of Ikerasak, to avoid the constant stream of icebergs drifting down Qarajak Fiord from the enormous Qarajaq Isbrae at its head (renowned as being the most prolific source of icebergs in west Greenland), *Ane Marie* slipped through the narrow channel between Ikerasak Ø and the Drygalski Halvø, and reached Marrait Bukta safely. Here Herdemerten managed to find one of the eyries reported by Bertelsen and was able to determine that it was still heavily used. On attempting the return trip through the narrow channel between Ikerasak Ø and the Drygalski Halvø Herdemerten and his Greenlandic crew found it almost completely blocked by rapidly drifting bergs and bergy bits; a nip between two ice-blocks cracked two of the boat's ribs and started a quite serious leak. Fortunately the leak could be stopped, and after a halt at Ikerasak to make temporary repairs, *Ane-Marie* headed back to Uummannaq, to procure petrol and oil.

Herdemerten's next objective was to establish a camp from where he hoped to capture one or more adult gyrfalcons. His first choice was Marrait Bugt, but when he started back towards that goal in *Ane-Marie* he found the approaches to that bay totally blocked by ice. Even when he and one of the Greenlanders climbed to a high vantage point they could see no openings in the ice-barrier. His fall back location was Itivdiarssuk Fjord, slightly further north, where there was known to be a large colony of seabirds on one of the cliffs; gyrfalcons were commonly

to be found in the vicinity of such colonies. On reaching this bird cliff Herdemerten spotted two gyrfalcons circling among the vast flock of gulls against the blue sky. Watching them, he located their nest, high on the cliffs but decided that it was totally inaccessible. Continuing east up Itivdliaarsuq Fjord, he found himself dangerously close to the massive calving front of the Sigssortartuq Gletsjer. A site on the other side of the fiord at Ituvneq seemed a possible site for a station, but while Herdemerten was ashore checking the possible site, a minor calving produced waves that threw the boat around alarmingly; this was clearly not a safe site for a station.

Herdemerten finally opted for a site on the southern of two arms of the fiord biting deeply into the northern side of Drygalski Halvø. Marrait Bugt lay quite close on the other side of the peninsula, and hence it was hoped that the chosen location would fall within the hunting range of gyrfalcons from the eyries there.

Caching some supplies and equipment on shore, on 16 July Herdemerten started back south through the Vaigat. A month had now elapsed and the Greenland crew wanted to get back home to Egedesminde. En route Herdemerten stopped at Knoespel's camp to resupply him. Then *Ane-Marie* continued south across Diskobugt despite very heavy seas on the beam; Herdemerten was amazed, and impressed that the Greenland crew even attempted the crossing.

Herdemerten made use of his brief stay in Egedesminde to write letters and to compile interim reports that he mailed back to Germany. On 28 July he started back north on board *Ane-Marie*. At Godhavn, Knoespel came aboard. He had closed down his camp near there, and had taken four juvenile gyrfalcons from their nests and fitted them with leashes, jesses (leg straps) and hoods, and now brought them aboard. A severe storm lashed the area, and after two foiled attempts, it was not until 31 July that *Ane-Marie* was able to leave the harbour, northward bound. In the Vaigat engine problems brought her to a halt, however. Fortunately another vessel was able to tow her to Qullissaat. Once the engine problem was remedied, the boat continued north again, but soon a different crisis arose. Karli, one of the Greenlanders accidentally shot himself in the right arm; he had grabbed a loaded gun that was lying facing him, by the barrel, and it had accidentally discharged. Herdemerten applied a tourniquet to staunch the copious bleeding and plied him with pain killers and strong coffee. Seven hours later Herdemerten was able to turn the patient over to the care of the resident female doctor Dr Christiansen at Uummanaq; she reassured the patient (and Herdemerten) that an amputation would not be necessary. Six weeks later Karli rejoined the expedition, although Herdemerten assigned to him only light duties. To handle his previous, heavier duties, at Saattut Herdemerten now hired Hans Quist whom he knew from the Wegener expedition.

