

MEDDELELSER OM GRØNLAND

UDGIVNE AF

KOMMISSIONEN FOR VIDENSKABELIGE UNDERSØGELSER I GRØNLAND

Bd. 142 · Nr. 1

DEN DANSKE HUNDESLÆDE-EKSPEDITION 1938-39

LEDER: ELMAR DRASTRUP

CONTRIBUTIONS TO THE GEOGRAPHY
OF INGOLFS FJORD AND THE INTERIOR
OF KRONPRINS CHRISTIANS LAND

BY

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WITH 8 FIGURES IN THE TEXT

KØBENHAVN

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BIANCO LUNOS BOGTRYKKERI A/S

1945

PREFACE

This publication is an extract of an unpublished report on The Danish Dog-Sledge Expedition 1938—39, and it contains an account of some observations and surveys made in the course of a journey by sledge in the spring of 1939 to Ingolfs Fjord and the interior of Kronprins Christians Land. On this journey we succeeded in finding and mapping a useful route from the east coast behind the complex of fjords north of Lamberts Land to Peary Land. We also made surveys of the newly discovered inner part of Ingolfs Fjord, which just prior to our arrival had been travelled by Eigil Nielsen's sledge team from Mørkefjord. In conjunction with the cartographic remarks recorded in the following I would refer to EIGIL NIELSEN's paper 1941 in which is published a map drawn on the basis of earlier maps and supplemented with the surveys we each made in the course of our sledge journeys in the spring of 1939 to Ingolfs Fjord and the interior of Kronprins Christians Land. I would also refer to LAUGE KOCH's two publications, of 1935 and 1940, and to the report of the Danmark-Expedition, G. C. AMDRUP 1913 and I. P. KOCH's work 1916.

I take this opportunity to thank EIGIL NIELSEN for his collaboration in making the map of Ingolfs Fjord; my thanks are also due to the Scoresbysund Committee, and in particular its chairman WALDEMAR UTTENTAL, for the Committee's support to the expedition. Thanks also to the Greenland Administration for travelling accommodation on the "Gustav Holm" to East Greenland in 1938 and to Østgrønlandsk Fangst-kompagni Nanok for hospitality at the company's posts and outlying cabins in Northeast Greenland. I am also grateful to LAUGE KOCH for valuable assistance both before and after the expedition, and to my friends in East Greenland, the Danish and Norwegian trappers and the members of Norsk-Fransk Polarekspedisjon 1938 and Dansk Nordøst-grønlands Expedition 1938—39. Finally, I should like to express my most cordial thanks to my travelling companion on the expedition, FINN CHRISTOFFERSEN, for his comradeship and never-failing loyalty.

Copenhagen, October 1944.

ELMAR DRASTRUP.

REPORT ON THE EXPEDITION AND THE SURVEYING WORK

In the winter of 1938—39 I made a journey by dog-sledge northwards along the east coast of Greenland from Sandodden in Young Inlet to Ingolfs Fjord and the interior of Kronprins Christians Land. The purpose of the journey was twofold: to gain experience in travel technique and practical details of supply, and to find a better route to Peary Land than those hitherto followed, and if possible to traverse the so-called "Peary Canal" (LAUGE KOCH 1940) in order to get round to the west coast of Greenland. I was accompanied by FINN CHRISTOFFERSEN who had previously spent some years in Northeast Greenland as a trapper for the Nanok Company. We started from Sandodden in the autumn, and in the course of the dark period passed northwards through the Danish and Norwegian trapping territories to Hvalrosodden in Dove Bugt, where we arrived on January 2nd, thirty-nine days after leaving Sandodden. On April 5th we travelled on to the uninhabited regions north of Germania Land, following a route which ran north from Hvalrosodden across Germania Land to the head of Flade Bugt in Skærfjorden, and from there along by the outer coast of Orleans Land to Jøkelbugten and on to Lamberts Land. From Lamberts Land we continued across Nioghalvfjerdingsfjorden and up along the east side of Hovgaards Ø and Holms Land to the North side of Ingolfs Fjord (Kap Jungersen). Here on May 1st we were stopped by new ice and open water along the outer coast of Amdrups Land and compelled to make our way inland through Ingolfs Fjord in order to find a passage overland to Danmarks Fjorden. On May 12th after having passed through the northern part of Vandredalen we came to Romer Sø, after first having driven through the newly-discovered inner part of Ingolfs Fjord which, according to an approximate calculation, must extend between forty and fifty kilometres more to the west than is shown on the map of the Danmark-Expedition (I. P. KOCH 1916). We proceeded some distance northwards along the west side of Romer Sø as far as a small valley (Vendedalen), which runs from the lake westwards in the direction of

Danmarks Fjorden. Here we made our northernmost camp, whence two days later we returned to the head of Ingolfs Fjord after having reached approximately lat. 81° N. After having replenished our supplies from a depot in the outer part of the fjord we continued southwards from the head of it through a valley (the southern part of Vandredalen) which brought us out into Dijnphna Sund a little to the north of the glacier which from the inner end of the sound leads down to Nioghalvfjersdfjorden (Spaltegletscher). From there we proceeded east about Lamberts Land and down the outer line of islands (Pariserøerne) in Jøkelbugten, across Skærfjorden and Germania Land to Hvalrosodden. We arrived there on June 11th after having traversed a total of 2350 kilometres in the course of 105 effective travelling days. In the course of that journey we had travelled the coastal stretch between lat. 74° and 81° N. on the east coast of Greenland.

On the way we made use of the maps drawn by LAUGE KOCH in 1932 and 1933, of the scale 1:2,000,000 (Geodetic Institute 1933 and LAUGE KOCH 1935) and the maps of the Danmark-Expedition 1906—08 (scales 1:500,000 and 1:1,000,000). Despite their small scale, these maps were sufficiently detailed to permit of our employing them for calculating the daily distance travelled, and on the whole they helped in our orientation and were useful as a guide for geographical and glacial observations in the field.

While on the journey from Sandodden to Dove Bugt in the dark season we had no opportunity of making corrections of the map along that stretch (LAUGE KOCH: Map of East Greenland 70° — 77° n. lat.). Moreover, these parts are so well known that there will scarcely be much alteration to make in the coastal contours on the smaller maps. Nevertheless I ought to add that in the spring of 1934, when I travelled by sledge down through 17. Maj Fjord from the head of Dove Bugt for the purpose of traversing the country between that fjord and Bessels Fjord trapping post (AD. S. JENSEN Land), it turned out that 17. Maj Fjord was not 25 km long as shown on the map, but only 15 km, the head of the fjord being formed of a neck with fairly high moraine banks on both sides, whereafter it is succeeded by a row of freshwater lakes; the last one lies south of the watershed and proved to have an outlet, not as shown by the maps through the so-called Tromsdalen within the Bessels Fjord post area, but through Paaskedalen eastwards to the waters between Kap Peschel and Kap Beurmann. For this reason it is difficult to establish a route from Bessels Fjord across country to 17. Maj Fjord and on to the inner parts of Dove Bugt, as the stretch from Tromsdalen to the lakes south of 17. Maj Fjord is unsuitable for sledges.

But when we made the spring journey to the regions north of Dove Bugt in 1939 we were able to make a number of corrections to the maps



Fig. 1. The passage from the outer to the inner part of Ingolfs Fjord runs along the beach on the north side of the fjord. Pack-ice from Spærregletscher bars the entire entrance and lies close in to the coast, but we found a passable route, partly on the ice-foot as shown here, partly through the pack off the coast.

then existing: the Danmark-Expedition map had been used as a basis for the sketch map made by LAUGE KOCH in August 1933 during an air reconnaissance from Norske Ø to Kronprins Christians Land (Map of East Greenland 76° —c. $82^{\circ}45'$ n. lat. LAUGE KOCH 1935). The most important of these corrections was made in the regions around Ingolfs Fjord and in the length and shape of the fjord itself. We found that the fjord does not, as shown on the Danmark-Expedition map (though with an incomplete shoreline for part of the fjord head) end about 8 km west of long. 18° W., but continues inwards for about 15 km, whereafter it turns southwest and, about 25 km farther in that direction, divides into two arms, each about 7—8 km long. On LAUGE KOCH's

map of 1933 these two arms at the head of Ingolfs Fjord are brought forward to the place where the Danmark-Expedition places the head of the fjord. Thus on his air reconnaissance he must have observed the two arms but, on account of cloud, not the intermediate length of fjord, so that the large river that drains Romer Sø was not shown with its mouth directly into the fjord, but about 10 kilometres more to the west in a river which is recorded as draining another large lake situated southeast of Sjælland Mountains (Troldsrøen).

When we pitched our camp in the valley which we named Vardedalen on the north side of Ingolfs Fjord, almost at the spot where the shore-line at the head of the fjord is stippled on the Danmark-Expedition map, we were unaware that the fjord continued more to the west than was shown on the map, as a large glacier there pushed out across the fjord from Holms Land (Spærregletscheren) and, in conjunction with a low, elongated island in the middle of the fjord, gave the impression that the head of the fjord might very well be there. It was only when EIGIL NIELSEN, who had attempted to cross Kronprins Christians Land in order to reach Danmarks Fjorden by that route, but had to turn back, passed our camp on the way eastwards that we learned that Ingolfs Fjord is longer than is shown on the old maps. In the course of a conversation at the camp in Vardedalen EIGIL NIELSEN told me that in his opinion the fjord was about 25 km longer than was originally assumed. But when FINN CHRISTOFFERSEN and I passed up through the fjord we came to the conclusion that it must at any rate be at least 40 km long at the newly-discovered part. This estimate was arrived at by means of the usual calculation of the length of a day's journey on the basis of the number of hours we had travelled and the nature of the going. At Vardedalen we had cached most of the load and proceeded with a light sledge and fresh dogs. The going was good in most parts and we were nine hours in traversing the stretch from Vardedalen to the head of the northern arm of Ingolfs Fjord. One hour of this was spent in driving back and forward again for a lost anorak, but the remaining eight hours were spent en route with the usual rests and halts for the purpose of straightening the dog-traces out. Travelling at an average of 5 km an hour, which is by no means an exaggeration, we thus made 40 km that day.

Later when we drove out through the fjord we were 12½ hours on the same stretch, but the going then was bad along the first half of the way. From Vardedalen to Hareskindspynten (at the mouth of the northern head-arm of the fjord) on the second occasion, when we took a heavier load, we were just under eight hours in making it (about 35 km) on good snow and with fresh dogs. From Hareskindspynten to

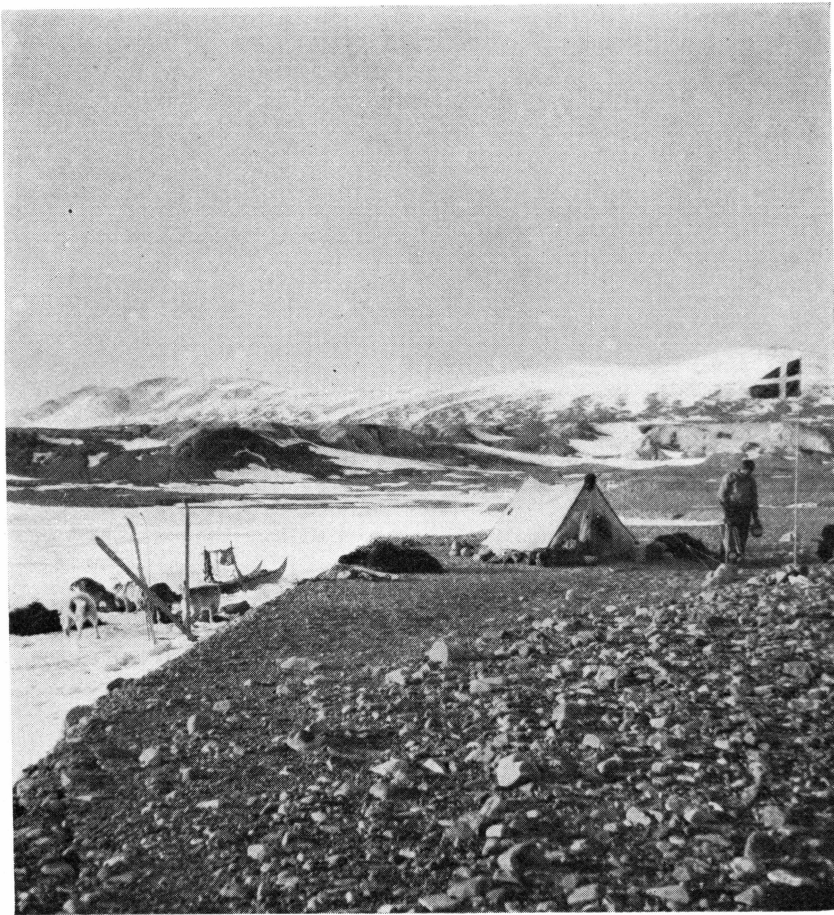


Fig. 2. The land around the head of the northern arm at the head of Ingolfs Fjord was almost bare of snow. The picture shows our camp where Nunatåme Elv empties into the fjord. In the background are mountains on the east side of the northern part of Vandredalen.

the head of the south arm of Ingolf Fjord I consider the distance to be about 10 km, as on that day we travelled about 25 km in ten hours, fifteen of them very heavy going over land from the head of the southern arm inland through Vandredalen.