With this taken care of *Ane-Marie* proceeded to the previously selected site on Drygalski Halvø where on the evening of 9 August Station II was now established



Fig. 4. Station III, Paornat, Storø. The swastika flag and flagpole are later additions to the photograph.

(Map 1). Later that day an attempt was again made to reach the Qarajaq Isbrae, this time around the outside (south side) of Ikerasakø. But off the small island of Akuliarusersuaq the boat became temporarily jammed in the ice, and had to retreat. One small success, however, was that on a small island off the south side of Ikerasakø Herdemerten spotted a peregrine's nest, which Bertelsen had earlier reported as being occupied by gyrfalcons. Before returning to Station II, *Ane-Marie* next ran across to the large bird cliff on Storø to reconnoitre it as a possible source of fresh food for feeding the captive gyrfalcons. Then the boat returned to Station II.

While Knoespel and his captive birds settled in there, on 14 August Herdemerten travelled northwest to the Queqertat island group, near Sagdleq, to study the geology. He returned to Station II by way of Uummanaq. Knoespel reported that over the course of a day four adult gyrfalcons would usually visit the station, perching high on the rocks above to observe the captive juveniles peacefully perched among the tents. One of them would even join the captive birds when Knoespel fed them with dead sea birds, supplied by Hans Quist.

The young birds were now flying freely, but had been conditioned to return to the camp to be fed. But it was now time to teach them to kill for themselves. In this regard, the site of Station II presented a problem in that it was extremely windy. Since the prey species would invariably turn downwind when hunted by the falcons, in this windy location they might well be lured too far away and possibly might not return. Hence a calmer location was needed for this part of the project. A suitable site, with a level site for the camp, a fresh water supply, good hunting potential for the falcons and a good harbour for the boat, was found at Paornat on the south side of Storø. Knoespel now moved camp to this site, which was designated Station III (Map 1, Fig. 4). While Knoespel settled in there, Herdemerten proceeded to the Arctic tern colony at Augoilagtuq Qeqertat to band young birds there. He also continued his investigations into the Agpat formation, which he determined also occurred on the Drygalski Halvø. On his way back to Station III he stopped at

a glaucous gull (*Larus hyperboreus*) colony at Niaqornakavsaka and took some young birds from the nest; once they were fully fledged these would be used to allow the young falcons to practice hunting. On the day after Herdemerten got back to Station III, leaving Knoespel and Hans Quist to continue training the young falcons, he started south in *Ane-Marie* for Egedesminde again, since another month was up and the Greenland crew wanted to go home. He reached Egedesminde again on 26 August.

The three brothers, the owners of *Ane-Marie*, who had crewed the vessel for each voyage until now, had purchased a new vessel, *Auvaq*, and hence a new crew had to be found for *Ane-Marie*. But as a special favour, one of them, Japhi, agreed to be skipper of *Ane-Marie* again, once he had had some time to familiarise himself with the engines and general behaviour of the new vessel. Hence on 28 August Herdemerten started back north on board the government vessel *Disko*. Also on board were three officials whom he knew well from 1930–1931, the head of the entire Greenland administration, Direktor Daugaard Jensen, the health inspector Dr. Alfred Bertelsen, whose works on the ornithology in general and falcons in particular had proved so useful, and Inspektor Hansen, in charge of the government shipping operations. *Disko* was under the command of Captain Twing, who had been in command of *Gertrud Rask*, on board which the members of the Wegener expedition had returned to Europe in 1931.

The voyage northwards was somewhat circuitous. En route to Uummannaq *Disko* called at Christianshåb (Qasigiannugit), Jakobshavn (Ilulissat), Godhavn (Qeqertarsuaq), Ritenbenk (Agpat), and Qullissaat. But before the vessel reached Uummannaq Herdemerten dropped off to study the moraines of a glacier to which he refers as the Alfred Wegener Glacier. By prearrangement he was later picked up there by Dr. Christiansen's boat, *Krabbe*, which had earlier served as the Alfred Wegener expedition's boat, and was dropped off at Uummannaq. Here, to his delight he found mail from home that had arrived on board *Disko*, waiting for him. Also waiting for him was *Ane-Marie* which now took him to Station III on Storø to join Knoespel.

By this point the days were getting noticeably shorter and the sun rose only a few degrees above the horizon. The autumn bird migration had started, and on 15 September Knoespel left to cross to a site on the Nugsuaq Halvø to observe this, leaving Herdemerten to look after the falcons. Soon after he returned the first snowfall occurred; next night all the small nearby streams froze. The work of packing up the camp started (Fig. 5), and on 25 September they left Storø; by that evening they were in Uummannaq.

Knoespel stayed here (with the falcons) to head south later on board the government steamer *Hans Egede*, which would give the birds a more comfortable passage. Herdemerten headed south on board *Ane-Marie*. Rounding the exposed tip of Nugsuaq Halvø with a long swell running, the boat was pitching and rolling in a lively



Fig. 5. Breaking camp, Station III.

fashion. But in the Vaigat the sea became dangerously rough; the weather station at Qullissaat was reporting a force 9 gale. There was a real danger that the boat would be swamped. The Vaigat is notoriously devoid of sheltering harbours but Herdemerten spotted a narrow cove barely 20 m wide and sheltered by a lava flow that extended parallel to the main coast. Japhi steered neatly into it, and there they were able to snatch some much needed sleep until the storm abated. They reached Egedesminde safely on 1 October.

Shortly afterwards *Hans Egede* also arrived, the falcons housed safely in a special shelter on deck. On 9 October the steamer put to sea, homeward bound (Fig. 6). After a final call at a Greenland settlement, Faeringerhavn, she headed across the Atlantic. First port of call was Thorshavn in the Faeroes where Herdemerten and Knoespel were able to buy some fresh meat for the falcons; then on 27 October they landed at Copenhagen. From there they (and the falcons) travelled by rail to Berlin, and then on to Braunschweig.

Even though their stay there was for only 10 days (Herdemerten 1939: 109), just as in the previous year this location was found to be inimical to the birds; two of the young falcons fell ill. But at this point the Hermann-Göring-Stiftung took control of a much more appropriate environment for the falcons, and all five birds were now transferred there. The location was the former barracks of the Czech border guards in the Riesengebirge (Krkonoše) on the present Czech-Polish border, then known as Goldhöhe (Zlaté návrší), which had become redundant when German troops marched into the Sudetenland on 1 October 1938 (Fig. 7). While the building foundations are still clearly visible, the buildings have since been demolished, although the line of massive concrete bunkers which the border troops had manned still strides across the plateau. Goldhöhe lies at an altitude of around 1400 m, and the climate is almost subarctic; thus when visiting the site in May 2005, the author found himself plodding through snow on a hike from Goldhöhe across the plateau to the source of the Elbe (Elbquelle or pramen Labe). Thus the climate would appear to be quite appropriate for gyrfalcons.