These calculations agree with the surveys we made with the aid of a prismatic compass. We had no theodolite, and our sextant was cached in Skærfjorden. Accordingly, the map we made must be regarded as a sketch. But for Nunatåme Elv (the stream which drains Romer Sø) and the part of Vandredalen leading from the head of Ingolfs Fjord up to Romer Sø, the map comprises much detail, as along this stretch especially

we took many control measurements and established no fewer than 15 stations.

The first of these stations was made at the south end of Romer Sø, marked "A" on the field map (fig. 3). From there we proceeded to a valley on the west side of Romer Sø, almost opposite the first of the two large glaciers that jut into the lake from its east bank. This valley we called Vendedalen, and the distance from the head of Romer Sø to Vendedalen we estimated at 10 km. This distance is employed as a basis for all the compass surveys in the regions around the head of Ingolfs Fjord. From Vendedalen, our most northerly camp on the spring journey (about lat. 81° N.), we returned to Ingolfs Fjord via Nunatâme Elv. On the way we set up the various survey stations along the river, whereby we arrived at the result that, provided the distance from Station A to Station B (the head of Romer Sø to the southern corner of Vendedalen) was correct, the river must be about 35 km long. This calculation turned out to agree with the sledge distance on the way down from Romer Sø to the head of Ingolfs Fjord. On the way up we had reckoned the length of the river to be about 40 km, which in fact is the length given on LAUGE KOCH'S map; but the intervals as far as the return journey is concerned must be regarded as being more in accordance with the actual position, as our calculations then were made with greater accuracy.

As an example of how close we were able to arrive at the distance travelled on a day's journey I shall describe an experiment made while passing up the Spaltegletscher at the head of Dijmphna Sund. The experiment is recorded in the diary notes for May 28th, and it shows that with great accuracy we were able to establish the fact that in the course of an hour we had traversed an average of 3 km and 240 m (including halts). I quote from the diary:

"We drove about 25 km in exactly 8 hours. We both travelled on skis to make it easier for the dogs along this stretch. And I amused myself by reckoning out that we were doing 4 km and 320 m an hour. The length of the sledge is 3 metres, and after many control measurements it took $2\frac{1}{2}$ seconds for the imprint of a dog's paw to pass from the shadow of the sledge nose to the rearmost end of the runner. This means that we were moving at the rate of 72 metres per minute, which again gives the aforesaid 4 km and 320 m per hour. However, in actual fact one cannot drive uninterruptedly hour after hour. There must be a brief rest now and then; traces have to be unravelled or a dog's harness adjusted a little, or there is a characteristic motif that catches the eye and must perforce be photographed, or one of us becomes thirsty and has to resort to the thermos bottle with its cold, unsweetened tea. In short, it must be taken into account that on an average there is a halt for fifteen minutes of every hour; but, be it noted, only when the day is

fine as it is today; otherwise the halts are much shorter and not nearly so frequent. It is cold to stop for any length of time when the temperature is below -20° . But today the weather was unusually fine, so that we may safely say that we spent a full fifteen minutes of every hour on stopping to enjoy the rare pleasure of travelling in a perfect calm and a baking sun in these regions. In other words we travelled an average of 3 km and 240 m per hour, which gives a total distance of 25 km and 920 m in the eight hours we spent on the way. This agrees exactly with the maps and the bearings we have taken, and therefore I can credit ourselves with 25 km for the route, as during the course of the day we had to swing to the side occasionally in order to find a way across the many crevasses in this glacier."

On that day the going was relatively good, but the ascent of the glacier had the effect that progress was not so brisk as on a normal day's journeying on fjord ice, or as for instance on the Nunatâme Elv, where for the most part we travelled on bare ice.

However, a map drawn according to measurements taken in the manner described may easily differ to the extent of some kilometres to the one side or the other on the various distances. In particular one must take into consideration that earth magnetism may affect the compass needle differently from one station to another. We have put the deviation at 42° west.

Our method was from a station to select a number of points (mountain peaks, glaciers and coastlines). We took sights on these points with the prismatic compass and recorded the angles. With our compass (a "Silva" spirit compass, Swedish military model) these angles could be read to an accuracy of 1° . The field map (Fig. 3) shows the angle measurements of Nunatâme Elv. The following readings on the compass were employed for drawing this map:

Station A	Station B	Station Br
55 B.	40 Fj.	13 Fj.
80 Br.	166 Br.	340 (6) B.
214 D. T. N.	238 (—3) A.	
230 D. T. S.	258 Hj.	
352 Hj.		
Station C	Station D	Station E
128 Fj.	40 Hj.	53 Hj.
	68 A.	118 D. T. N.
	169 D. T. N.	228 T. Ø.
	180 Ing. Fj.	308 M. D.
	212 D. T. S.	325 T. V.

Station F	Station G	Station H
0 M. D.	38 M. D.	45 M. D.
20 T. V.	110 T. Ø.	143 T. Ø. 2.
61 Hj.	199 T. Ø. 2.	273 T. V. 2.
104 D. T. N.		
164 T. Ø.		
224 T. Ø. 2.		
Station I	Station K	Station L
55 M. D.	6 T. V. 2.	119 Elv. T.
92 T. Ø. 2.	74 T. Ø. 2.	307 M. D. S.
170 Elv. T.	138 Elv. T.	335 M. D. N.
282 M. D. N.	290 M. D. S.	
324 T. V. 2.	324 M. D. N.	
Station M	Station N	Station P
83 Elv. T.	46 K.	12 Elv. T.
98 Hj. T.	110 Elv. T.	67 Hj. T.
343 M. D. N.		320 M. D. S.