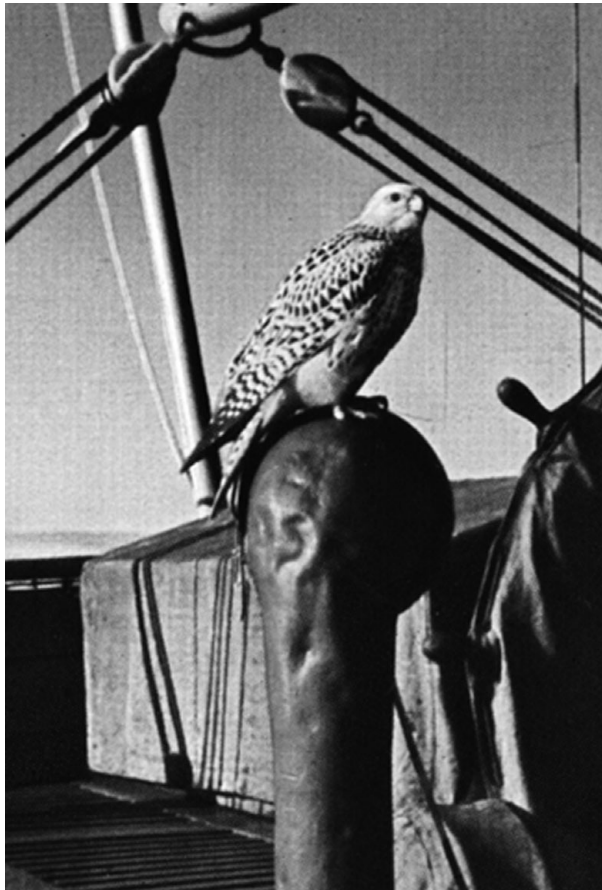


Fig. 6. One of the captured gyrfalcons on board *Hans Egede*, bound for Germany.

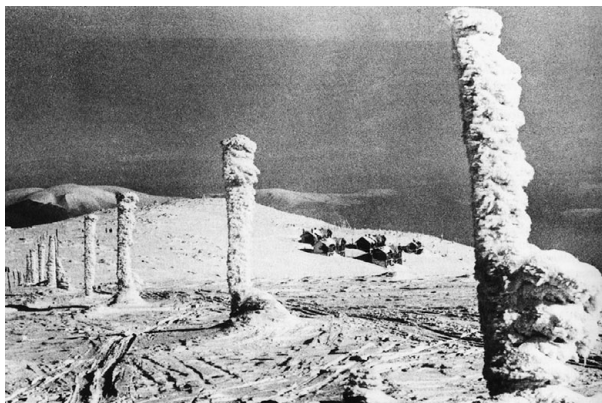


Fig. 7. The station at Goldhöhe (Zlaté návrší) in the Riesengebirge (Krkonoše) (middle-distance).

In 1938 only one of the birds died at Goldhöhe; of the five birds only the bird captured as an adult appeared to suffer no ill effects from its transfer from Greenland. It was planned to capture more birds in Greenland in 1939, but to bring them straight to Goldhöhe; but with increasing international tensions and the outbreak of World War II in the autumn of 1939 nothing came of these plans. It is not known for how long Goldhöhe remained under the control of the Hermann-Göring-Stiftung as a falcon research station, but towards the end of 1942 the

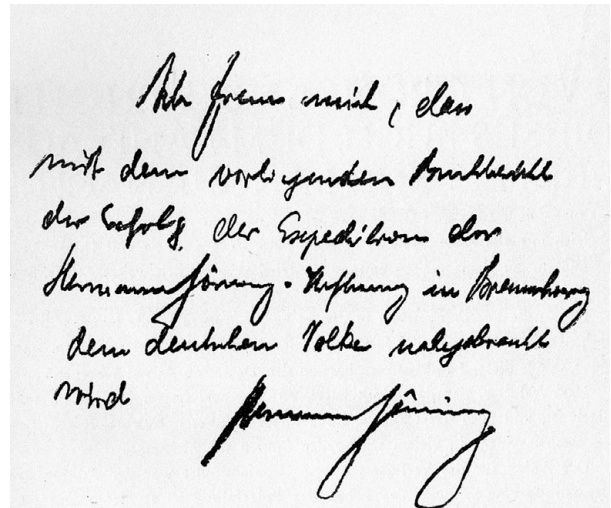


Fig. 8. Hermann Göring's note of recommendation of Herdemerten's book.

facilities were appropriated by the Marinewetterdienst [Naval Weather Service] as a training establishment for the staff of arctic weather stations (Selinger 2001; Dege 2004).

Herdemerten's book

Herdemerten's book (1939) is dedicated to the expedition's patron Generalfeldmarschall Hermann Göring. The latter, in return, contributed a hand written note of approval (Fig. 8).

Ich freue mich, dass mit dem vorliegenden Buchbericht der Erfolg der Expedition der Hermann-Göring-Stiftung in Braunschweig dem deutschen Volke nahegebracht wird.

Hermann Göring

[I am delighted that with the present report the success of the expedition of the Hermann-Göring-Stiftung at Braunschweig will be brought to the attention of the German people.