When we started on the journey upwards along Nunatåme Elv towards Romer Sø we read the barometer in order to check the elevation in through the valley. At Camp 1 about 25 km in we read 125 m above sea level. On Romer Sø at Camp 2 (Vendedalen) the barometer showed 200 m a. s. l. On the first day during the return journey from there we had a fall of 70 m. And from Camp 3 at Nunatåme Elv and to Ingolfs Fjord about 110 m. The difference between the two readings before and after the ascent was 8 mm, the barometer showing 768 mm and 760 mm respectively at the start and on our return. It is probable that the lake lies at a height of about 180 m a. s. l., or perhaps rather less.

From the camp in Vendedalen we made an excursion westwards through the valley to a point about 8 km west of Romer Sø. Here the valley narrowed in and formed a gully, apparently with a fall westwards, which suggested that we were at a watershed and that the valley may be connected with the country on the east side of Danmarks Fjorden. However, we had no opportunity of examining this question, as just there we found ourselves compelled to make a rapid return.

On the way out through Ingolfs Fjord to the depot in Vardedalen we continued the surveys we had begun in order to obtain a connection with a fixed point in the outer part of the fjord. We established a number of stations on the way and took several bearings, whereafter it was found that Romer Sø had to be prolonged for a distance southwards and perhaps also moved a little to the west. EIGIL NIELSEN and I surveyed the fjord, both independently, with the aid of a compass and arrived at approximately the same result as far as the shape of the fjord and the

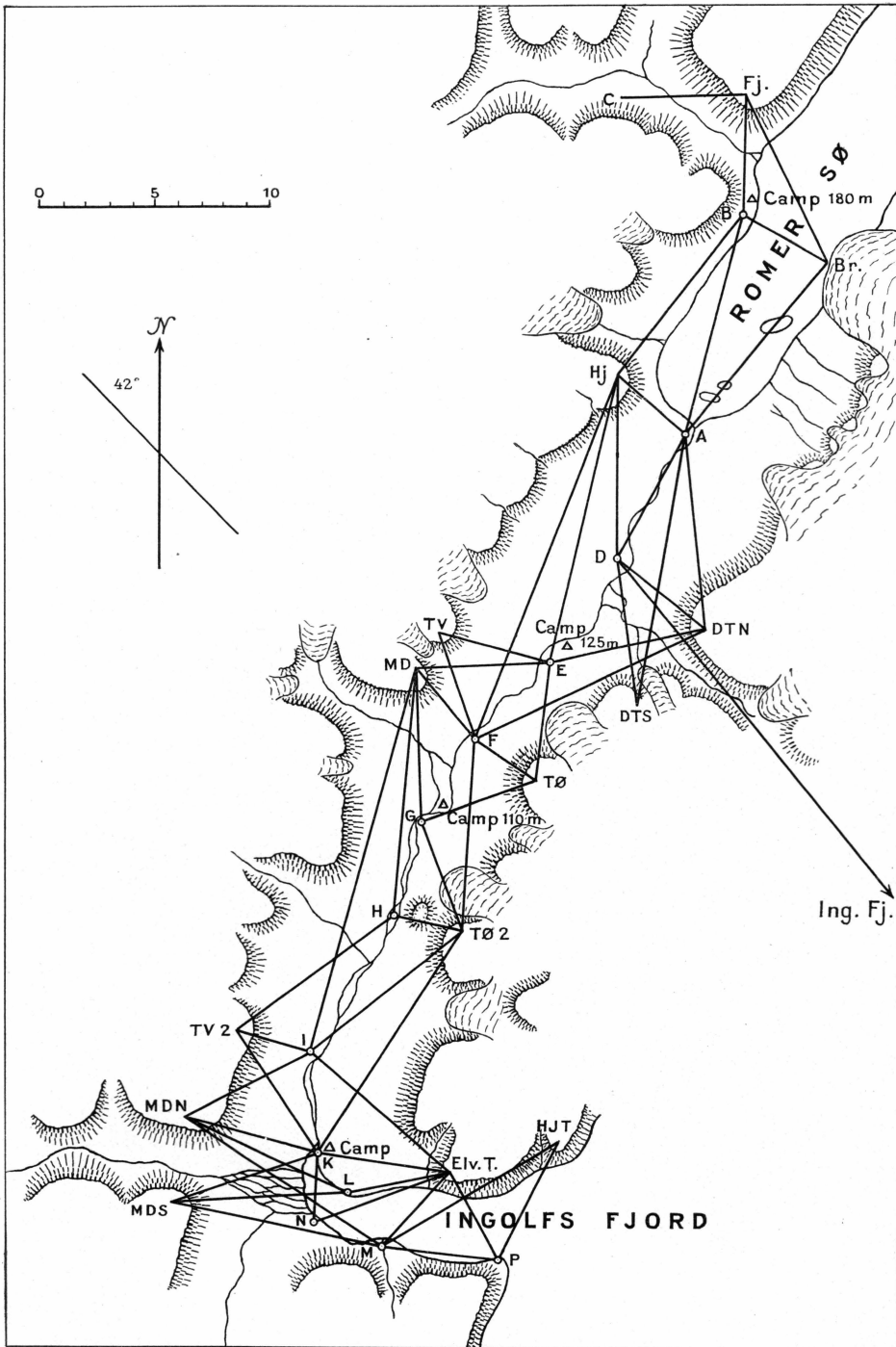


Fig. 3. Plotting of field map showing the prismatic compass traverse of the northern part of Vandredalen between the head of Ingolfs Fjord and Romer Sø.

proportions of the coastlines were concerned. Regarding the length of Ingolfs Fjord, however, EIGIL NIELSEN considered that the head of the fjord should be placed somewhat more to the east than is shown on the map drawn by me. In his publication (1941) is a map compiled on the basis of our collective surveys.

The inner part of Ingolfs Fjord and the valley leading north to Romer Sø contain an unusual number of glaciers. In Ingolfs Fjord some of them have formed numbers of icebergs which apparently are unable to float out of the fjord, as the two large glaciers west of Vardedalen lie as barriers of calf ice in shallow water and block the passage. The landscape is distinctly alpine, with many picturesque scenes and peaks of more than a thousand metres in height. Around the head of the fjord the ground was almost bare of snow, but up towards Romer Sø and on the lake itself there was snow everywhere as at other places on the coast; yet it was evident that the wind had blown strongly here during the winter, as the snow was deeply eroded.

From our camp on the delta at the head of the fjord we had a view southwards over a wide, open valley, which at first we assumed must lead down to Hekla Sund. Later, when we travelled through the southern head arm of Ingolfs Fjord, we came into this valley (the southern part of Vandredalen) east about the tall mountain (Næsen) lying at the corner where the fjord divided the two arms, the western and the southern. On following the valley thirty to forty kilometres southwards we got down into a narrower transverse valley leading out to Marmorvigen in Dijnphna Sund where the Danmark-Expedition map shows a small cove or inlet with a stippled coast line. It was my impression that the wide valley, which continued in a southwestern direction, and which evidently is a geological continuation of the valley north of Ingolfs Fjord, must run right in under the ice cap in the direction of Blaasø south of Skallingen.

At LAUGE KOCH's suggestion the entire tract of land from Romer Sø to the country west of Hekla Sund has received the name of Vandredalen. Together with some other names of localities to be described below, this name has been submitted to the Greenland Place-Names Committee, which communicated its approval in its letter of July 24th 1940.

The glacier lying just to the north of the westernmost point on the north side of Ingolfs Fjord on the map of the Danmark-Expedition we have called Bjørnegletscher. The river running from Romer Sø to the head of Ingolfs Fjord has been christened Nunatâme Elv. The name is thought to be an Eskimo dialect from the Kap York District, where a locality on the south side of Washington Land was named by LAUGE



Fig. 4. View from the south through the northern part of Vandredalen with the broad, partly snowfree and glassy ice-covered Nunatâme Elv. The picture was taken about half way between Romer Sø and the head of Ingolfs Fjord.

KOCH in 1921 Nunatami, which his Eskimo companion Talilenguak said meant "new land" (LAUGE KOCH 1926). Nunatâme Elv must here be interpreted as "the river in the new land". Vandedalen is the first valley running westwards from the head of Romer Sø, and is situated almost where LAUGE KOCH's map shows a glacier almost opposite the more southerly of the two large glaciers on the southeast shore of the lake. Keglen is the highest mountain in the southern part of Vandredalen on the latter's west side. The inlet marked on the Danmark-Expedition map west of Lynn Ø in Hekla Sund we have called Marmorvigen after the marble deposits we found just west of the inlet. The authorized name Spaltegletscher is the name of the glacier which from Nioghalvfjordsfjorden falls out into the head of Dijnphna Sund.

In addition to these names there are some which have not been submitted to the Committee for approval, but which are mentioned in the diary notes: Kap Uttental is the cape lying to the immediate west of Kap Jungersen on the north side of Ingolfs Fjord. Here we built a cairn with a note to say that we had changed course and driven in through the fjord. Vardedalen is a high valley east of Spærregletscher on the north side of Ingolfs Fjord. At this valley we erected the second cairn, which we called Scoresbysundvarden after the Scoresbysund Committee. A point on the west side of Ingolfs Fjord in its innermost, narrow part, about midway between the head and the northernmost sharp corner, is mentioned in the diary as Hareskindspynten. Here was our last camp in Ingolfs Fjord before we travelled south through Vandredalen. The mountain on the south side of Ingolfs Fjord at the beginning of the innermost, newly-discovered part we called Nunatâmeporten. The glaciers in Ingolfs Fjord on the west side of Prinsesse Caroline-Mathildes Alper are mentioned in the diary in succession southwards from Draabegletscher: Draaben, Skeen, Gaflen and Tungen. The other new place names on the map around the inner part of Ingolfs Fjord were given by EIGIL NIELSEN, who passed along the stretch from Spærregletscher to the head of the northern arm the day before our arrival.

The other observations made during the spring journey in 1939 concerning corrections to the existing maps of Northeast Greenland north of Dove Bugt were confined to slight alterations to coastlines, for instance the bay at Bjørnegletscher and the shore on the west side of Dijmphna and Hekla Sund, where by the way we inserted a small island right opposite the middle of the glacier at the head of the fjord. Beyond these we found—as did the members of the Danish Northeast Greenland Expedition, that the islands on the map in Jøkelbugten are not all placed in accordance with the actual conditions. There is such a confusion of islands, rocks and islets that it would require a considerable amount of cartographic work to straighten them out. Both EIGIL KNUTH and EIGIL NIELSEN, like ourselves, found that the east side of Schnauder Ø is very deeply indented. What is more, to me the island seemed to be somewhat longer than is shown. On April 17th we drove for six hours along the east side of the island and, according to the map, should have traversed a distance of only 10 km. Although the going here was fairly bad, I would estimate that we must have travelled at least 20 km along Schnauder Ø on that day.

A couple of days earlier we had, along a stretch more to the south in Jøkelbugten from Bjørneskærene on the south to a place off the west side of Kap Merite Ø (Stigbøjlen), travelled about 50 km in eight hours,



Fig. 5. The south end of Romer Sø, seen from Vandredalen. In the right background the more southerly of the two great glaciers which jut into the lake from the land on the east. The width of the passage west of the glacier on the lake ice is about 4 km. In the foreground the beginnings of a surveying cairn placed on top of a mound of moraine.

according to the map. Even then this seemed to me to be a surprisingly quick day's journey. The explanation may perhaps be that the south end of Schnauder Ø should be moved farther south, and that the islands between Bjørneskærene and Schnauder Ø should be pressed together proportionately.

We had the same error on the existing maps verified when, on our return journey, we laid our route a little more to the east and followed a line from the water midway between Schnauder Ø and Norskeøer west about Franskeøerne and down along the east side of Pariserøerne more to the south. According to the map—and according to our own bearings in to Schnauder Ø—we had then travelled 25 km in 8½ hours, as we

were then on a level with Schnauder Ø. Two days later, when we travelled from the northernmost group of Pariserøerne past Kap Merite as far as half way down on the largest of Pariserøerne (Storøen), we made a surprisingly rapid day's journey of 35 km, partly in misty weather. As will be seen, the two short and the two long day journeys agree. On the map he published in conjunction with his report (1942) EIGIL KNUTH moved Kap Merite a little to the north. In relation to the situation of the other Pariserøerne this is undoubtedly correct; but the entire group, together with the southern part of Schnauder Ø, must in my opinion be moved southwards. This, however, would require a good deal of revision of the cartographic surveys made by the Danmark-Expedition in Jøkelbugt, for which reason I have found no occasion to insert these corrections on the map which I have revised.