Hermann Göring]

Rather surprisingly, Herdemerten's book (1939) contains sections unrelated to the 1938 expedition, and presumably based on the author's experiences during Alfred Wegener's 1930–1931 expedition. These include a section on sledge dogs and sledge travel and another on seismic ice thickness measurements on the ice cap. Herdemerten was engaged in neither of these activities in 1938. Another surprising feature of the book is that one section was clearly written by Knoespel, rather than by Herdemerten, yet only one author is listed. Had there perhaps been some disagreement between the two expedition members? In his account of the expedition Herdemerten specifically states that 'It is not the aim of this book to present the results of the scientific work in its full range' (Herdemerten 1939:14). It is not clear whether he or Knoespel intended presenting such results elsewhere, for example in the appropriate scientific journals. If so, this did not occur, perhaps due to the outbreak of World

War II. Fortunately, despite his disclaimer, Herdemerten's book provides some basis for surveying the expedition's activities, particularly with regard to its major focus, that of capturing gyrfalcons.

Capturing gyrfalcons

Following the directions of the Godhavn radio operator, Holtenmøller, on 25 June Knoespel located a gyrfalcon's nest on cliffs just east of the settlement. He decided to make this Station I, as being a suitable site both for possibly capturing one or both of the adult birds, and for taking the young birds before they were about to leave the nest. With this in mind he set up his camp below the cliffs. He had brought 40 pigeons with him from Germany, and using one or more of them at a time as 'bait' he set up a trap net. Half the remaining pigeons were allowed to fly freely in the area, but their activity was controlled to a fair degree in that they were fed regularly at this site. This was clearly visible from the female falcon's customary perch on the cliff and from the nest. A grey-green tent was set up with a clear view of the trap net, and a string led from it to the release of the trap. A camera with a telephoto lens was also located in the blind tent, focused on the trap.

Since the tercel (male falcon) hunted elsewhere and never flew over this first capture site, Knoespel chose a second capture site for it, almost 2 km to the east. Here he built a blind of rock under an overhanging cliff, roofing it with sacking. He built a third hide between these two potential capture sites, intended mainly for observing and photography. He moved between the three sites as circumstances demanded, having arranged for his Greenlandic assistant to bring food and whatever else he needed.

Knoespel had released half his pigeons on 25 June. There was a peregrine falcon nest about 5 km away, and the peregrines were the first raptors to show interest in the pigeons, pursuing three of them, but evidently not seriously, on 28 June. But next day Knoespel watched the female gyrfalcon chasing a pigeon, and also spotted where a pigeon had been plucked, high above the nest on the cliffs.

On 30 June the tercel killed a pigeon near the east blind, and it fed from the pigeon again over the next two days. But on 3 July rather than starting to try to film the tercel from the blind Knoespel was obliged to spend the day in Godhavn. Counting on the tercel continuing to feed on this bird for at least another two days, he omitted to tether a pigeon at the same site. But thereafter the tercel hunted elsewhere.

On 1 July the female bird killed a tethered pigeon at the blind below the nest. Next day it hunted and killed a flying pigeon at the same location. On the 2nd Knoespel was in his blind below the nest early with two pigeons tethered within range of his movie camera, hoping to film the female gyrfalcon. He had been waiting only ten minutes when the bird obligingly flew down and killed one of the pigeons and he caught the action on film.

But next day, 3 July, was the fateful day when he had to go to Godhavn; with no pigeons conveniently on offer below its nest, the female reverted to hunting ptarmigan in its customary hunting area. On the 4th, in anticipation of trying to capture the female bird with a snare at her favourite perch near the nest, Knoespel laid a few peeled sticks, pebbles and grass stems in a small circle around this perch, in preparation for replacing them with a snare, if these items did not scare the bird away. That evening the bird flew in as usual, but flew off again after only a few seconds. But on 5 July the bird disappeared; Knoespel speculated that it had been shot by a Greenland hunter.

When there was no sign that the young birds, now almost fully fledged, were being fed, and when peregrine falcons were seen flying unmolested past the nest, Knoespel decided to capture the young birds, two tercel and two females, on 8 July. This, however, was far from a simple exercise. Due to an overhang above the nest, it was impossible to climb down to it as Knoespel soon discovered (Herdemerten 1939: 115), and was forced to climb back up again. One of the Greenlanders, Karl Ohlsen, came up with a quite spectacular solution. He had himself lowered down over the overhang, then several of his companions, in a secure stance off to one side, pulled on a rope attached to him, so that he swung close past the nest. On each swing he hooked a young bird from the nest with an ice axe. The birds were sufficiently close to flying that they were able to flutter down to the rocks at the shore below them. One of the birds, however, was caught by a wave and was washed into the sea, but was recovered. Another of the birds landed quite heavily on the rocks, and remained lying motionless for some time. It remained nervous, very prone to panicking, for the rest of its life, and Knoespel would attribute this to this early trauma. Karl Ohlsen was lowered safely to the ground below the nest.

Initially Knoespel fitted the birds with hoods and jesses until they had become accustomed to him, but then he allowed them to fly free, once they had mastered the skills of flying. But even then he continued to feed them regularly, with birds such as ptarmigan and kittiwakes provided by his Greenlandic assistants. The birds were also hunting snowbuntings on their own account. Whenever he wished, Knoespel was able to recapture these young birds, when they came to feed on the birds provided for them.

The four young birds travelled north with Knoespel in late July/early August initially to Station II on Drygalski Halvø, where they arrived on 4 August. Here, once again, these birds were allowed to fly freely, and again Knoespel was able to recover them more or less at will. The primary aim of this station was to capture one or more free flying adult birds, and to this aim Knoespel set up a capture blind, and again used tethered pigeons. One drawback of allowing the young captured falcons to fly free was that they killed several of his pigeons. Finally, after several near misses, on 15 August, Knoespel's patience was

rewarded when he succeeded in capturing a free flying wild tercel in a net.

As mentioned earlier, on 16 August Knoespel moved camp to Station III on the south side of Storø, as being a more appropriate site for teaching his young birds to hunt for themselves. He soon discovered that a number of gyrfalcons hunted regularly in the area, and after a few weeks was able to establish their hunting schedules, depending on weather conditions. He established three capture sites, using young kittiwakes (*Rissa tridactyla*) provided by his Greenland assistant Hans Quist, as lures, until a new supply of pigeons arrived from Europe. Despite his many hours spent in the different blinds and quite a few frustrating near misses at capturing some of the local gyrfalcons, it was not until right at the end of the sojourn at Station III that he finally was successful, capturing a female. But this bird had a gunshot wound, and did not survive long. Meanwhile the young birds taken from the nest at Station I had made encouraging progress at hunting kittiwakes for themselves.

Geological investigations

A secondary focus of Herdemerten's research activities (as a mining engineer) was geological. He was particularly interested in the precambrian Agpat formation in the Uummanaq area, the type site being on Agpatø. In his report Krüger (1930) had included a fairly detailed geological map of the area, as well as a detailed typical profile of the Agpat formation from the east side of Agpatø (Krüger 1930: 121) on the basis of his fieldwork in 1925. From bottom to top it featured amphibolite hornblende schists, microgranite, pegmatite, marble, glimmer/hornblende gneiss, quartzite, quartz and augengneiss, that is a mixture of intrusive and metamorphic rocks. Herdemerten makes only a few passing references to his geological investigations; his frustratingly brief explanation of the genesis of the Agpat formation (which he appears to have formulated prior to any field investigations), is that it represents sedimentary rocks metamorphosed by lava which flowed over them; the lava having subsequently been removed by erosion. It is difficult to correlate this explanation with the complex profile presented by Krüger. Herdemerten does not appear to have published the results of his own fieldwork anywhere.

Environmental investigations

In view of the fact that all the Icelandic birds introduced to Riddagshausen in 1937 had died, Herdemerten and Knoespel made considerable efforts to establish in some detail the environment of the area of west Greenland to which the birds they had captured were acclimatized. To this end, first of all, they maintained weather stations at all three of their stations, although Herdemerten (1939) provides no details of the parameters recorded or the frequency of the observations.