On my sledge journey in the spring of 1934 to the southern part of Jøkelbugten I was already aware that some of the innumerable small islands there would have to be moved to the one side or the other if they were to agree with their situation in fact. Orientation is somewhat difficult, but on the whole the corrections are of minor importance. In reality the earlier maps provide an excellent picture of the character and geographic appearance of Jøkelbugten.

We were travelling then north about the large island which forms the north side of Orleans Sund, later called Gamma Ø by EIGIL KNUTH. The west side of this island is shown with a stippled strait on the Danmark-Expedition map, thus producing a smaller island west of the large one. Seen from the fairway north of the island it looks as if there were a narrow strait there, but when we drove round the island we found that the two islands were connected by a low neck only 2 km wide, so that the supposed strait between the two islands is non-existent.

With regard to the margin of the glacier ice out to the sea I am able on the whole to confirm the observations made by LAUGE KOCH on his flight to Danmarks Fjorden in 1933. It appears from EIGIL KNUTH's map that the sea ice stretches right in to the east side of Lamberts Land. On our return journey, when we kept out towards Franskeøerne from Lamberts Land, we passed at a distance of about 15 km from land—just where LAUGE KOCH indicates the margin of the firm ice in 1933—a barrier of pack-ice which faded out of sight to both sides in the directions northeast-southwest.

This barrier was apparently a continuation of the pack which we had passed just north of Schnauder Ø on our way up and which here formed the transition from sea ice to the floating inland ice. On the other side we passed a similar pack-barrier a short distance north of Lambert Land when we came down inwards from Nioghalvfjerdingsfjorden. Actually



Fig. 6. The Scoresbysund cairn on the north side of Ingolfs Fjord off Vardedalen just east of Spærregletscher. On the left behind the cairn can just be seen a cache in which we deposited various articles of clothing, equipment and ammunition before proceeding south to Hvalrosodden. In the cairn is a brief account of the expedition's stay in the interior of Kronprins Christians Land.

it was often difficult to decide whether we were on sea ice or floating inland ice. Off the west side of the largest of Franskeøerne we passed a narrow lobe of the inland ice, which here had shot out from the water between Schnauder Ø and Pariserøerne.

Since the days of the Danmark-Expedition, however, the margin of the ice cap in Jøkelbugten does not seem to have altered much.

Both EIGIL KNUTH and the Danmark-Expedition on their maps show on the east side of Hovgaards Ø a fairly wide glacier falling into the sea. On our journey up along this part of the coast I was unable with certainty to verify this glacier. It seemed to me that along the



Fig. 7. View of the southern part of Vandredalen, looking from the east side of the valley towards Ingolfs Fjord. On the left, the corner mountain Næsen in Ingolfs Fjord; on the right, spurs of Prinsesse Caroline-Mathildes Alper.

whole distance we could observe the presence of moraine mounds and the natural surface. However, the land here was so thickly covered with snow that it was difficult to determine whether there was a glacier or not. LAUGE KOCH, who flew over the coast in August has not shown a glacier reaching right down to the coast, and therefore I am inclined to think that his map in this respect must be the most correct one.

We were able to observe when we were inside Nioghalvfjerdingsfjorden after having passed Spaltegletscher that about ten kilometres west of Kap Bernhoft the ice cap had a high margin, full of crevasses and furrows, which extended southwards, apparently west of Lamberts land. A similar observation was made by SVEND SØLVER when he travelled to Kap Bernhoft that same spring.

The edge of the sea ice north from Mallemukfjeldet at most places lay close under the shore. In Ingolfs Fjord we could see that several times in the course of the winter the fjord ice had broken up and drifted out to sea. In as far as the small islands in the outer part of the fjord

(Wegeners Øer) there would certainly be open water once or several times that winter. When we came from Eskimonæsset in a curve westwards and set our course for Kap Jungersen, we drove over quite thin young ice, at most a week old. Round about Kap Jungersen the ice was so thin that it could not bear our sledge. A week later, when EIGIL NIELSEN passed that way, the ice had become thick enough for traffic. All the way we could see water clouds on the eastern horizon. Off Eskimonæsset there was open water some few kilometres from land. The first sign of water we had was already when we were off the north side of Nioghalvfjerdingsfjorden on the way up.

THE NEW ROUTE TO PEARY LAND

One of the most interesting discoveries we made on our spring journey northwards was the route behind the fjord complexes north of Lamberts Land and towards Peary Land. Briefly the route is as follows: From Lamberts Land in through Nioghalvfjærdsfjorden and down Spaltegletscher to the head of Dijnphna Sund. Here the route swings westwards in through Marmorvigen and follows the river bed from the head of the inlet to Vandredalen. Then through this valley northwards to the head of Ingolfs Fjord and on along Nunatåme Elv to Romer Sø. Following this lake along its entire length one comes to a descent about 10 km wide to the mouth of Danmarks Fjorden, whence the course can be set direct for Peary Land. By adhering to this route it is possible from the east coast of Greenland to reach Peary Land over a stretch that is about 100 km shorter than the one across Nordostrundingen. Measured from the east side of Lamberts Land to a point on the coast southwest of Kap København this route is about 500 km. By proceeding behind Nordostrundingen along the route we found there, the distance is shortened to about 400 km. To an expedition endeavouring to get to Peary Land from the east coast with dog sledges or other form of surface transport, this is a very important advantage which may prove to be of decisive influence on the planning and course of the expedition.