Botanical studies were also one of the foci of the expedition, no doubt to serve as a basis for comparison with the vegetation of Goldhöhe to where the birds were destined. Again, unfortunately, no details are provided in Herdemerten's account.

It was surmised that the high mortality among the bird brought from Iceland in 1937 had been partly or largely due to their lack of immunity to the bacteria to be found at the relatively low elevation of Riddagshausen. Hence, a study of bacteria found in the soils and in the prey species in west Greenland represented a further focus of the field studies by Knoespel and Herdemerten

Bird banding

Banding birds was a further secondary objective of the expedition. Most, if not all of the banding was accomplished by Herdemerten. In mid-late July he banded a number of fully-fledged snow-buntings (*Plectrophenax nivalis*) and a Lapland longspur (*Calcarius lapponicus groenlandicus*). He lured the birds with a scattering of pigeon food, and caught them with a net which could be dropped by pulling away a support stick, by means of a long cord.

On 16 August he made a special trip to the Arctic tern colony at Augoilagtuq Qeqertat to band birds there. Many of the juveniles had already left the nest, but he was able to band some late hatched birds.

Finally from 21 until 28 August he was banding young kittiwakes below the bird cliffs of Storø. The technique was to capture the birds on the water below the nesting cliff, especially after a rainstorm or a stormy night, when the young birds were somewhat exhausted. They could then be captured fairly readily from a kayak or rubber boat. Some kittiwakes were also banded on the nest, but they were few in number since most of the nests were on inaccessible ledges on the cliffs, while a number of immature juveniles panicked and fell from the nests into the water.

The outcome of the banding efforts was that 242 birds were banded: 225 kittiwakes, 10 arctic terns, 6 snow buntings and 1 Lapland longspur. Mattox (1970) reported that two of these birds were later recovered, but he does not identify the species or recovery location.

Commentary

An interesting aspect of the scientific research that was being pursued in west Greenland in the summer of 1938, is that Herdemerten's was not the only expedition operating in the Uummanaq area. The other expedition was the Cambridge expedition to west Greenland, led by H.J. Drever (Drever and Carmichael 1939). Based at Igdlorssuit on Ubekendt Ø, its major foci appear to have been geology and anthropology. Like the Germans, the Englishmen were also greatly assisted by Dr. Christiansen in Uummanaq, who, for example, acted as interpreter and organiser for psychological tests administered to the Greenlanders by Carmichael. The latter also

accompanied the Doctor on her rounds (Drever and Carmichael 1939: 397). On his way south Carmichael was also the guest of Giesing at Qullissaat, and of Rosendahl at Godhavn. It is hard to believe, in view of these facts, that the Germans were not aware of the British expedition and vice-versa; their paths may even have crossed from time to time. Remarkable, in view of this, is the fact that neither in Herdemerten's book or in the Englishmen's account in the *Geographical Journal* is there any mention of the other expedition. May this have been a reflection of the fact that the political tensions in Europe were already influencing the normal friendly, cooperative relations so characteristic of Arctic researchers?

Despite the fact that war-clouds were definitely gathering in Europe by 1938, there does not appear to have been any political or military motivation behind the expedition. This statement might appear to be belied by the appearance of a swastika flag in the photo of one of the expedition's camps (Fig. 5), but even a cursory examination will reveal that the image of the flag and flagpole has been added to the photo at a later date. This was presumably to gain the approval of the Nazi hierarchy. In any case, it seems very unlikely that at this early date Hitler was anticipating occupying Denmark, and might also have had designs on Greenland, and that this expedition might have been sent as a sort of reconnaissance operation. Nor does it seem likely that this expedition was aimed at gathering weather data with a view to future military operations in western Europe; in 1938 the German military still had access to the weather data being gathered by Danish stations in Greenland, and while Herdemerten and Knoespel did maintain weather stations at their various camps, the short lived records from only a few summer months would have added little

to the overall picture of weather systems travelling from Greenland towards Europe.

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