There is the further advantage, however, that the trail from Mallemukfjeldet northwards to Nordostrundingen is often impassable. Experience has shown that the open water here cuts into the coast and makes passage difficult—and at times impossible. At Mallemukfjeldet, for instance, one cannot travel on land, as the mountain and the glacier fall abruptly into the sea without an ice-foot. While we were there we endeavoured to find a way along the coast, but were soon brought to a standstill. Moreover, the pack-ice in front of the cliff was extremely difficult to overcome. Again at Kap Jungersen on the north side of Ingolfs Fjord the open water will sometimes extend to the shore and cut the traveller off from further progress along the coast. We were stopped there by open water on May 1st and had to turn in through the

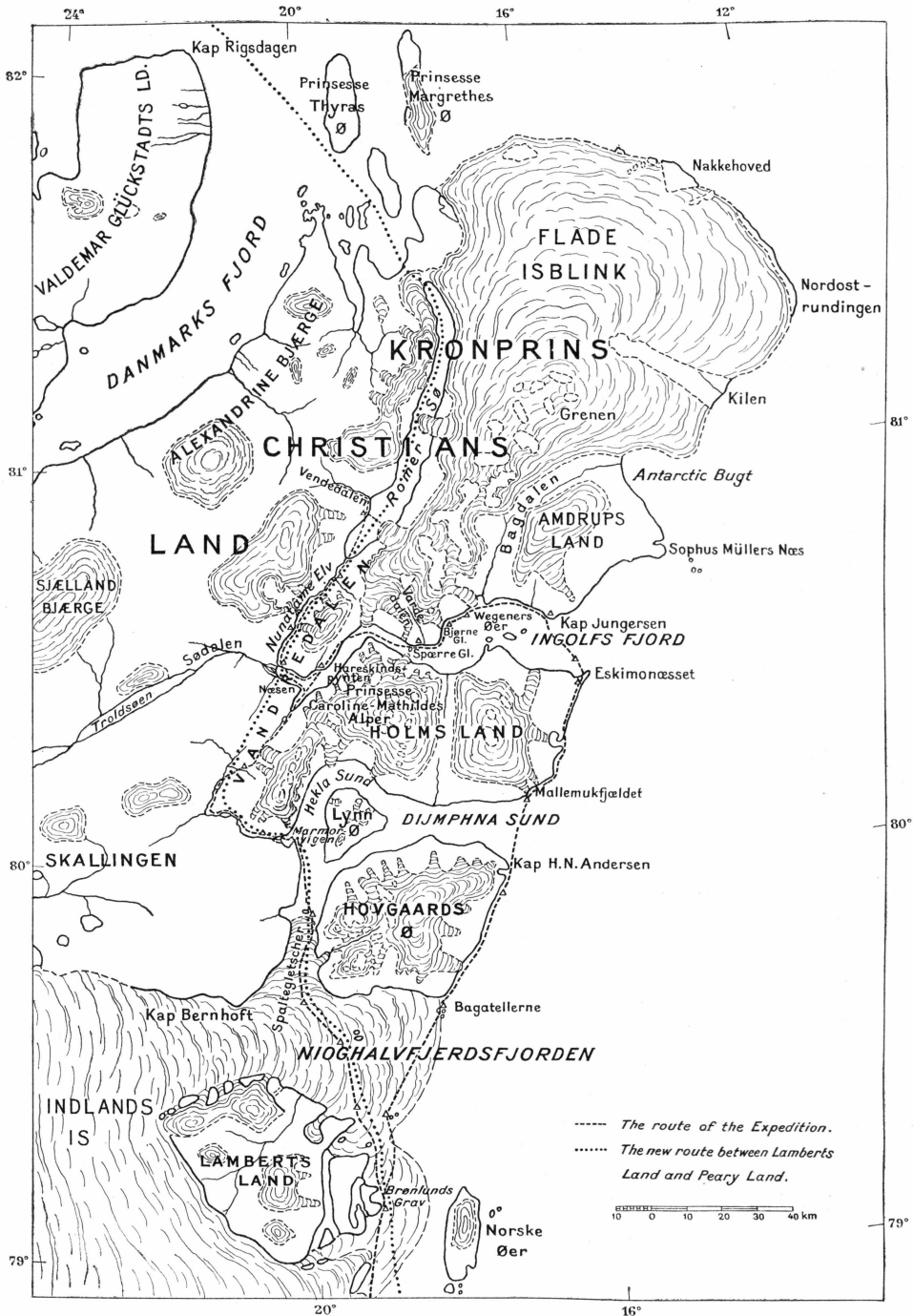


Fig. 8. East Greenland between 79° and 82° n. lat. showing the route of the expedition in the spring of 1939 and the new route between Lambert's Land and Peary Land behind the fjords on the east coast north of Lambert's Land.

fjord, a detour which enabled us to find the new route west about the fjord complexes north of Nioghalvfjerdingsfjorden.

If on a journey from the east coast to Peary Land or vice versa one has to live on hunting, the route along the outer coast has certain advantages to offer, as the chances of getting bear are very good there. On the other hand, the route behind the fjords passes through a hunting land where we observed and shot musk oxen, besides seeing bear tracks. Furthermore, the time gained by travelling along the shorter route is of vital importance. All in all this route is recommendable as the more advantageous.

In the year we were in these regions the precipitation everywhere was a good deal above the average. As a result, the going was not always of the best; here and there, as for instance under the south coast of Hovgaards Ø and around the mouth of Ingolfs Fjord, it was in fact extremely bad. But along the entire stretch behind the outer coast the going was good on the whole and the terrain suitable for sledge-driving.

From the east side of Lamberts Land and northwards in through Nioghalvfjerdingsfjorden as far as Spaltegletscher there is slightly rugged glacier ice with no crevasses if one keeps well out from the shore. I should say that the ascent here is of no more than fifty metres or so and thus is scarcely perceptible. The run down the glacier to the head of Dijmphna Sund may give some trouble if one fails to keep to the middle of the glacier, where there are fewer crevasses. G. THOSTRUP and WEGENER, who travelled this way in the spring of 1907, encountered places that were difficult to pass; but the route shown on the map of the Danmark-Expedition reveals that they kept to the east side of the glacier. We kept a course down the middle of it and had an excellent run.

Along the west side of Dijmphna and Hekla Sund the snow was firm; for long distances, especially around the south corner of Marmorvigen, we drove on bare ice. During his flight on August 16th 1933 LAUGE KOCH saw open water here. At that time the remainder of Dijmphna and Hekla Sund was still icebound (LAUGE KOCH 1940 pp. 292—293).

At the head of Marmorvigen is the mouth of the river that drains the southern part of Vandredalen. By following the course of this river one can drive over bare ice for the first 25 to 30 kilometres. There are a few low gravel banks stretching across the river bed on its lower course. The river has no fall of any significance, and the depth of water is slight. On the way down from the south arm of Ingolfs Fjord we passed along the east side of the valley, where we were up at a height of about 200 metres close in under the foot of the two large glaciers which emerge from the land on the east. This route, however, I should say is less good when coming from the south or from Romer Sø. As far as we could judge,

the west side of the valley presented a better route. There the valley bottom seemed to be even and covered with snow, though there were some moraine mounds and rock. The route is more direct for an expedition travelling on northwards or southwards.

The country round about Ingolf Fjord's northern arm, like the first half of the valley to the north of it, was almost bare of snow while we were there. But throughout its lower course Nunatâme Elv is so broad that it forms an excellent trail; nevertheless, for travellers with dog sledges it may give some trouble getting the dogs along on the slippery freshwater ice, especially if there is a head wind at the same time. In places the river has the character of a row of elongated lakes, often a kilometre or more in width. The fall towards the fjord is hardly perceptible. Along its entire length (about 35 km) the river falls only 180 metres.

At the head of Ingolfs Fjord, too, LAUGE KOCH saw open water when he flew over it in August 1933. When we were there we had bare ice in the inner half of the northern arm. The southern arm was covered with snow, but the going was not bad along the west side. Up towards Romer Sø the valley flattens out and the high moraine mounds around the lower course of Nunatâme Elv become fewer and lower up here. The snow was firm and much eroded when we drove over it. Apparently the wind had blown strongly out through the valley. As far as the most northerly point we reached on the journey, Vendedalen on the western shore of Romer Sø, the going was splendid. I assume that it must be more or less the same higher up the lake. The first of the two large glaciers on the east side of Romer Sø is not productive. It projects some distance into the lake, but the passage between the glacier and the opposite bank is about 4 km wide. As regards the larger glacier more to the north it looked to me as if there was a good passage west of it on the lake ice. Presumably this glacier is not productive either.

According to LAUGE KOCH the distance between the northern bank of Romer Sø and the mouth of Danmarks Fjorden is about 10 km. Seen from the air this passage should not present any difficulty, but the fall here must be more perceptible, as according to our barometer readings the surface of the lake must lie about 180 metres above sea level.

Along the entire stretch from Romer Sø to Dijmphna Sund we found no tangible trace of earlier habitation or of human activity at all. It is therefore still an open question whether the Eskimos of old used this valley as a migration road during their wandering from the west coast to the east. In any case, it is natural to think that the musk ox must have come by that route from Peary Land. The land is typical musk ox country, with even, partly snowfree mountain slopes. We also made a vain search for traces of MYLIUS-ERICHSEN and his companions,

here and in Nioghalvfjerdingsfjorden and the small islets in that fjord. It was possible that on their way down from the interior of Danmarks Fjorden they crossed the flat country between Sjælland Mountains and Skallingen and reached the southern part of Vandredalen. But though we made a very careful search of this part of the route for this very purpose, we were unsuccessful in finding a single clue pointing in that direction.

In conjunction with I. P. Kochs Fjord and Wandels Dal south of Peary Land, Vandredalen forms a continuous route between east and west—a short cut that is much shorter and better than the route along the outer coast. Perhaps the presence of this migration road will open a new perspective to the many problems which are still associated with the ancient Eskimo wanderings in these little known parts of Greenland.

REFERENCES

1. Literature.

- G. AMDRUP: 1913. Report on the Danmark-Expedition to the North-east coast of Greenland 1906—1908. Medd. om Grøn. Bd. 41, pp. 1—270. With 24 plates and four portraits.
- I. P. KOCH: 1912. Danmark-Ekspeditionens Kort. Geogr. Tidsskr. Bd. 21. Hft. 5, pp. 167—177. With 7 maps.
- 1916. Survey of Northeast Greenland. Medd. om Grøn. Bd. 46. Nr. 2, pp. 81—468. With 6 pls. and 67 figs.
- LAUGE KOCH: 1926. Report on the Danish Bicentenary Jubilee Expedition North of Greenland 1920—23. Medd. om Grøn. Bd. 70. Nr. 1, pp. 1—232. With 105 figs. and 13 maps.
- 1935. A day in North Greenland. Geografiska Annaler (Sven Hedin) pp. 609—620. Stockholm 1935.
- 1940. Survey of North Greenland. Medd. om Grøn. Bd. 130. Nr. 1, pp. 1—364. With 56 figs. and an atlas with 21 plates.
- EIGIL KNUTH: 1942. Report on the Expedition and on subsequent work at the Mørkefjord Station. Medd. om Grøn. Bd. 126. Nr. 1, pp. 1—159. With 48 figs. and 1 plate.
- EINAR MIKKELSEN: 1922. Alabama-Expeditionen til Grønlands Nordøstkyst 1909—12. Medd. om Grøn. Bd. 52, pp. I—VIII + 1—142. With 8 pls. 63 figs.
- EIGIL NIELSEN: 1941. Remarks on the map and the geology of Kronprins Christians Land. Medd. om Grøn. Bd. 126. Nr. 2, pp. 1—34. With 9 figs. and 1 map.
- ALWIN PEDERSEN: 1942. Säugetiere und Vögel. Medd. om Grøn. Bd. 128. Nr. 2, pp. 1—119. With 34 figs.

2. Maps.

- Nordöst-Grønland (nordlige Blad) Scale 1:1,000,000. Medd. om Grøn. Bd. 46. Nr. 2. Pl. IV. (I. P. KOCH 1916).
- Map of East Greenland (70°—77° n. lat.). Scale 1:2,000,000. Based upon previous maps and air surveys by LAUGE KOCH 1932. Issued by Geodætic Institute of Copenhagen 1933.
- Map of East Greenland (76°—c. 82°45' n. lat.). Scale 1:2,000,000. Based upon previous maps and air surveys in 1933 by LAUGE KOCH. Geografiska Annaler (SVEN HEDIN) Stockholm 1935. (LAUGE KOCH 1935).

Nordöstgrönland fra $79^{\circ}45'$ til 82° n. Br. Scale 1:500,000. Map-sketch made by the Danish Northeastgreenland Expedition and the Drastrup-Expedition 1938—39 on the basis of existing maps. Medd. om Grønland. Bd. 126. Nr. 2. Pl. 1. (EIGIL NIELSEN 1941).

Sketch map of Northeast Greenland from lat. 76° to lat. 83° . Scale 1:2,000,000. Based on previous maps and with corrections sketched from observations made on sledge-journeys by the Danish Northeast Greenland Expedition 1938—39 and by the Drastrup-Expedition, which kindly allowed us to use the bearings taken in the interior of Kronprins Christians Land. Medd. om Grønland. Bd. 126. Nr. 1. Plate 1. (EIGIL KNUTH 1942).
